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CLIMATIC ATLAS
OF THE OUTER CONTINENTAL SHELF WATERS AND COASTAL REGIONS OF ALASKA

VOLUME I GULF OF ALASKA

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NCC

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Acknowledgements

Much of the extremes data for the first section came from files at the Arctic Environmental Information and Data Center (AEIDC), University of Alaska. Many of these are handwritten, individual station records, maintained by the National Weather Service's state climatologist for many years and, more recently, by AEIDC. Surface weather data, summarized by the U.S. Air Force Air Weather Service's Environmental Technical Applications Center, were used for the detailed weather statistics on precipitation, obstructions to vision, snowfall, snow depth, and aviation weather. The National Weather Service, Alaska Regional Forecast Center supplied most of the data on storm surges along the Bering, Chukchi, and Beaufort Sea coasts.

We would like to give special thanks to the AEIDC graphics staff who worked many hours preparing maps and graphic presentations and organizing the material for printing.

The maps, graphs, and tables in the second section are the result of efforts by many people (aided by modern data processing equipment) at NOAA's National Climatic Center (NCC) in Asheville, NC. Special acknowledgement is given to members of the Computer Support Branch, who performed the voluminous data processing, to Joe E. Elms and Albert W.Y. Chen of the Applied Climatology Branch for their editorial evaluation of the analyses, and to Dr. Harold L. Crutcher and M. Lawrence Nicodemus of the Science Advisory Staff for the statistical presentation of return periods for maximum sustained winds for selected coastal stations.

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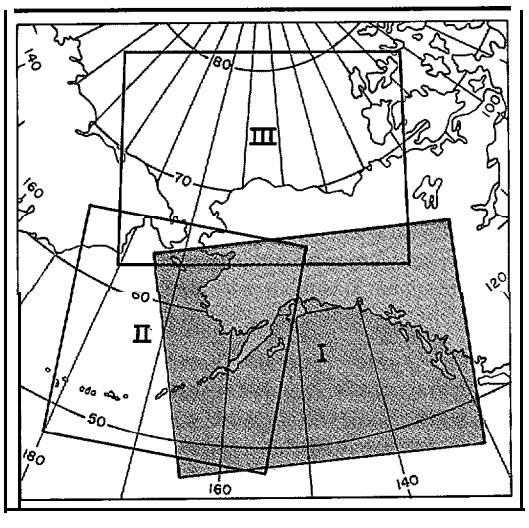
Abstract

This project attempts to establish the present knowledge of climatological conditions in three Alaskan marine and near coastal areas that are important to resource development of the outer continental shelf-The Gulf of Alaska (Vol. I), The Bering Sea (Vol. II), and The Chukchi and Beaufort Seas (Vol. III) as shown on the map below.

The maps, graphs,and tables in the atlas present a detailed climatic profile of the marine and coastal regions of Alaska. Statistics detail means, extremes, and percent frequency of occurrence of threshold values for these elements: wind, visibility, present weather, sea level pressure, temperature, clouds, and waves and such supplemental information as storm surges, tides, sea ice, surface currents, bathymetry, detailed weather, and aviation weather. Data came from 600,000 surface marine observations and 2 million observations for 49 coastal land stations and provide the best possible climatological picture of the outer continental shelf waters and coastal regions of Alaska.



Introduction

The nature of man's offshore activities depends to a large extent on weather conditions. Knowledge of these conditions can help insure efficient and safe operations. Extreme weather conditions that may be encountered in a given location largely determine the design, construction, and operation of permanent platforms and structures in the ocean as well as onshore support activities. Weather information also aids in assessing the onshore impact of offshore activities.

This atlas is the result of a joint effort by Arctic Environmental Information and Data Center (AEIDC), University of Alaska, and the National Climatic Center/National Oceanic Atmospheric Administration (NCC/NOAA) to present descriptive climatology and data analyses of surface marine and atmospheric parameters for those waters and coastal regions of the Alaskan outer continental shelf important to resource development. It is designed to serve as a climatological reference in the assessment of potential impact by oil and gas exploration and development and of leasing and operating regulations and monitoring programs that will permit resource development and insure environmental protection.

The evaluation is in the form of a climatic atlas for each of three marine and coastal areas: The Gulf of Alaska (Vol. I), The Bering Sea (Vol. II), and The Chukchi and Beaufort Seas (Vol. III).

The first section in each volume contains information on such hazards as storm surges, superstructure icing, hypothermia, and wind chill; extremes data on winds, temperature, and precipitation; and planning information on surface currents, bathymetry, sea ice, and aviation weather. The second section presents a detailed climatic profile in the form of isopleth analyses, graphs, and tables.

Selected Topics in Marine and Coastal Climatology

James L. Wise
Harold W. Searby

Storm Surges

Whenever an intense storm crosses or approaches a coastline, some portion of the shore will experience an increase in sea level and another will experience a decrease. Storm surges are the difference-positive or negative-between observed sea level and sea level that would have occurred without a storm. Storm surges are usually estimated by subtracting normal astronomical tide from the observed tide. Negative surges can affect shipping by grounding ships in harbors or shallow shipping lanes during low tide. However, the combination of a positive storm surge with high tide often damages beaches and man-made installations far beyond the normal tidelands level.

Several processes may combine to cause storm surges (Pore and Barrieness 1975). These include the direct wind effect, the atmospheric pressure effect, the transport of water by waves and swell, the effect of the earth's rotation, the rainfall effect, and the effects of coastline configuration and bathymetric conditions.

Direct Wind Effect-The rise of water from the wind consists of a component caused by the onshore wind and one caused by wind oblique to the shore. An onshore wind will cause water to move in the direction of the wind due to the drag exerted on the water by the movement of air. Its effects are directly proportional to the wind stress and inversely proportional to water depth. The effect of wind oblique to the shore comes from a wind-generated current which is parallel to the shore and has a higher level to the right of the flow.

Atmospheric Pressure Effect-The rise of the surface of the ocean in an area of low atmospheric pressure has been called the inverted barometer effect. This amounts to a rise in sea level of about 13.16 inches for an atmospheric pressure fall of 1 inch of mercury, or 30 millibar pressure change for each 0.305 meters (1 foot) in sea level.

Transport of Water by Waves and Swell-The maximum contribution of waves and swell to the storm surge may occur at times other than the peak intensity of the storm. Swell generated over open water some distance from shore may arrive at the shoreline at a different time than the storm itself. A long fetch allows more time for waves to form and move as swell along with the winds of the storm, thus producing a higher storm surge overall.

Effects of the Earth's Rotation-The earth's rotation accelerates any current in the northern hemisphere to the right. This deflection force, called the Coriolis effect, depends on the speed of the current and the latitude. Winds parallel to a coast will generate a current in the same direction. The resulting acceleration to the right creates water motion that can increase water level.

Rainfall Effect-Hurricanes and extratropical storms usually bring heavy precipitation to large geographic areas. The resulting runoff can increase sea level near the mouths of tidal estuaries.

Effect of Coastline Configuration and Bathymetric Conditions-Bottom topography near shore is an important determinant of the amplitude of a storm surge. Gently sloping offshore bottom topography on the continental shelf promotes higher storm surges than a steep continental shelf.

The configuration of the coast also affects the resulting storm surge. Wave energy will diverge at coastal indentations such as coves and converge at coastal headlands or points, so stronger surges occur where land juts out into the sea.

Tidal gauges probably do not record the highest water levels of major storms because tide gauges are usually spaced so far apart that the highest levels most likely occur between the gauges.

The graph and map in Set No. 18, low pressure center movement roses and storm track maps, show at least one primary storm track moving into the Gulf of Alaska each month. August has the greatest number of storms west of **160** degrees west longitude and October east of there. There is a secondary maximum from March to May. Minimum storm frequency is in January west of 150 degrees west longitude and July to the east.

No damage due to storm surges in coastal areas of the Gulf of Alaska has been reported. This is probably because:

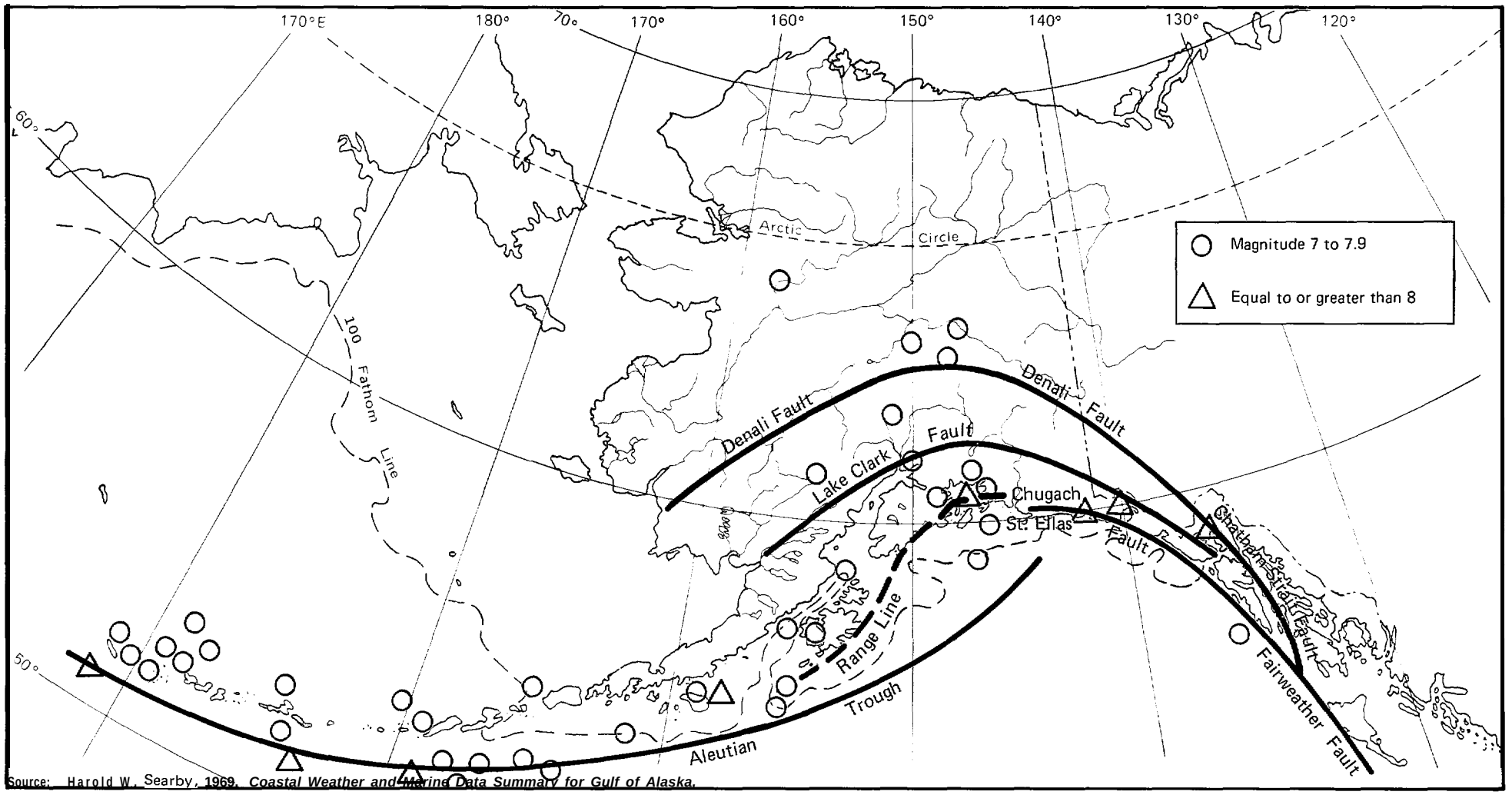
1. Most shore areas are steep and rocky, so buildings and shore installations are well above sea level.
2. The steep bathymetry of the immediate shore areas does not favor the development of high breaking waves. **(Figure 1)**
3. Most of the large harbors are sheltered from areas where the largest storm waves are generated. The harbors at Anchorage, Seward, Kodiak, Whittier, Valdez, Juneau, and Ketchikan are all located in coves, inlets, or bays with some protection from the open seas.
4. Normal tide ranges are large, more than 8.5 meters (29 feet) at Anchorage for instance, so unless **a storm surge** occurs **along** with low or high tide it would go unnoticed.

However, there are severe storms in the Gulf of Alaska-some with winds of 100 knots or more. On December 1, 1966, the town of Valdez experienced winds estimated at 100 knots causing severe damage to residences, mobile homes, the hospital, city hall, and several buildings under construction. On June 1, 1971 a storm sank three fishing vessels and ran another four aground in the Copper River delta fishing grounds near Cordova. On January 14-15, 1971 and October 1, 1974 winds of 90 and 100 knots occurred at the port of Anchorage. Portage Pass at the west end of the Turnagain Arm of the Cook Inlet is notorious for its strong winds.

Strong winds channeled through mountain passes, river valleys, and canyons will often extend offshore 30 n. miles or more; satellite photos indicate up to 50 n. miles. One such occurrence was at Akutan Harbor in the Aleutians on September 3, 1970. Winds of 60 knots with gusts to **110 were** reported in the harbor by a ship which was damaged by winds. These winds were probably a local effect of a storm and the configuration of the Akutan Harbor, which is about two n. miles wide and four n. miles long with steep mountains on three sides and elevations of up to 1300 meters (4,275 feet) to the west.

Tidal waves generated by earthquakes are a significant hazard in the Gulf of Alaska. Figure 2 shows the location of the major faults in the Alaskan area and the location of earthquakes of magnitude 7.0 or greater in the area for a 65-year period. One of the strongest earthquakes recorded in North America occurred on March 27, 1964 in the Prince William Sound area. Tsunamis caused most of the damage at the coastal locations of Kodiak, Cordova, and Seward. Valdez was destroyed by a wave and was subsequently rebuilt at its new location a few miles away. Other smaller villages were destroyed and relocated as well. Another large earthquake on April 1, 1946 generated a tidal wave estimated at about 30 meters (100 feet) that destroyed the lighthouse at Dutch Harbor. The gulf area is also subject to tsunami damage from earthquakes which occur anywhere in the faults that rim the north Pacific coasts of North America and Asia.

Figure 1 **Bathymetry** and **topography**



Source: Harold W. Searby, 1969. *Coastal Weather and Marine Data Summary for Gulf of Alaska, Cape Spencer Westward to Kodiak Island.* U.S. Environmental Science Services Administration.

Figure 2 Earthquakes

Legend

Surface Currents

Surface currents information is from the *U.S. Navy Marine Climatic Atlas of the World Vol II, North Pacific,* which is currently being revised. Mean speeds and directions of surface currents are derived from random ships' observations, specific scientific cruise studies, and theoretical considerations. More recent studies have differed with these depictions somewhat, especially in the Gulf of Alaska and the Bering Strait in summer. Rover (1975) and Ingraham (1976) found evidence of currents flowing east and south along the north and east coasts of the gulf with a weak closed anticyclonic (clockwise) circulation in the northeast Gulf of Alaska. The strength of this circulation varies from year to year in the weak summer flows. When this closed circulation develops, the northward flowing Alaska Current is displaced to the west. Coachman and Aagaard (1966) found a weak sporadic current flowing southward along the west coast of the Bering Strait. They also noted that strength of flow through the strait varied by a factor of five within a week.

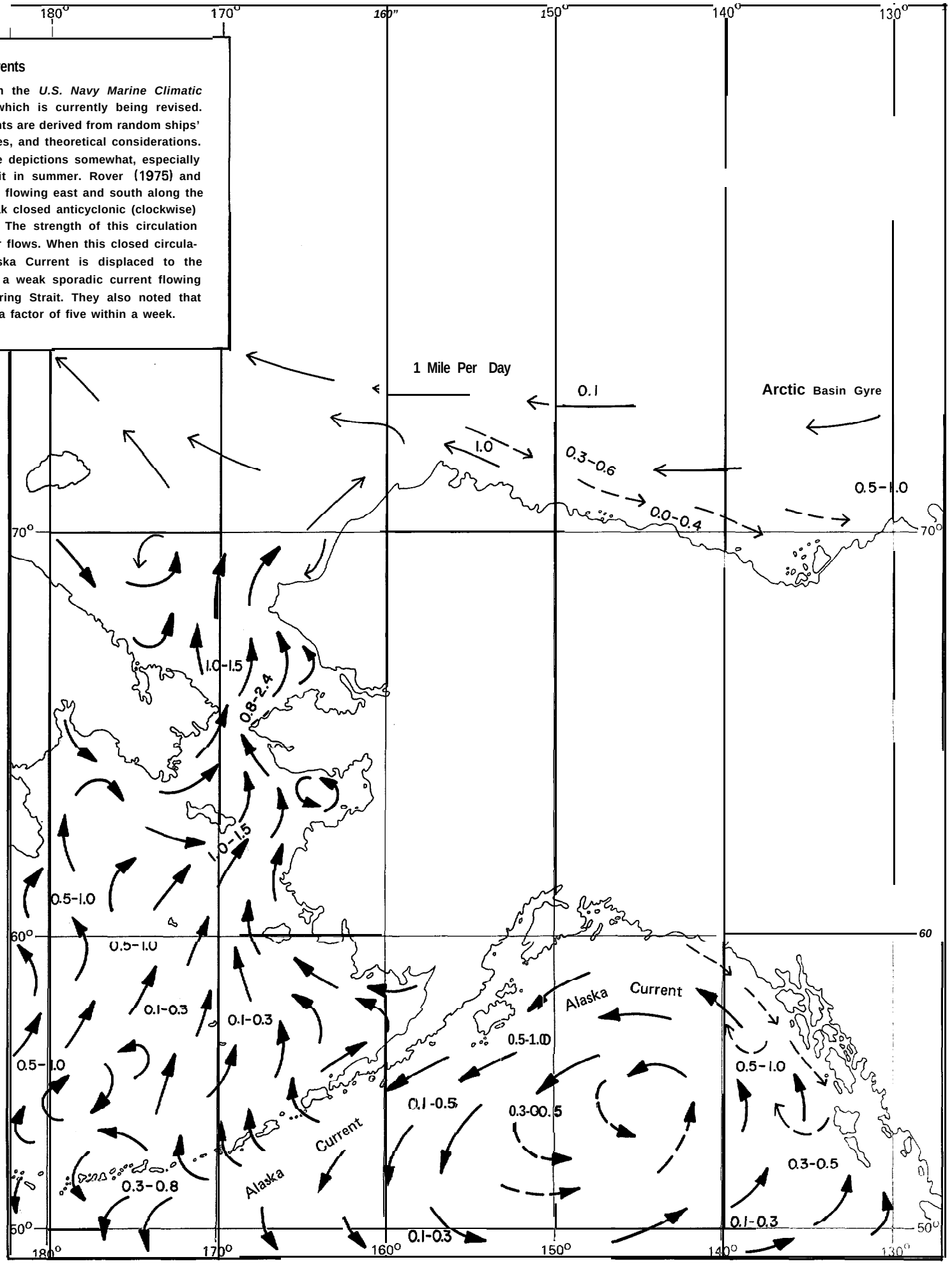


Figure 3 Summer sea surface currents

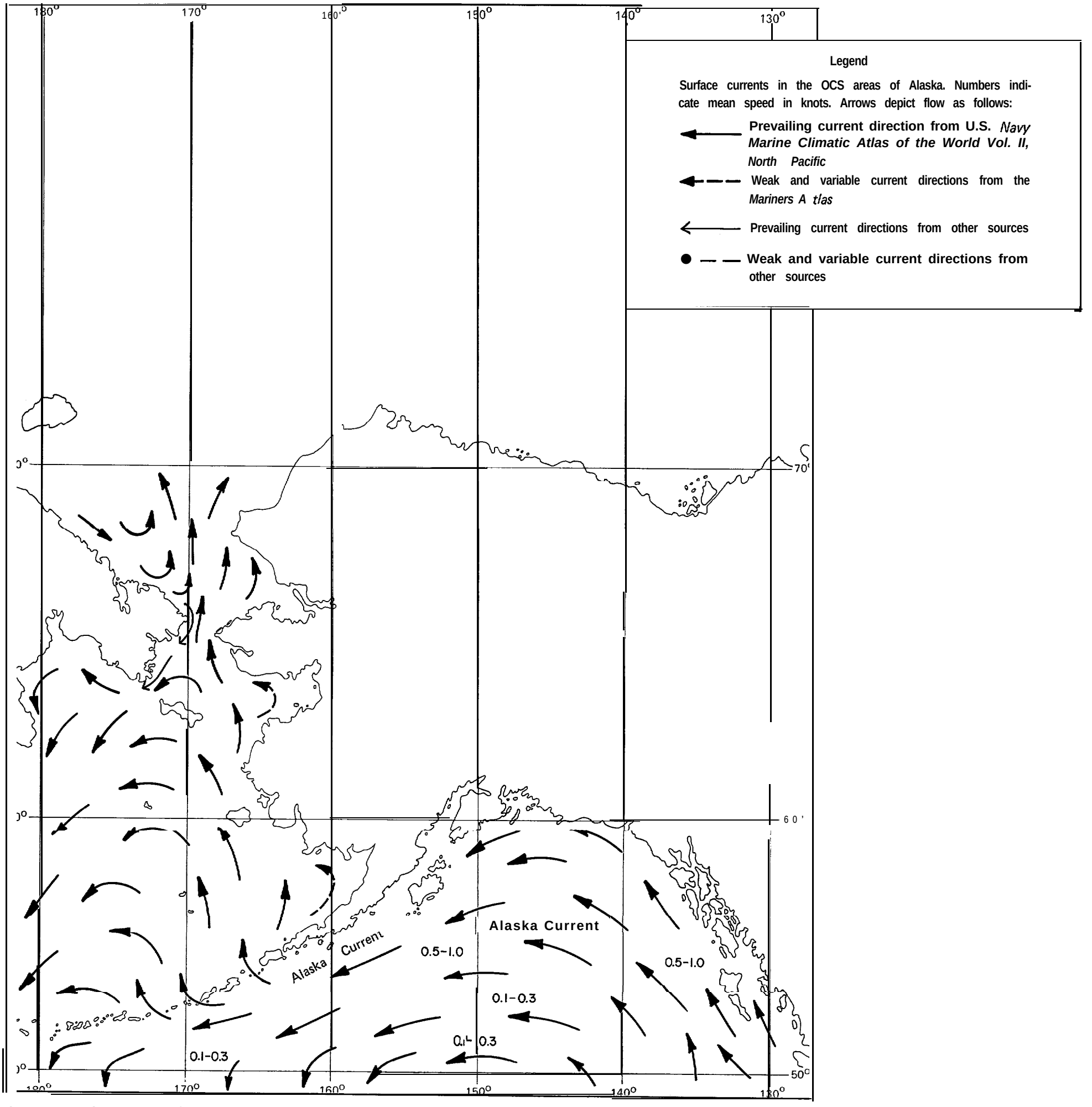


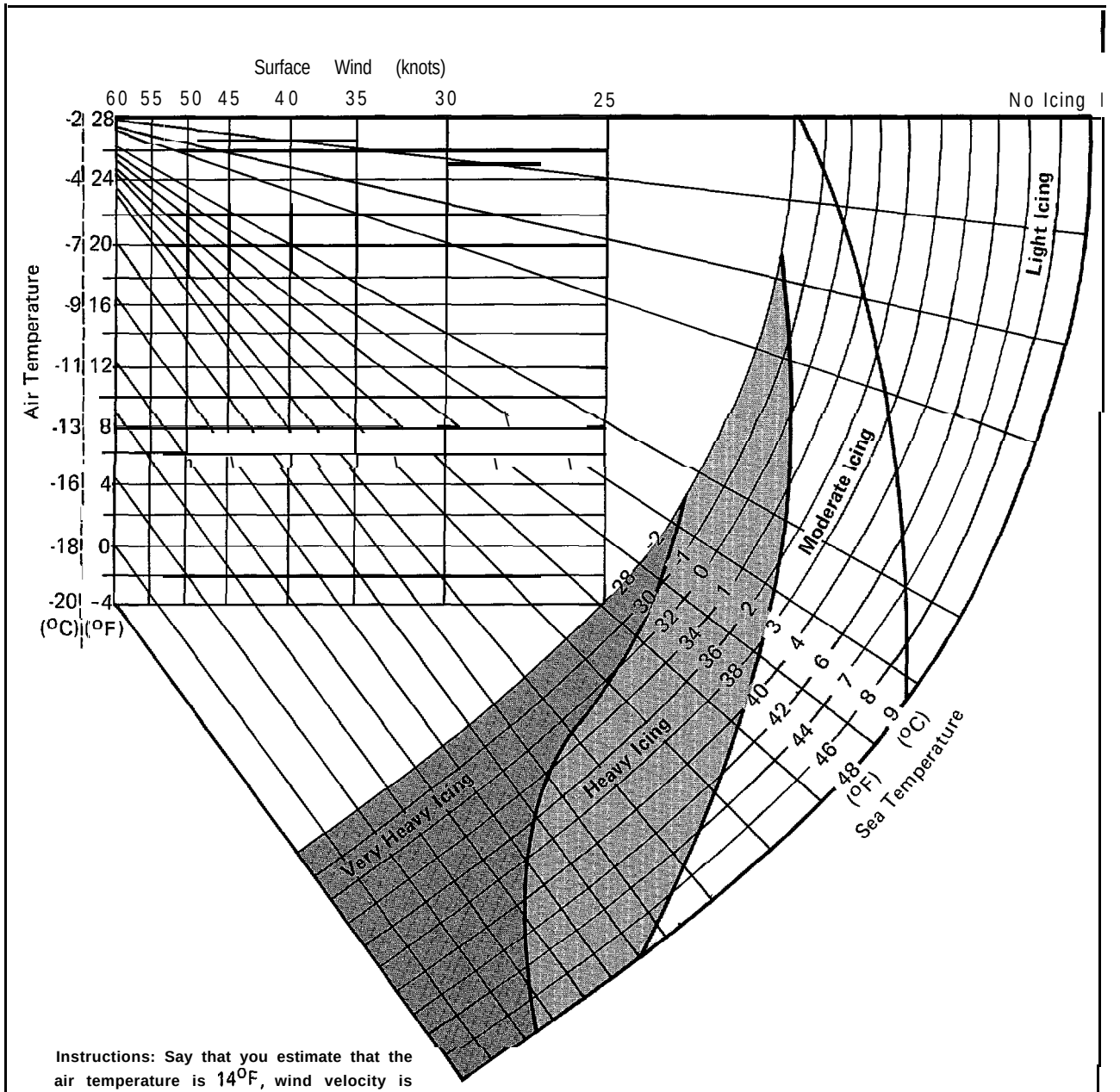
Figure 4 Winter sea surface currents

Superstructure Icing

Ice accretion is a complex process that depends on sea conditions, atmospheric conditions, and the ship's size and behavior. Icing can be caused by heavy sea spray, freezing rain, or fog. It can mean no more than slippery decks on large merchant vessels since they often pass quickly through icing conditions and experience less wave wash in rough seas because of their high freeboard. At other times, even large vessels may experience problems. Smaller ships with relatively lower freeboard, such as fishing vessels, small merchant ships, and coast guard cutters, are susceptible to wave wash in rough seas. Icing can greatly increase a vessel's weight and elevate the center of gravity, making it top heavy. Ice may increase the sail area and heeling moment due to wind action, and trim can be changed because of nonuniform ice distribution. Icing also hampers steerability and lowers ship speed. Similar, potentially dangerous stresses can occur on oil-drilling and other stationary platforms.

Freezing spray is the most common and dangerous form of icing. It can occur when the air temperature falls below the freezing temperature of sea water (usually about -2°C) and when sea surface temperatures are below about 5°C. If the air temperature falls below about -18°C, wind-induced spray may freeze before striking the ship and not adhere. The lower the temperature and the stronger the wind, the more rapidly ice accumulates. Freezing spray may deposit thick layers of ice on rigging or on deck areas, rapidly increasing the vessel's weight, which can cause it to sink.

The National Weather Service's regional offices at Anchorage and Fairbanks routinely issue structural icing forecasts as part of their marine forecasting program. Figure 5 is a nomograph used by the NWS in forecasting spray icing. Data from sets Nos. 5, 14, and 15 can be used with this nomograph to estimate the severity of spray icing for any month of the year. The nomograph does not apply when sea ice reduces the amount of wind-generated spray.



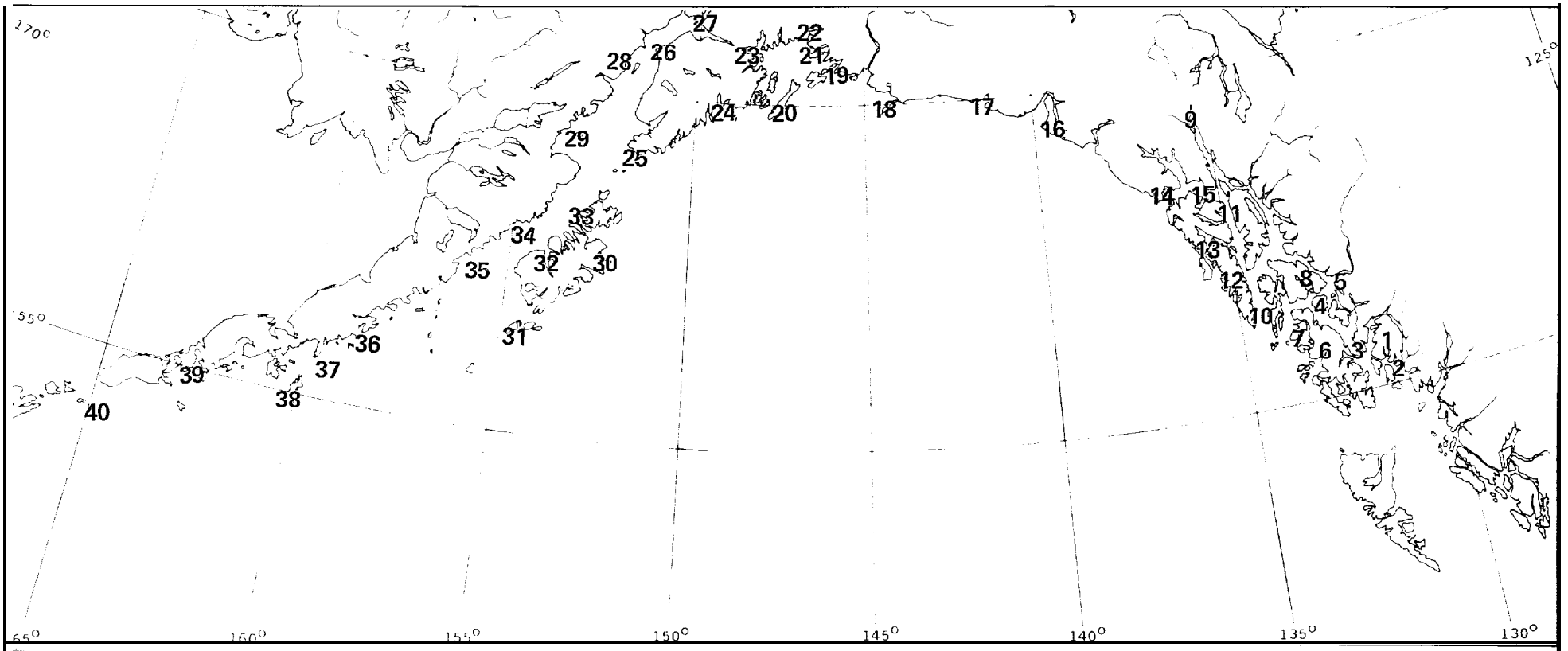
Instructions: Say that you estimate that the air temperature is 14°F, wind velocity is 30 knots, and the sea temperature is 32°F. Enter the nomograph on the 14°F line. Follow this line to the 30 knot wind velocity line. From the intersection of the two lines, follow the diagonal line to the appropriate water temperature line. At the intersection read off the icing category-in this case, heavy icing.

The icing categories used by the NWS are:

Category	Accumulation
Light	0.4" to 1.4" in 24 hours
Moderate	1.4" to 2.6" in 24 hours
Heavy	2.6" to 5.7" in 24 hours
Very Heavy	5.7" + in 24 hours

Adapted from: Comiskey, A. 1976. Vessel Icing-Know When to Expect It. *Alaska Seas and Coasts,* University of Alaska, Alaska Sea Grant Program. 4(5); pp. 6-7.

Figure 5
Nomograph for forecasting spray ice accumulation



1 Ketchi kan	2 Tamgas Harbor	3 Kasaan	4 Thorne Island	5 Wrangell	6 Craig	7 Edna Bay	8 Kupreanof Island	9 Haines	10 Port Alexander
15.4	15.0	15.4	15.6	15.7	10.0	10.8	15.2	16.8	11.4
23.3 | 3.8	23.1 | 3.6	23.5 | 4.0	23.2 | 3.7	23.6 | 3.8	15.3 | 1.7	16.0 | 2.4	23.2 | 3.7	25.2 | 4.5	16.4 | 2.8
19.2 | -4.1	18.9 | -4.2	19.4 | -4.1	19.3 | -3.9	19.5 | -4.1	12.7 | -2.8	13.5 | -2.7	19.0 | -4.2	20.6 | -4.6	14.0 | -2.6

11 Tenakee Springs	12 Sitka	13 Falcon Arm	14 Cape Spencer	15 Hoonah Harbor	16 Yakutat	17 Icy Bay	18 Wingham Island	19 Cordova	20 Macleod Harbor
14.7	9.9	10.2	10.3	14.8	10.1	9.9	10.1	12.4	11.0
23.3 | 2.6	15.1 | 1.5	15.5 | 1.9	15.5 | 1.9	23.4 | 2.7	15.2 | 1.6	15.0 | 1.4	15.1 | 1.5	18.4 | 2.2	17.1 | 0.9
18.6 | -4.7	12.6 | -2.7	13.2 | -2.5	13.1 | -2.6	18.7 | -4.7	12.7 | -2.6	12.5 | -2.7	12.6 | -2.7	15.5 | -3.4	14.2 | -3.4

21 Landloc ked Bay	22 Valdez	23 Whittier	24 Seward	25 Seldovia
11.9	12.0	12.3	10.5	17.8
17.8 | 1.6	18.0 | 1.8	18.3 | 2.1	16.6 | 0.4	27.9 | 3.8
14.9 | -3.4	15.1 | -3.4	15.3 | -3.3	13.6 | -3.5	22.7 | -5.8

26 Nikiski	27 Anchorage	28 Drift River Terminal	29 Iliamna Bay	30 Kodiak
20.7	29.0	18.1	14.5	8.5
33.5 | 3.3	38.9 | 11.7	29.8 | 2.0	22.9 | 2.6	13.5 | 1.1
25.9 | -7.6	33.4 | -5.7	23.2 | -7.3	18.4 | -5.0	10.7 | -2.8

31 Sitkinak Lagoon	32 Larsen Bay	33 Redfox Bay	34 Katmai Bay	35 Kamatok Lagoon
7.5	13.7	13.7	12.8	11.8
13.1 | 0.7	23.7 | 0.0	23.8 | 0.0	20.1 | 2.7	16.4 | 4.0
10.0 | -2.5	18.5 | -5.8	18.5 | -5.9	16.3 | -4.2	14.0 | -2.4

36 Anchorage Bay	37 Kupreanof Harbor	38 Sand Point	39 Cold Bay	40 Cape Sarichef
8.9	7.8	7.3	7.1	5.0
13.6 | 1.2	12.4 | 1.0	11.7 | 1.0	11.3 | 0.9	6.9 | 0.0
11.2 | -2.4	9.8 | -2.6	9.0 | -2.4	9.0 | -2.4	6.1 | -1.1

Legend

Diurnal Range	
Max diurnal	Min diurnal
Max tide	Min tide

Diurnal range is the average difference in height between mean higher high water and mean lower low water in feet on a single day.

Max diurnal and Min diurnal **are the maximum and minimum differences in feet respectively between the higher high water and lower low water that is predicted to occur during the year.**

Max tide is the highest tide predicted to occur at the location in feet above mean sea level.

Min tide is the lowest tide predicted to occur at the location in feet above mean sea level. A negative number indicates a level below mean sea level.

Prepared by AEIDC from Tide Tables. High and Low Water Predictions 1974. West Coast of North and South America, NOS/NOAA, 1973.

Figure 6 Tide data

Sea Ice

Most of the Gulf of Alaska does not have sea ice at any time during the year. Exceptions are the Cook Inlet, northeast Prince William Sound, and other stretches of coastline with shore ice. Sea ice is normally present in Cook Inlet from December through March, occasionally from November to as late as April. Prince William Sound usually has a shorter ice season. Shore ice occurs along the south shore of the Alaska Peninsula and along both sides of the Shelikof Strait and into Cook Inlet.

Substantial amounts of ice form in most of the coves and many of the bays in winter. The amount of ice varies, sometimes forming and breaking up several times in a season. Under low wind conditions, fresh water may freeze several inches thick on top of sea water. The greatest thickness of ice results from heavy snow accumulating on top of a layer of ice, then partial thawing of the snow and later freezing of the slush. This type of ice, consisting mostly of fresh water, can become as thick as 0.6 meters (2 feet). Bergy bits breaking off of coastal glaciers normally do not hinder shipping. On rare occasions bergy bits and growlers combine into **icebergs 18-25** meters (60 to 80 feet) across, presenting a hazard to small boats in Prince William Sound. Rarely does the ice that forms in bays, coves, and inlets leave the sheltered areas of origin, but when it does, it melts rather rapidly in the relatively warm and turbulent waters of the Alaska Current.

Legend

	0.1 Coverage	Open
	0.1-0.4 Coverage	Scattered
	0.5-0.7 Coverage	Broken

Approximate Maximum Extent of 0.1 or Greater Concentration

Site of Coastal Glacier

Note: Scattered pieces of ice may be encountered beyond the extreme limit

Climatological and Oceanographic Atlas for Mariners, Volume II North Pacific Ocean, U.S. Dept. of Commerce and U.S. Navy. 1961.

Western Arctic Sea Ice Analysis, 1972-1975, U.S. Navy Fleet Weather Facility, Suitland, Md.

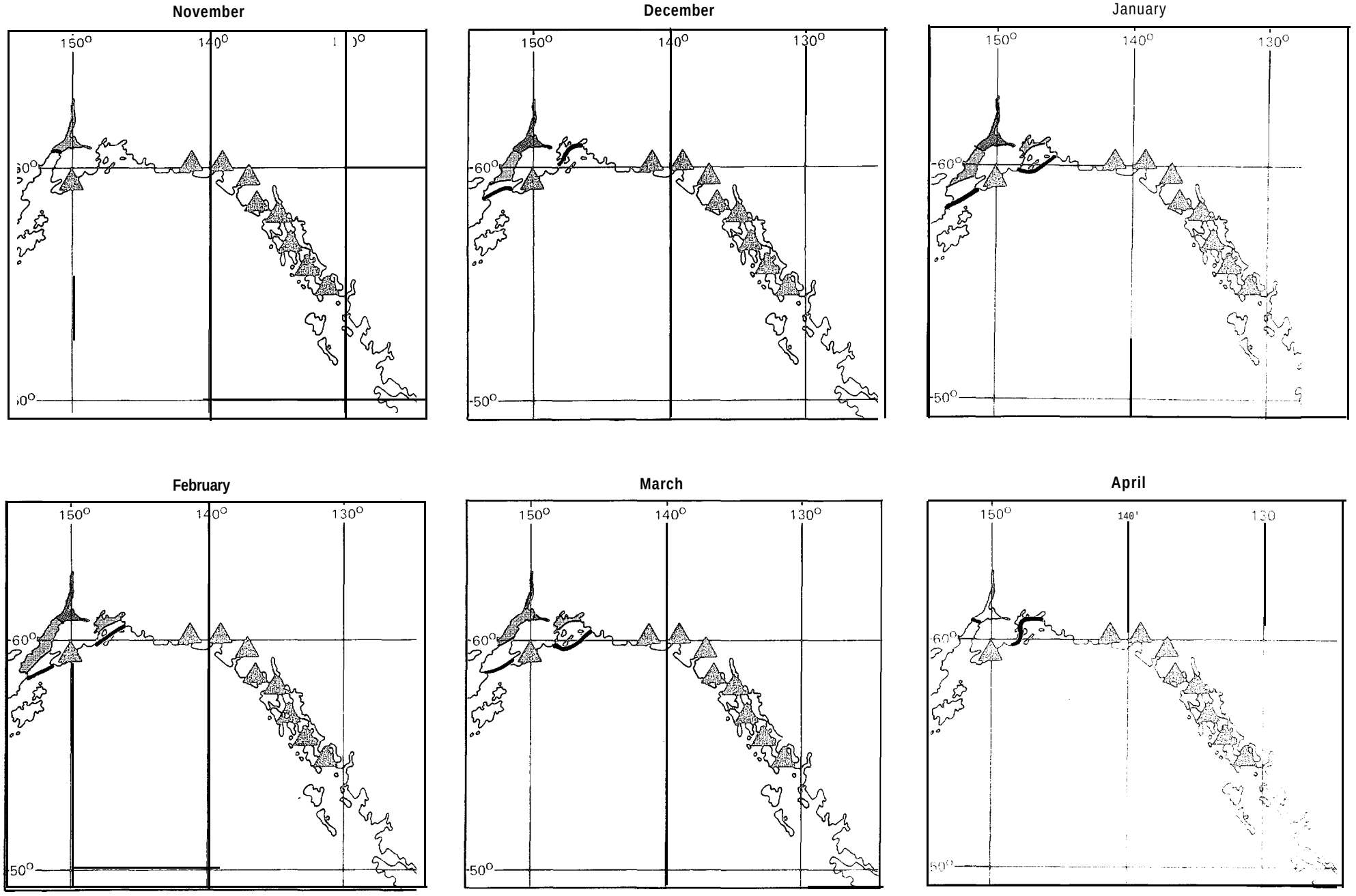


Figure 7 Sea ice

Immersion Hypothermia

Immersion hypothermia is the loss of heat when a body is immersed in water. With few exceptions, humans die if their normal rectal temperature of approximately 37.6°C drops below 25.9°C. Cardiac arrest is the most common direct cause of death. Except in tropical waters warmer than 20° to 25°C, the main threat to life during prolonged immersion is cold or cold and drowning combined.

Cold lowers body temperature, which in turn slows the heart beat, lowers the rate of metabolism, and increases the amount of carbon dioxide in the blood. Resulting impaired mental capacity is a major factor in death by hypothermia. Numerous reports from shipwrecks and accidents in cold water indicate that people can become confused and even delirious, further decreasing their chances of survival.

The length of time that a human survives in water depends on the water surface temperature and, to a lesser extent, on the person's behavior. Figure 8 shows the approximate human survival time in the sea. Body type can cause deviations. For example, thin people become hypothermic more rapidly than fat people. Extremely fat people may survive almost indefinitely in water near 0°C if they are warmly clothed.

The cooling rate can be slowed by the person's behavior and insulated gear. Wilson (1976) closely monitored more than 500 immersions in the waters around Victoria B.C. with temperatures ranging from 4° to 16°C. Using the information obtained from his research, Wilson reasoned that if the critical heat loss areas could be protected, survival time would increase. The Heat Escape Lessening Posture (HELP) was developed for those in the water alone and the Huddle for small groups. Both require a life preserver. HELP involves holding the upper arms firmly against the sides of the chest, keeping the thighs together, and raising the knees to protect the groin area. In the Huddle, people face each other and keep their bodies as close together as possible. These positions improve survival time in 9°C water to four hours, approximately two times that of a swimmer and one and one-half times that of a person in the passive position.

Sensible Climate Elements

Extremes data were gathered through a search of all available records deemed reliable, some dating back to the 1800s. Weather records of the U.S. Army Signal Corps and, more recently, those of the National Weather Service and the weather services of the U.S. Air Force and Navy were included, as were data tabulations prepared by the National Climatic Center.

Figure 9 presents annual means and extremes of temperatures, precipitation, snowfall, and wind for island and coastal locations for which data are available. These data are useful in planning for average as well as least favorable conditions. Figure 10 (Precipitation intensities) data indicate the percent frequency of occurrence of precipitation amounts based on daily observations for the wettest month, the driest month, and annually. These data are useful in the design of storm drainage systems, culverts, and shore-based support facilities. Figure 11 (Snowfall and snow depth) statistics show the month(s) with the greatest snowfall and snow depth and annual statistics. Percentages shown in the annual column are averaged over 12 months. If, as in some cases, several months of the year have no snowfall or snow depth, this condition is indicated by showing the actual number of months with snow. Figure 12 (Type of precipitation) shows the percent frequency of occurrence of precipitation by type, based on hourly observations with no regard to intensity. These data are useful in planning surface transportation systems, construction schedules, and recreational activities. Figures 13 and 14 (Visibility obstructions and Ceiling and visibility data) are especially useful for pilots and others planning flying activity. AEIDC and NCC can provide more detailed monthly and daily statistics.

Maps in set No. 17 (Wave height thresholds and hazardous sea conditions) show maximum wave heights. These were taken from tabulated reports of maximum wave heights supplied by the National Climatic Center and were supplemented by observations from various volumes of the *Mariners' Weather Log,* a publication of NOAA's Environmental Data Service.

Water Temperature	Exhaustion or Unconsciousness	Expected time of Survival
0°C	15 min	15-45 min
0°– 5oc	15-30 min	30-90 min
5°–10°C	30-60 min	I- 3hrs
1 0°– 15oc	I- 2 hrs	I- 6hrs
15°–20°C	2– 7 hrs	2-40 hrs
20°–25°C	3-12 hrs	3-indefinite hrs
250C	Indefinite	Indefinite

Figure 8
Survival time versus water temperature

6.7	0.8
25.6	-25.0
33.23	
9.97	4.90
51.9	
23.4	11.4
24	
SSE	17.0
SSE	73

1 Cold Bay

7.4	2.2
30.0	-24.4
56.71	
13.07	4.44
95.0	
74.5	17.8
30	
M	10.2
NW	55

2 Kodiak

5.6	- 0.8
27.2	-26.1
27.85	
8.59	2.10
101.5	
48.6	15.0
46	
M	M
M	M

3 Homer

5.3	- 4.3
33.9	-44.4
18.94	
7.07	2.00
63.6	
59.2	13.3
57	
N	7.6
N	47

4 Kenai

6.2	- 2.8
29.4	-36.7
14.74	
5.43	2.06
69.8	
48.5	17.7
47	
N	6.6
N	61

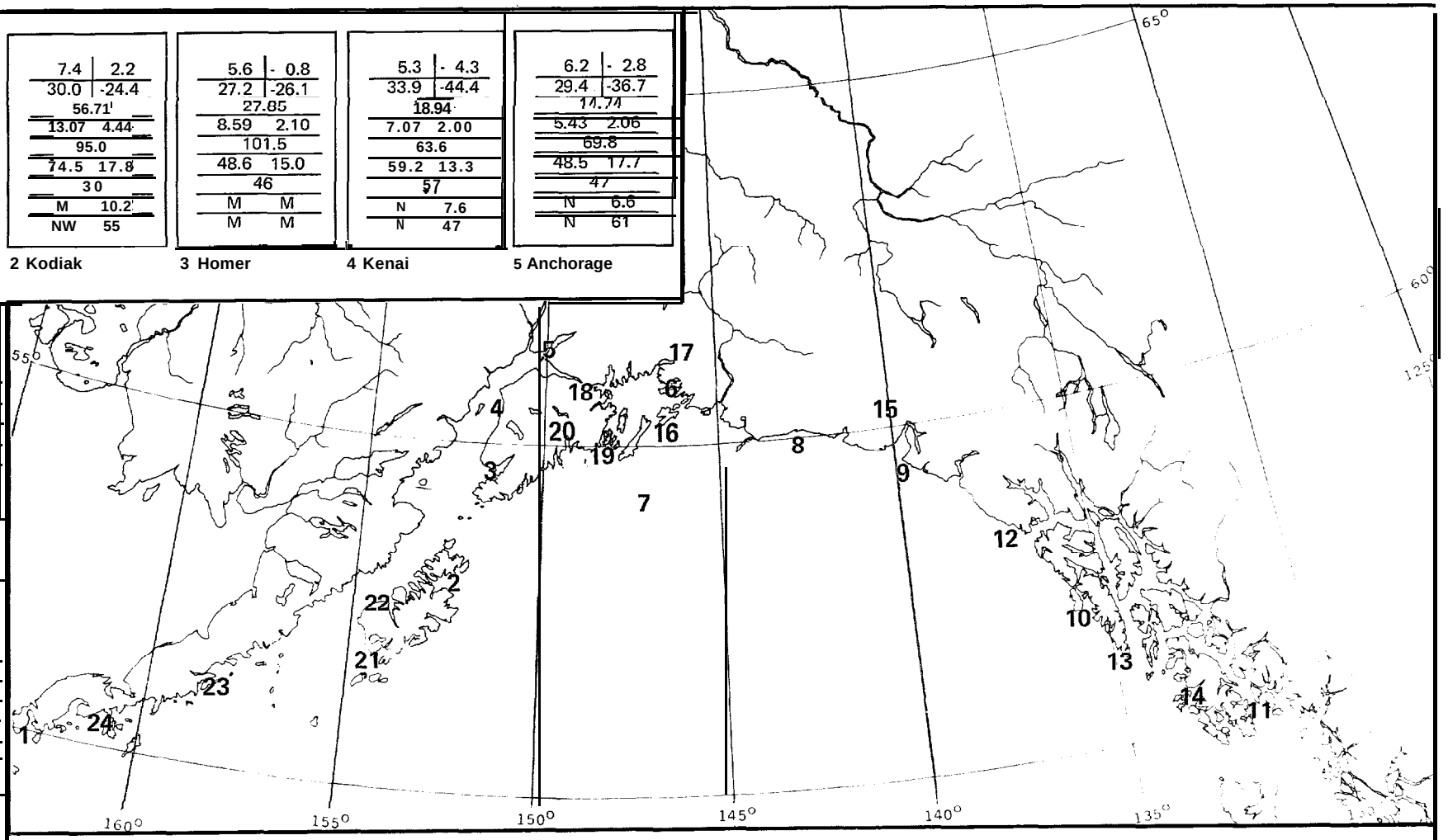
5 Anchorage

7.6	- 1.0
28.9	-35.6
89.11	
27.72	1413
130.6	
89.3	30.0
99	
E	5.0
ESE	55

6 Cordova

17.6	3.6
22.2	-14.4
58.02	
14.66	3.35
33.8	
34.3	10.4
13	
ESE	-13.2
ENE	76

7 Middleton Island



7.4	1.2
25.6	-23.9
102.75	
32.82	7.50
108.5	
89.3	22.0
52	
ESE	7.1
M	M

8 Yakataga

7.6	0.0
28.3	-31.1
132.46	
43.88	7.81
228.3	
111.0	32.4
96	
E	7.7
E	75

9 Yakutat

9.9	2.7
30.6	-22.2
95.50	
23.32	6.42
49.6	
56.5	13.5
40	
E	M
M	M

10 Sitka

10.6	4.5
32.2	-17.2
114.3	
34.87	7.59
59.4	
46.9	14.2
42	
SSE	10.7
WSW	60

11 Annette Island

7.8	3.4
26.1	-18.3
106.94	
36.03	8.60
48.8	
36.2	11.4
29	
NE	M
M	M

12 Cape Spencer

9.6	3.6
26.7	-15.6
173.37	
38.92	7.62
80.3	
61.5	24.1
47	
M	M
M	M

13 Port Alexander

10.6	3.8
30.0	-18.9
109.54	
36.71	5.15
31.5	
47.9	11.0
18	
SE	M
M	M

14 Craig

8.1	3.6
25.6	-17.8
101.98	
26.59	5.40
76.4	
66.0	20.3
44	
SE	M
M	M

15 Cape St. Elias

7.5	3.2
27.2	-26.1
94.33	
28.71	9.50
94.7	
88.6	33.6
57	
E	M
M	M

16 Cape Hinchinbrook

6.4	- 2.1
30.6	-33.3
62.37	
18.74	5.10
244.5	
174.5	43.0
135	
SW	6.8
NE	46

17 Valdez

18	
7.0	0.4
31.1	-33.9
175.28	
7.59	
263.8	
204.0	42.0
141	
SW	83

18 Whittier

8.3	2.3
27.8	-19.4
180.96	
43.56	M
139.8	
M	M
M	
M	M
M	M

19 LaTouche

7.7	0.7
31.1	-28.9
63.35	
26.35	9.17
84.6	
82.0	36.0
41	
M	M
M	M

20 Seward

6.9	2.2
24.4	-16.1
50.51	
15.31	2.02
27.5	
14.4	10.0
18	
M	M
M	M

21 Sitkinak

8.4	0.3
28.3	-20.6
23.01	
5.44	2.10
22.0	
22.8	7.3
9	
M	M
M	M

22 Larsen Bay

6.8	-0.4
24.4	-24.4
127.15	
35.71	7.15
58.5	
31.0	12.0
47	
M	M
M	M

23 Chignik

6.8	1.7
21.1	-17.2
60.30	
11.83	3.38
40.5	
23.3	9.0
11	
NW	12.0
NW	74

24 Sand Point

Legend

17.6	3.6
22.2	-14.4
114.30	
34.87	7.59
58.5	
46.9	14.2
40	
SSE	9.3
SSE	52

Temperature (°C) — Mean Annual Maximum | Mean Annual Minimum — Highest | Lowest

Total Precipitation (inches) (Rain and Snow) — Average Annual — Greatest Month | Greatest Day

Snowfall (inches) — Average Annual — Greatest Month | Greatest Day

Snow depth (inches) — Annual Maximum on Ground

Surface Wind (knots) — Prevailing Direction Average Annual Speed — Fastest Direction and Speed

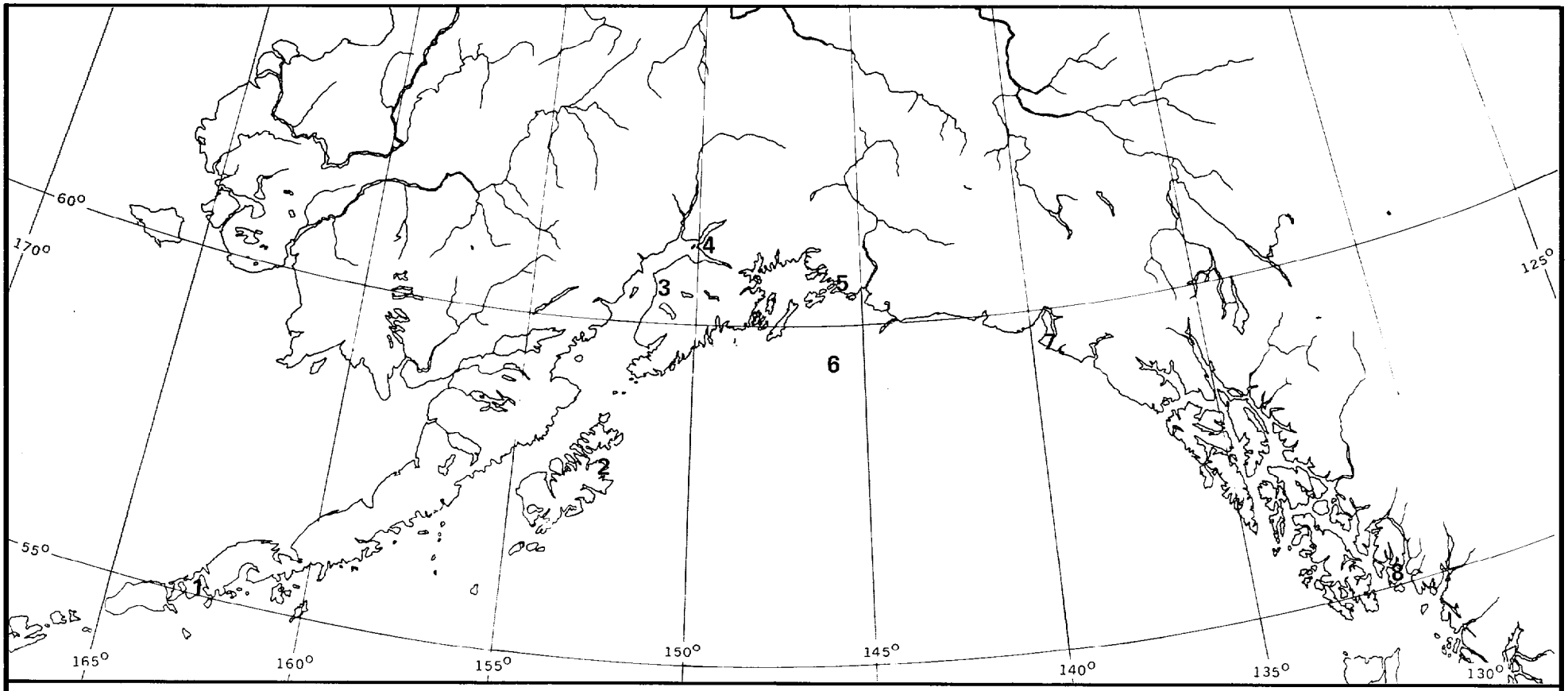
Where the mean annual temperature (average of the mean annual maximum and minimum) is less than zero sdme type of permafrost will probably be present.

These data can be used for long-range planning and design criteria. More detailed information can be obtained from the National Climatic Center and the Arctic Environmental Information and Data Center in Anchorage.

M = information is missing

Prepared from Environmental Data Service data.

Figure 9 Climate means and extremes



1 Cold Bay

Inches	Least Apr	Most Nov	Annual
Trace	41.8	19.9	30.6
0.01-0.10	30.7	34.7	34.3
0.1 l-O.25	7.9	15.8	13.0
0.26-0.50	2.4	8.9	5.9
0.51-l .oo	1.1	6.4	2.9
1 .Ol-2.50	0.4	1.4	0.9
2.51-5.00	0.0	0.3	0.1
5.01-10.00	0.0	0.0	0.0
TOTAL	42.5	67.5	57.1

2 Kodiak

Inches	Least Jun	Most Nov	Annual
Trace	18.7	18.7	20.0
0.01-0.10	19.0	1 a.3	18.9
0.1 l-O.25	11 .o	14.0	14.0
0.26-0.50	8.0	13.7	10.4
0.51-l .oo	3.3	11.3	6.3
1 .Ol-2.50	1.7	3.0	2.0
2.51-5.00	0.0	0.0	*
5.01-l 0.00	0.0	0.0	0.0
TOTAL	43.0	60.0	51.6

3 Kenai

Inches	Least May	Most Sep	Annual
Trace	21.9	13.3	18.3
0.01–0.10	17.7	22.1	18.2
0.1 l-0.25	6.6	12.8	8.7
0.26-0.50	2.2	9.6	4.5
0.51-l .oo	0.8	6.1	2.0
1 .Ol -2.50	0.0	1.1	0.3
2.51-5.00	0.0	0.0	0.0
5.01-10.00	0.0	0.0	0.0
TOTAL	27.3	51 .a	33.8

4 Anchorage

Inches	Least Mar	Most Sep	Annual
Trace	21.8	23.3	29.1
0.01-0.10	19.6	29.0	18.7
0.1 l-O.25	4.3	9.4	7.1
0.26–0.50	1.6	5.2	3.3
0.51-1.00	0.0	2.1	1.1
1 .Ol-2.50	0.0	1.2	0.3
2.51-5.00	0.0	0.0	0.0
5.01-10.00	0.0	0.0	0.0
TOTAL	25.5	47.0	30.3

5 Cordova

Inches	Least Jun	Most Sep	Annual
Trace	16.7	7.8	12.3
0.01-0.10	21 .o	17.0	19.2
0.1 l-0.25	16.0	9.4	12.8
0.26-0.50	11.6	1 1.3	11.6
0.51-l .oo	5.3	14.2	9.7
1 .Ol-2.50	2.5	11.9	5.5
2.51-5.00	0.1	2.9	0.8
5.01-l 0.00	0.0	0.1	*
TOTAL	57.1	66.8	59.1

6 Middleton Island

Inches	Least Jun	Most Oct	Annual
Trace	21.3	14.7	17.1
0.01-0.10	24.7	24.7	25.1
0.1 l-0.25	7.3	16.8	13.4
0.26-0.50	5.3	10.4	10.0
0.51-l .00	2.3	12.5	7.3
1 .Ol-2.50	0.3	3.9	1.9
2.51-5.00	0.0	0.4	*
5.01-l 0.00	0.0	0.0	0.0
TOTAL	42.6	72.3	57.7

Yakutat

Inches	Least Jun	Most Oct	Annual
Trace	19.3	4.1	11.0
0.01-0.10	21.9	10.4	16.2
0.1 l-0.25	10.4	10.7	11.5
0.26-0.50	8.5	13.4	11.6
0.51-l .oo	6.9	20.8	12.1
1.01–2.50	3.7	19.1	10.2
2.51-5.00	0.8	2.7	1.6
5.01-l 0.00	0.0	0.1	*
TOTAL	52.4	77.2	63.2

8 Annette Island

Inches	Least May	Most Nov	Annual
Trace	14.4	19.9	12.5
0.01-0.10	19.8	34.7	15.8
0.1 l-O.25	11.a	15.8	11.1
0.26-0.50	9.1	a.9	11.9
0.51-l .oo	6.9	6.4	12.0
1.01–2.50	5.2	1.4	8.8
2.51-5.00	0.7	0.3	1.2
5.01-l 0.00	0.0	0.0	*
TOTAL	53.9	67.5	60.9

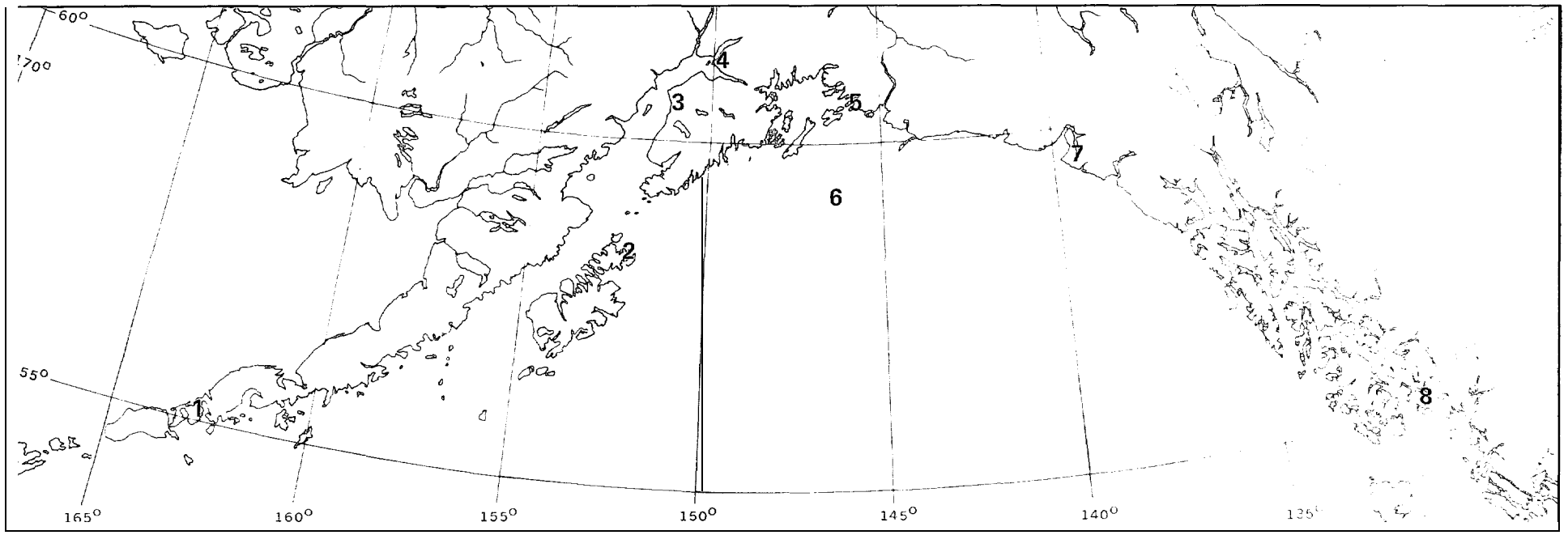
Legend

Percent frequency of occurrence of precipitation is based on daily observations. Columns 2, 3. and 4 are for the months with least and most precipitation and the annual average respectively. Total is percent of days with measurable precipitation.

- less than 0.05%

Prepared from USAF Air Weather Service data, various dates.

Figure 10 Precipitation intensities



1 Cold Bay

Snowfall			Snow Depth		
Inches	Max Month Jan	Annual Based on 10 Months	Inches	Max Month Jan	Annual Based on 8 Months
<Trace	64.4	81.2	<Trace	52.6	80.0
0.1-2.4	15.1	17.7	l-3	27.4	13.3
2.5-4.4	1.5	0.7	4-6	10.2	4.1
4.5-6.4	0.9	0.3	7-12	7.2	2.2
6.5-10.4	0.0	0.0	13-24	2.2	0.4
10.5-15.4	0.1	*	25-36	0.3	*
15.4-25.4	0.0	0.0	37-48	0.1	*
25.4-50.4	0.0	0.0	49-60	0.0	0.0
TOTAL	35.6	18.8	TOTAL	47.4	20.0

2 Kodiak

Snowfall			Snow Depth		
Inches	Max Month Jan	Annual Based on 8 Months	Inches	Max Month Mar	Annual Based on 7 Months
≤Trace	73.5	87.6	<Trace	46.5	80.3
0.1-2.4	21.3	9.7	l-3	31.3	12.0
2.5-4.4	2.9	1.6	4-6	8.7	3.8
4.5-6.4	1.3	0.5	7-12	7.4	2.2
6.5-10.4	0.6	0.5	13-24	4.2	1.5
10.5-15.4	0.4	0.1	25-36	1.9	0.2
15.4-25.4	0.0	*	37-48	0.0	0.0
25.4-50.4	0.0	0.0	49-60	0.0	0.0
TOTAL	26.5	12.4	TOTAL	53.5	19.7

3 Kenai

Snowfall			Snow Depth		
Inches	Max Month Dec	Annual Based on 9 Months	Inches	Max Month Jan	Annual Based on 8 Months
<Trace	70.8	87.7	≤Trace	5.8	58.0
0.1-2.4	24.4	10.0	l-3	9.9	9.2
2.5-4.4	3.2	1.5	4-6	7.8	5.8
4.5-6.4	0.5	0.5	7-12	26.0	11.0
6.5–10.4	0.7	0.3	13-24	39.0	13.2
10.5-15.4	0.4	*	25-36	7.8	1.8
15.5-25.4	0.0	0.0	37-48	2.0	0.8
25.5-50.4	0.0	0.0	49-60	1.7	0.2
TOTAL	29.2	12.3	TOTAL	94.2	42.0

4 Anchorage

Snowfall			Snow Depth		
Inches	Max Month Dec	Annual Based on 8 Months	Inches	Max Month Mar	Annual Based on 8 Months
<Trace	71.2	86.3	<Trace	10.0	55.6
0.1-2.4	22.1	10.7	l-3	18.1	12.9
2.5-4.4	4.8	1.8	4-6	19.4	8.0
4.5-6.4	0.8	0.6	7-12	16.4	12.5
6.5-10.4	0.5	0.4	13-24	25.5	9.0
10.5-15.4	0.3	0.2	25-36	9.1	1.6
15.5-25.4	0.3	*	37-48	1.5	0.4
25.5-50.4	0.0	0.0	49-60	0.0	0.0
TOTAL	28.8	13.7	TOTAL	90.0	44.4

5 Cordova

Snowfall			Snow Depth		
Inches	Max Month Dec	Annual Based on 8 Months	Inches	Max Month Apr	Annual Based on 8 Months
<Trace	61.3	83.4	<Trace	40.9	64.3
0.1-2.4	26.1	11.8	l-3	19.2	11.3
2.5-4.4	7.4	2.6	4-6	11.3	6.4
4.5-6.4	3.0	1.1	7-12	15.2	7.2
6.5-10.4	1.3	0.9	13-24	8.8	6.8
10.5-15.4	0.9	0.2	25-36	1.2	3.3
15.5-25.4	0.0	*	37-48	2.4	0.6
25.5-50.4	0.0	0.0	49-60	1.0	0.1
TOTAL	38.7	16.6	TOTAL	59.1	35.7

6 Middleton Island

Snowfall			Snow Depth		
Inches	Max Month Dec	Annual Based on 8 Months	Inches	Max Month Dec	Annual Based on 7 Months
≤Trace	68.5	90.0	<Trace	71.8	90.7
0.1-2.4	27.8	9.0	l-3	14.9	6.8
2.5-4.4	3.2	0.7	4-6	8.1	1.9
4.5-6.4	0.5	0.2	7-12	5.2	0.6
6.5-10.4	0.0	0.1	13-24	0.0	0.0
10.5-15.4	0.0	*	25-36	0.0	0.0
15.5-25.4	0.0	0.0	37-48	0.0	0.0
25.5-50.4	0.0	0.0	49-60	0.0	0.0
TOTAL	31.5	10.0	TOTAL	28.2	9.3

7 Yakutat

Snowfall			Snow Depth		
Inches	Max Month Dec	Annual Based on 8 Months	Inches	Max Month Mar	Annual Based on 8 Months
≤Trace	51.2	79.3	<Trace	15.9	62.9
0.1-2.4	29.1	12.4	l-3	8.7	8.3
2.5-4.4	8.4	3.8	4-6	7.7	5.0
4.5-6.4	4.4	2.0	7-12	7.5	5.5
6.5-10.4	5.5	1.8	13-24	17.7	7.9
10.5-15.4	1.3	0.6	25-36	20.3	5.6
15.5-25.4	0.1	0.1	37-48	13.2	3.0
25.4-50.4	0.0	*	≥49	9.0	1.8
TOTAL	48.8	20.7	TOTAL	84.1	37.1

8 Annette

Snowfall			Snow Depth		
Inches	Max Month Jan	Annual Based on 8 Months	Inches	Max Month Jan	Annual Based on 8 Months
≤Trace	76.1	92.1	≤Trace	64.8	91.7
0.1-2.4	18.1	6.0	l-3	17.0	4.9
2.5-4.4	3.6	1.1	4-6	7.6	1.7
4.5-6.4	1.6	0.5	7-12	7.5	1.1
6.5-10.4	0.6	0.3	13-24	1.5	0.3
10.5-15.4	0.0	*	25-36	1.0	0.2
15.5-25.4	0.0	0.0	37-48	0.6	0.1
25.5-50.4	0.0	0.0	49-60	0.0	0.0
TOTAL	23.9	7.9	TOTAL	35.2	8.3

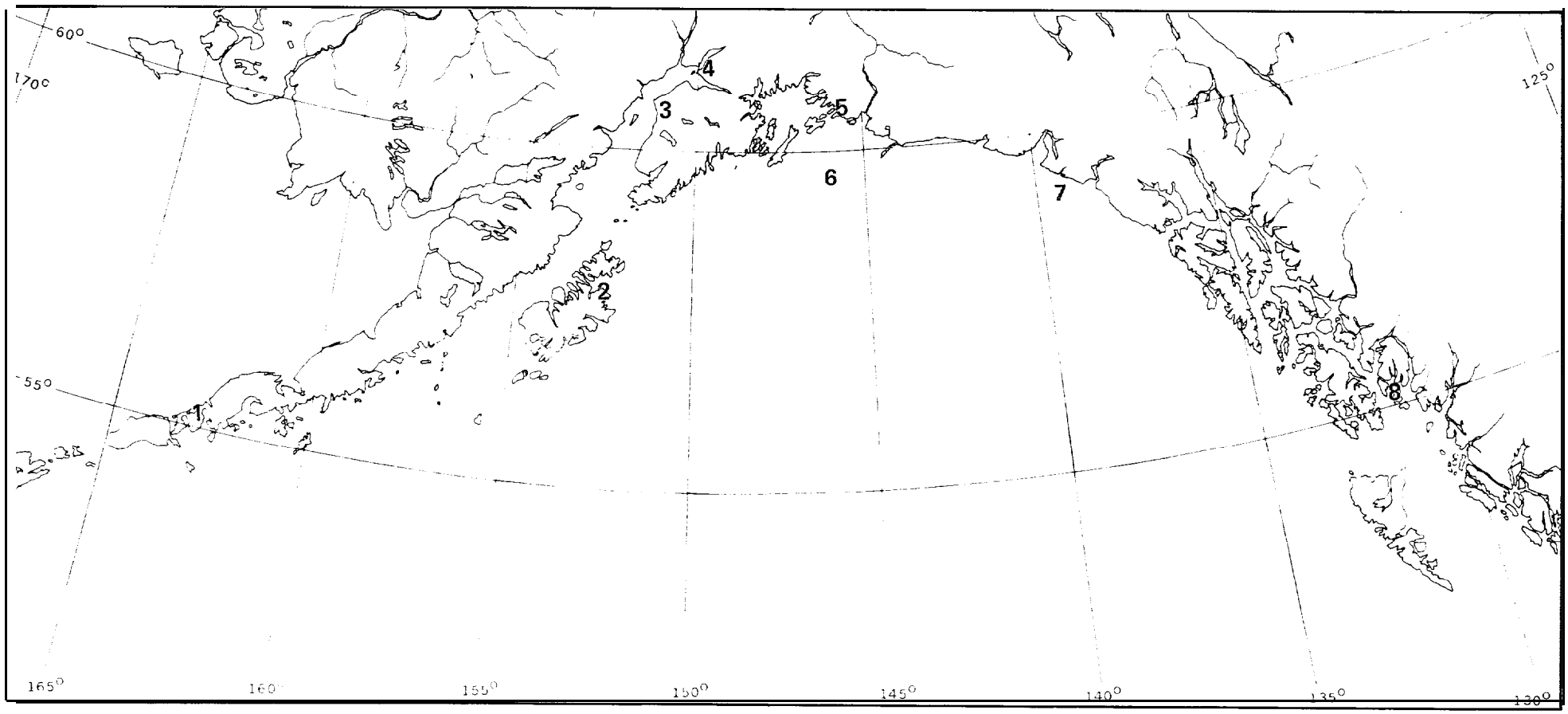
Legend

Percent frequency of occurrence of snowfall and snowdepth is based on daily observations. In each table column 2 is the month that averaged the most, and column 3 is the annual percent averaged over 12 months. Column 3 shows the number of months with snowfall or snow depth. The total at the bottom of each box is the percent of days with measurable snowfall or snow depth.

* less than 0.05%

Prepared from USAF Air Weather Service data, various dates.

Figure 11 Snowfall and snow depth



1 Cold Bay

	R or L	ZR or ZL	S or E	TOT
Jan	15.3	0.4	21.8	35.9
Feb	12.9	0.7	24.7	37.1
Mar	10.5	0.8	25.7	35.0
Apr	15.1	0.1	21.9	35.3
May	30.7	•	5.8	34.8
Jun	33.8	0.0	0.2	34.0
Jul	36.0	□	•	36.0
Aug	40.2	0.0	0.0	40.2
Sep	32.8	0.0	0.1	32.9
Oct	27.5	•	5.5	32.6
Nov	22.8	0.2	13.1	34.0
Dec	18.9	0.6	22.1	35.8
Ann	24.6	0.2	11.3	35.4

2 Kodiak

	R or L	ZR or ZL	S or E	TOT
Jan	19.5	0.1	13.2	30.6
Feb	16.2	•	14.0	28.1
Mar	12.1	*	16.9	27.0
Apr	18.3	0.0	10.0	26.7
May	32.3	0.0	0.4	32.3
Jun	23.4	0.0	•	23.4
Jul	24.0	0.0	0.0	24.0
Aug	22.0	0.0	0.0	22.0
Sep	22.0	0.0	0.1	22.1
Oct	22.1	•	3.4	24.8
Nov	25.2	•	7.2	31.0
Dec	17.5	0.1	15.5	30.9
Ann	21.3	*	6.7	26.9

3 Kenai

	R or L	ZR or ZL	S or E	TOT
Jan	2.7	0.9	12.7	15.5
Feb	1.9	0.5	13.8	15.6
Mar	2.0	0.1	12.6	14.4
Apr	4.8	0.1	8.4	12.7
May	10.2	0.0	0.5	10.5
Jun	14.3	0.0	0.0	14.3
Jul	15.6	0.0	0.0	15.6
Aug	18.3	0.0	0.0	18.3
Sep	20.6	0.0	0.1	20.6
Oct	12.5	0.1	4.6	16.4
Nov	5.2	0.4	10.3	14.8
Dec	2.1	0.7	14.8	17.0
Ann	9.3	0.2	6.4	15.5

4 Anchorage

	R or L	ZR or ZL	S or E	TOT
Jan	2.5	1.0	15.6	18.3
Feb	1.6	0.4	17.6	19.1
Mar	2.3	*	13.6	15.7
Apr	4.7	*	10.1	13.9
May	10.4	0.0	0.4	10.7
Jun	13.8	0.0	0.0	13.8
Jul	19.2	0.0	0.0	19.2
Aug	19.1	0.0	0.0	19.1
Sep	20.1	0.0	0.4	20.4
Oct	9.7	0.1	7.3	16.4
Nov	2.4	0.3	13.6	16.0
Dec	1.8	0.6	18.2	20.4
Ann	8.9	0.2	8.2	16.9

5 Cordova

	R or L	ZR or ZL	S or E	TOT
Jan	15.1	0.2	17.6	29.3
Feb	16.3	0.1	21.3	34.1
Mar	14.0	•	20.4	31.2
Apr	23.2	*	12.8	31.9
May	36.4	0.0	1.5	37.2
Jun	33.2	0.0	0.0	33.2
Jul	37.1	0.0	0.0	37.1
Aug	34.0	0.0	0.0	34.0
Sep	39.2	0.0	0.1	39.2
Oct	37.8	*	3.1	40.0
Nov	28.2	0.1	9.7	35.6
Dec	20.2	0.3	18.8	36.3
Ann	27.9	0.1	8.8	34.9

6 Middleton Island

	R or L	ZR or ZL	S or E	TOT
Jan	19.7	0.1	9.0	27.9
Feb	19.4	*	8.7	27.3
Mar	16.0	0.0	11.6	26.1
Apr	19.8	0.0	5.4	24.1
May	27.3	0.0	0.0	27.3
Jun	20.8	0.0	0.0	20.8
Jul	23.5	0.0	0.0	23.5
Aug	26.9	0.0	0.0	26.9
Sep	26.1	0.0	•	26.1
Oct	25.3	0.0	1.1	26.2
Nov	28.5	0.0	3.0	31.1
Dec	20.6	•	8.8	28.6
Ann	22.8	*	3.8	26.2

7

	R or L	ZR or ZL	S or E	TOT
Jan	19.4	0.2	18.3	35.6
Feb	19.6	0.1	20.1	37.3
Mar	15.4	*	21.6	34.5
Apr	24.9	*	9.4	31.9
May	31.4	0.0	0.9	32.1
Jun	28.6	0.0	0.0	28.6
Jul	33.2	0.0	0.0	33.2
Aug	33.5	0.0	•	33.5
Sep	37.5	0.0	0.0	37.5
Oct	41.0	•	2.0	42.5
Nov	29.9	•	11.3	39.8
Dec	23.4	0.1	20.8	42.2
Ann	28.2	*	8.7	35.7

8

	R or L	ZR or ZL	S or E	TOT
Jan	28.5	0.2	10.9	37.4
Feb	30.2	0.0	9.5	37.2
Mar	26.9	*	9.4	33.2
Apr	31.4	*	2.6	32.4
May	24.6	0.0	0.1	24.7
Jun	24.6	0.0	0.0	24.6
Jul	22.8	0.0	0.0	22.8
Aug	22.5	0.0	0.0	22.5
Sep	28.2	0.0	0.0	28.2
Oct	40.4	0.0	0.4	40.6
Nov	36.8	•	5.1	40.3
Dec	33.0	0.1	10.4	41.2
Ann	29.2	*	4.0	32.1

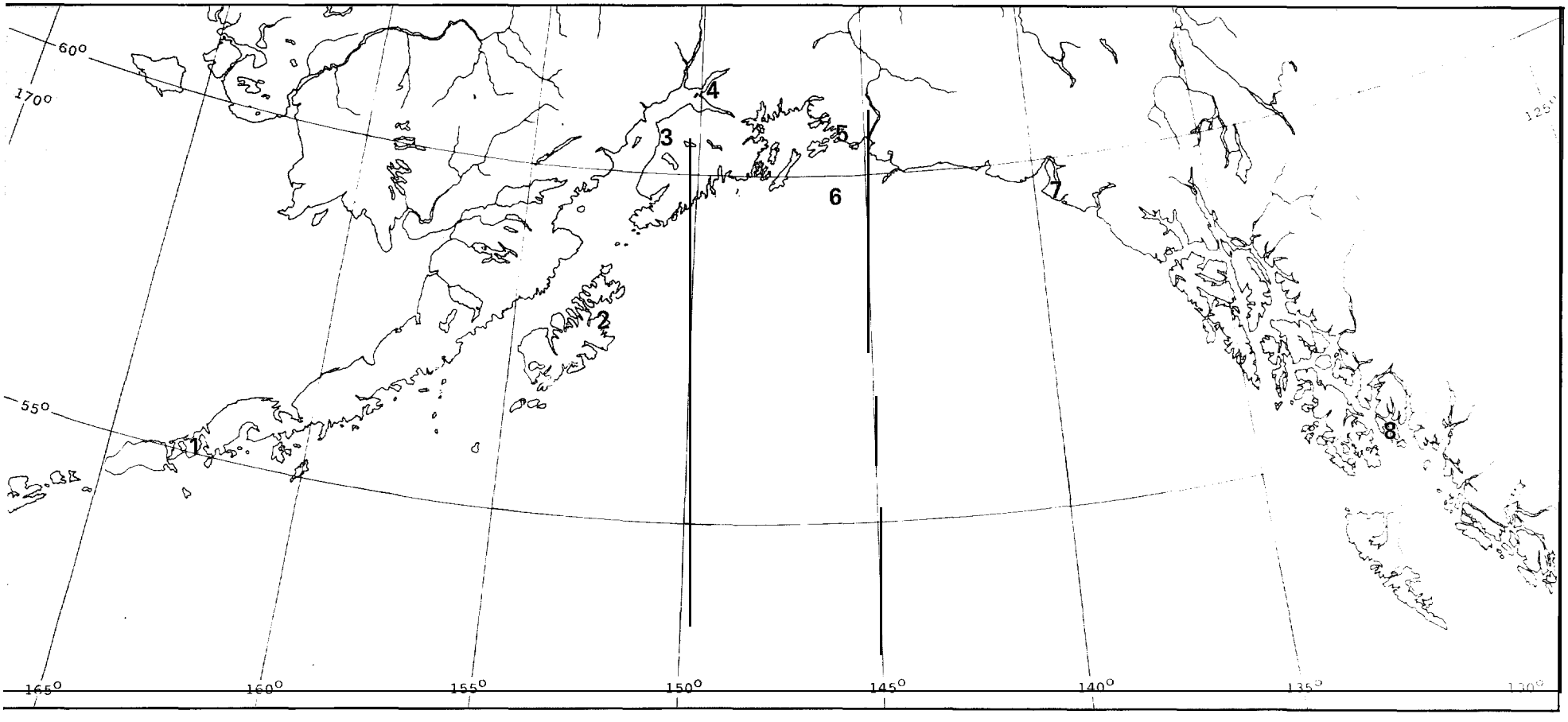
Legend

Percent frequency of occurrence of precipitation by type is based on hourly observations regardless of intensity.

R or L = Rain or drizzle
ZR or ZL = Freezing rain or freezing drizzle
S or E = Snow or sleet
TOT = Total percent of observations with precipitation
* less than 0.05%

Prepared from USAF Air Weather Service data, various dates.

Figure 12 Type of precipitation



1 **Cold Bay**

	F	K or H	BS	TOT
Jan	12.5	*	8.7	21.1
Feb	11.6	*	7.3	19.1
Mar	10.8	0.1	6.3	17.0
Apr	10.5	*	2.2	12.7
May	11.5	*	*	12.0
Jun	18.0	0.0	0.0	18.0
Jul	28.3	0.1	0.0	28.3
Aug	32.3	*	0.0	32.4
Sep	18.0	0.0	0.0	18.0
Oct	9.3	0.0	0.2	9.5
Nov	10.2	0.1	3.0	13.4
Dec	10.3	*	7.4	17.6
Ann	15.5	*	2.9	18.4

2 **Kodiak**

	F	K or H	BS	TOT
Jan	8.7	*	2.4	11.1
Feb	8.3	0.0	1.4	9.7
Mar	5.4	0.0	2.9	8.3
Apr	6.1	*	0.4	6.6
May	12.2	0.0	0.0	12.2
Jun	16.4	0.1	0.0	16.5
Jul	17.1	0.4	0.0	17.5
Aug	12.8	*	0.0	12.9
Sep	10.5	0.0	0.0	10.5
Oct	6.1	0.1	*	6.3
Nov	8.2	*	1.2	9.3
Dec	6.1	0.0	2.6	8.7
Ann	9.8	0.1	0.9	10.8

3 **Kenai**

	F	K or H	BS	TOT
Jan	9.6	0.0	0.5	10.1
Feb	7.8	0.0	0.7	8.4
Mar	6.3	0.0	0.3	6.6
Apr	5.9	0.0	*	5.9
May	1.2	0.0	0.0	1.2
Jun	3.7	*	0.0	3.8
Jul	5.1	0.3	0.0	5.3
Aug	5.0	*	0.0	5.1
Sep	4.2	0.0	0.0	4.2
Oct	3.4	0.0	*	3.4
Nov	5.2	0.0	0.2	5.4
Dec	9.1	0.0	0.5	9.6
Ann	5.5	*	0.2	5.7

4 **Anchorage**

	F	K or H	BS	TOT
Jan	12.8	*	0.1	13.0
Feb	7.1	0.0	*	7.2
Mar	2.4	0.0	0.0	2.4
Apr	2.3	0.0	0.0	2.3
May	0.3	*	0.0	0.3
Jun	1.1	0.1	0.0	1.2
Jul	1.9	0.8	0.0	2.7
Aug	1.9	0.0	0.0	1.9
Sep	3.1	0.0	0.0	3.1
Oct	2.6	0.3	0.0	2.9
Nov	4.3	*	0.1	4.4
Dec	7.8	0.1	0.1	7.9
Ann	4.0	0.1	*	4.1

5 **Cordova**

	F	K or H	BS	TOT
Jan	6.7	0.0	0.4	7.1
Feb	5.4	0.0	0.5	5.8
Mar	3.8	*	0.4	4.2
Apr	4.8	0.0	.	4.8
May	4.9	0.0	0.0	4.9
Jun	10.1	0.2	0.0	10.3
Jut	17.4	0.1	0.0	17.4
Aug	15.0	0.0	0.0	15.0
Sep	12.8	0.0	0.0	12.8
Oct	5.8	0.1	0.0	5.9
Nov	4.9	*	*	5.0
Dec	5.0	0.0	0.3	5.2
Ann	8.1	.	[illegible]	8.2

6 **Middleton Island**

	F	K or H	BS	TOT
Jan	15.5	0.1	2.1	17.5
Feb	11.8	0.0	1.3	13.0
Mar	13.8	*	0.7	14.3
Apr	13.4	0.0	*	13.4
May	19.5	0.0	0.0	19.5
Jun	18.2	0.0	0.0	18.2
Jul	23.3	0.1	0.0	23.4
Aug	23.0	0.0	0.0	23.0
Sep	18.3	*	0.0	18.4
Oct	12.6	*	*	12.9
Nov	17.2	0.1	*	17.9
Dec	10.1	0.0	1.2	11.1
Ann	16.6	*	0.4	17.0

7

	F	K or H	BS	TOT
Jan	11.4	*	0.7	12.1
Feb	13.4	*	0.4	13.8
Mar	10.5	*	0.9	11.4
Apr	9.0	0.0	*	9.0
May	9.7	0.1	0.0	9.8
Jun	13.6	0.1	0.0	13.7
Jul	19.7	*	0.0	19.8
Aug	21.3	*	0.0	21.3
Sep	18.5	*	0.0	18.5
Oct	10.8	*	*	10.8
Nov	9.2	0.0	0.2	9.5
Dec	9.9	0.0	0.7	10.8
Ann	13.1	*	0.2	13.4

8

	F	K or H	BS	TOT
Jan	7.7	*	0.4	8.2
Feb	7.5	*	0.6	8.1
Mar	5.3	0.0	0.1	5.4
Apr	4.2	0.0	0.0	4.2
May	5.1	0.1	0.0	5.2
Jun	8.1	*	0.0	8.1
Jul	9.7	*	0.0	9.8
Aug	11.4	*	0.0	11.4
Sep	13.1	0.1	0.0	13.2
Oct	11.7	*	0.0	11.7
Nov	8.7	0.1	0.1	8.9
Dec	7.0	0.0	0.3	7.3
Ann	8.3	*	0.1	8.5

Legend

Percent frequency of occurrence of obstructions to vision is based on hourly observations.

F = Fog
K or H = Smoke or haze
BS = Blowing snow
TOT = Total percent of observations with obstructions to vision
* less than 0.05%

Prepared from USAF Air Weather Service data, various dates.

Figure 13 Visibility obstructions

	Visibility (in miles)							Ceiling (in feet)	Visibility (in miles)							
	≥ 3	≥ 1½	≥ 1	≥ ¾	≥ ½	≥ ¼	≥ 0		1 3	≥ 1½	≥ 1	≥ ¾	≥ ½	≥ ¼	≥ 0
Kodiak	77	78	78	78	78	78	78	≥ 1,800	60	61	61	62	62	62	62
	81	81	81	81	81	81	81	≥ 1,500	68	69	69	69	70	70	70
	83	84	84	84	84	84	84	11,200	73	75	75	75	75	76	76
	86	87	87	87	87	87	87	≥ 1,000	78	80	81	81	81	81	82
	87	88	88	88	89	89	89	≥ 9 0 0	79	82	83	83	83	83	84
	88	90	90	90	90	90	90	≥ 8 0 0	82	85	86	86	86	86	87
	89	91	91	91	91	91	92	≥ 7 0 0	83	87	88	88	88	89	90
	90	92	92	93	93	93	93	≥ 6 0 0	85	89	90	90	92	92	92
	91	93	94	94	94	95	95	≥ 5 0 0	87	91	93	94	94	94	95
	92	95	95	96	96	96	96	≥ 4 0 0	88	93	95	96	96	96	97
	92	96	97	97	97	97	98	≥ 3 0 0	88	94	96	96	97	98	98
	92	96	97	98	98	99	99	≥ 2 0 0	88	94	96	97	98	99	99
	92	96	98	98	99	99	100	≥ 1 0 0	88	94	96	97	98	99	99
	92	96	98	98	99	100	100	≥ 0	88	94	96	97	98	99	100
Anchorage	91	91	91	91	92	92	92	≥ 1.800	90	90	90	90	91	91	91
	92	92	93	93	93	93	93	≥ 1,500	91	92	92	92	93	93	93
	93	94	94	94	94	95	95	≥ 1,200	92	93	94	94	94	94	94
	94	95	95	95	95	96	96	≥ 1,000	93	94	95	95	96	96	96
	94	95	95	96	96	96	96	≥ 9 0 0	94	95	95	96	96	96	96
	94	95	96	96	96	96	97	≥ 8 0 0			96	97	97	97	97
	94 95	96 96	96 97	96 97	97 97	97 98	97 98	≥ 4 700 600	94 94	96 96	97 96	98 97	97 98	98 98	98 98
	95	97	97	97	98	98	98	≥ 5 0 0	95	97	98	98	99	99	99
	95	97	98	98	98	99	99	≥ 4 0 0	95	97	98	98	99	99	99
	96	97	98	98	99	99	99	≥ 3 0 0	95	97	98	99	99	99	100
	96	97	98	98	99	99	100	≥ 2 0 0	95	97	98	99	99	100	100
	96	97	98	98	99	99	100	≥ 1 0 0	95	97	98	99	99	100	100
	96	97	98	98	99	99	100	≥ 0	95	97	98	99	99	100	100
Middleton Island	67	67	68	68	68	68	68	≥ 1,800	81	81	81	81	81	81	81
	74	74	74	74	74	75	75	≥ 1,500	85	85	85	85	85	85	85
	79	80	80	80	80	80	80	≥ 1,200	89	90	90	90	90	90	90
	84	85	85	85	86	86	86	≥ 1,000	91	93	94	94	94	94	94
	85	87	87	87	87	87	87	≥ 9 0 0	92	94	95	95	95	95	95
	87	89	90	90	90	90	90	≥ 8 0 0	93	95	96	96	97	97	97
	88	91	91	91	92	92	92	≥ 7 0 0	93	96	97	97	97	97	97
	90	93	93	94	94	94	94	≥ 6 0 0	93	96	97	98	98	98	98
	90	94	95	95	96	96	96	≥ 5 0 0	93	97	98	98	99	99	99
	91	94	96	96	97	97	97	≥ 4 0 0	93	97	98	99	99	99	99
	91	95	96	97	98	98	98	≥ 300	93	97	98	99	99	100	100
	91	95	97	97	98	99	99	≥ 2 0 0	93	97	98	99	99	100	100
	91	95	97	97	98	99	100	≥ 100	93	97	98	99	99	100	100
	91	95	97	97	98	99	100	≥ 0	93	97	98	99	99	100	100
Annette	74	74	74	74	74	74	74	≥ 1,800	62	62	62	63	63	63	63
	78	78	78	78	78	78	79	≥ 1,500	67	68	69	69	69	69	70
	84	84	84	84	84	85	85	≥ 1,200	74	75	76	76	76	77	77
	87	88	88	88	89	89	89	≥ 1,000	79	81	82	83	83	83	83
	88	89	90	90	90	90	90	≥ 9 0 0	80	83	84	84	85	85	85
	90	91	92	92	92	92	92	≥ 8 0 0	83	86	87	88	88	89	89
	91	93	93	93	93	93	93	≥ 7 0 0	84	88	89	90	91	91	91
	92	94	95	95	95	95	95	≥ 600	85	90	92	93	94	94	94
	93	95	96	96	96	96	97	≥ 5 0 0	86	91	93	95	96	96	96
	93	96	97	97	98	98	98	≥ 4 0 0	87	92	95	96	97	98	98
	94	97	98	98	99	99	99	≥ 3 0 0	87	93	95	97	98	99	99
	94	97	98	99	99	99	99	≥ 2 0 0	87	93	95	97	99	99	100
	94	97	98	99	99	100	100	≥ 100	87	93	95	97	99	100	100
	94	97	98	99	99	100	100	≥ 0	87	93	95	97	99	100	100

Figure 14 Ceiling and visibility data

Data are presented for all months and all hours. A ceiling exists when the sky is more than half covered with clouds. Due to the cumulative nature of this presentation, it is possible to determine the percentage frequency of occurrence for any given limit of ceiling or visibility separately, or a combination of ceiling and visibility. The totals progress to the right and downward. The frequency of occurrence of a particular ceiling height may be determined independently by referring to totals in the extreme right hand column for each station. The frequency of occurrence of a particular visibility range may be determined independently by referring to the horizontal row of totals at the bottom of each station grid. The percentage frequency for which the station was meeting or exceeding any given set of minima may be determined from the figure at the intersection of the appropriate ceiling column and visibility row.

Data compiled by U.S. Air Force, Air Weather Service

Wind Chili

Human and animal bodies, or any physical bodies warmer than their surroundings, lose heat. The rate of loss depends on the barriers to heat loss, such as clothing and insulation, the speed of air movement, and the air temperature. Heat loss in humans increases dramatically in moving air that is colder than skin temperature taken as 33°C. Even a light wind increases heat loss, while a strong wind can actually lower body temperature if the rate of loss is greater than the body's heat replacement rate.

The relationship between heat loss and the cooling power of different wind and temperature combinations is shown in Figure 15. Equivalent wind chill temperature relates a particular wind and temperature combination to whatever temperature would produce the same loss of heat at about 3 knots (6 km/hr), the normal speed of a person walking vigorously. Loss of body heat can also occur by breathing cold air into the lungs and touching or leaning against cold objects. Heat loss is not as great in bright sunlight where there is some radiant heat gain. The chart in Figure 15 applies to shady areas and cloudy days or nights and represents heat loss by convective cooling, the major source of body heat loss. Graph set No. 5 relates air temperature and wind speed. When used in conjunction with Figure 15, the percentage frequency of occurrence of various values of equivalent wind chill temperature can be estimated. Map set No. 3 shows the percentage frequency of occurrence of equivalent wind chili temperatures less than -30°C, which represents the equivalent temperature at which exposed flesh can freeze within 1 minute.

Figure 15
Equivalent wind chill temperature

Equivalent Wind Chili Temperature 1

Wind Speed		Cooling Power Of Wind Expressed As "Equivalent Chill Temperature"																	
knots	km/hr	Temperature (°C)																	
Calm		12	8	4	0	- 4	- 8	-12	-16	-20	-24	-28	-32	-36	-40	-44	-48	- 52	- 56	- 60
		Equivalent Chill Temperature																	
3	6	12	8	4	0	- 4	- 8	-12	-16	-20	-24	-28	-32	-36	-40	-44	-48	- 52	- 56	- 60
5	10	9	5	0	- 4	- 8	-13	-17	-22	-26	-31	-35	-40	-44	-49	-53	-58	- 62	- 67	- 71
11	20	5	0	- 5	-10	-15	-21	-26	-31	-36	-42	-47	-52	-57	-63	-68	-73	- 78	- 84	- 89
16	30	3	-3	- 8	-14	-20	-25	-31	-37	-43	-48	-54	-60	-65	-71	-77	-82	- 88	- 94	- 99
22	40	1	-5	-11	-17	-23	-29	-35	-41	-47	-53	-59	-65	-71	-77	-83	-89	- 95	-101	-107
27	50	0	-6	-12	-18	-25	-31	-37	-43	-49	- 5 6	-62	-68	-74	-80	-87	-93	- 99	-105	-112
32	60	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-70	-77	-83	-89	-96	-102	-109	-115
38	70	- 1	-7	-14	-20	-27	-33	-40	-46	-52	-59	-65	-72	-78	-85	-91	-98	-104	-111	-117
43	80	- 1	-8	-14	-21	-27	-34	-40	-47	-53	-60	-66	-73	-79	-86	-92	-99	-105	-112	-118
49	90	- 1	-8	-14	-21	-27	-34	-40	-47	-53	-60	-66	-73	-79	-86	-92	-99	-105	-112	-118
54	100	- 1	-8	-14	-21	-27	-34	-40	-47	-53	-60	-66	-73	-79	-86	-92	-99	-105	-112	-118
		Little Danger				Increasing Danger (Flesh May Freeze Within 1 Minute)					Great Danger (Flesh May Freeze Within 30 Seconds)								
		Danger Of Freezing Exposed Flesh For Properly Clothed Individuals																	

Adapted from NWS/NOAA Technical Procedures Bulletin No. 16
Effective Temperature (Wind Chill Index) 1976

Marine and Coastal Climatic Atlas

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The marine observations used in computing the statistics for the maps, graphs, and tables in this atlas were taken from the National Climatic Center's (NCC) Tape Data Family 11 (TDF-11), Surface Marine Observations containing data collected by ships of various registry traveling through the study area (50° - 80°N, 130° - 180°W). Because relatively little data exist for the near-coastal zone, observations for 49 coastal land stations were combined with the marine data to present the best possible climatological picture of the outer continental shelf waters and coastal regions of Alaska.

The stations' data were taken from the edited digital files of NCC and the U.S. Air Force's Environmental Technical Applications Center in Asheville, NC. Marine data were subjected to thorough computer and visual quality control before processing to eliminate duplicate observations and exclude or adjust elements detected during internal consistency and extreme value checks.

The percentages of the 600,000 marine and 2 million land observations that contained basic weather elements are:

	Marine	Coastal Stations
Wind	98.5	98.2
Visibility	97.8	97.4
Present weather	96.9	98.2
Sea level pressure	96.2	97.2
Air temperature	99.1	99.4
Wet bulb temperature	64.9	96.6
Sea surface temperature	86.1	–
Total cloud amount	95.6	97.8
Low cloud amount	79.1	70.1
Waves	70.8	–

With a TDF-11 inventory of the number of ships' observations by 1.0° squares, a polar projection grid was defined to give an approximate equal geographic area coverage: 1° latitude by 2° longitude for the latitude belt 50° - 61°N; 1° by 3° for 61° - 70°N; and 1° by 4° for 70° - 80°N. Element statistics (with observation counts) for each of 445 marine squares and 49 coastal stations for each month were then computed and plotted on maps. Meteorologists drew isopleths (lines connecting points of equal magnitude) on 324 element maps, making subjective adjustments when data biases or insufficient observations were evident. They also performed consistency checks in monthly patterns for each element and between elements as well as comparative checks with other marine atlases and publications (see References).

To supplement the isopleth analyses, more than 10,000 statistical graphs were produced for 39 of the coastal stations and 14 representative marine areas. The graphs represent the objective compilation of available data; they were not adjusted for suspected biases, and differences may be found when comparing the graphic data with the isopleth analyses.

The legends explain the data content of the graphs and maps, contain detailed instructions on how to read the graphs, and provide remarks to aid in interpreting the data. The following paragraphs contain additional remarks likely to be of interest to those called upon to interpret the data and provide answers to specific operational questions.

Standard deviation-Most of the graphs allow approximation of the empirical probability of occurrence of selected criteria. This is a major factor in assessing the risk involved in operational planning. For certain elements, unbiased estimates of population standard deviations are given on the graphs to provide a measure of variability. The standard deviation on these graphs is denoted by s and was computed using the expression:

$$s = \left[\frac{N \Sigma x_i^2 - (\Sigma x_i)^2}{N(N-1)} \right]^{1/2} \quad (1)$$

where N is the number of observations in the sample and Xi is the ¡th realization of the random variable x.

Low-pressure centers-The roses and tracks of the low-pressure center movement maps are based on 9 years of track charts (January 1966-December 1974) prepared by the National Weather Service's National Meteorological Center. These charts show cyclone tracks based on six hourly positions of closed centers.

Frequencies of cyclone centers passing through 2½-degree "squares" were analyzed for the north Pacific Ocean to obtain the mean tracks. Primary tracks were selected along axes of maximum cyclone center frequency and secondary tracks along axes of moderate frequency. The origins (first reported closed position) were also plotted by 2½-degree "squares" and analyzed to find regions of cyclogenesis (only formation, not intensification). However, no regions of cyclogenesis were defined within the Alaskan area.

Return Periods for Maximum Sustained Winds (Coastal Stations)-Estimated maximum sustained winds speeds for selected return periods are presented in graphic and tabular form. Following the method outlined by Lieblein (1954, 1974a, 1974b), these estimates were obtained by initially fitting the extreme value distribution to each station sample containing N maximum annual wind speed values, then inverting the distribution and computing extreme values for selected probabilities. Confidence bands were then computed following the techniques of Gumbel (1958) and Gumbel and Lieblein (1954).

The extreme value distribution approaches the form:

$$F(x) = F(x:\mu,\beta) = \exp\left[-\exp\left(-\frac{x-\mu}{\beta}\right)\right] \quad (2)$$

where $F(x)$ is the probability that an observation is equal to or less than the specified value x, μ is the mode and β is the scale parameter. Since the wind speed data were transformed logarithmically, μ and β refer to the transformed data not the wind speed maxima. The values given on each graph for μ and β are not identical to the μ and β in equation (2) but rather are the result of exponentiating the mode and scale parameter for the distribution of the logarithms of the extreme wind speed values.

The graphic presentations, in addition to allowing determination of extremes for probabilities other than those given in the tables, also provide an indication of the "goodness of fit" of the model to the data. To analytically quantify the "goodness of fit," a Kolmogorov-Smirnov (K-S) *test* was performed under the null hypothesis, H_0, that there is no difference between the model and the data with a type 1 error probability (a) of 0.05. Data samples for which H_0 was not accepted are from Annette and Bethel.

The confidence limits shown by the envelope of lines about the line of "best fit" represent the level of uncertainty in the extreme value corresponding to a given probability. For this study 68 percent confidence limits were computed. This means that in 68 percent of repeated samples the true extreme value will be contained within these limits.

Sea Ice—The ice limits shown on the monthly maps of sets 14-17 reflect midmonth conditions of mean ice concentrations for different threshold values. The ice limits were derived from weekly analyses of sea ice conditions (1972-75) based on satellite imagery supplemented by conventional observations and from previously published atlases (see References). Actual concentration boundaries, under the influence of changing synoptic meteorological and oceanographic situations, may vary widely from the averages.

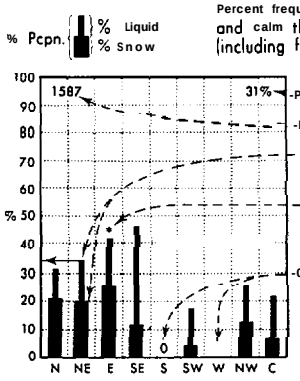
The following stations and representative marine areas have data plotted for analysis and graphs.

Land Stations	Lat. (°N)	Long. (°W)	Data Processed	No. of Obs.	Avg. No. Obs./Day
Anchorage	61.2	150.0	Nov 1952-Dec 1974	61,834	8
Annette Island	55.0	131.6	Jul 1948-Dec 1974	77,419	8
Cold Bay	55.2	162.7	Jul 1955-Dec 1974	56,985	8
Cordova	60.5	145.5	Jan 1945-Jan 1971	74,809	8
Homer	59.6	151.5	Jul 1945-Dec 1974	76,366	8
Kenai	60.6	151.3	Jul 1948-Jan 1971	69,454	8
Kodiak	57.8	152.3	Nov 1945-Dec 1974	84,630	8
Middleton Island	59.5	146.3	Jul 1948-Jun 1963	43,216	8
Sitka	57.1	135.4	Jul 1948-Jan 1971	65,989	8
Yakataga	60.1	142.5	Jul 1948-May 1968	52,982	8
Yakutat	59.5	139.7	Aug 1948-Dec 1974	77,101	8

Representative Marine Areas				
A	52-Coast	156-165	1872-I 974	41,097
B	54-57	150-I 56	1872-I 974	12,491
C	57-Coast	150-Coast	1872-I 974	11,703
D	56-Coast	144-150	1872-I 974	20,016
E	56-Coast	138-144	1872-I 974	13,480
F	54-Coast	Coast-I 38	1872-I 974	18,891

Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow

-Percentage of present weather observations reporting precipitation.

-Number of observations.

- - - (34% of *all* NE winds were accompanied by *precipitation*, of which 14% was *liquid* and 20% was snow.1

—An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10 30 observations of present weather and wind direction

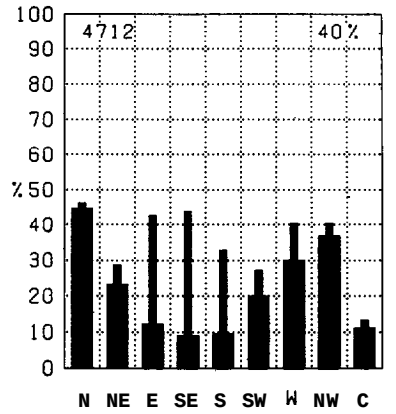
-0 replaces bor when no precipitation was observed with winds from a given direction (or calm) No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm)

Map ▪ Precipitation

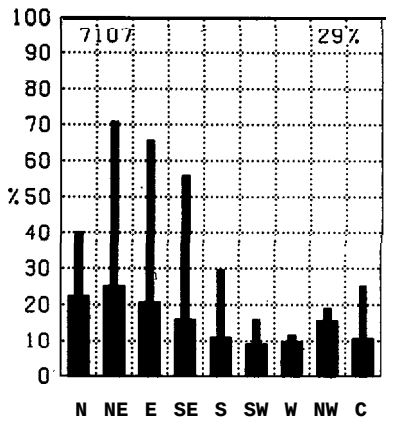
BLACK LINE Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather coder, and other biases

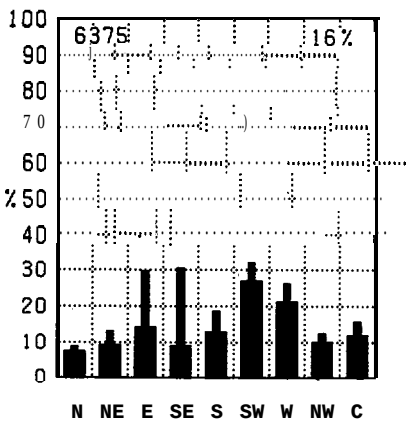
Cold Bay



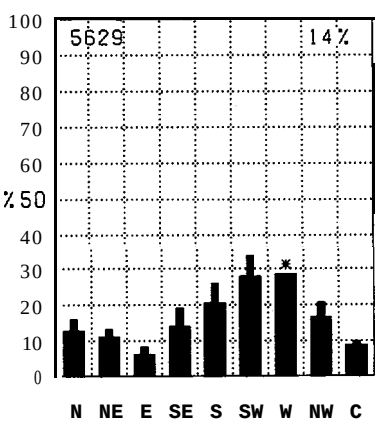
Kodiak



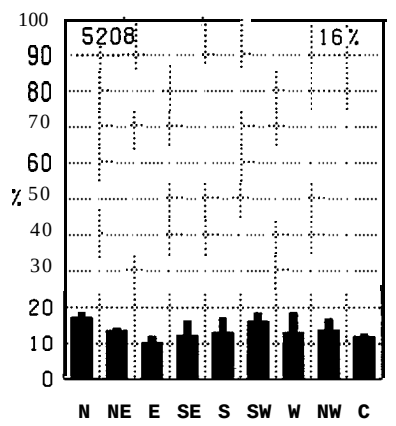
Homer



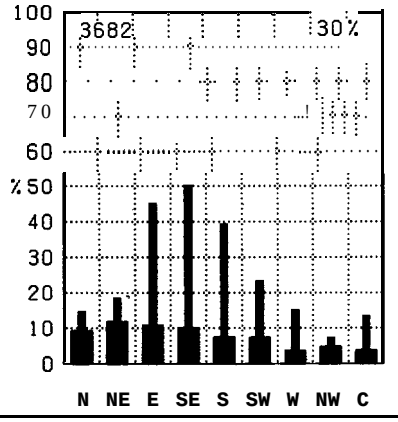
Kenai



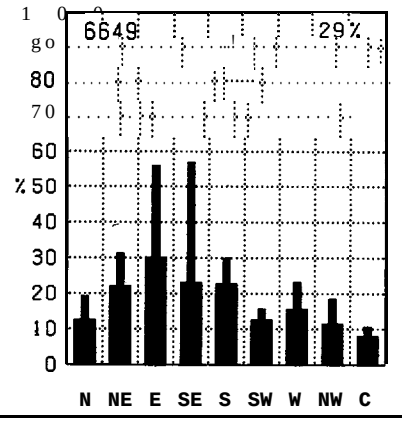
Anchorage



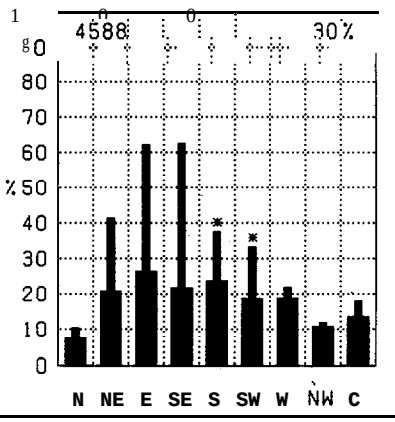
Middleton Island



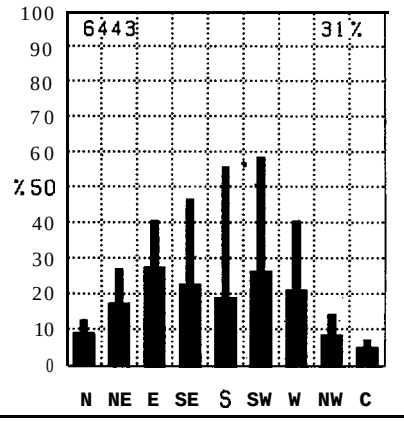
Cordova



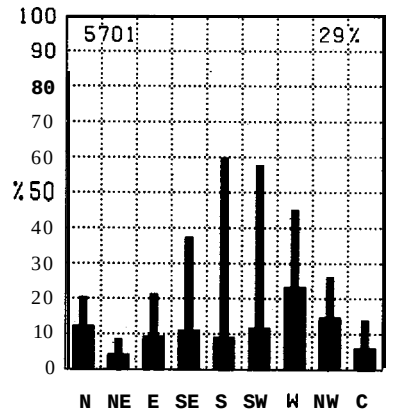
Yakataga



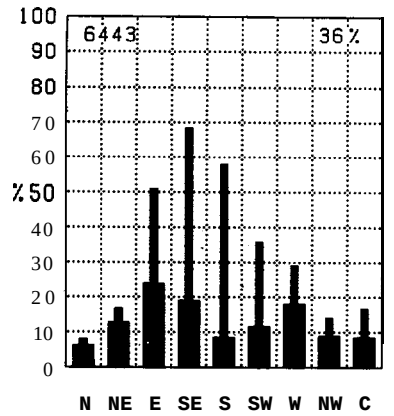
Yakutat



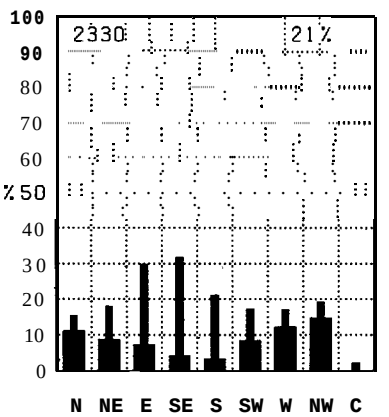
Sitka



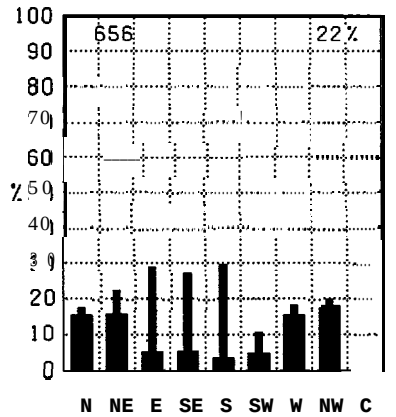
Annette



Marine Area A



Marine Area B



The land and marine data used in producing the maps and graphs are at the NCC in a separate file designated the Alaskan Waters Atlas Work Tapes. Also on file are computer tabulations of monthly statistical tables for the above stations and marine areas.

The duration-of-daylight chart for the Northern Hemisphere defines daylight as the period from sunrise to sunset. The upper scale at the bottom of the chart is for the Northern Hemisphere; the lower scale is for the Southern Hemisphere. For example, daylight on July 20 of any year at 48°N is about 15 hours and 30 minutes for any longitude. The data source was the U.S. Naval Observatory (1945) and is accurate for the entire twentieth century. Further details may be obtained from *The Daylighter* of the Navy Weather Research Facility (1960). Additional light (during twilight) may be usable for many purposes. Duration of daylight in high latitudes (poleward of about 60°) becomes increasingly dependent upon atmospheric conditions and refraction, and there may be some departure from the values depicted on the charts.

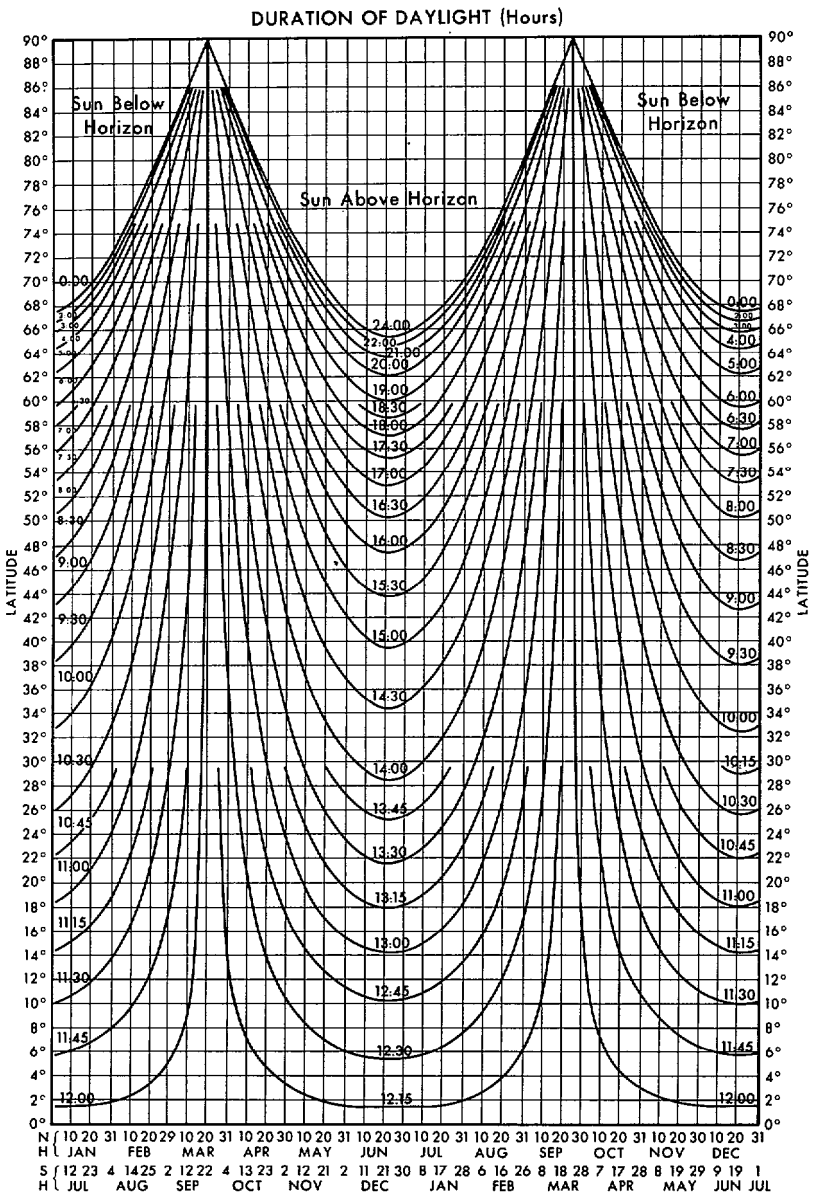
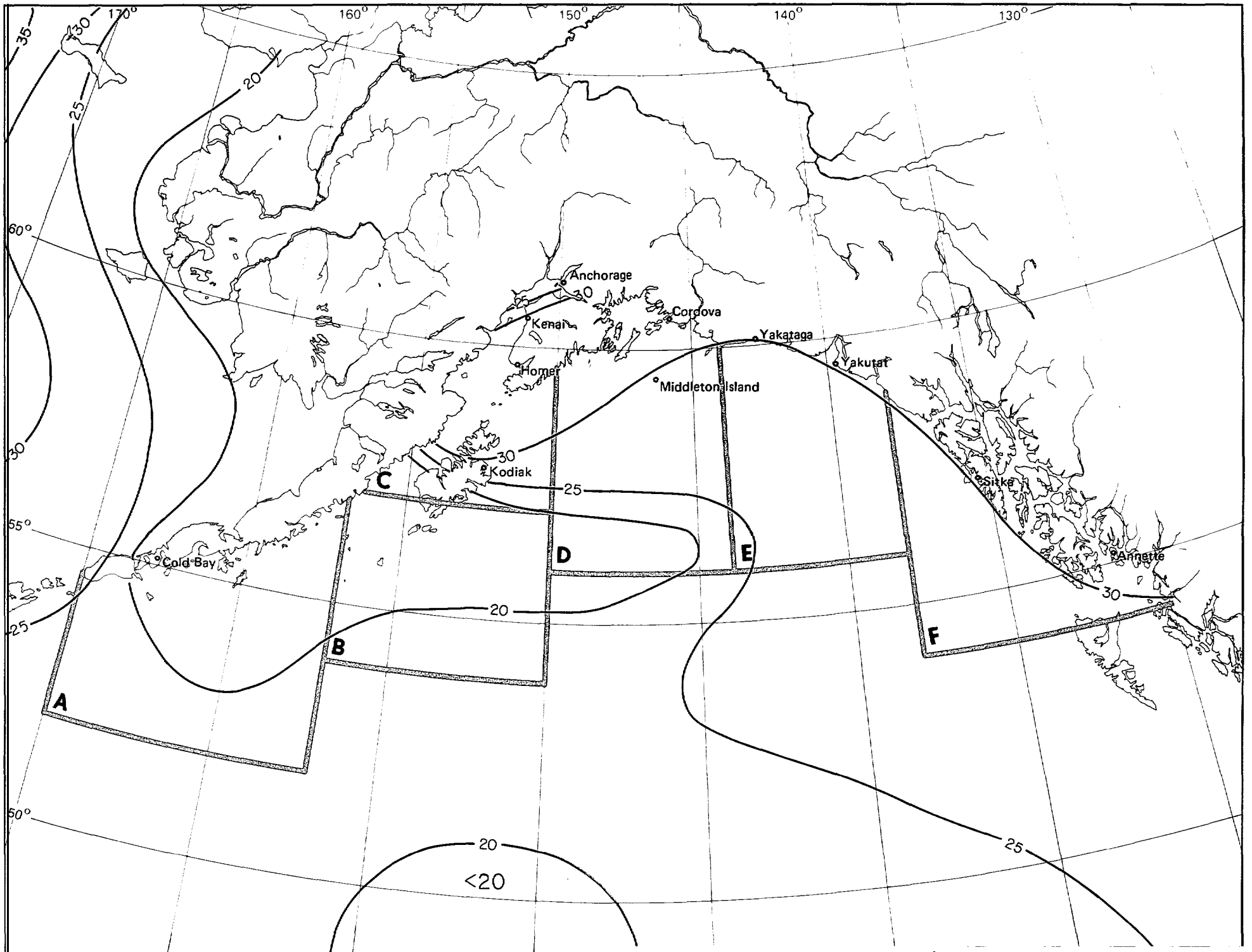
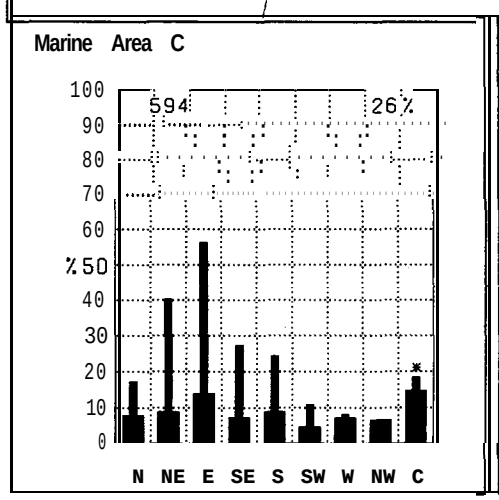
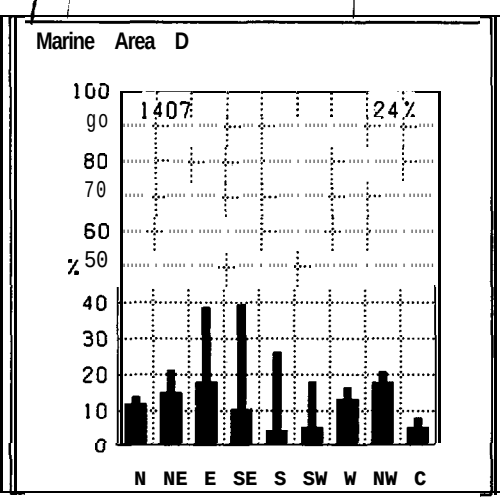
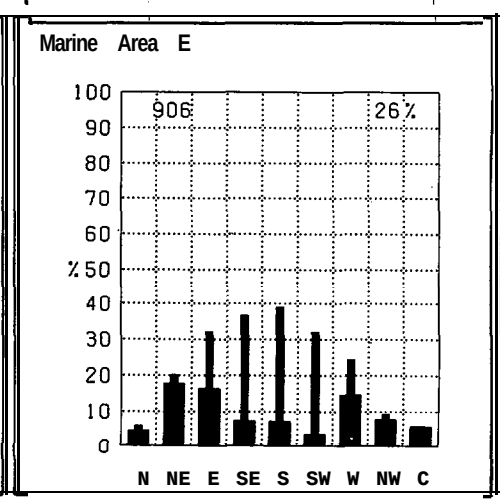


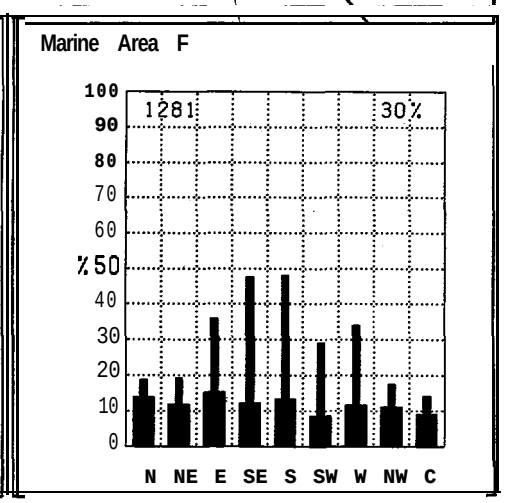
Figure 16 Duration of daylight


160°
150°
140°
130°
60°
55°
50°
35
30
25
20
<20
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F


Marine Area C
594
26%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

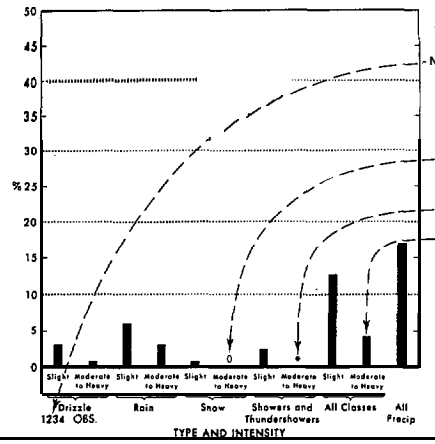

Marine Area D
1407
24%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
906
26%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1281
30%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

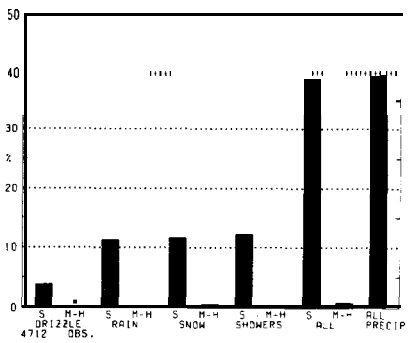
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

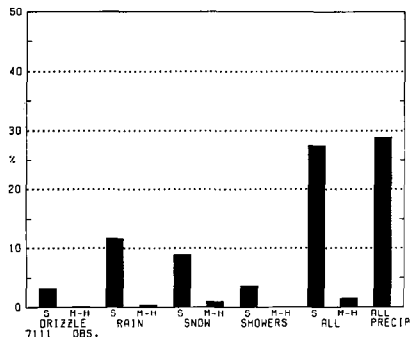
BLACK LINE Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point con be determined by multiplying the percent frequency of observations reporting precipitation (mop 1.) with that of precipitation observations reporting snow (mop 2.).

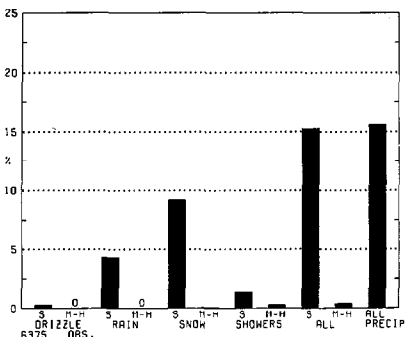
Cold Bay



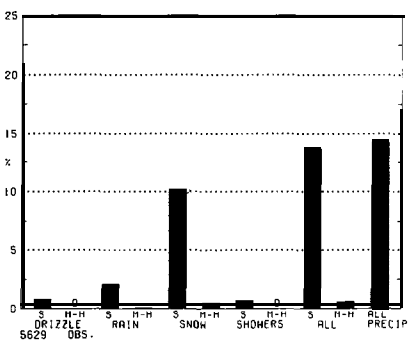
Kodiak



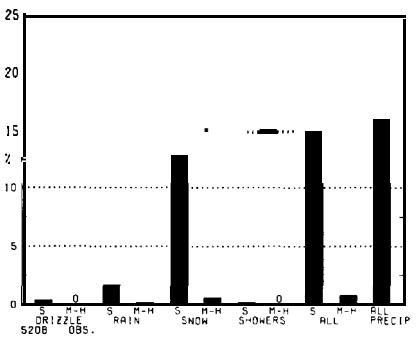
Homer



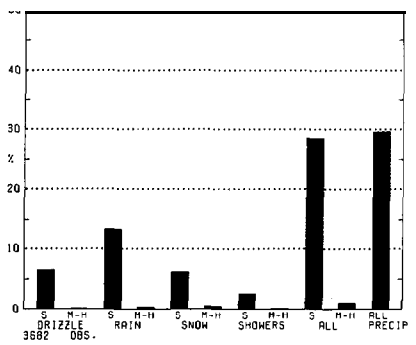
Kenai



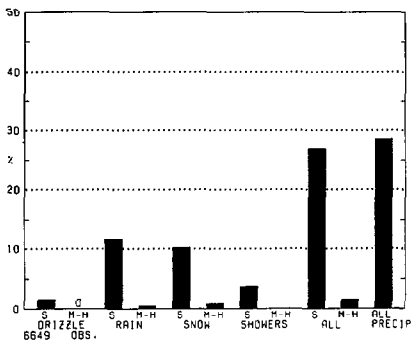
Anchorage



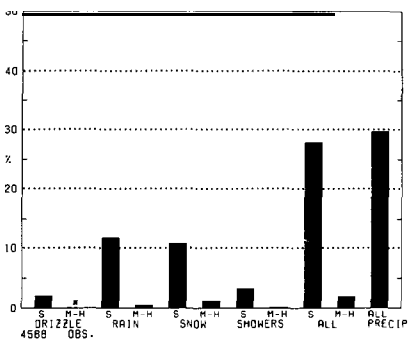
Middleton Island



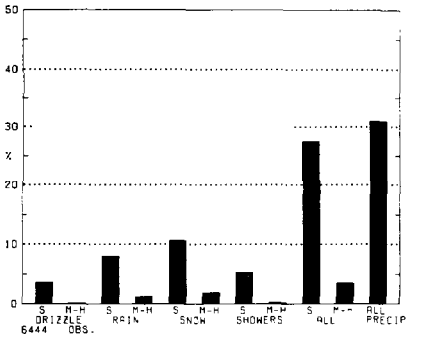
Cordova



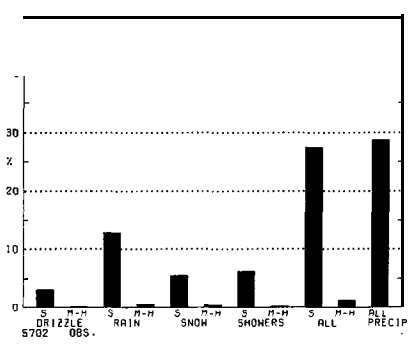
Yakataga



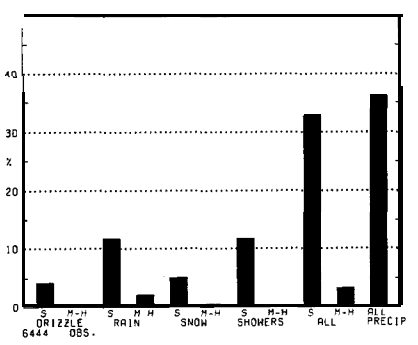
Yakutat



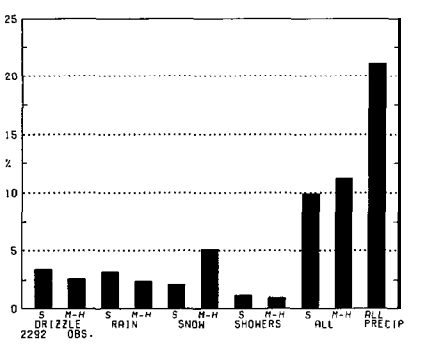
Sitka



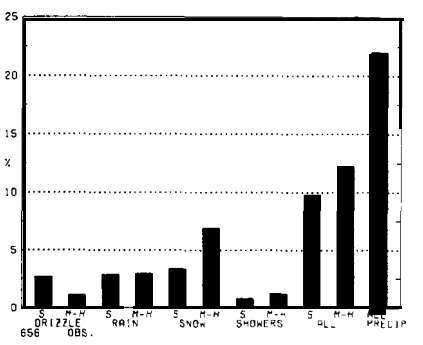
Annette

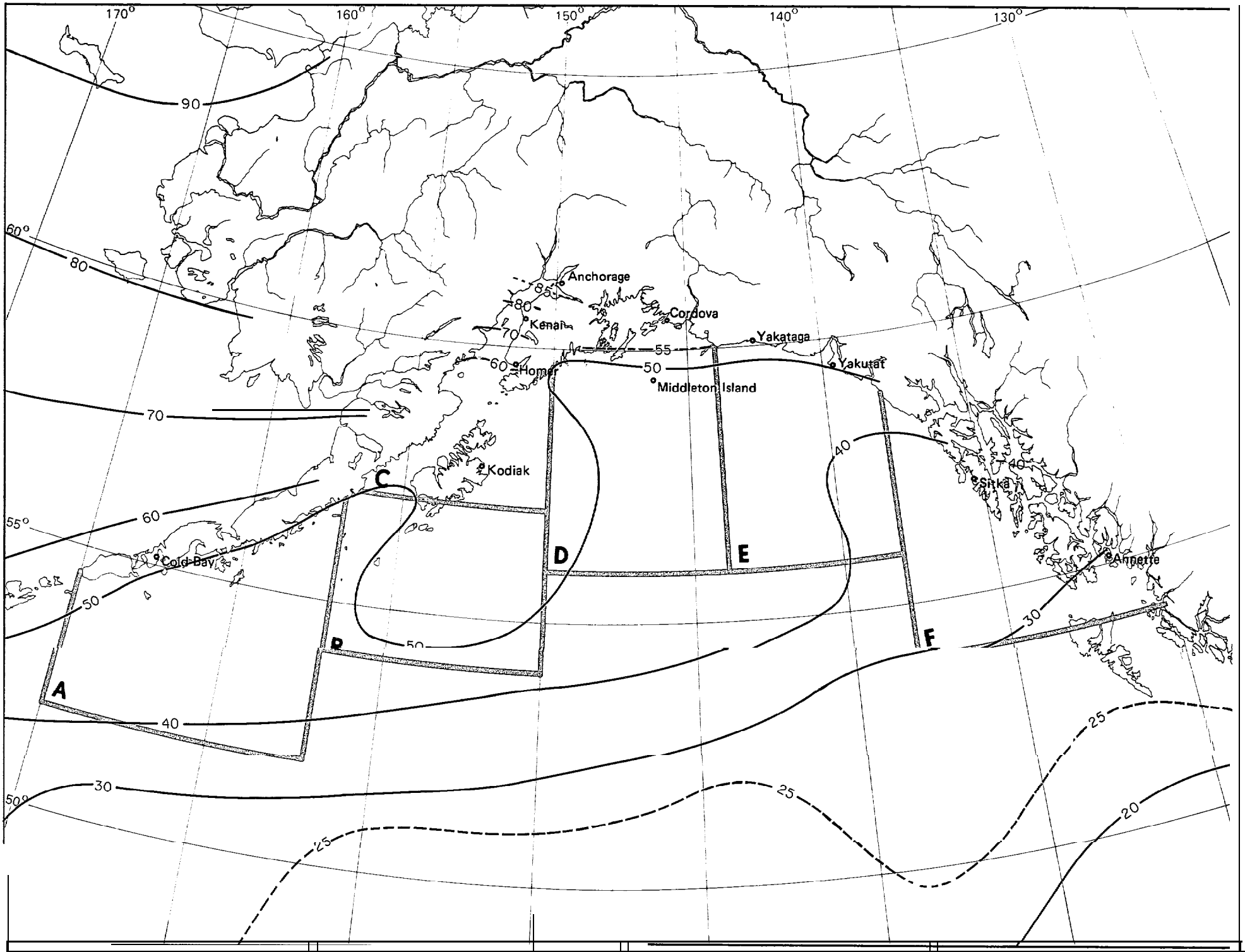


Marine Area A

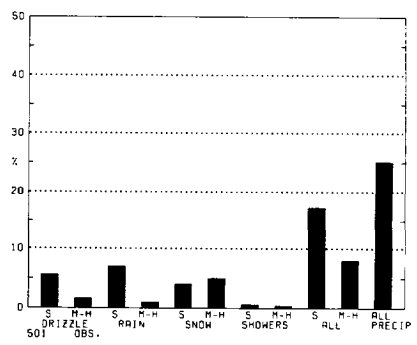


Marine Area B

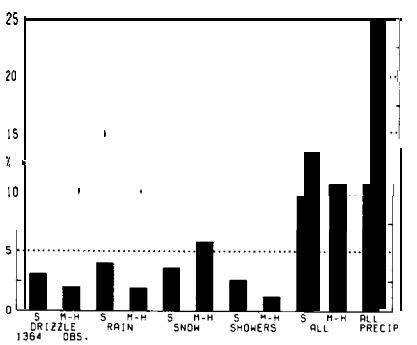




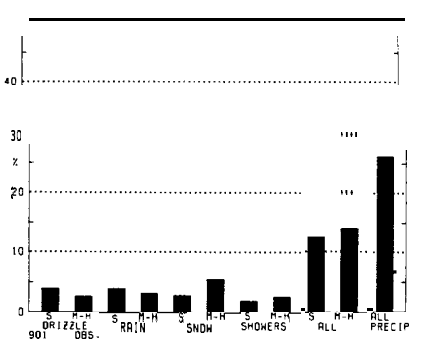
Marine Area C



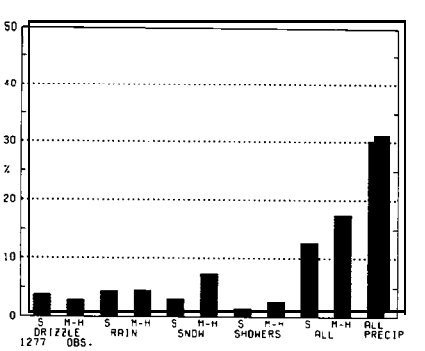
Marine Area D



Marine Area E

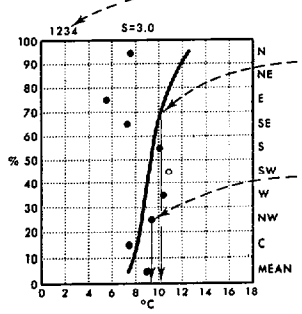


Marine Area F



Legend

Air temperature/wind direction



-- -Number of observations.

Cumulative percent frequency of temperatures equal to or less thon the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined ore represented by dots

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10.30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

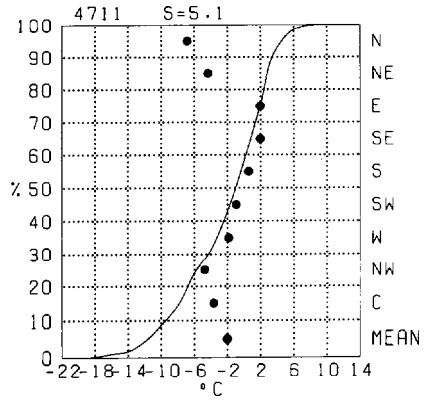
RED LINE Mean air temperature (°C)

BLUE LINE Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

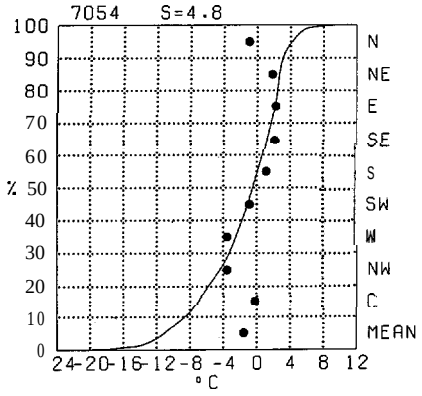
Air temperature readings recorded on transient ships in worm, sunny weather oppeor biased toward high temperatures, apparently because of improper instrument exposure ond ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses ore relatively accurate.

The temperature scale of the graph may vary in both range ond class interval. The percentage of temperature observations greater than a given value con be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are bored on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

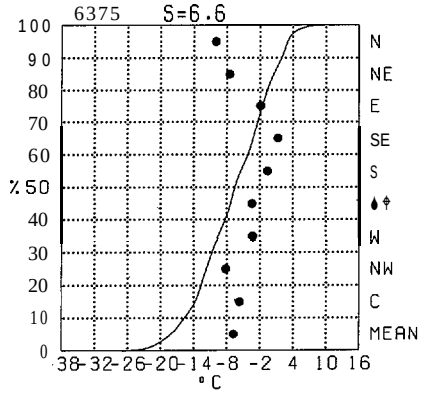
Cold Bay



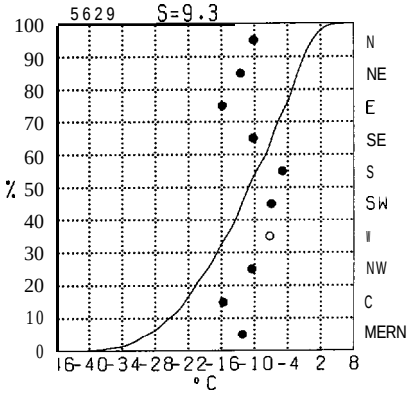
Kodiak



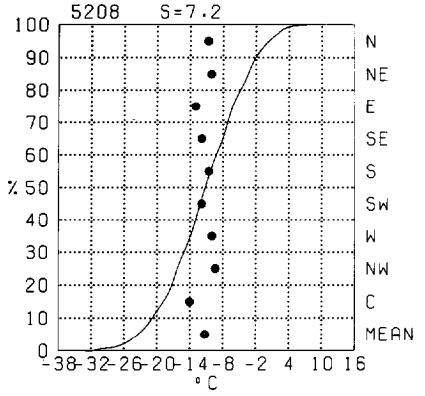
Homer



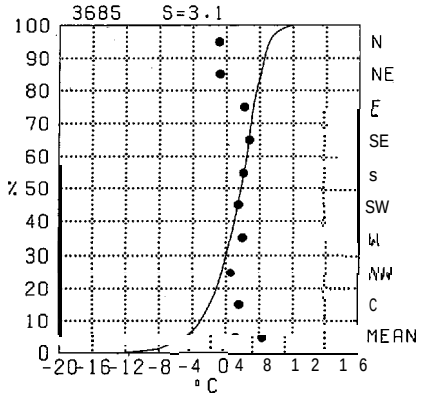
Kenai



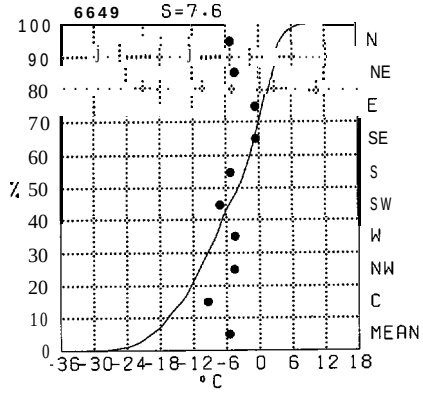
Anchorage



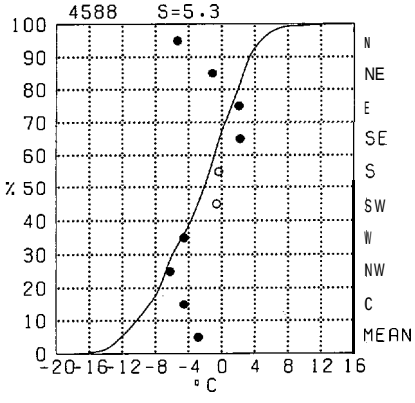
Middleton Island



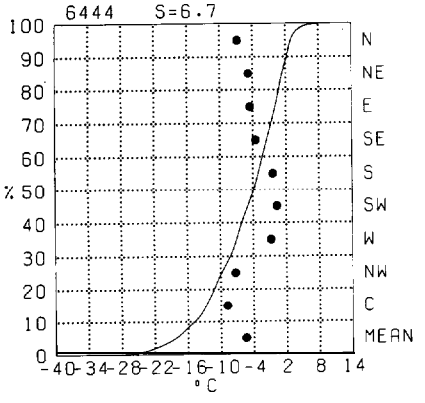
Cordova



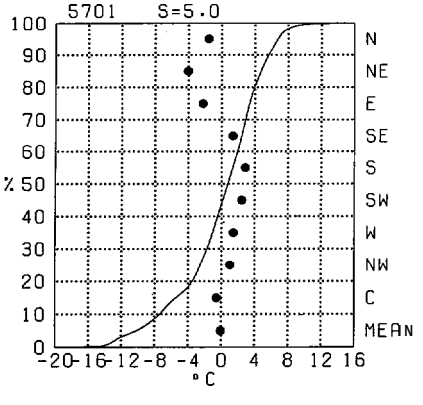
Yakataga



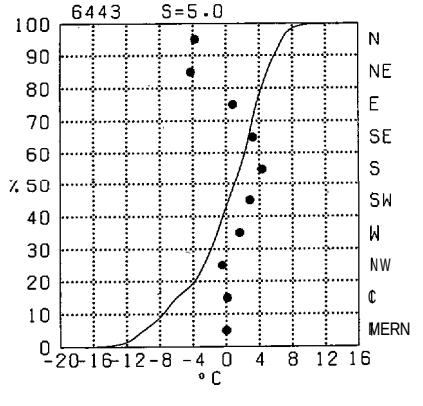
Yakutat



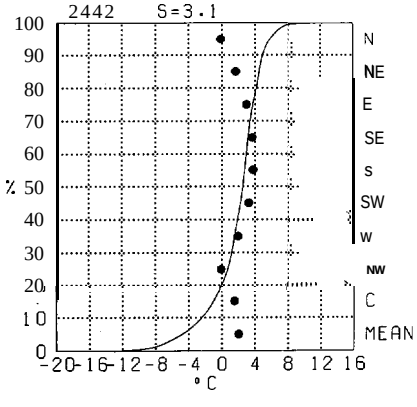
Sitka



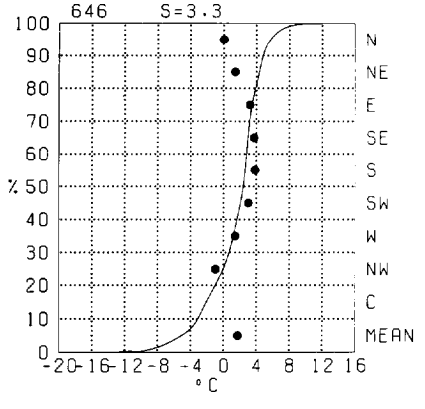
Annette

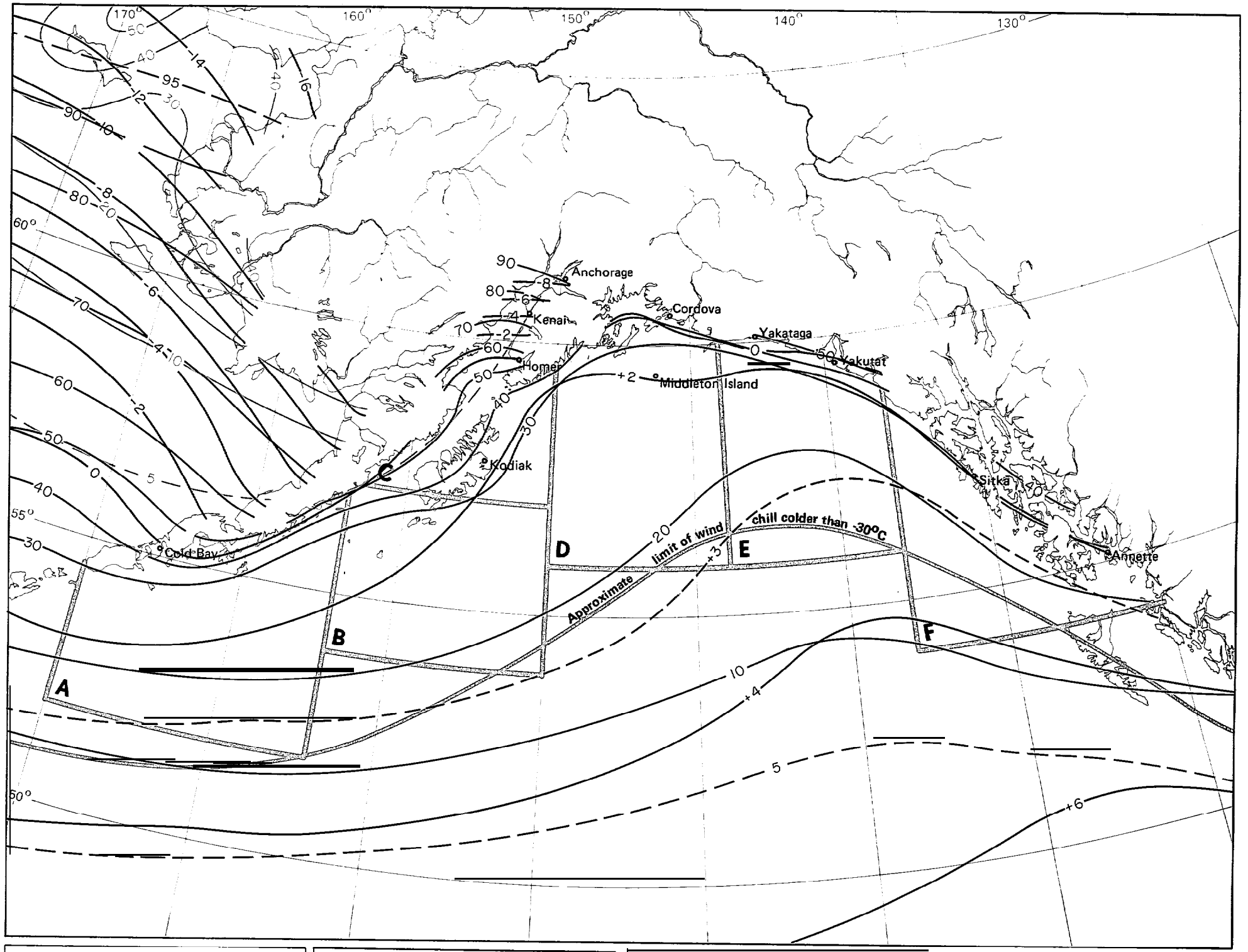


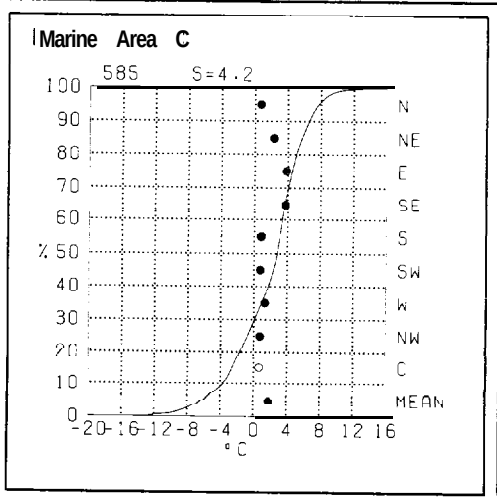
Marine Area A

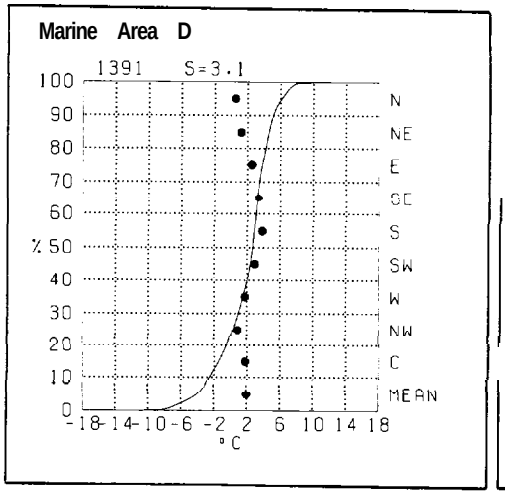


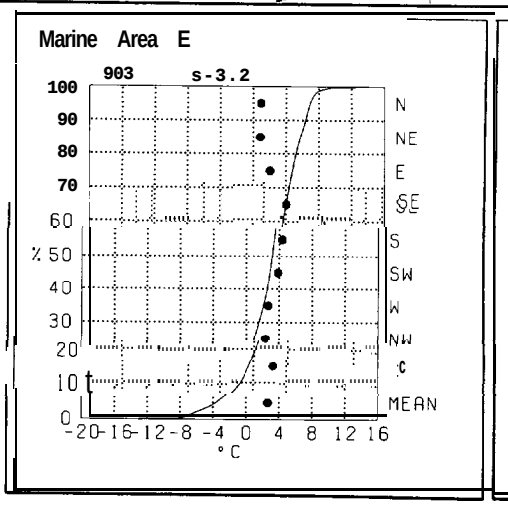
Marine Area B

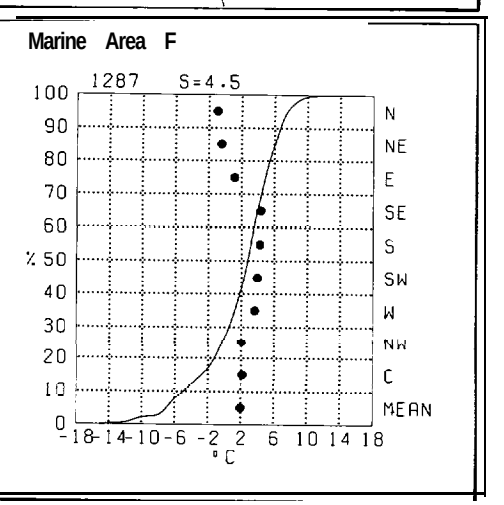










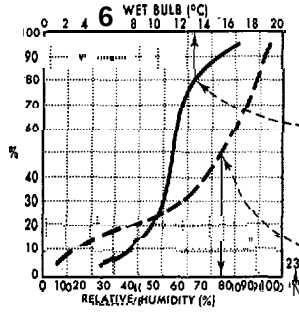


3 Air temperature mean and thresholds

January

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale)

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%)

(50% of all observed relative humidifier were ≤74%.)

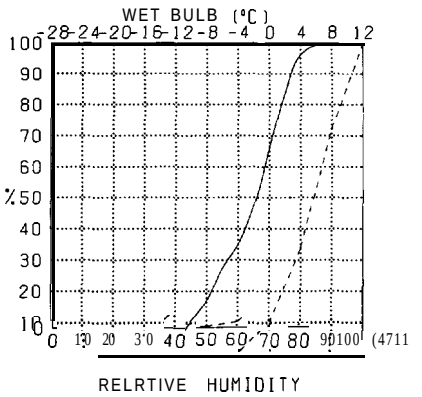
Number of observations.

Map . Mean dew point temperature

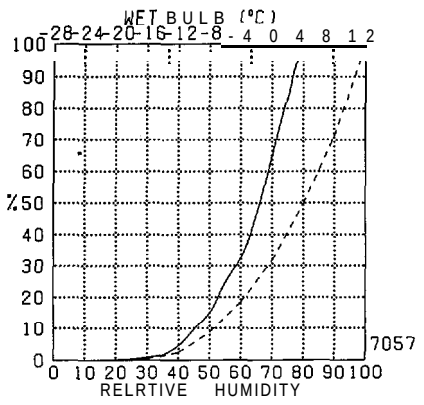
BLACK LINE Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value con be obtained by subtracting the cumulative percent frequency of that value from 100%.

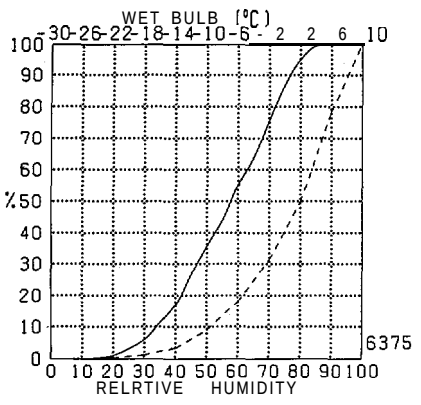
Cold Bay



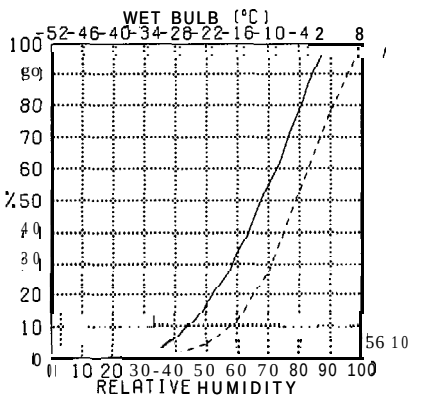
Kodiak



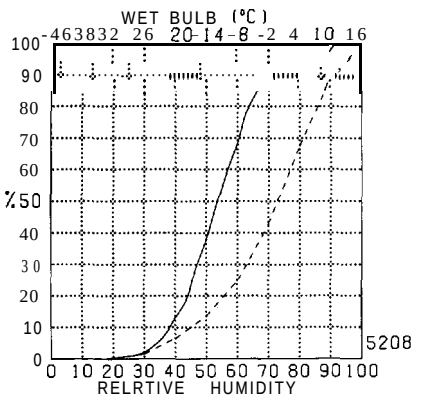
Homer



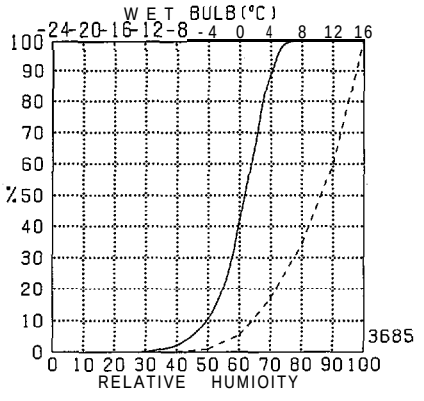
Kenai



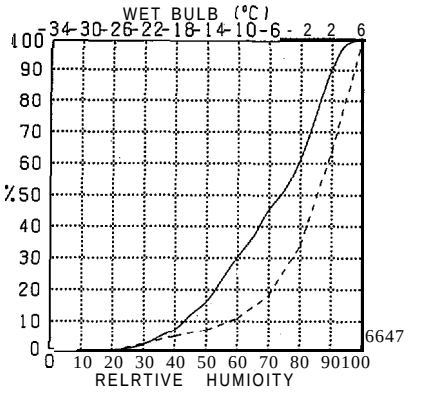
Anchorage



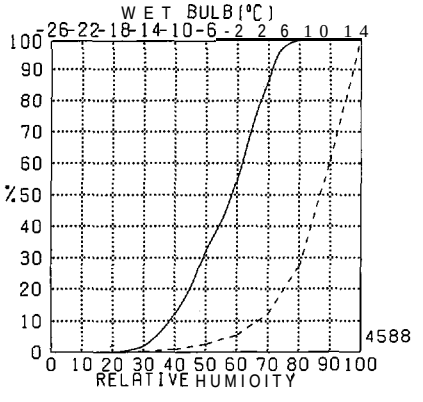
Middleton Island



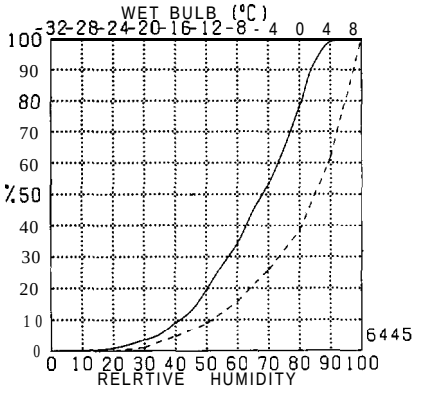
Cordova



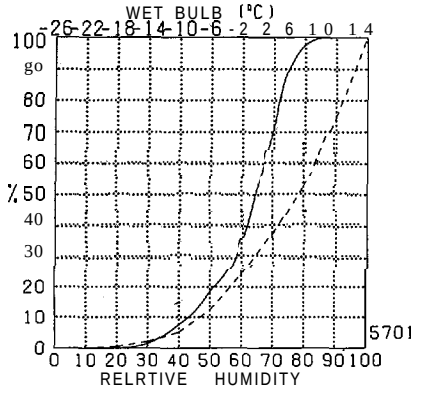
Yakataga



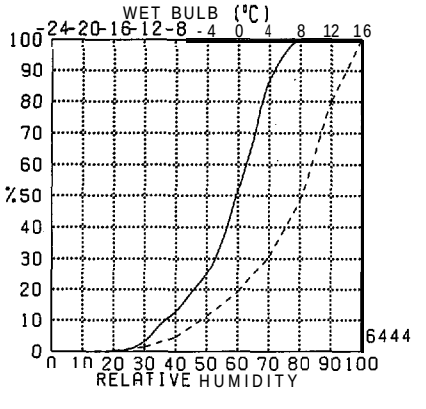
Yakutat



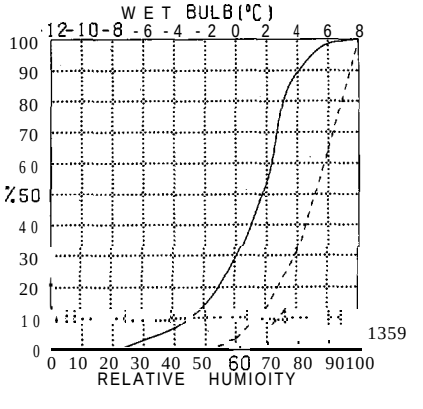
Sitka



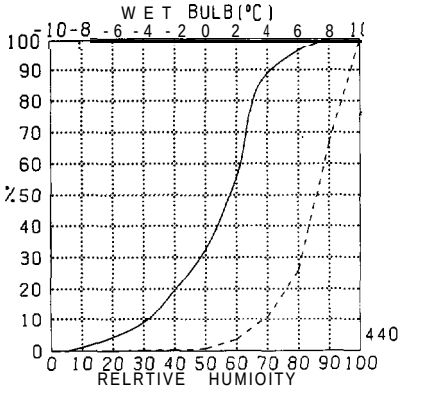
Annette

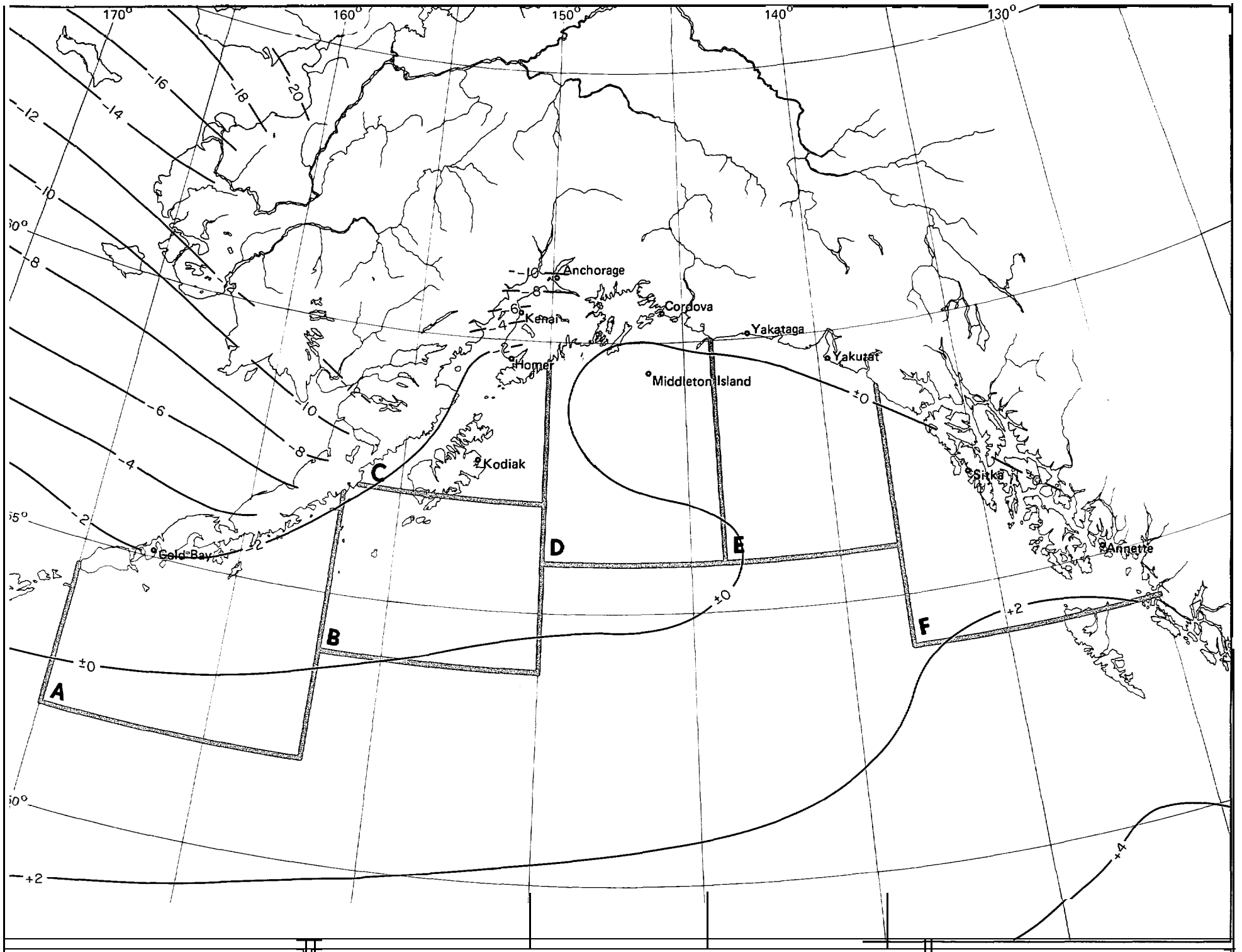


Marine Area A

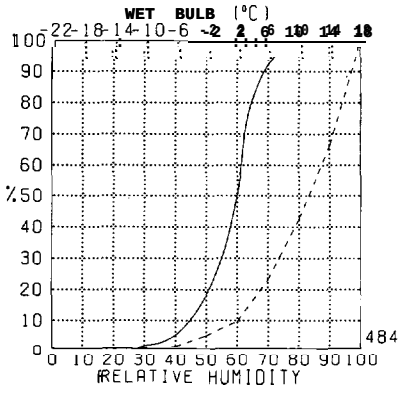


Marine Area B

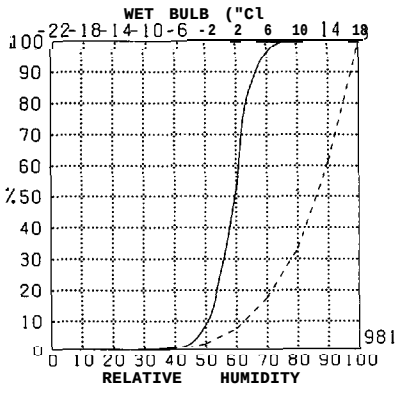




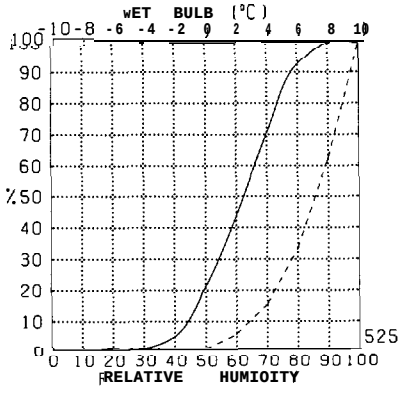
Marine Area C



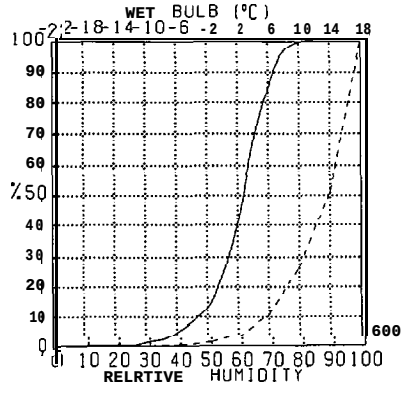
Marine Area D



Marine Area E



Marine Area F



4 Mean dew point temperature **January**

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4, 5	18	8	7	1	1
2, 3	17	8	7	1	1
0, 1	13	6	5	1	1
-2, -1	1	+	0	0	0
-4, -3	0	0	0	0	0
-6, -5	+	0	0	+	+
-8, -7	1	+	0	0	0
-10, -9	0	0	0	0	0
-12, -11	1	+	0	0	0
-14, -13	1	0	0	0	0
-16, -15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

—(1% of all observations reported temperature 2-3°C simultaneously with wind speed of 2233 kts.)

—+ Indicates <.5% but >0.

,--Number of observations.

Map - Air temperature extremes (“C)

BLACK LINE Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph)

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	+	+	+	0
6.7	+	+	1	1	+
4.5	+	1	3	3	1
2.3	+	3	9	6	1
0.1	1	5	7	3	1
-2.-1	1	5	5	2	+
-4.-3	1	4	4	1	+
-6.-5	1	3'	2	1	+
-8.-7	+	3	3	2'	+
-10.-9	+	1	2	1	0
≤-11	+	2	3	2	+

4711

Kodiak

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	0	0	+	+	0
8.9	0	+	+	+	0
6.7	+	+	1	+	0
4.5	1	3	3	+	0
2.3	5	9	10	2	+
0.1	4	6	5	1	+
-2.-1	4	5	4	1	+
-4.-3	3	4	3	1	+
-6.-5	1	2	2	1	+
-8.-7	1	2	3	1	+
≤-9	1	3	4	2	+

7054

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	0	0	+	0	0
8.9	0	0	+	+	0
6.7	+	+	1	+	0
4.5	+	1	1	+	+
2.3	2	4	3	+	0
0.1	3	3	1	+	0
-2.-1	4	5	1	+	0
-4.-3	5	6	1	+	0
-6.-5	3	4	1	+	+
-8.-7	5	6	1	+	0
≤-9	11	24	4	+	0

6375

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	+	0	0	0
6.7	+	+	+	0	0
4.5	0	+	+	+	0
2.3	+	2	1	+	0
0.1	1	2	1	+	0
-2.-1	1	3	4	+	0
-4.-3	2	4	4	+	0
-6.-5	1	3	2	+	0
-8.-7	2	5	2	+	0
-10.-9	1	3	1	+	+
≤-11	22	26	3	1	+

5627

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	0	+	0	0
6.7	0	+	+	+	0
4.5	+	+	+	+	0
2.3	+	1	1	+	0
0.1	1	2	+	+	0
-2.-1	2	3	1	0	0
-4.-3	2	6	+	0	0
-6.-5	2	4	+	+	0
-8.-7	4	7	1	+	+
-10.9	3	4	1	+	+
≤-11	29	19	5	1	+

5208

Middleton Island

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
6.7	+	1	2	2	+
4.5	1	5	8	4	1
2.3	3	11	13	5	1
0.1	3	8	6	2	+
-2.-1	1	3	4	2	+
-4.-3	+	1	4	2	+
-6.-5	+	+	1	1	+
-8.-7	+	+	1	1	+
-10.-9	0	+	+	+	0
-12.-11	0	0	+	+	0
-14.-13	0	0	0	+	0

3685

Cordova

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	0	0	+	+	0
10.11	+	+	+	+	0
8.9	0	+	+	+	0
6.7	+	1	1	+	0
4.5	+	2	2	+	0
2.3	2	7	4	+	+
0.1	5	6	2	+	+
-2.-1	6	4	1	+	0
-4.-3	5	3	+	0	0
-6.-5	4	2	+	0	0
≤-7	33	7	1	+	0

6649

Ya kataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	0	+	+	0
12.13	0	+	+	0	0
10.11	0	0	+	+	0
8.9	0	+	+	+	0
6.7	+	+	2	+	+
4.5	+	1	4	1	+
2.3	2	4	8	1	+
0.1	5	6	3	+	+
-2.-1	6	7	1	+	0
-4.-3	6	6	1	+	0
≤-5	17	18	1	0	0

4588

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	+	+	+	+	0
6.7	+	+	+	+	+
4.5	+	1	1	+	+
2.3	1	6	4	1	+
0.1	2	8	3	+	+
-2.-1	3	6	2	+	+
-4.-3	4	6	2	+	0
-6.-5	3	4	1	+	0
-8. 7	3	4	2	+	0
-10.-9	3	2	1	+	0
≤-11	13	7	2	+	0

6444

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	0	+	+	0
12.13	0	+	+	+	+
10.11	0	0	+	0	+
8.9	+	+	1	+	+
6.7	1	3	4	1	+
4.5	2	6	4	1	+
2.3	6	10	4	1	+
0.1	6	7	2	+	+
-2.-1	5	6	2	+	0
-4.-3	3	4	1	+	0
≤-5	4	9	3	+	+

570;

Annette

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	0	+	+	0
12.13	0	+	0	+	0
10.11	0	+	+	+	0
8.9	+	+	1	1	+
6.7	+	3	5	2	+
4.5	1	5	7	2	+
2.3	2	10	6	2	+
0.1	3	7	3	1	+
-2.-1	2	7	3	1	+
-4.-3	2	5	2	+	0
≤-5	2	10	5	1	+

6443

Marine Area A

WIND SPEEO IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	0	0	+	+	0
8.9	+	+	+	+	0
6.7	+	2	2	2	1
4.5	+	6	11	7	2
2.3	1	9	13	8	3
0.1	1	4	6	4	1
-2.-1	+	1	2	2	1
-4.-3	+	+	1	1	1
-6.-5	+	+	1	1	1
-8.-7	0	+	1	+	+
≤-9	+	+	+	+	+

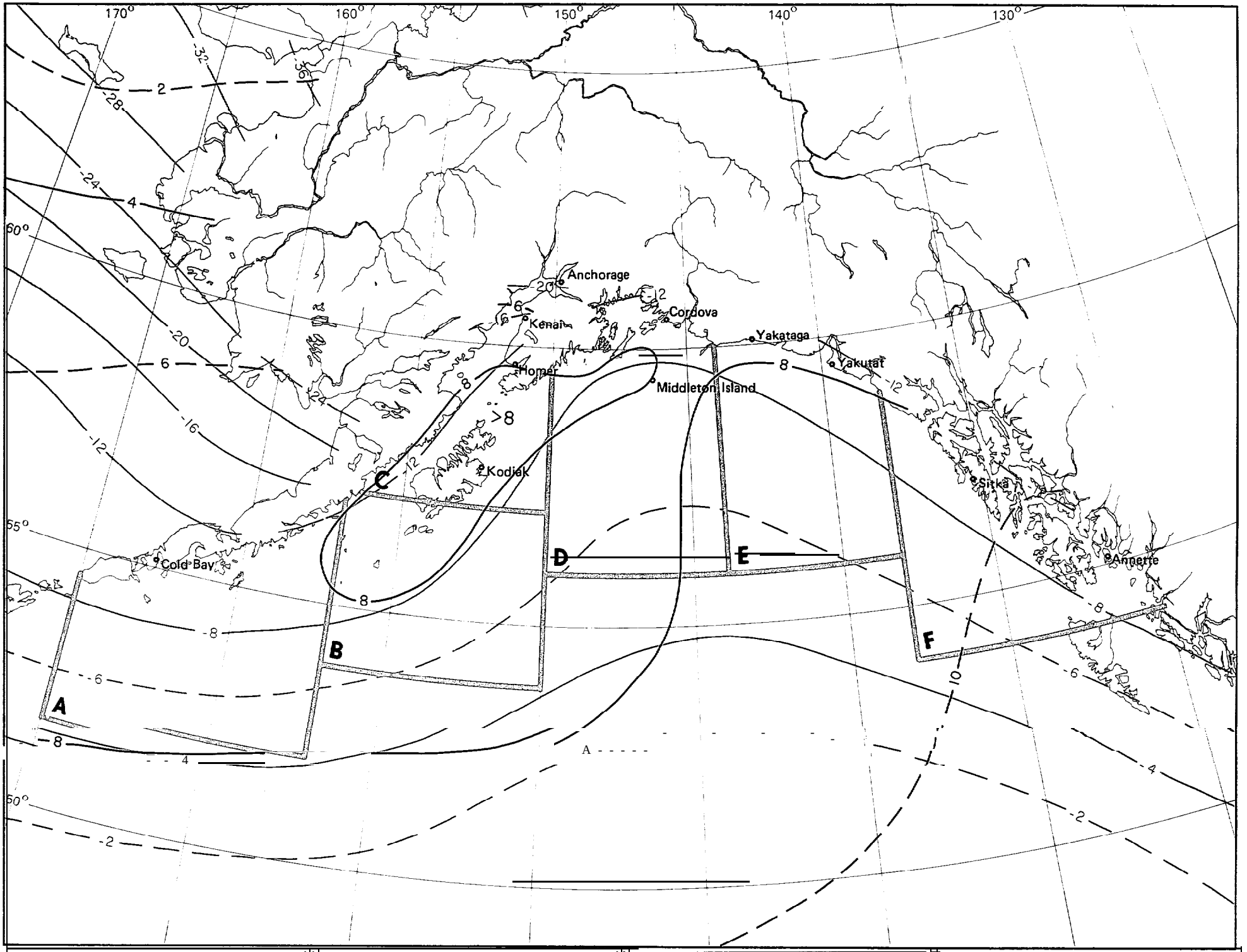
2443

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	+	+	0	0	0
8.9	0	0	+	+	+
6.7	0	2	2	2	1
4.5	1	6	12	6	2
2.3	1	9	13'	7;	2
0.1	+	4	6	3'	1
-2.-l	0	1	3	2	2
-4.-3	0	1	2	1	3
-6.-5	0	+	2	1	1
-8.-7	0	+	1	+	+
≤-9	0	0	+	0	+

647



Marine Area C

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12,13	+	+	0	0	0
10,11	+	1	0	0	0
8,9	+	2	1	1	+
6,7	3	2	5	2	1
4,5	3	7	5	4	2
2,3	3	8	10	3	2
0,1	2	2	3	3	1
-2,-1	2	3	2	1	1
-4,-3	2	2	2	2	1
-6,-5	1	+	1	1	1
≤-7	1	1	1	1	1

585

Marine Area D

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
10,11	+	0	+	0	0
8,9	0	+	1	+	0
6,7	1	2	3	2	1
4,5	1	8	8	4	2
2,3	2	11	13	6	3
0,1	+	3	6	3	1
-2,-1	1	2	3	2	1
-4,-3	0	1	2	1	1
-6,-5	+	1	1	1	1
-8,-7	0	+	1	+	+
≤-9	0	0	+	0	+

1391

Marine Area E

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	0	+	+	+	0
8,9	0	+	1	1	+
6,7	+	4	7	3	2
4,5	2	7	9	4	3
2,3	3	8	9	7	2
0,1	1	3	5	3	2
-2,-1	+	1	2	2	1
-4,-3	+	1	1	1	+
-6,-5	0	+	1	1	+
≤-7	0	+	+	+	+

903

Marine Area F

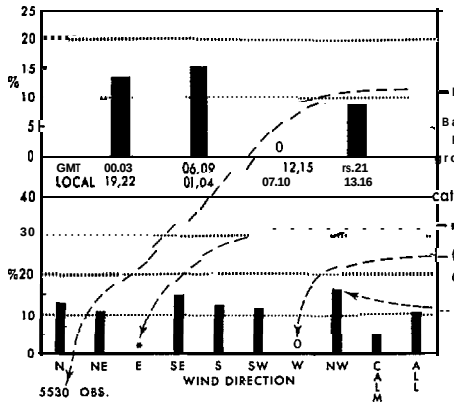
TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12,13	+	0	+	0	0
10,11	+	+	+	+	+
8,9	1	1	2	1	1
6,7	1	3	6	4	1
4,5	2	5	9	4	1
2,3	2	6	8	6	2
0,1	2	4	4	2	1
-2,-1	+	1	1	2	1
-4,-3	+	1	2	1	+
-6,-5	+	1	2	1	+
≤-7	0	2	2	1	1

1287

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

- - (Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

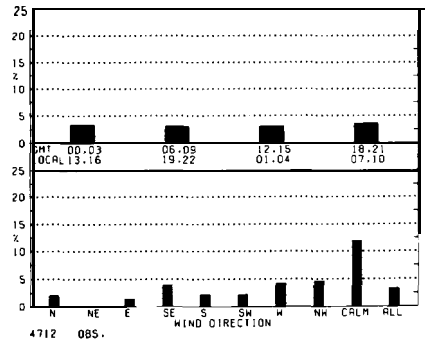
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

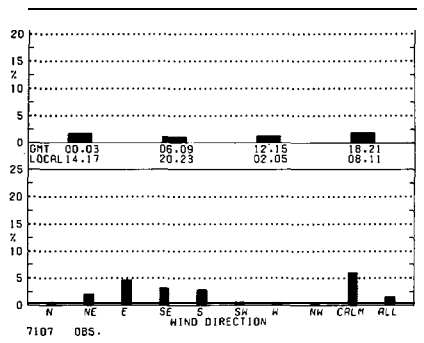
BLUE LINE Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

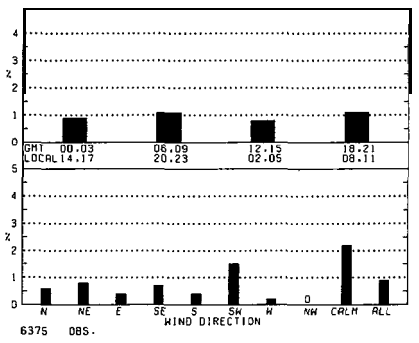
Cold Bay



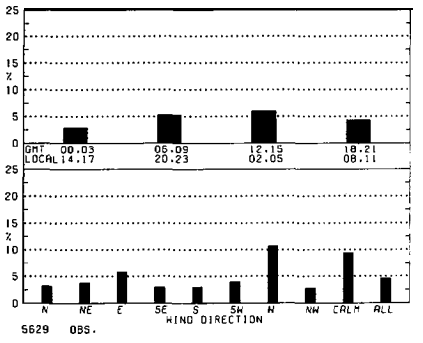
Kodiak



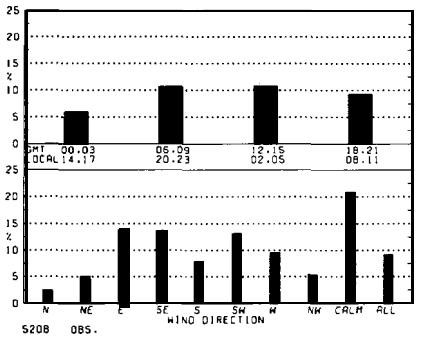
Homer



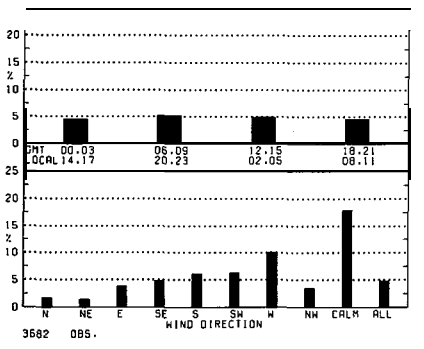
Kenai



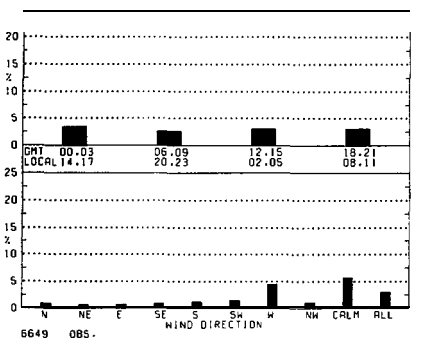
Anchorage



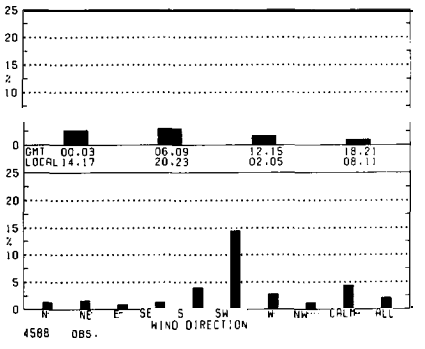
Middleton Island



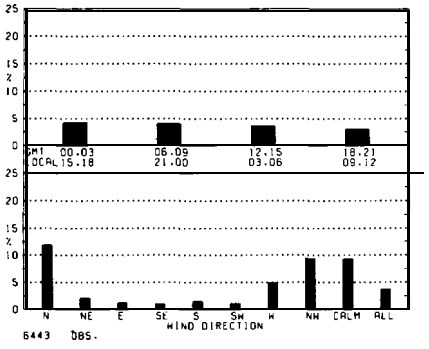
Cordova



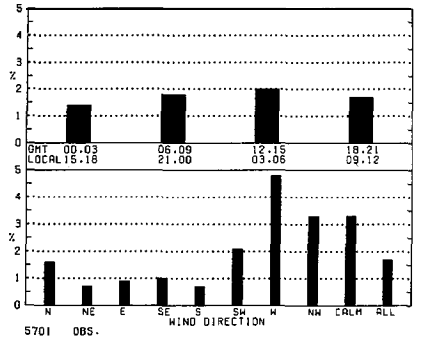
Yakataga



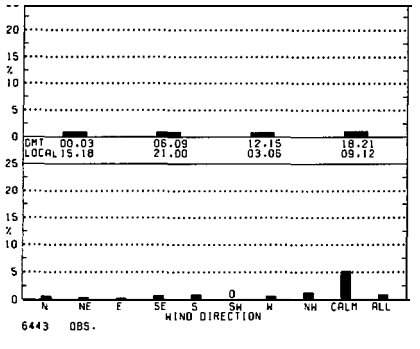
Yakutat



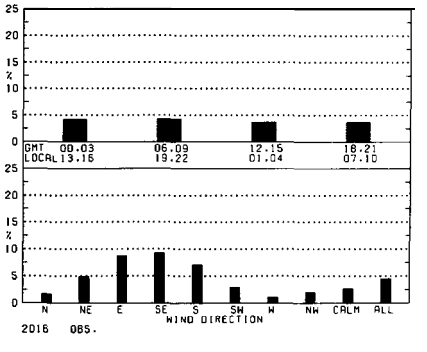
Sitka



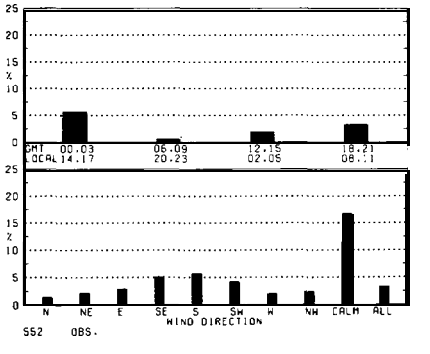
Annette

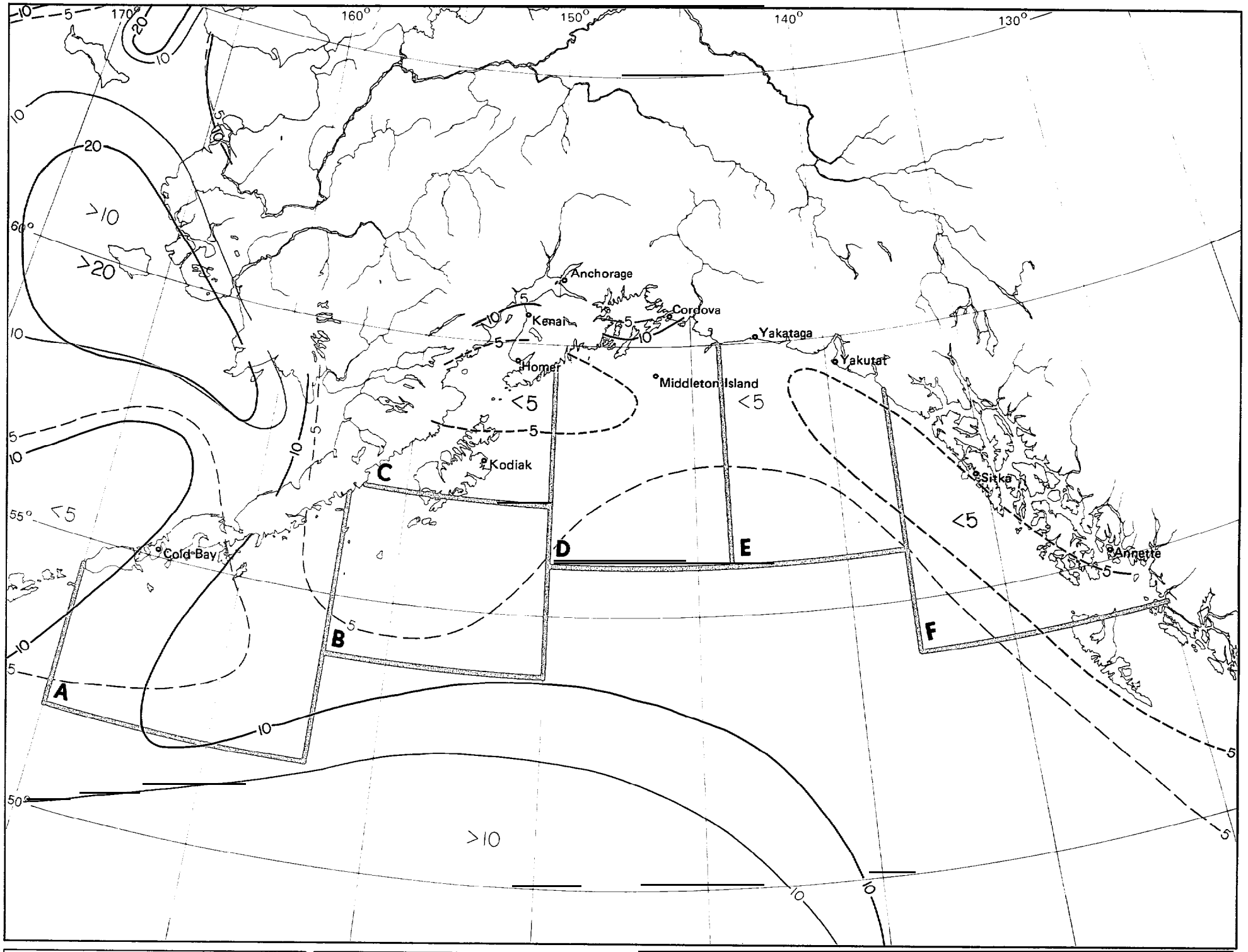


Marine Area A

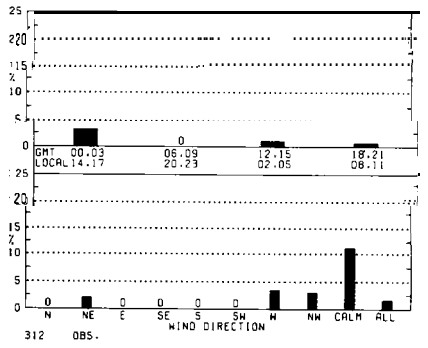


Marine Area B

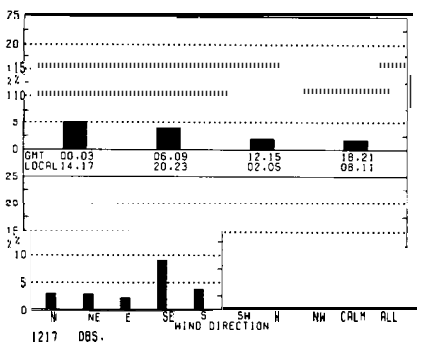




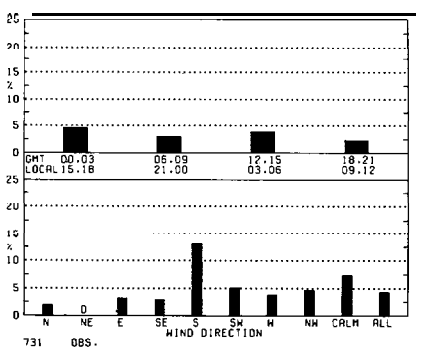
Marine Area C



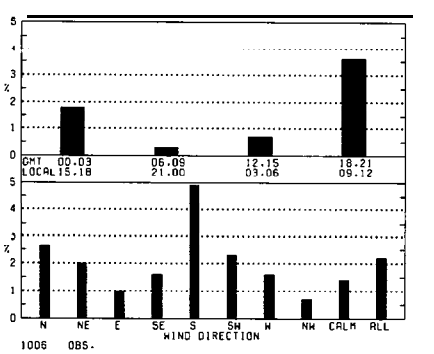
Marine Area D



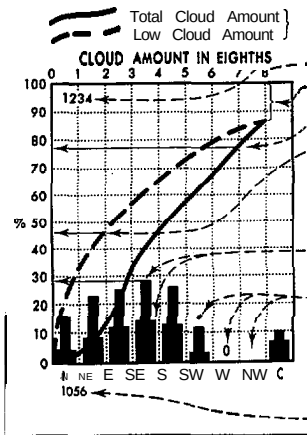
Marine Area E



Marine Area F



Legend — Cloud cover/wind direction



Total Cloud Amount
Low Cloud Amount
Cumulative percent frequency of **indicated** cloud amount **equal** to or less than the amount intersected by the curve.

Number of **total** cloud observations.

Obscurations.

(77% of *all total cloud* amounts were ≤7/8.)

(46% of *all low cloud amounts* were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of **observations** from **each** direction and calm that were **accompanied** by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with **bases** <8000 feet.

(28% of *all* SE *winds* were *accompanied* by low *cloud amounts* ≥5/8 *and* 14% *by* low *cloud amounts* ≥7/8.)

An asterisk **indicates that** the percentage is based on **10-30 observations** of wind direction, *total and* low cloud amount. 0 *replaces* **bar graph** when no **low** cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of **observations** of total and low cloud **amount** from a wind direction or calm is less **than** 10.

Number of **low** cloud observations.

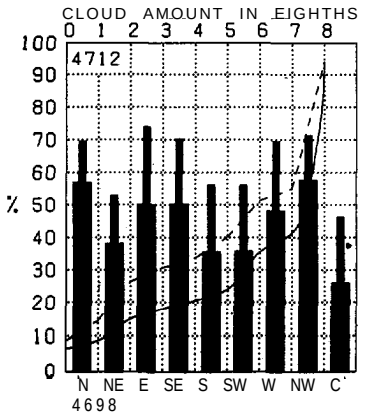
Map · Cloud amount thresholds

BLACK LINE · Percent frequency of total cloud **amount** ≤2/8

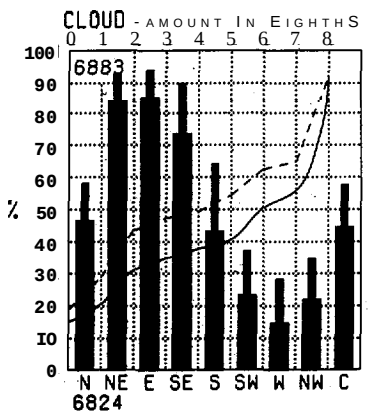
BLUE LINE Percent frequency of **low** cloud **amount** ≥5/8

Since the number of observations reporting low cloud **amount is** usually less than **that** for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This **may** lead to inconsistencies where low cloud **amount** oppeors higher **than** the totol cloud amount. Where this occurred the graph was **adjusted** in favor of the **total** cloud by **making** the curves coincide. The frequency of obscured conditions moy be determined by subtracting the cumulative percent frequency corresponding to B/B coverage from 100%. In computing the bor graph, **obscurations are** considered **as** 8/B **coverage**.

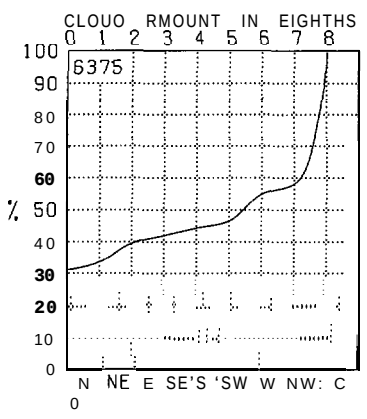
Cold Bay



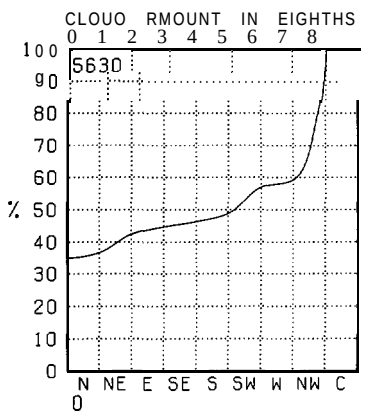
Kodiak



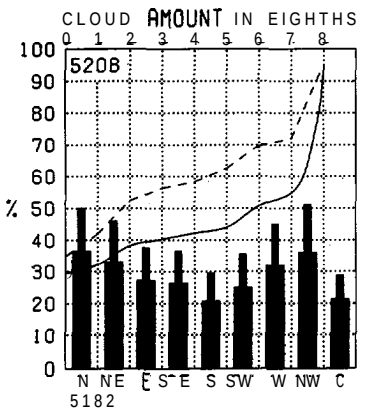
Homer



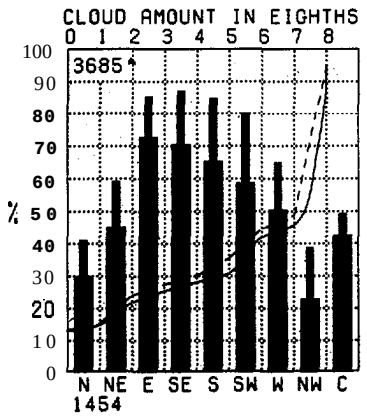
Kenai



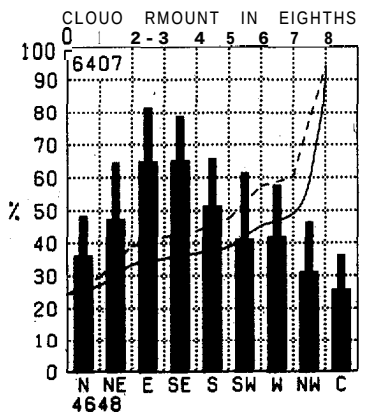
Anchorage



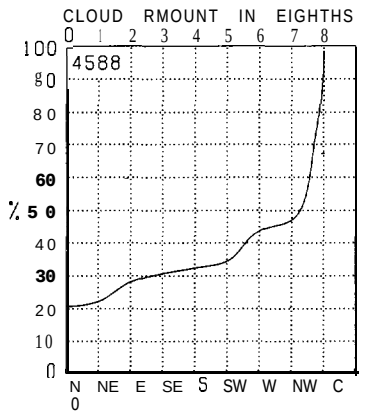
Middleton Island



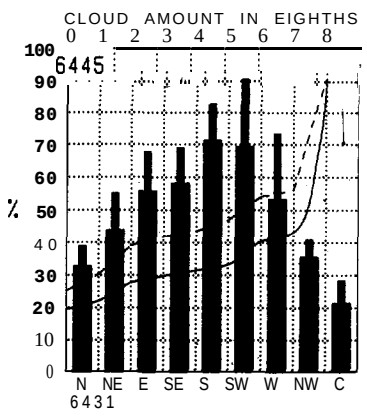
Cordova



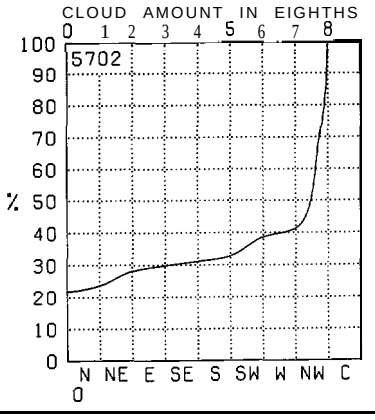
Yakataga



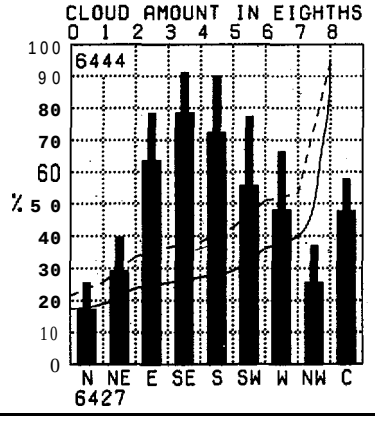
Yakutat



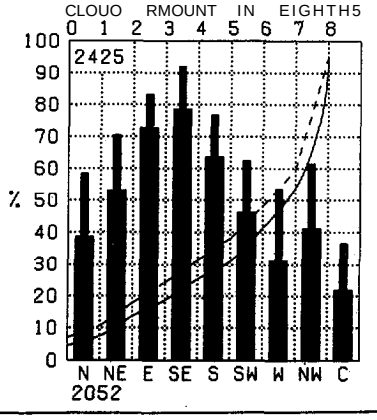
Sitka



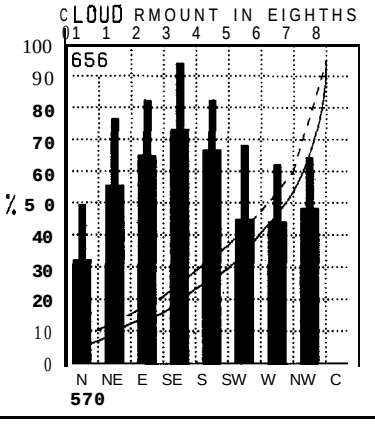
Annette

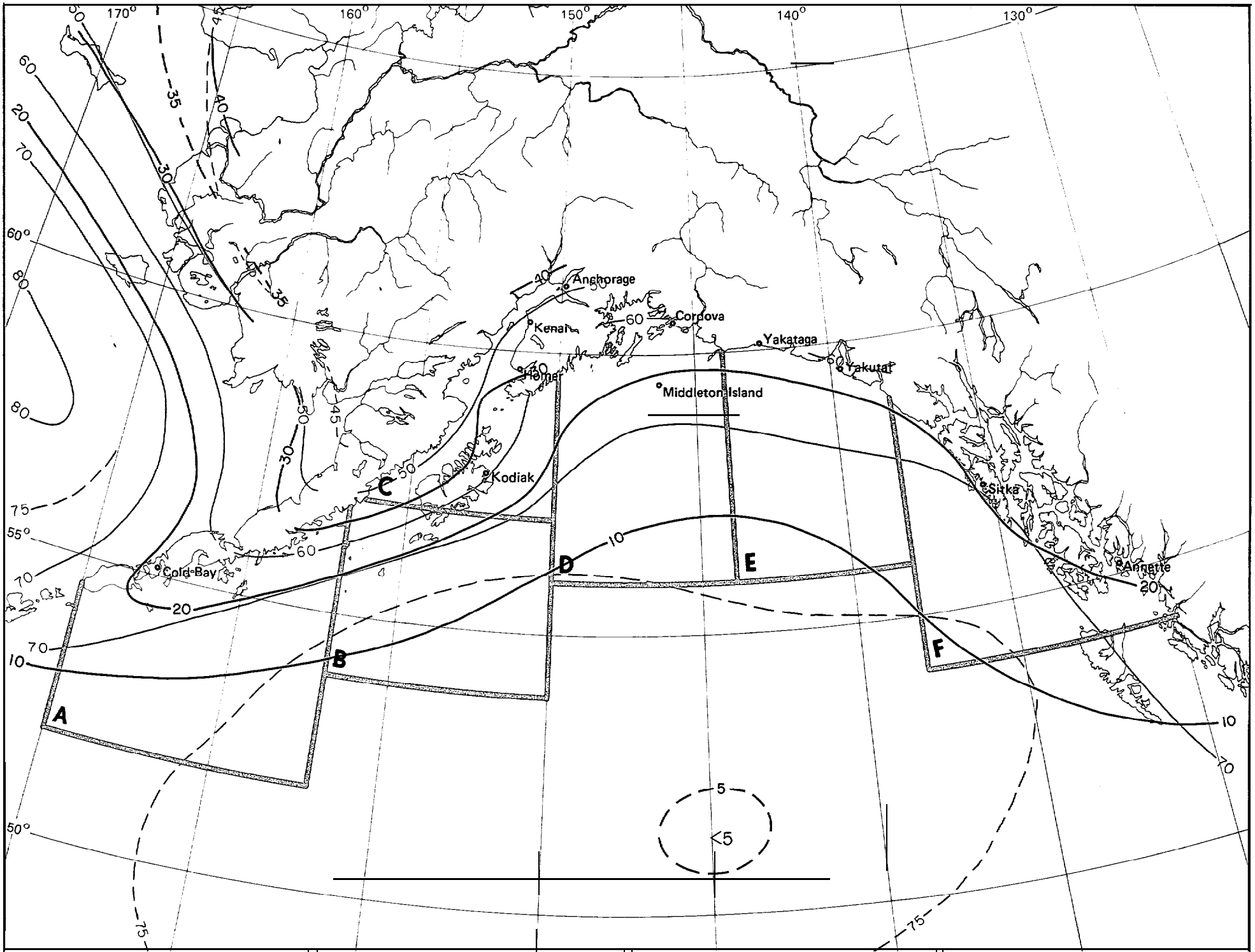


Marine Area A

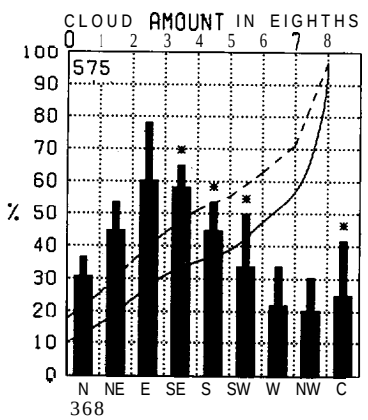


Marine Area B

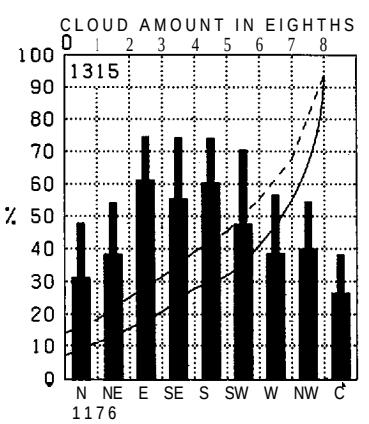




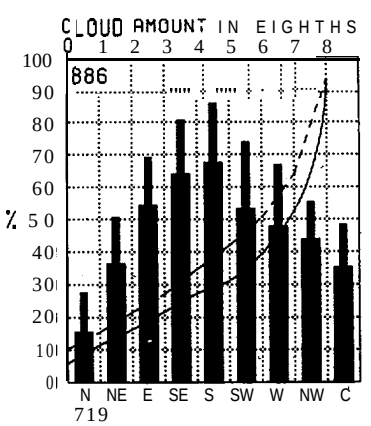
Marine Area C



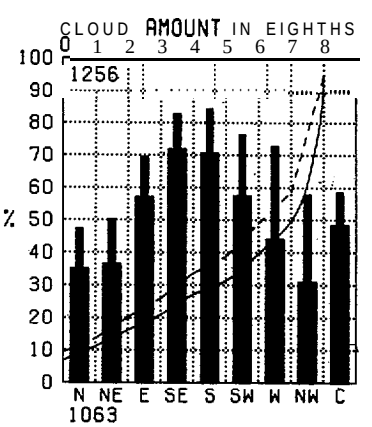
Marine Area D



Marine Area E



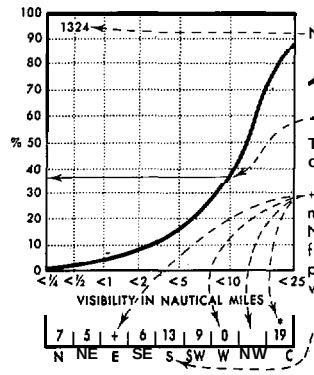
Marine Area F



7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

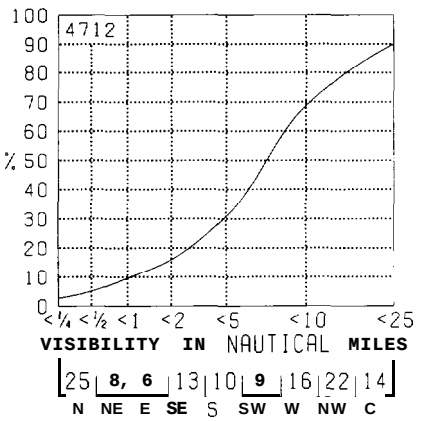
Map • Visibility thresholds

BLACK LINE Percent frequency of visibilities ≥5 nautical miles

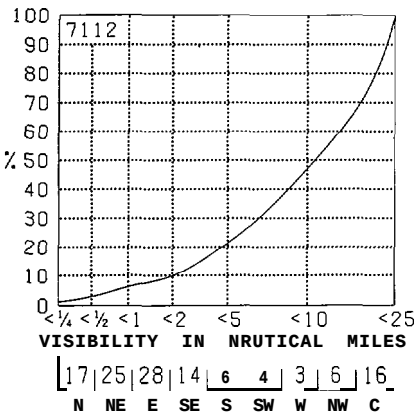
BLUE LINE Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

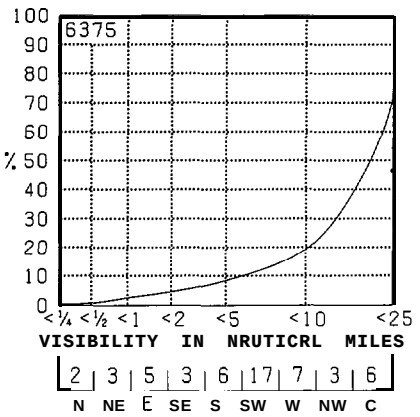
Cold Bay



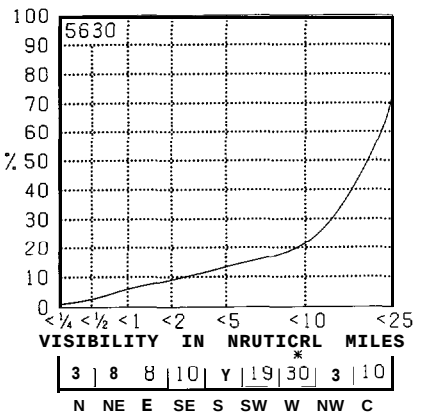
Kodiak



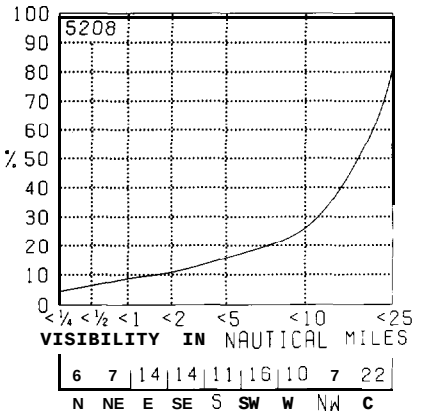
Homer



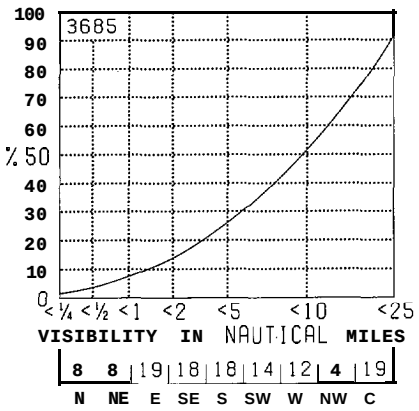
Kenai



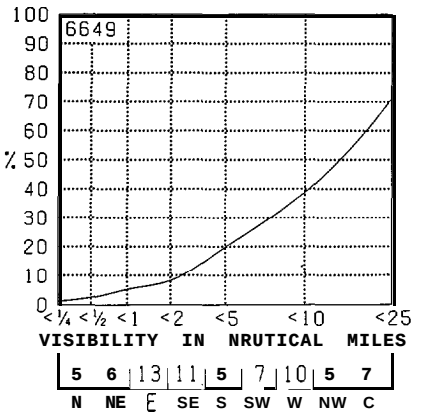
Anchorage



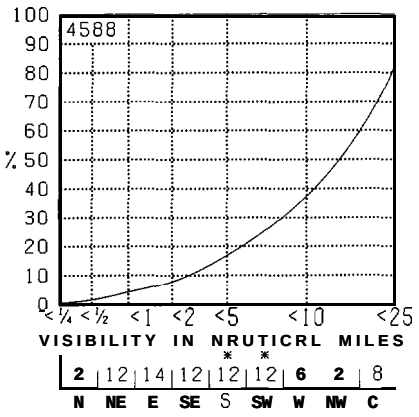
Middleton Island



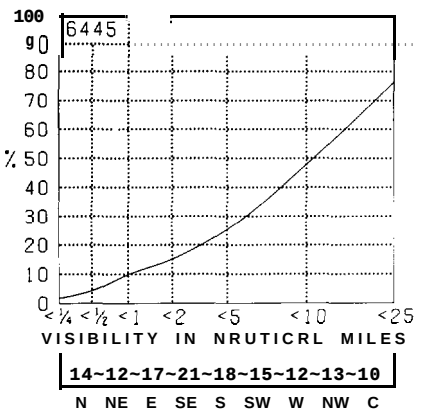
Cordova



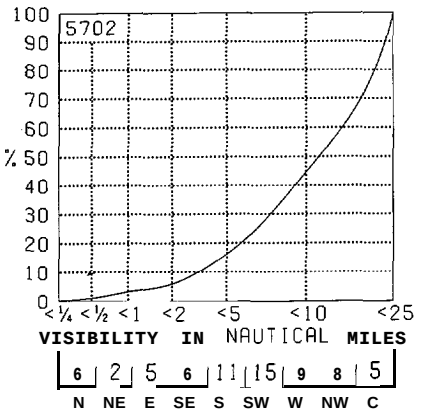
Yakataga



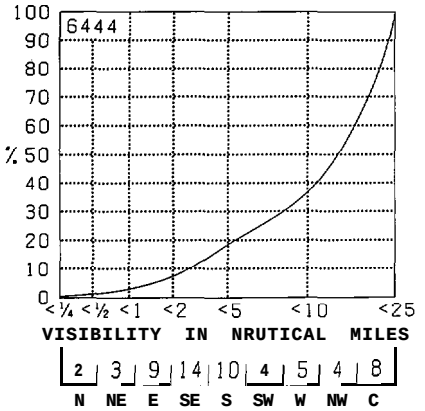
Yakutat



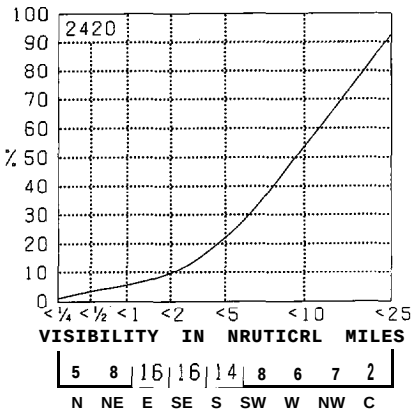
Sitka



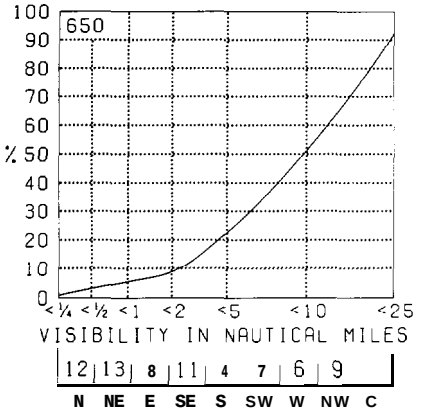
Annette

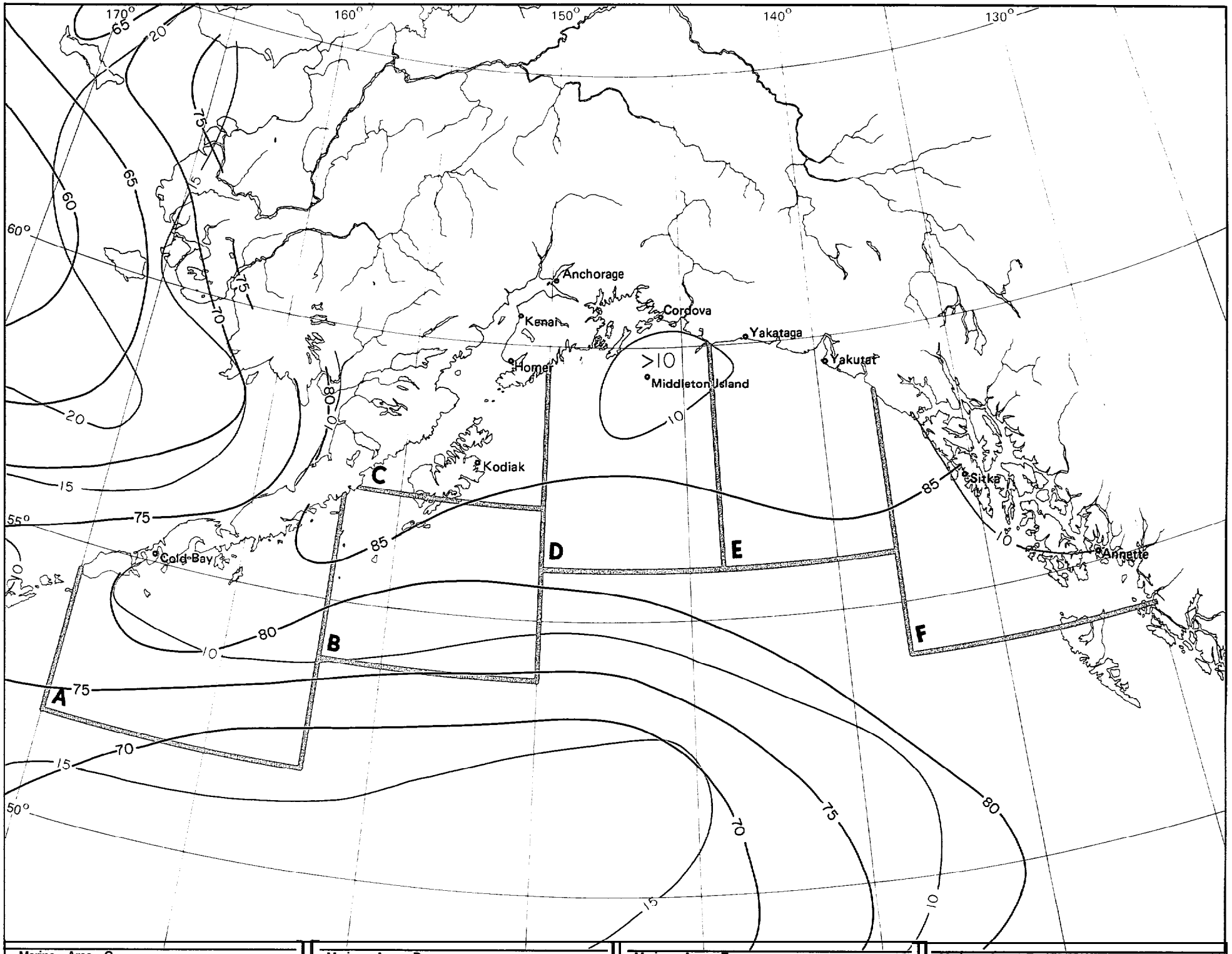


Marine Area A

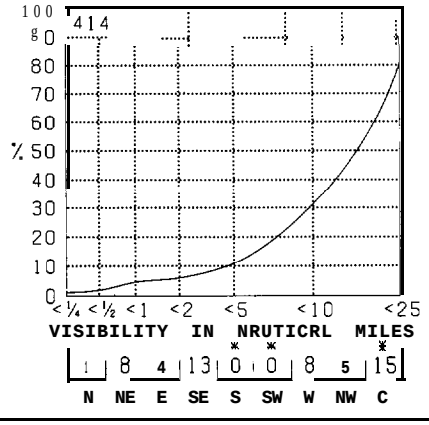


Marine Area B

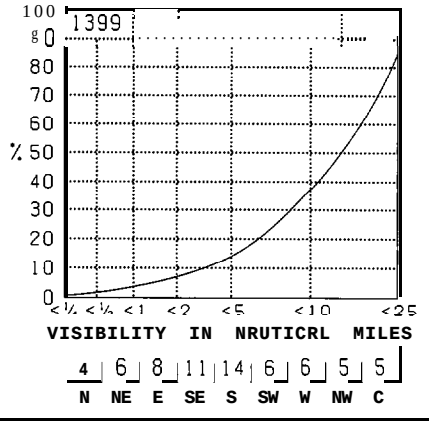




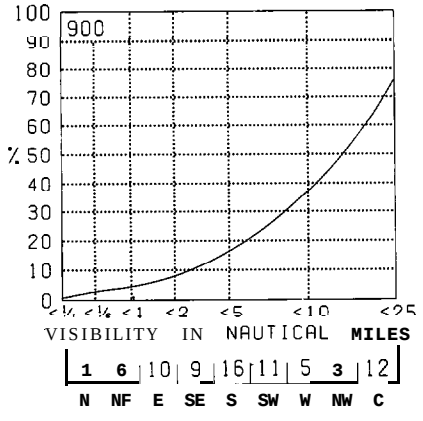
Marine Area C



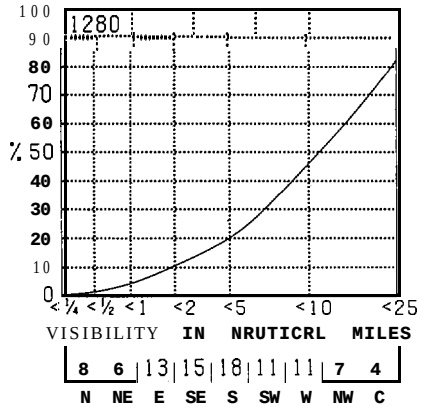
Marine Area D



Marine Area E



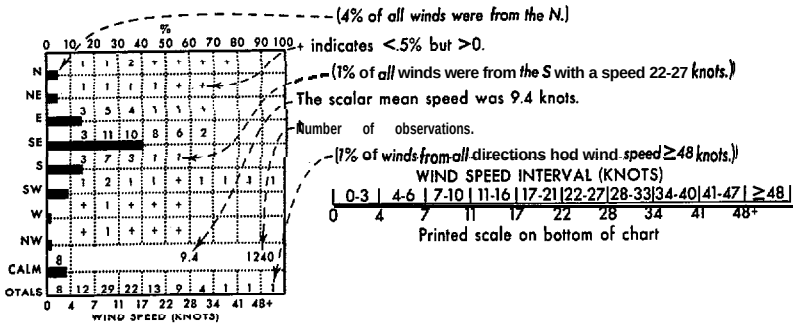
Marine Area F



Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent Frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



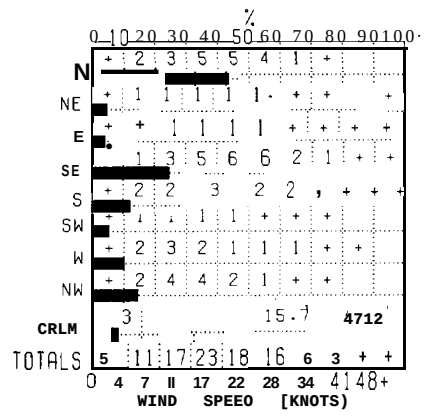
Map • Wind speed thresholds

BLACK LINE • Percent frequency of wind speed ≤10 knots (≤12 mph)

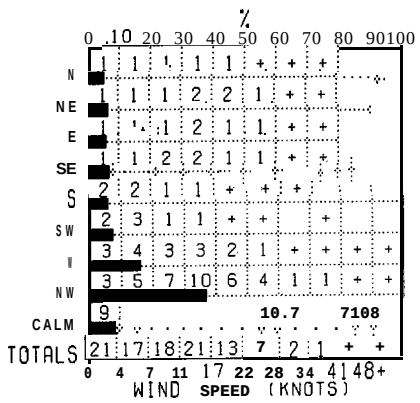
BLUE LINE • Percent Frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is bored on the number of observations reporting a wind speed with direction. The rum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less thon 17 knots (20 mph).

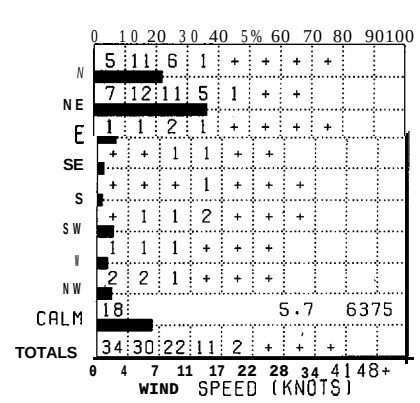
Cold Bay



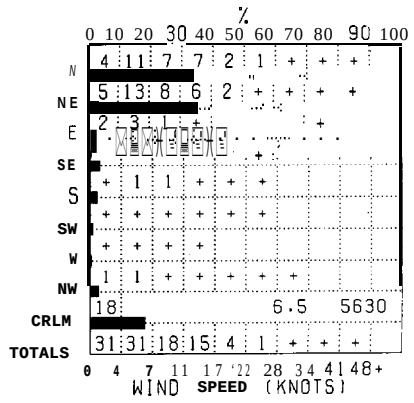
Kodiak



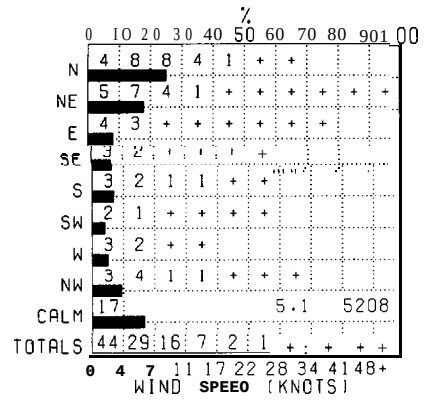
Homer



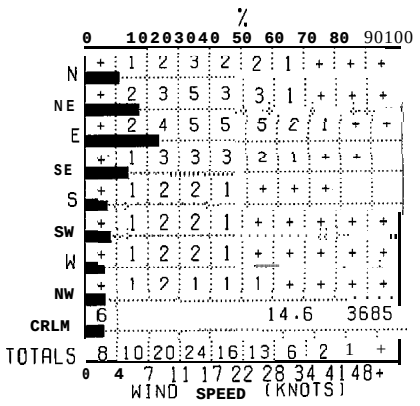
Kenai



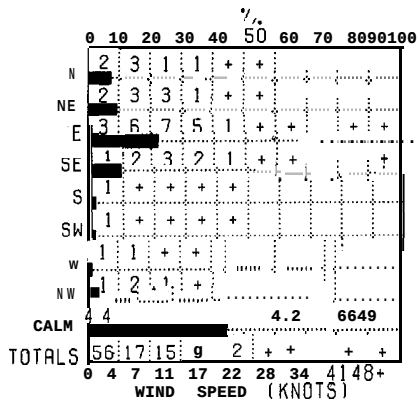
Anchorage



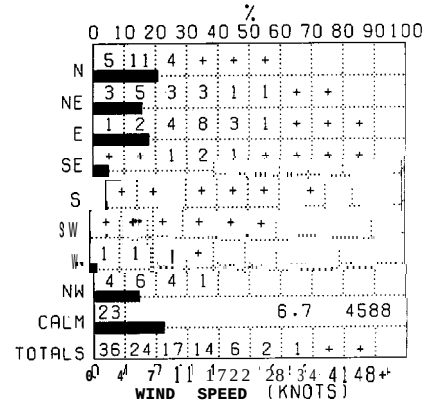
Middleton Island



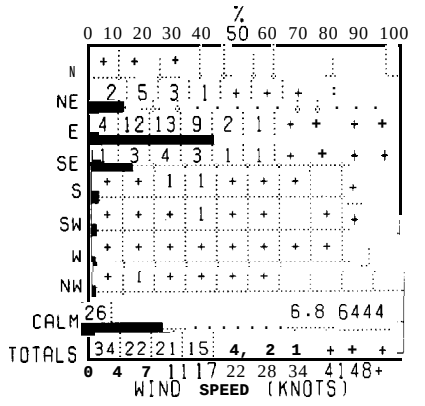
Cordoma



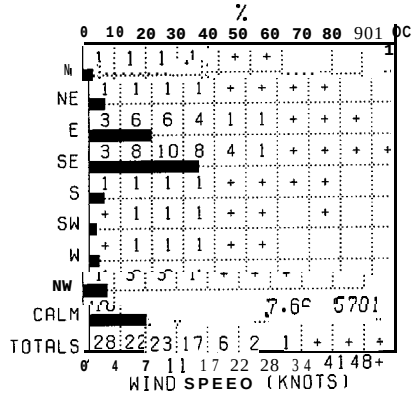
Yakataga



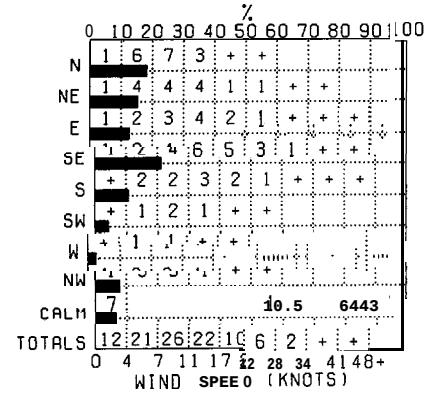
Yakutat



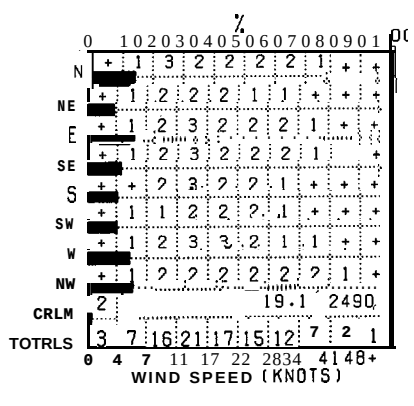
Sitka



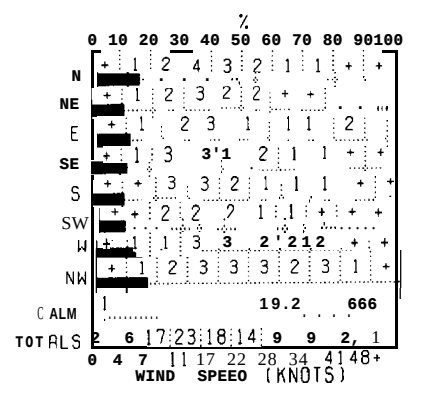
Annette

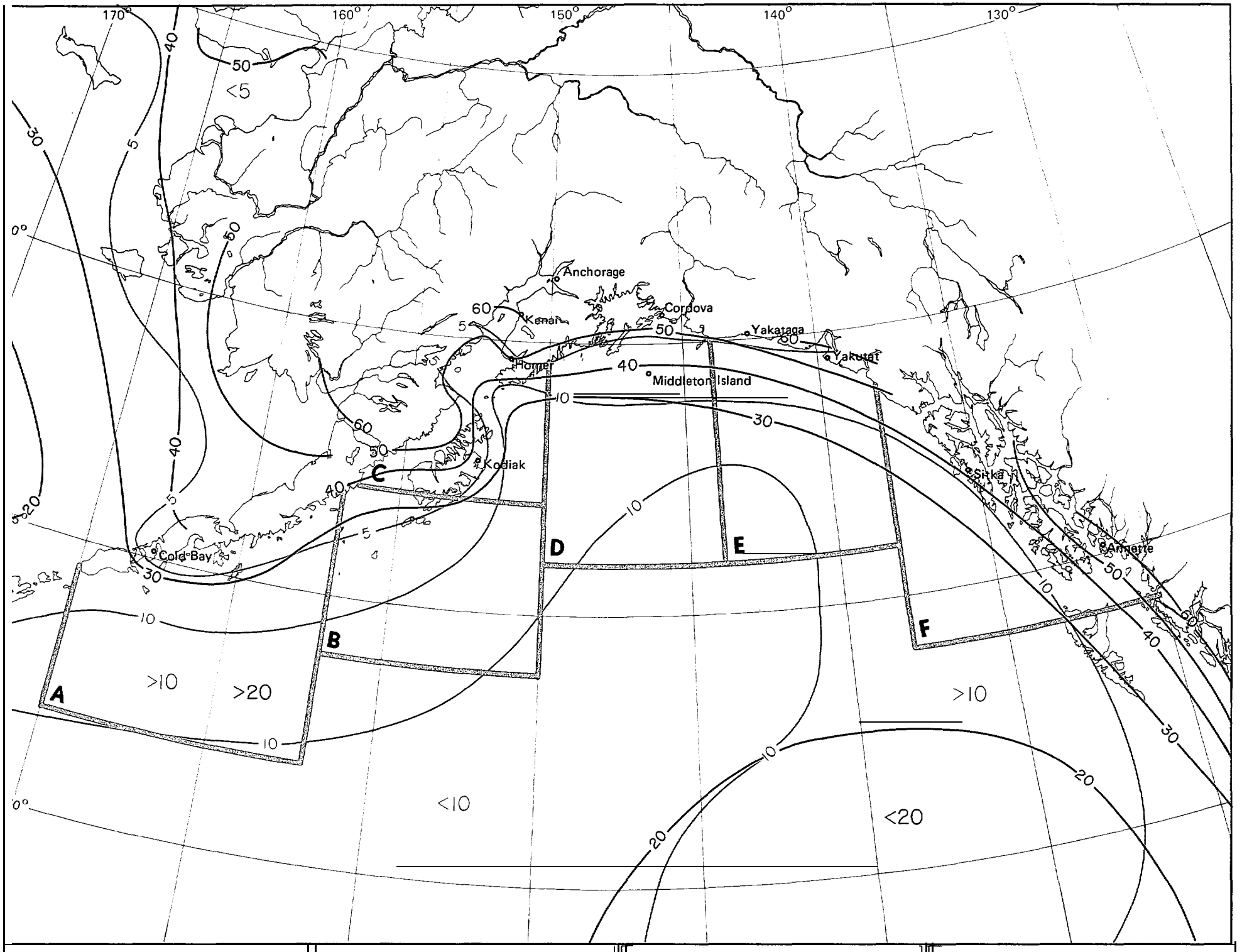


Marine Area A

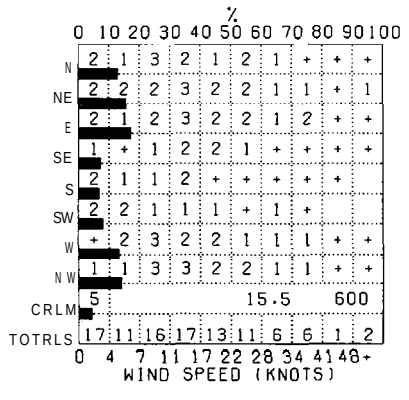


Marine Area B

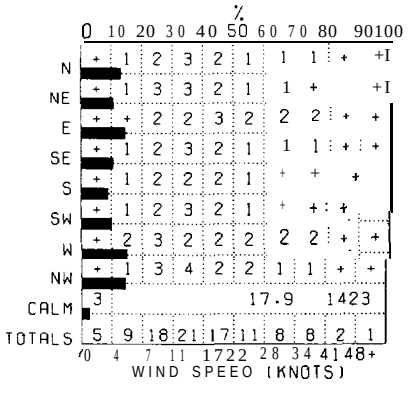




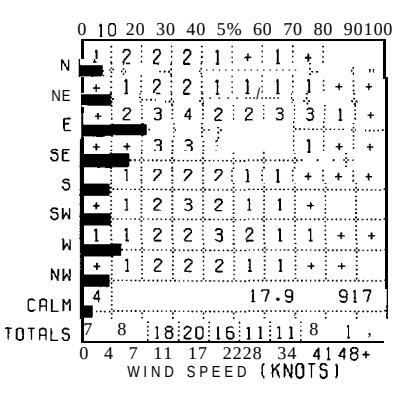
Marine Area C



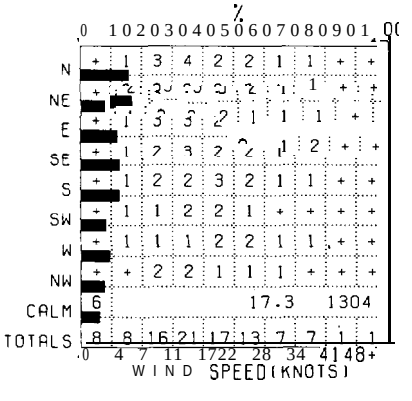
Marine Area D



Marine Area E

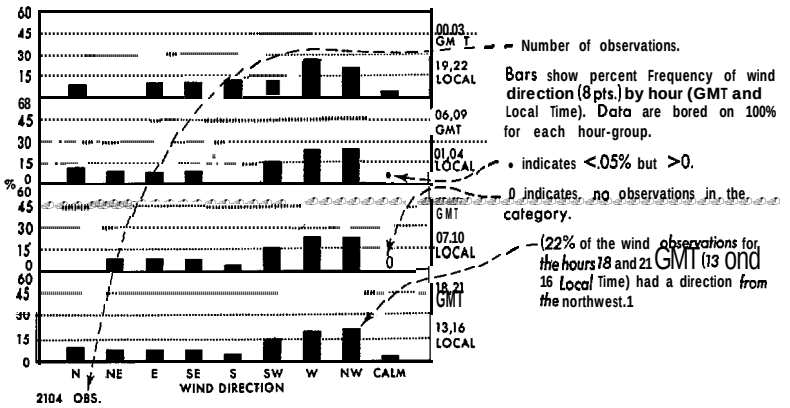


Marine Area F



9 Wind speed thresholds

Legend — Wind direction/diurnal variation



Number of observations.

Bars show percent Frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are bored on 100% for each hour-group.

• indicates <.05% but >0.

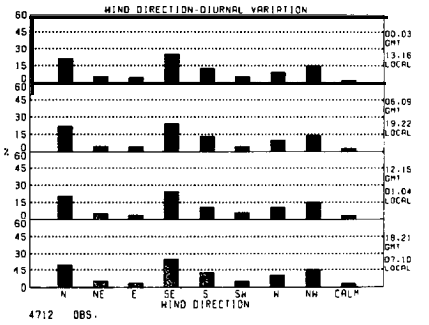
0 indicates, no observations in, the, category.

(22% of the wind observations for, the hours 18 and 21 GMT (13 ond 16 Local Time) had a direction from the northwest.1

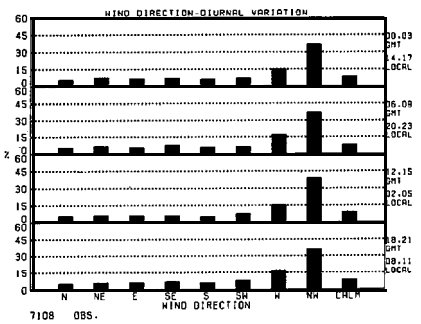
Map • Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

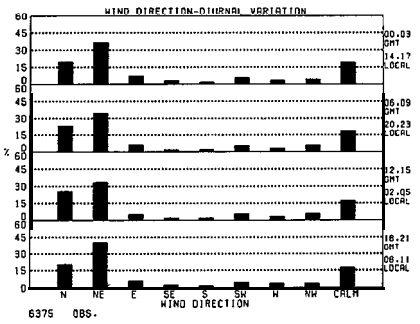
Cold Bay



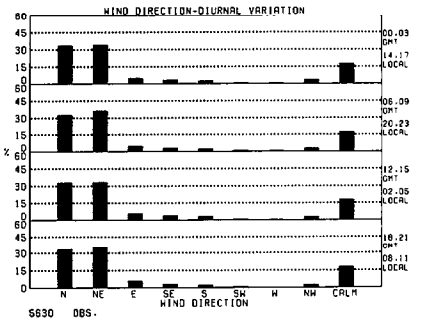
Kodiak



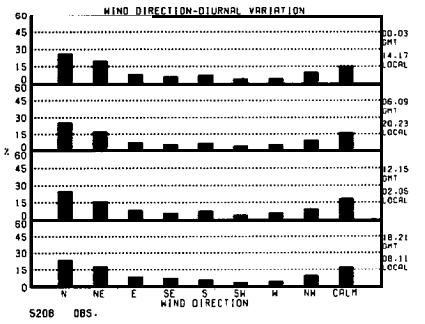
Homer



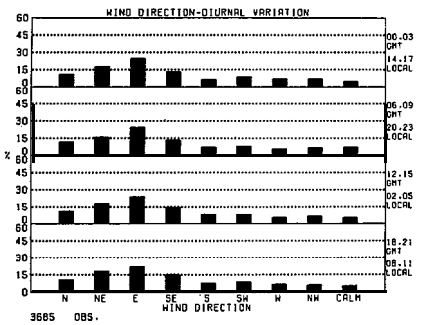
Kenai



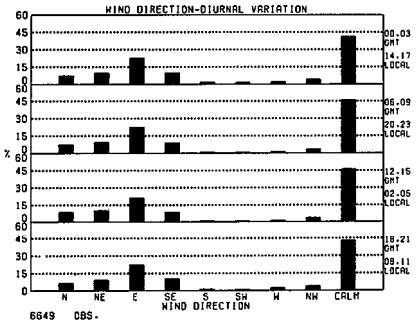
Anchorage



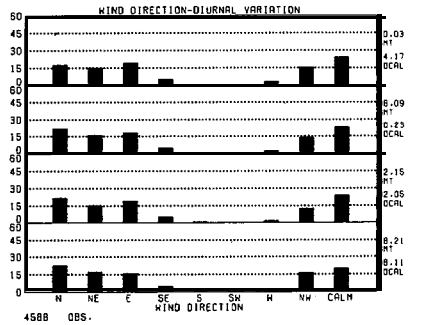
Middleton Island



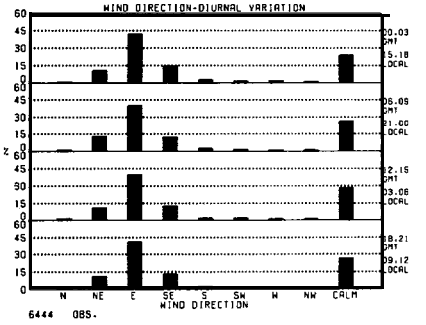
Cordova



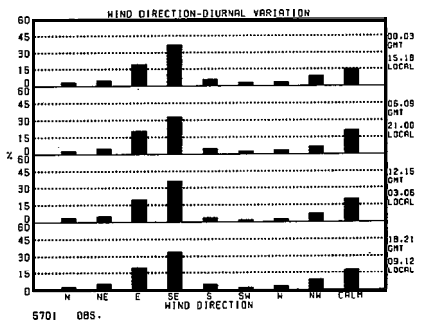
Yakataga



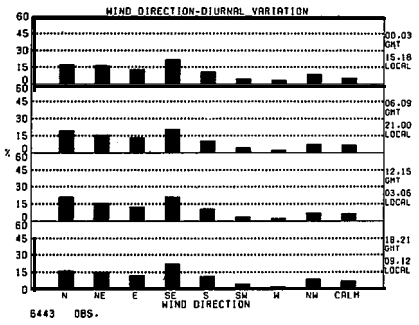
Yakutat



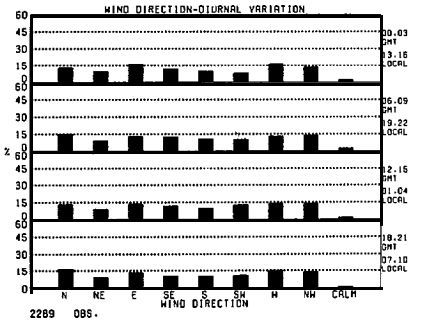
Sitka



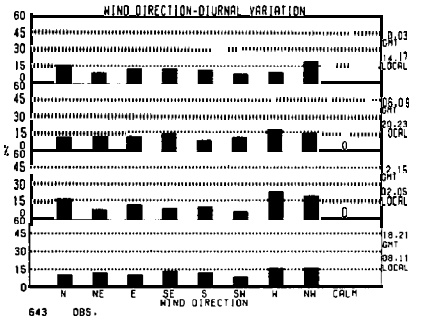
Annette

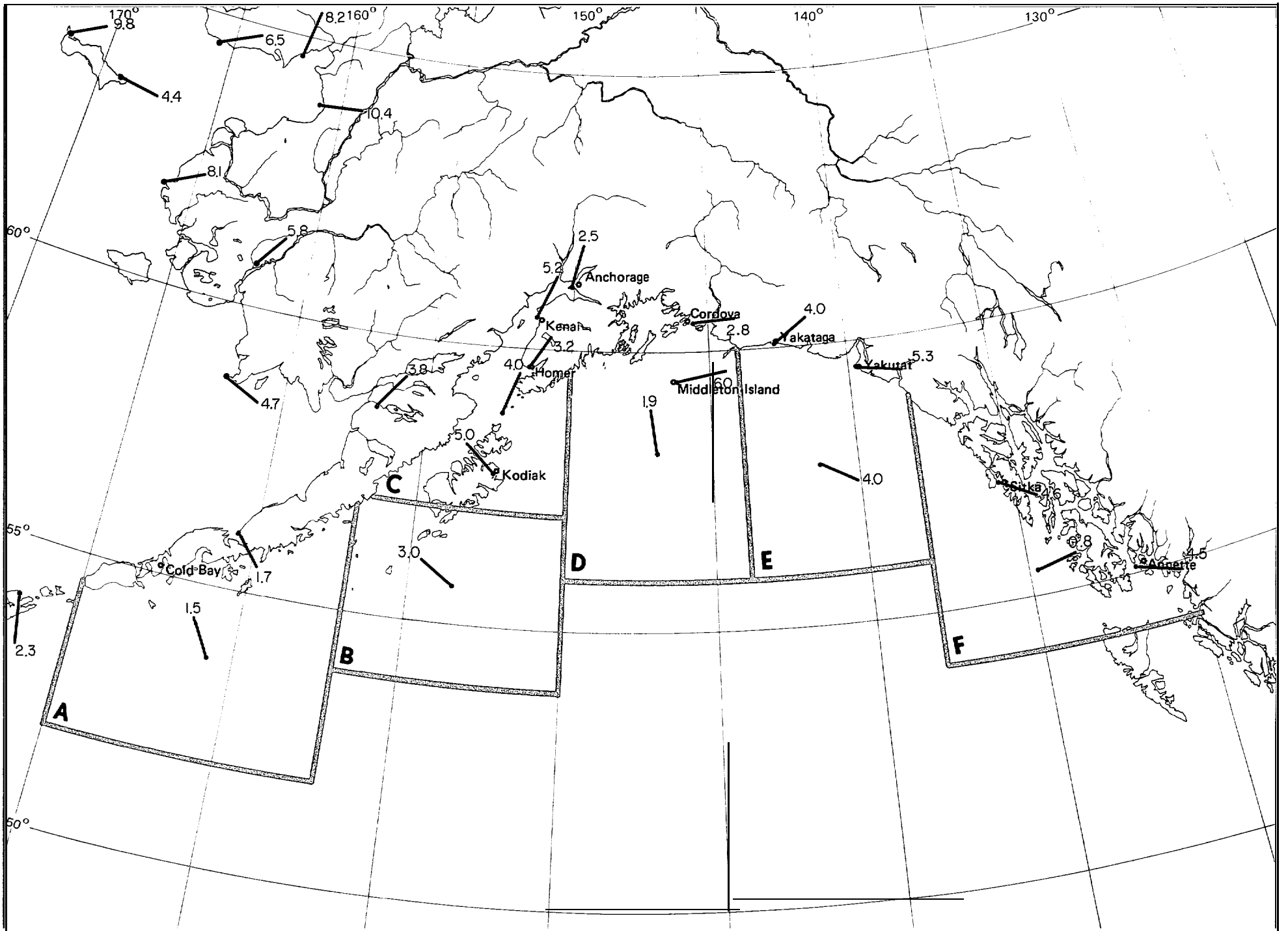


Marine Area A

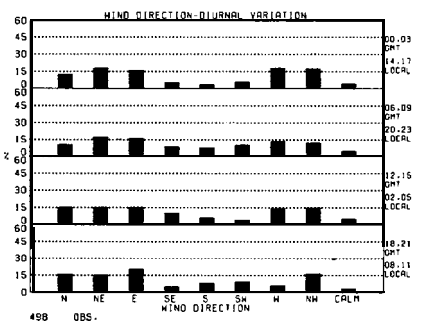


Marine Area B

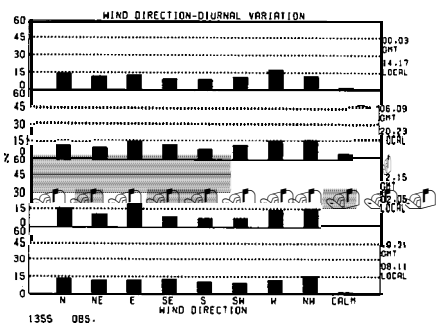




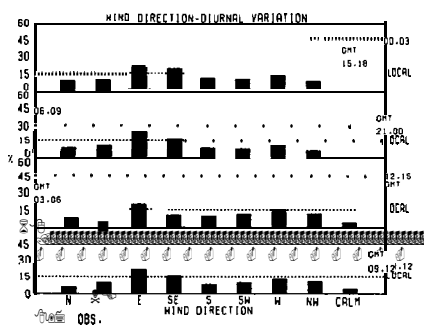
Marine Area C



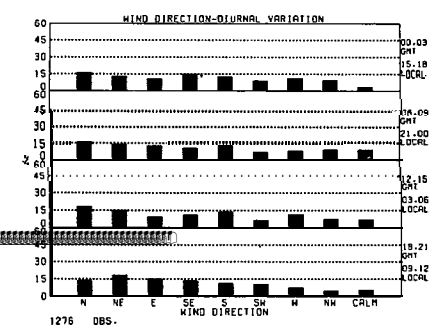
Marine Area D



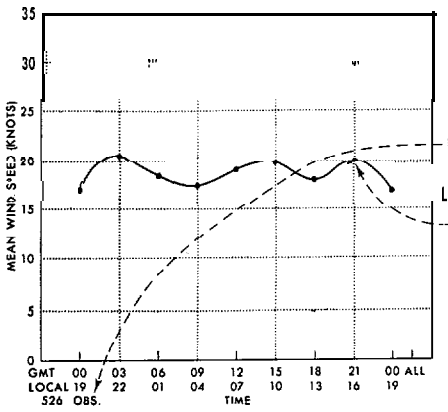
Marine Area E



Marine Area F



Legend — Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours

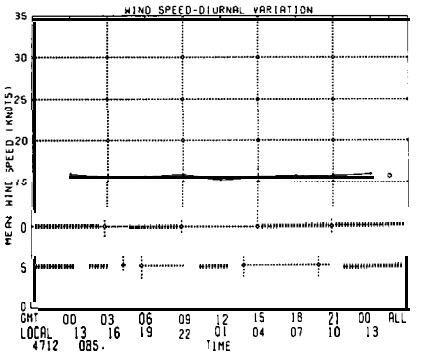
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

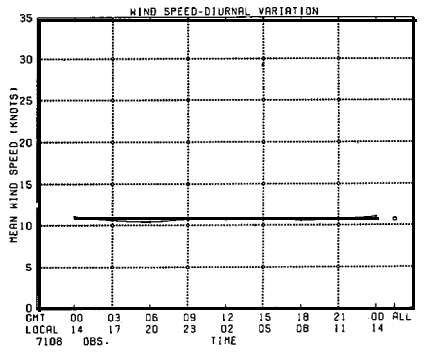
BLACK LINE Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

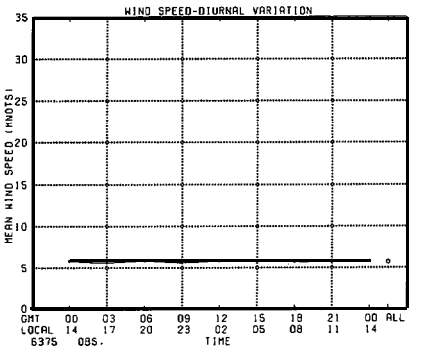
Cold Bay



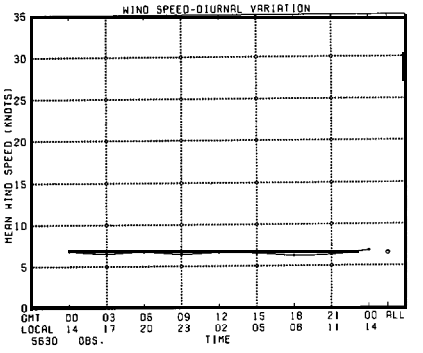
Kodiak



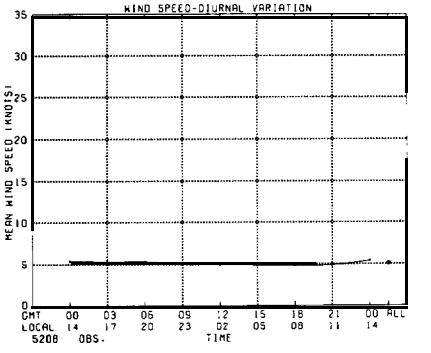
Homer



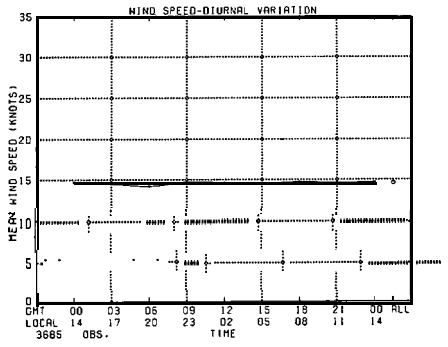
Kenai



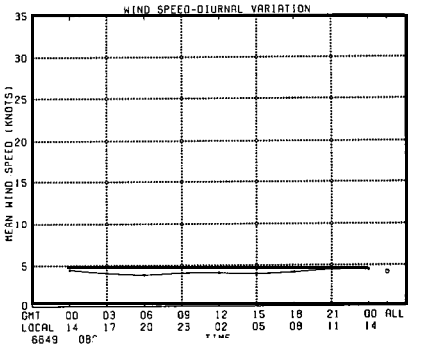
Anchorage



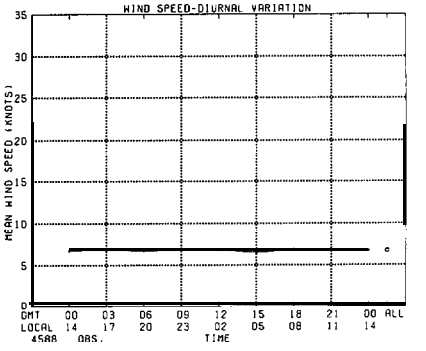
Middleton Island



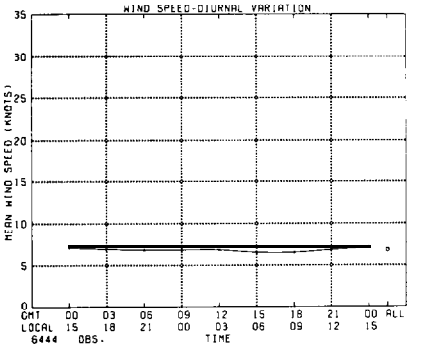
Cordova



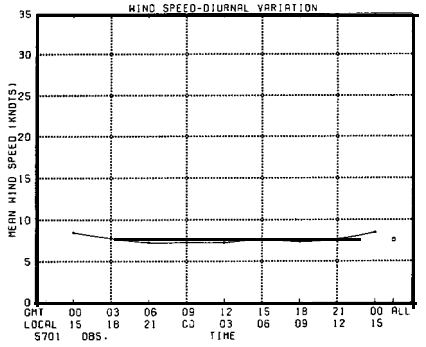
Yakataga



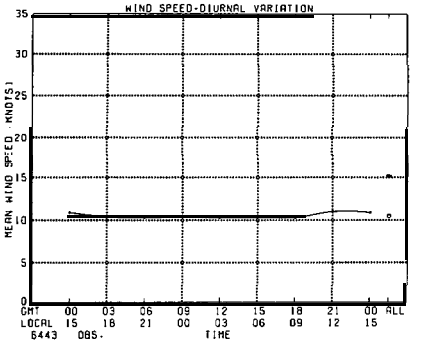
Yakutat



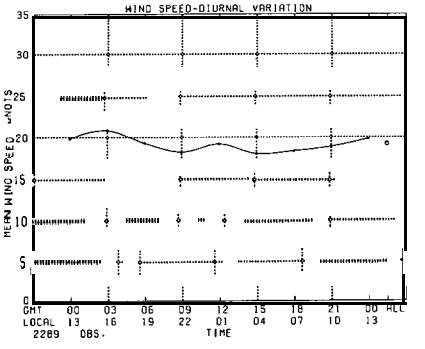
Sitka



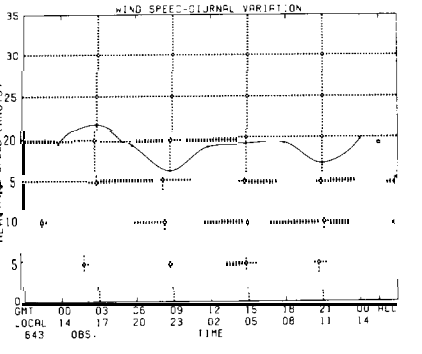
Annette

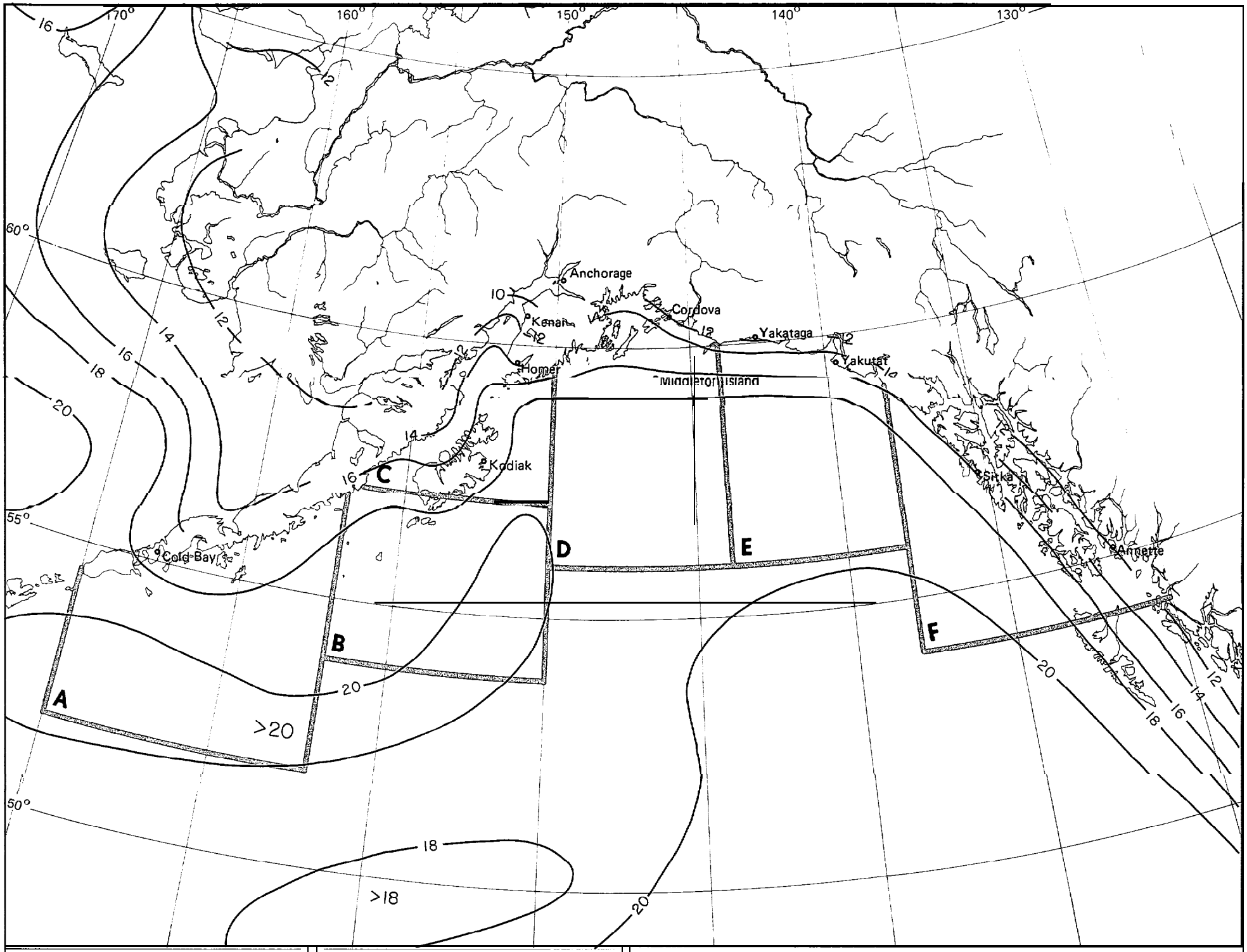


Marine Area A

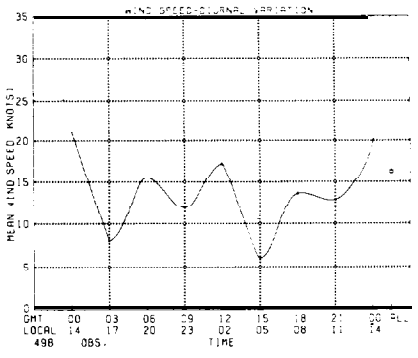


Marine Area B

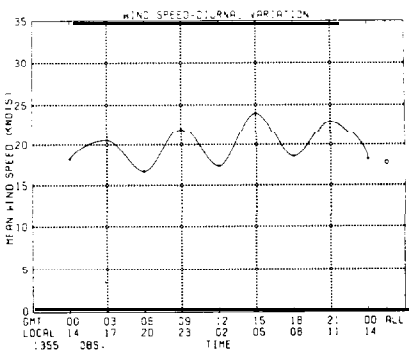




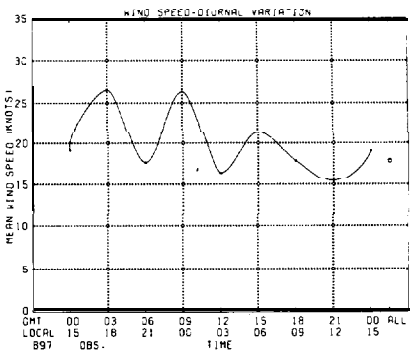
Marine Area C



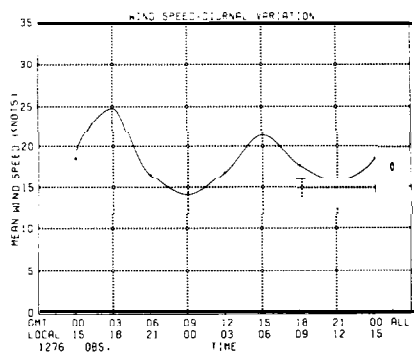
Marine Area D



Marine Area E



Marine Area F

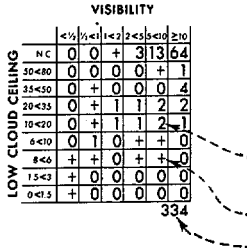


11 Scalar mean wind

January

Legend

Low cloud ceiling/visibility



Percent frequency of **simultaneous occurrence** of specified low cloud ceilings (hundreds of feet) **and** viribilities (nautical miles).

Low cloud ceiling heights ore estimated from the height of low clouds (h) when low cloud amount (N_h) is $\geq 5/8$.

Obscurations ore included under ceiling "0 <1.5".

"N C" (no ceiling) includes barer of clouds 28000 feet as well as occurrences of N_h <5/8.

- (2% of all observations reported ceiling 11000 but <2000 feet simultaneously with visibility ≥5 but <IO nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceilinol ond visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	12	20
50<80	0	+	0	0	+	1
35<50	0	+	+	+	2	1
20<35	1	1	1	3	9	5
10<20	1	1	1	4	9	4
6<10	+	1	1	4	4	1
3<6	+	+	1	2	2	+
1.5<3	0	+	+	+	+	0
0<1.5	3	1	1	+	+	0

4698

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	9	41
50<80	0	+	0	+	+	1
35<50	0	0	0	+	1	2
20<35	+	+	+	1	6	6
10<20	+	+	1	4	6	2
6<10	+	+	1	2	2	+
3<6	+	+	1	2	1	+
1.5<3	+	+	+	+	+	+
0<1.5	3	2	2	1	+	0

6824

Homer

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	1	40
50<80	0	0	0	0	0	7
35<50	0	0	0	0	3	5
20<35	0	0	+	2	5	7
10<20	0	0	+	2	3	+
6<10	0	0	0	0	1	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	4	5	7	5	3	0

234

Kenai

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	1	1	1	7	40
50<80	0	0	0	0	1	1
35<50	0	0	0	0	2	1
20<35	0	0	1	3	4	2
10<20	0	+	+	1	3	+
6<10	0	0	0	+	3	0
3<6	0	0	0	0	+	0
1.5<3	0	0	0	0	0	0
0<1.5	10	7	4	4	+	0

215

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	3	1	+	1	4	54
50<80	0	+	0	+	+	7
35<50	0	0	+	+	+	4
20<35	0	0	+	+	1	4
10<20	0	+	+	1	2	3
6<10	+	+	+	1	1	1
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	+	+
0<1.5	3	1	1	1	+	+

5182

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	10	19
50<80	+	0	0	+	+	+
35<50	0	0	0	+	+	1
20<35	+	+	+	+	5	5
10<20	+	+	1	3	9	3
6<10	+	1	5	6	8	2
3<6	+	2	2	2	1	0
1.5<3	0	+	+	0	0	0
0<1.5	6	4	2	1	0	0

1454

Cordova

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	43
50<80	0	0	0	+	+	4
35<50	+	0	+	+	1	5
20<35	+	+	+	2	7	6
10<20	+	+	1	7	6	1
6<10	+	+	+	1	1	+
3<6	+	+	+	+	+	+
1.5<3	+	0	+	+	0	+
0<1.5	2	3	2	2	+	+

4648

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	1	25
50<80	0	0	0	0	+	8
35<50	0	0	0	0	2	4
20<35	0	0	0	2	10	5
10<20	0	2	4	4	2	1
6<10	0	+	0	0	0	0
3<6	0	0	0	+	0	0
1.5<3	0	0	0	0	0	0
0<1.5	5	12	7	3	+	0

247

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	1	1	+	1	6138	
50<80	+	0	0	0	+	3
35<50	0	+	0	+	1	3
20<35	+	+	+	1	4	5
10<20	+	1	1	4	7	3
6<10	+	+	1	3	3	+
3<6	+	1	1	1	1	+
1.5<3	0	+	+	+	+	0
0<1.5	3	3	2	1	+	0

6431

Sitka

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	4	18
50<80	0	0	0	0	2	1
35<50	0	0	0	1	9	4
20<35	0	0	+	6	13	2
10<20	0	+	2	9	8	0
6<10	0	0	+	+	+	0
3<6	0	0	0	1	+	0
1.5<3	0	0	0	0	0	0
0<1.5	+	3	6	7	+	0

248

Annette

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	>10
NC	+	+	+	1	1	39
50<80	0	0	0	0	+	2
35<50	0	0	0	+	+	3
20<35	0	+	+	1	3	9
10<20	0	+	1	4	9	9
6<10	+	+	1	3	4	1
3<6	+	+	1	2	1	+
1.5<3	0	+	+	+	+	0
0<1.5	1	1	2	1	+	0

6427

Marine Area A

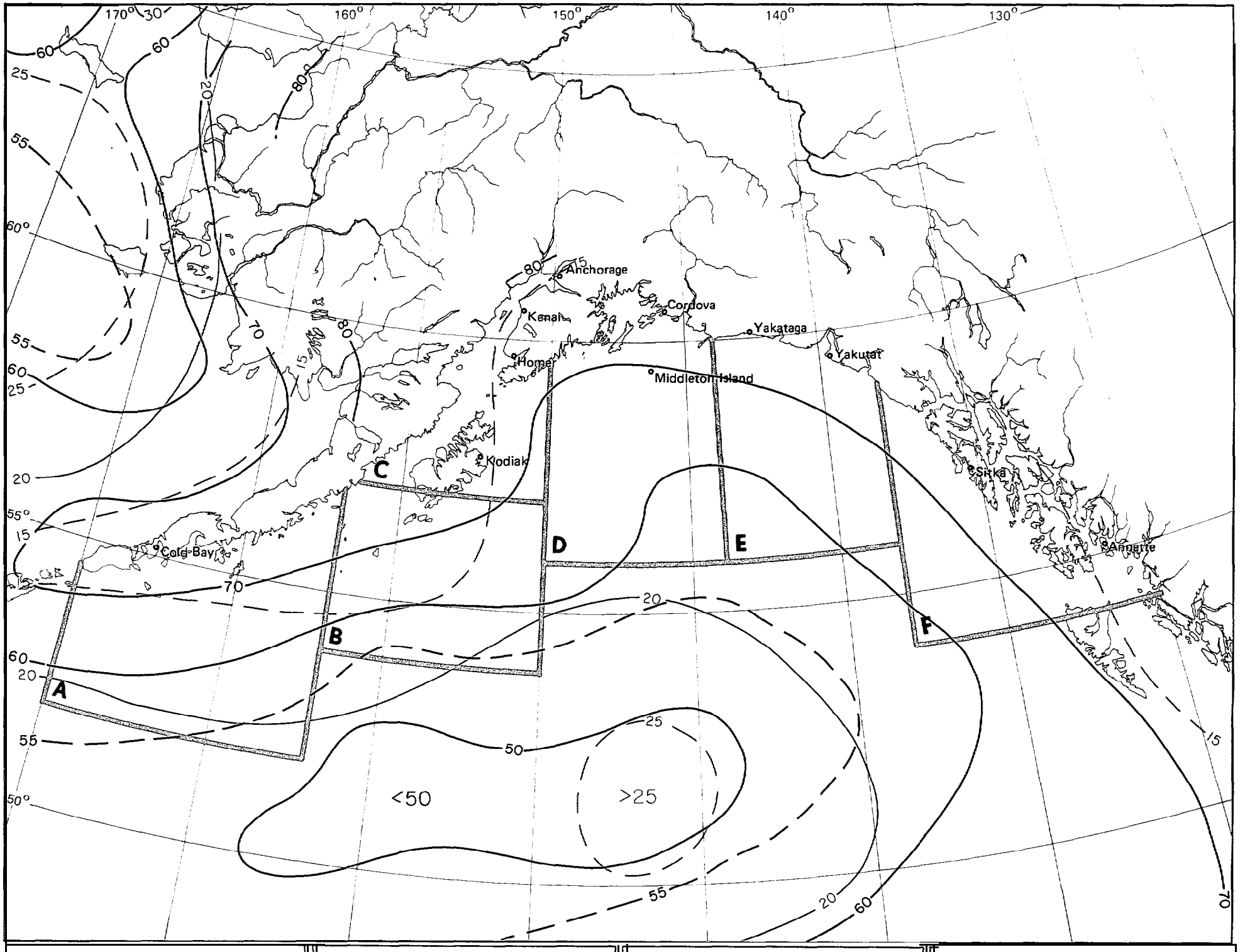
LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	6	25
50<80	0	0	0	0	+	1
35<50	0	0	0	+	+	2
20<35	+	+	+	2	5	6
10<20	+	+	1	3	9	11
6<10	+	+	1	3	6	5
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	1	+
0<1.5	3	1	1	1	1	+

1891

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	5	22
50<80	0	0	0	0	+	+
35<50	0	0	0	1	2	1
20<35	+	+	0	2	5	4
10<20	+	+	1	2	9	15
6<10	+	1	+	3	8	5
3<6	+	+	0	1	1	3
1.5<3	+	0	0	+	+	0
0<1.5	3	1	1	2	+	0

520



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	2	46
50<80	0	0	0	0	0	+
35<50	0	0	0	0	0	2
20<35	0	0	0	+	2	6
10<20	0	0	0	1	4	13
6<10	0	1	+	1	5	5
3<6	0	+	0	+	2	+
1.5<3	0	0	0	1	1	0
0<1.5	3	1	1	1	1	0

283

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	1	3	33
50<80	0	0	0	0	+	1
35<50	0	0	0	+	+	2
20<35	0	+	+	1	1	7
10<20	+	+	+	1	6	15
6<10	+	+	1	1	4	10
3<6	0	+	+	1	2	2
1.5<3	0	+	+	1	1	+
0<1.5	2	1	2	1	1	+

1040

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	2	33
50<80	0	0	0	0	+	1
35<50	0	0	0	1	+	4
20<35	+	+	0	+	4	6
10<20	0	0	1	1	4	14
6<10	0	+	+	1	5	7
3<6	0	0	+	1	1	2
1.5<3	0	0	+	+	1	+
0<1.5	3	1	2	1	1	+

675

Marine Area F

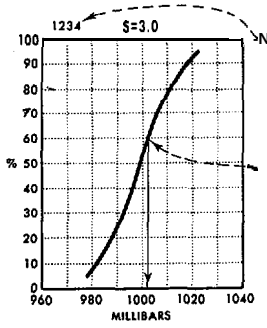
LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	6	29
50<80	0	0	0	+	1	1
35<50	0	0	+	+	2	3
20<35	0	0	+	1	5	6
10<20	1	+	1	3	7	10
6<10	+	0	1	1	3	5
3<6	0	+	+	1	1	1
1.5<3	0	+	+	+	+	+
0<1.5	1	2	2	1	+	1

957

12 Low cloud ceiling and visibility thresholds

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less thon the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

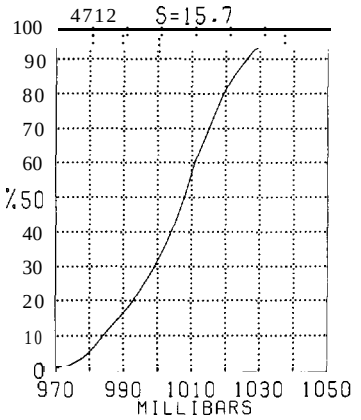
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

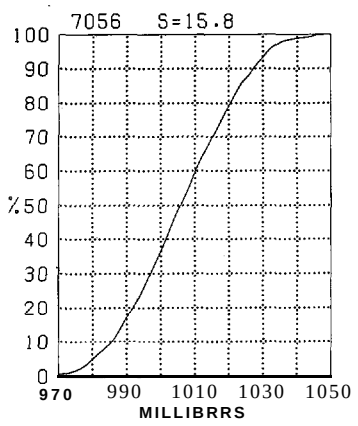
BLACK LINE Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

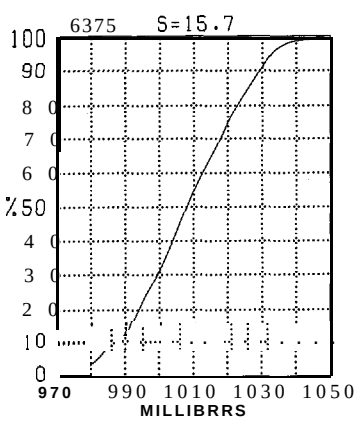
Cold Bay



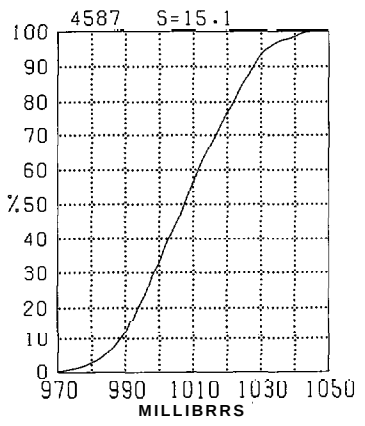
Kodiak



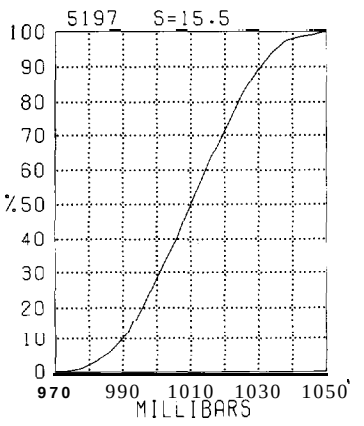
Homer



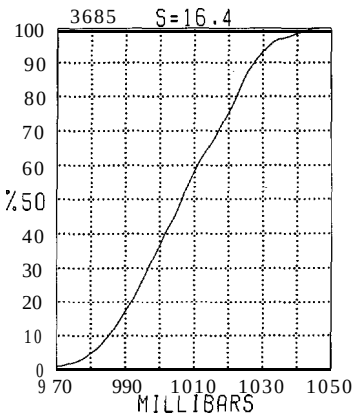
Kenai



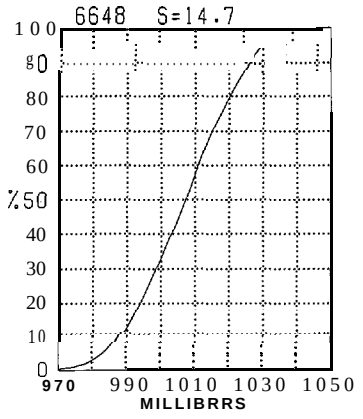
Anchorage



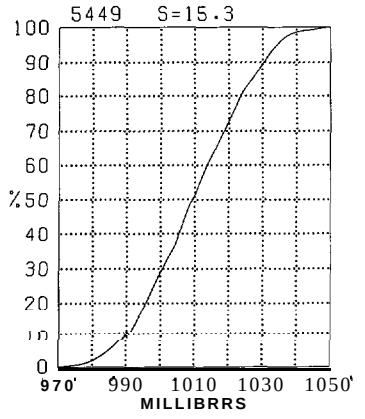
Middleton Island



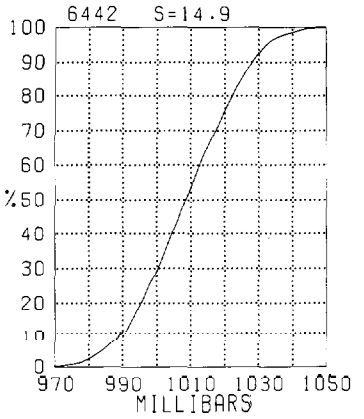
Cordova



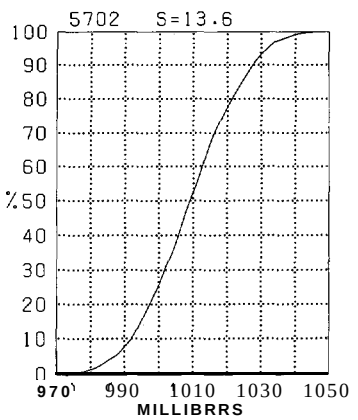
Yakataga



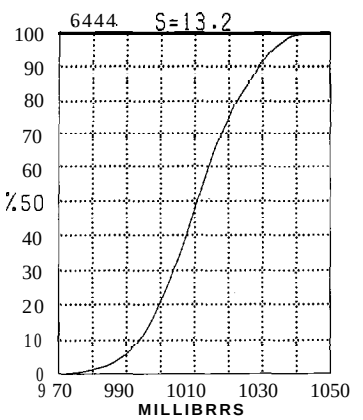
Yakutat



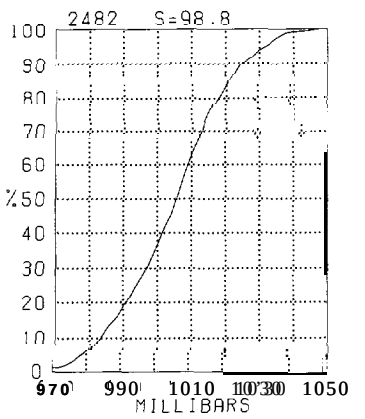
Sitka



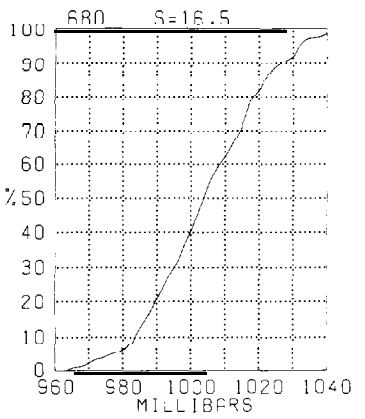
Annette

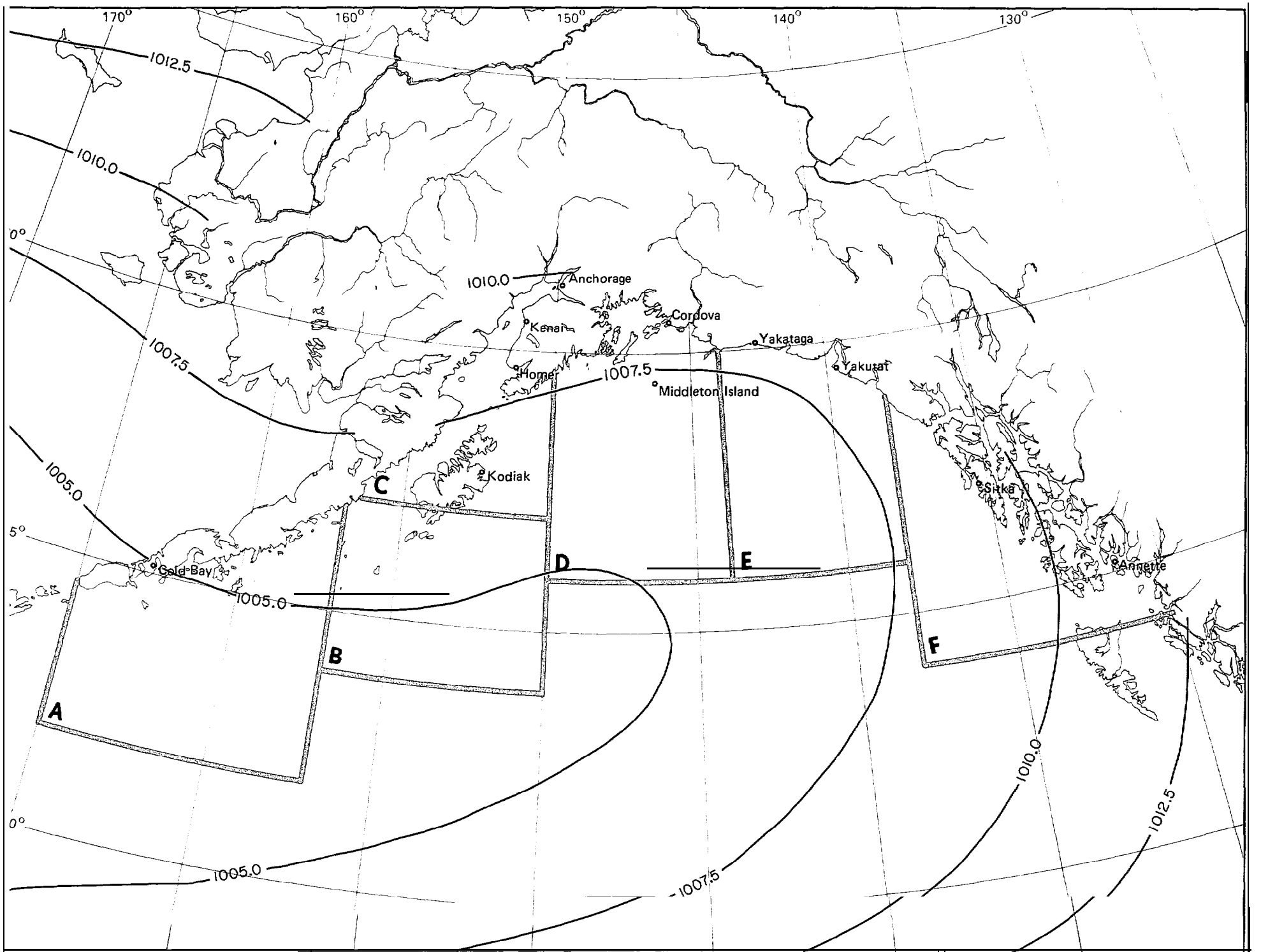


Marine Area A

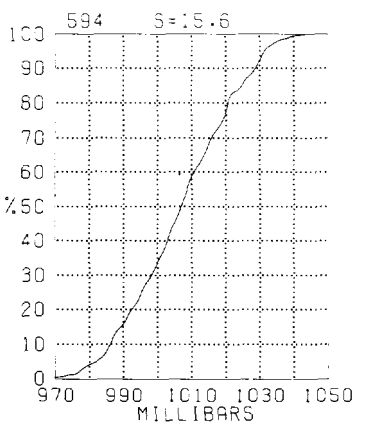


Marine Area B

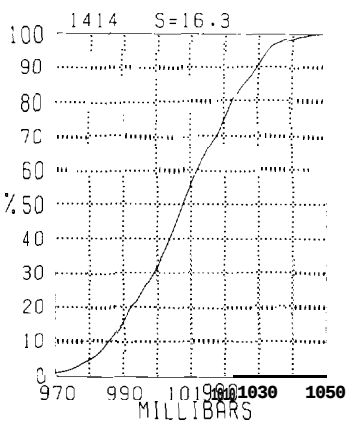




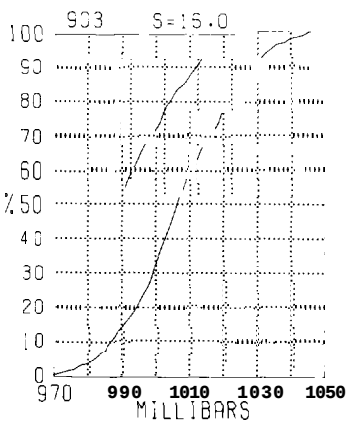
Marine Area C



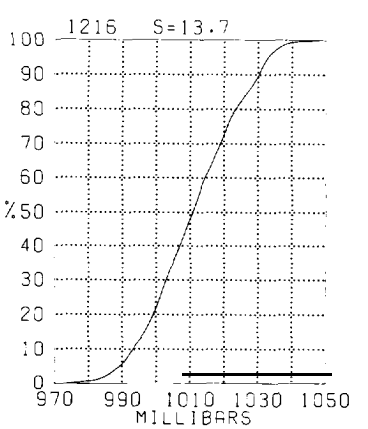
Marine Area D



Marine Area E



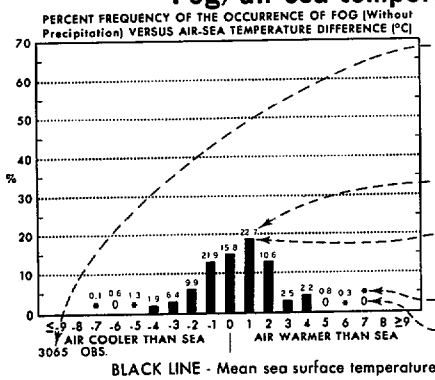
Marine Area F



13 Mean sea level pressure **January**

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

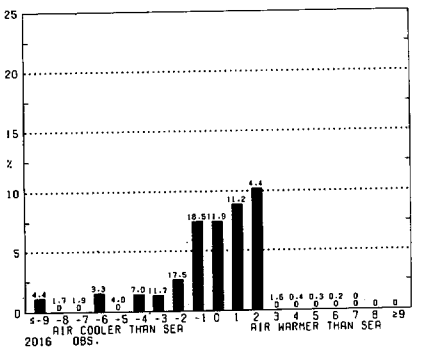
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

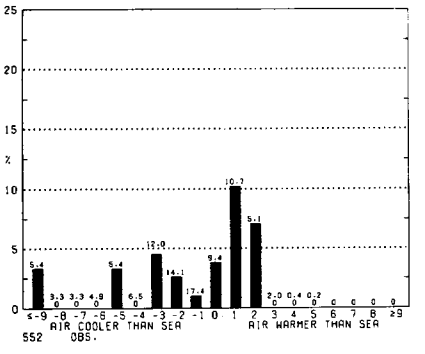
0 indicates no fog with the Air-Sea temperature difference category.

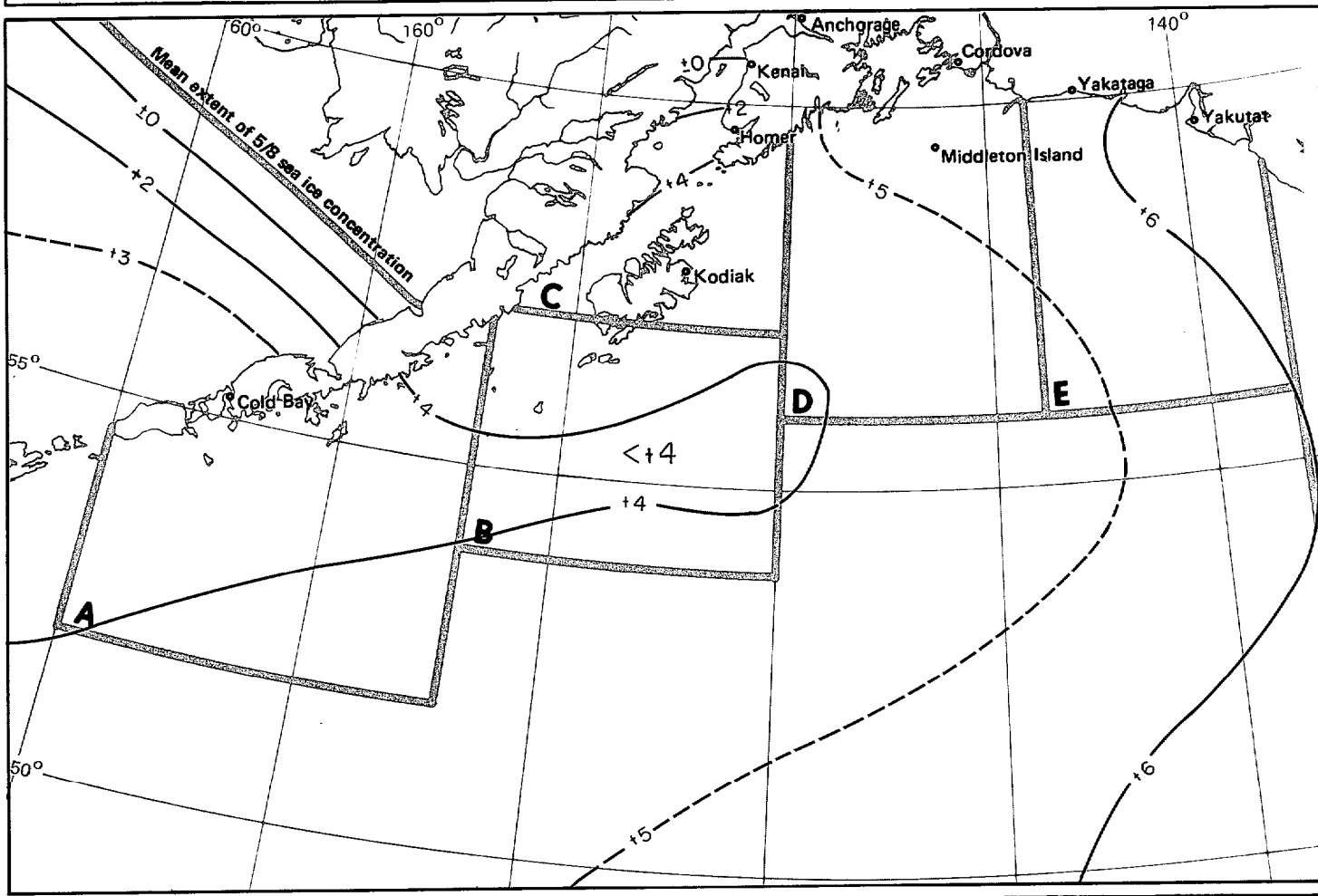
BLACK LINE - Mean sea surface temperature (°C)

Marine Area A



Marine Area B

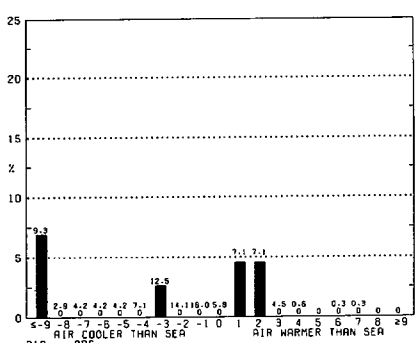




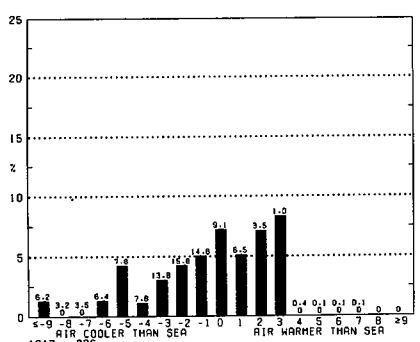
Map - Mean sea surface temperature

Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

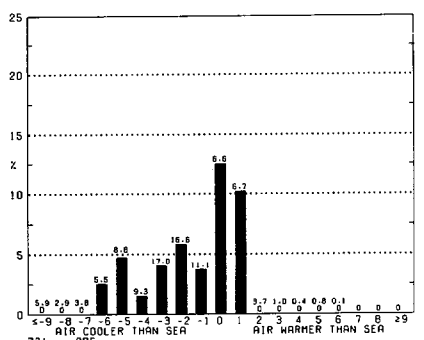
Marine Area C



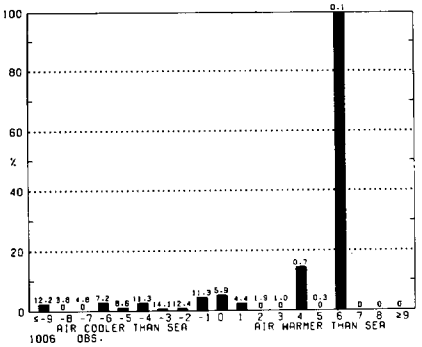
Marine Area D



Marine Area E

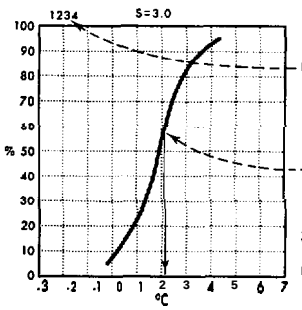


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

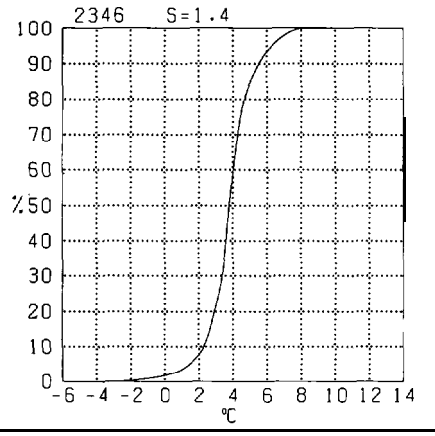
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

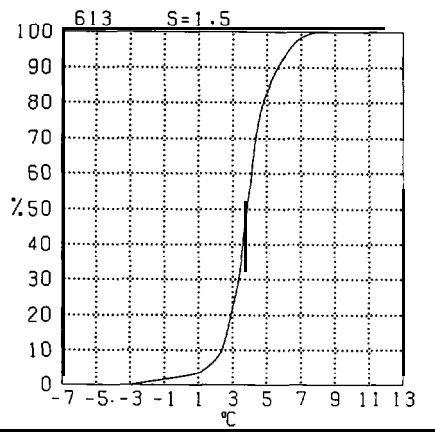
BLACK LINE. Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

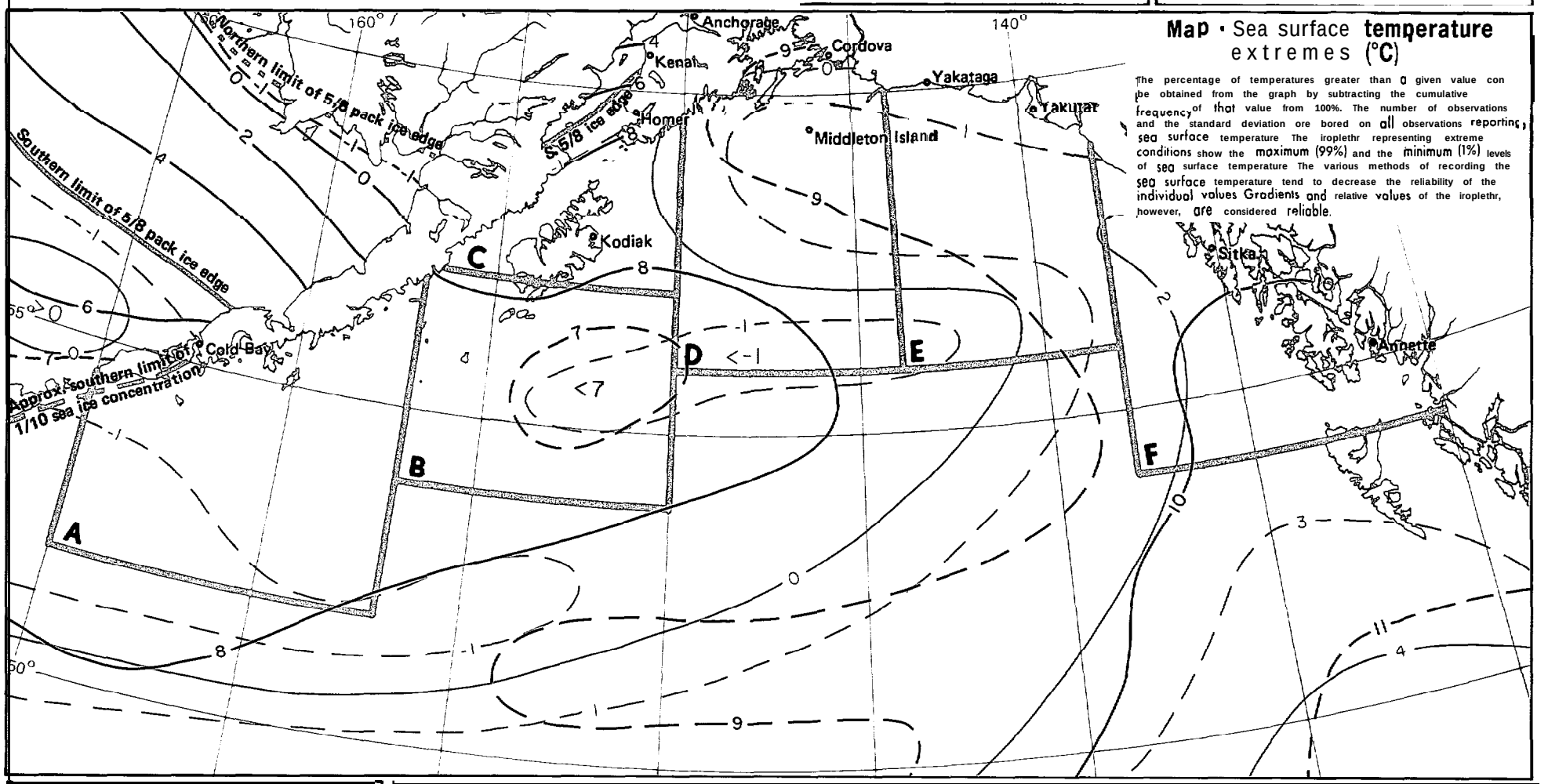
BLUE LINE Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

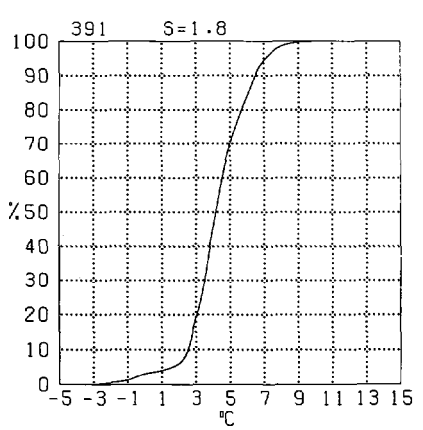




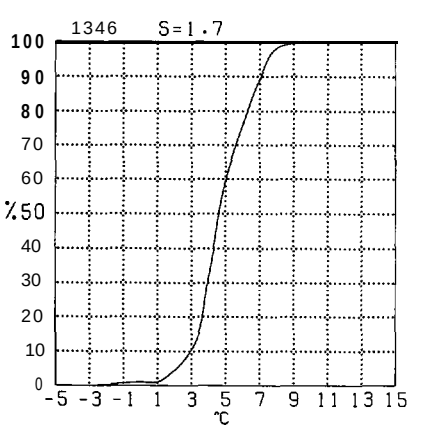
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

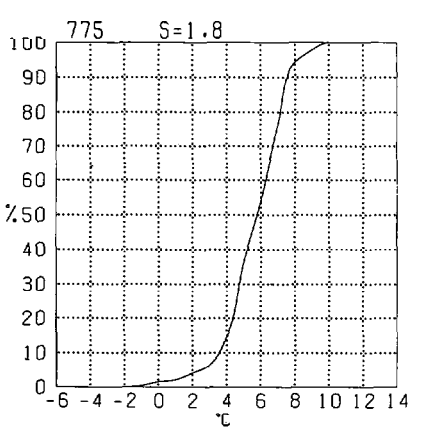
Marine Area C



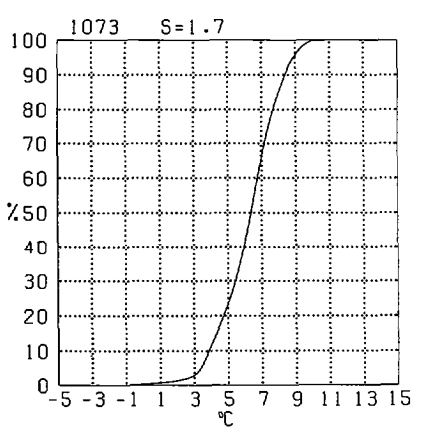
Marine Area D



Marine Area E



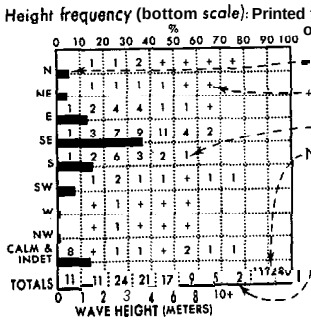
Marine Area F



Legend — Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



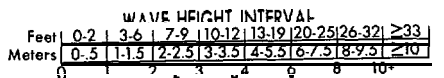
(5% of all waves were from the N.)

+ indicates <.5% but >0

(1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

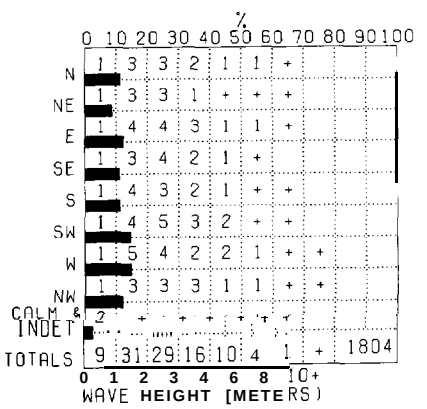


Printed scale on bottom of chart

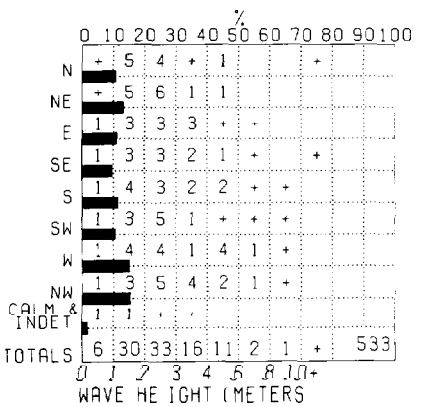
BLACK LINE - Percent frequency of wove height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wove height <2.5 meters (<8 feet)

Marine Area A

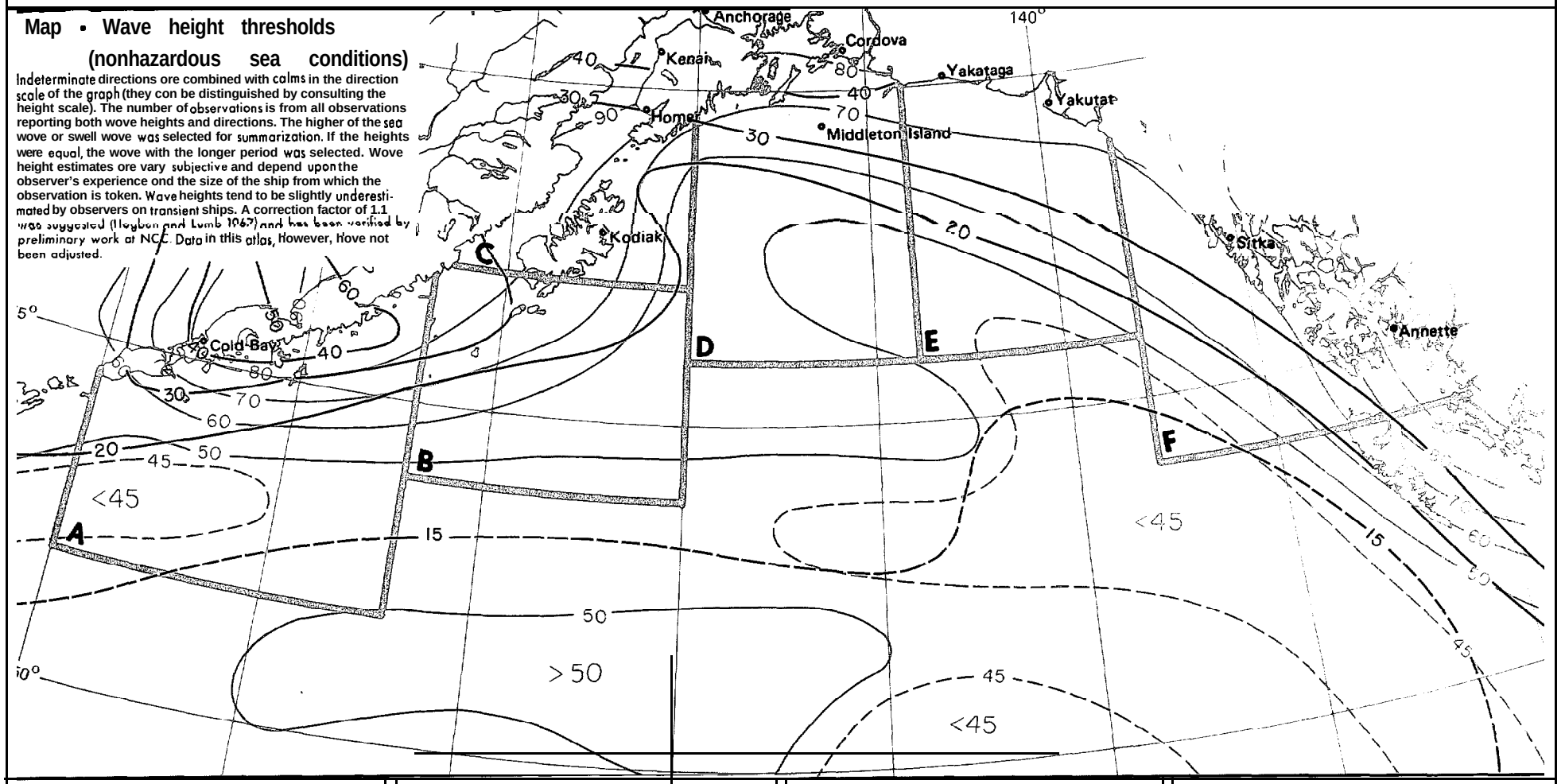


Marine Area B

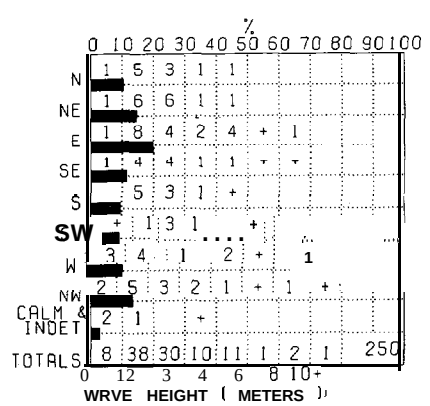


Map • Wave height thresholds (nonhazardous sea conditions)

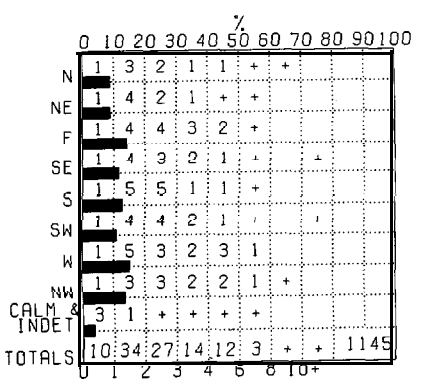
Indeterminate directions ore combined with calms in the direction scale of the graph (they con be distinguished by consulting the height scale). The number of observations is from all observations reporting both wove heights and directions. The higher of the sea wove or swell wove was selected for summarization. If the heights were equal, the wove with the longer period was selected. Wave height estimates ore vary subjective and depend upon the observer's experience ond the size of the ship from which the observation is token. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hoyben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, Hove not been adjusted.



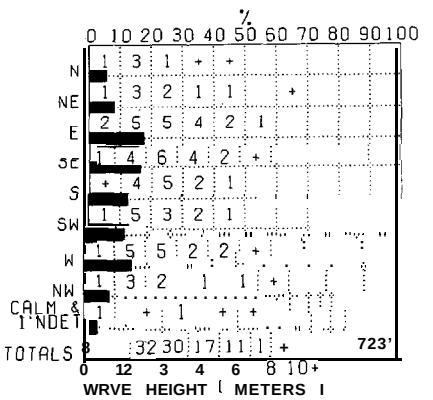
Marine Area C



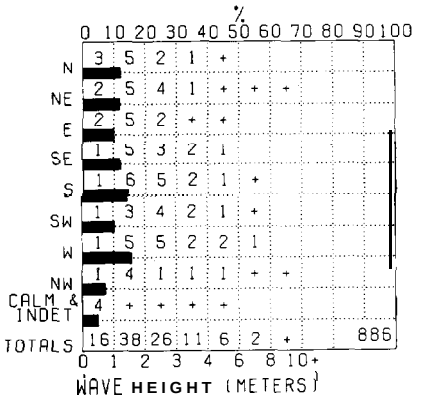
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	+	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

12% of observed waves had a height of 1-1.5 meters and a period of JO-11 seconds.)

\- + indicates <.5% but >0

Number of observations.

Waves are selected an the basis of the higher of sea and swell when both are reported If both heights are equal, the wave with the longer period is selected.

BLACK LINE Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE Percent frequency of wave height ≥6 *meters* (≥20 feet)

BLUE NUMBER Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	0	0	0	4
1-1.5	15	8	4	1	+	+	2
2-2.5	7	10	7	2	+	+	1
3-3.5	2	5	4	3	1	+	1
4-5.5	1	1	4	2	1	+	1
6-7.5	0	1	1	+	1	1	+
8-9.5	0	0	0	+	+	+	+
≥10	0	0	+	0	0	0	0

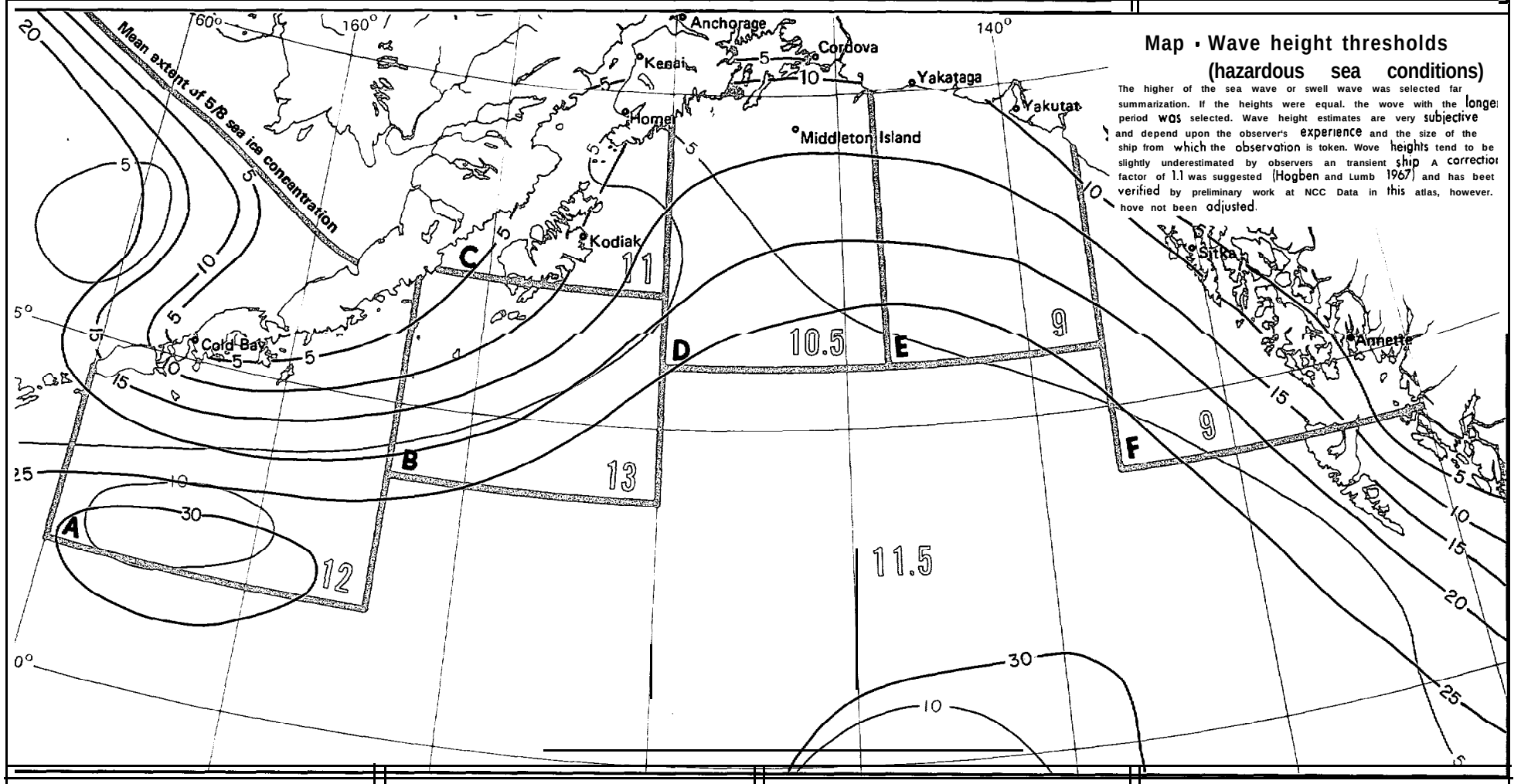
1831

Marine Area B

PERIOD (SECONDS)

		6-7	8-9	10-11	12-13	>13	IND
		1	0	+	0	0	2
		1	3	1	1	0	1
2-2.5	8	13	7	2	1	1	2
3-3.5	1	6	4	1	1	0	1
4-5.5	+	4	3	1	+	+	1
6-7.5	0	1	1	+	1	0	+
8-9.5	0	0	+	+	0	+	0
≥10	0	0	+	0	+	0	0

544



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected far summarization. If the heights were equal. the wove with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is token. Wove heights tend to be slightly underestimated by observers an transient ship A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has beet verified by preliminary work at NCC Data in this atlas, however. hove not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	0	0	0	0	2
1-1.5	20	11	2	1	2	+	1
2-2.5	13	9	5	1	1	+	+
3-3.5	2	4	2	1	0	+	+
4-5.5	1	4	2	3	+	1	0
6-7.5	0	1	+	0	0	0	0
8-9.5	0	0	0	1	+	+	0
≥10	0	0	1	0	0	0	0

254

Marine Area D

PERIOD ISECONOSI

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	+	1	0	0	3
1-1.5	17	8	5	2	1	+	1
2-2.5	6	9	5	3	1	1	1
3-3.5	3	5	4	1	1	+	+
4-5.5	1	4	3	2	+	+	+
6-7.5	0	1	1	1	+	+	+
8-9.5	0	0	+	0	+	0	0
≥10	0	+	0	0	0	0	0

1166

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	8	+	+	+	0	0	2
1-1.5	14	8	6	2	1	+	1
2-2.5	7	9	7	4	1	1	+
3-3.5	2	3	5	3	1	1	+
4-5.5	2	2	3	1	1	1	+
6-7.5	0	+	+	1	+	+	0
8-9.5	0	+	0	0	0	+	0
≥10	0	0	0	0	0	0	0

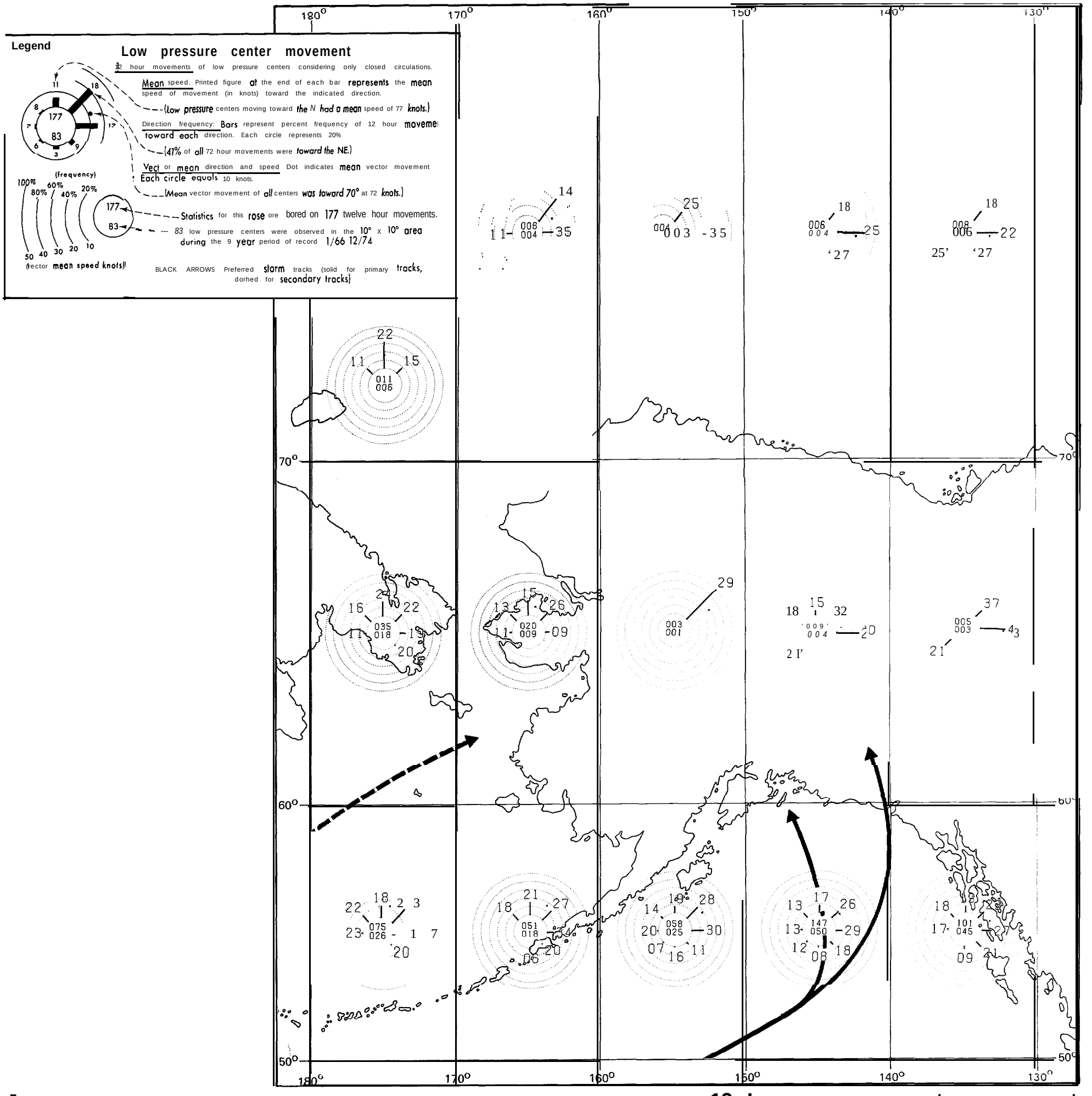
738

Marine Area F

PERIOD ISECONOSI

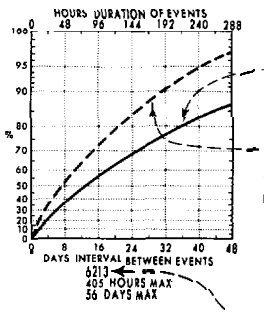
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	11	1	1	+	0	0	6
1-1.5	20	10	4	+	1	0	2
2-2.5	6	9	5	3	+	+	2
3-J.5	2	2	3	2	1	+	2
4-5.5	1	1	1	1	+	+	1
6-7.5	0	1	+	+	+	+	+
8-9.5	0	0	0	0	0	+	+
≥10	0	0	0	0	0	0	0

909


Legend
Low pressure center movement
12 hour movements of low pressure centers considering only closed circulations.
Mean speed. Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.
(Low pressure centers moving toward the N had a mean speed of 77 knots.)
Direction frequency: Bars represent percent frequency of 12 hour movemer toward each direction. Each circle represents 20%
(41% of all 72 hour movements were toward the NE.)
Vect or mean direction and speed Dot indicates mean vector movement Each circle equals 10 knots.
(Mean vector movement of all centers was toward 70° at 72 knots.)
Statistics for this rose ore bored on 177 twelve hour movements.
83 low pressure centers were observed in the 10° x 10° area during the 9 year period of record 1/66 12/74
BLACK ARROWS Preferred storm tracks (solid for primary tracks, dorhed for secondary tracks)
(frequency)
(vector mean speed knots)
180°
170°
160°
150°
140°
130°
70°
60°
50°

Legend

Persistence of visibility <2 n. mi.



Hours duration of events **Days interval** between events.

Cumulative percent frequency of hours duration equal to or **less** than the number of hours intersected by the solid curve.

-- (80% of the events hod a duration ≤216 hours.)

Cumulative percent frequency of **days** interval between events **equal** to or less **than** the number of **days** intersected by the broken curve.

-- (88% of the events were followed by another event in 28 days or less.)

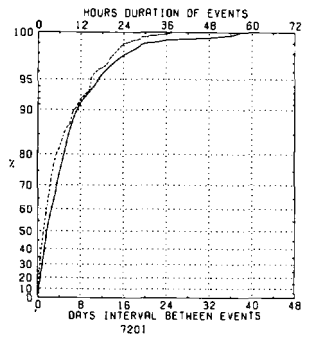
The **maximum value(s)** of hours duration **and/or** the doys interval will be displayed when the **graph** limits ore exceeded.

Durations and **intervals** for a particular month extend from the time they begin (or the first of the month if already in progress) and ore **terminated at** the **actual** ending time, **regardless** of what month **that may** be

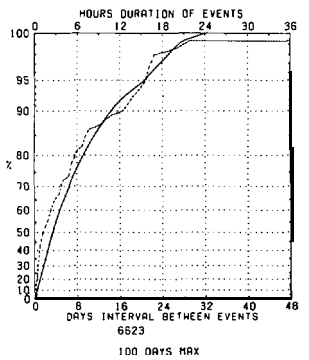
- Number of observations.

Top and bottom scales ore variable to allow for variations in the data.

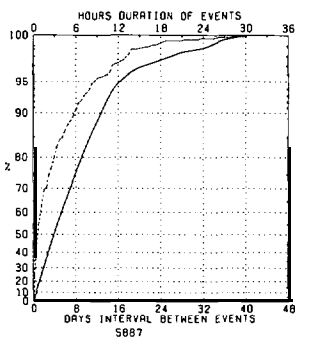
Kodiak



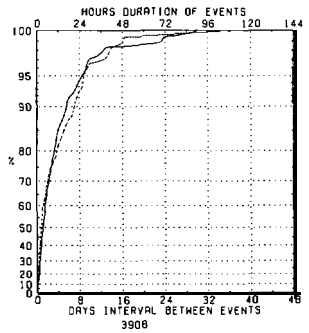
Homer



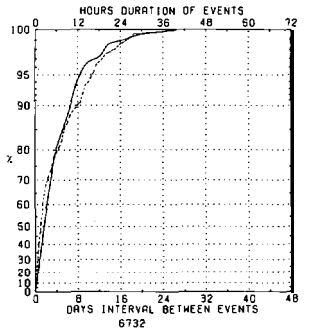
Kenai



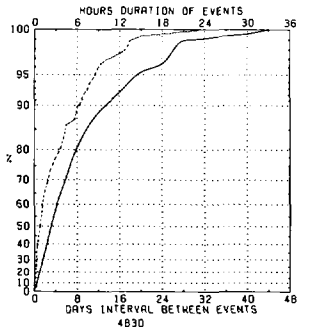
Middleton Island



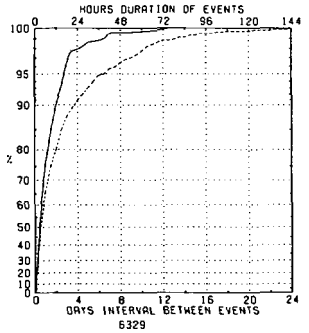
Cordova



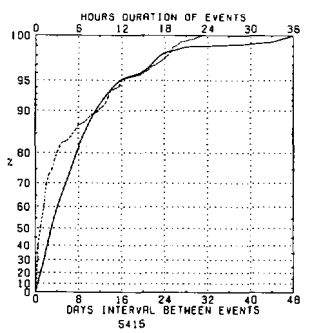
Yakataga



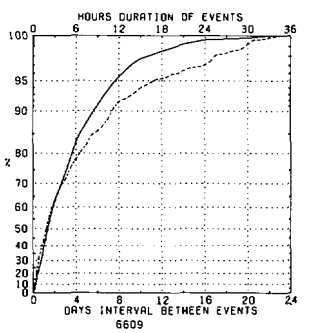
Yakutat



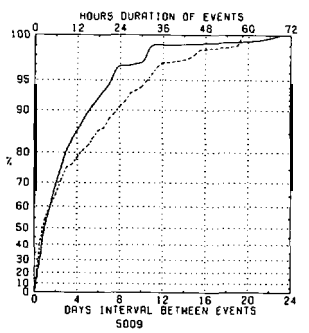
Sitka



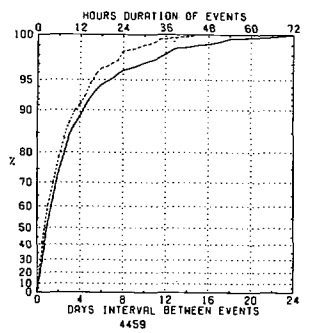
Annette



Anchorage

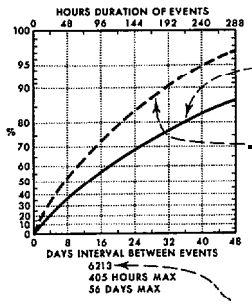


Cold Bay



Legend

Persistence of wind 110 kts.



Hours duration of events . Doys interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

——(80% of the *events* hod *a duration* 5216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

– – (88% *of* the *events were followed by another event* in 28 *days or less.*)

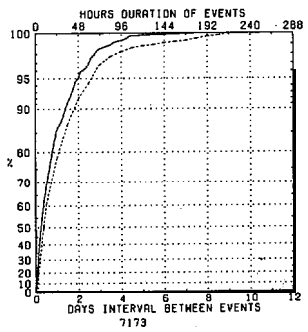
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits ore exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress] and ore terminated at the actual ending time, regardless of what month that may be.

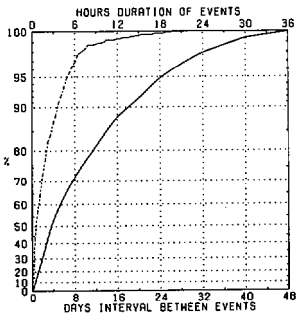
Number of observations.

Top and bottom scales ore variable to allow for variations in the data.

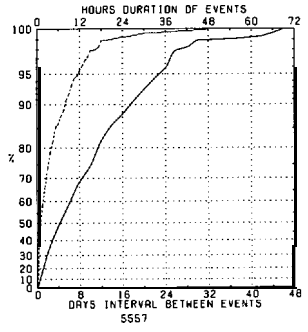
Kodiak



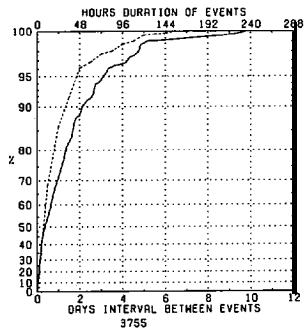
Homer



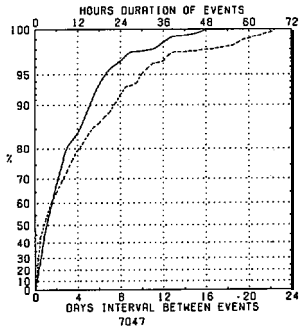
Kenai



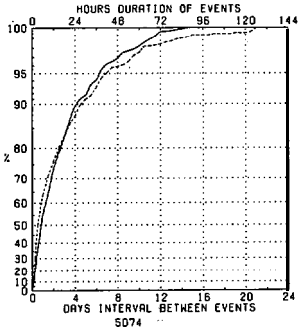
Middleton Island



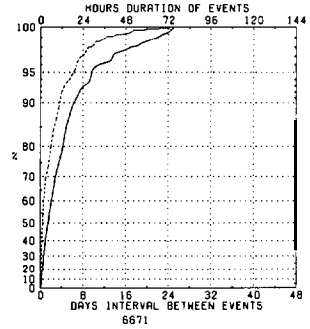
Cordova



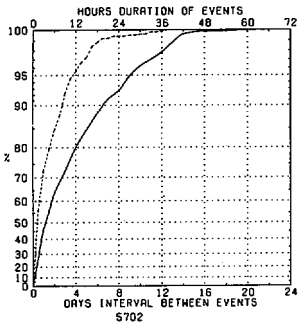
Yakataga



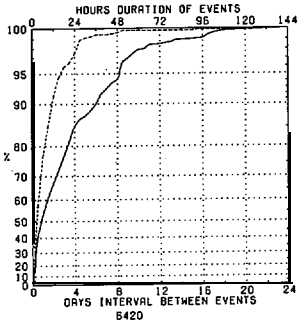
Yakutat



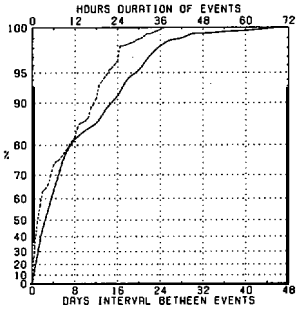
Sitka



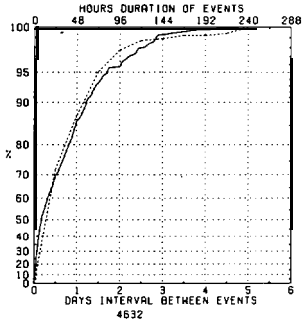
Annette



Anchorage



Cold Bay

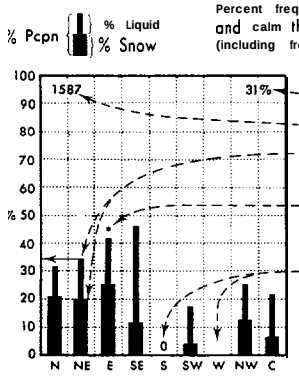


January

20 Persistence of wind ≥ 10 kts.

Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow

Percentage of present weather observations reporting precipitation.

Number of observations

(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.1

An asterisk in the column for a given direction (or calm) indicates that the percentage was based on IO-30 observations of present weather and wind direction

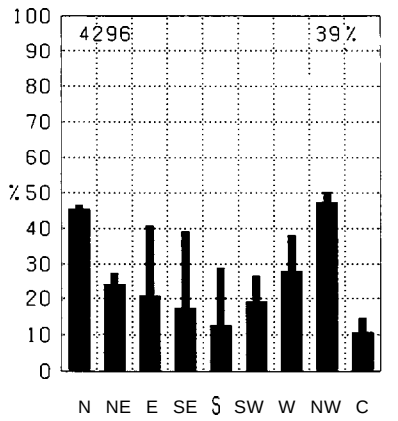
0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bor graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm)

Map • Precipitation

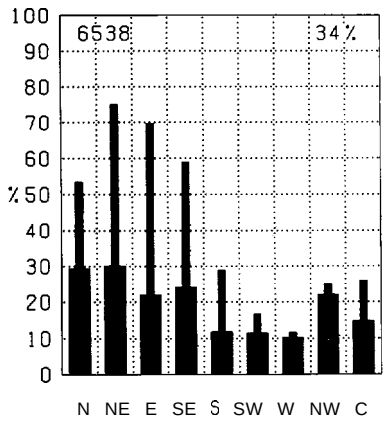
BLACK LINE Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices. observers preference for certain present weather codes, and other biases

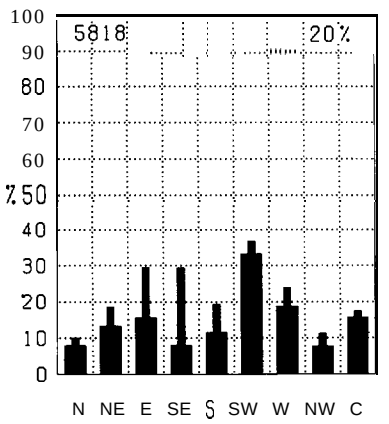
Cold Bay



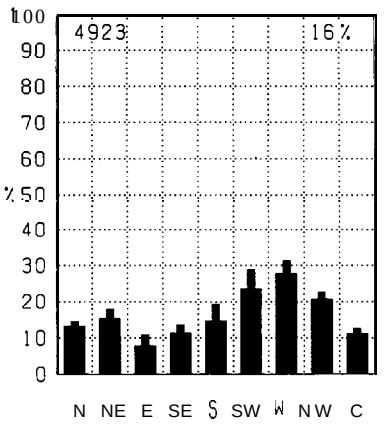
Kodiak



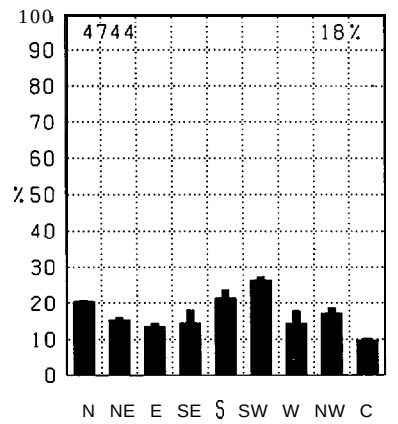
Homer



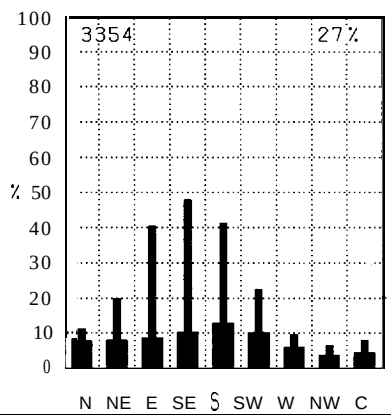
Kenai



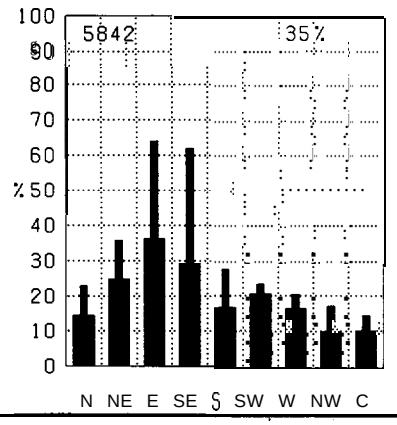
Anchorage



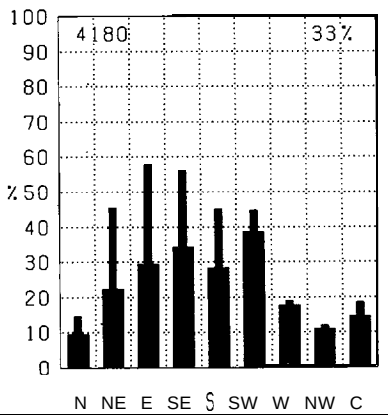
Middleton Island



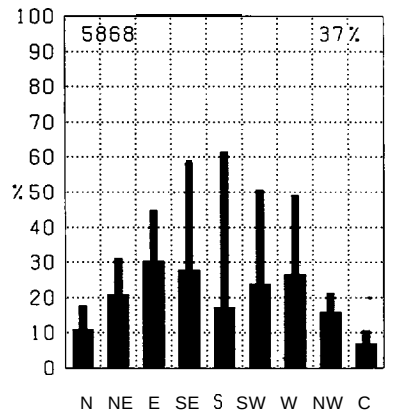
Cordova



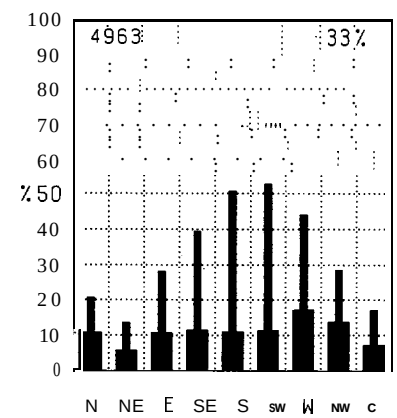
Yakataga



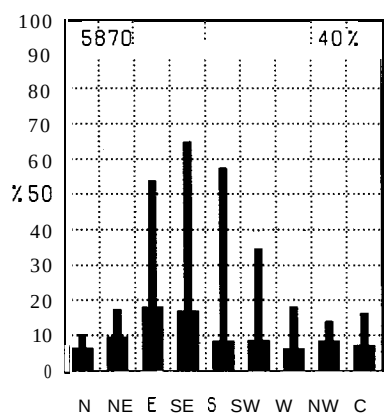
Yakutat



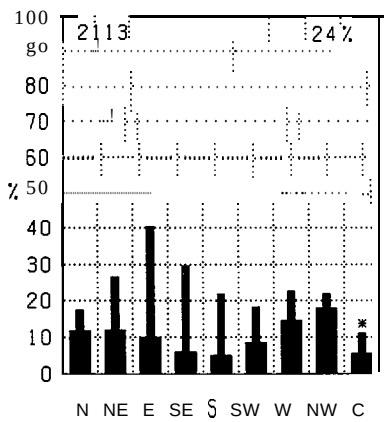
Sitka



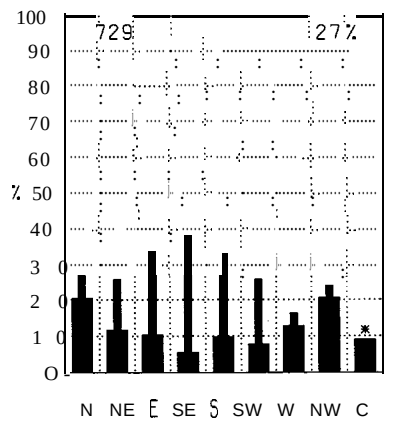
Annette



Marine Area A



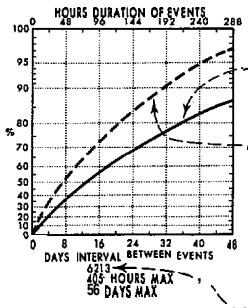
Marine Area B



Legend

Persistence of wind ≥20 kts.

Hours duration of events . Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

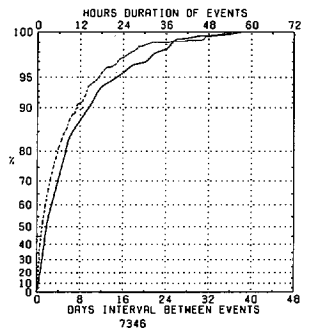
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin [or the first of the month if already in progress) and ore terminated at the actual ending time, regardless of what month that may be.

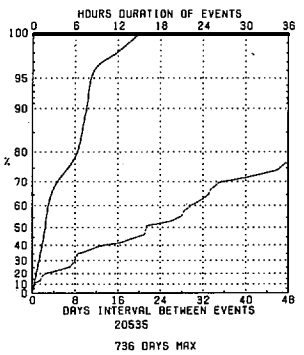
'-Number of observations.

Top and bottom scales are variable to allow for variations in the data.

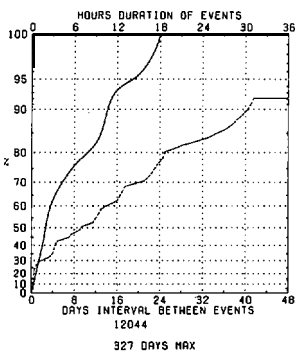
Kodiak



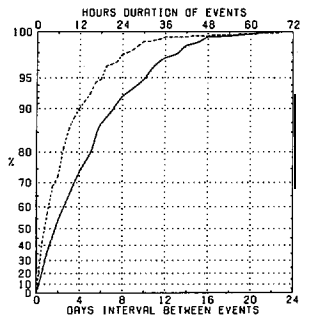
Homer



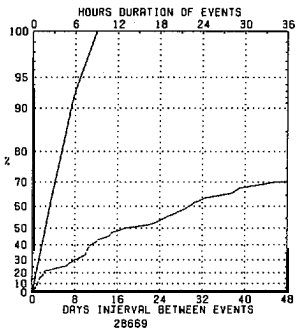
Kenai



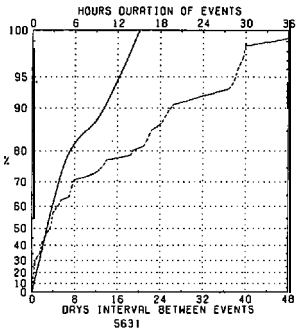
Middleton Island



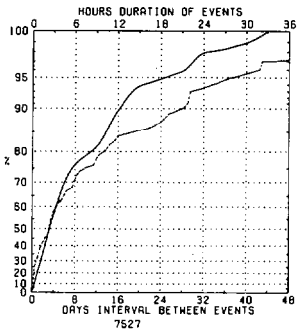
Cordova



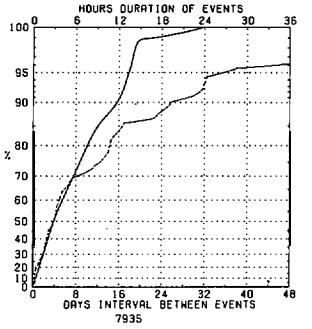
Yakataga



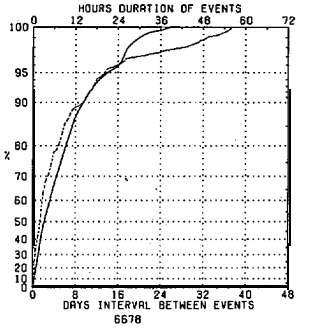
Yakutat



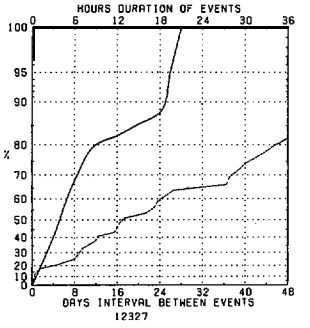
Sitka



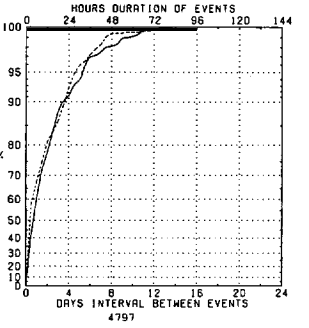
Annette

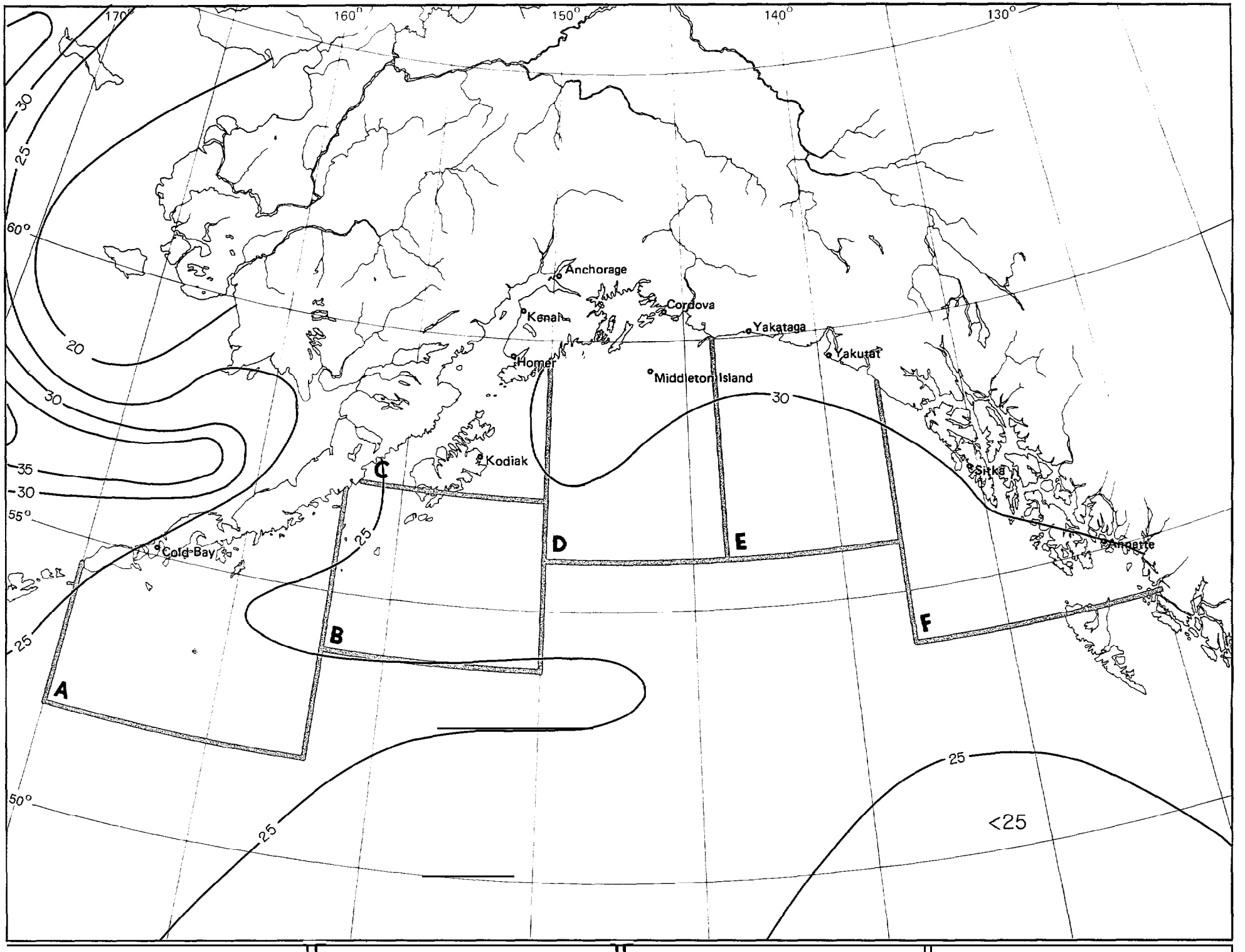


Anchorage

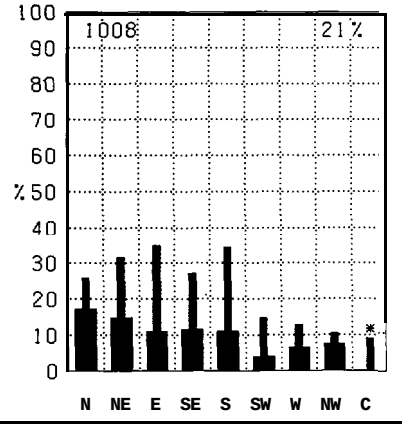


Cold Bay

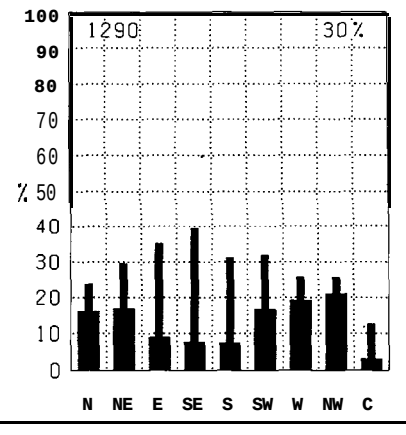




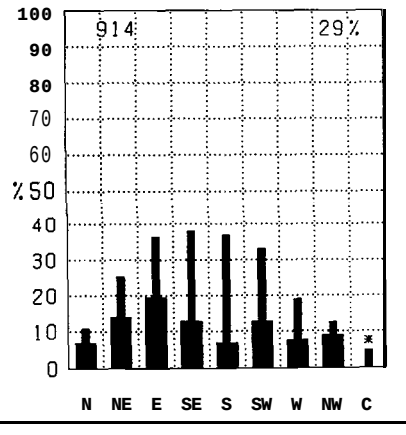
Marine Area C



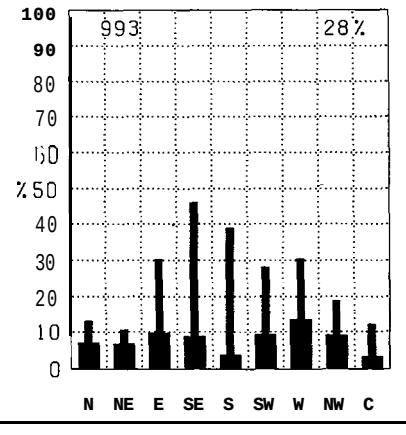
Marine Area D



Marine Area E

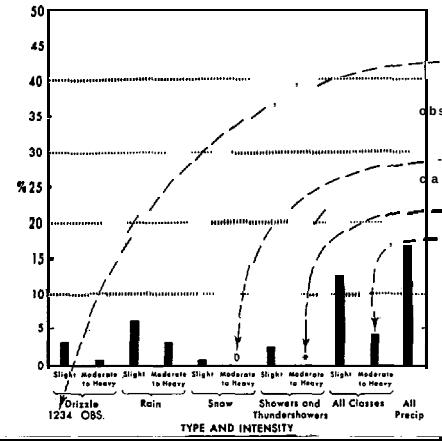


Marine Area F



Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

-0 indicates no observations in the category.

• indicates <.05% but >0.

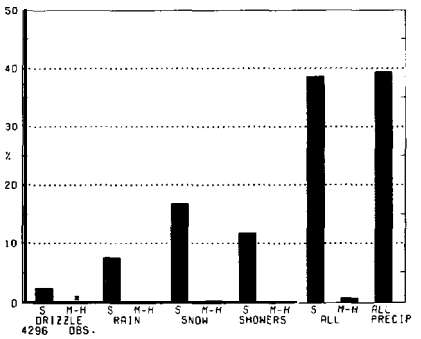
(4.0% of all observations recorded moderate to heavy precipitation.1

Map · Snow

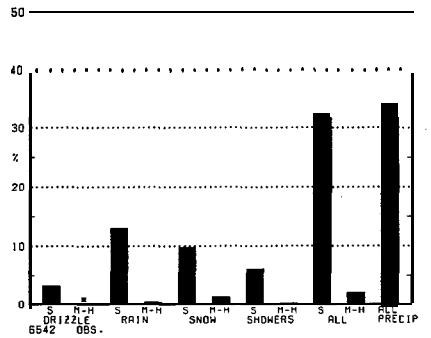
BLACK LINE Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point con be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (mop 2.).

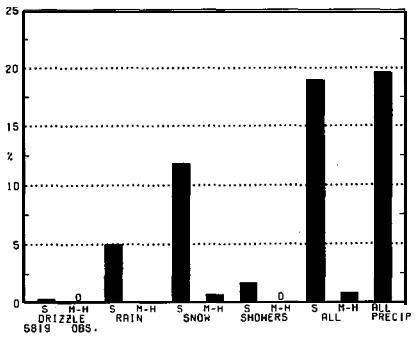
Cold Bay



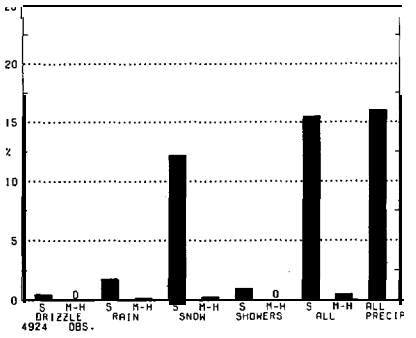
Kodiak



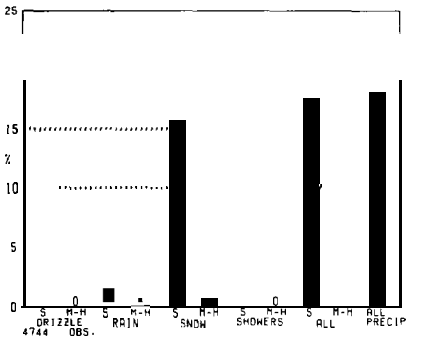
Homer



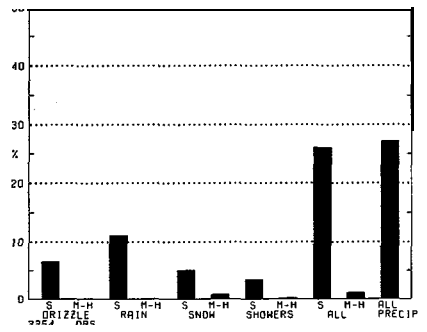
Kenai



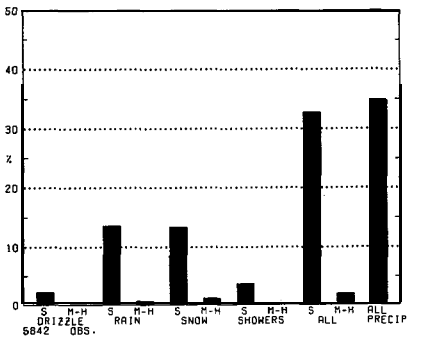
Anchorage



Middleton Island



Cordova



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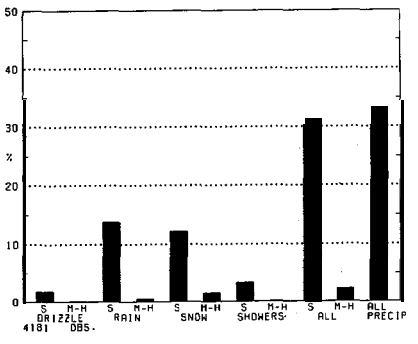

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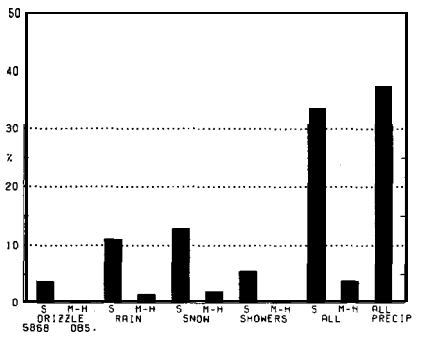
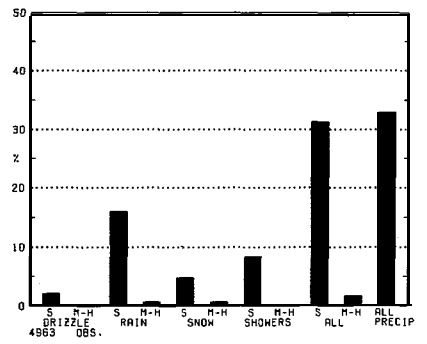
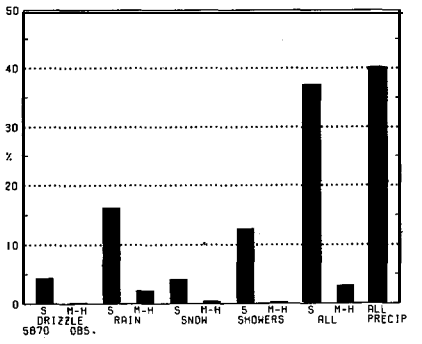


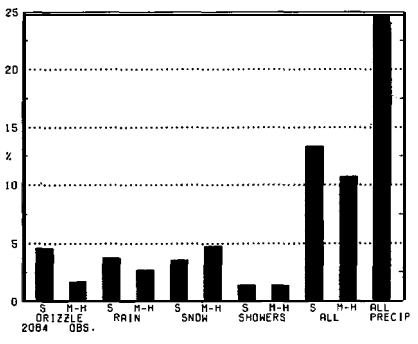
Sitka



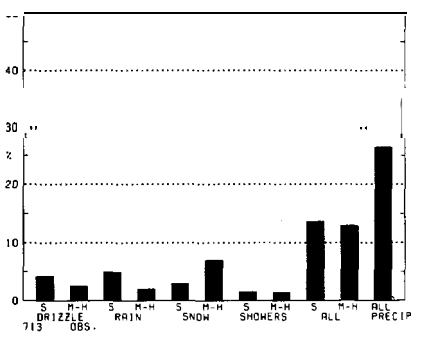
Annette

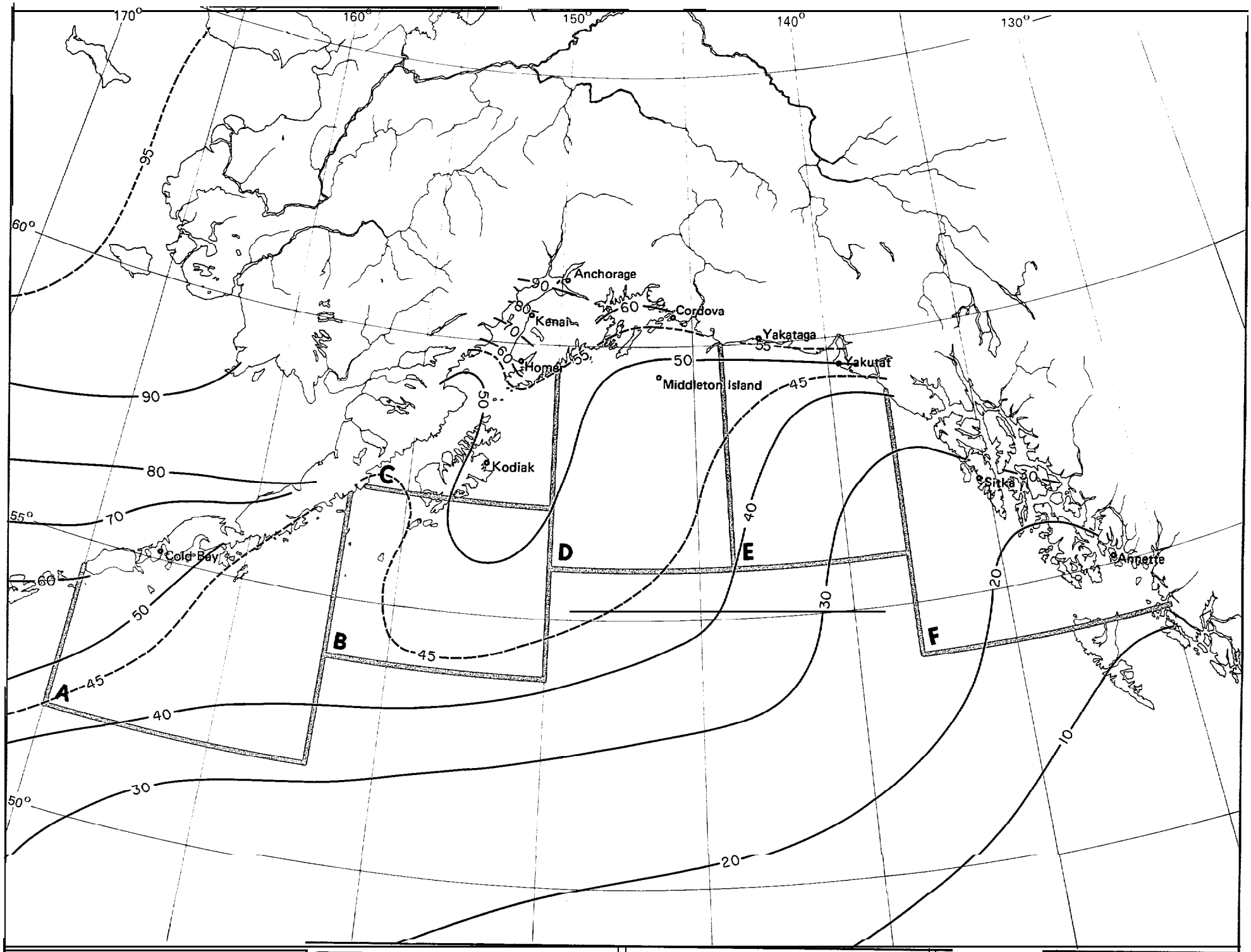


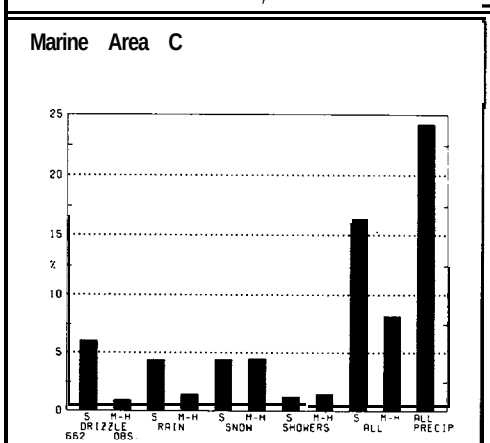
Marine Area A

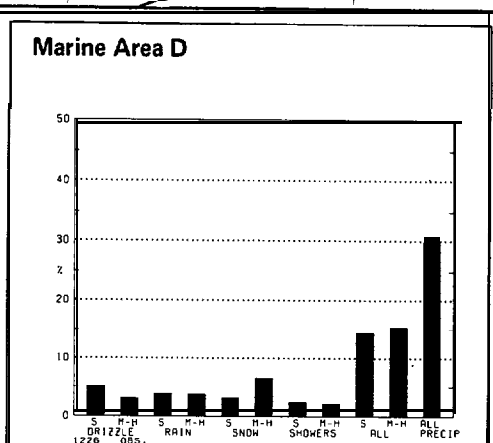


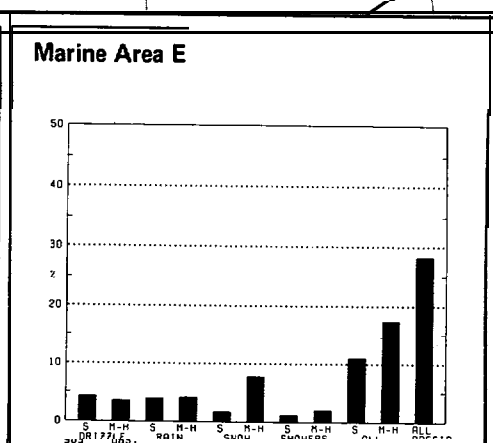
Marine Area B




170°
160°
150°
140°
130°
60°
55°
50°
95
90
80
70
60
50
45
40
30
20
10
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Cold Bay
Sitka
Annette
A
B
C
D
E
F


Marine Area C
25
20
15
%
10
5
0
S
M-H
DRIZZLE
RAIN
SNOW
SHOWERS
ALL
ALL PRECIP
562
085.


Marine Area D
50
40
30
%
20
10
0
S
M-H
DRIZZLE
RAIN
SNOW
SHOWERS
ALL
ALL PRECIP
1226
085.


Marine Area E
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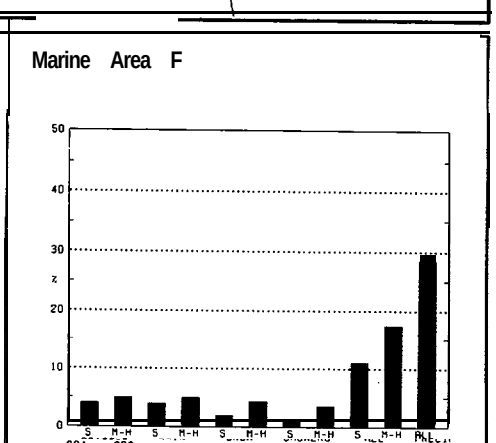
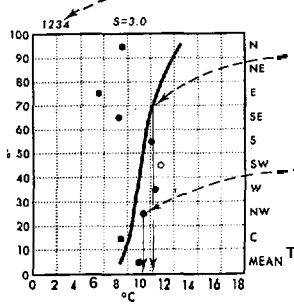
40
30
%
20
10
0
S
M-H
DRIZZLE
RAIN
SNOW
SHOWERS
ALL
ALL PRECIP
085.


Marine Area F
50
40
30
%
20
10
0
S
M-H
984
085.

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% *of all temperatures were* ≤10.3 °C *or* 550.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots

(With NW winds, the *mean temperature* was 9.4 °C or 48.9 °F.)

o Indicates thot the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available

Map • Air temperature mean and thresholds

BLACK LINE Percent frequency of temperature ≤0°C (≤32°F)

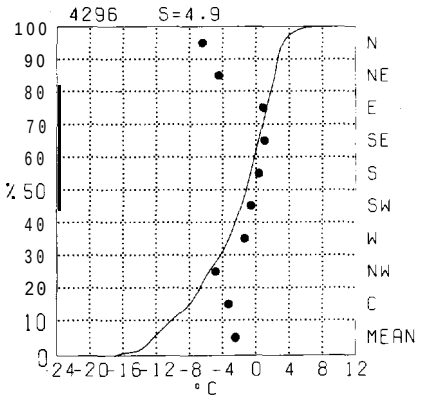
RED LINE Mean air temperature (°C)

BLUE LINE Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

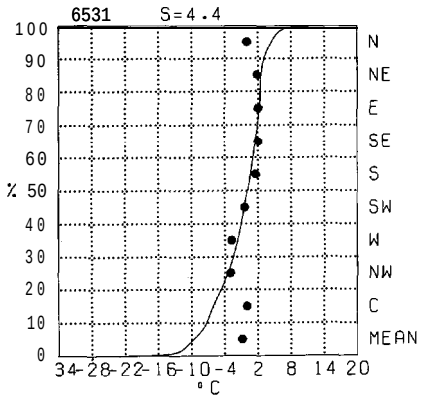
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph moy vary in both range and class interval The percentage of *temperature* observations *greater* than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100% The number of observations and the standard deviation plus the plotted points on the graphs are bared on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

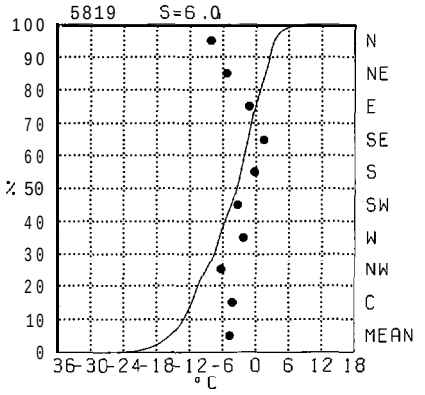
Cold Bay



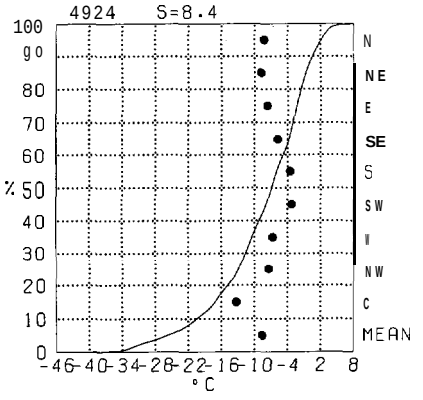
Kodiak



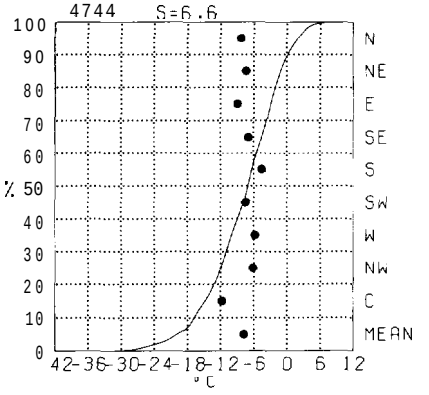
Homer



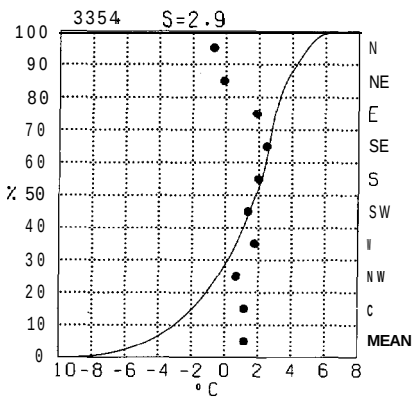
Kenai



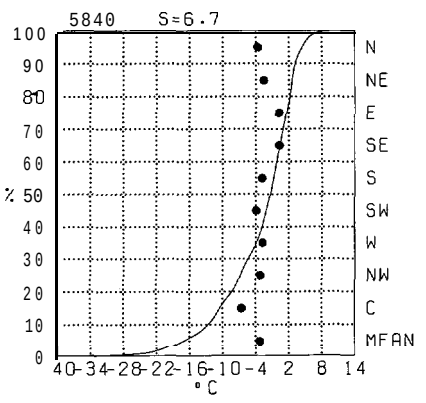
Anchorage



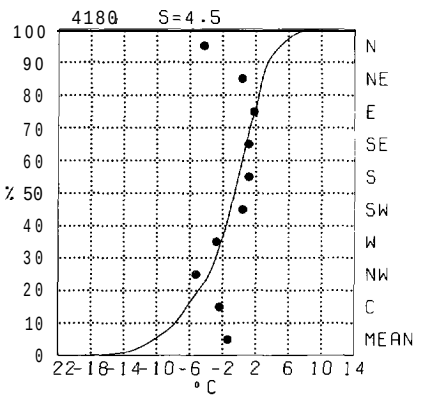
Middleton Island



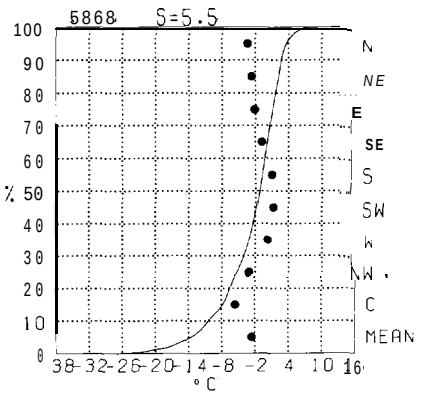
Co rdova



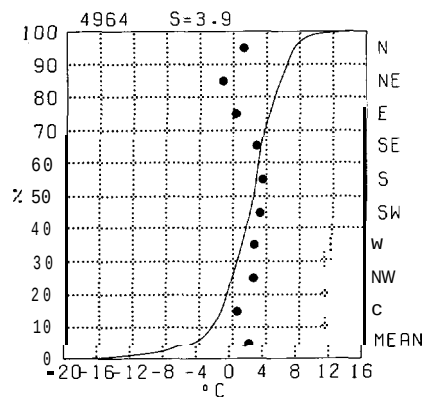
Ya kataga



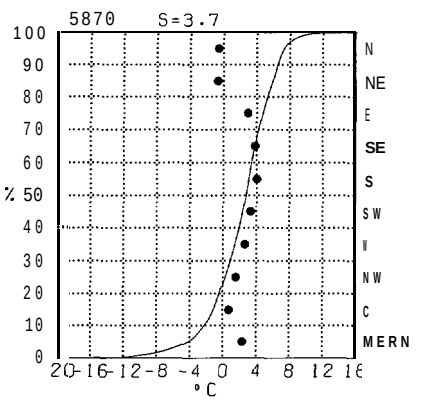
Yakutat



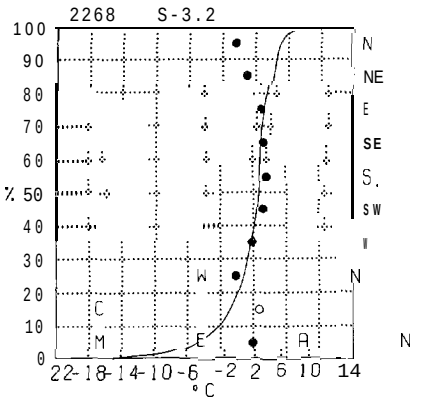
Sitka



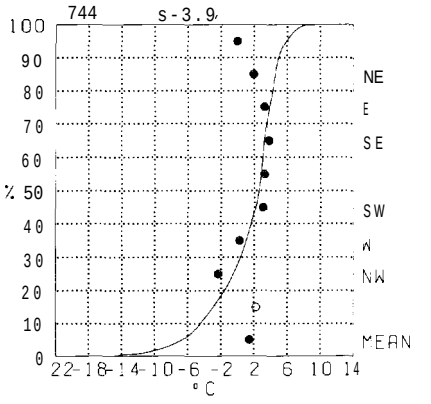
Annette

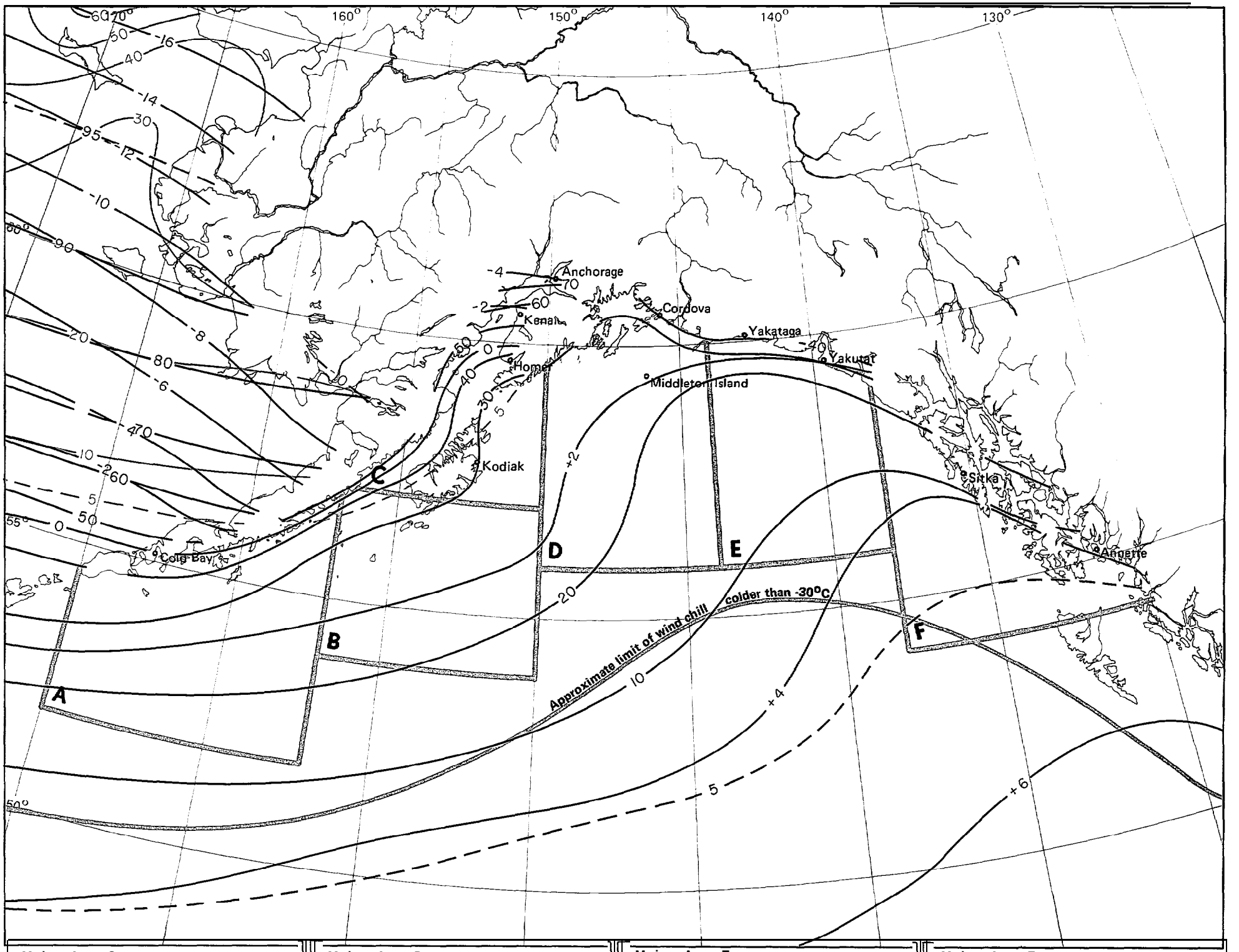


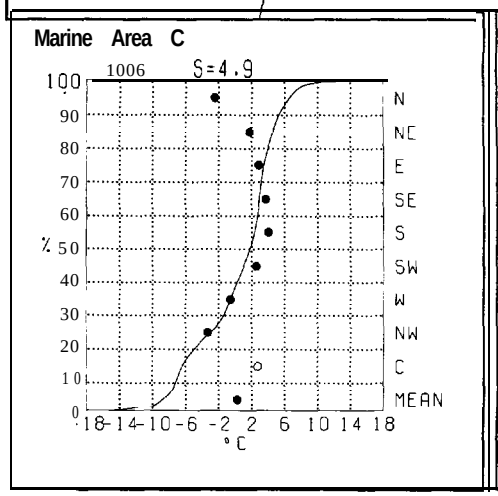
Marine Area A

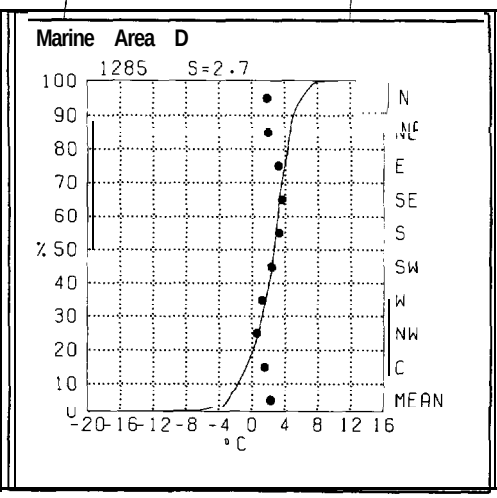


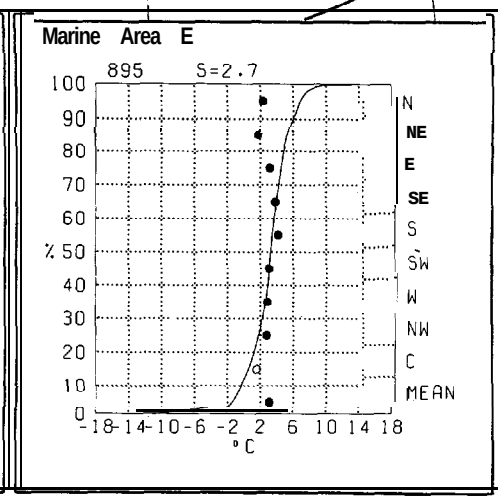
Marine Area B

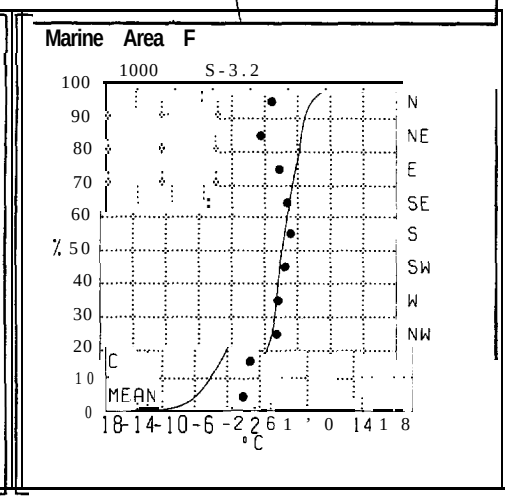












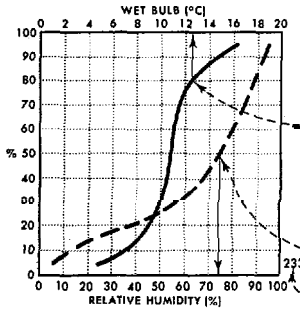
3 Air temperature mean and thresholds

February

EC

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

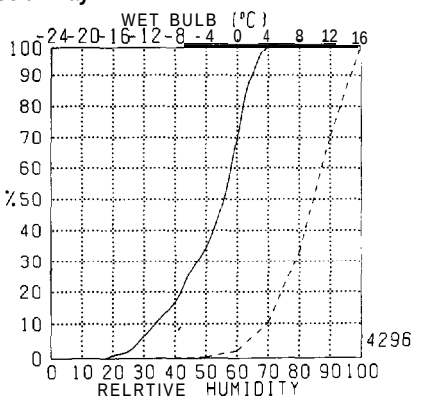
Number of observations.

Map • Mean dew point temperature

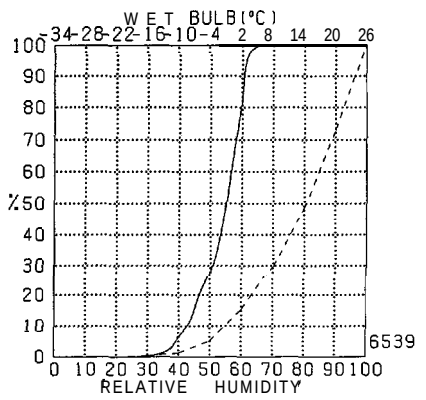
BLACK LINE. Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both ore required in computing the relative humidity. The percentage of observations of either element greater than a given valve con be obtoined by subtracting the cumulative percent frequency of that value from 100%.

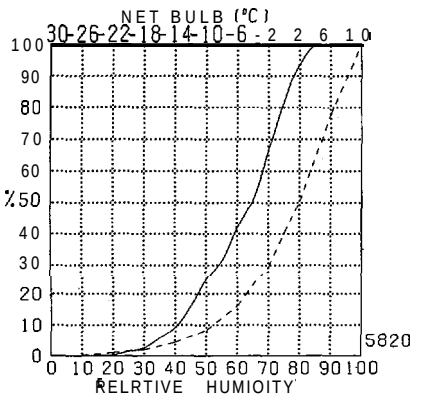
Cold Bay



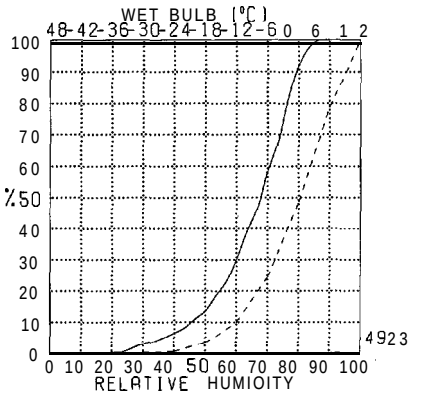
Kodiak



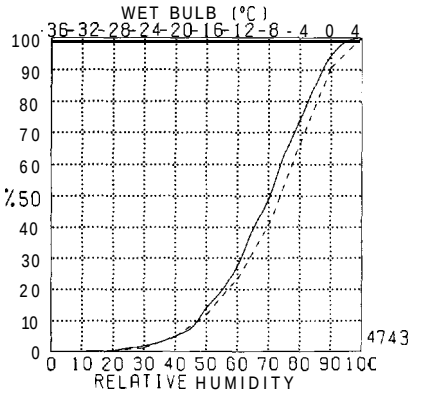
Homer



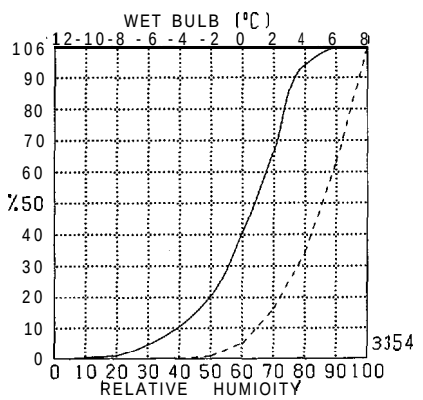
Kenai



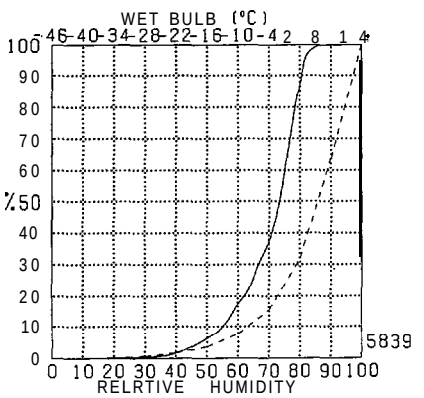
Anchorage



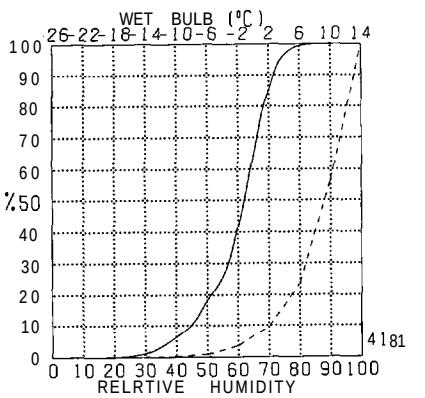
Middleton Island



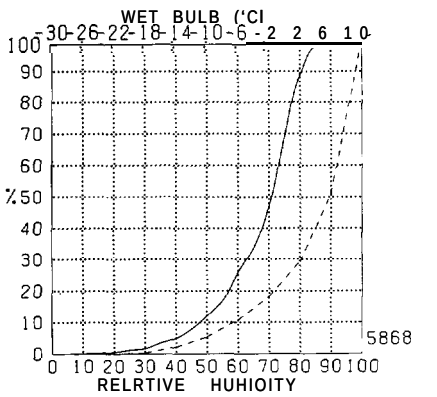
Cordova



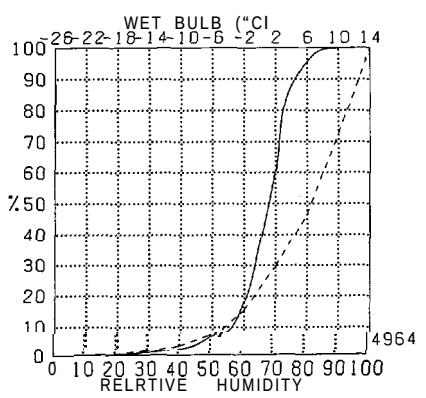
Yakataga



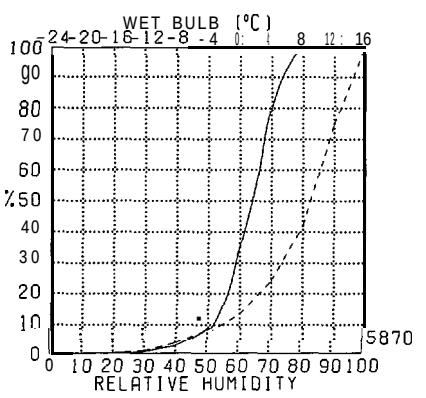
Yakutat



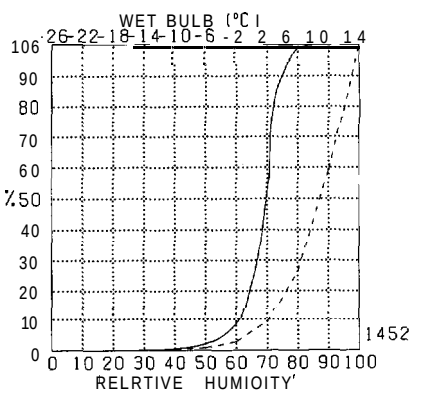
Sitka



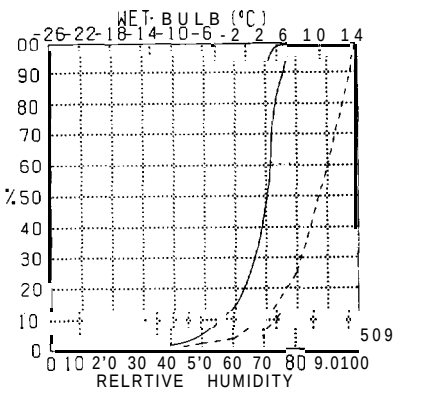
Annette

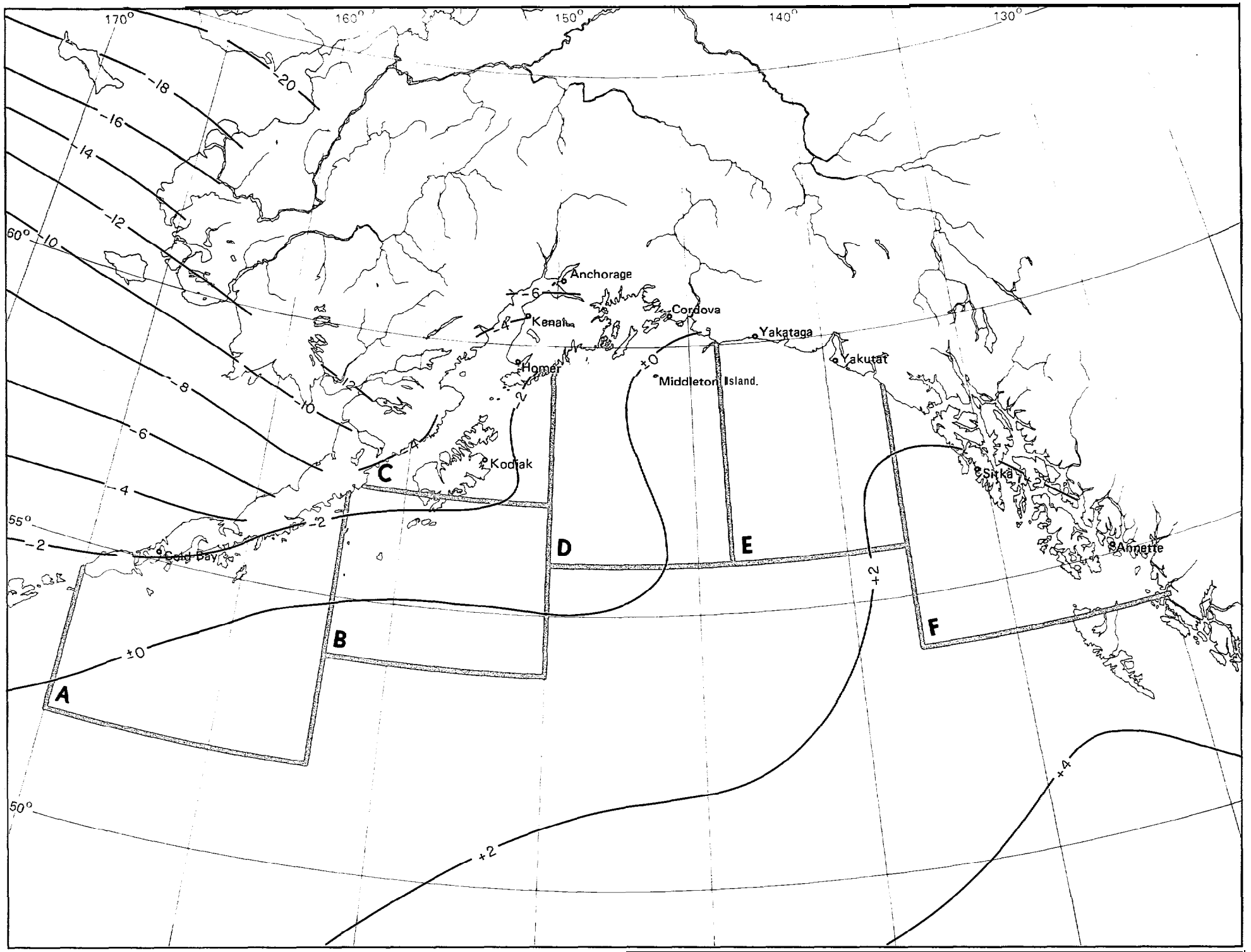


Marine Area A

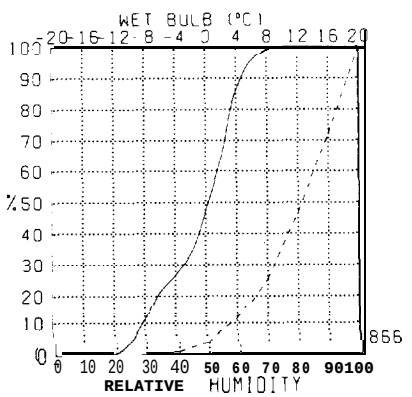


Marine Area B

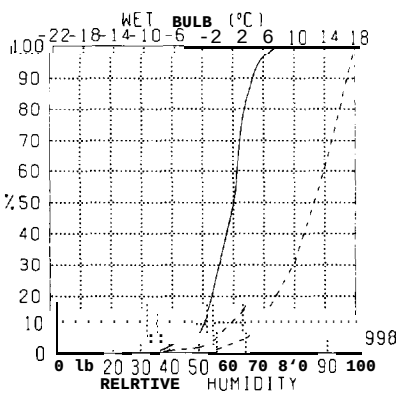




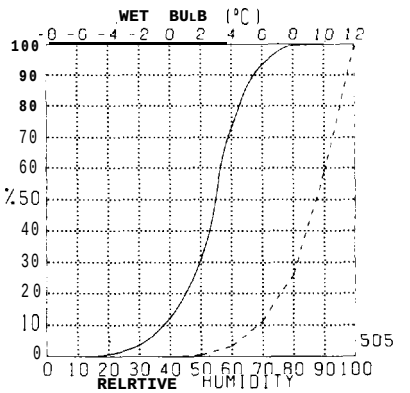
Marine Area C



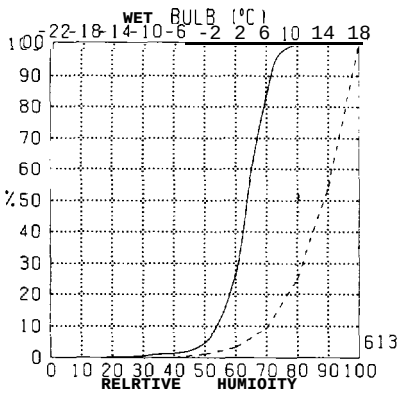
Marine Area D



Marine Area E



Marine Area F



4 Mean dew point temperature

February

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4.5	18	8	7	1	+
2.3	17	8	7	1	1
0.1	13	6	5	1	1
-2.-1	1	+	0	0	0
-4.-3	0	0	0	0	0
-6.-5	+	0	0	+	+
-8.-7	1	+	0	0	0
-10.-9	0	0	0	0	0
-12.-11	1	+	0	0	0
-14.-13	1	0	0	0	0
-16.-15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature ("CI and wind speed (knots).

(1% of *all observations* reported *temperature* 2-3°C simultaneously *with* wind speed of 22.33 *kts.*)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (°C)

BLACK LINE Maximum (99%) air temperature (1% of temperatures were greater than the given value)
BLUE LINE Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The groph con be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increaser as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and moy become quite severe with temperatures equal to or less thon -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	0	+	0	0
8.9	0	0	+	0	0
6.7	0	+	+	+	+
4.5	+	1	2	1	1
2.3	+	3	9	7	1
0.1	1	5	8	4	1
-2.-1	1	6	7	2	+
-4.-3	1	4	5	1	+
-6.-5	1	2	4	1	0
-8.-7	1	2	4	2	+
≤-9	+	3	6	3	+

4296

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	+	0
10,11	0	+	+	+	0
8,9	+	+	+	+	0
6,7	+	1	1	+	0
4,5	1	3	3	+	+
2.3	6	12	9	1	+
0,1	5	7	5	1	+
-2,-1	4	5	4	1	+
-4,-3	2	3	4	1	+
-6,-5	1	2	2	1	+
≤-7	2	5	5	2	+

6531

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	0	0	0
10,11	0	0	0	0	0
8,9	+	+	+	0	0
6,7	+	1	1	0	0
4,5	+	2	1	+	0
2,3	3	6	4	+	0
0,1	4	5	2	+	0
-2,-1	5	7	2	+	0
-4,-3	6	6	2	0	0
-6,-5	3	4	1	+	0
≤-7	11	21	4	+	0

5819

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
6.7	0	+	+	0	0
4.5	+	1	+	+	0
2,3	+	3	2	+	0
0,1	1	4	2	+	0
-2,-1	1	5	4	+	0
-4,-3	2	7	4	+	0
-6,-5	2	4	2	+	0
-8,-7	3	6	2	+	0
-10,-9	2	4	1	+	+
-12,-11	2	4	1	+	0
≤-13	13	13	1	+	0

4924

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	0	+	0	0
6.7	+	+	+	0	0
4.5	+	+	1	+	0
2,3	1	2	1	+	0
0,1	2	3	1	+	0
-2,-1	3	5	1	+	0
-4,-3	4	8	1	+	+
-6,-5	3	6	1	+	+
-8,-7	4	7	1	+	+
-10,-9	3	5	1	+	0
≤-11	16	13	3	+	+

4744

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
6,7	+	+	1	1	0
4.5	1	4	9	4	+
2,3	3	13	16	6	1
0,1	3	7	6	2	+
-2,-1	1	3	5	2	1
-4,-3	+	2	3	2	+
-6,-5	+	1	1	1	+
-8,-7	+	+	1	+	+
-10,-9	0	0	+	+	0
-12,-11	0	0	0	0	0
-14,-13	0	0	0	0	0

3354

Cordova

WIND SPEED (KTS)

TEHP (°C)	0-3	4-10	11-21	22-33	a34
6.9	+	+	+	0	0
6,7	+	1	1	+	0
4,5	1	3	2	+	0
2,3	4	10	4	+	0
0,1	6	8	3	+	0
-2,-1	8	5	1	0	0
-4,-3	6	3	1	+	0
-6,-5	4	1	+	0	0
-8,-7	5	2	+	+	0
-10,-9	3	1	+	+	0
≤-11	13	2	+	0	0

5840

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0 - 3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	0	0	+	+	0
8.9	+	+	+	+	0
6.7	+	+	2	+	+
4.5	1	2	4	+	+
2,3	3	7	9	1	+
0,1	6	8	4	+	+
-2,-1	8	8	2	+	0
-4,-3	6	5	1	0	0
-6,-5	3	3	+	+	0
≤-7	7	7	+	+	0

4180

Yakutat

WIND SPEED (KTS)

TFMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	0	0	0	+	0
10.11	0	0	0	+	0
8.9	0	+	+	+	0
6.7	+	1	+	+	0
4.5	+	2	2	+	+
2.3	3	7	6	1	+
0.1	4	10	5	1	0
-2.-1	6	9	3	+	0
-4.-3	5	5	2	+	+
-6.-5	2	3	1	+	0
≤-7	12	7	2	+	0

5868

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	+	+	0	0
12.13	0	+	+	+	+
10.11	+	+	+	+	0
8.9	+	1	2	+	+
6.7	1	4	6	1	0
4.5	3	8	6	1	0
2.3	7	14	6	+	0
0.1	6	7	2	+	0
-2.-1	5	5	1	+	+
-4.-3	2	2	1	+	+
≤-5	2	2	1	+	+

4964

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	0	+	+	0
14.15	0	+	+	0	0
12.13	+	+	+	0	0
10.11	+	+	+	+	0
8.9	+	1	2	1	+
6.7	1	5	7	2	+
4.5	1	8	9	2	+
2.3	3	12	9	2	+
0.1	3	8	4	+	+
-2.-1	2	6	2	+	0
≤-3	1	4	3	+	+

5870

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	0	0	+	0	+
8.9	+	+	+	+	0
6.7	+	1	1	1	+
4.5	+	6	11	9	2
2.3	1	9	15	10	3
0.1	+	2	6	3	1
-2,-1	+	1	3	2	1
-4,-3	0	1	2	2	+
-6.-5	0	+	1	+	+
-8,-7	0	+	+	1	+
≤-9	0	0	+	+	1

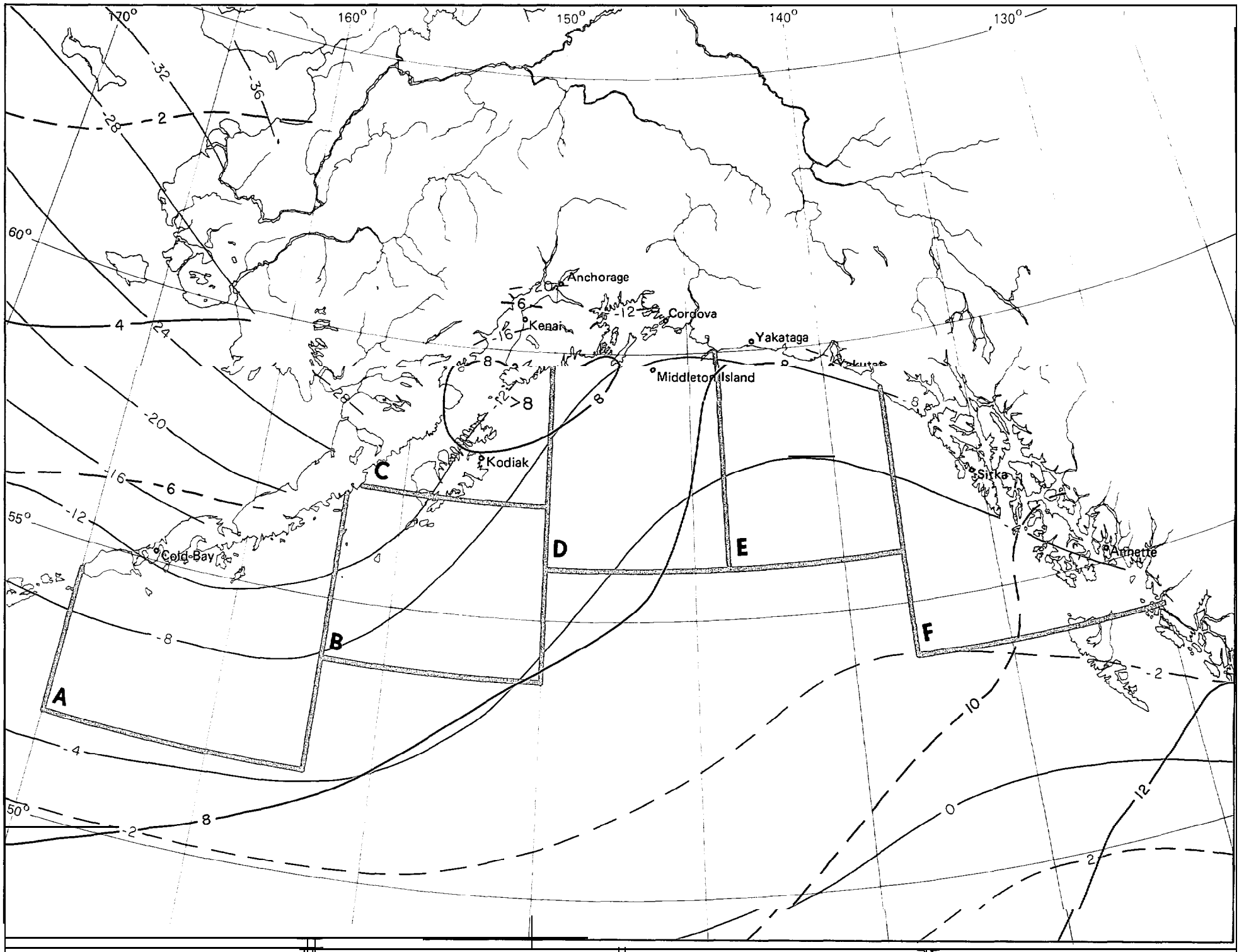
2268

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	+	+	+	+
6.7	+	2	4	1	0
4.5	1	8	11	7	2
2.3	1	6	13	7	1
0.1	+	3	4	4	1
-2.-1	0	1	3	2	1
-4.-3	+	1	1	3	1
-6.-5	0	1	1	2	1
-8.-7	+	+	1	1	1
-10.-9	0	+	0	1	+
≤-11	0	0	+	+	1

744



Marine Area C

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	+	c	+	0	0
10.11	+	+	+	+	0
8.9	+ 1	+	0		0
6.7	3	3	1	1	+
4.5	3	3	5	2	2
2.3	2	6	13	8	2
0.1	2	5	4	1	1
-2.-1	+2.-1	2	4	+	+
-4.-3	+	3	2	1	+
-6.-5	0	1	3	1	i-
s-7	+	i	5	5	3

1006

Marine Area D

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	+	+	+	+	+
6.7	+	1	3	2	1
4.5	1	6	11	6	3
2.3	2	7	14	7	3
0.1	1	3	7	4i	2
-2.-1	+I	1	3	2	1
-4.-3	+	1	2	2	1
-6.-5	+ +	i		+	
-8.-7	0	+	0		0
-10.-9	0	0	0	0	0
-12.-11	0	+	0	+	0

1285

Marine Area E

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	+	0	+	0	+
10.11	0	+	+	+	0
8.9	0	+I	1	1	0
6.7	1	3	5	3	1
4.5		8	13	6	3
2.3	2, 10		12	7	4
0.1	+	2	4	2	1
-2.-1	+1		3	1	1
-4.-3	0	+	+	+	0
-6.-5	+	+	+	0	0
s-7	+	+	1	+	+

895

Marine Area F

WIND SPEED (KTS)

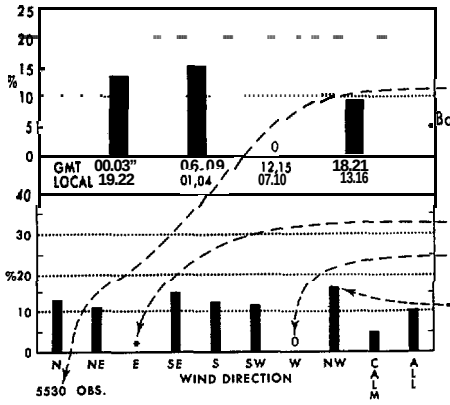
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	0	+	0	+	0
10.11	+	+	+	+	0
8.9	1	2	2	2	1
6.7	2	4	9	6	1
4.5	2	9	12	8	2
2.3	1	6	7	3	2
0.1	1	2	3	2	1
-2.-1	+	2	2		0
-4.-3	0	1	1	1	+
-6.-5	0	0	+	+	+
s-7	0	0	1	+	+

1000

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

• indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

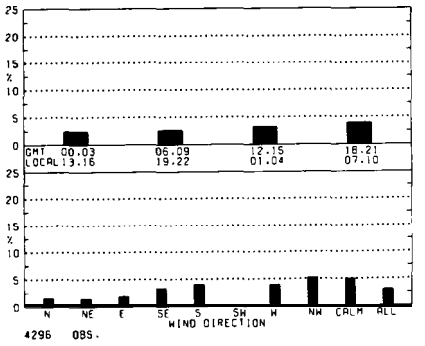
Map - Fog

BLACK LINE. Percent frequency of occurrence of all fog

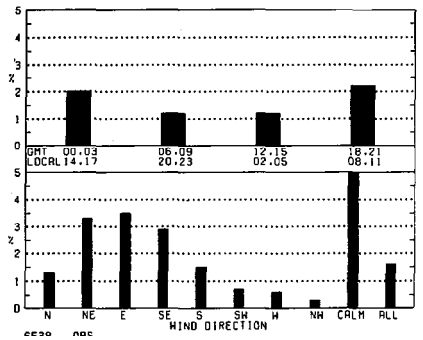
BLUE LINE. Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

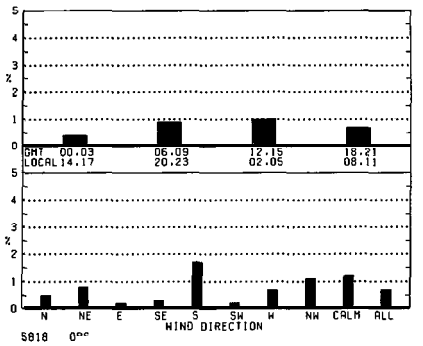
Cold Bay



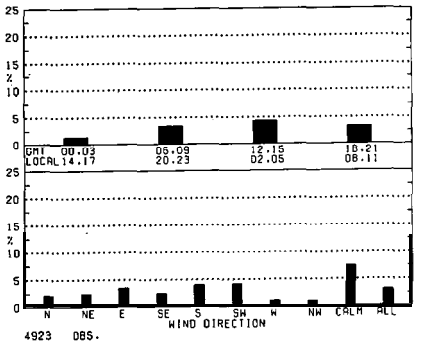
Kodiak



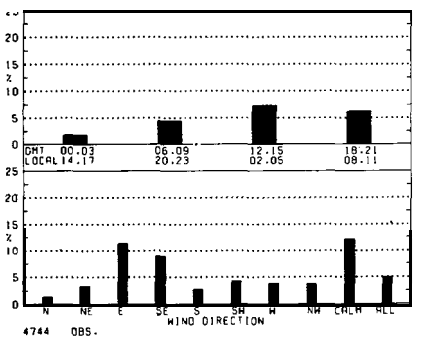
Homer



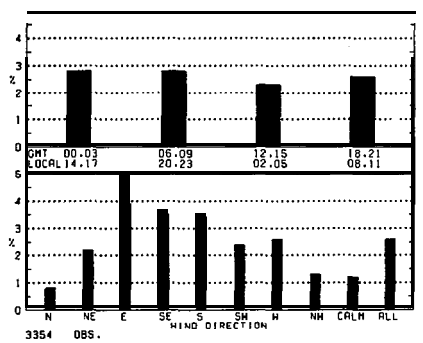
Kenai



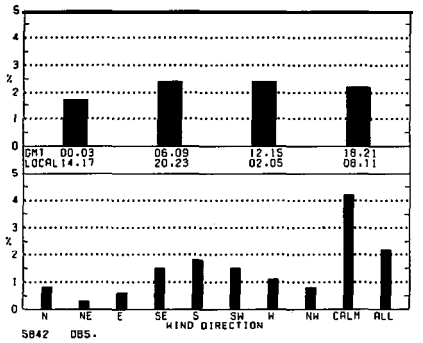
Anchorage



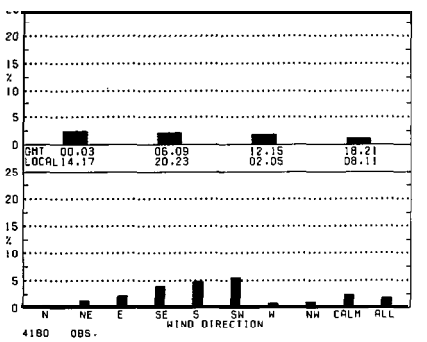
Middleton Island



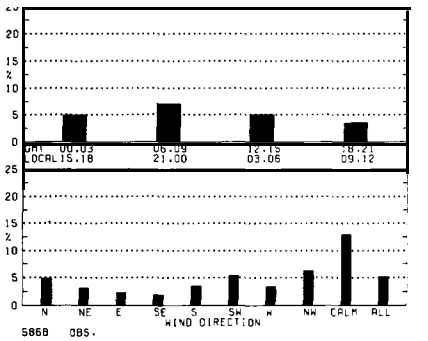
Cordova



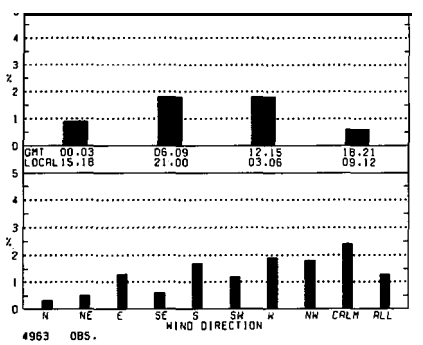
Yakataga



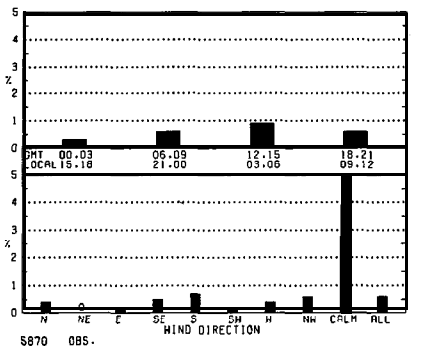
Yakutat



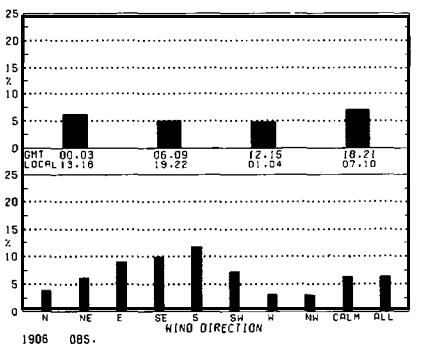
Sitka



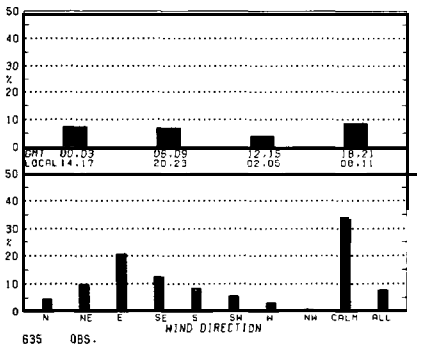
Annette

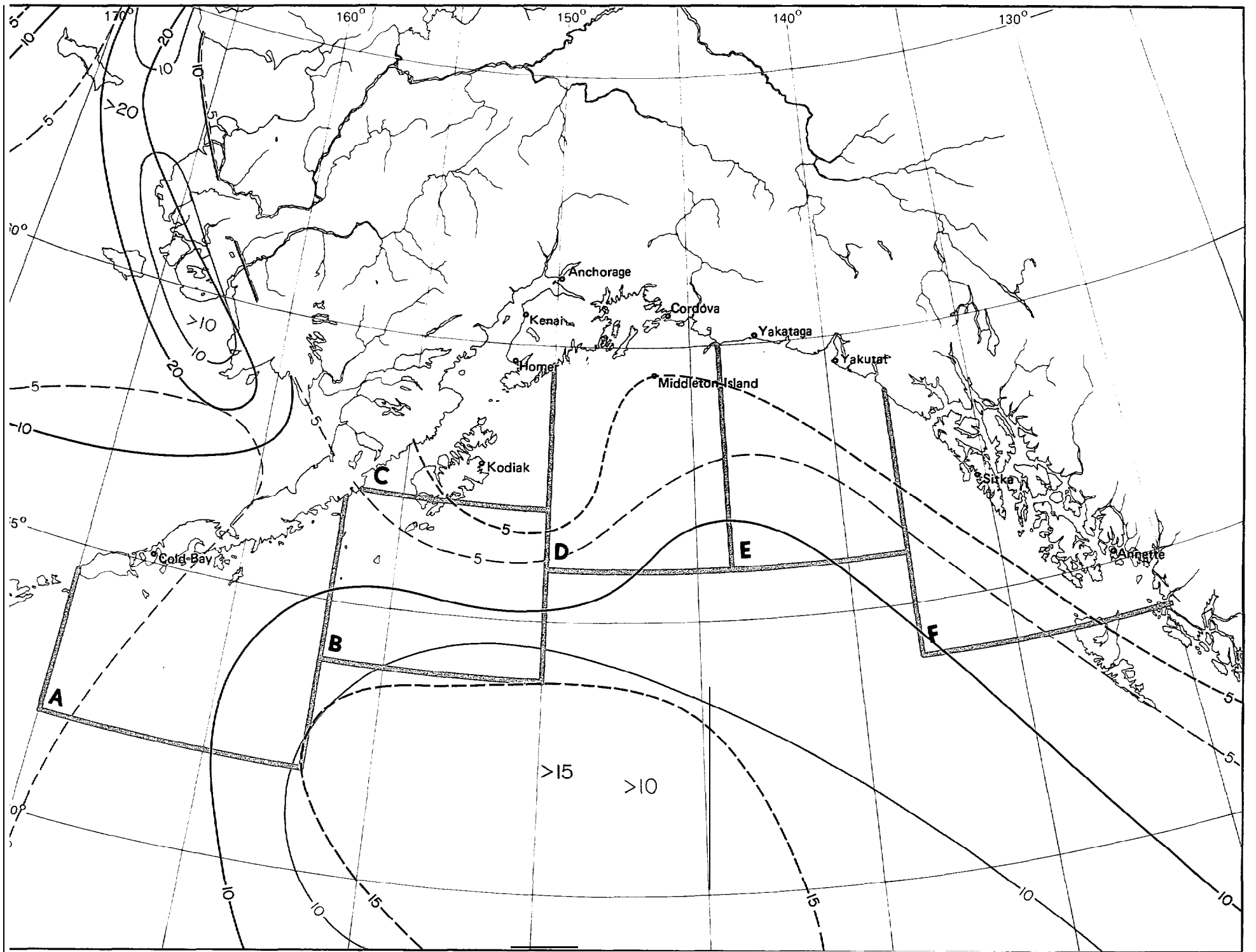


Marine Area A

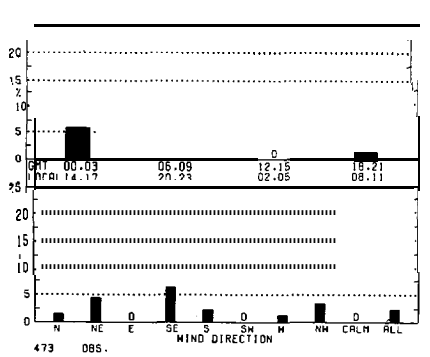


Marine Area B

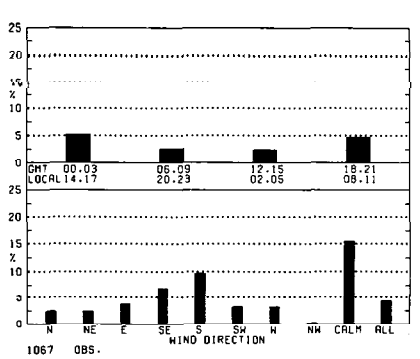




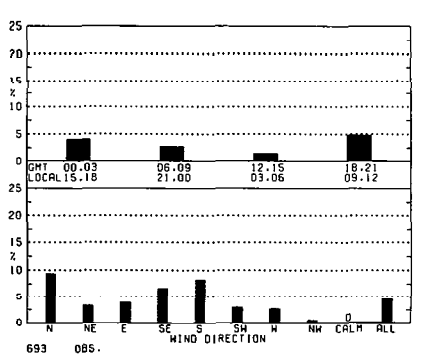
Marine Area C



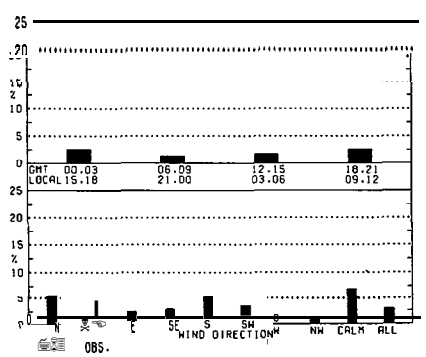
Marine Area D



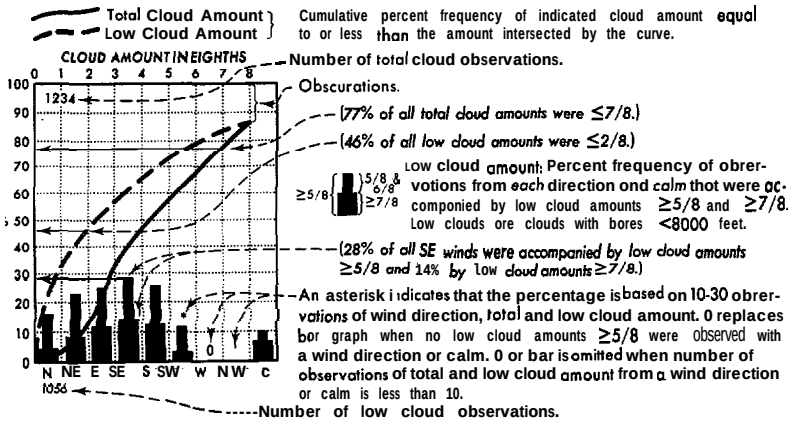
Marine Area E



Marine Area F



Legend — Cloud cover/wind direction



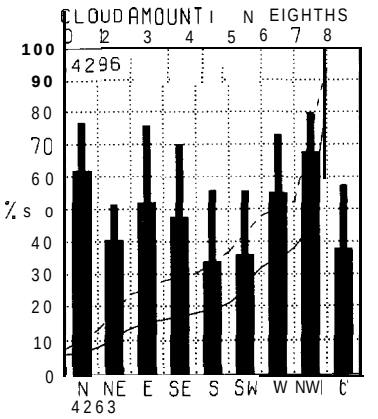
Map • Cloud amount thresholds

BLACK LINE • Percent frequency of total cloud amount ≤2/8

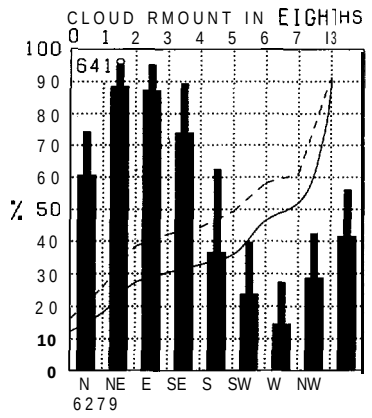
BLUE LINE • Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This moy lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations ore considered or 8/8 coverage.

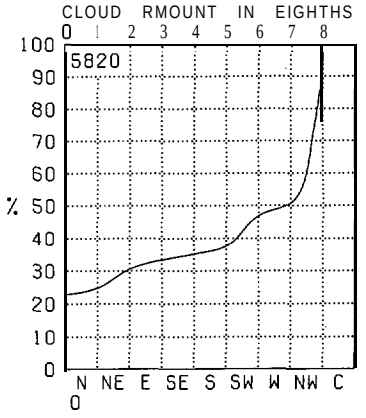
Cold Bay



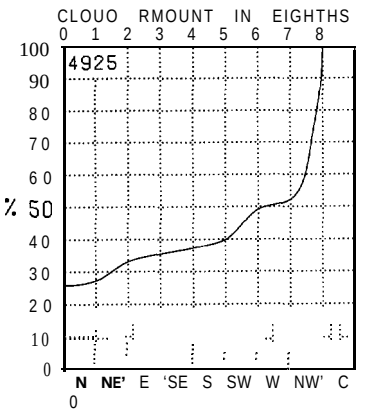
Kodiak



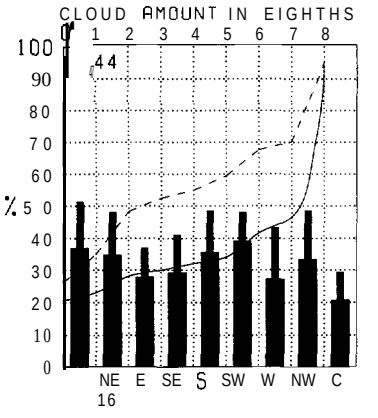
Homer



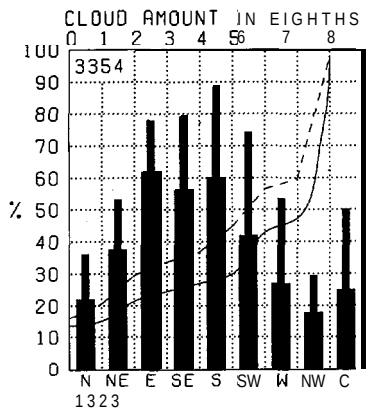
Kenai



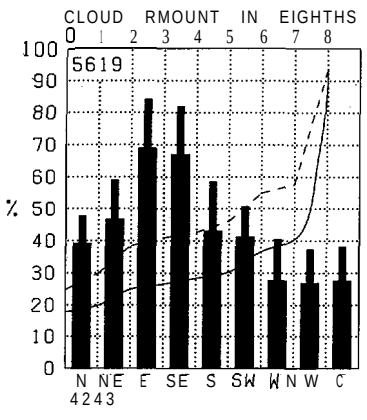
Anchorage



Middleton Island



Cordova



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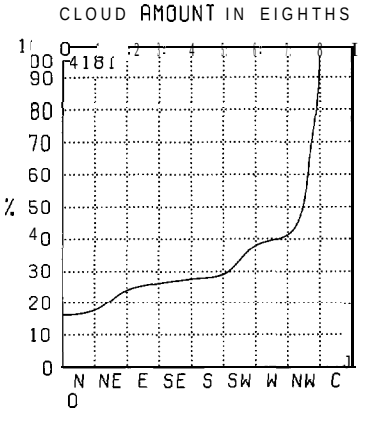
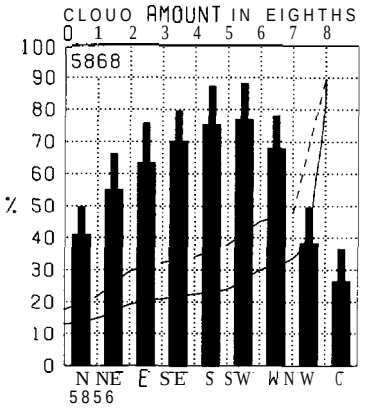
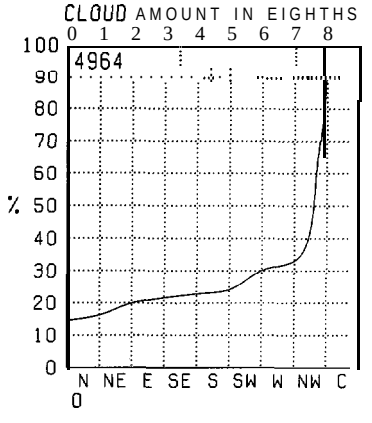


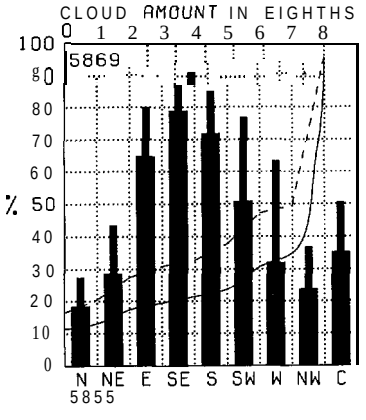
Yakutat



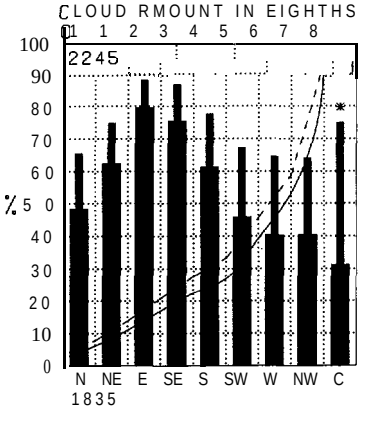
Sitka



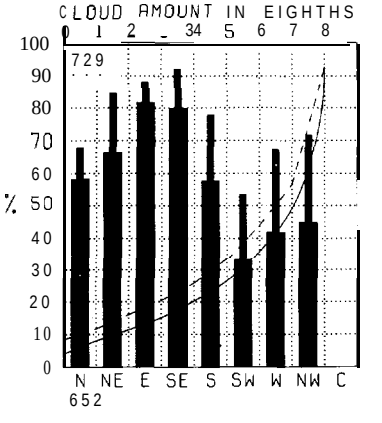
Annette



Marine Area A



Marine Area B

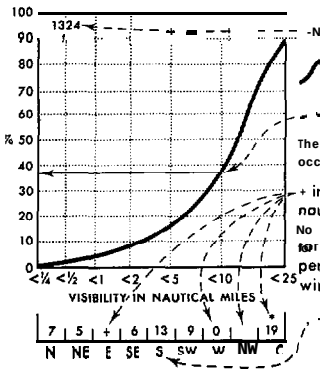


Anchorage
Cordova
Kenai
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Cold Bay
Annette
A
B
C
D
E
F
<5
>80
5
Marine Area C
CLOUD RMOUNT IN EIGHTHS
854
841
Marine Area D
CLOUO AMOUNT IN EIGHTHS
1191
1058
Marine Area E
CLOUD RNOUNT IN EIGHTHS
873
710
Marine Area F
CLOUD RNOUNT IN EIGHTHS
968
792
N NE E SE S SW W NW C
% 0 10 20 30 40 50 60 70 80 90 100

7 Cloud amount thresholds

Legend

Visibility/wind direction



-Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of *all visibilities* reported were <10 *nautical miles.*)

The table below the graph indicates percent frequency of occurrence of visibility <2 nouticol miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

-(13% of *all* S winds were accompanied by *visibilities* <2 *nautical miles.*)

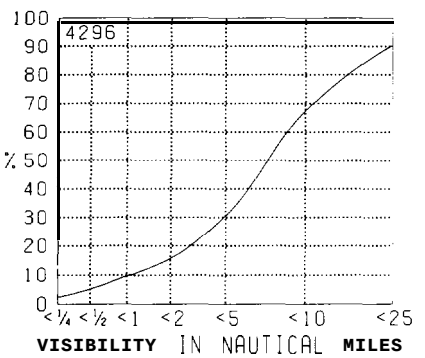
Map . Visibility thresholds

BLACK LINE Percent frequency of visibilities ≥5 nouticol miles

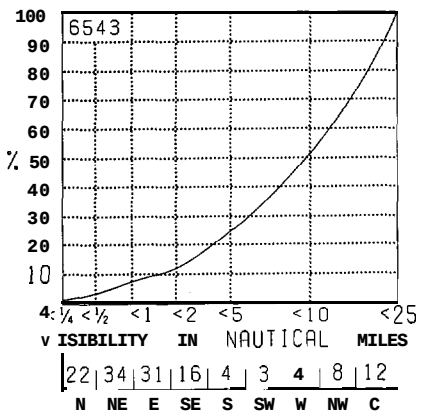
BLUE LINE Percent frequency of viribilities <2 nouticol miles

The percentage of visibility equal to or greater than a given value con be obtained from the graph by subtracting the cumulative percent frequency of that value from 100% Visibility at sea is difficult to measure because of the lock of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi should be interpreted cautiously because the earth's curvature maker it impossible to see 25 nmi. horizontally from the bridges of most ships.

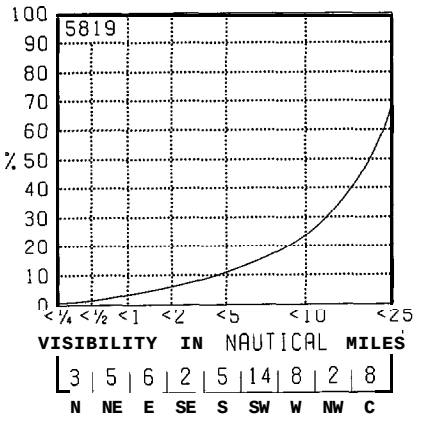
Cold Bay



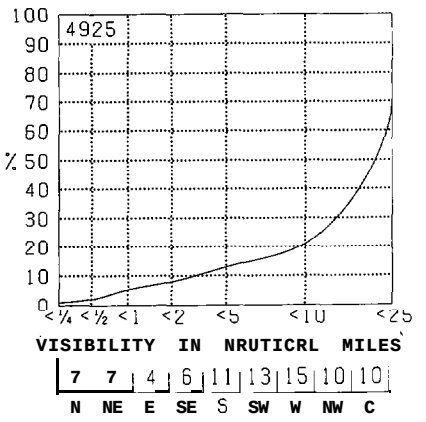
Kodiak



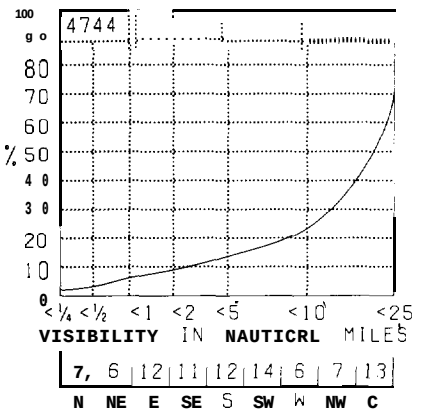
Homer



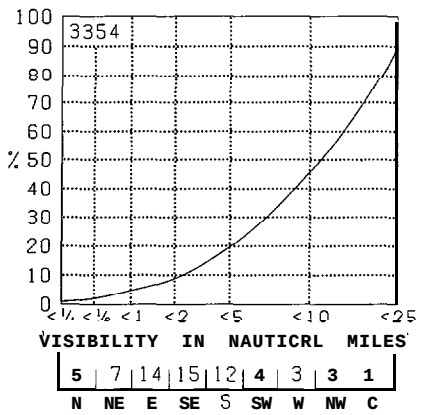
Kenai



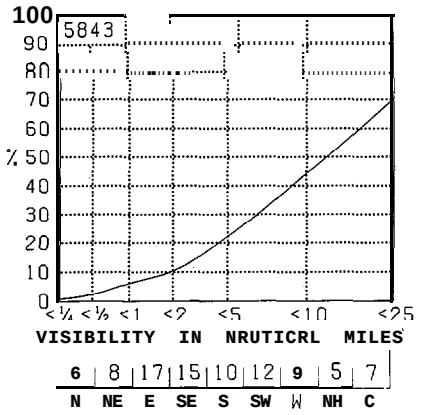
Anchorage



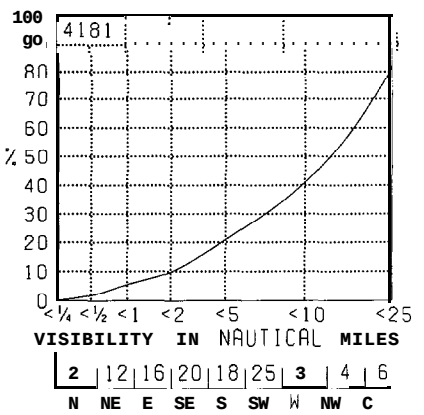
Middleton Island



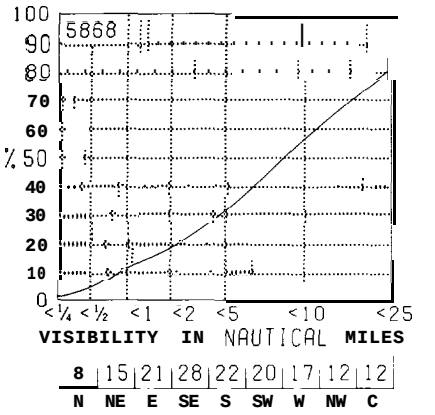
Cordova



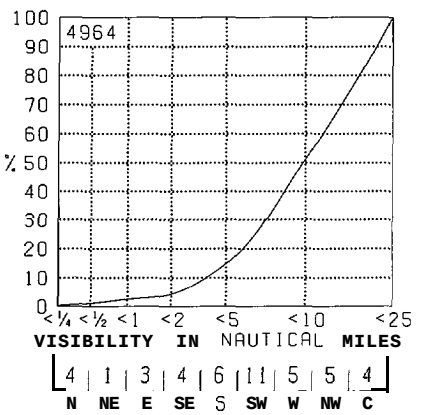
Ya kataga



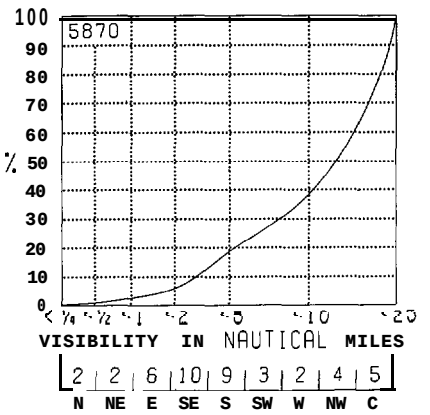
Yakutat



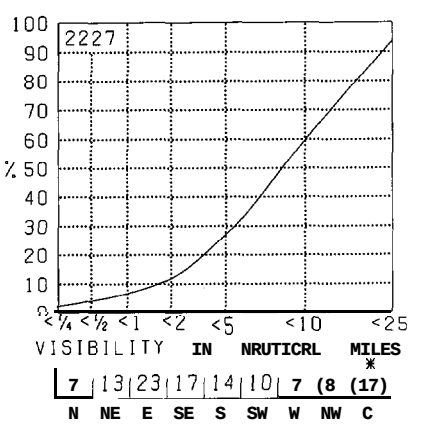
Sitka



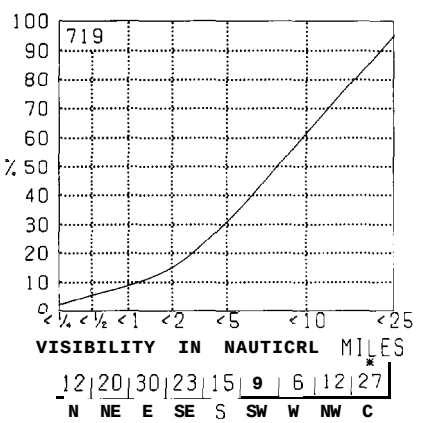
Annette

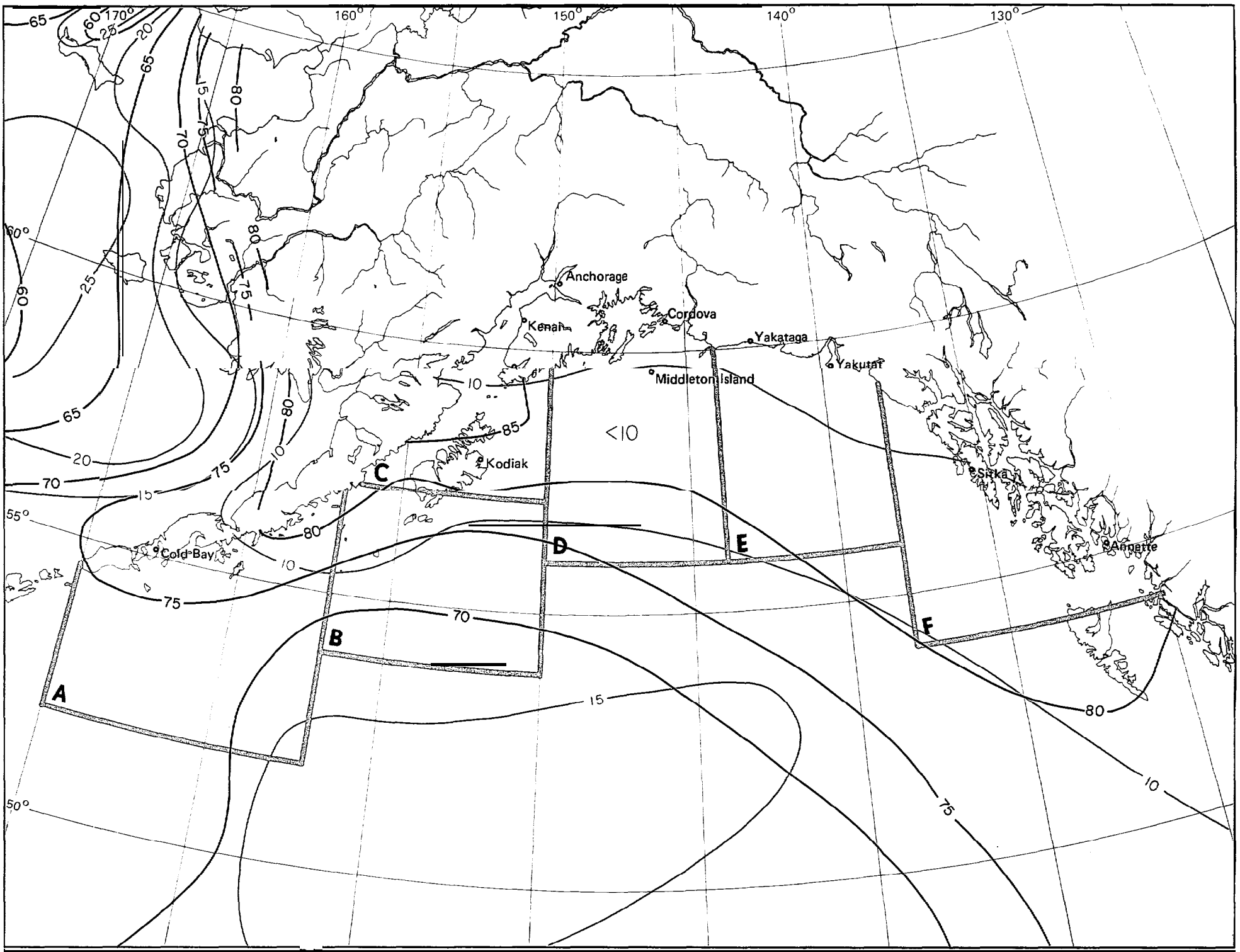


Marine Area A

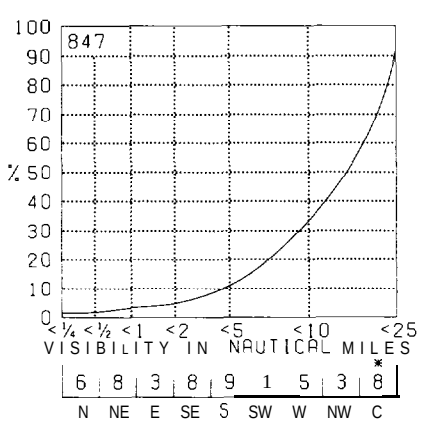


Marine Area B

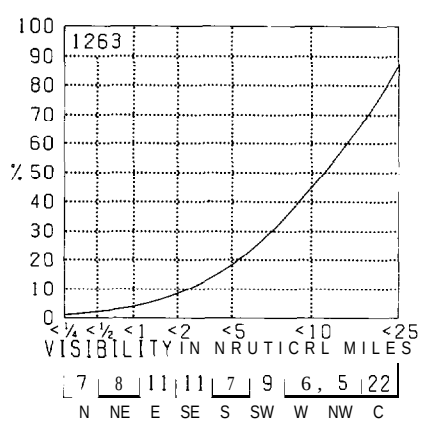




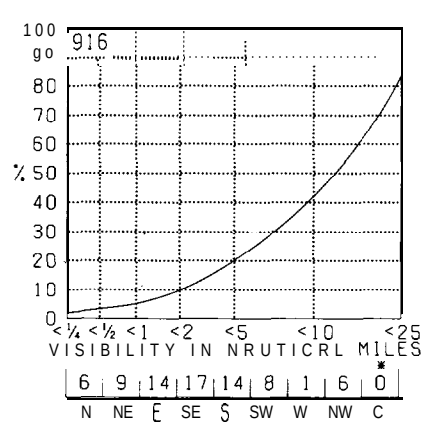
Marine Area C



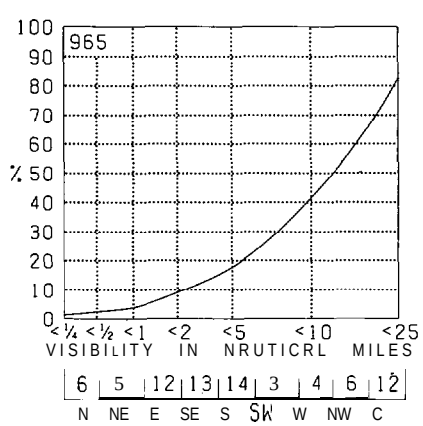
Marine Area D



Marine Area E



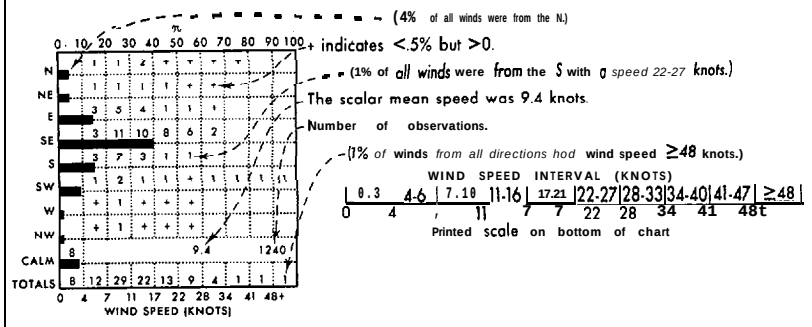
Marine Area F



Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale) Printed figurer represent percent frequency of wind speeds observed from each direction



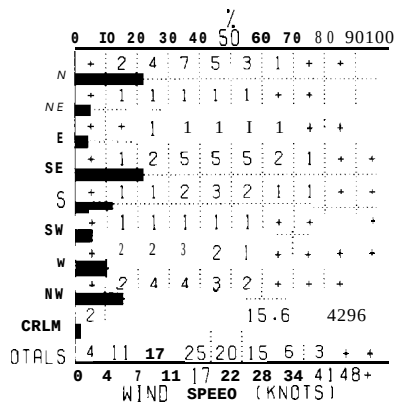
Map ▪ Wind speed thresholds

BLACK LINE Percent frequency of wind speed ≤10 knots (≤12 mph)

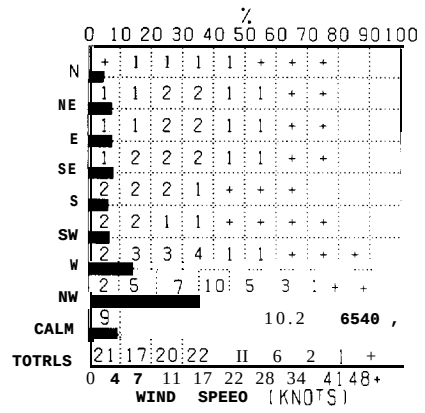
BLUE LINE Percent frequency of wind speed 534 knots (≥39 mph)

The scalar mean wind speed on the graph is bored on the number of observations reporting a wind speed with direction. The sum of the totals line provider the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 77% of all winds were less than 77 knots (20 mph).

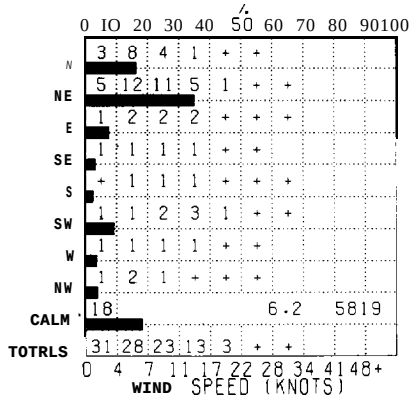
Cold Bay



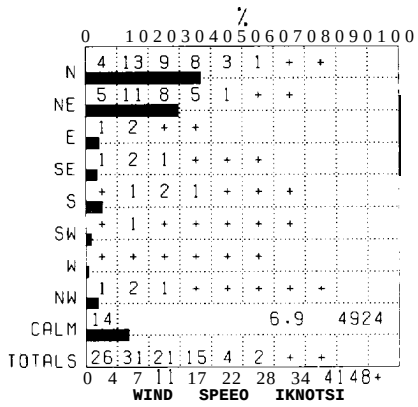
Kodiak



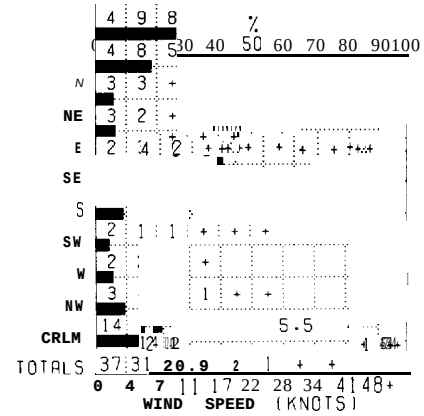
Homer



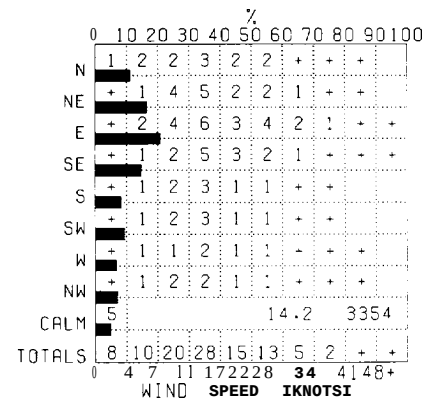
Kenai



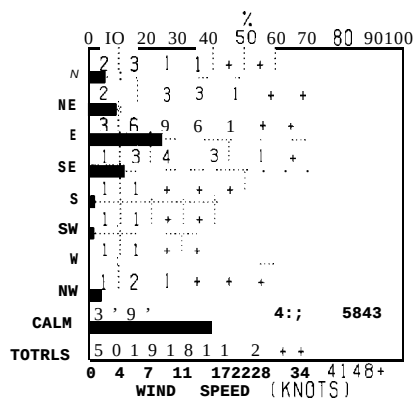
Anchorage



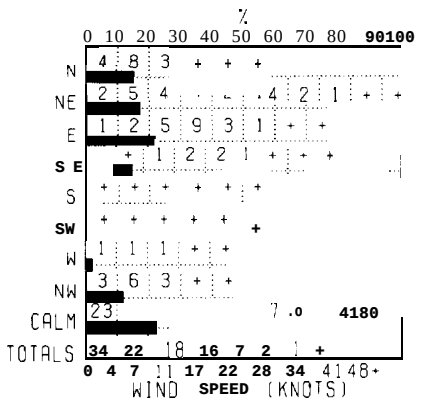
Middleton Island



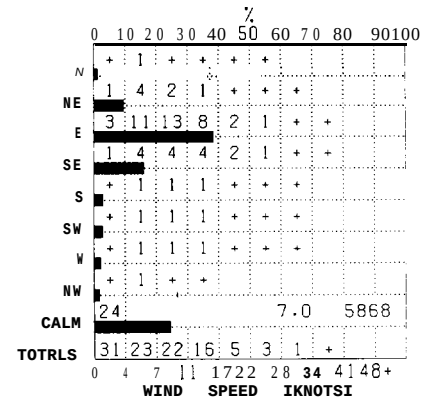
Cordova



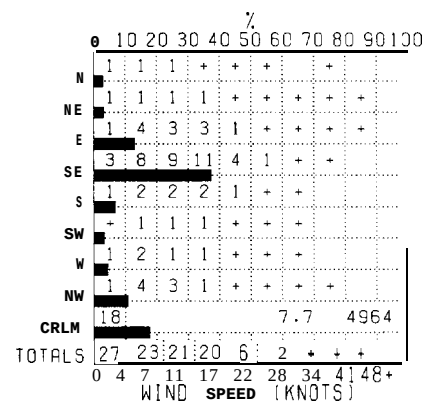
Yakataga



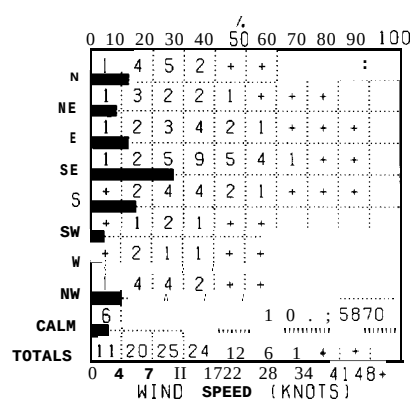
Yakutat



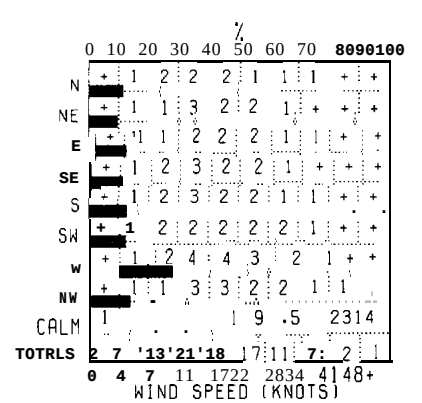
Sitka



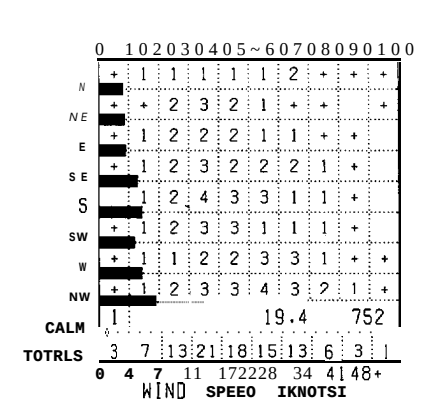
Annette

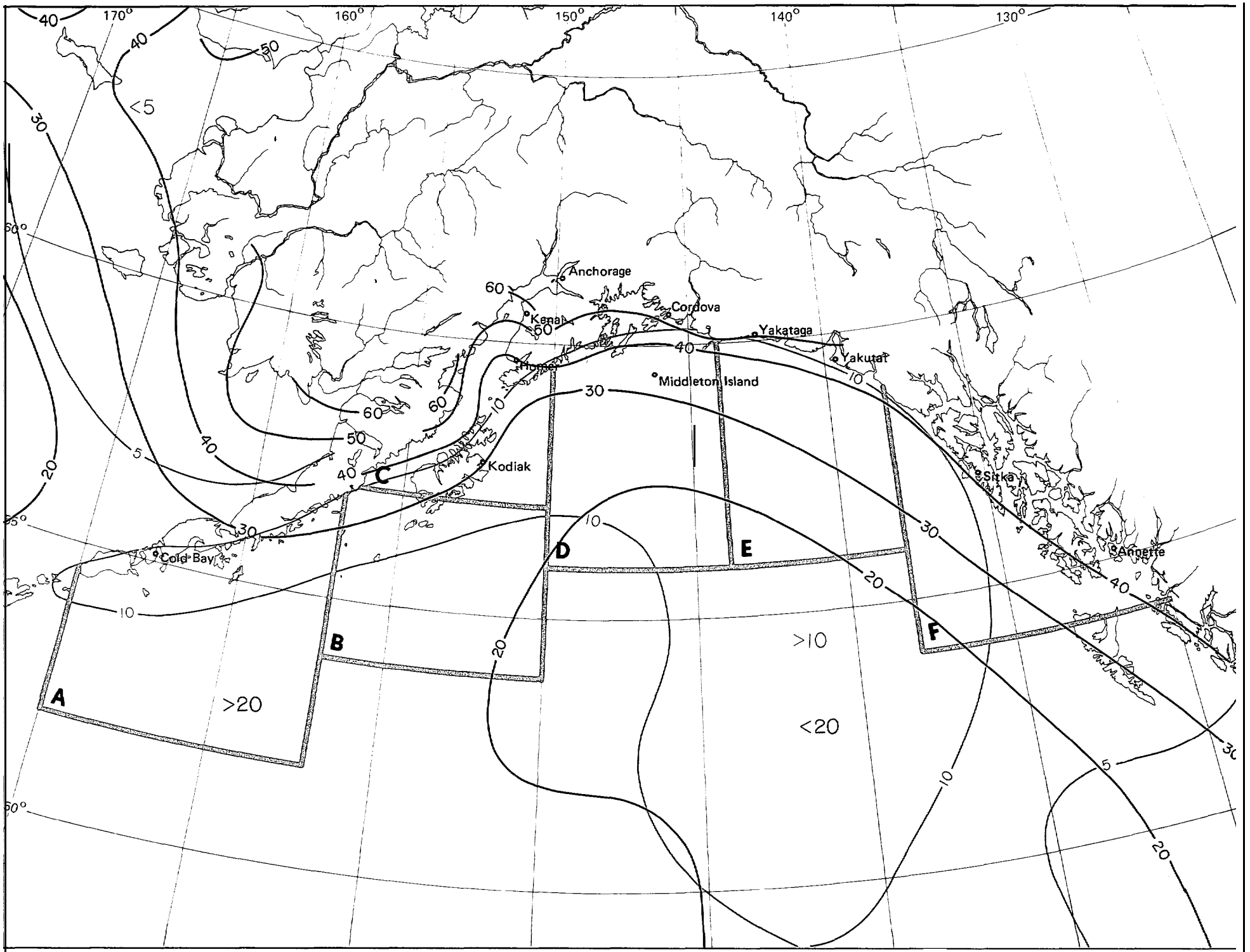


Marine Area A

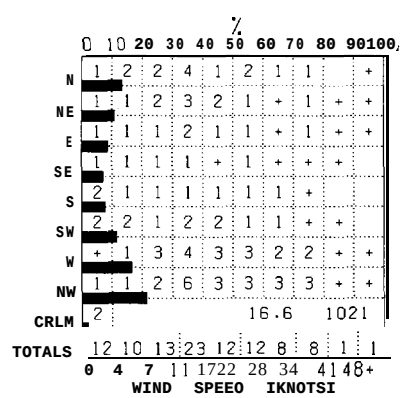


Marine Area B

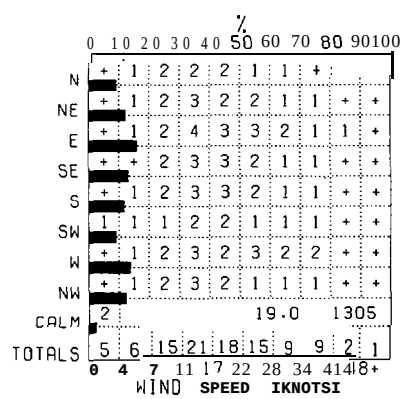




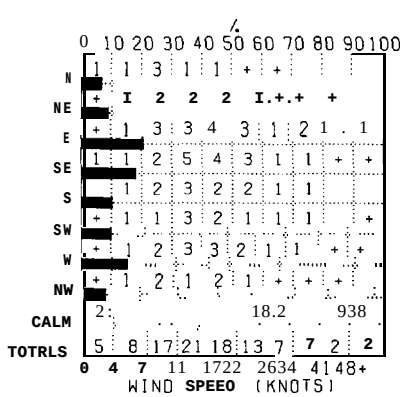
Marine Area C



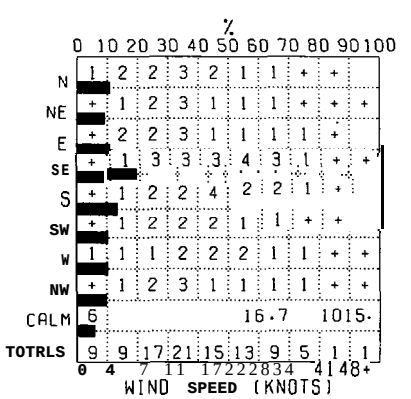
Marine Area D



Marine Area E



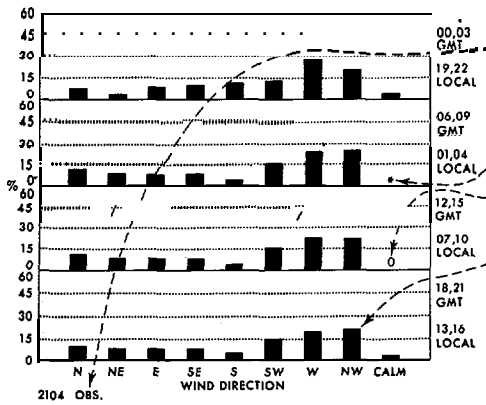
Marine Area F



9 Wind speed thresholds

February

Legend — Wind direction/diurnal variation



Number of observations.

Barr show percent frequency of wind direction (8 pts.) by hour (GMT ond Local Time). Data ore bored on 100% for each hour-group.

• indicates <.05% but >0.

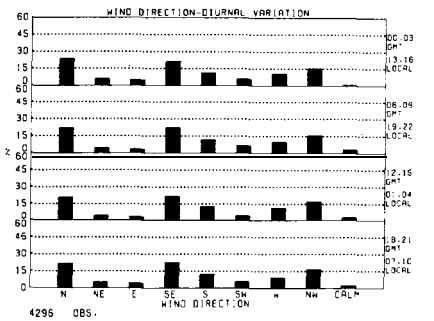
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

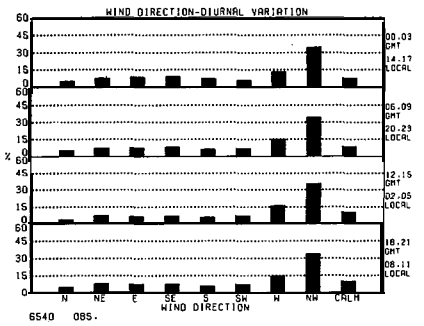
Map • Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

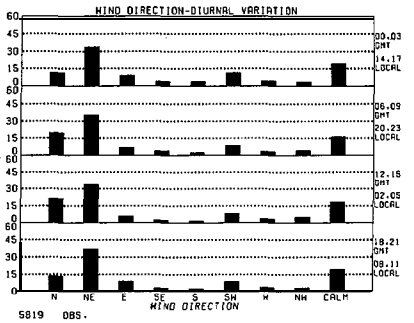
Cold Bay



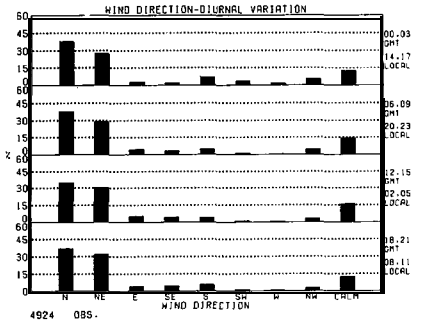
Kodiak



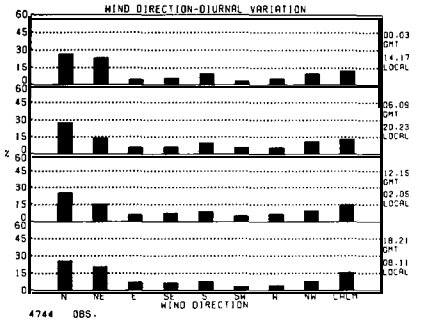
Homer



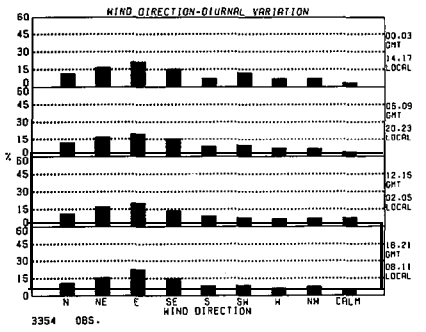
Kenai



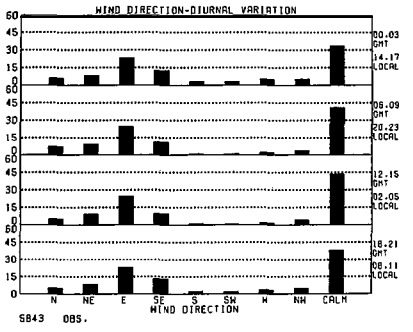
Anchorage



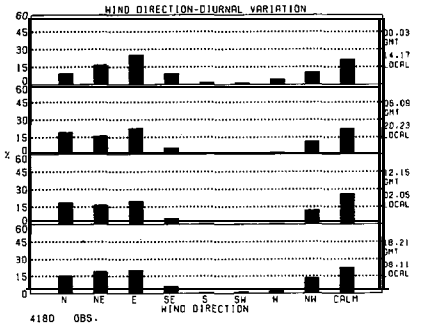
Middleton Island



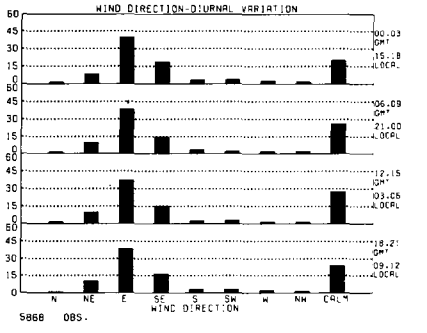
Cordova



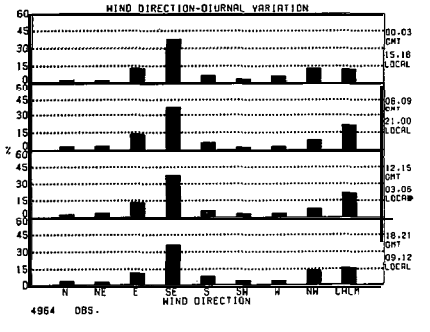
Yakataga



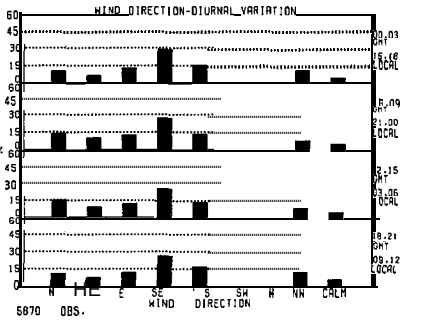
Yakutat



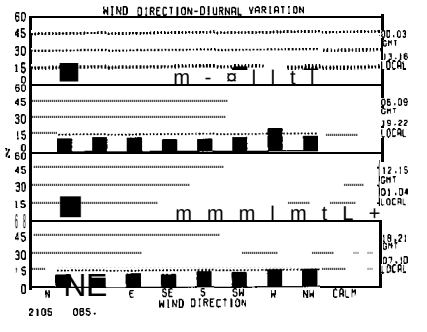
Sitka



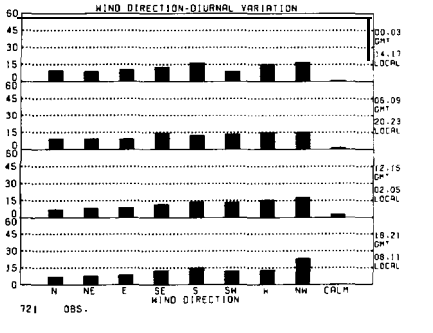
Annette



Marine Area A



Marine Area B

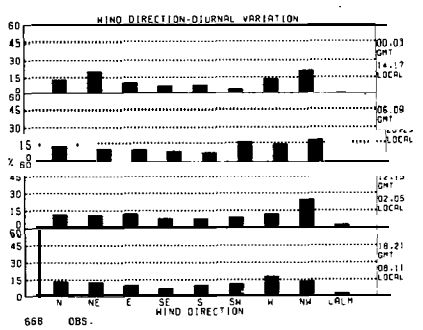


170° 160° 150° 140° 130°

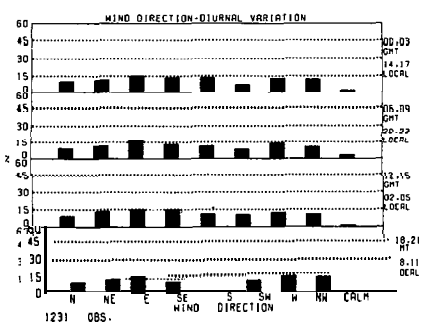
5.9 8.9 3.1 9.0 8.8 5.1 2.2 4.7 Anchorage Kenai 2.5 Homer 3.9 3.5 5.8 4.4 Kodiak Cordova 3.0 4.5 Yakataga 4.8 Middleton Island Yakutat 5.1 1.0 4.5 Sitka Annette 5.1 3.1 Cold Bay 0.6 1.0 3.8 2.9

A B C D E F

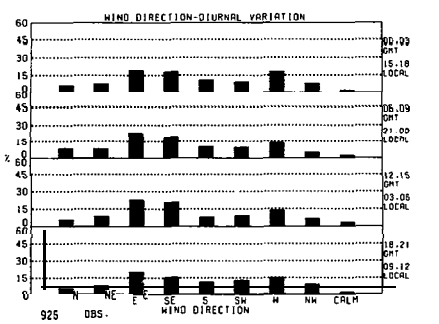
Marine Area C



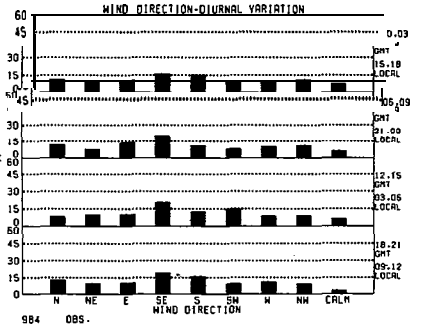
Marine Area D



Marine Area E

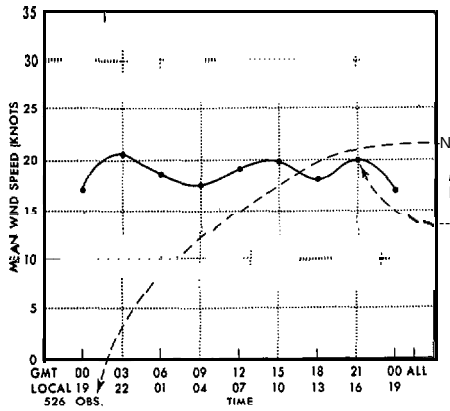


Marine Area F



10 Vector mean wind

Legend — Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and local Time) ond for all hours.

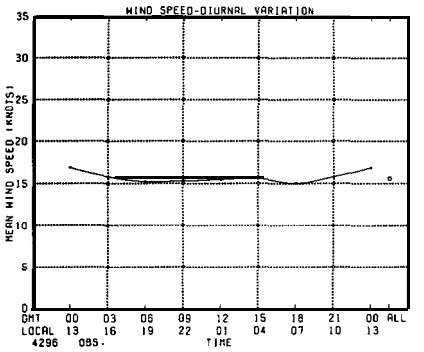
-(The mean *wind* speed for the *hour* 21 GMT (16 Local) was 20 knots.1

Map • Scalar mean wind

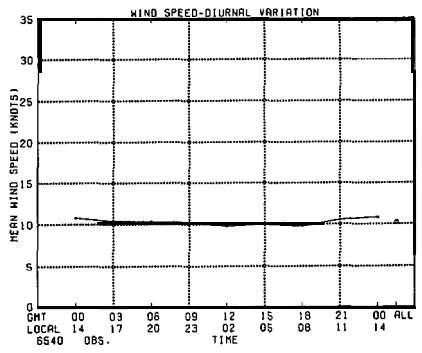
BLACK LINE • Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations ore recorded ot six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

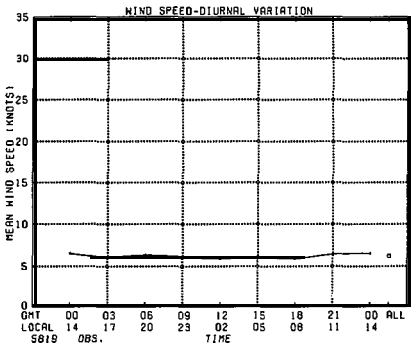
Cold Bay



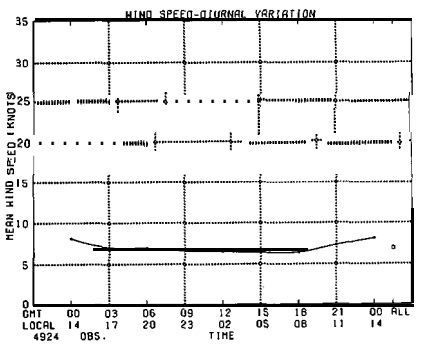
Kodiak



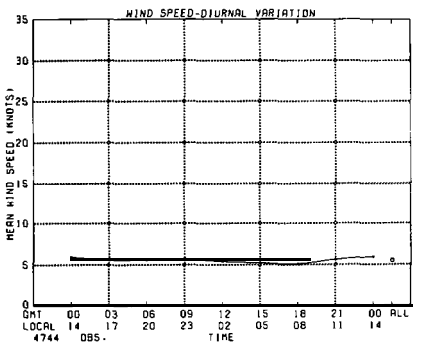
Homer



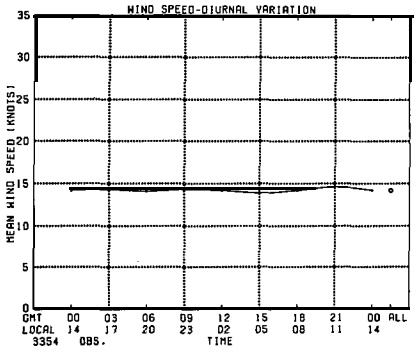
Kenai



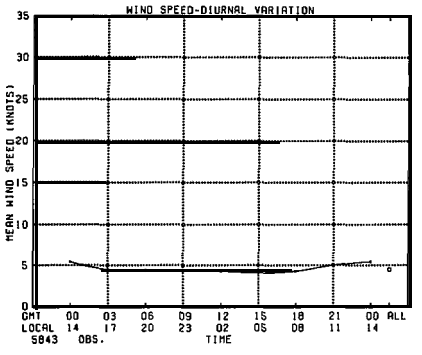
Anchorage



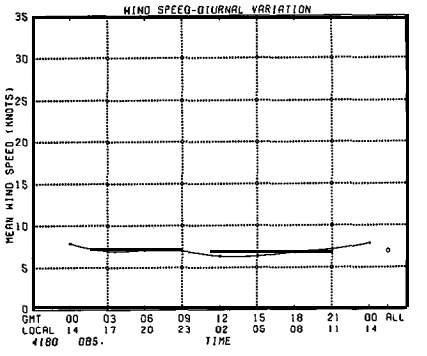
Middleton Island



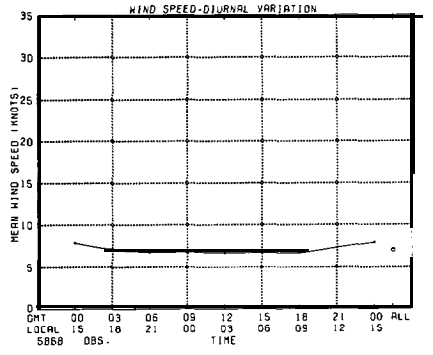
Cordoua



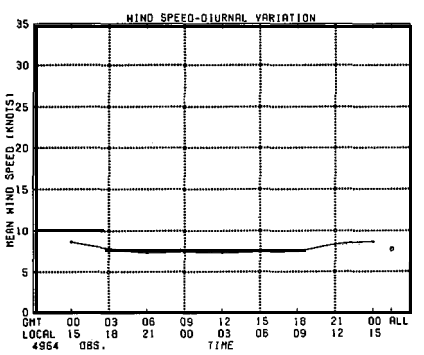
Yakataga



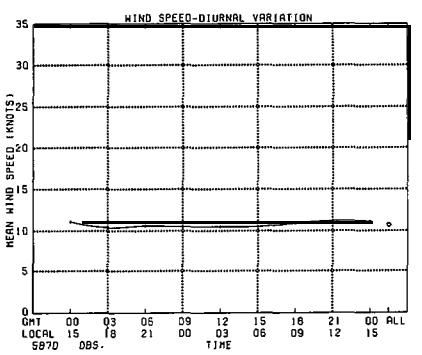
Yakutat



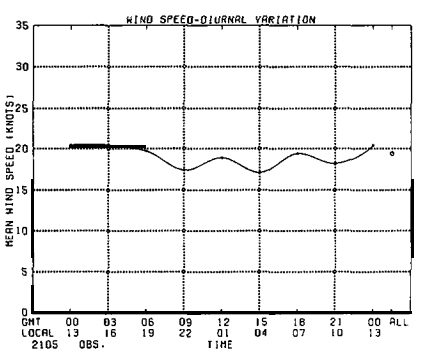
Sitka



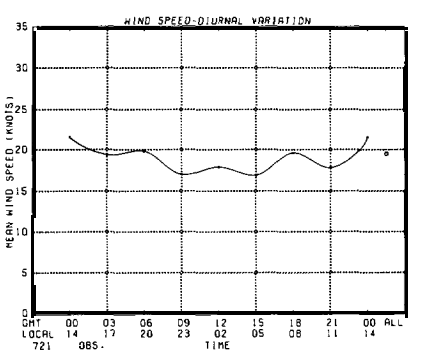
Annette

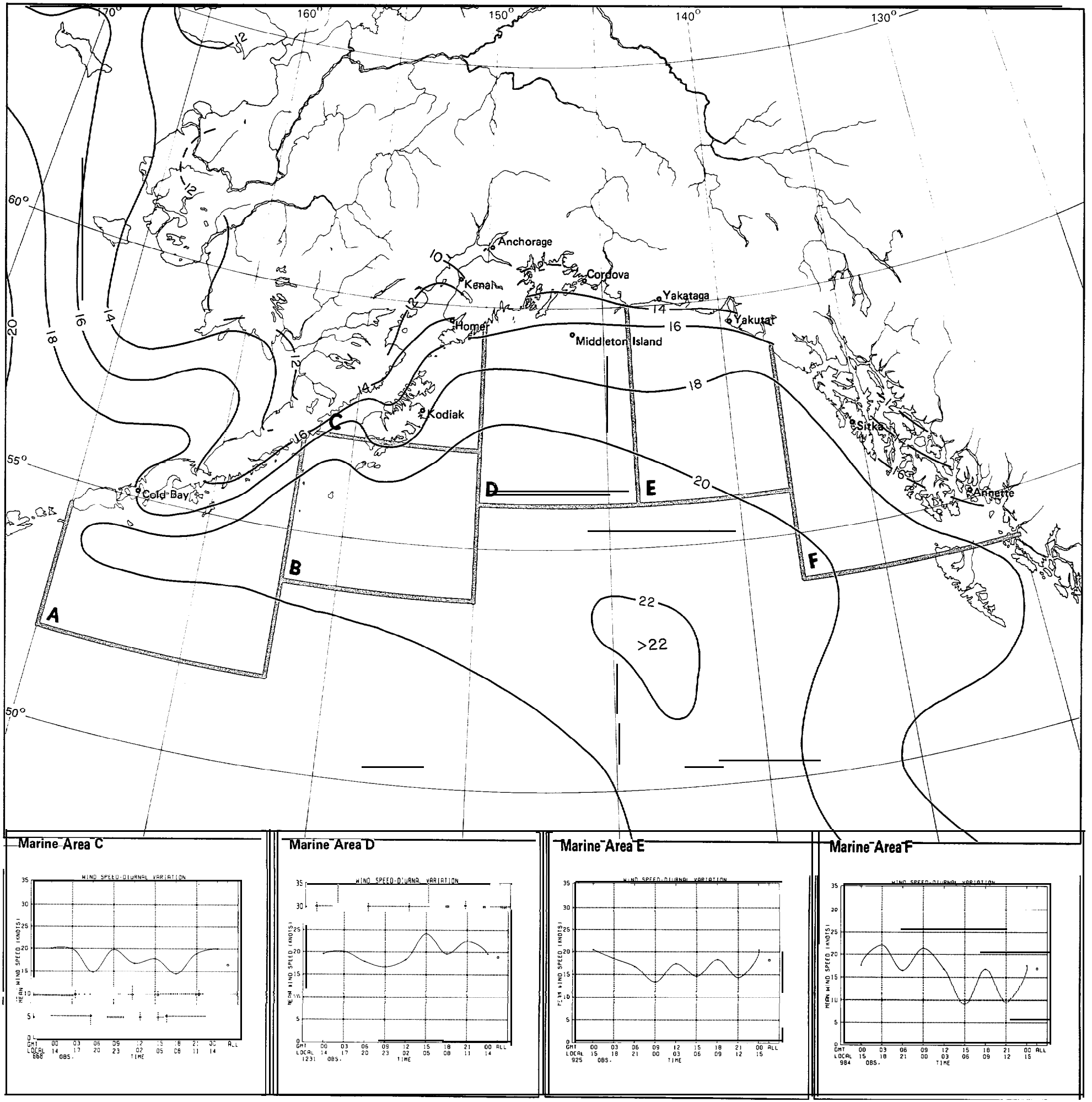


Marine Area A



Marine Area B





Marine Area C

Marine Area D

Marine Area E

Marine Area F

11 Scalar mean wind

Legend

Low cloud ceiling/visibility

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights ore estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations ore included under ceiling "0 4.5".

"N C" (no ceiling) includes borer of clouds ≥8000 feet as wellas occurrences of N_h <5/8.

- = (2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)
- + indicates <.5% but >0.
- ----Number of observations.

Map • Low cloud ceiling and visibility thresholds

BLACK LINE Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	10	20
50<80	0	0	+	+	1	1
35<50	0	0	+	+	1	1
20<35	1	1	1	3	7	5
10<20	+	1	1	5	10	4
6<10	+	1	1	3	5	2
3<6	+	+	1	2	2	+
1.5<3	+	0	+	+	+	+
0<1.5	3	2	1	1	+	0

4283

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	8	37
50<80	0	0	0	+	1	1
35<50	0	+	0	+	1	2
20<35	0	+	+	1	7	6
10<20	+	+	+	4	7	2
6<10	+	+	1	3	2	+
3<6	+	+	1	2	1	+
1.5<3	0	+	+	+	+	0
0<1.5	3	2	2	2	+	0

6270

Homer

Insufficient Data

Kenai

Insufficient Data

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	1	+	1	3	54
50<80	+	+	0	+	+	7
35<50	+	+	0	+	+	4
20<35	+	+	+	1	2	5
10<20	0	+	+	1	2	3
6<10	+	+	+	1	1	1
3<6	+	+	+	1	1	1
1.5<3	+	+	+	+	+	+
0<1.5	2	2	1	1	+	+

4716

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	1	9	28
50<80	0	0	0	+	+	2
35<50	0	0	0	0	+	+
20<35	0	+	+	1	4	5
10<20	0	+	+	2	11	7
6<10	+	+	2	5	8	2
3<6	0	1	2	2	1	+
1.5<3	0	0	0	0	0	0
0<1.5	2	1	1	1	+	0

1323

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	43
50<80	0	0	+	+	+	4
35<50	+	+	0	+	1	5
20<35	0	+	+	2	7	6
10<20	+	+	1	6	7	2
6<10	+	+	+	1	1	+
3<6	+	+	+	+	+	+
1.5<3	+	0	0	+	+	0
0<1.5	2	3	2	1	+	0

4243

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	2	53
50<80	0	0	0	0	0	9
35<50	0	0	0	0	+	8
20<35	0	0	1	3	5	6
10<20	0	0	+	1	1	+
6<10	0	0	0	0	0	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	1	2	3	3	0	0

224

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	1	1	2	5	27
50<80	0	+	+	+	1	3
35<50	0	0	+	+	1	3
20<35	+	+	+	1	4	6
10<20	+	+	1	4	9	4
6<10	+	+	2	3	3	1
3<6	+	1	1	2	1	+
1.5<3	0	+	+	+	+	0
0<1.5	3	4	2	1	0	+

5856

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	33
50<80	0	+	0	0	+	2
35<50	0	0	+	0	+	3
20<35	0	0	+	+	3	10
10<20	+	+	+	4	10	11
6<10	+	+	1	4	5	1
3<6	0	+	1	3	1	1
1.5<3	0	+	+	+	+	+
0<1.5	1	1	1	1	+	+

5855

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	3	46
50<80	0	0	0	0	1	4
35<50	0	0	0	0	4	8
20<35	0	0	+	1	12	4
10<20	0	+	+	1	2	0
6<10	0	0	0	1	1	0
3<6	0	0	0	+	0	0
1.5<3	0	0	0	0	0	0
0<1.5	3	2	2	3	0	0

224

Marine Area A

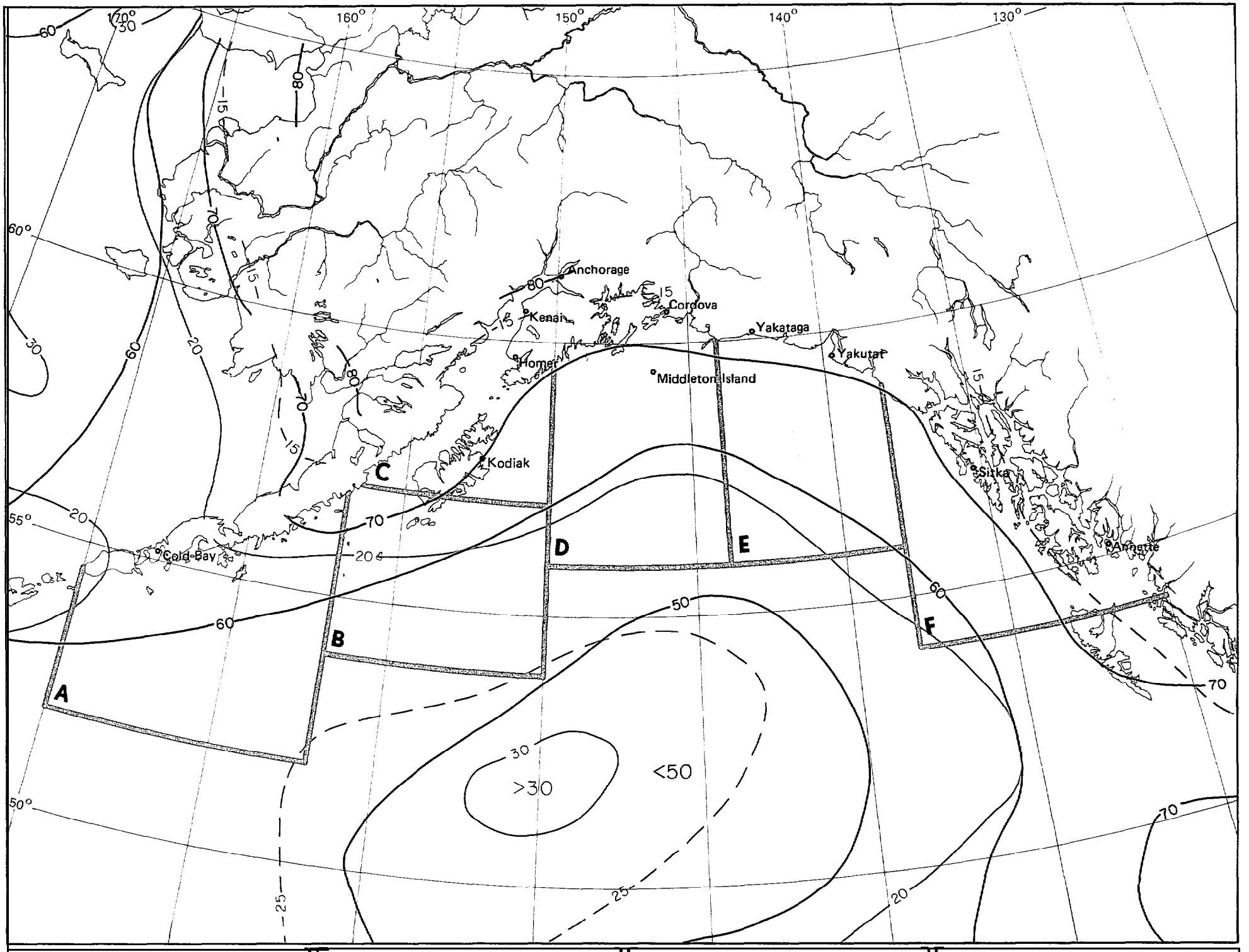
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	8	18
50<80	0	+	0	+	+	+
35<50	+	0	+	1	2	2
20<35	0	0	+	1	5	5
10<20	+	+	1	4	9	10
6<10	+	+	1	4	6	5
3<6	+	+	1	2	2	1
1.5<3	0	+	+	+	1	+
0<1.5	3	1	2	1	1	+

1725

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	0	0	2	5	18
50<80	0	0	0	0	1	1
35<50	0	0	0	+	2	1
20<35	+	0	+	1	4	5
10<20	1	1	1	3	7	10
6<10	1	+	1	3	7	4
3<6	1	+	1	2	3	1
1.5<3	0	0	+	1	+	0
0<1.5	3	2	2	3	+	+

566



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	5	42
50<80	0	0	0	0	0	2
35<50	0	0	0	0	1	1
20'35	0	+	+	+	3	4
10'20	0	+	+	2	3	11
6'10	0	+	+	2	5	5
3<6	0	0	1	1	2	1
1.5<3	+	0	0	+	0	0
0<1.5	2	1	1	1	1	1

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	1	3	27
50<80	0	0	0	+	0	1
35<50	+	0	0	0	+	2
20<35	0	+	+	+	1	5
10<20	+	+	+	2	6	15
6<10	0	0	1	2	7	11
3<6	+	0	+	2	4	1
1.5<3	+	0	+	+	+	+
0<1.5	2	1	2	1	1	+

896

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	1	1	3	29
50<80	0	0	0	0	0	1
35<50	+	0	0	+	+	3
20<35	+	0	+	0	3	7
10<20	+	+	+	1	6	15
6<10	+	+	+	2	5	8
3<6	0	0	+	1	1	1
1.5<3	0	0	0	+	+	+
0<1.5	3	1	2	2	1	+

630

Marine Area F

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	+	2	30
50<80	+	0	0	0	0	1
35<50	0	0	+	+	1	3
20<35	0	0	+	1	6	10
10<20	+	0	1	1	5	11
6<10	+	0	+	1	5	6
3<6	+	+	+	1	2	2
1.5<3	0	0	+	1	+	1
0<1.5	1	1	2	1	+	1

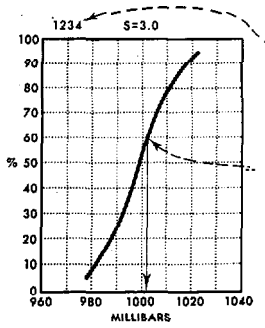
705

12 Low cloud ceiling and visibility thresholds

February

Legend

Sea level pressure



-Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

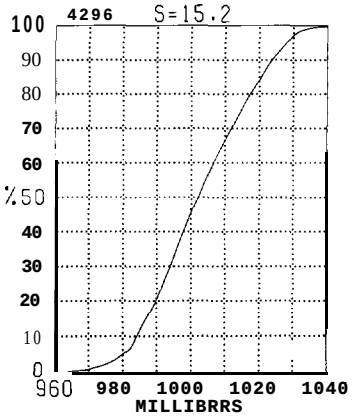
---(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

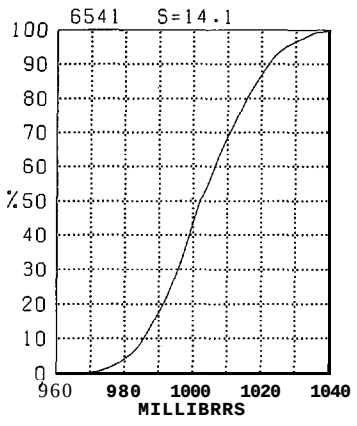
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

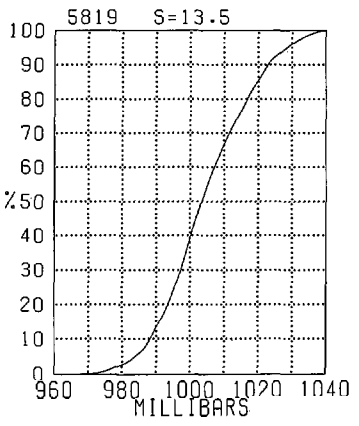
Cold Bay



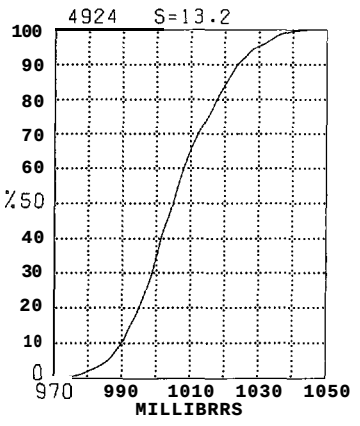
Kodiak



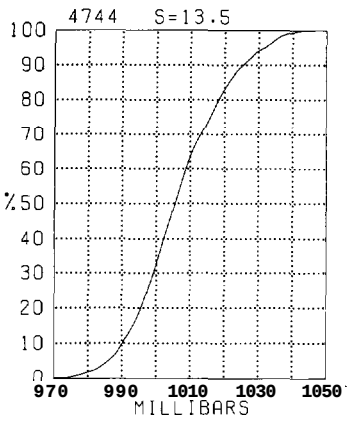
Homer



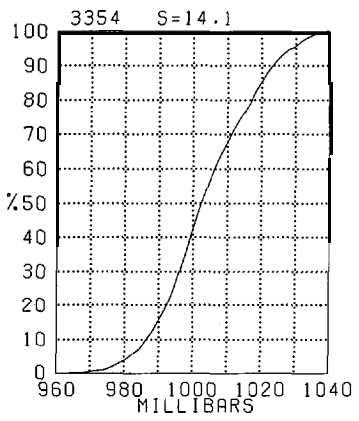
Kenai



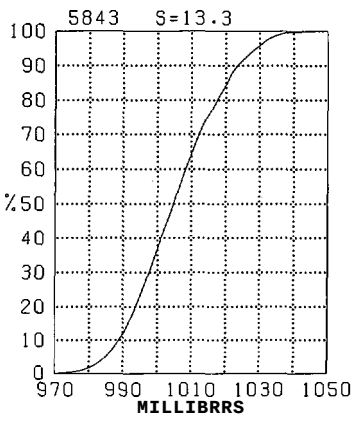
Anchorage



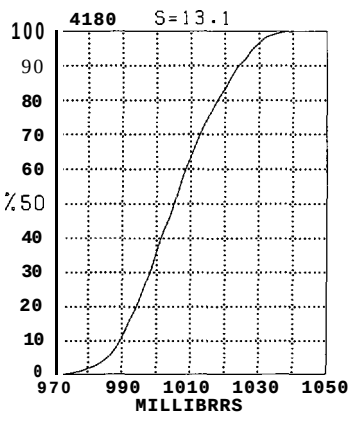
Middleton Island



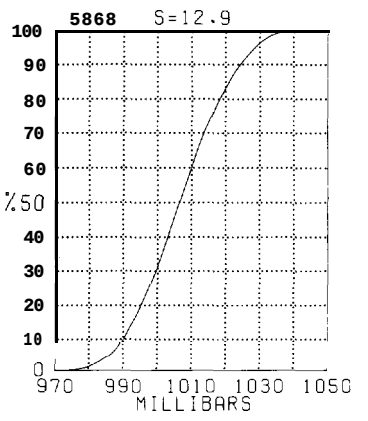
Cordova



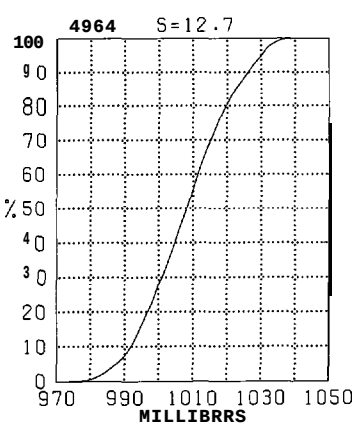
Yakataga



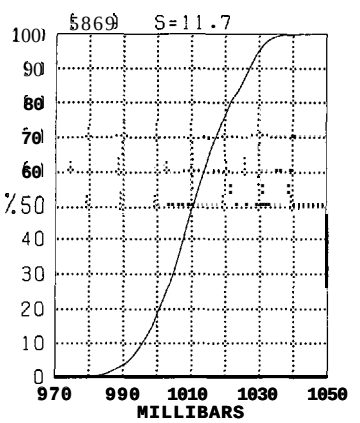
Yakutat



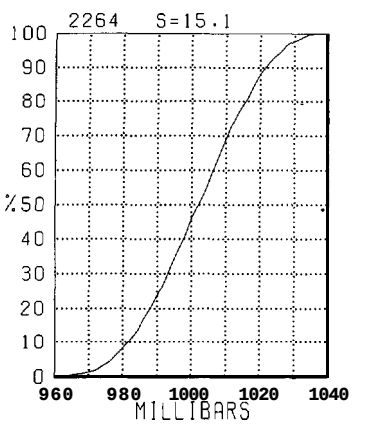
Sitka



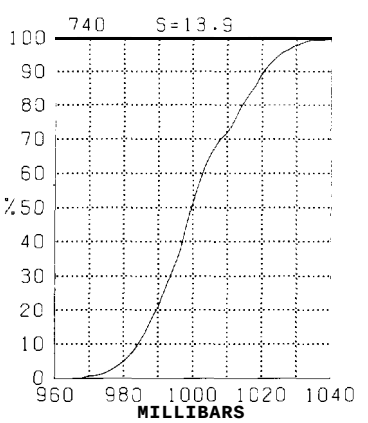
Annette

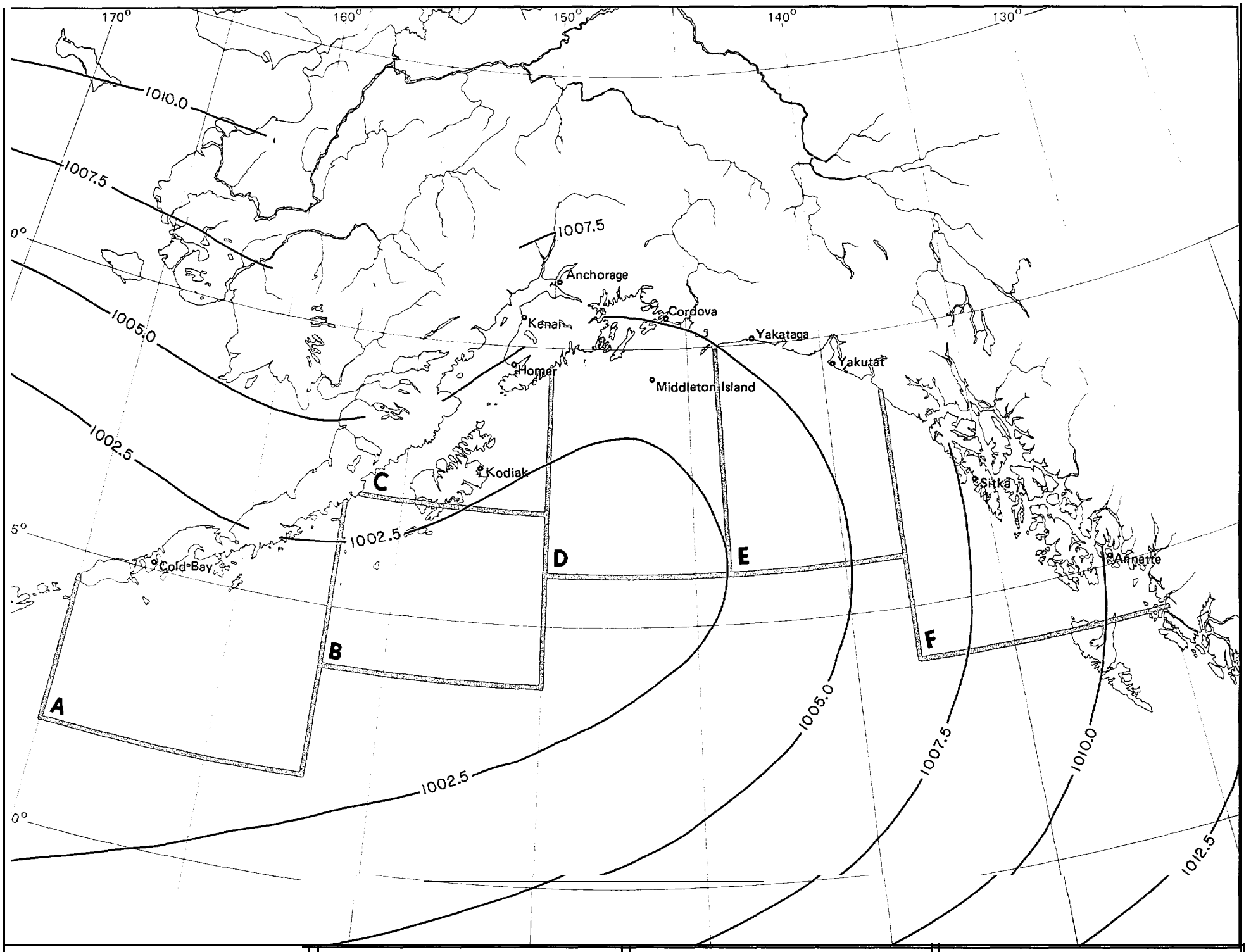


Marine Area A

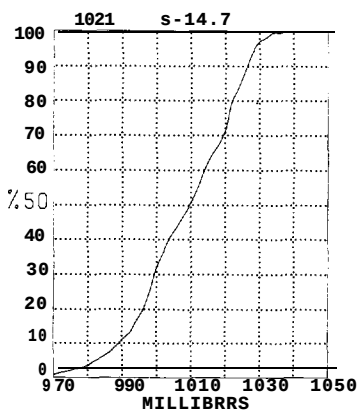


Marine Area B

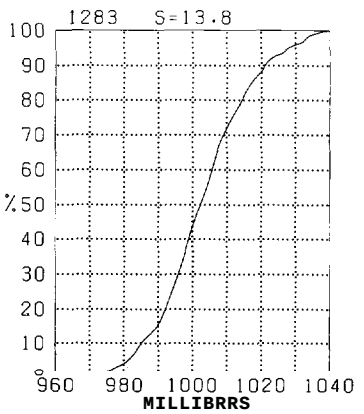




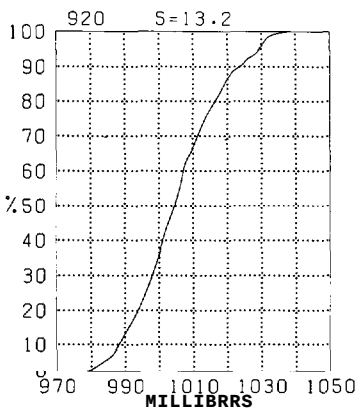
Marine Area C



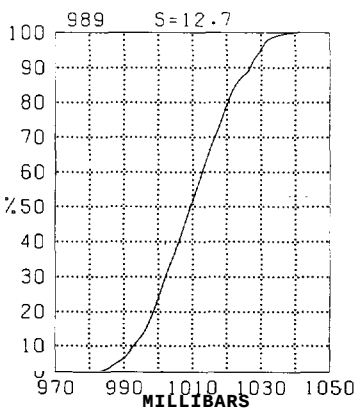
Marine Area D



Marine Area E



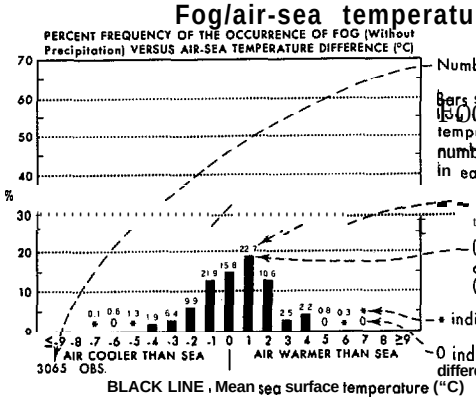
Marine Area F



13 Mean sea level pressure **February**

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of *all observations* had *Air-Sea* temperature difference of +1 °C.)

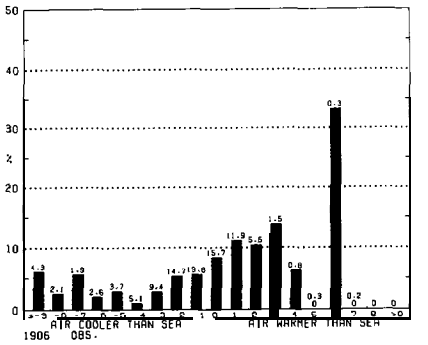
(19% of *all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).*)

* indicates <.05% but >0.

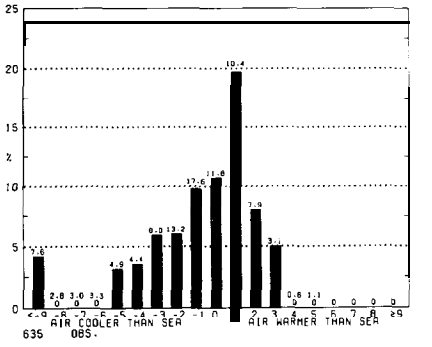
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE, Mean sea surface temperature (°C)

Marine Area A

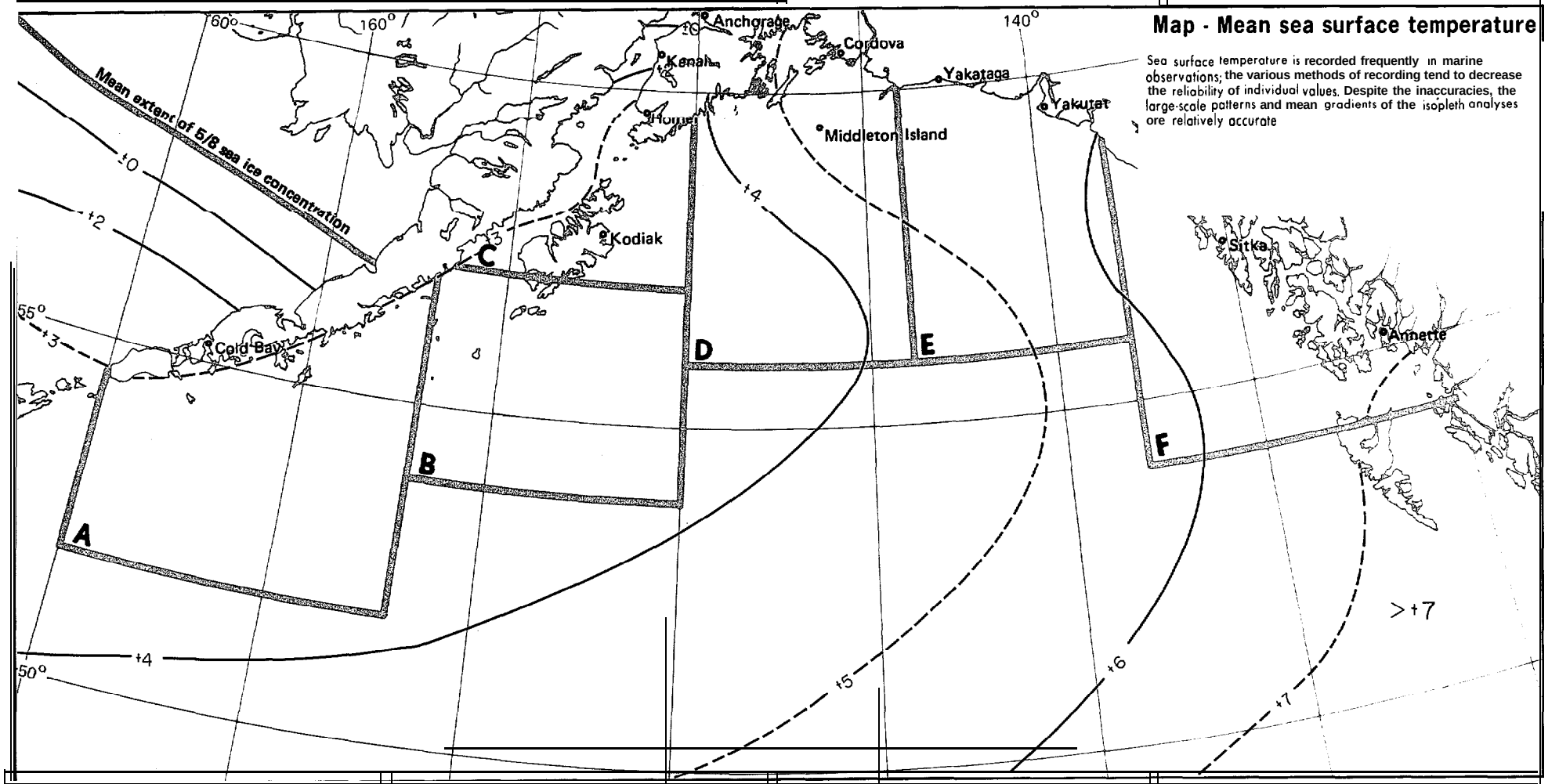


Marine Area B

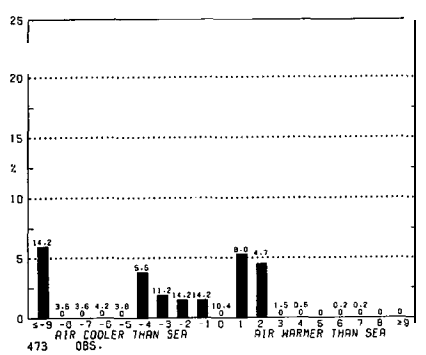


Map - Mean sea surface temperature

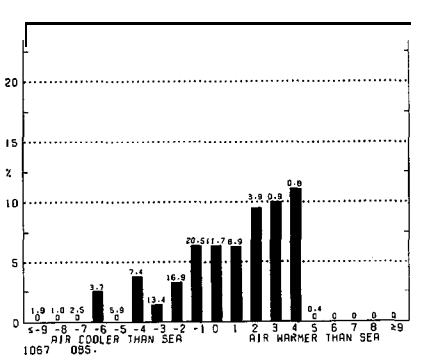
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate



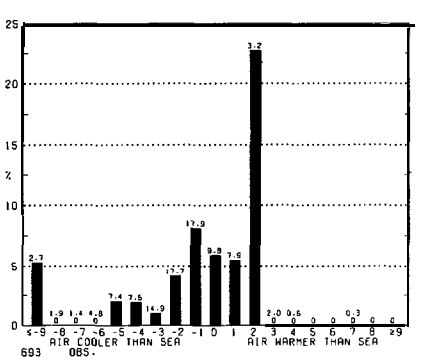
Marine Area C



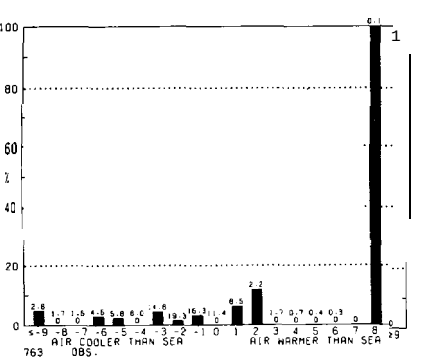
Marine Area D



Marine Area E

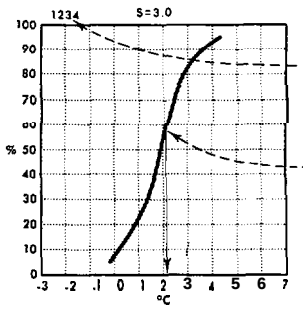


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

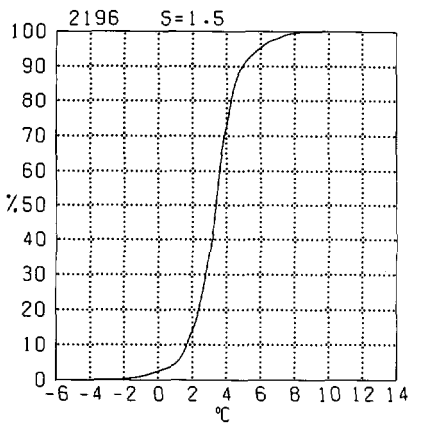
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

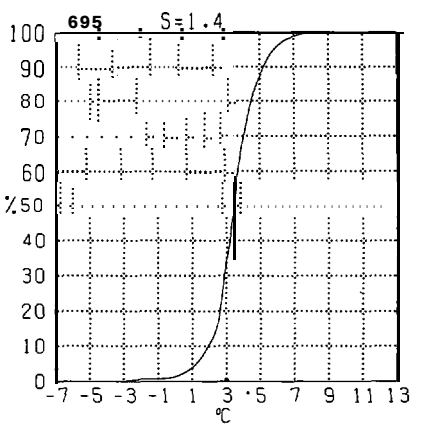
BLACK LINE Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater thon the given value)

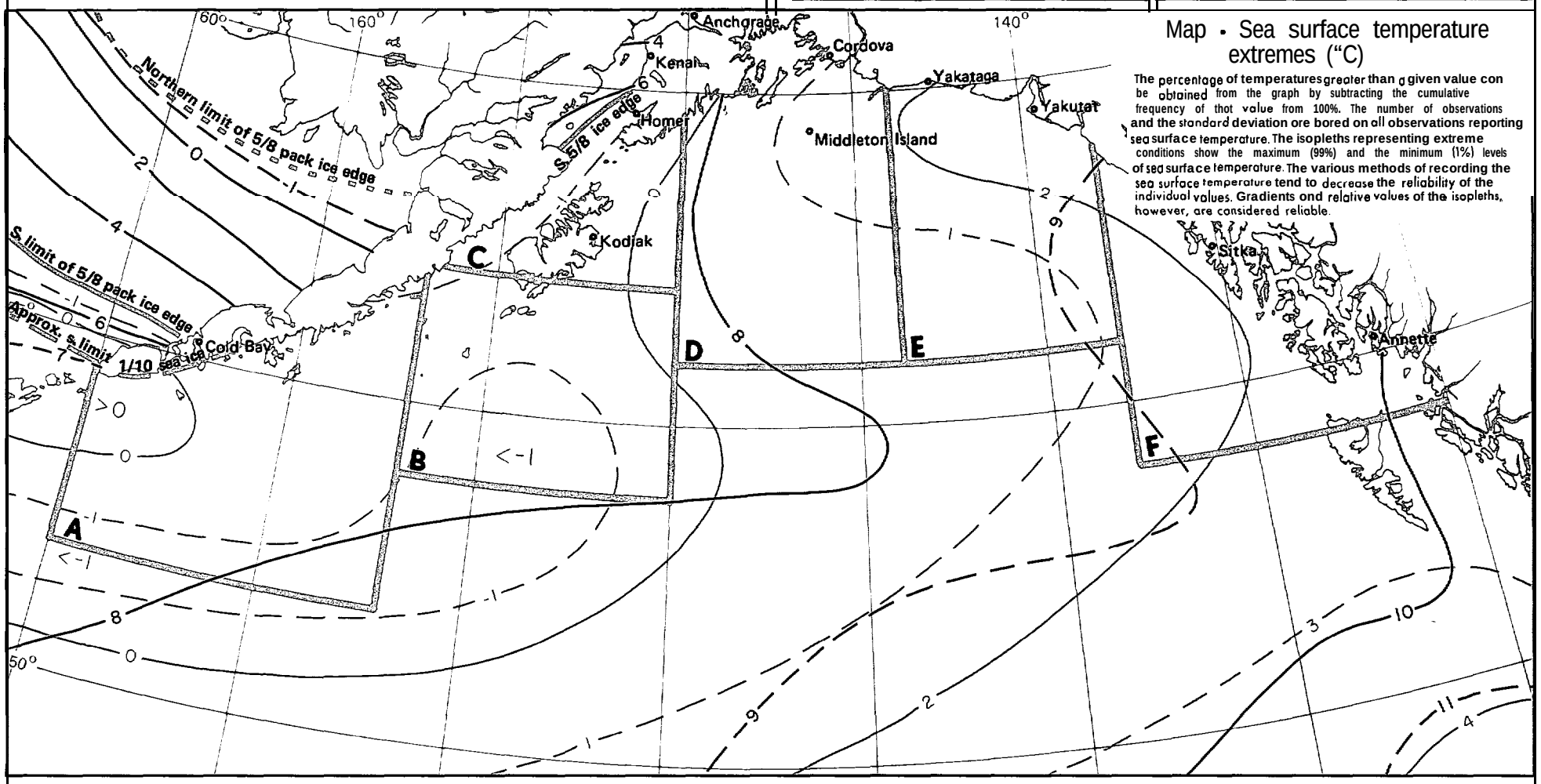
BLUE LINE Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

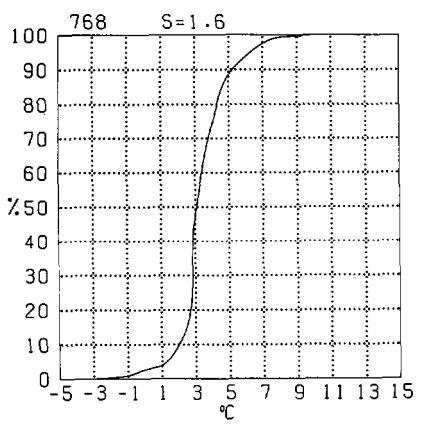




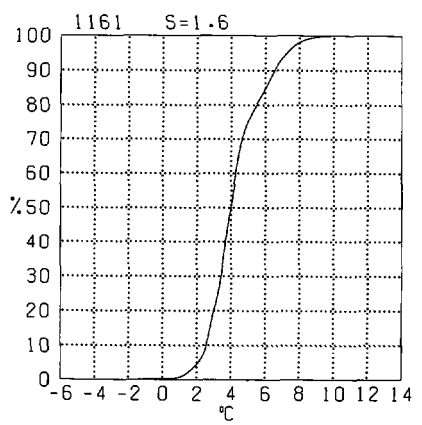
Map • Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

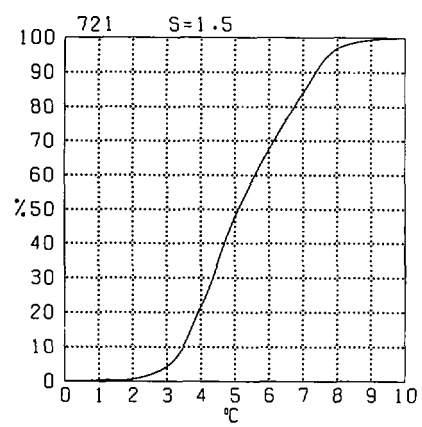
Marine Area C



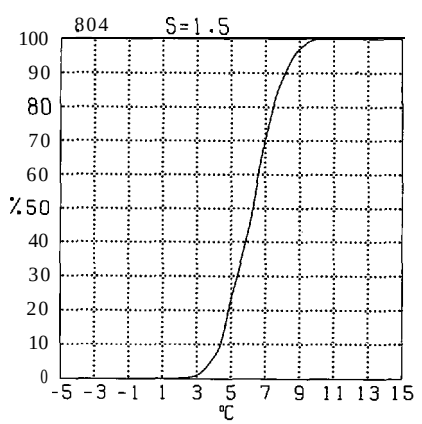
Marine Area D



Marine Area E



Marine Area F

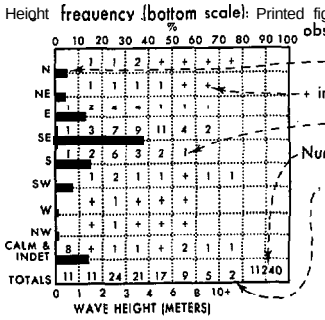


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height freauency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



(5% of all waves were from the N.)

+ indicates <.5% but >0.

(1% of all waves were from the S with heights from 6-7.5 meters.1

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL

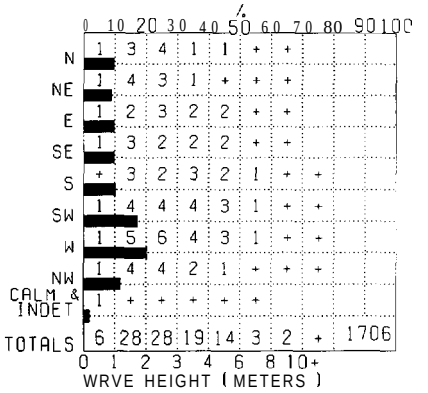
Feet	0.2	3.6	7.9	10.12	13.19	20-25	26-32	33	
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10	
	0	1	2	3	4	6	8	10+	

Printed scale on bottom of chart

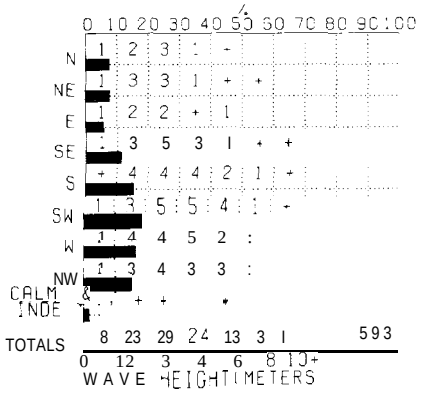
BLACK LINE Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE . Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

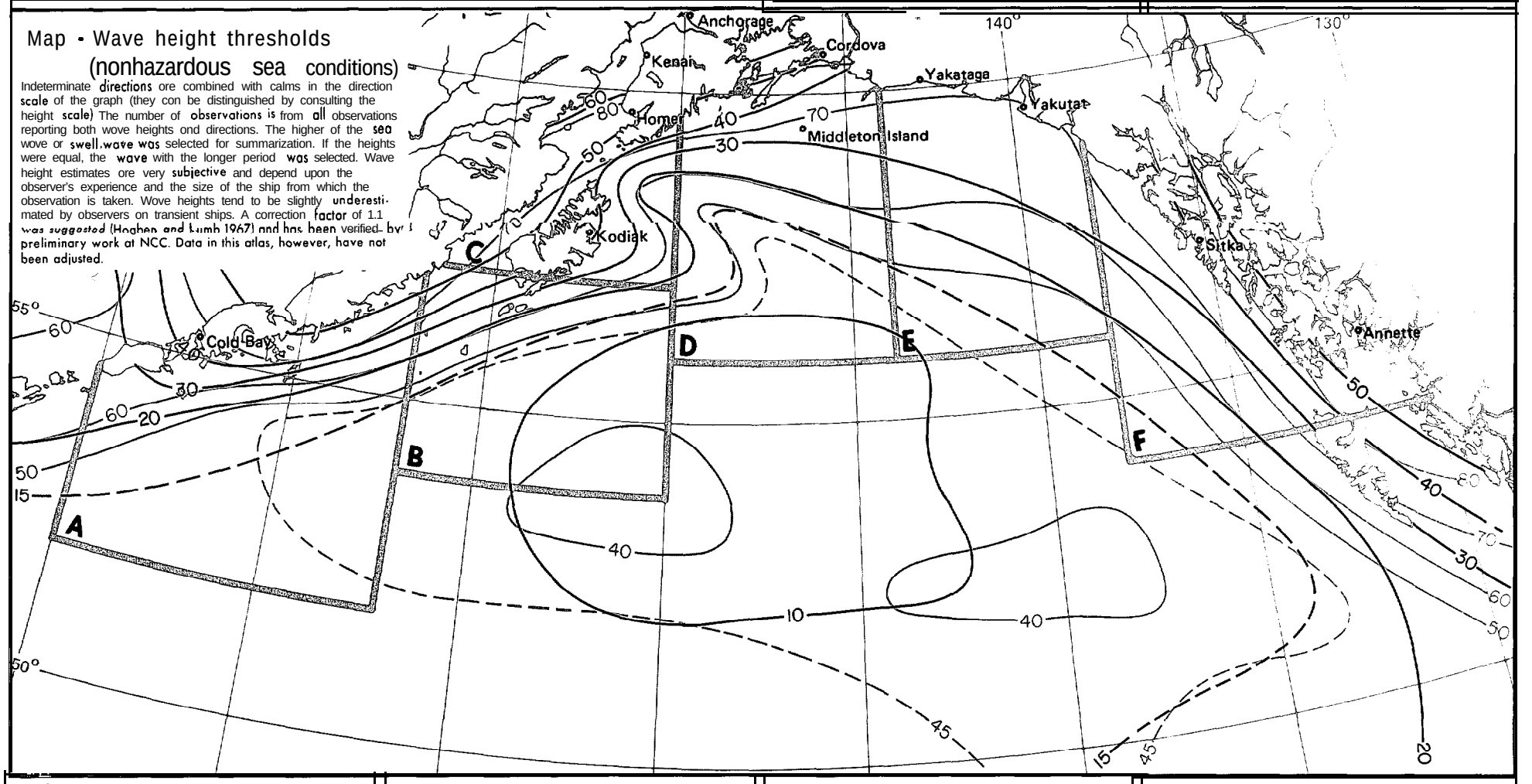


Marine Area B

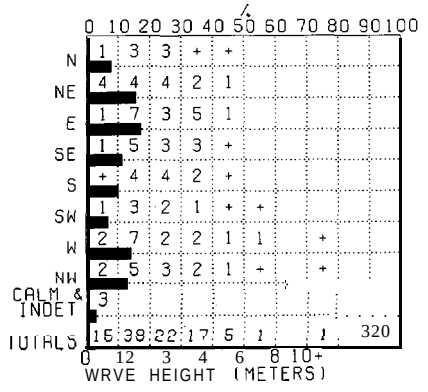


Map - Wave height thresholds (nonhazardous sea conditions)

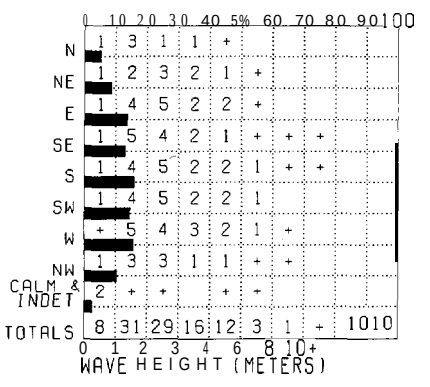
Indeterminate directions ore combined with calms in the direction scale of the graph (they con be distinguished by consulting the height scale) The number of observations is from all observations reporting both wove heights ond directions. The higher of the sea wove or swell.wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates ore very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wove heights tend to be slightly underesti- mated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



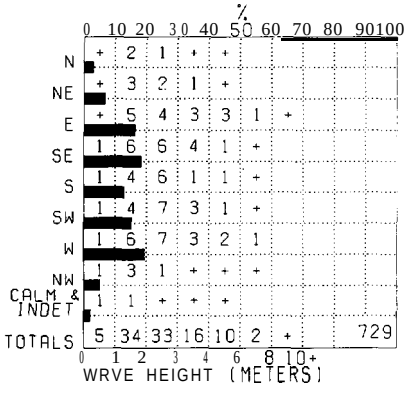
Marine Area C



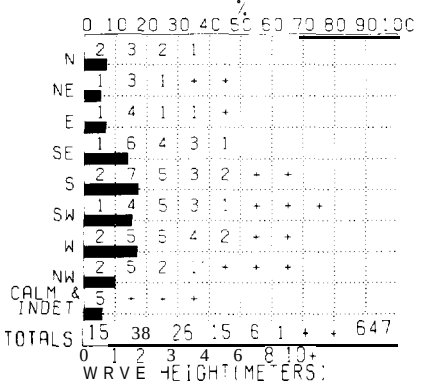
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	+	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height

-(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

-+ indicates <.5% but >0

-Number of observations

Waves are selected on the basis of the higher of sea and swell when both ore reported If both heights are equal, the wave with the longer period is selected

BLACK LINE Percent frequency of wave height ≥3.5 meters (512 feet)

BLUE LINE Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER . Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	+	+	+	0	0	1
1-1.5	12	7	4	1	1	+	2
2-2.5	6	10	7	3	1	+	1
3-3.5	1	6	6	3	2	1	1
4-5.5	1	3	5	2	1	1	+
6-7.5	0	1	1	+	+	+	+
8-9.5	0	+	+	1	+	+	+
≥10	0	0	+	+	0	0	0

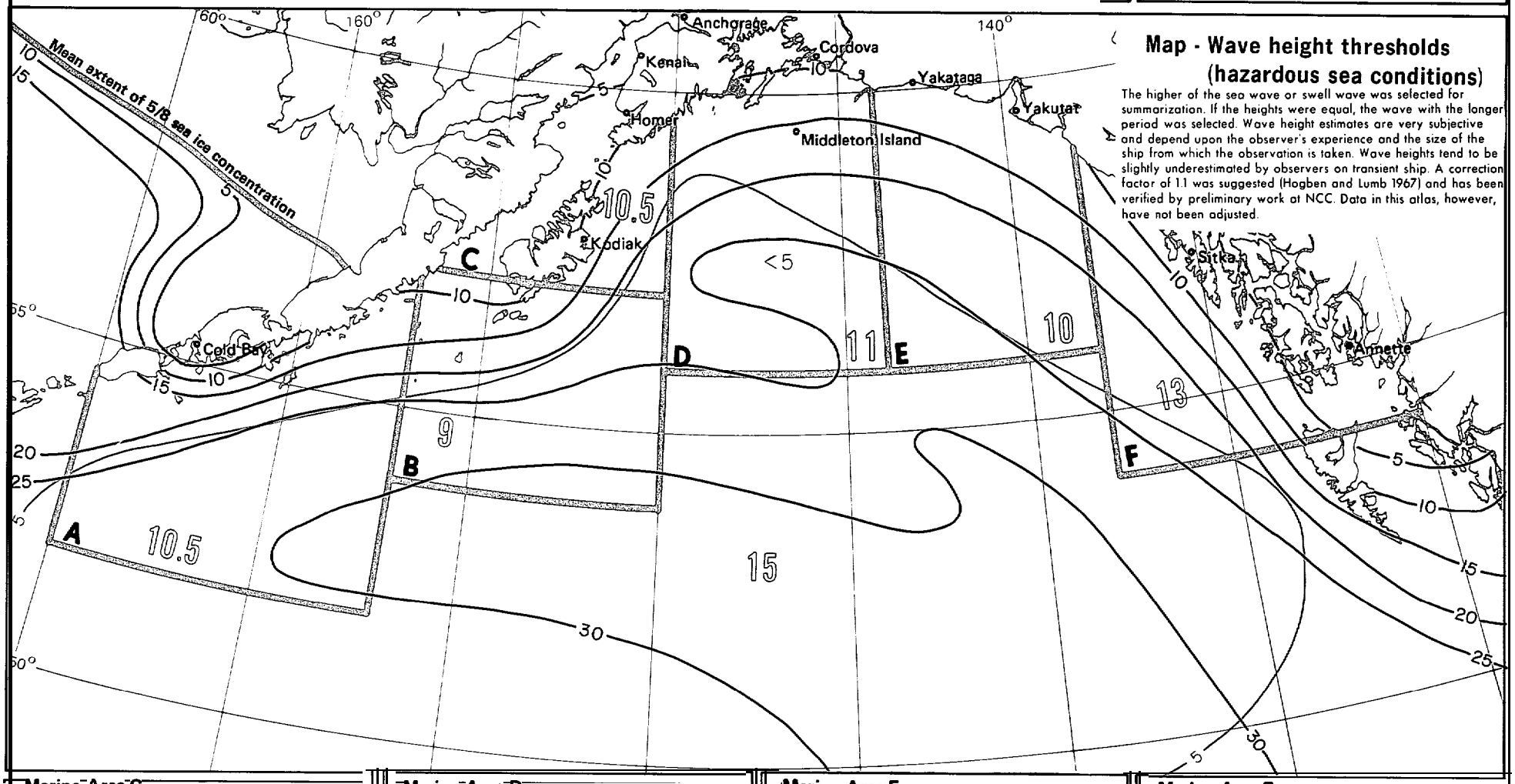
1731

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	1	+	1	0	0	1
1-1.5	10	7	3	1	+	1	2
2-2.5	9	10	6	1	1	+	1
3-3.5	3	8	7	3	1	+	1
4-5.5	+	3	5	3	1	+	1
6-7.5	0	1	1	+	+	1	+
8-9.5	0	+	0	0	0	+	0
≥10	0	0	0	0	0	0	0

593



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	'6	7	9	11	13	'13'	IND
0-.5	13	1	1'	0	0	0	3'
1-1.5	21	7	5	1	2	1	1
2-2.5	6	7	4	2	+	+	2
3-3.5	2	5	5	2	+	0	2
4-5.5	1	2	1	1	+	0	0
6-7.5	0	+	0	+	0	1	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	+	+	0	0	0

333

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	+	0	0	2
1-1.5	16	7	4	2	1	+	1
2-2.5	8	8	7	3	1	1	1
3-3.5	3	5	3	2	1	1	+
4-5.5	1	2	4	2	1	+	+
6-7.5	0	1	1	1	+	+	+
8-9.5	0	0	+	+	0	+	0
≥10	0	0	0	+	0	+	0

1026

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	4	+	1	0	0	0	2
1-1.5	13	9	5	2	1	+	4
2-2.5	6	11	8	3	3	1	1
3-3.5	3	3	4	2	1	1	1
4-5.5	1	2	3	2	1	+	+
6-7.5	0	+	1	1	+	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	0	0

741

Marine Area F

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	11	1	+	0	0	0	6
1-1.5	15	10	5	1	2	+	4
2-2.5	6	8	5	3	1	+	1
3-3.5	2	4	3	2	1	1	1
4-5.5	1	2	2	1	1	0	0
6-7.5	0	0	+	1	+	0	0
8-9.5	0	+	+	0	0	+	0
≥10	0	+	0	0	0	0	0

667

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

Mean speed Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N hod a mean speed of ll knots.1

Direction frequency- Bars represent percent frequency of 12 hour movemei toward each direction Each circle represents 20%

(41% of all 12 hour movements were toward the NE.)

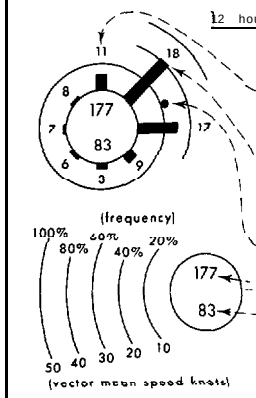
Vector mean direction and speed: Dot indicates mean vector movement Each circle equals 10 knots.

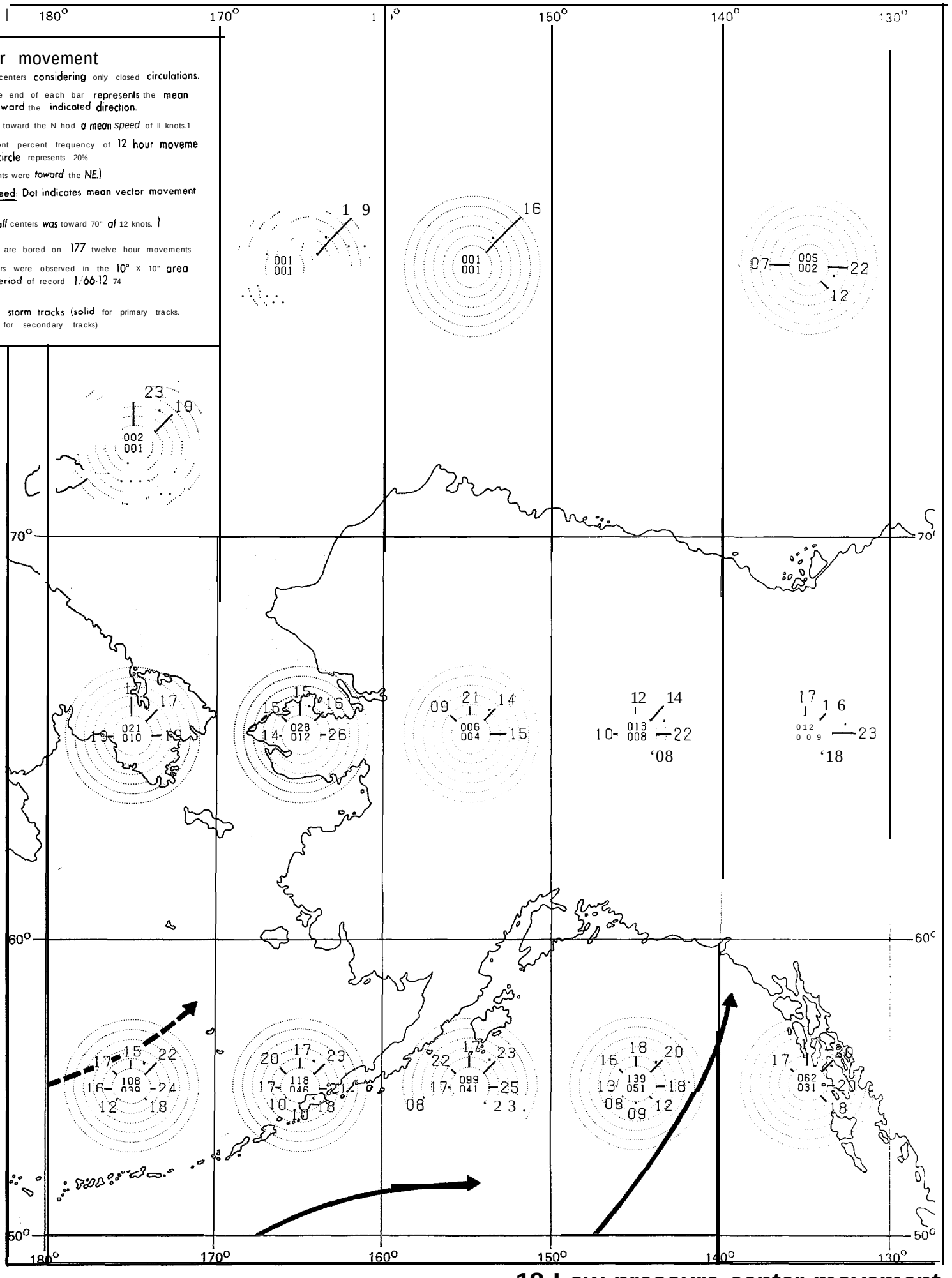
(Mean vector movement of all centers was toward 70° at 12 knots.)

Statistics for this rose are bored on 177 twelve hour movements

83 low pressure centers were observed in the 10° X 10" area during the 9 year period of record 1/66-12 74

BLACK ARROWS Preferred storm tracks (solid for primary tracks. dashed for secondary tracks)

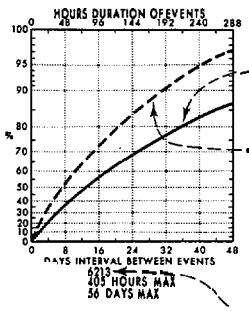




Legend

Persistence of visibility <2 n. mi.

Hours duration of events Days interval between events



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 how-s.]

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

-- (88% of the events were followed by another event in 28 days or less.)

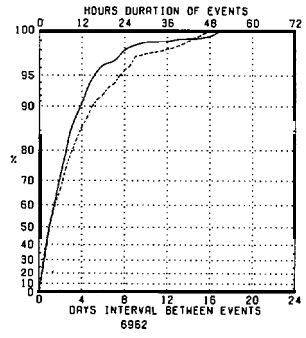
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

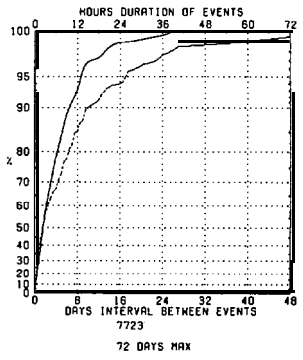
'-Number of observations

Top and bottom scales are variable to allow for variations in the data

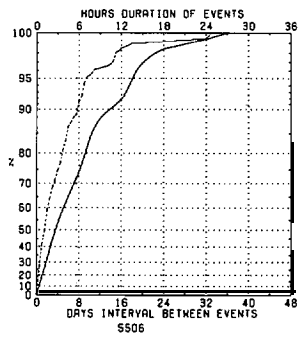
Kodiak



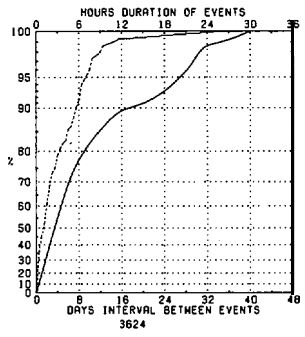
Homer



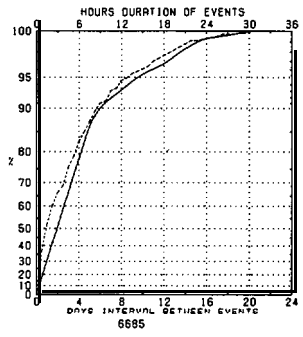
Kenai



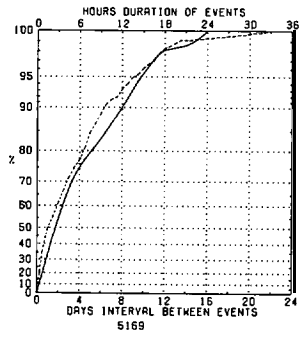
Middleton Island



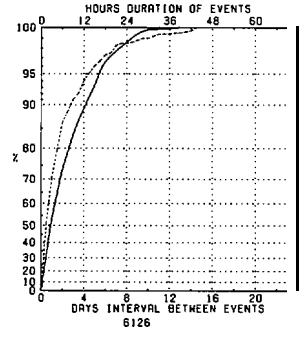
Cordova



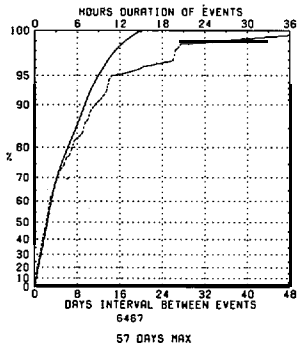
Yakatage



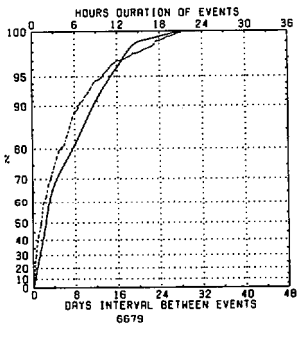
Yakutat



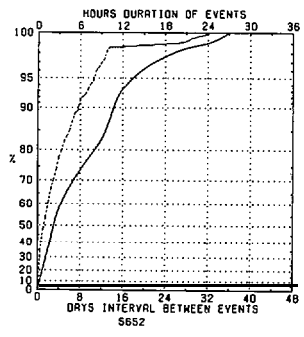
Sitka



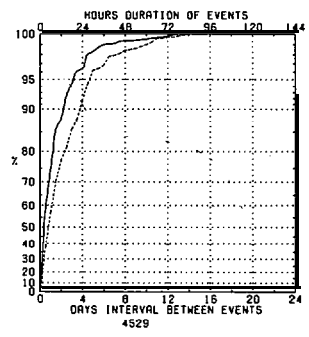
Annette



Anchorage



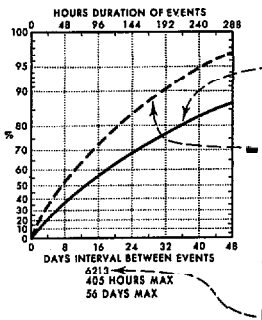
Cold Bay



Legend

Persistence of wind 210 kts.

Hours duration of events, Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration 1216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

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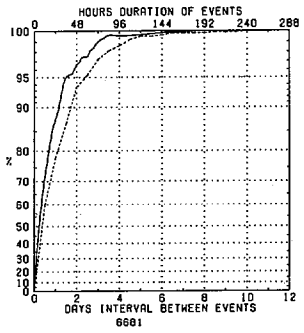
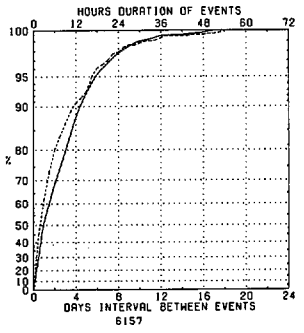
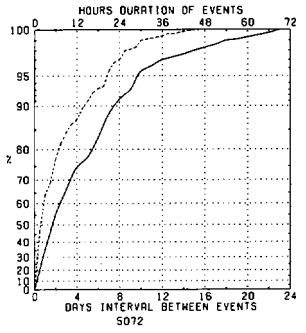
Kodiak



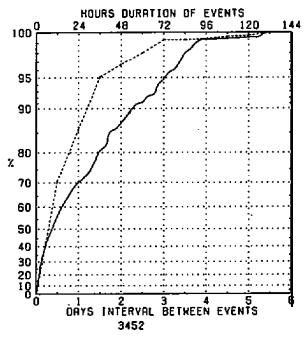
Homer



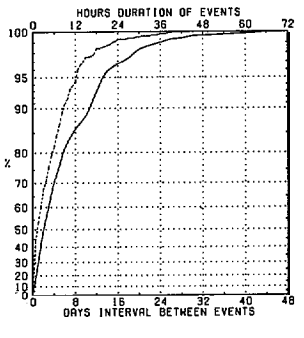
Kenai



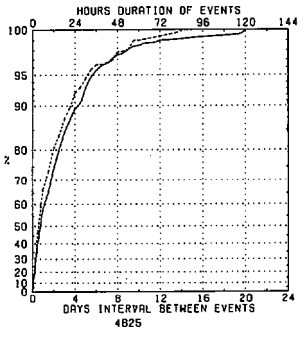
Middleton Island



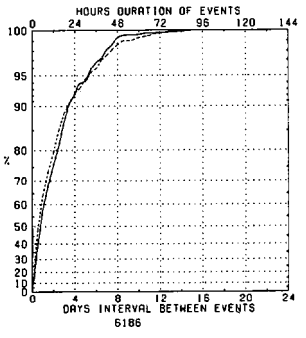
Cordova



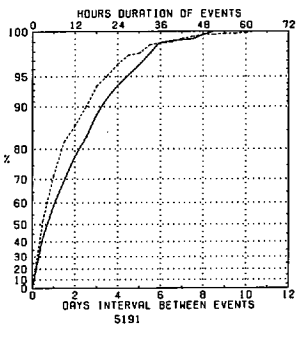
Yakataga



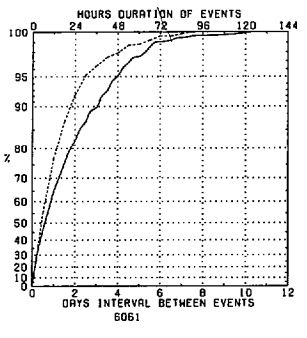
Yakutat



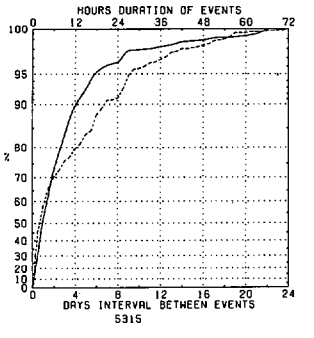
Sitka



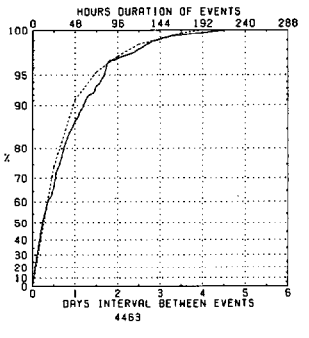
Annette



Anchorage

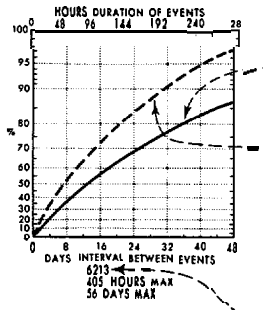


Cold Bay



Legend

Persistence of wind 220 kts.



Hours duration of events , Days interval between events

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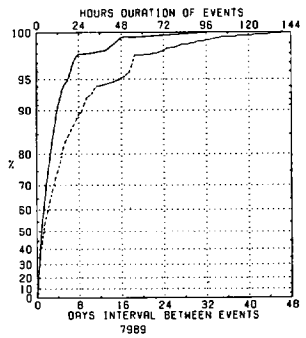
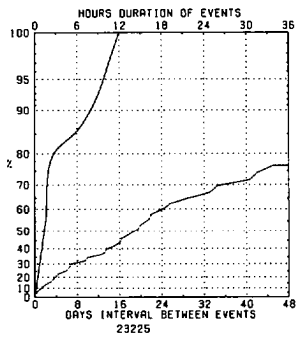
-Number of observations

Top and bottom scales are variable to allow for variations in the data.

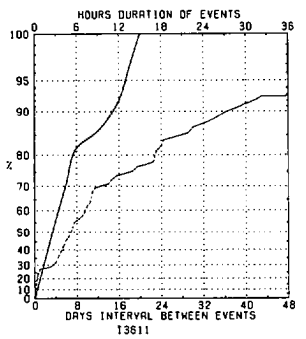
Kodiak



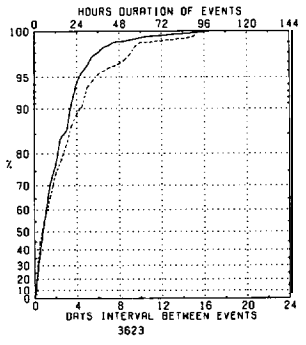
Homer



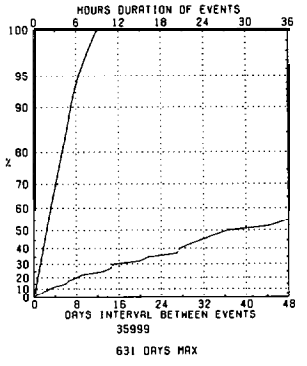
Kenai



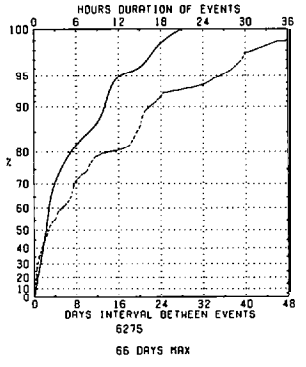
Middleton Island



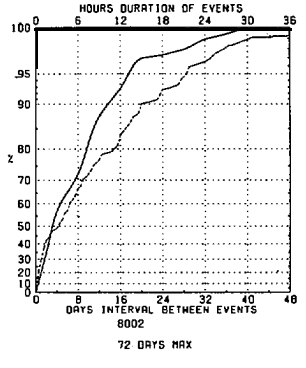
Cordova



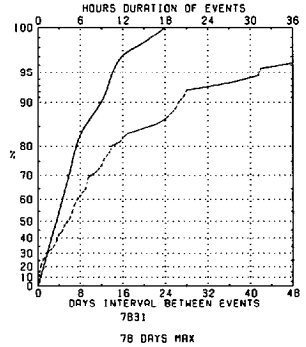
Yakataga



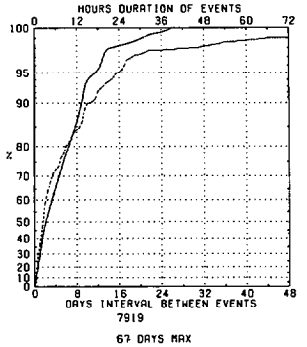
Yakutat



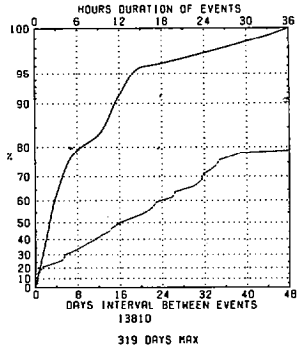
Sitka



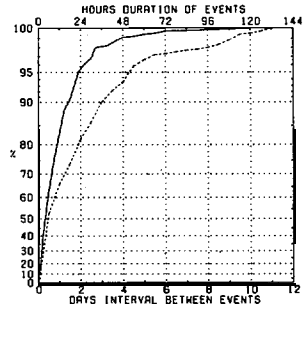
Annette



Anchorage

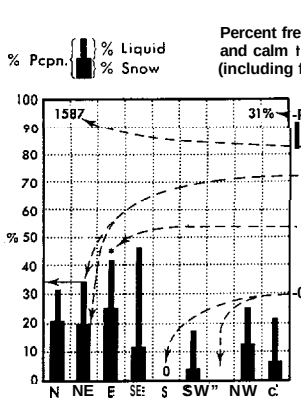


Cold Bay



Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow

-Percentage of present weather observations reporting precipitation.

-Number of observations.

-(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)

-asterisk in the column for a given direction (or calm) indicates that the percentage was bored on IO-30 observations of present weather and wind direction

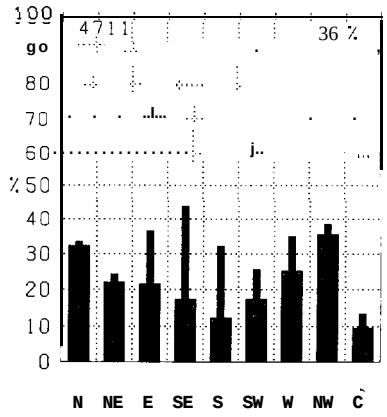
-0 replaces bar when no precipitation was observed with winds from a given direction (or calm) No bor graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm)

Map - Precipitation

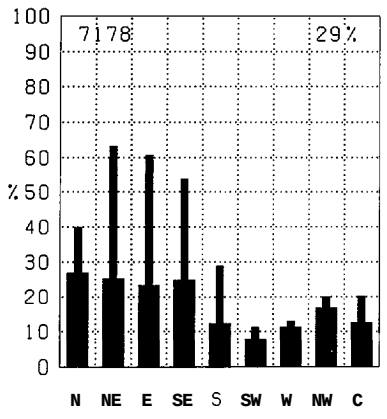
BLACK LINE Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practicer, observers preference for certain present weather coder, and other biases

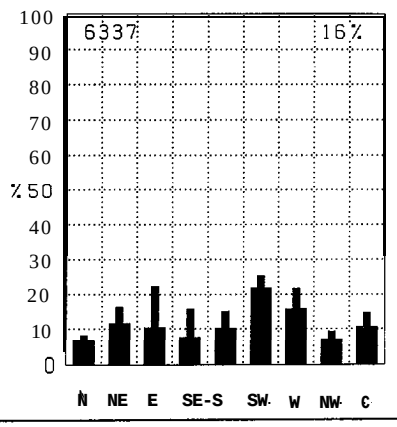
Cold Bay



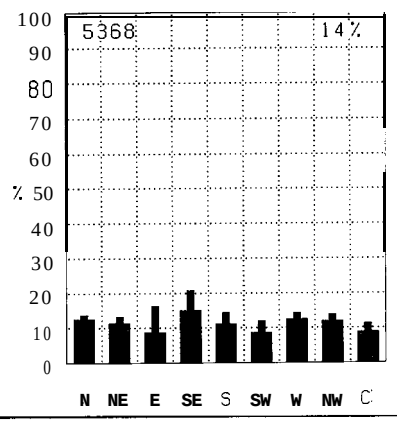
Kodiak



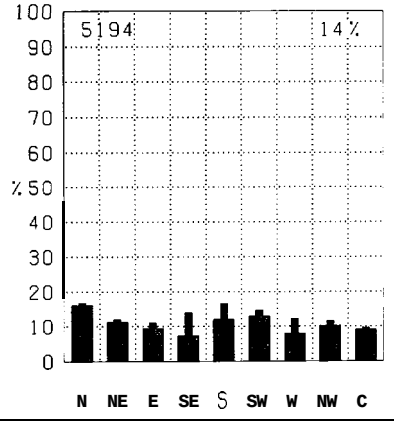
Homer



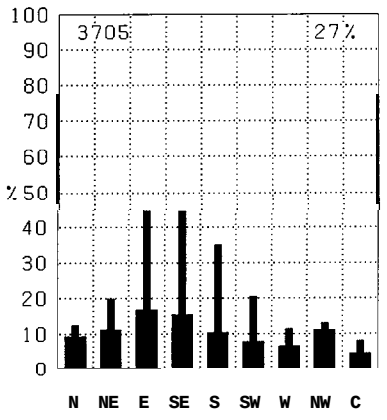
Kenai



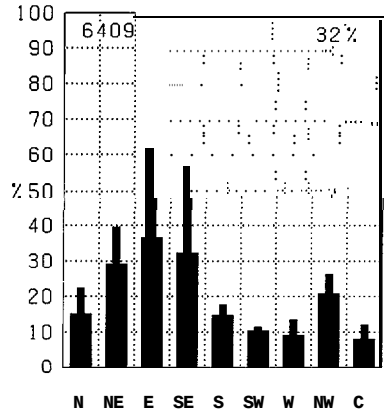
Anchorage



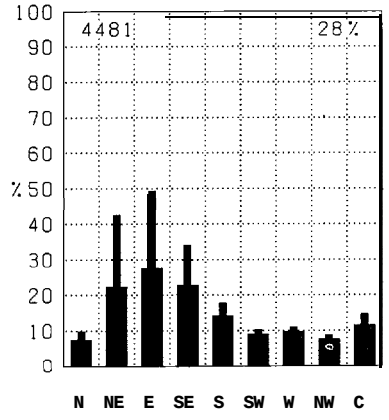
Middleton Island



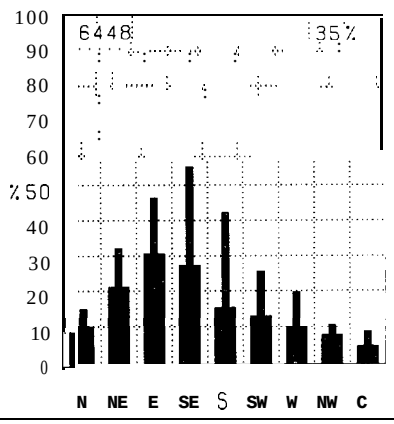
Cordova



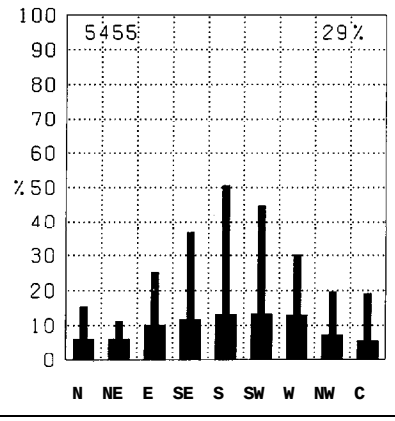
Yakataga



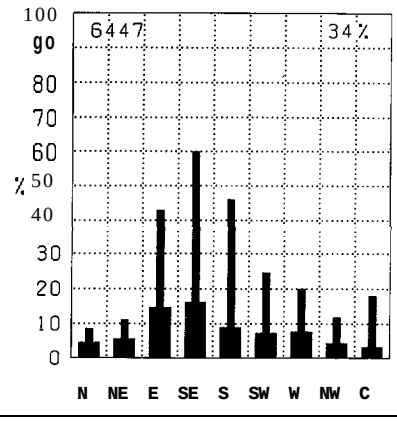
Yakutat



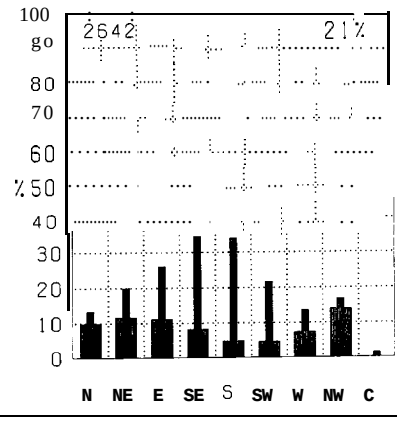
Sitka



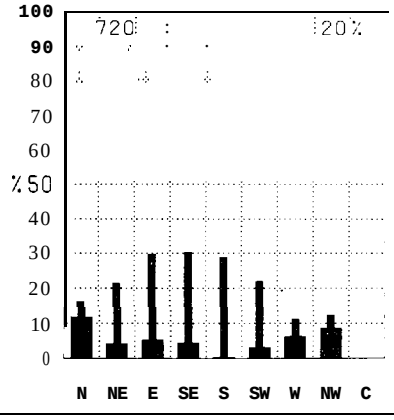
Annette

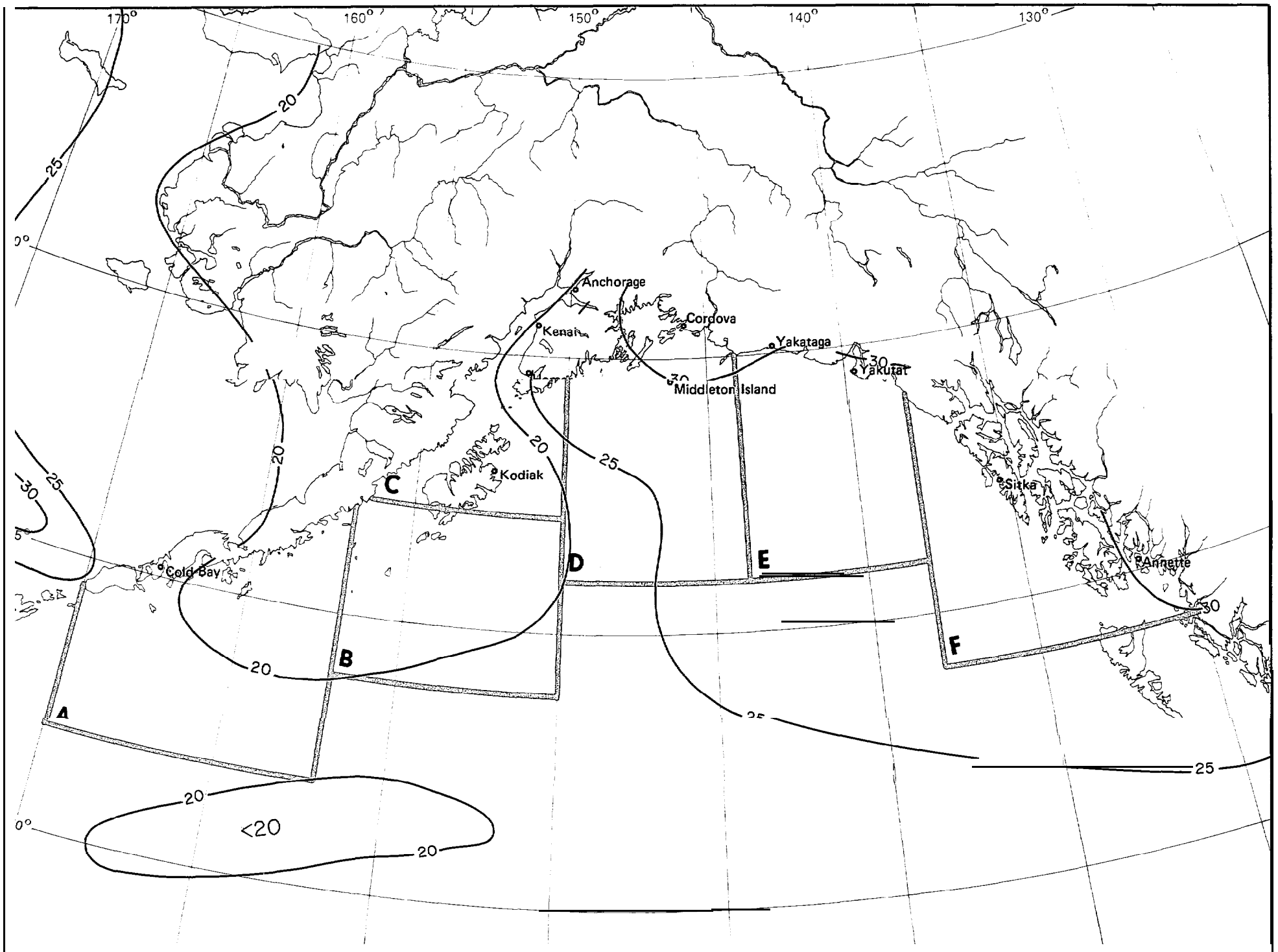


Marine Area A

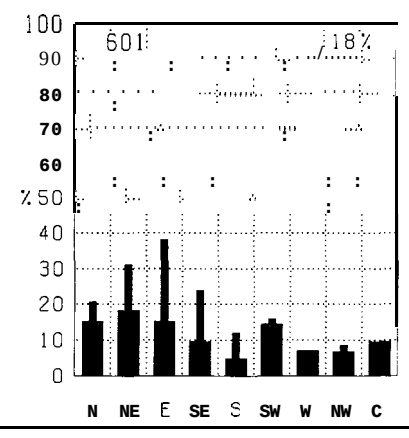


Marine Area B

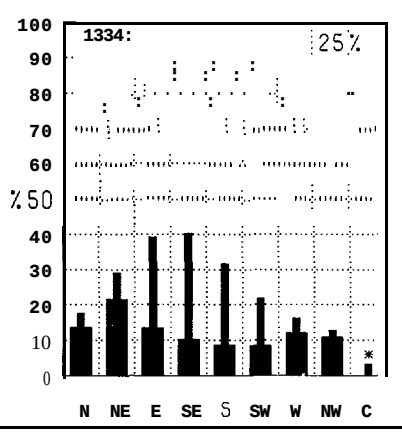




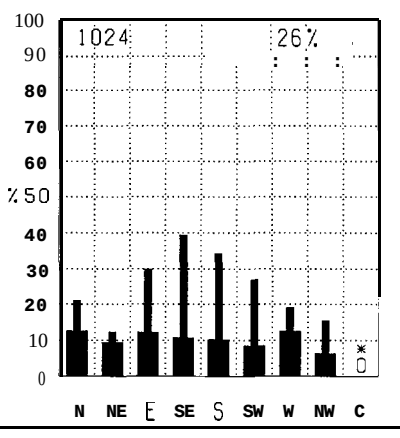
Marine Area C



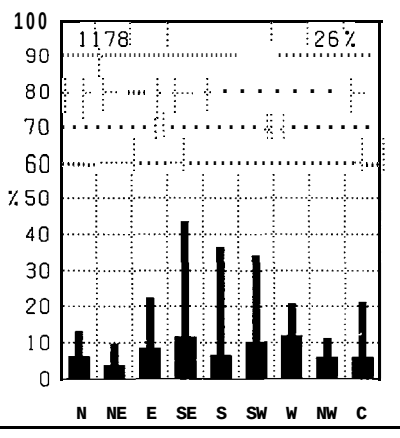
Marine Area D



Marine Area E

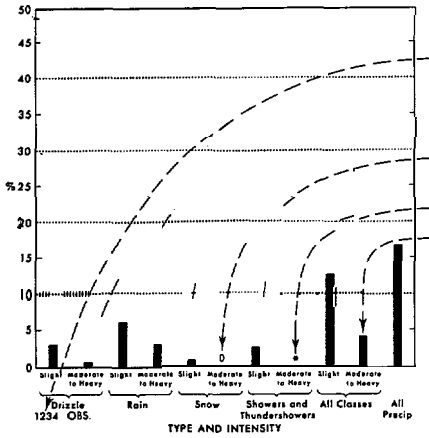


Marine Area F



Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types ond intensities.

0 indicates no observations in the category.

• indicates <.05% but >0.

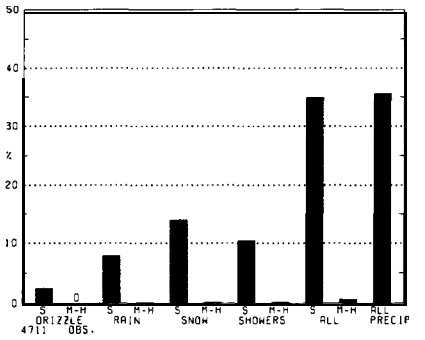
—(4.0% of all observatio recorded moderate to heavy precipitation.)

Map - Snow

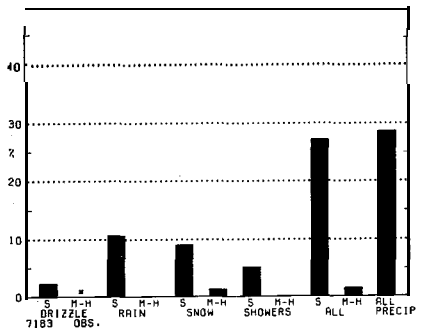
BLACK LINE Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point con be determined by multiplying the percent frequency of observations reporting precipitation (mop 1.) with that of precipitation observations reporting snow (map 2.).

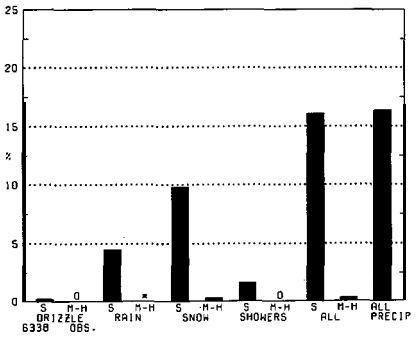
Cold Bay



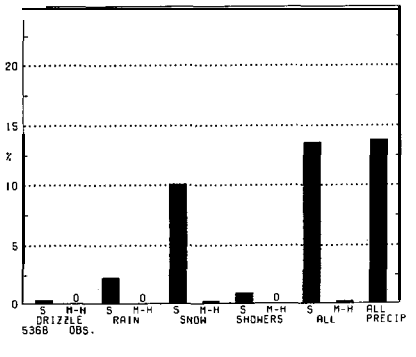
Kodiak



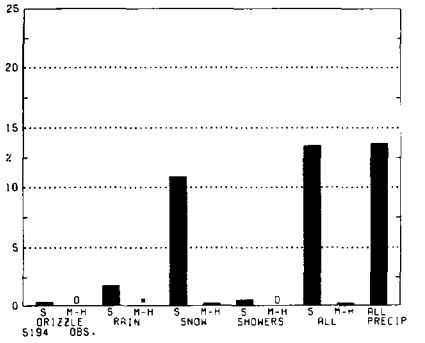
Homer



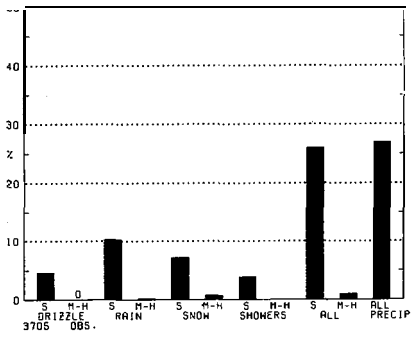
Kenai



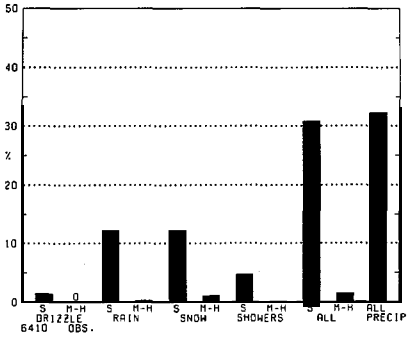
Anchorage



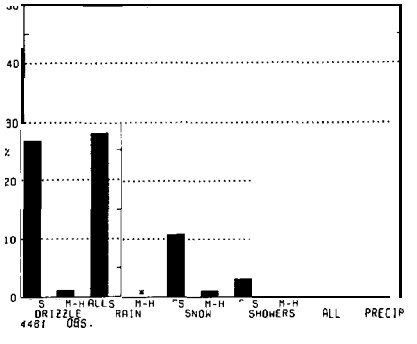
Middleton Island



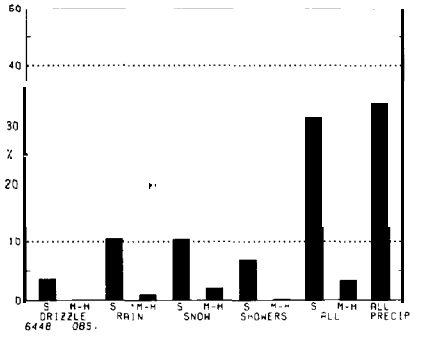
Cordova



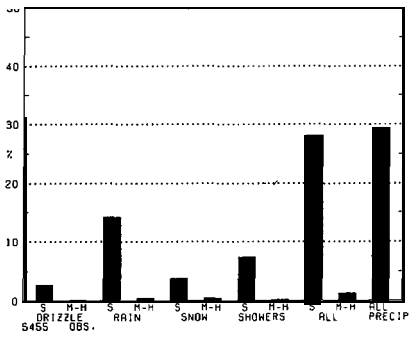
Yakataga



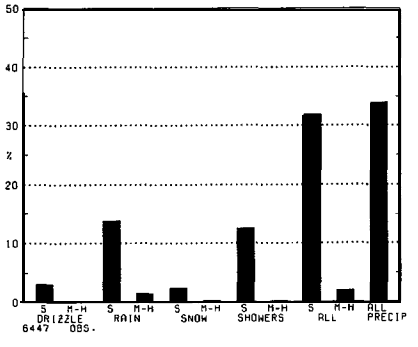
Yakutat



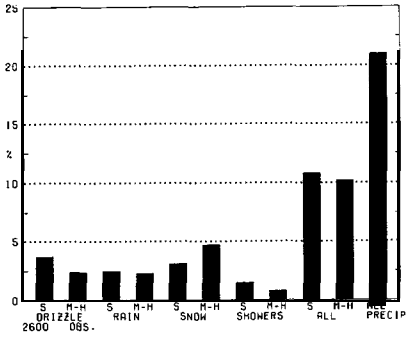
Sitka



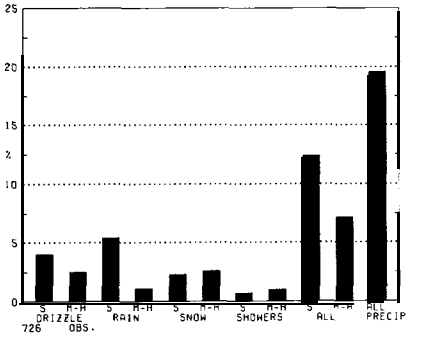
Annette

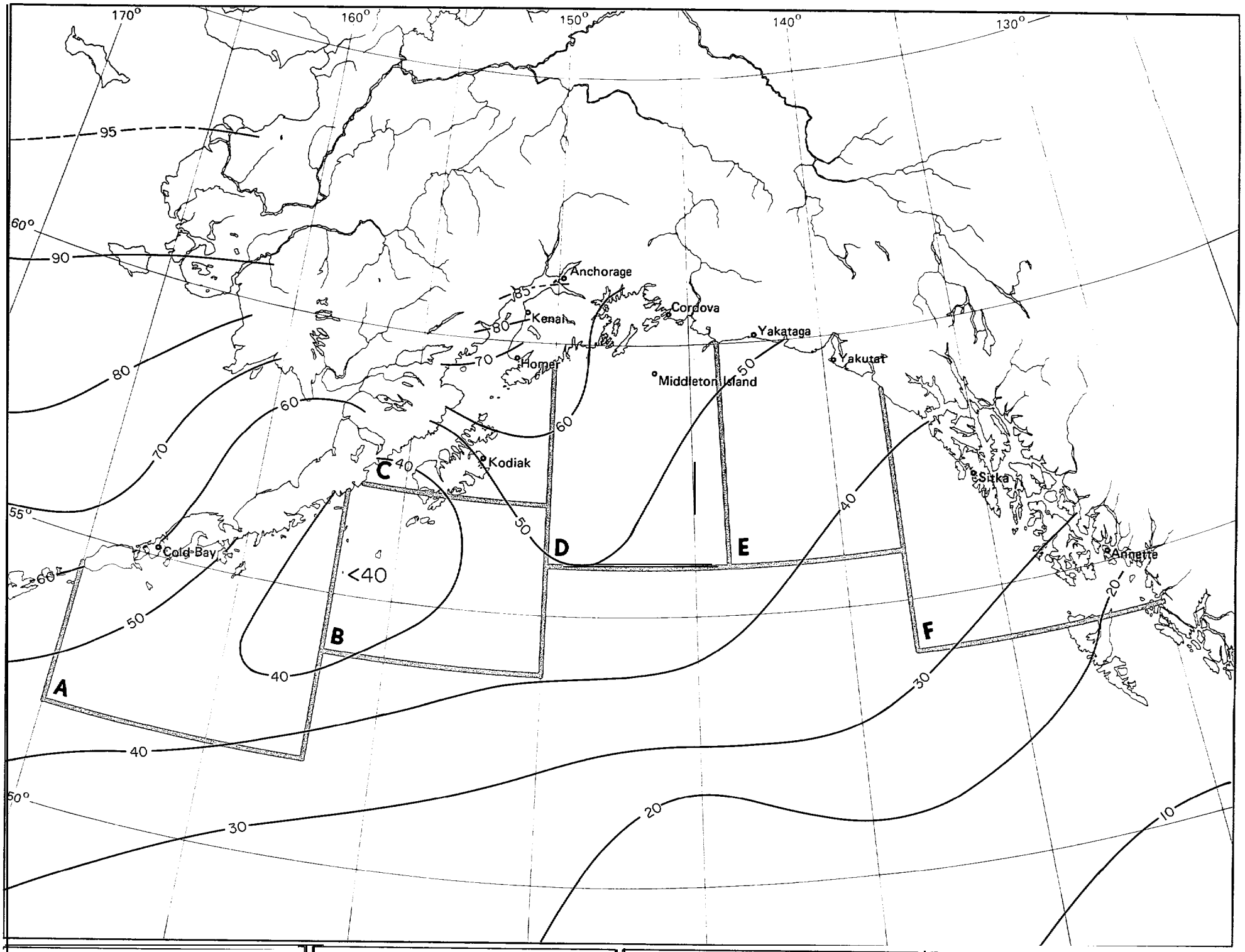


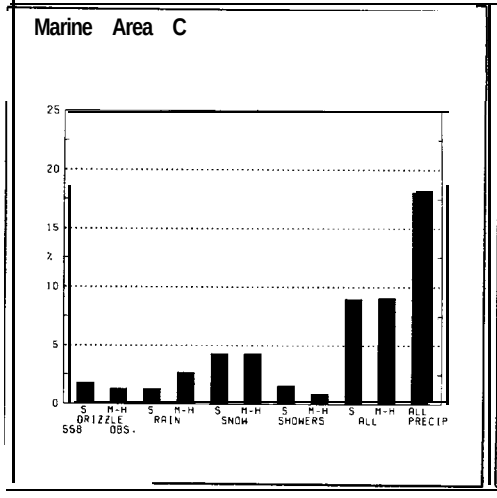
Marine Area A

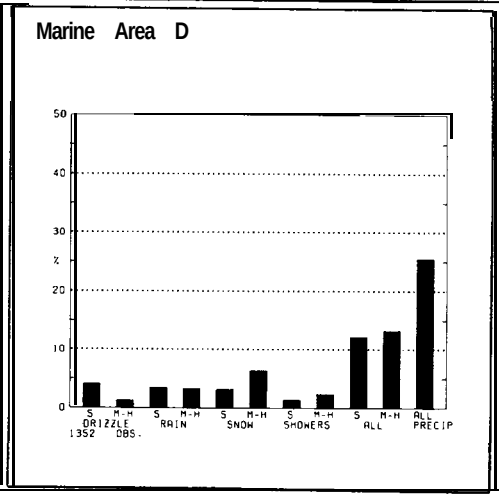


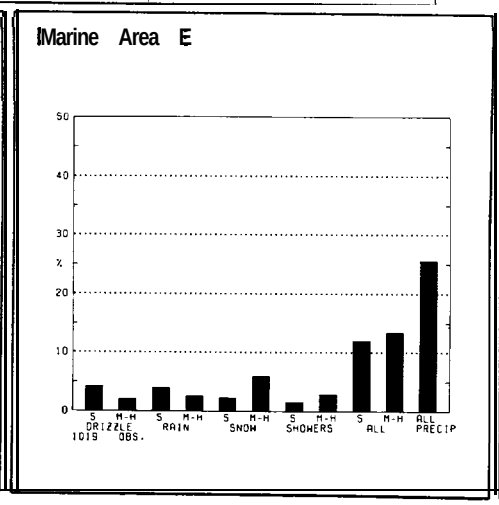
Marine Area B

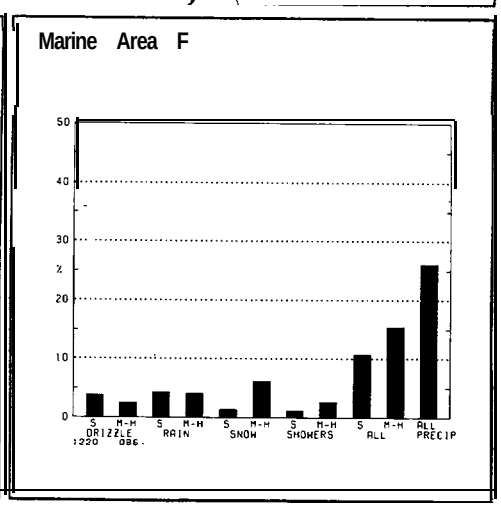



170°
160°
150°
140°
130°
60°
55°
50°
95
90
80
70
60
50
40
30
20
10
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
<40
A
B
C
D
E
F


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 558
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

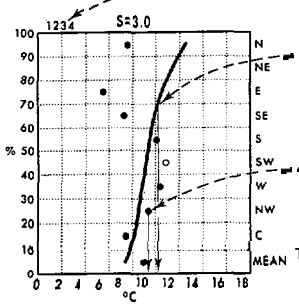

Marine Area D
50
40
30
%
20
10
0
S DRIZZLE 1352
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
50
40
30
%
20
10
0
S DRIZZLE 1019
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
50
40
30
%
20
10
0
S DRIZZLE 1220
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



---Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm ond for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10.30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

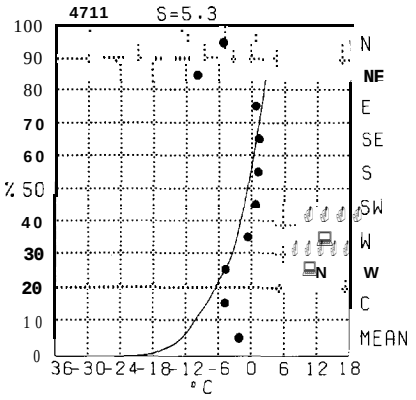
RED LINE Mean air temperature (°C)

BLUE LINE Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

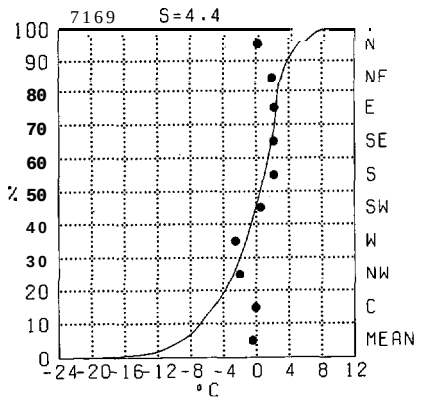
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses ore relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value con be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is bored on all observations reporting temperature with or without wind direction.

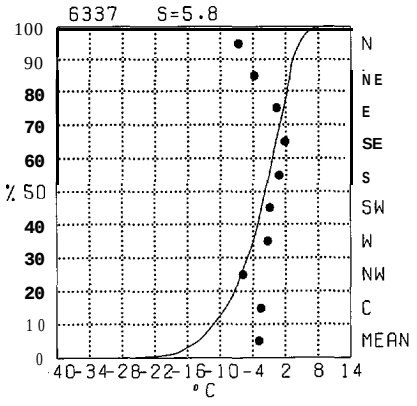
Cold Bay



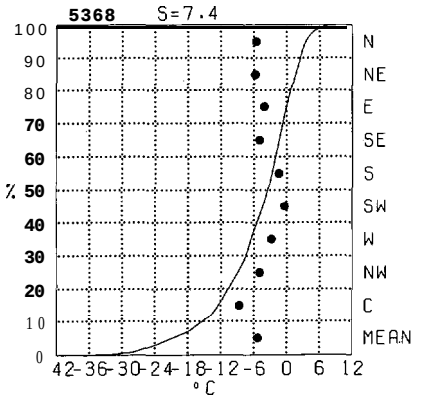
Kodiak



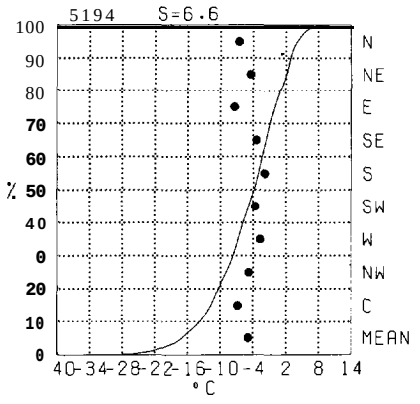
Homer



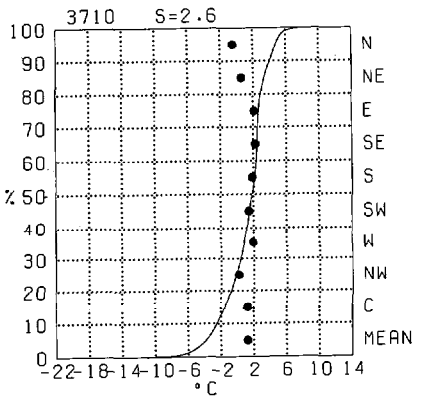
Kenai



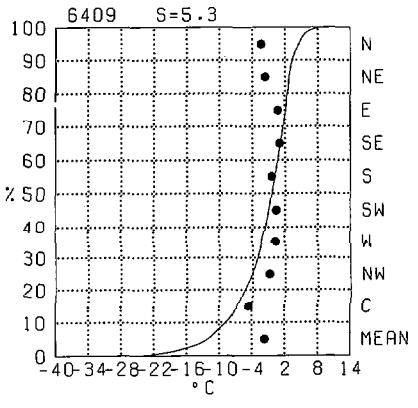
Anchorage



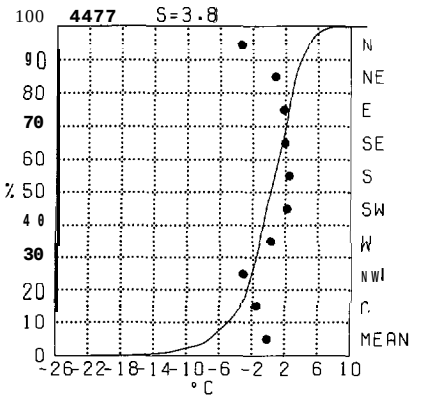
Middleton Island



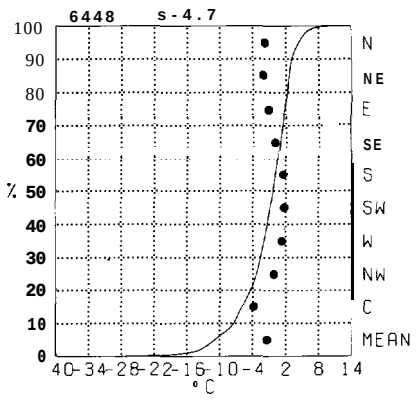
Cordova



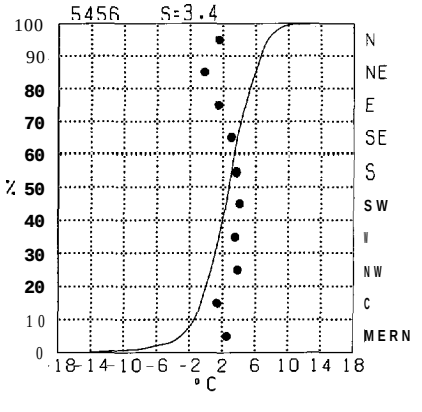
Yakataga



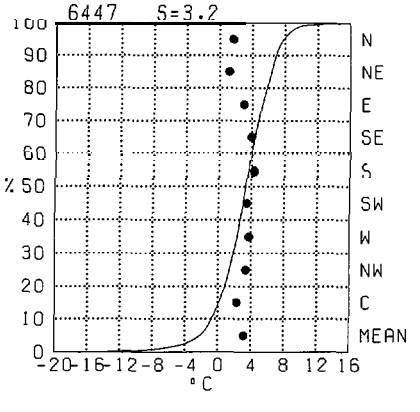
Yakutat



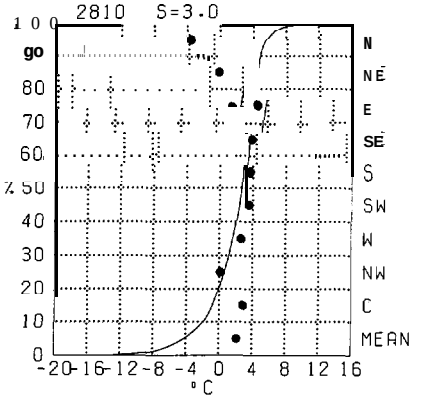
Sitka



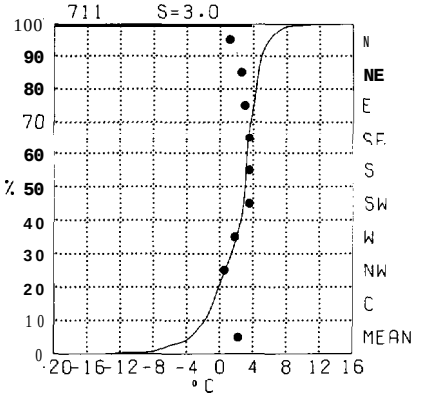
Annette

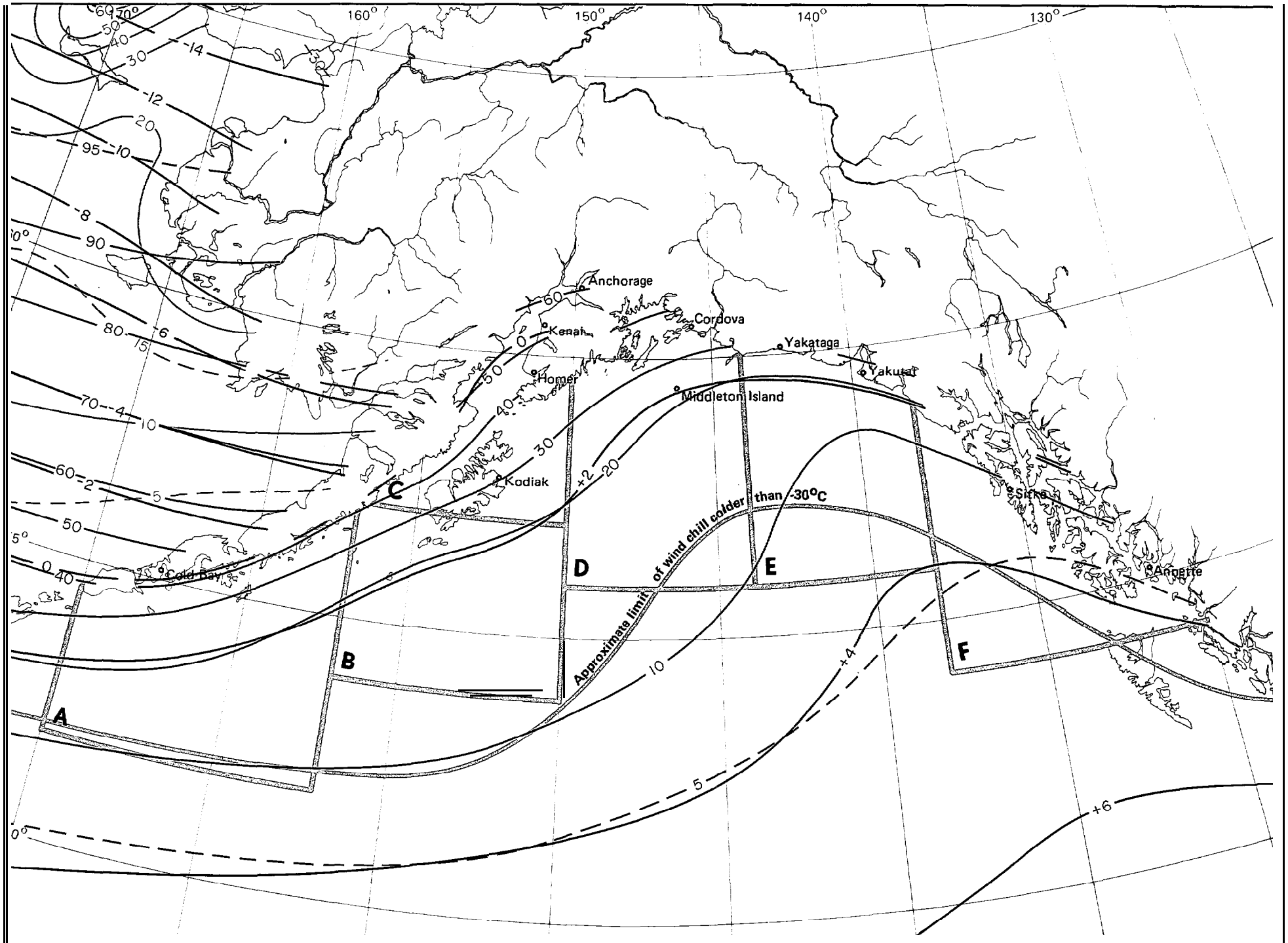


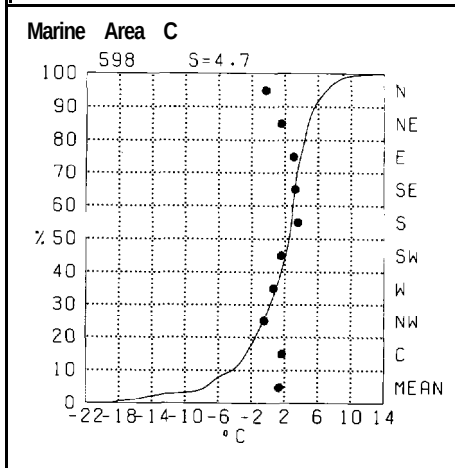
Marine Area A

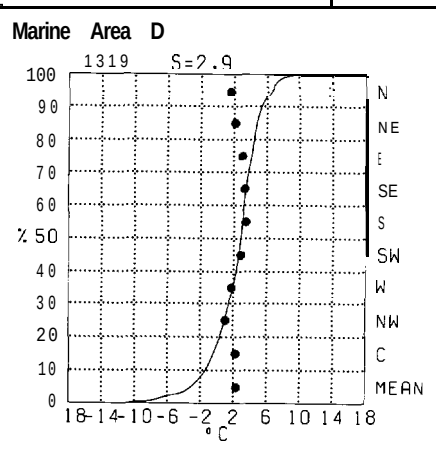


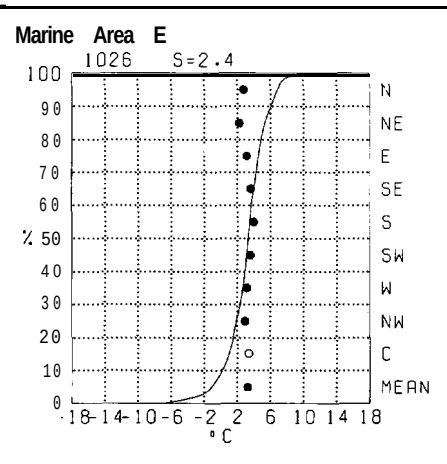
Marine Area B

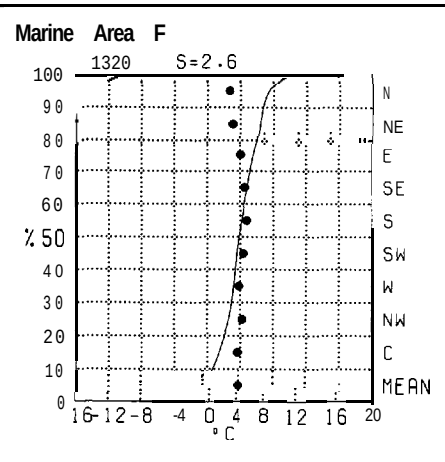










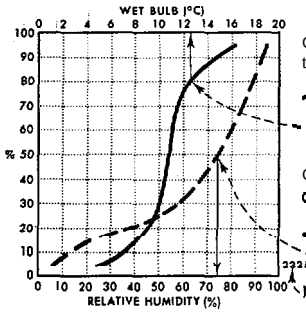


3 Air temperature mean and thresholds

March

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C)

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.59.1

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%)

(50% of all observed relative humidities were ≤74%.)

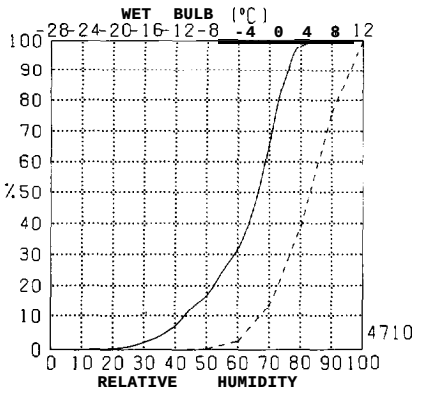
Number of observations.

Map • Mean dew point temperature

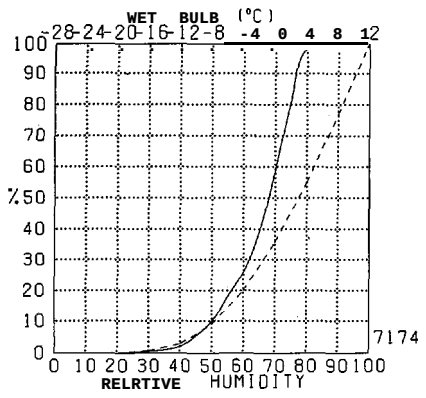
BLACK LINE. Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both ore required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

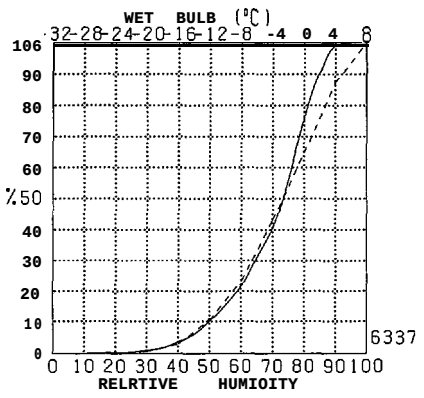
Cold Bay



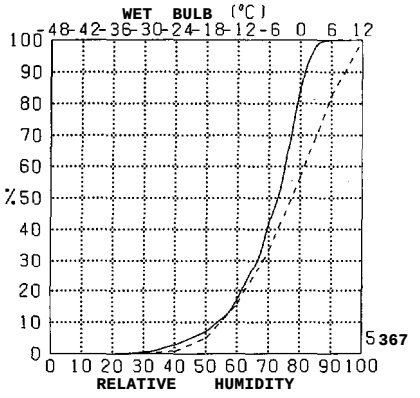
Kodiak



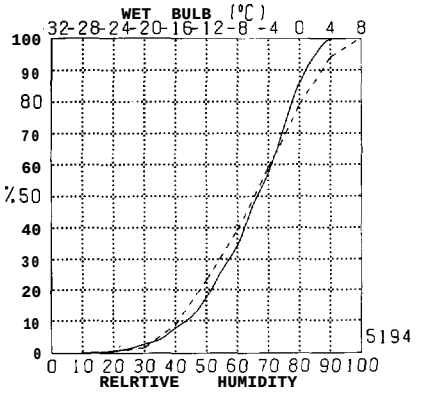
Homer



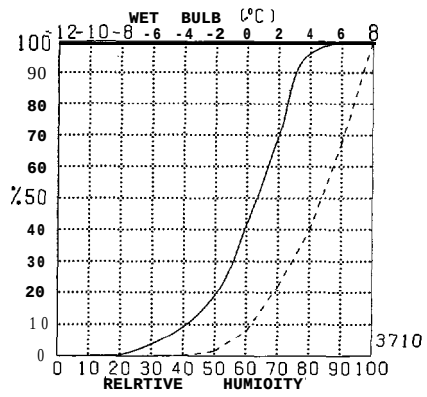
Kenai



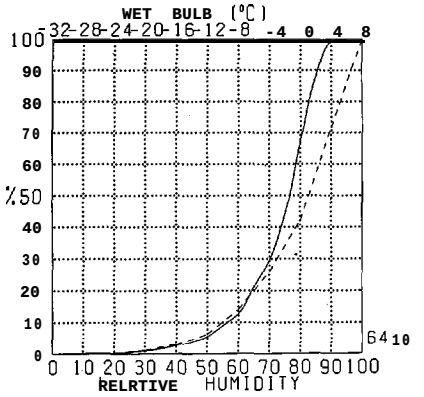
Anchorage



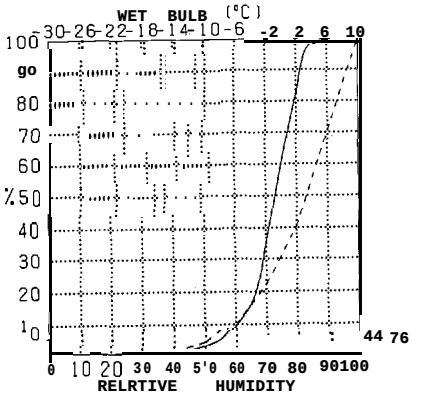
Middleton Island



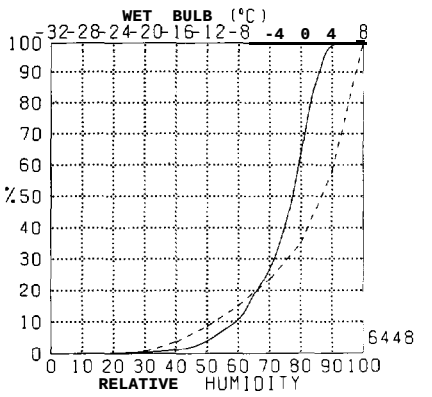
Cordova



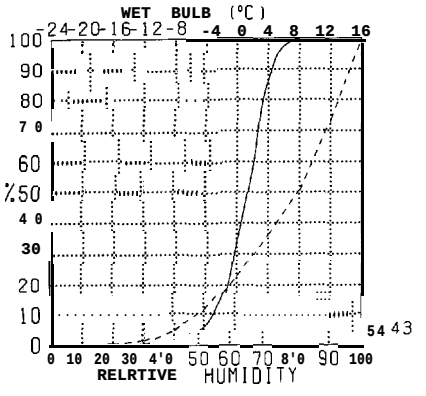
Yakataga



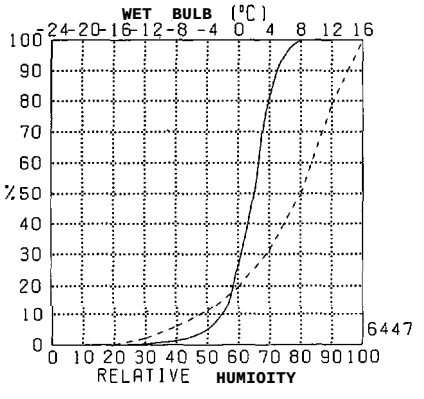
Yakutat



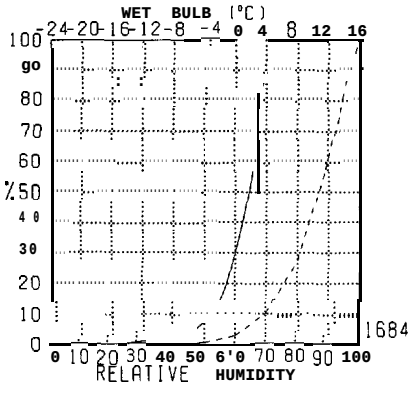
Sitka



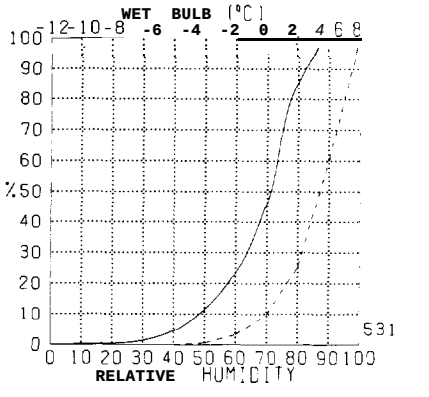
Annette

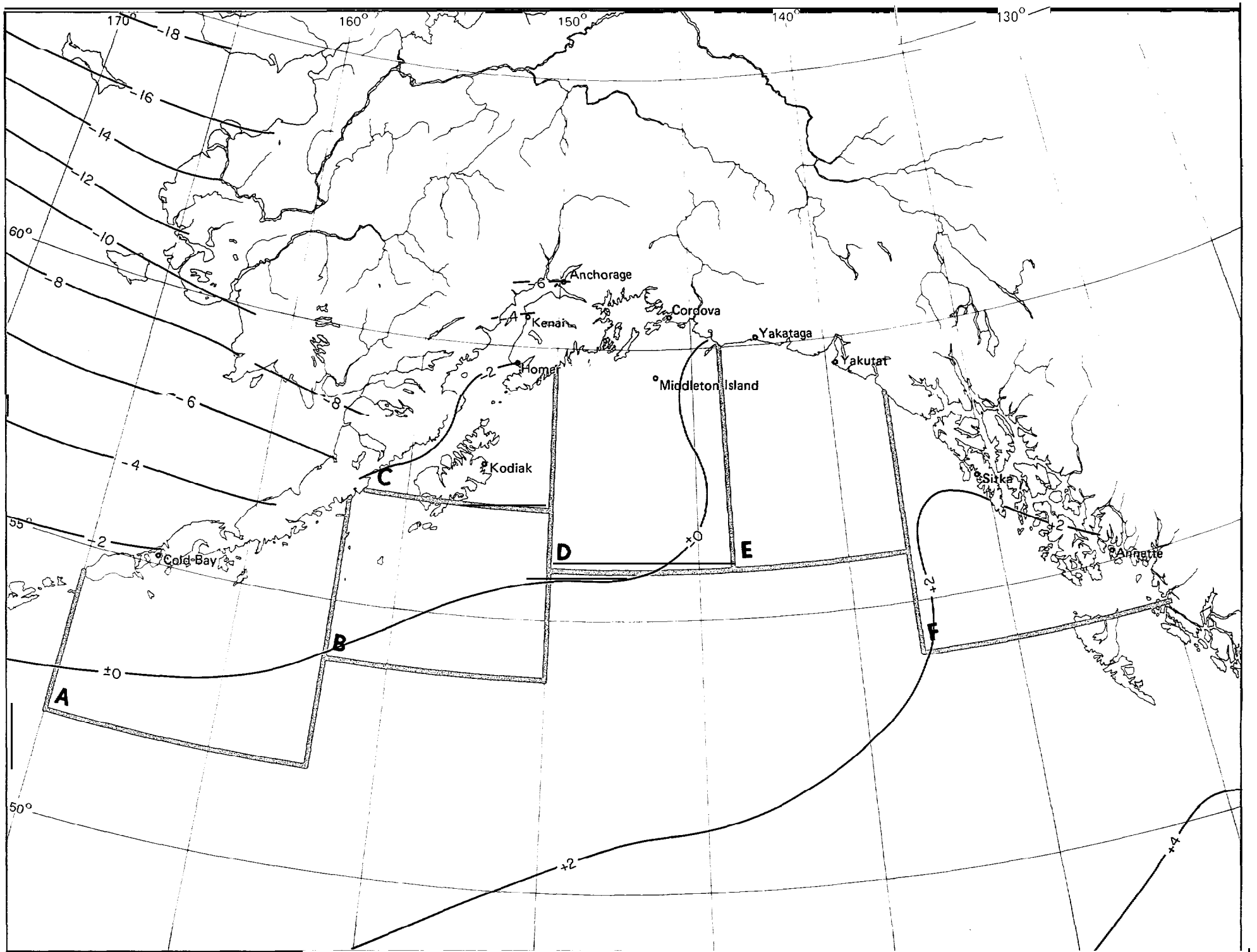


Marine Area A

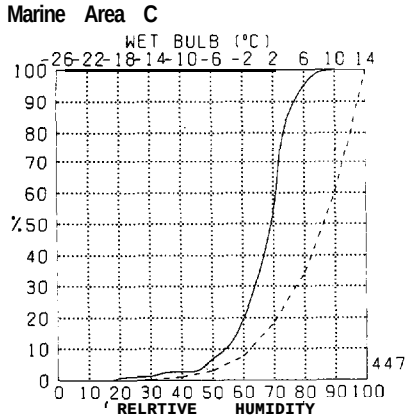


Marine Area B

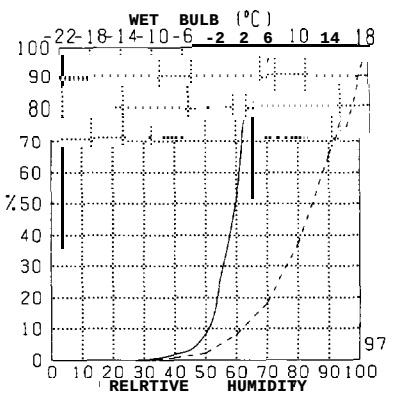




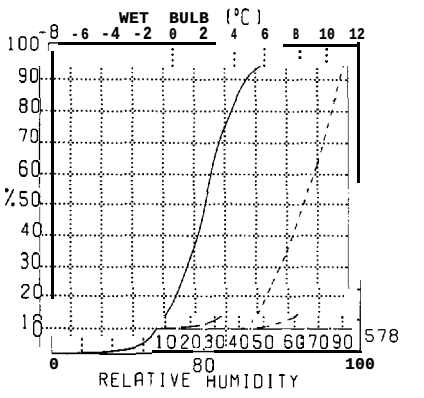
Marine Area C



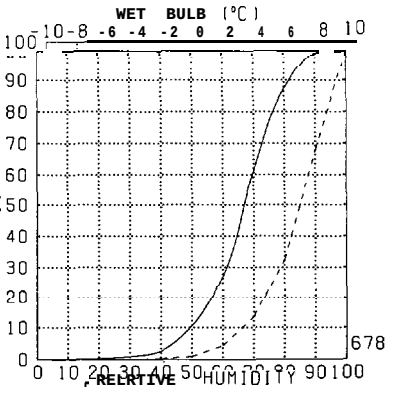
Marine Area D



Marine Area E



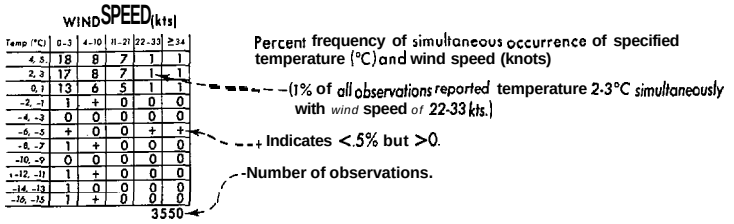
Marine Area F



4 Mean dew point temperature

Legend

Air temperature/wind speed



Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph con be used to determine the extent of human discomfort from the combined effects of extreme heot or cold and winds or to estimate the likelihood of superstructure icing. icing potential increases or the air temperature drops below freezing and the winds increase above 10 knots 112 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	0	0	0	0	+
10.11	0	0	0	0	+
8.9	0	+	+	0	0
6.7	+	+	1	+	+
4.5	+	1	3	2	+
2.3	1	4	10	7	1
0.1	1	5	8	3	+
-2.-1	1	5	8	2	+
-4.-3	1	4	5	1	+
-6.-5	+	2	3	1	+
≤-7	1	6	10	3	+

4711

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12.13	0	+	+	0	0
10.11	+	+	+	0	0
8.9	+	+	+	+	0
6.7	1	2	1	+	0
4.5	2	4	3	+	0
2.3	6	12	10	1	+
0.1	4	7	5	1	+
-2.-1	4	4	4	1	+
-4.-3	2	3	4	1	+
-6.-5	1	2	2	+	+
≤-7	1	4	4	1	1

7169

Homer

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	234
8.9 I	+I	+I	+	0	0
6.7	1	2	1	0	0
4.5	2	3	2	+	0
2.3	5	9	4	+	0
0.1	4	6	2	+	0
-2.-1	5	7	2	+	0
-4.-3	5	6	2	+	0
-6.-5	3	4	1	+	0
-8.-7	2	5	1	+	0
-10.-9	1	2	1	+	0
≤-11	3	7	1	+	0

6337

Kenai

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	+	0	0	0	0
8.9	+	+	0	0	0
6.7	+	1	+	0	0
4.5	+	3	1	0	0
2.3	2	7	4	+	0
0.1	2	6	3	+	0
-2.-1	2	8	4	+	0
-4.-3	3	7	3	+	0
-6.-5	2	5	2	+	0
-8.-7	2	5	2	+	0
≤-9	8	15	2	+	0

5368

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0 - 3	4-10	11-21	22-33	≥ 34
8.9	+	+	+	+	0
6.7	+	1	1	+	0
4.5	1	2	1	+	0
2.3	3	7	2	+I	0
0.1	3	6	1	+	0
-2.-1	4	8	1	+	0
-4.-3	4	8	1	+	0
-6.-5	3	5	1	0	0
-8.-7	3	6	1	+	0
-10.-9	2	3	1	+	0
≤-11	8	9	2	+	0

5194

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	0	+	0	0	0
6.7	+	1	1	+	+
4.5	1	5	8	2	+
2.3 I	4	141	15	6	1
0.1	3	8	7	2	1
-2.-1	1	4	4	1	+
-4.-3	+	2	4	+	+
-6.-5	+	1	1	+	0
-8.-7	0	+	+	+	0
-10.-9	0	0	+	0	0
-12.-11	0	0	+	0	0

3710

Cordova

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	+	+	+	0	0
6.7	1	2	+	0	0
4.5	1	5	2	+	0
2.3	6	13	4	+	0
0.1	7	8	3	+	0
-2.-1	8	6	1	0	0
-4.-3	7	4	1	0	0
-6.-5	4	2	+	0	0
-8.-7	5	1	+	0	0
-10.-9	2	1	+	0	0
≤-11	6	1	+	0	0

6409

Ya kataga

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	+	0	+	0	0
8.9	+	+	+	0	0
6.7	+	1	2	+	0
4.5	1	3	5	1	+
2.3	4	10	9	1	+
0.1	5	9	5	+	+
-2.-1	10	9	2	+	0
-4.-3	5	6	1	+	0
-6.-5	2	2	+	0	0
-8.-7	1	2	+	0	0
≤-9	1	2	+	0	0

4471

Yakutat

WIND SPEED IKTSI

TEMP (°C)	0-3	4 10	11-21	22-33	≥ 34
12.13	0	+	0	0	0
10.11	0	+	0	0	0
8.9	+	+	+	0	0
6.7	+	1	+	+	0
4.5	1	4	1	+	+
2.3	3	11	5	1	+
0.1	5	12	5	+	+
-2.-1	5	8	3	+	0
-4.-3	5	5	2	+	0
-6.-5	3	2	1	+	0
≤-7	8	4	1'	+	+

6448

Sitka

WIND SPEED (KTS)

TEMP (°C)	(O - 3	4-10	11-21	22-33	≥ 34
14.15	0	+	+	0	0
12.13	+	+	+	0	0
10.11	+	+	+	0	0
8.9	+	2	2	+	+
6.7	71	71	61	+	0
4.5	4	9	6	+	0
2.3	9	13	5	1	+
0.1	6	8	2	+	0
-2.-1	5	4	1	+	0
-4.-3	1	1	+	+	0
≤-5	1	1	1	+	+

5456

Annette

WIND SPEED IKTSI

TEMP (°C	O-3	(4-10	11-21	22-33	≥ 34
14.15	0	+	+	0	0
12.13	+	+	+	+	0
10.11	+	1	+	0	0
8.9	+	3	2	+	0
6.7	1	9	7	1	+
4.5	2	12	8	1	+
2.3	4	14	8	2	+
0.1	2	8	3	1	+
-2.-1	1	4	1	+	0
-4.-3	+	1	+	+	0
≤-5	+	1	1	+	0

6447

Marine Area A

WIND SPEED IKTSI

TEMP (°C)	O - 3	4-10	11-21	22-33	≥ 34
12.13	0	0	0	+	0
10.11	+	+	+	0	0
8.9	0	+	+	+	+
6.7	+	2	3	2	+
4.5	1	7	13	6	1
2.3	2	8	15	8	2
0.1	1	2	5	3	1
-2.-1	+	2	3	3	1
-4.-3	+	1	1	1	+
-6.-5	0	+	1	1	+
≤-7	0	+	1	1	+

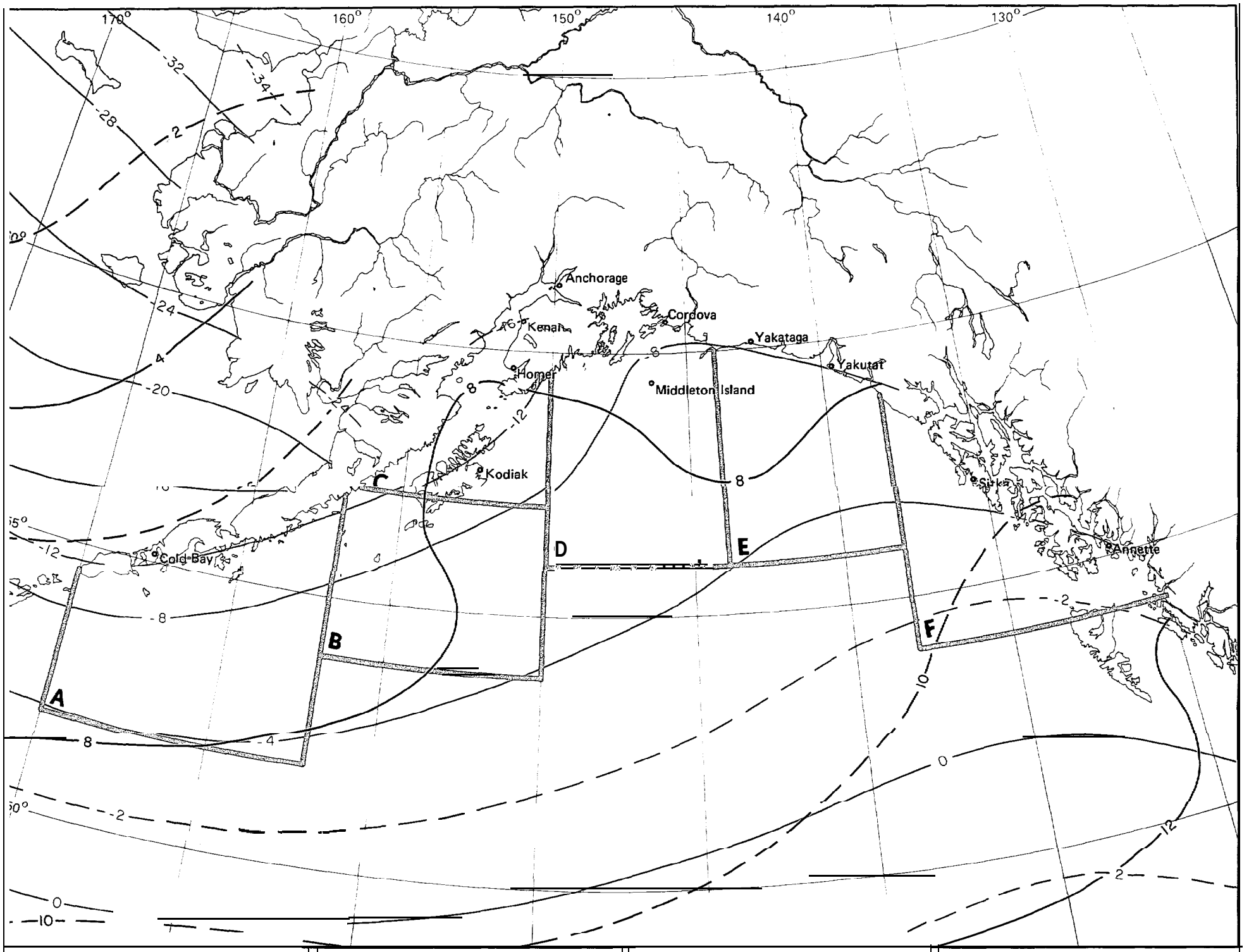
2810

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	O-3	4-10	:1-21	22-33	≥ 34
10.11	0	0	+	0	0
8.9	0	+	+	+	0
6.7	+	2	3	2	:
4.5	1	8	13	6	1
2.3	1	9	16	7	2
0.1	1	!	4	2	2
-2.-:	0	i	5:	3	1
-4.-3	0	1	2	1	1
-6.-5	0	+	1	+	0
-8.-7	0	0	-	+	+
≤-9	+	0	0	+	+

711



Marine Area C

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12.13	+	+	0	0	0
10.11	1	1	0	0	0
8.9	1	1	0	+	0
6.7	2	4	1	1	1
4.5	3	6	7	4	1
2.3	6	8	9	6	2
0.1	2	3	4	3	2
-2.-1	1	2	2	2	+
-4.-3	+	2	2	1	1
-6.-5	0	1	+	1	+
≤-7	1	2	3	1	1

598

Marine Area D

TEMP (°C)	WIND SPEED IKTSI 0-3	4-10	11-21	22-33	≥ 34
10.11	0	+	+	0	0
8.9	0	+	1	+	0
6.7	1	2	4	2	+
4.5	1	6	13	4	3
2.3	2	10	13	6	3
0.1	1	4	6	3	2
-2.-1	+	1	3	1	1
-4.-3	+	+	2	1	1
-6.-5	0	+	1	+	+
-8.-7	0	+	+	+	+
≤-9	0	+	+	+	+

1319

Marine Area E

TEMP (°C)	WIND SPEED IKTSI 0 - 3	4-10	11-21	22-33	≥ 3 4
10.11	0	+	+	0	+
8.9	0	1	1	+	+
6.7	+	5	7	1	1
4.5	1	9	14	6	2
2.3	1	12	14	4	2
0.1	1	4	5	2	1
-2.-1	+	1	1	1	+
-4.-3	0	+	+	+	+
-6.-5	0	+	1	+	0
-8.-7	0	+	+	+	0
-10.-9	0	0	0	0	0

1026

Marine Area F

TEMP (°C)	WIND SPEED (KTS.) 0-3	4-10	11-21	22-33	> 34
12.13	0	+	0	0	0
10.11	+	+	+	+	0
8.9	+	2	3	1	+
6.7	1	6	10	4	1
4.5	2	10	14	5	1
2.3	2	8	10	5	1
0.1	+	3	3	2	1
-2.-1	+	+	1	+	+
-4.-3	0	1	1	+	+
-6.-5	+	+	+	+	0
-8.-7	0	0	+	+	0

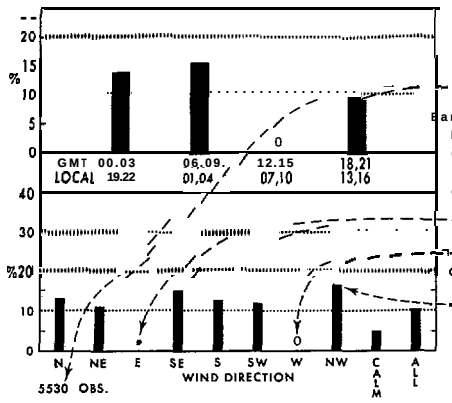
1320

5 Air temperature extremes (°C)

March

Legend

Fog/time and fog/wind direction



-Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are bared on 100% for each hour-group ond direction category.

• indicates <.05% but >0.

0 indicates no fog occurred with the wind direction

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

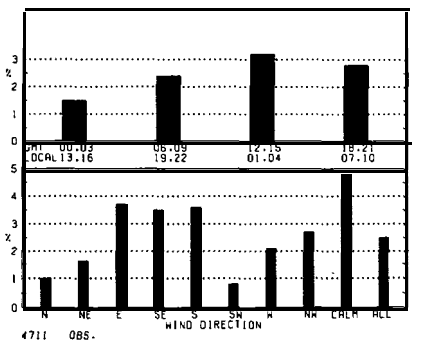
Map • Fog

BLACK LINE , Percent frequency of occurrence of all fog

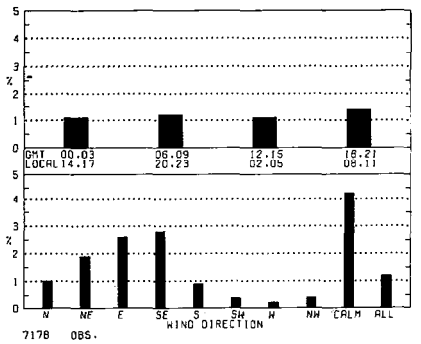
BLUE LINE Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point con be determined by computing the difference between the two analyses.

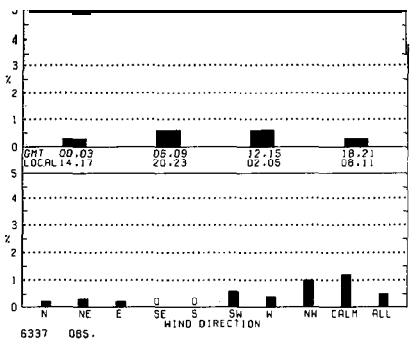
Cold Bay



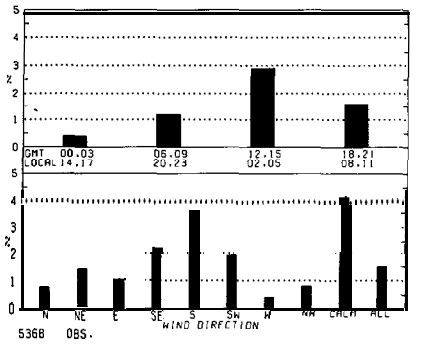
Kodiak



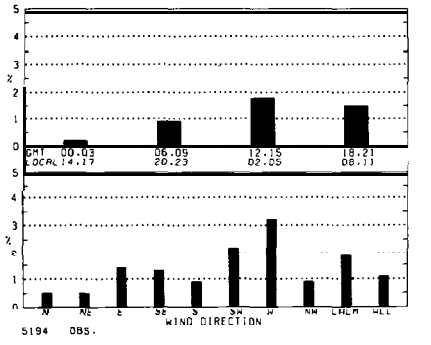
Homer



Kenai



Anchorage



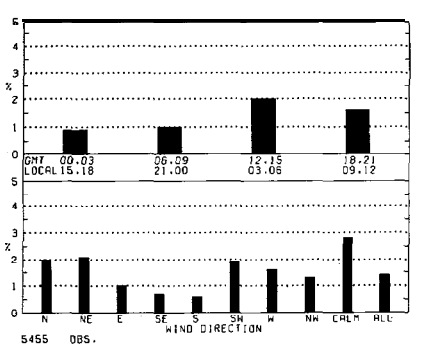
Middleton Island

Cordova

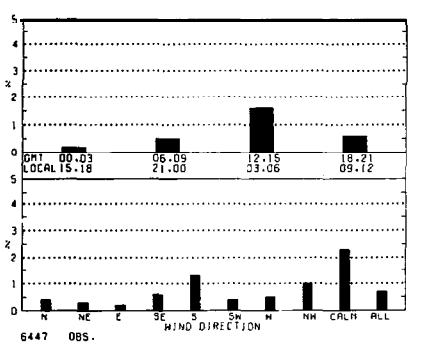
Yakataga

Yakutat

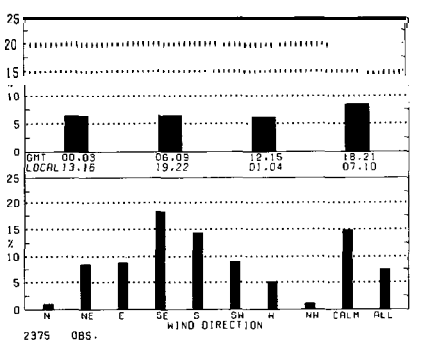
Sitka



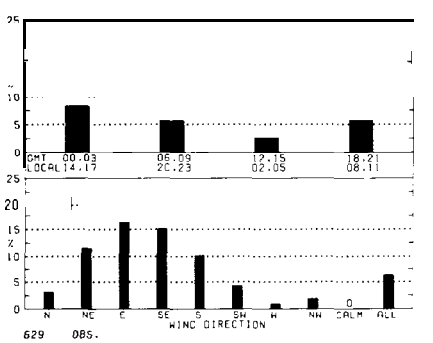
Annette

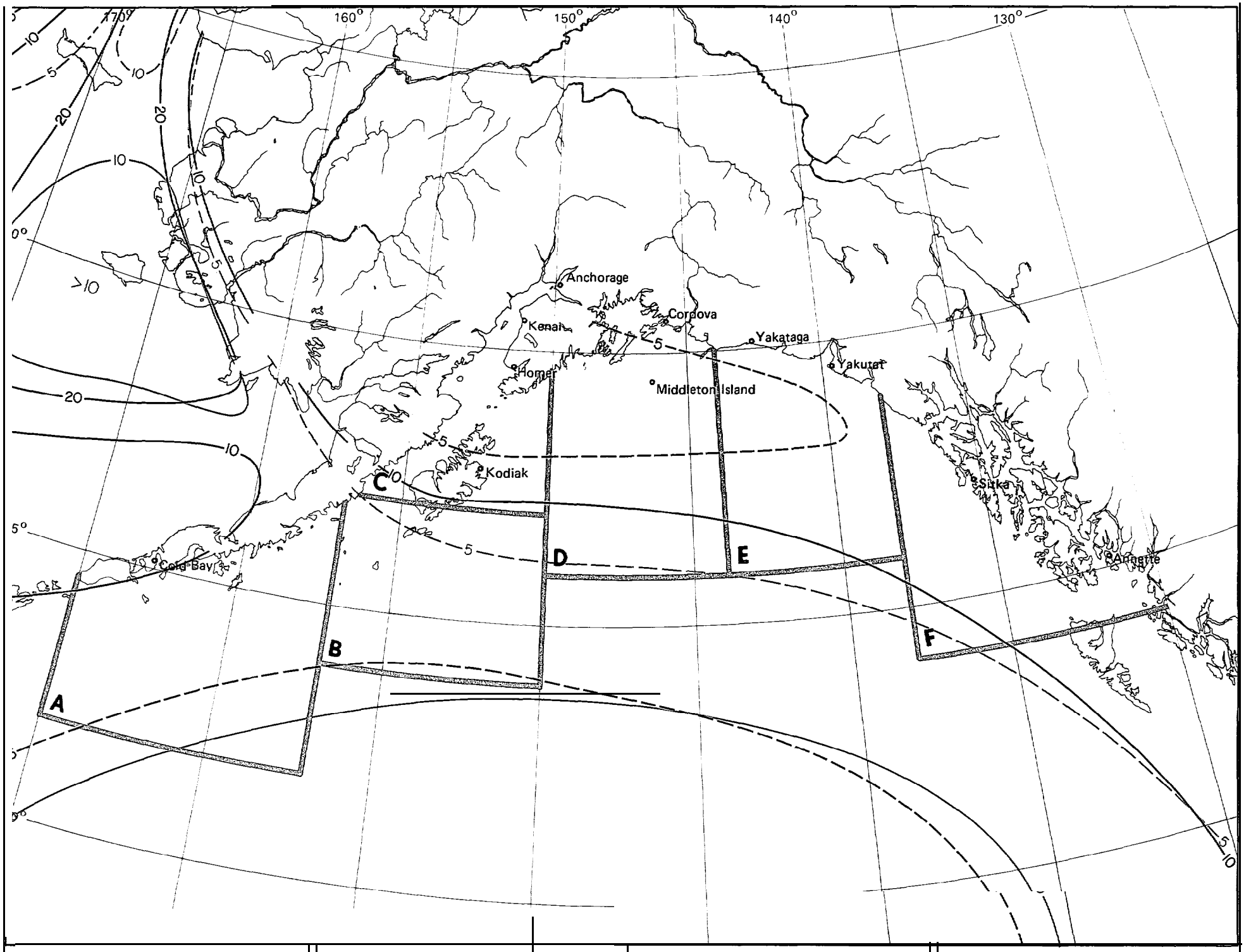


Marine Area A

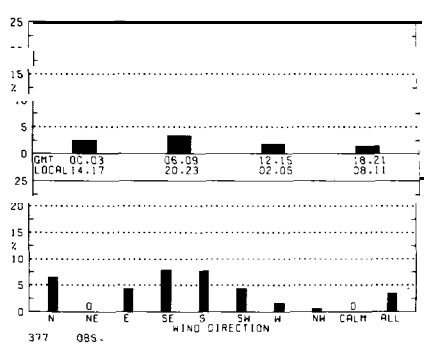


Marine Area B

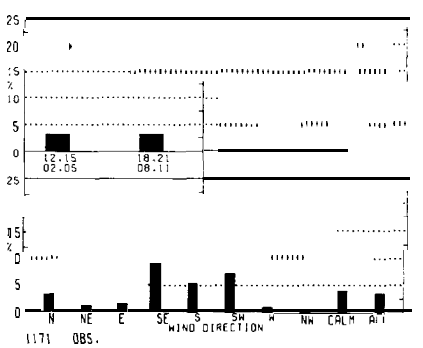




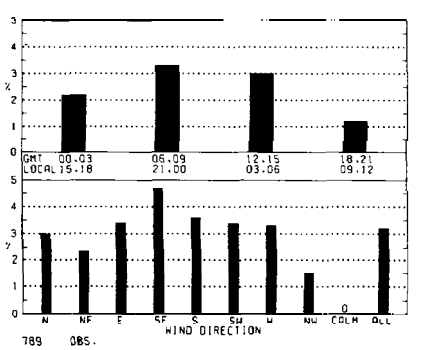
Marine Area C



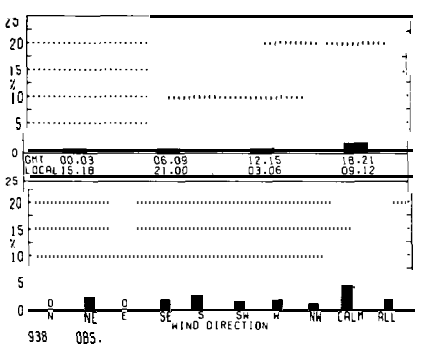
Marine Area D



Marine Area E

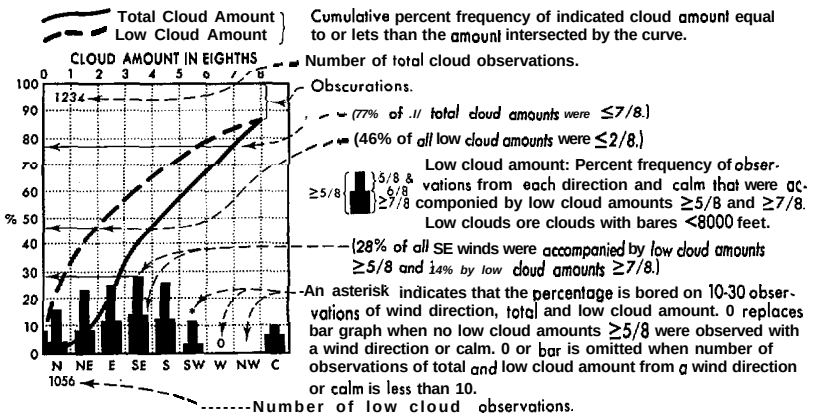


Marine Area F



Legend

Cloud cover/wind direction



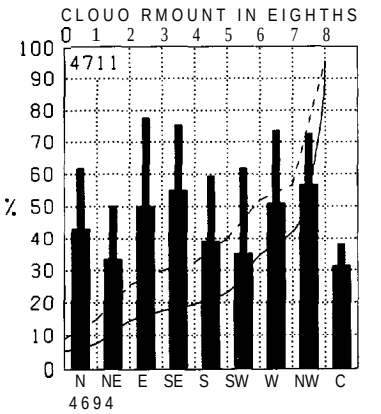
Map • Cloud amount thresholds

BLACK LINE Percent frequency of total cloud amount ≤2/8

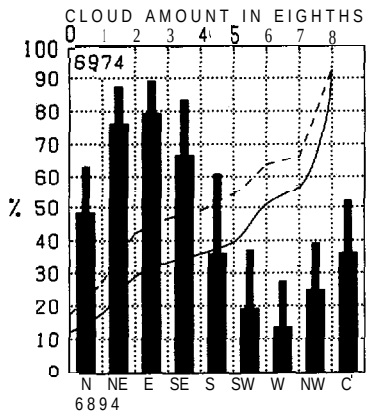
BLUE LINE Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent Frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations ore considered as 8/8 coverage.

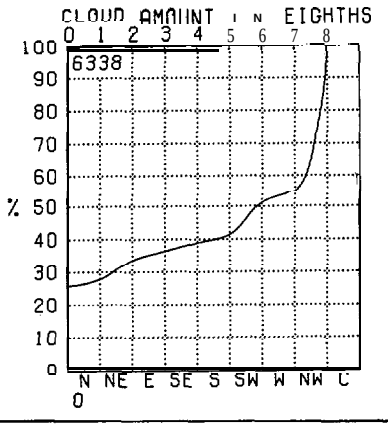
Cold Bay



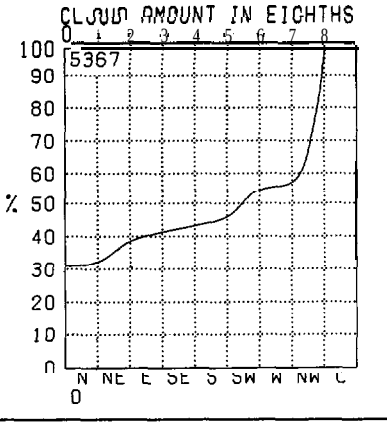
Kodiak



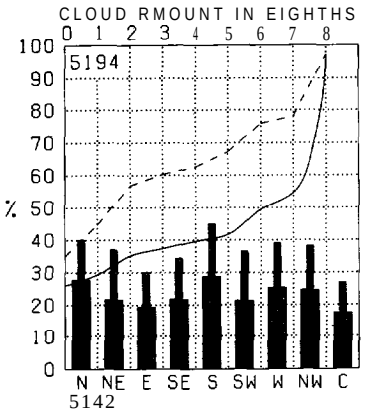
Homer



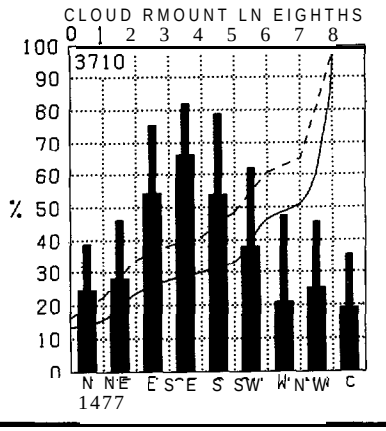
Kenai



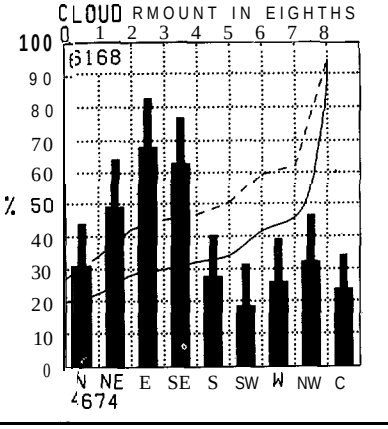
Anchorage



Middleton Island



Cordova



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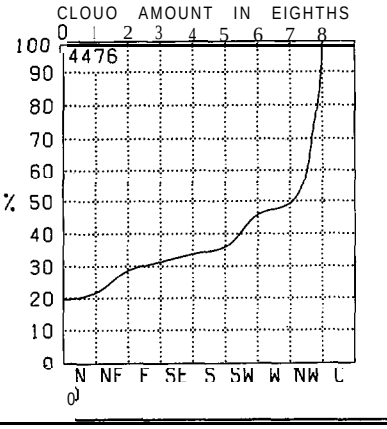
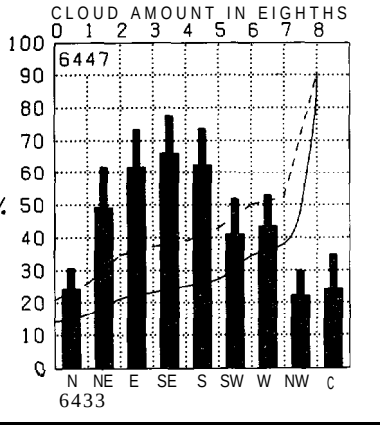


Yakutat



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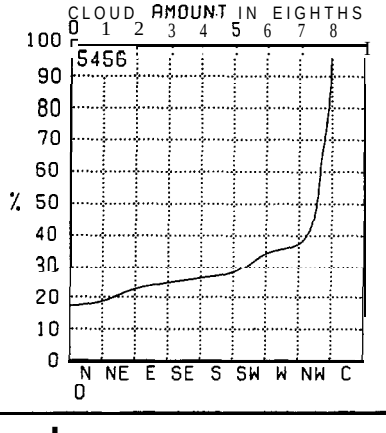
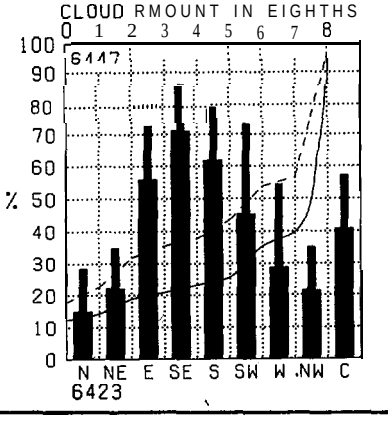
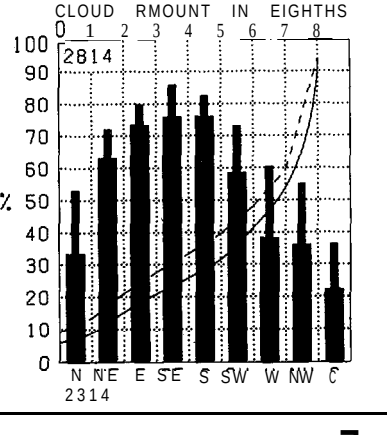


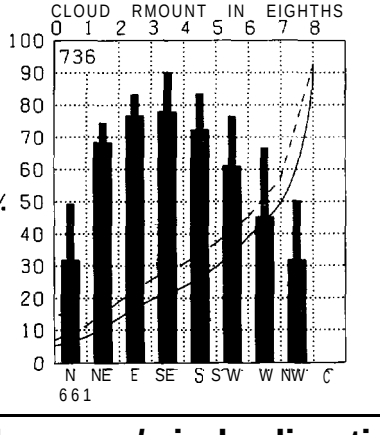
Annette

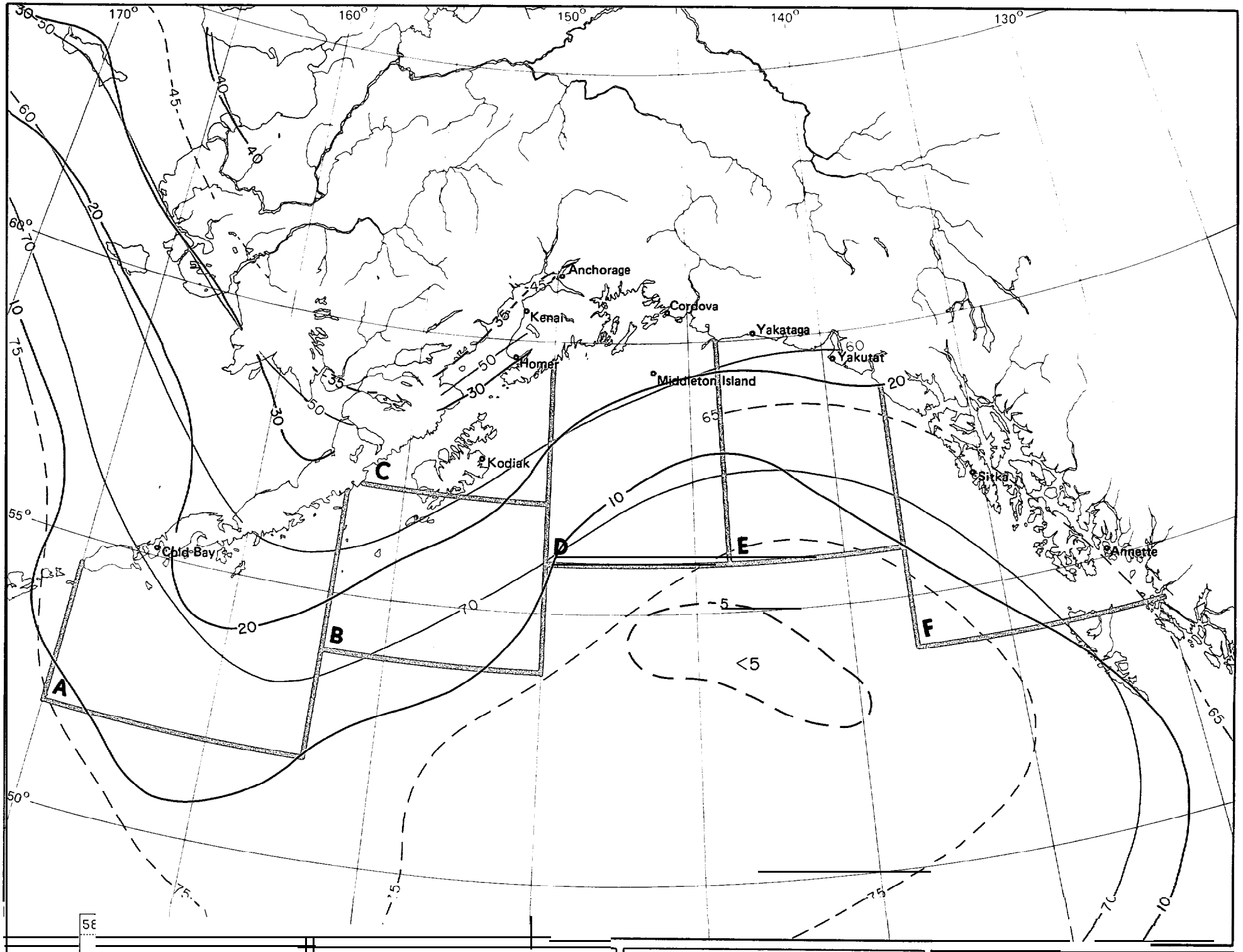


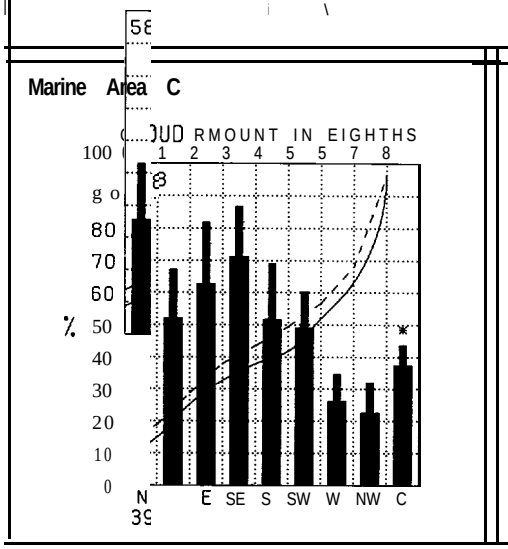
Marine Area A

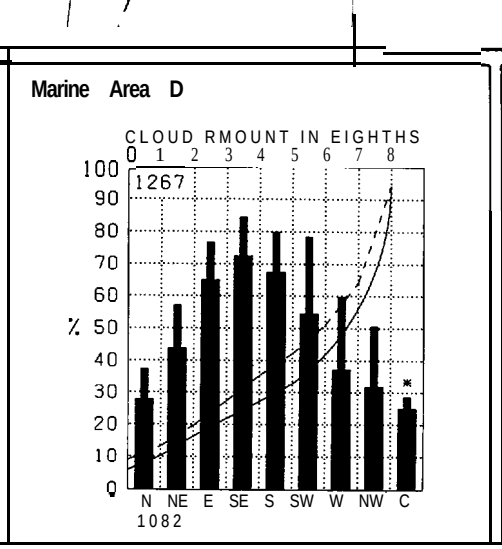


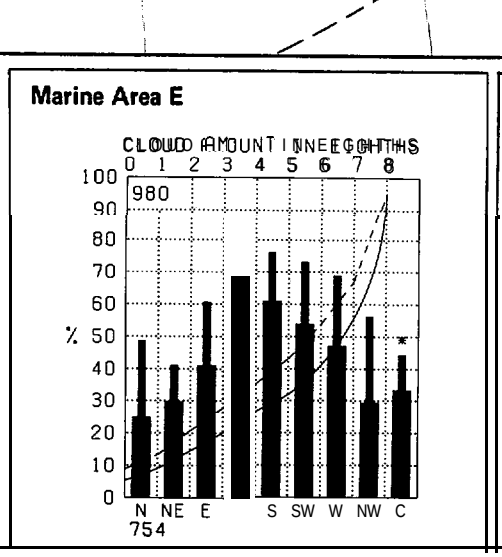
Marine Area B

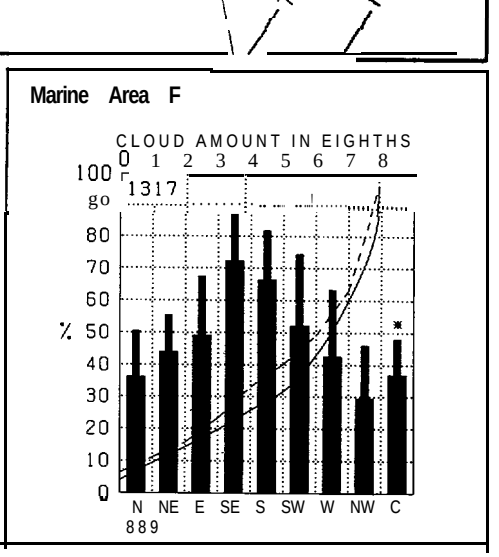








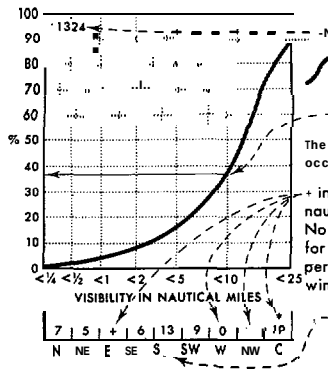




7 Cloud amount thresholds

Legend

Visibility/wind direction



-Number of observations

Cumulative percent frequency of visibilitier less than the visibility intersected by the curve.

–137% of *all visibilities reported* were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

–(13% of all winds were *accompanied by visibilities* <2 nautical miles.)

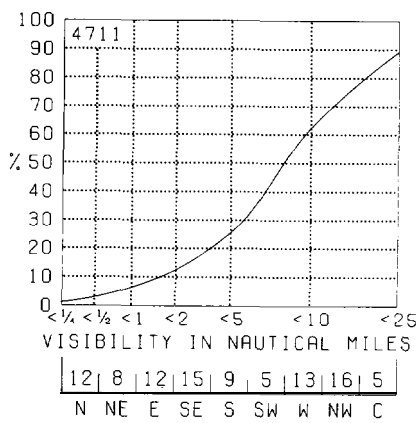
Map · Visibility thresholds

BLACK LINE Percent frequency of visibilities ≥5 nautical miles

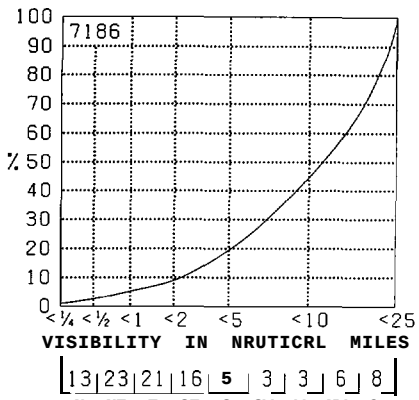
BLUE LINE Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value con be obtained from the graph by subtracting the cumulative percent frequency of that value from 100% Visibility at sea is difficult to measure because of the lock of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

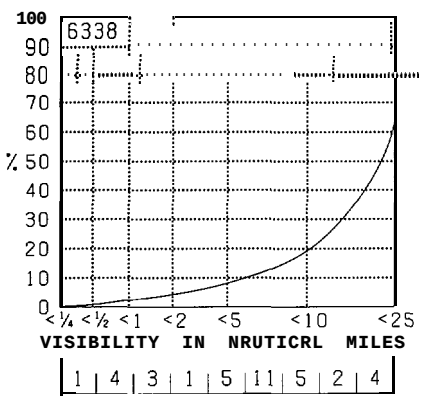
Cold Bay



Kodiak



Homer



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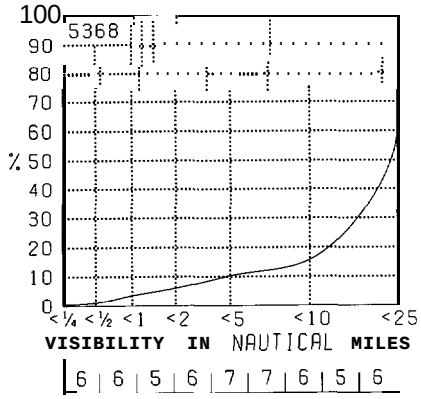
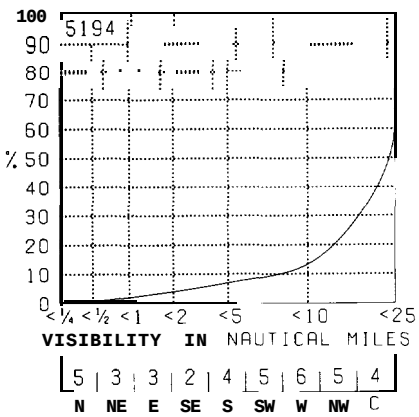
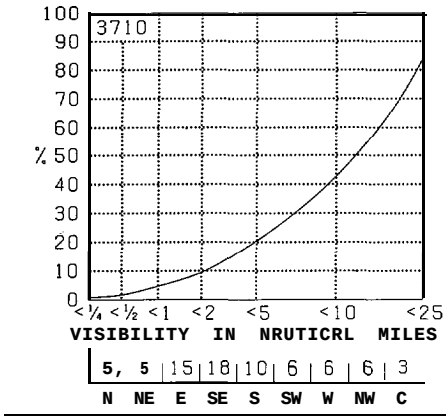


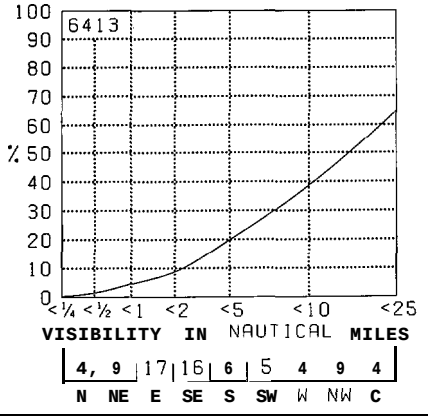
Anchorage



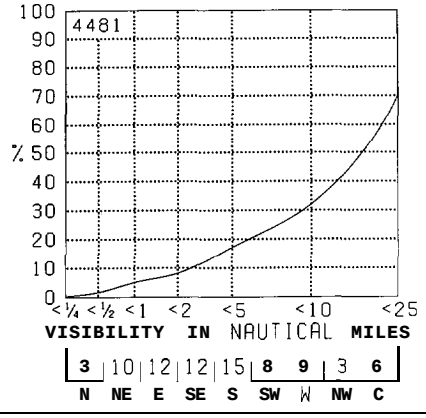
Middleton Island



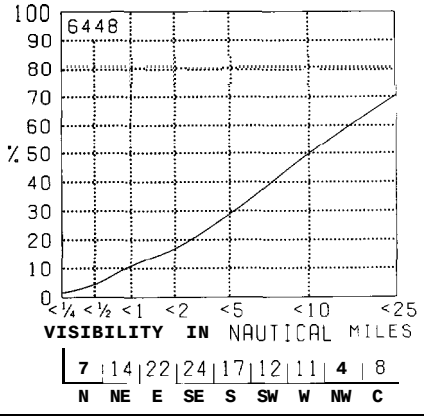
Cordova



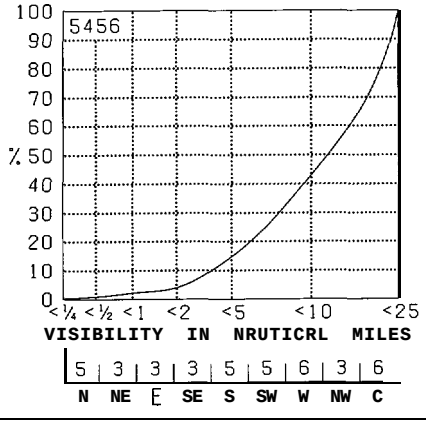
Ya kataga



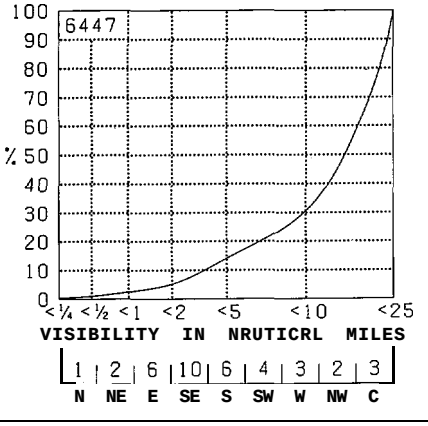
Yakutat



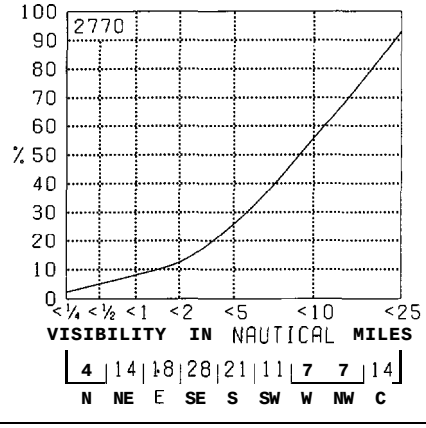
Sitka



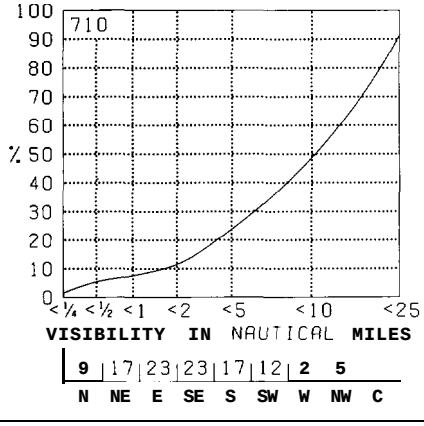
Annette

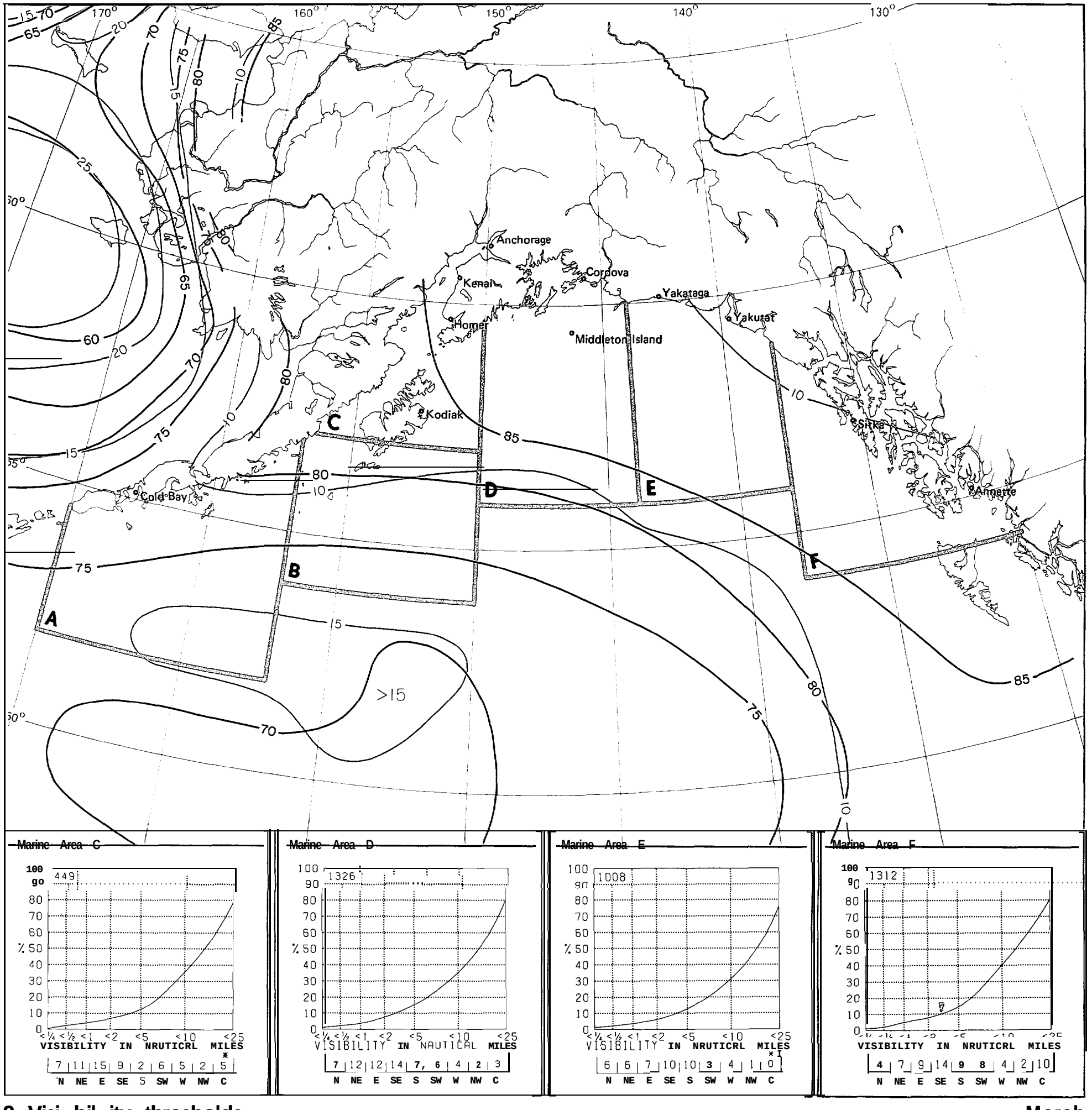


Marine Area A



Marine Area B



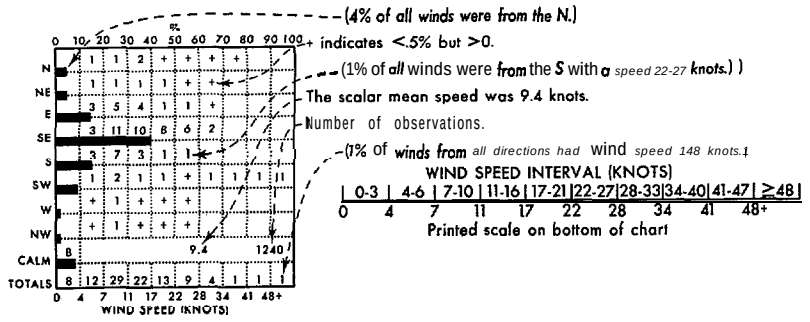


8 Visi bil ity thresholds **March**

Legend

Wind speed/direction

Direction frequency (top scale): Barr represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figurer represent percent frequency of wind speeds observed from each direction.



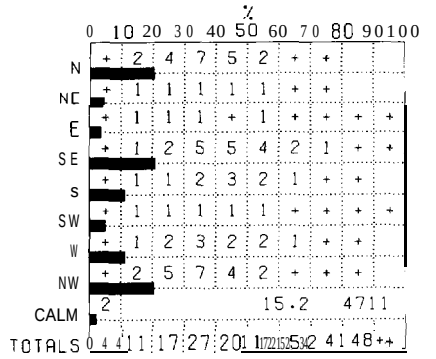
Map - Wind speed thresholds

BLACK LINE . Percent frequency of wind speed 110 knots (≤12 mph)

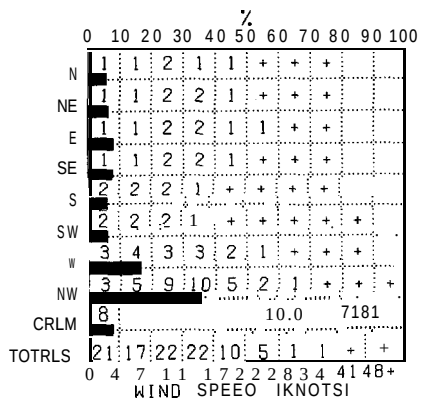
BLUE LINE . Percent frequency of wind speed 134 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

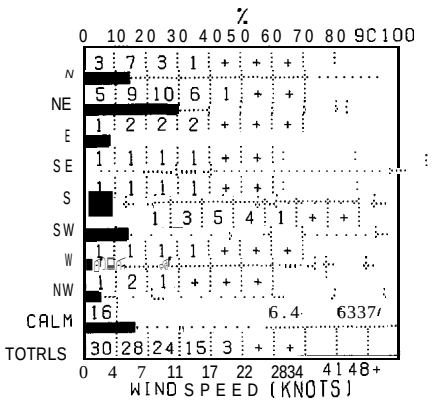
Cold Bay



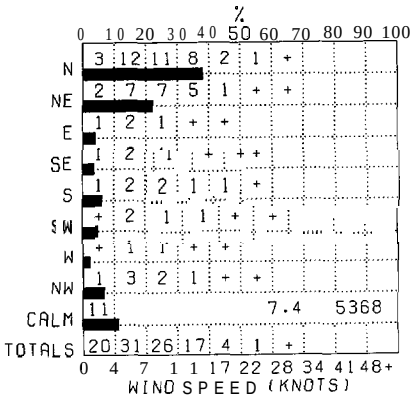
Kodiak



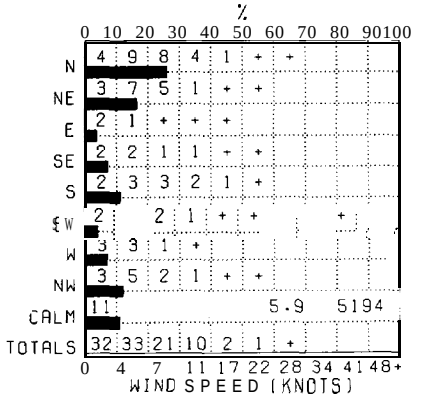
Homer



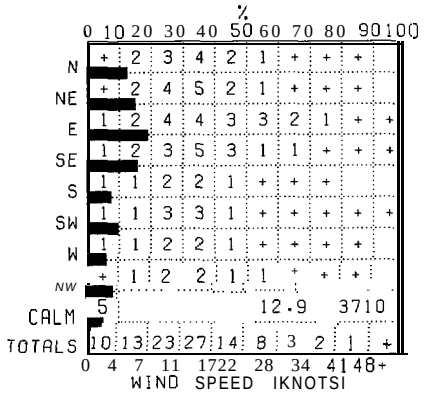
Kenai



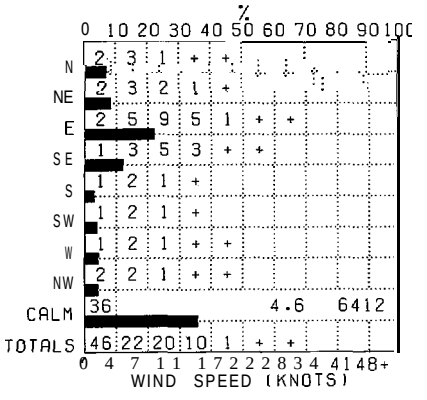
Anchorage



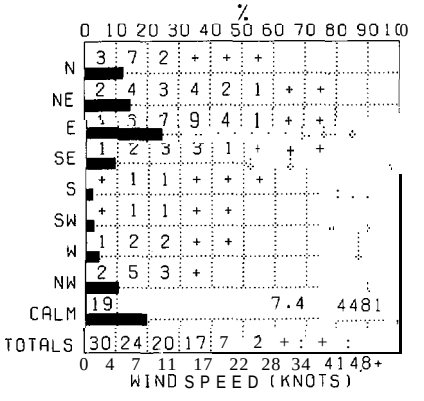
Middleton Island



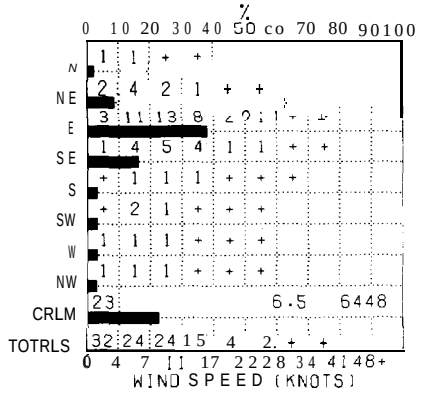
Cordova



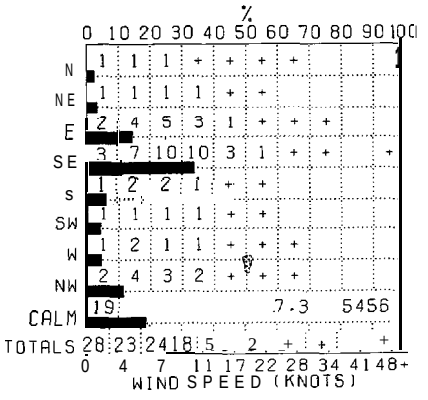
Yakataga



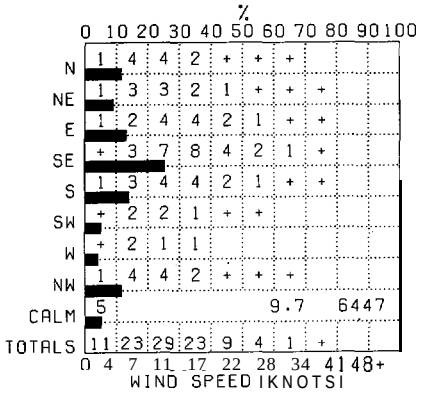
Yakutat



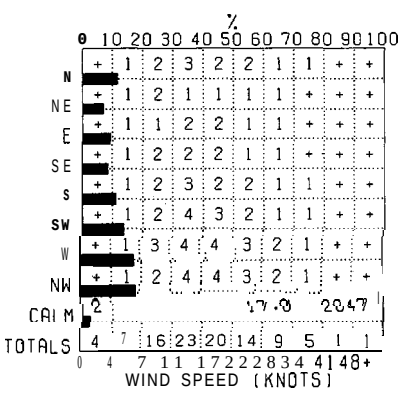
Sitka



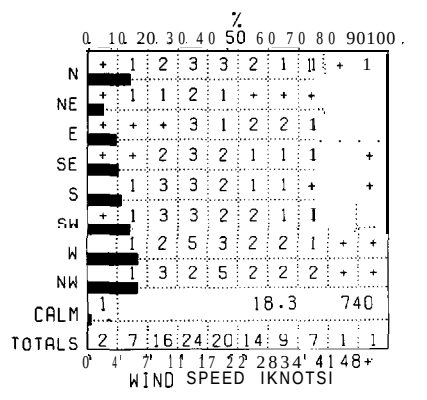
Annette

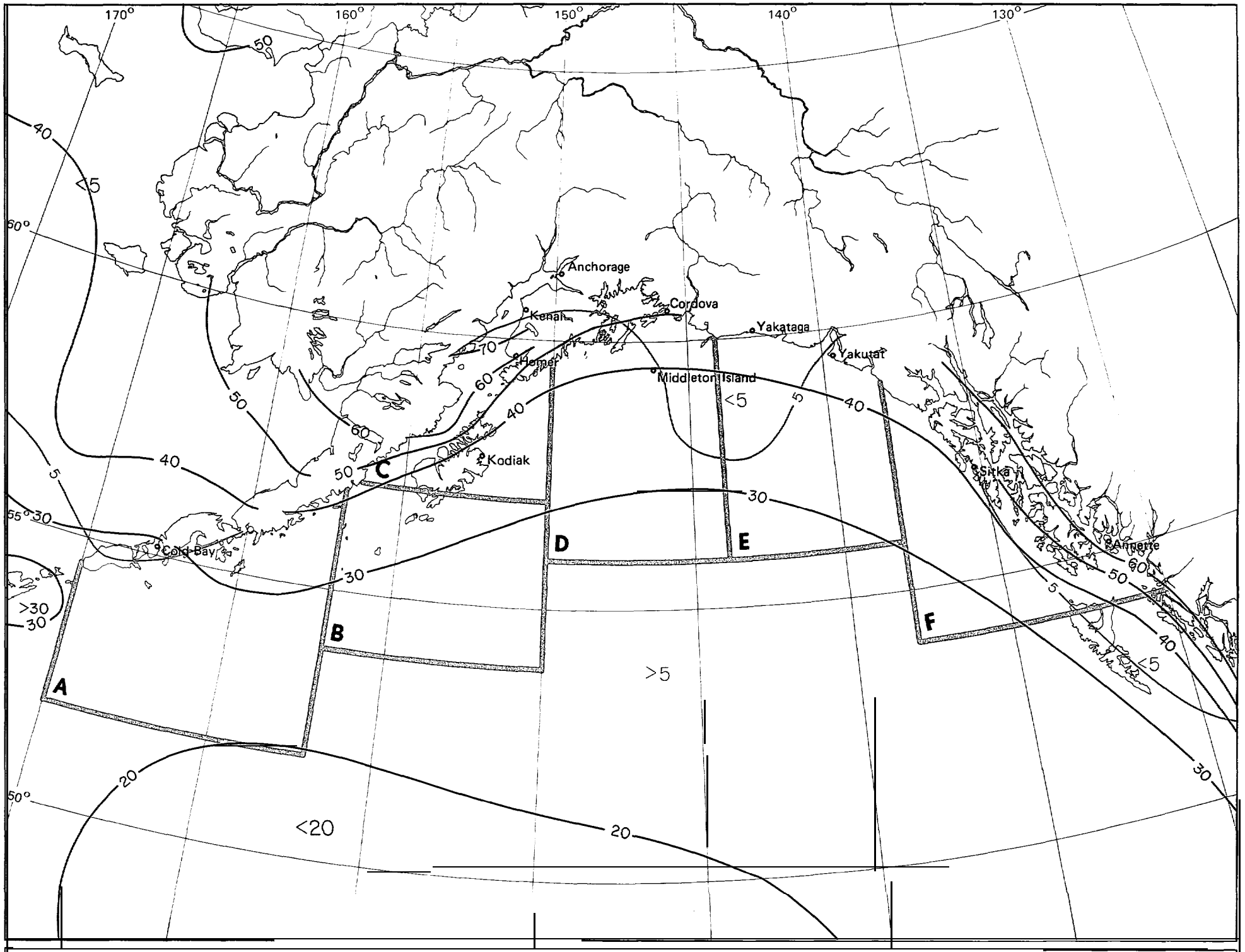


Marine Area A

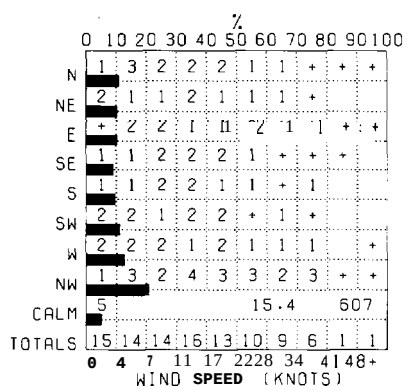


Marine Area B

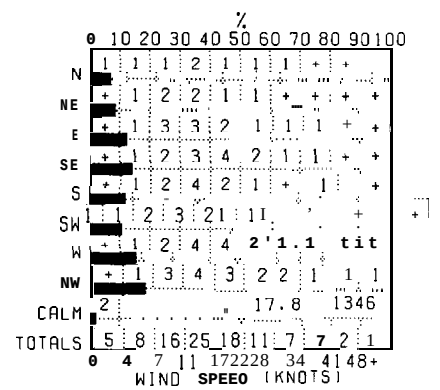




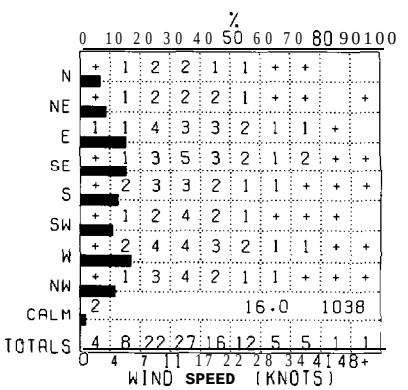
Marine Area C



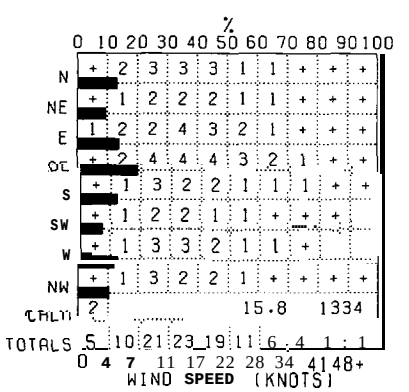
Marine Area D



Marine Area E



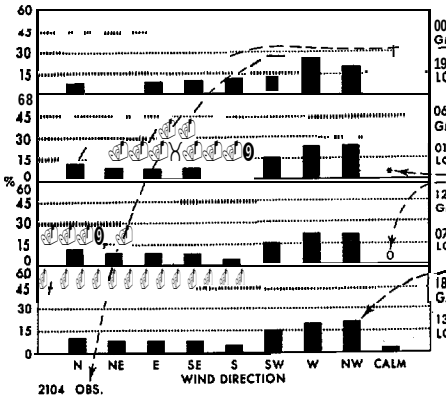
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

• indicates <.05% but >0.

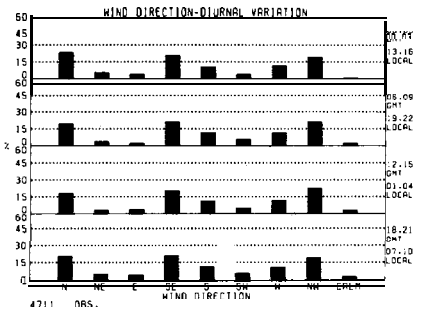
0 indicates no observations in the category.

(22% of the wind observations for the hours 78 and 27 GMT (13 and 16 Local Time) had a direction from the northwest.)

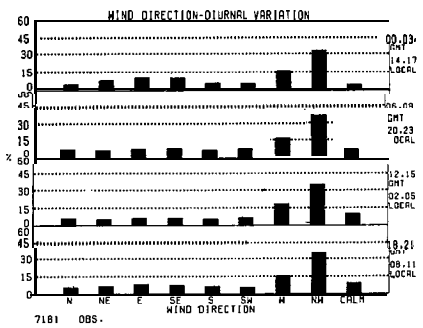
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast ot 10.2 knots or 11.7 mph)

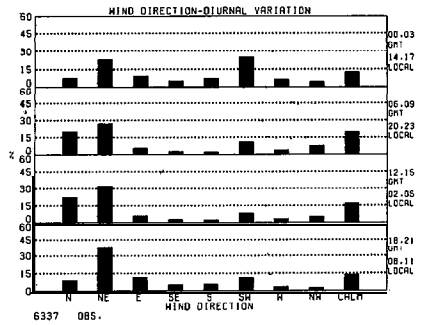
Cold Bay



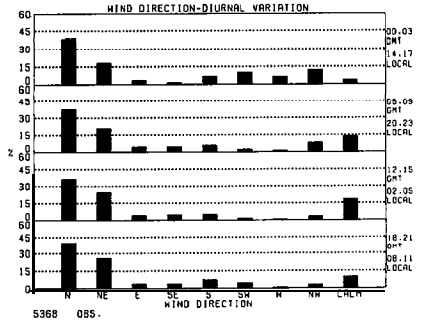
Kodiak



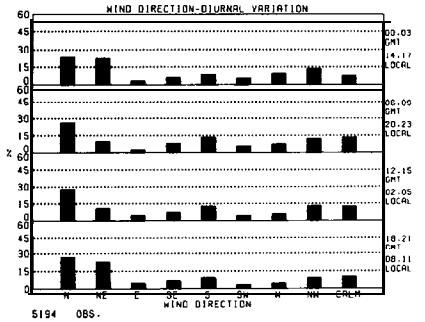
Homer



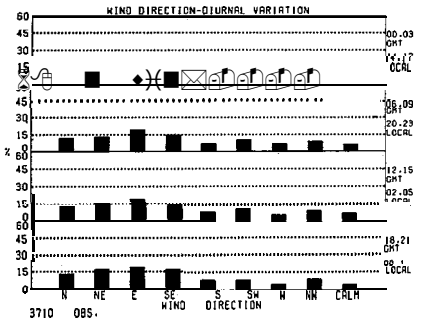
Kenai



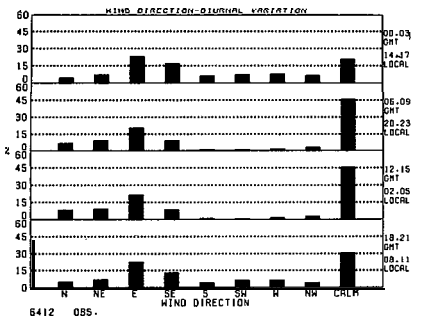
Anchorage



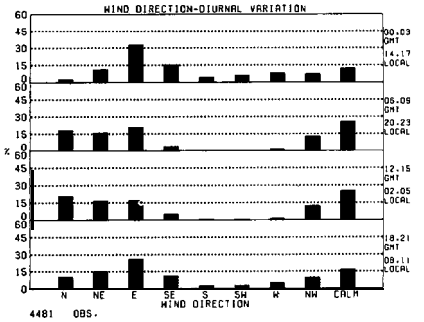
Middleton Island



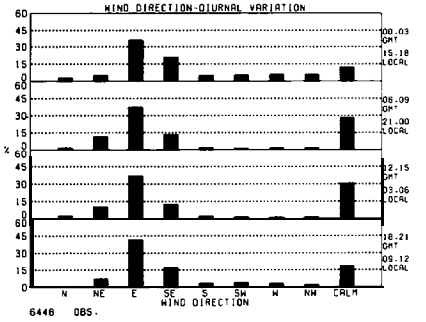
Cordova



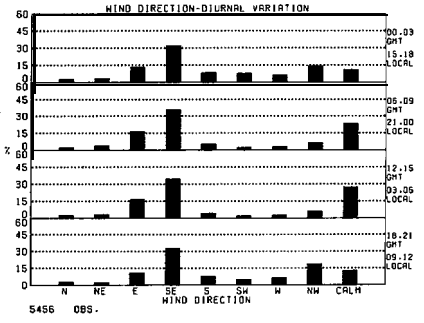
Yakataga



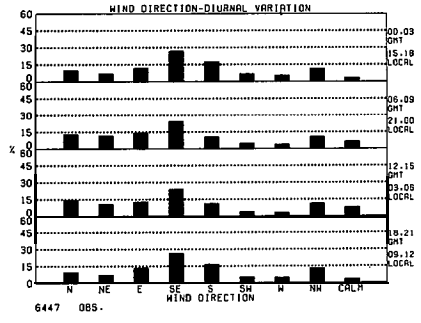
Yakutat



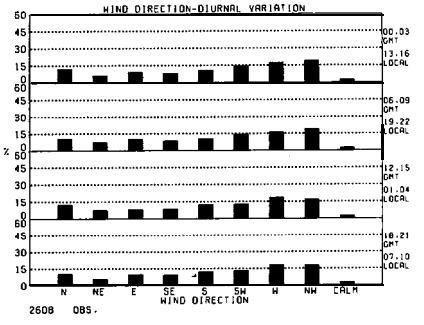
Sitka



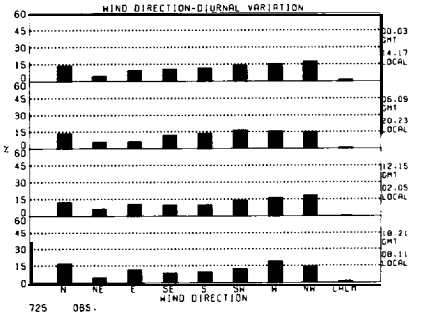
Annette

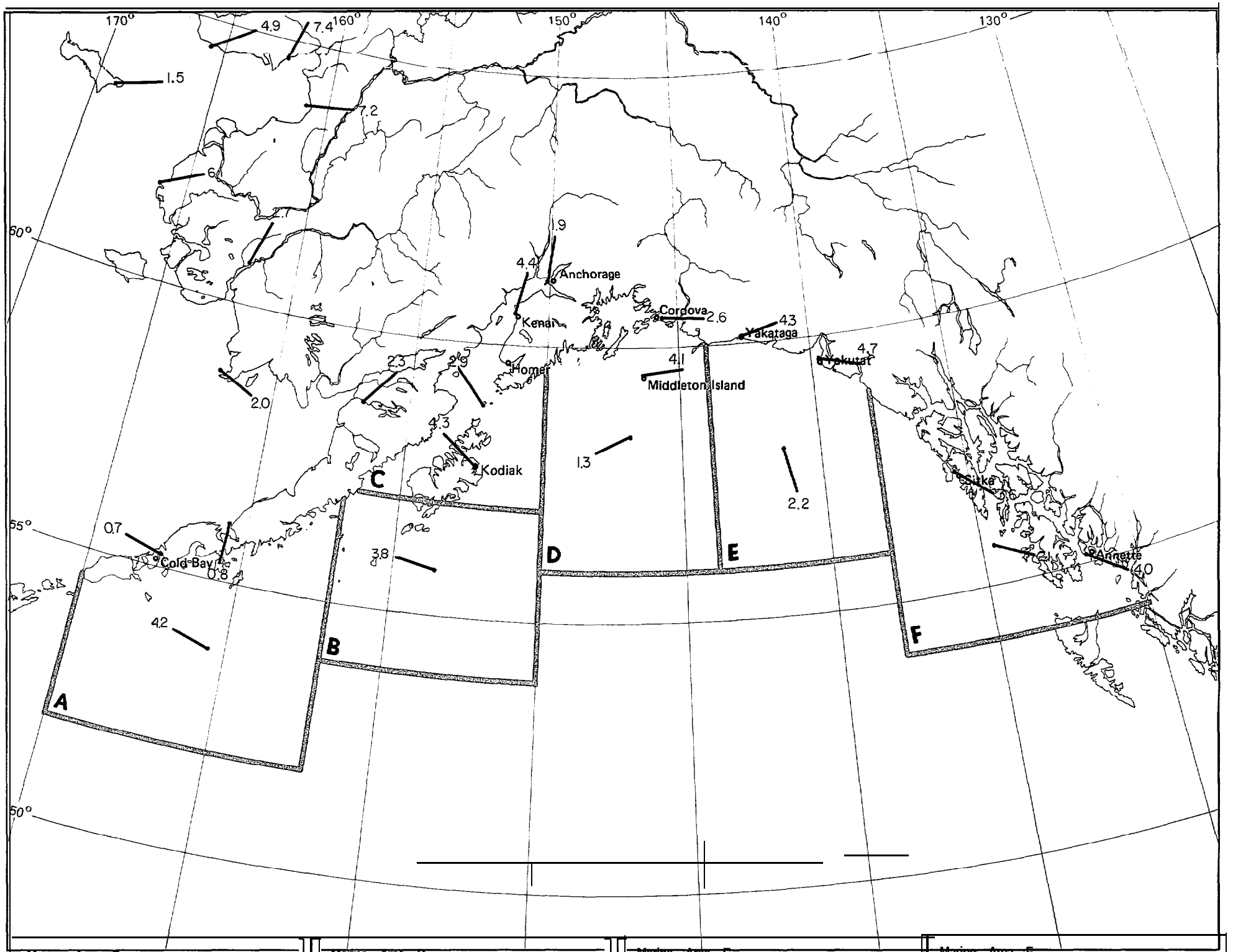


Marine Area A



Marine Area B

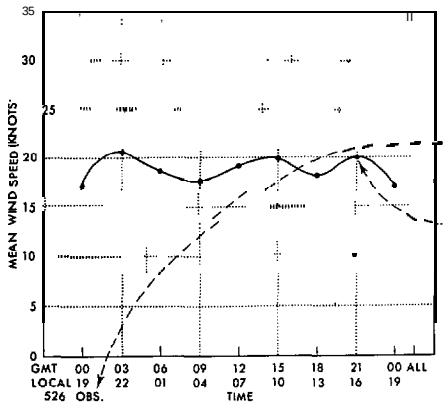




10 Vector mean wind **March**

Legend

Wind speed/diurnal variation



-Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

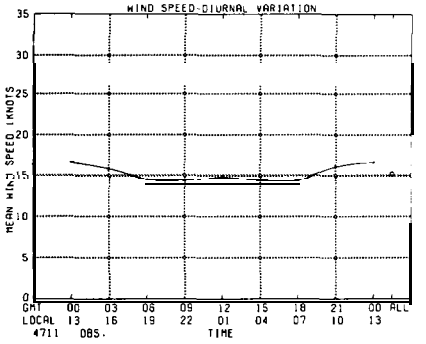
--(The mean wind speed for the hour 21 GMT 116 Local) was 20 knots.)

Map - Scalar mean wind

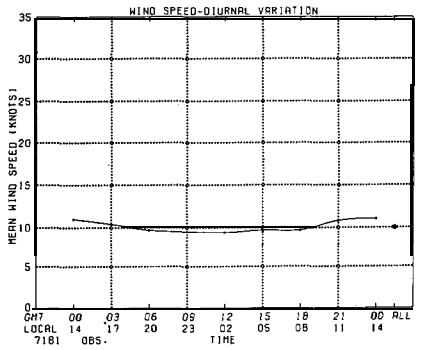
BLACK LINE Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely opprooch that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals. disregard the plots for other than 00. 06, 12, 18, GMT hours on the marine area graphs

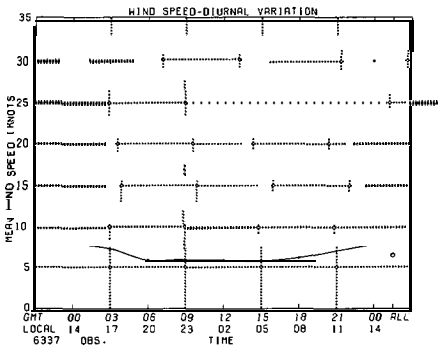
Cold Bay



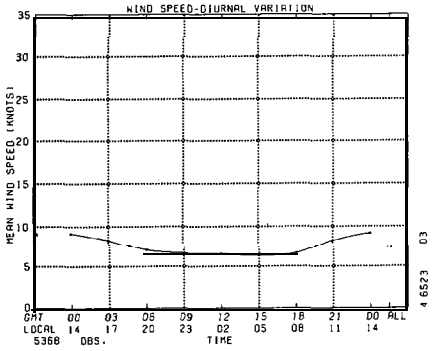
Kodiak



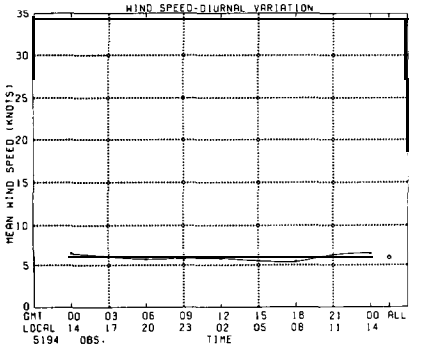
Homer



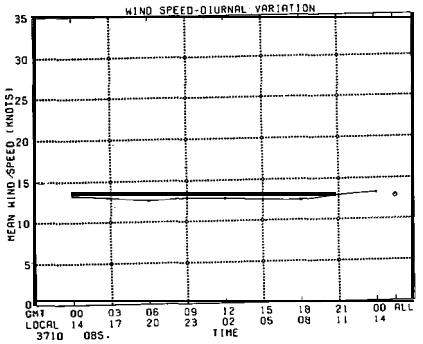
Kenai



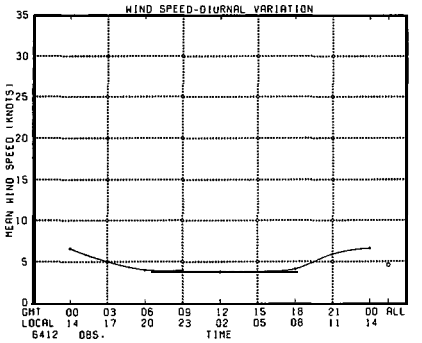
Anchorage



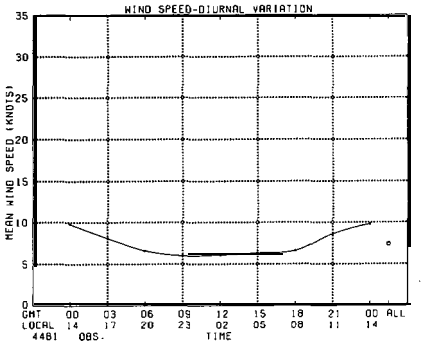
Middleton Island



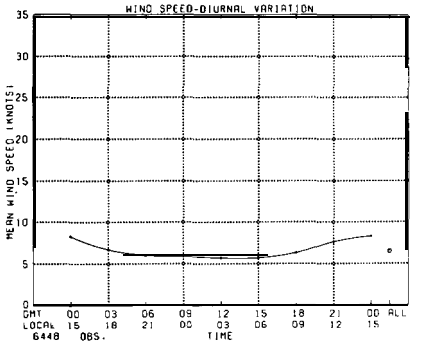
Cordova



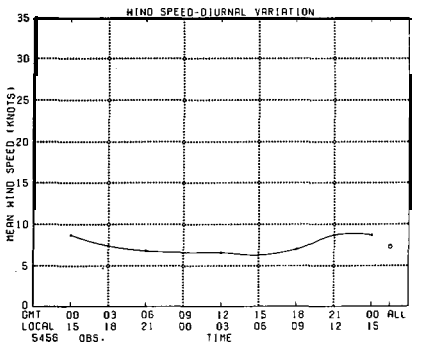
Yakataga



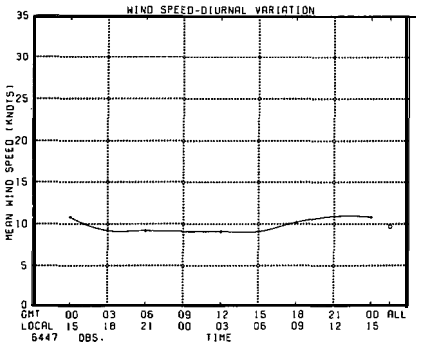
Yakutat



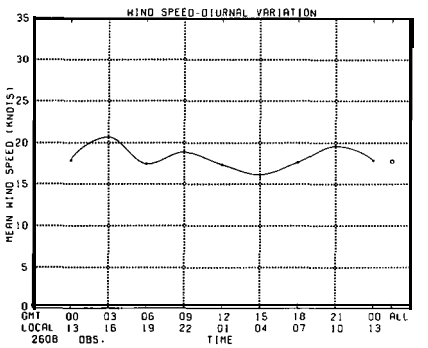
Sitka



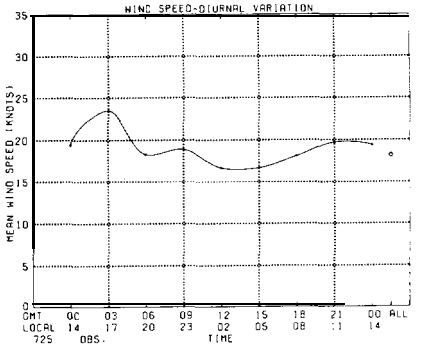
Annette

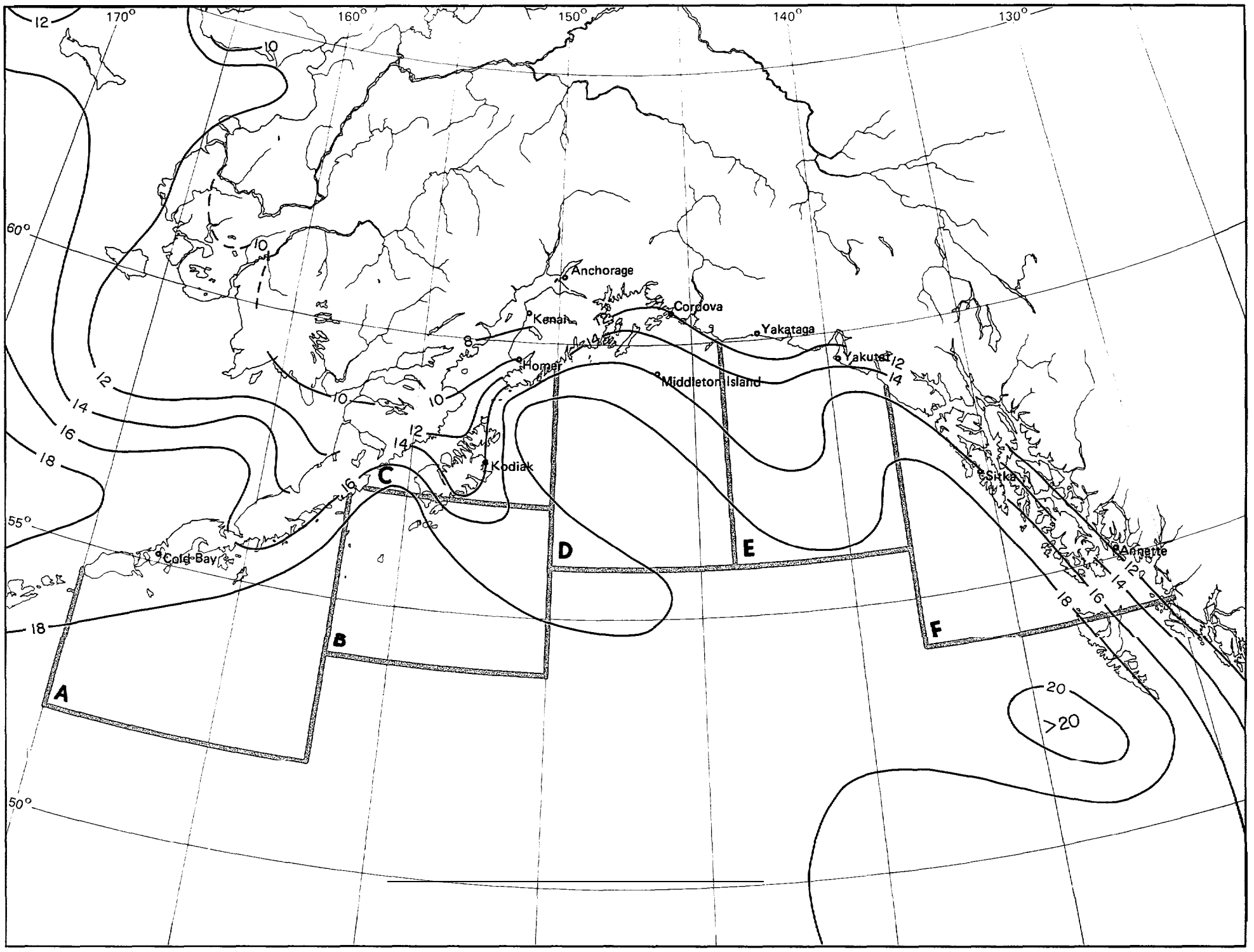


Marine Area A

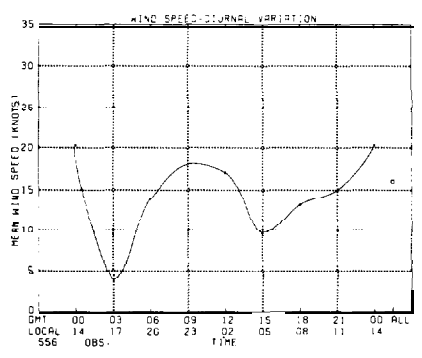


Marine Area B

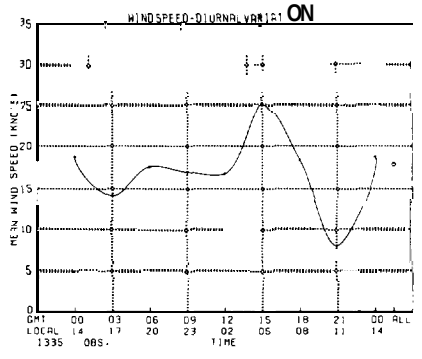




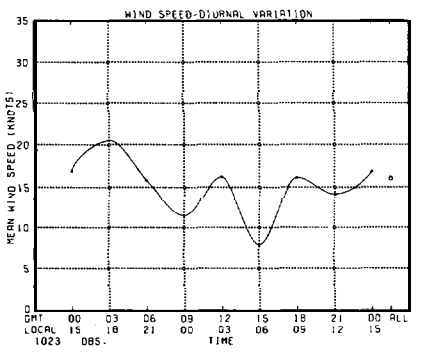
Marine Area C



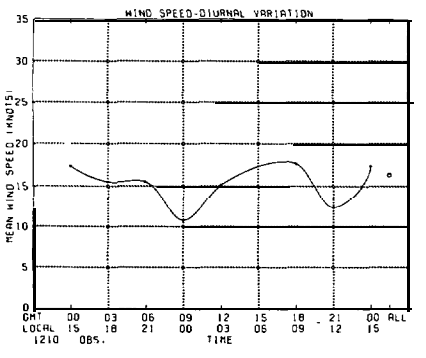
Marine Area D



Marine Area E



Marine Area F



Legend

Low cloud ceiling/visibility

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights ore estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations ore included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet or well or occurrences of N_h <5/8.

■ (2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

--Number of observations.

Map • Low cloud ceiling and visibility thresholds

BLACK LINE Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	10	23
50<80	0	+	0	+	+	1
35<50	0	+	+	+	1	1
20<35	+	+	1	2	8	6
10<20	+	1	2	5	11	5
6<10	+	+	2	4	5	1
3<6	+	+	1	2	2	+
1.5<3	+	+	+	+	+	0
0<1.5	2	1	1	+	+	0

4694

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	8	42
50<80	0	0	+	+	1	1
35<50	0	+	0	+	1	2
20<35	+	0	+	1	6	7
10<20	0	+	1	3	6	3
6<10	+	+	+	2	2	1
3<6	+	+	1	2	1	+
1.5<3	+	+	+	+	+	0
0<1.5	2	2	2	2	+	0

6894

Homer

Insufficient Data

Kenai

Insufficient Data

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	65
50<80	0	0	0	0	+	7
35<50	0	+	+	+	+	5
20<35	+	+	+	+	1	6
10<20	+	+	+	1	2	3
6<10	0	+	+	+	1	1
3<6	+	+	+	+	1	+
1.5<3	0	+	+	+	+	+
0<1.5	+	1	1	+	+	0

5142

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	10	32
50<80	0	0	0	0	+	1
35<50	0	0	+	+	1	2
20<35	0	0	+	1	4	7
10<20	0	+	1	3	8	5
6<10	+	1	2	5	6	1
3<6	0	1	1	+	+	0
1.5<3	0	0	0	0	0	0
0<1.5	2	2	2	1	+	+

1477

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	47
50<80	0	0	0	0	+	4
35<50	0	0	0	+	1	5
20<35	+	+	+	2	7	6
10<20	+	+	1	5	6	2
6<10	0	+	+	1	1	+
3<6	0	+	+	+	+	+
1.5<3	0	0	0	0	0	0
0<1.5	1	3	2	1	+	0

4674

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	1	52
50<80	0	0	0	0	+	2
35<50	0	0	0	+	1	3
20<35	0	0	0	2	7	5
10<20	0	0	+	2	8	1
6<10	0	+	0	1	+	0
3<6	0	1	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	2	6	1	2	1	0

242

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	+	+	1	4	35
50<80	0	+	0	+	+	3
35<50	0	0	0	+	1	3
20<35	+	+	+	1	4	4
10<20	+	1	1	4	7	3
6<10	+	1	1	3	4	1
3<6	+	1	1	2	1	+
1.5<3	+	+	+	+	+	0
0<1.5	4	4	2	1	+	0

6433

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	3	40
50<80	0	0	0	+	0	3
35<50	0	0	0	+	7	7
20<35	0	+	+	1	12	1
10<20	0	0	0	4	7	0
6<10	0	0	1	+	3	+
3<6	0	0	0	1	2	0
1.5<3	0	0	0	+	+	0
0<1.5	2	1	1	2	+	0

246

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	38
50<80	0	0	0	+	+	3
35<50	0	0	0	+	+	4
20<35	+	0	+	+	2	11
10<20	+	+	+	2	8	11
6<10	+	+	1	3	4	2
3<6	+	+	1	2	1	+
1.5<3	+	0	+	+	+	+
0<1.5	1	1	1	1	+	0

6423

Marine Area A

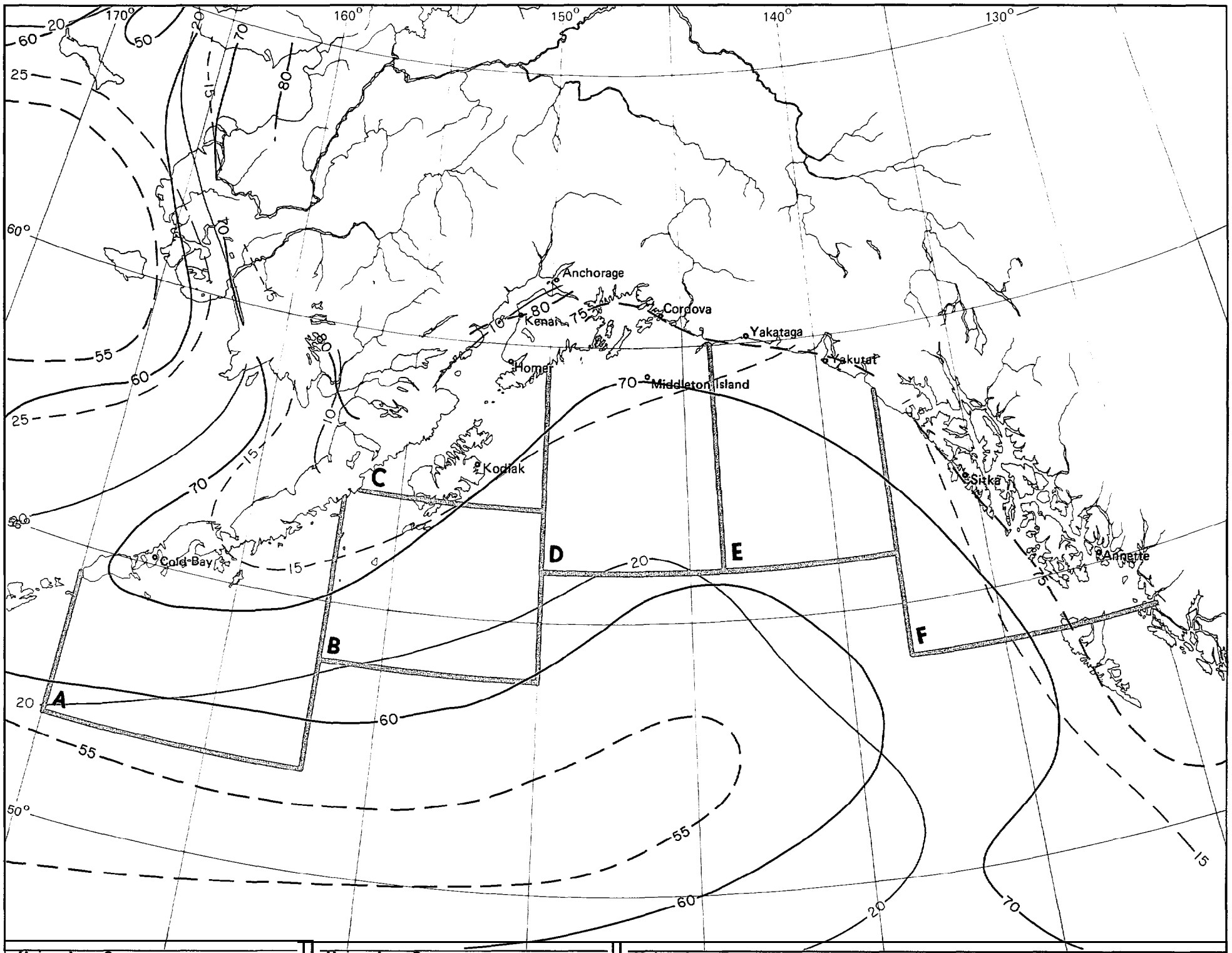
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	7	26
50<80	0	0	0	0	+	1
35<50	+	0	0	1	1	2
20<35	+	+	+	1	4	6
10<20	+	+	1	4	9	10
6<10	+	+	1	3	4	3
3<6	+	1	+	2	1	+
1.5<3	0	+	+	+	+	+
0<1.5	4	1	1	1	1	+

2171

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	2	4	26
50<80	0	0	0	0	+	+
35<50	0	0	0	1	1	2
20<35	+	0	0	1	3	4
10<20	+	+	1	4	8	12
6<10	-	+	+	3	5	6
3<6	+	0	+	1	1	1
1.5<3	+	0	0	+	+	0
0<1.5	3	1	2	1	1	0

607



Marine Area C

VISIBILITY

LOW CLOUD CEILING	< ½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	1	4	39
50<80	0	0	0	0	1	1
35<50	0	0	+	+	1	2
20<35	0	3	+	1	3	5
10<20	0	0	+	1	6	12
6<10	0	0	3	3	6	7
3<6	3	0	3	3	1	2
1.5<3	3	+	0	3	0	0
0<1.5	2	1	1	1	1	+

379

Marine Area D

VISIBILITY

LOW CLOUD CEILING	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	2	34
50<80	0	0	0	+	0	1
35<50	0	0	0	+	+	2
20<35	+	0	+	+	1	5
10<20	+	+	+	2	4	15
6<10	0	+	1	1	6	10
3<6	+	0	1	1	3	2
1.5<3	+	+	0	+	1	+
0<1.5	2	1	2	2	+	+

1024

Marine Area E

VISIBILITY

LOW CLOUD CEILING	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	2	34
50<80	0	0	0	0	0	1
35<50	0	0	0	+	1	3
20<35	+	0	+	1	1	9
10<20	+	+	+	1	5	17
6<10	0	0	+	1	4	8
3<6	0	+	+	+	1	1
1.5<3	0	0	0	+	0	+
0<1.5			2		1	1

700

Marine Area F

VISIBILITY

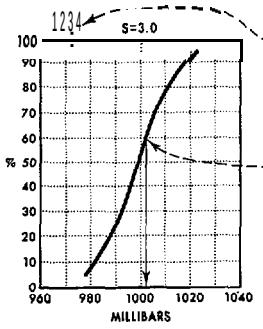
LOW CLOUD CEILING	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	2	3	
50<80	0	0	0	+	+	2
35<50	0	0	0	+	1	5
20<35	0	0	+	2	3	15
10<20	0	+	+	1	4	10
6<10	+	0	+	1	4	7
3<6	0	+	+	1	2	1
1.5<3	0	0	+	+	+	+
0<1.5	2	1	1	1	1	+

833

12 Low cloud ceiling and visibility thresholds

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve

S= Standard deviation of pressure (mbs).

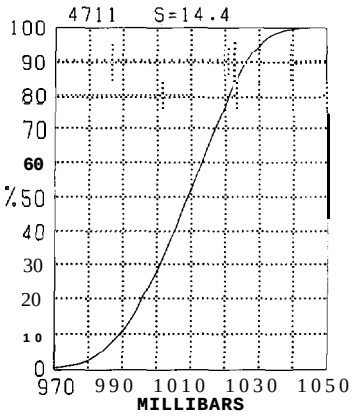
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

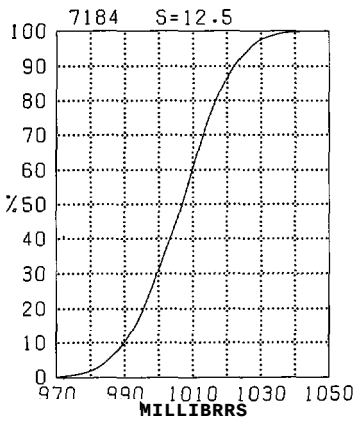
BLACK LINE Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument ond coding errors. Despite the inaccuracies of the individual readings. however, the large-scale patterns and mean gradients of the isopleth analyses ore relatively accurate

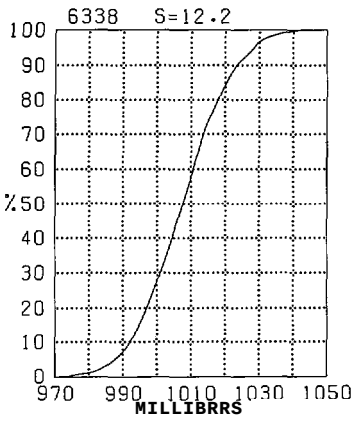
Cold Bay



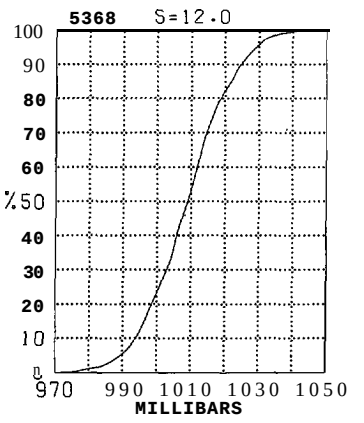
Kodiak



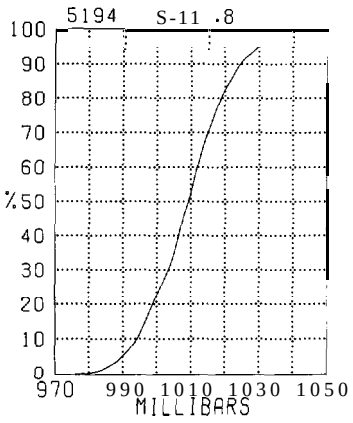
Homer



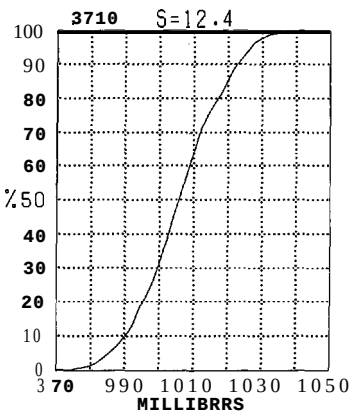
Kenai



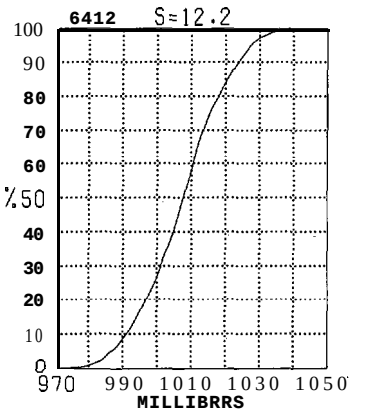
Anchorage



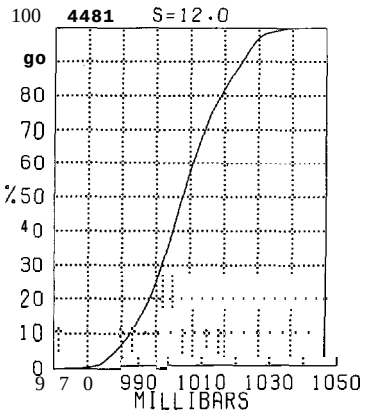
Middleton Island



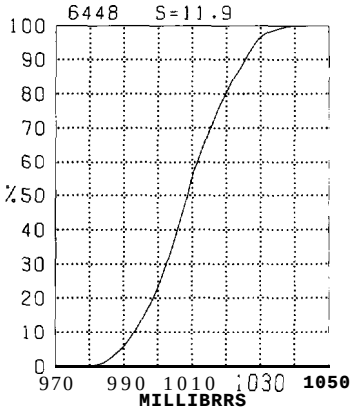
Cordova



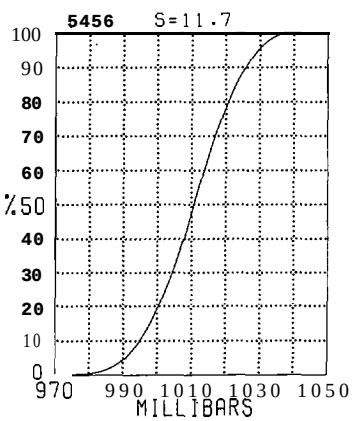
Yakataga



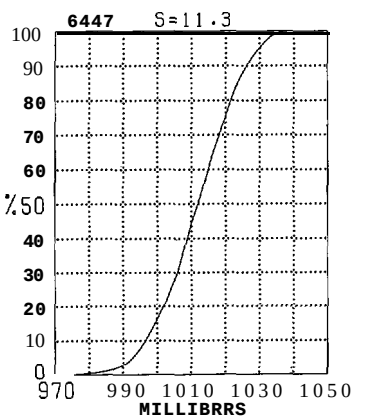
Yakutat



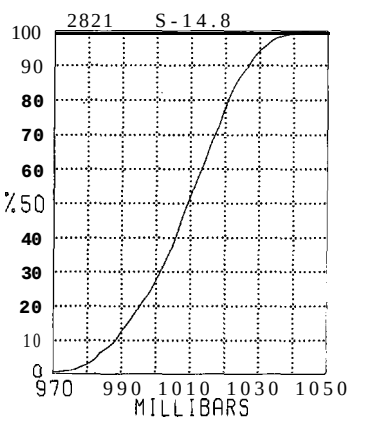
Sitka



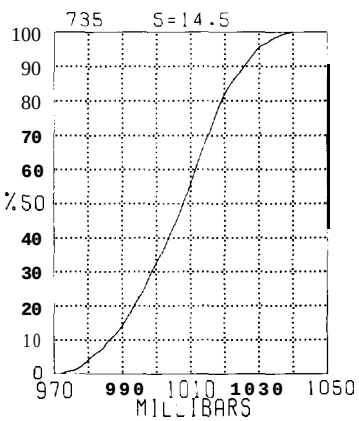
Annette

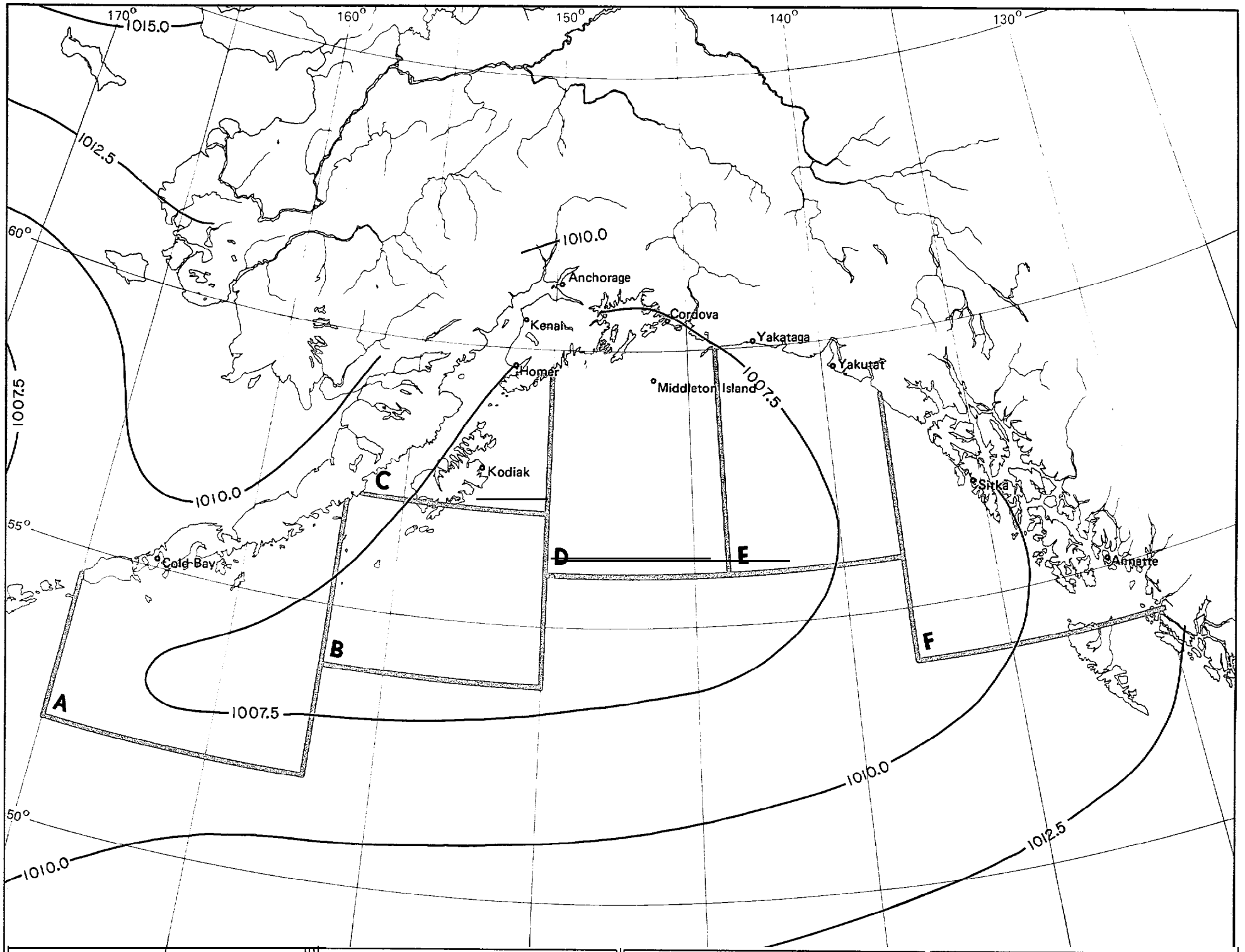


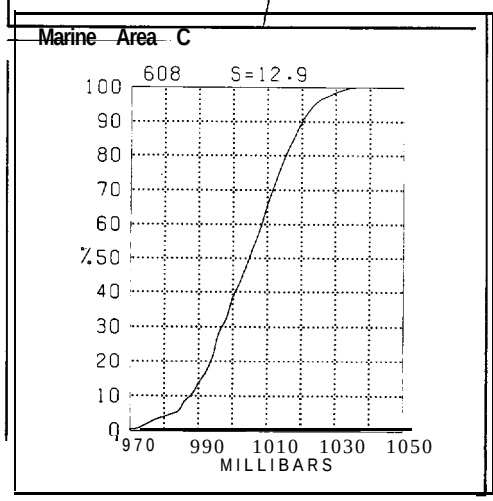
Marine Area A

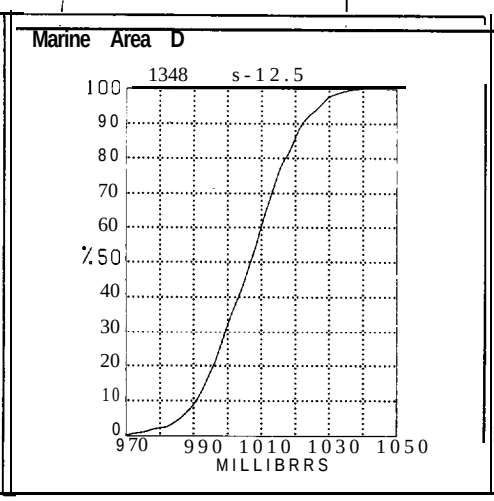


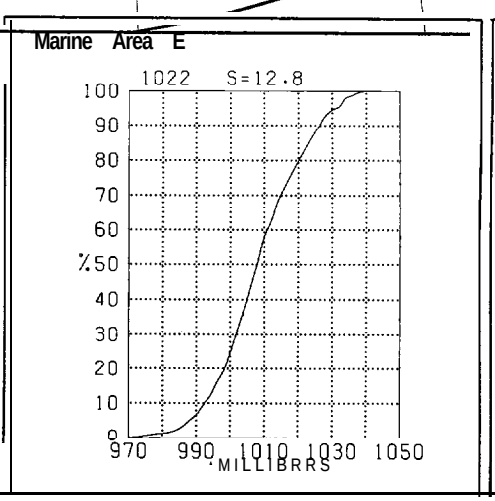
Marine Area B

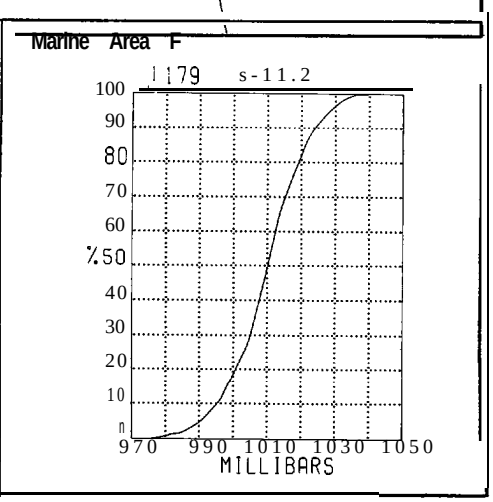








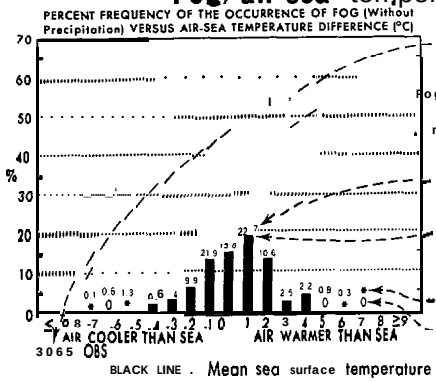




13 Mean sea level pressure

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

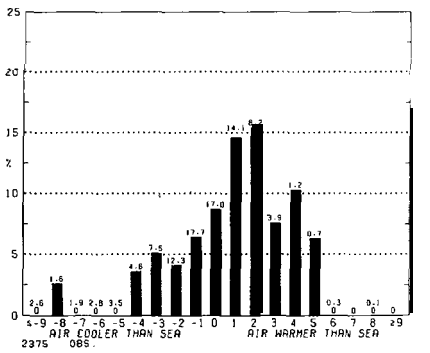
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

indicates <.05% but >0.

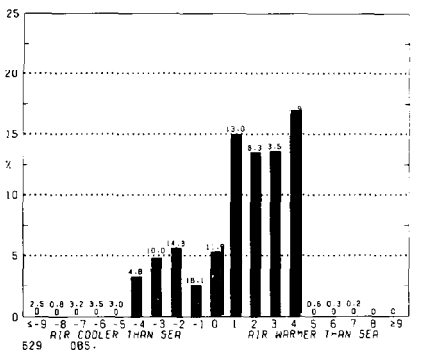
0 indicates no fog with the Air-Sea temperature difference category.

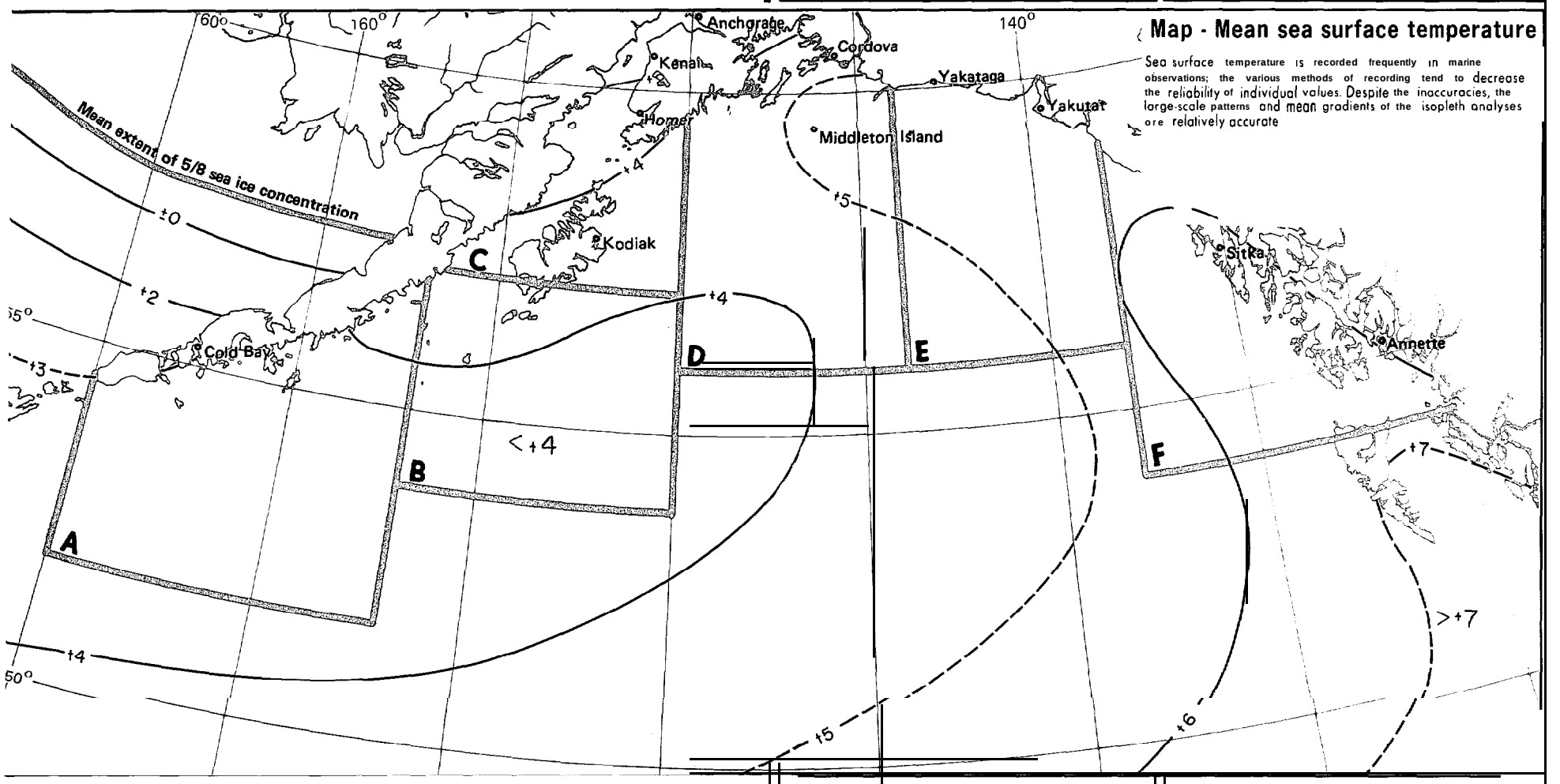
BLACK LINE . Mean sea surface temperature (°C)

Marine Area A



Marine Area B

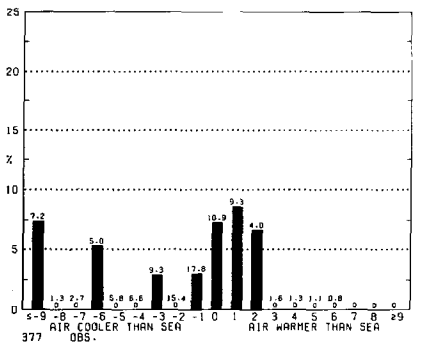




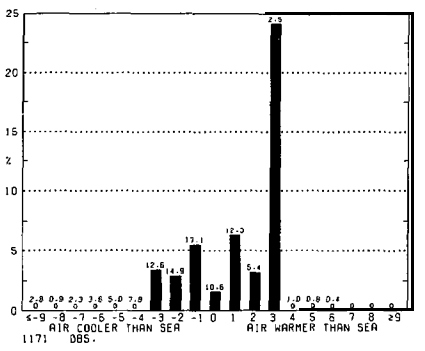
Map - Mean sea surface temperature

Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate

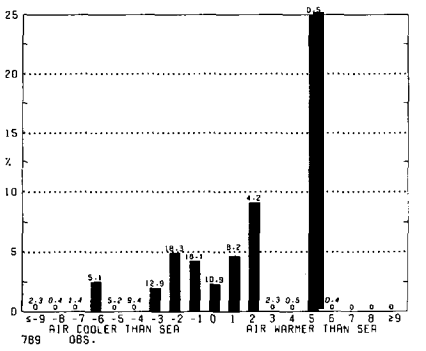
Marine Area C



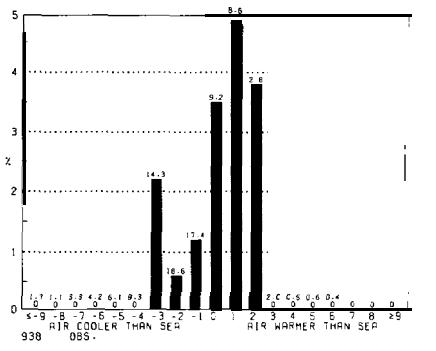
Marine Area D



Marine Area E

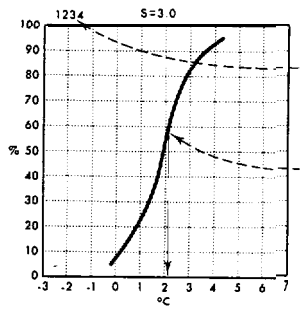


Marine Area F



Legend

Sea surface temperature



Number of observation,.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

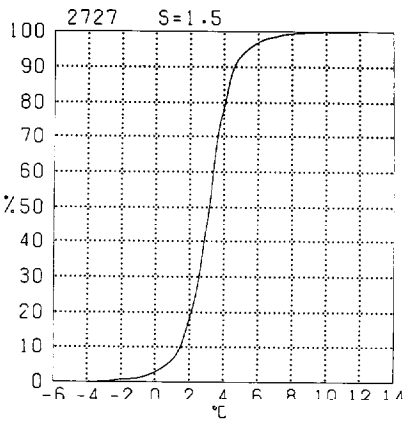
-160% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

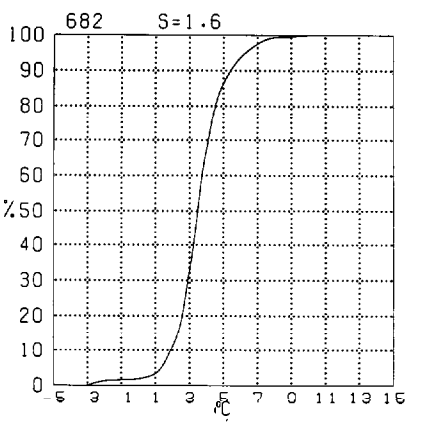
BLACK LINE Maximum (99%) sea surface temperoture (°C) (1% of the temperatures were greater than the given value)

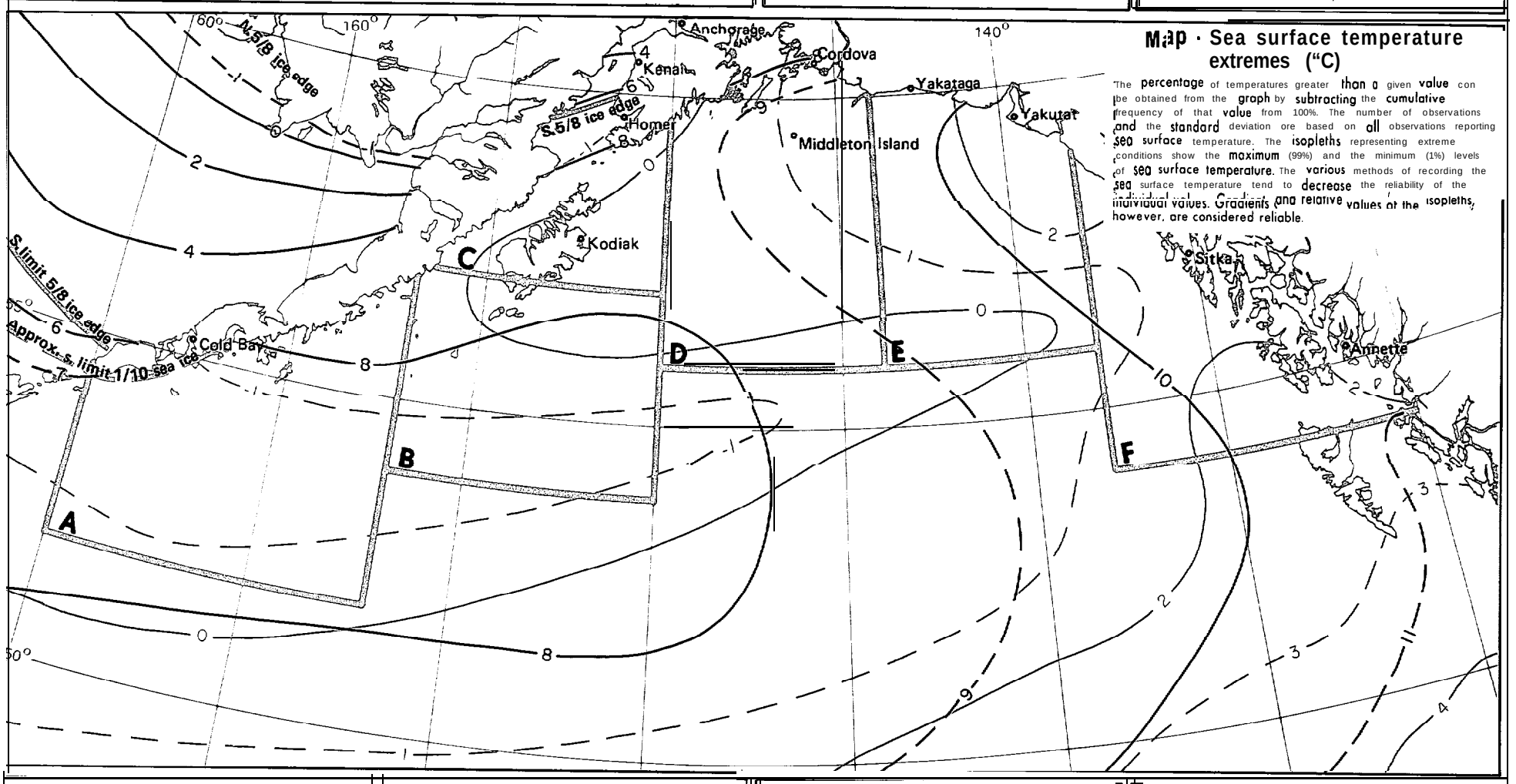
BLUE LINE Minimum (1%) sea surface temperoture (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

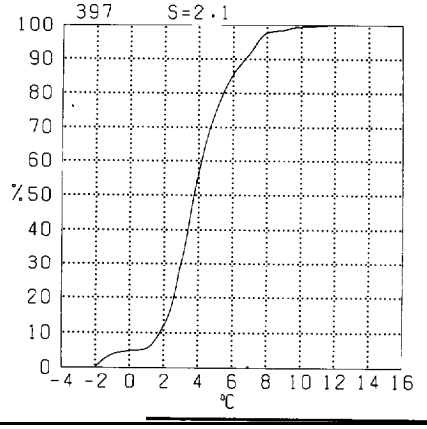




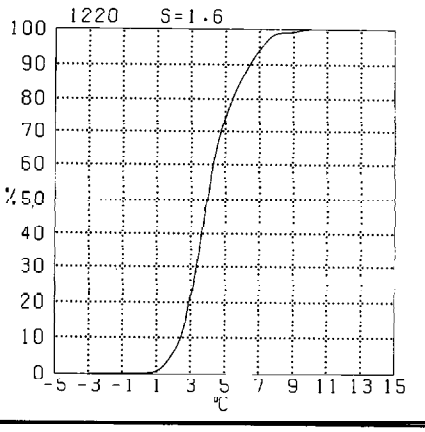
Map · Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value con be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation ore based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

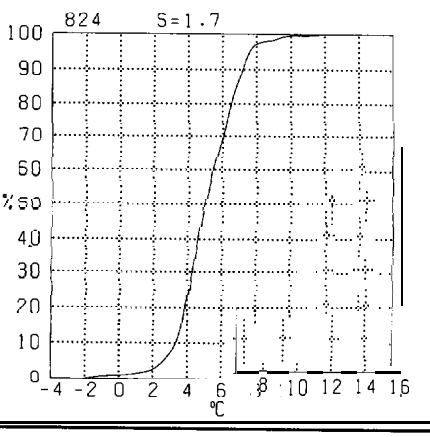
Marine Area C



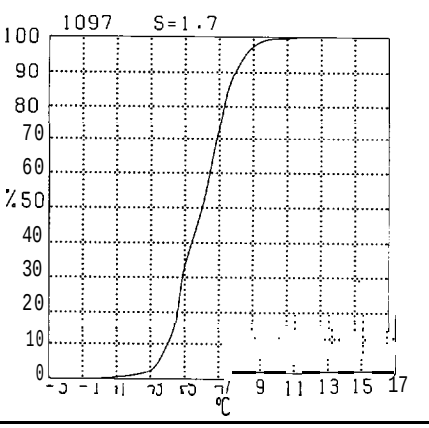
Marine Area D



Marine Area E



Marine Area F

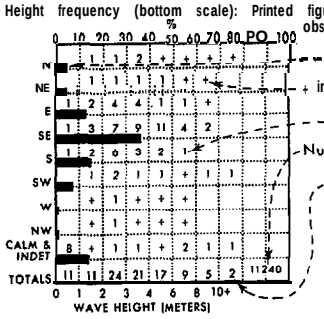


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



- (5% of all waves were from the N.)
- + indicates <.5% but >0
- (1% of all waves were from the S with heights from 6-7.5 meters.)
- Number of observations.
- (2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

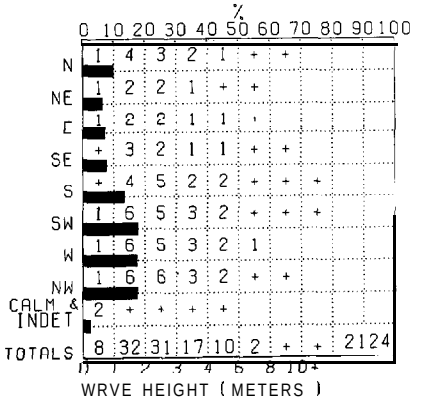
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

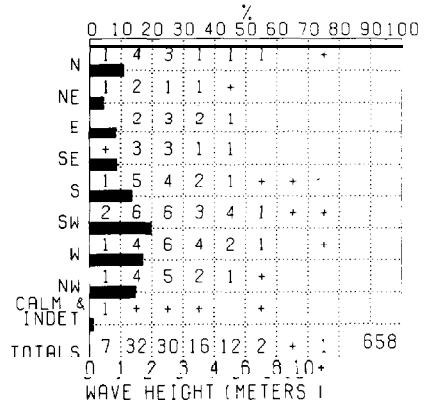
BLACK LINE. Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE. Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

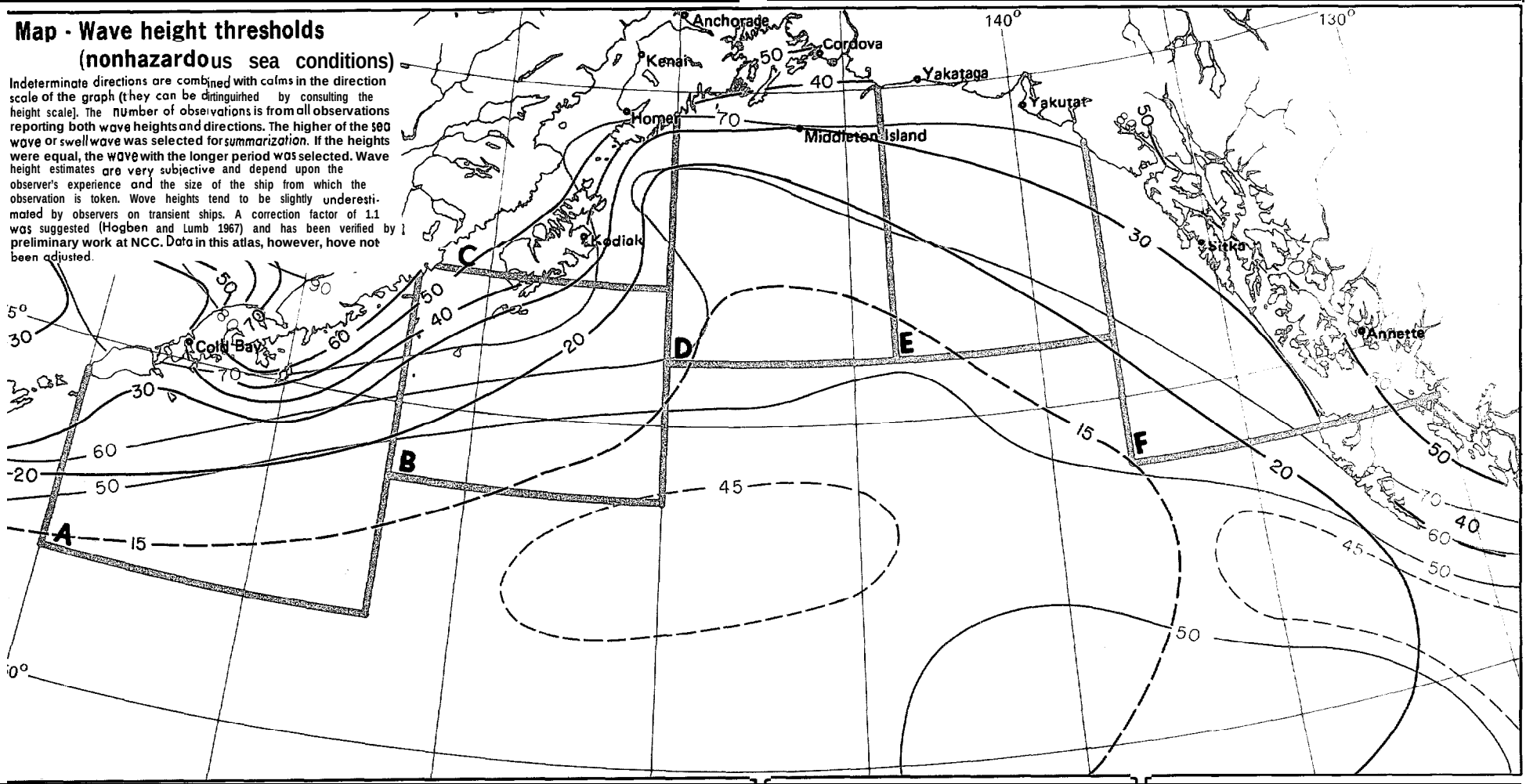


Marine Area B

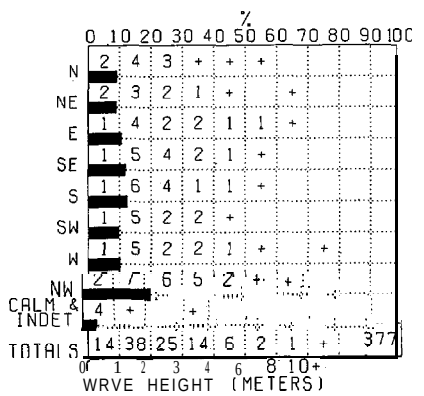


Map - Wave height thresholds (nonhazardous sea conditions)

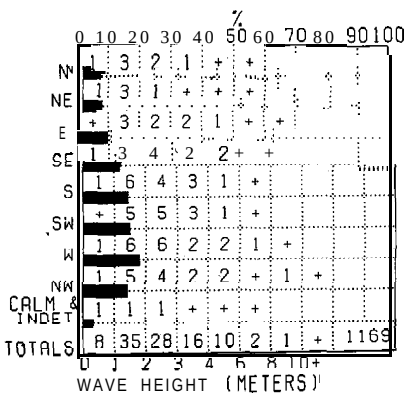
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for *summarization*. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is token. Wove heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, hove not been adjusted.



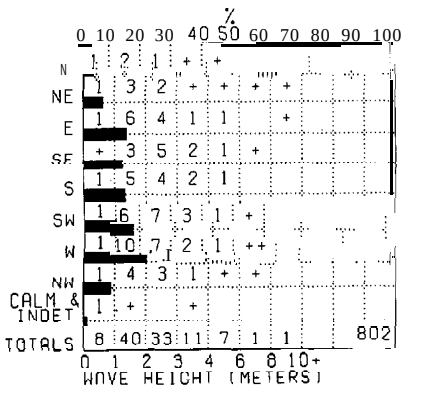
Marine Area C



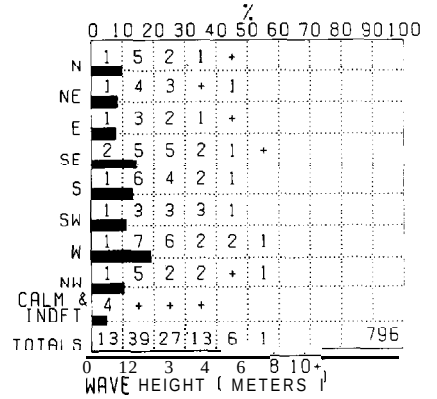
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period ond height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

/-Number of observations.

Waves ore selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE Percent frequency of wave height ≥3.5 meters (≥12 feet]

BLUE LINE Percent frequency of wove height ≥6 meters (≥20 feet)

BLUE NUMBER Maximum observed wave height (meters)

Marine Area A

PERIOD ISECONOSI

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	1	+	+	0	0	3
1-1.5	15	9	4	1	1	+	1
2-2.5	8	10	5	4	1	+	1
3-3.5	1	5	5	3	1	+	+
4-5.5	1	2	3	2	1	+	+
6-7.5	0	+	1	1	+	+	0
8-9.5	0	0	0	+	+	+	0
≥10	0	0	0	+	+	+	0

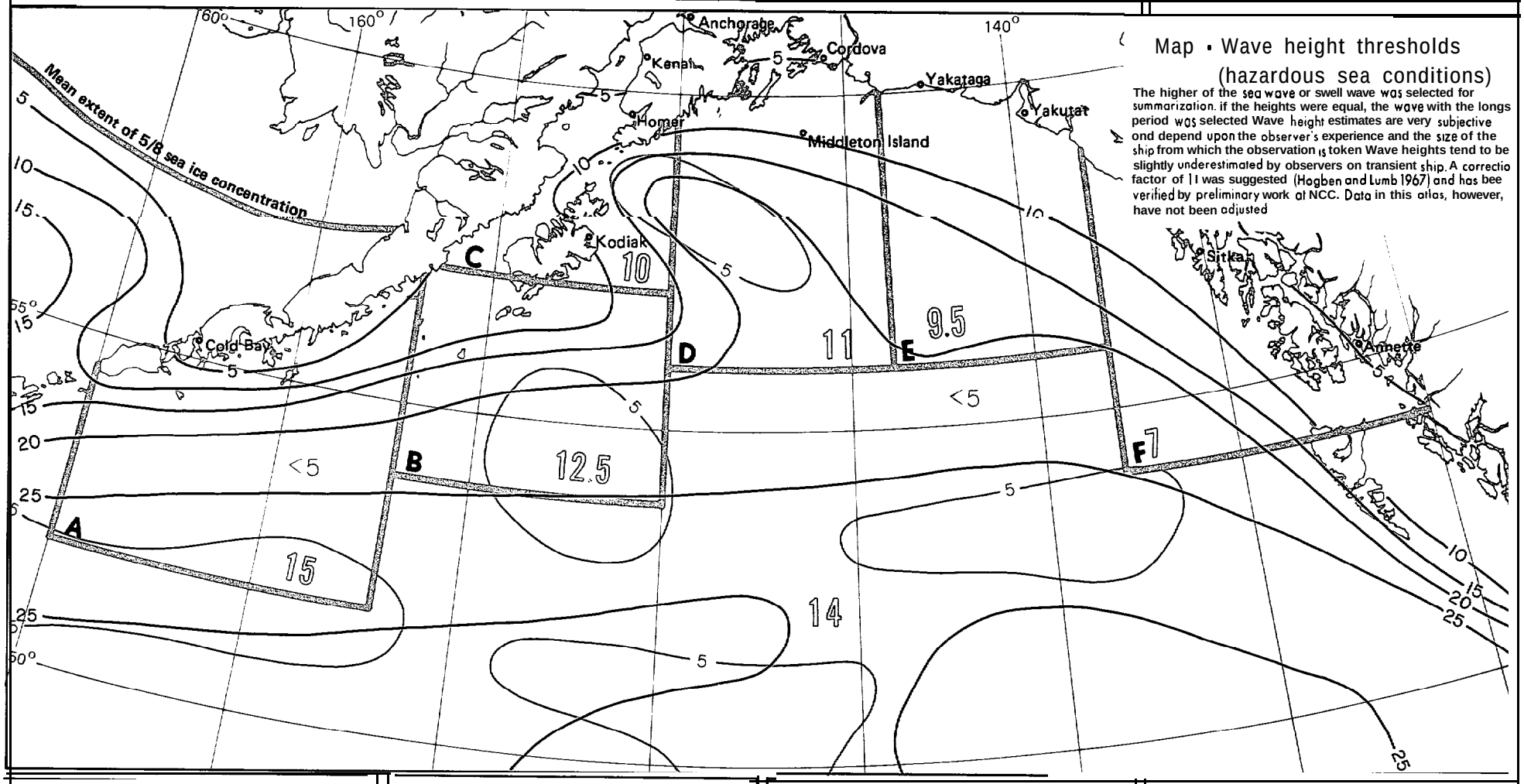
2152

Marine Area B

PERIOD (SECONDS1

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	4	2	+	+	0	0	1
1-1.5	15	8	4	1	1	0	3
2-2.5	10	9	4	3	1	+	2
3-3.5	3	7	3	1	+	1	1
4-5.5	1	3	4	2	1	0	1
6-7.5	0	1	1	+	+	0	+
8-9.5	0	0	+	0	+	0	0
≥10	0	0	+	+	0	0	0

663



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. if the heights were equal, the wave with the longs period was selected Wave height estimates are very subjective ond depend upon the observer's experience and the size of the ship from which the observation is token Wave heights tend to be slightly underestimated by observers on transient ship. A correctio factor of 1 I was suggested (Hogben and Lumb 1967) and has bee verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	11	+	+	1	0	0	5
1-1.5	21	9	2	2	1	0	2
2-2.5	9	8	2	1	1	1	2
3-3.5	3	6	3	1	0	0	2
4-5.5	1	1	3	1	0	+	1
6-7.5	0	+	1	1	+	+	0
8-9.5	0	0	0	+	1	0	0
≥10	0	0	0	+	0	0	0

394

Marine Area D

PERIOD ISECONOSI

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	1	0	0	2
1-1.5	16	10	4	1	2	+	1
2-2.5	9	8	6	2	1	1	1
3-3.5	4	5	3	2	1	+	1
4-5.5	1	3	3	1	1	+	1
6-7.5	0	1	+	1	0	+	+
8-9.5	0	+	+	0	+	+	0
≥10	0	0	0	+	0	0	0

1184

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	1	+	0	0	2
1-1.5	19	9	5	1	2	+	3
2-2.5	8	11	7	4	1	1	1
3-3.5	2	4	3	1	1	+	1
4-5.5	1	2	2	+	1	+	+
6-7.5	0	+	+	+	0	+	0
8-9.5	0	0	+	0	+	+	0
≥10	0	0	0	0	0	0	0

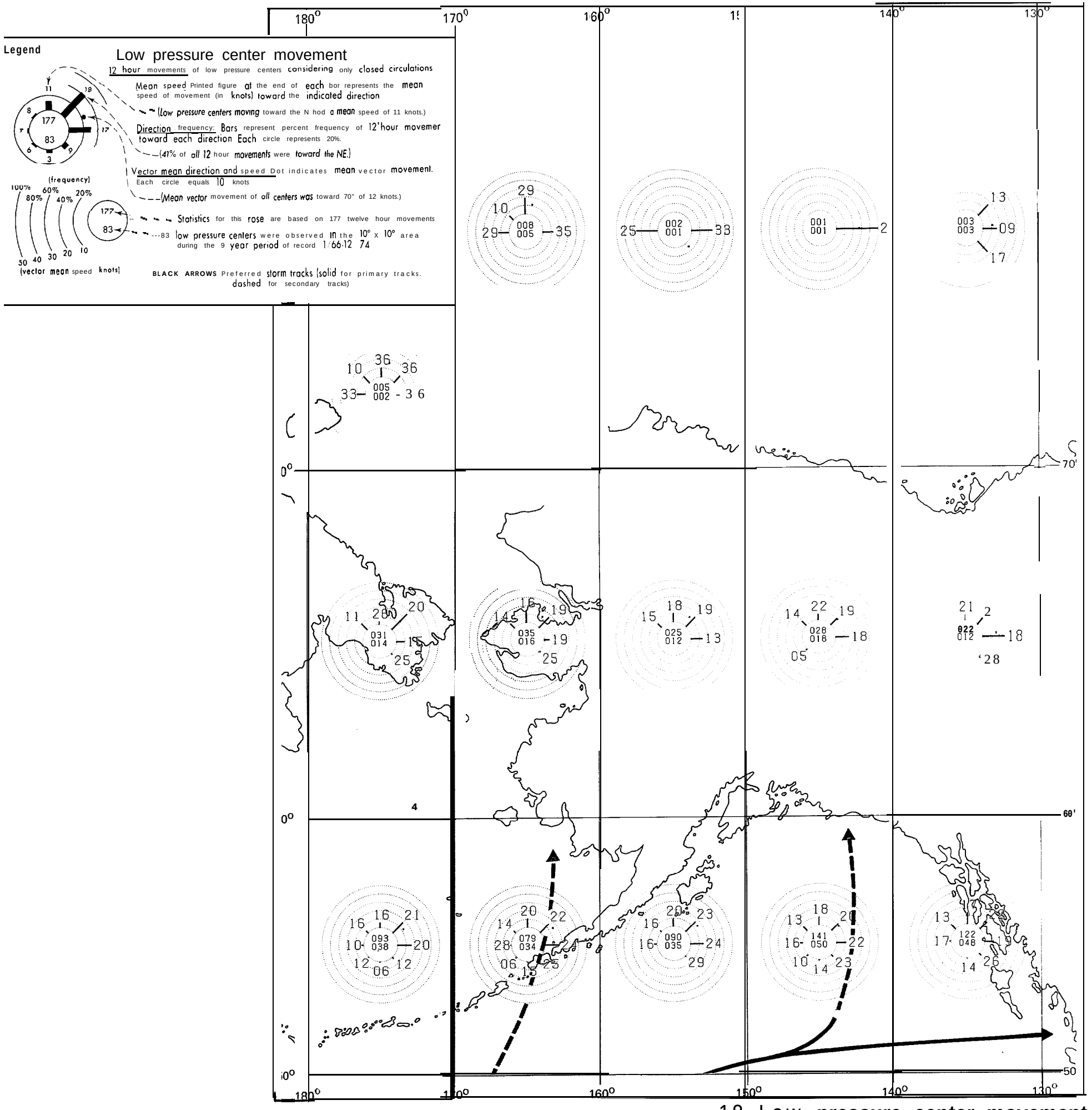
815

Marine Area F

PER100 (SECONDS)

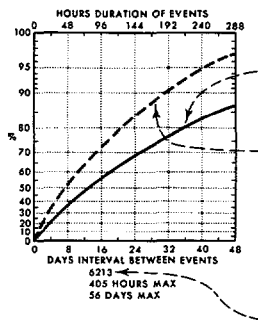
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	10	+	1	+	0	0	5
1-1.5	17	12	3	2	1	1	2
2-2.5	7	8	6	3	1	+	1
3-3.5	2	4	2	2	1	1	+
4-5.5	+	1	2	1	+	+	0
6-7.5	0	+	+	0	+	+	+
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

825


Legend
Low pressure center movement
12 hour movements of low pressure centers considering only closed circulations
Mean speed Printed figure at the end of each bor represents the mean speed of movement (in knots) toward the indicated direction
(Low pressure centers moving toward the N hod a mean speed of 11 knots.)
Direction frequency: Bars represent percent frequency of 12'hour movemer toward each direction Each circle represents 20%.
(41% of all 12 hour movements were toward the NE.)
Vector mean direction and speed Dot indicates mean vector movement. Each circle equals 10 knots
(Mean vector movement of all centers was toward 70° of 12 knots.)
Statistics for this rose are based on 177 twelve hour movements
83 low pressure centers were observed in the 10° x 10° area during the 9 year period of record 1/66-12 74
BLACK ARROWS Preferred storm tracks (solid for primary tracks. dashed for secondary tracks)
(frequency)
(vector mean speed knots)
180°
170°
160°
150°
140°
130°
0°
60'
50

Legend

Persistence of visibility <2 n. mi.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

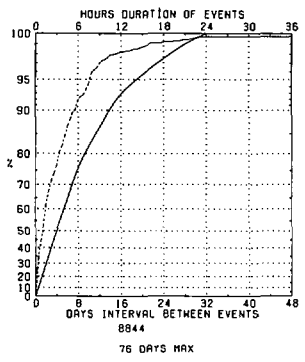
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

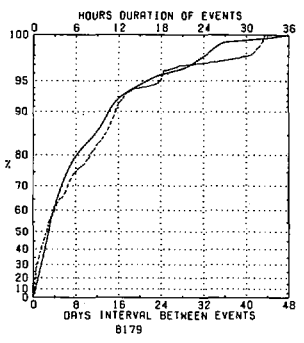
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

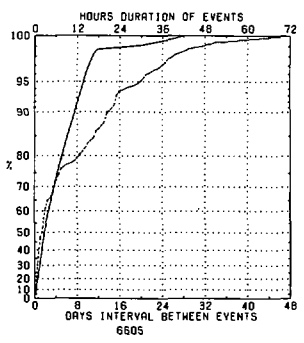
Kodiak



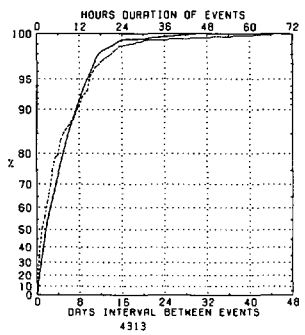
Homer



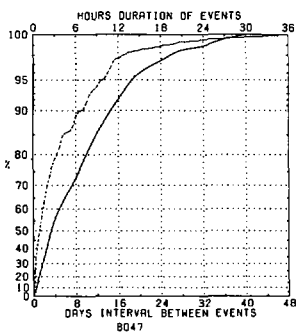
Kenai



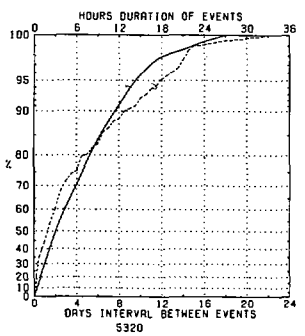
Middleton Island



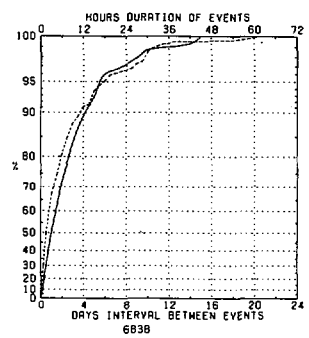
Cordova



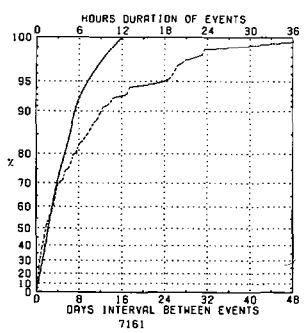
Yakataga



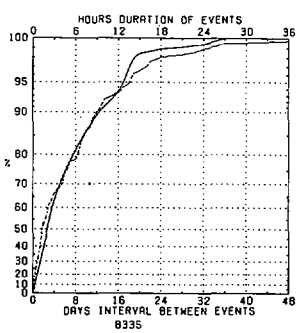
Yakutat



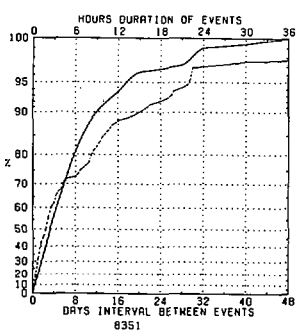
Sitka



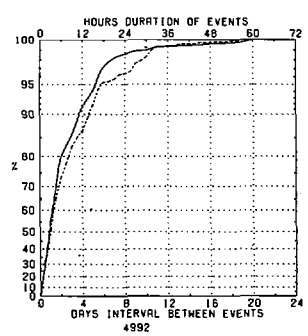
Annette



Anchorage



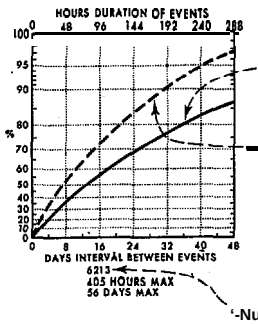
Cold Bay



Legend

Persistence of wind 110 kts.

Hours duration of events , Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

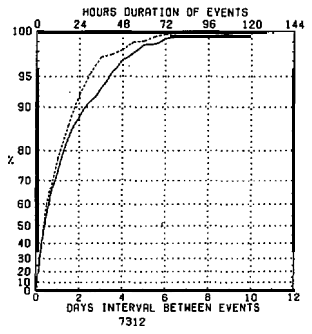
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

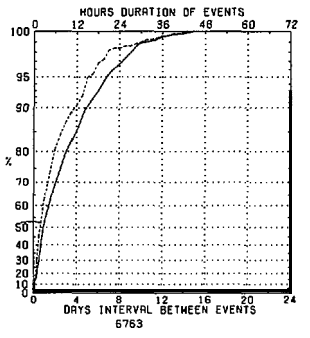
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

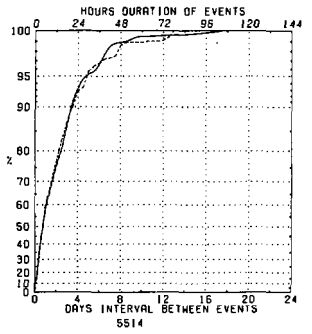
Kodiak



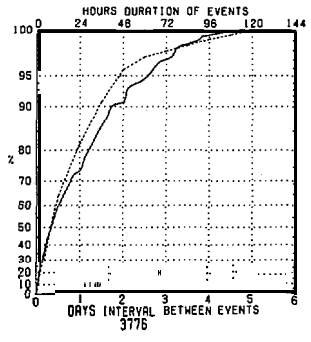
Homer



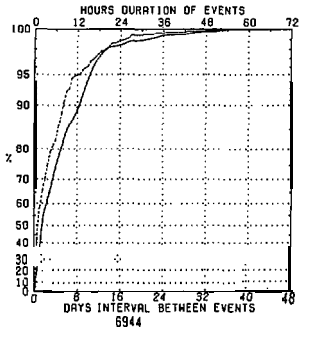
Kenai



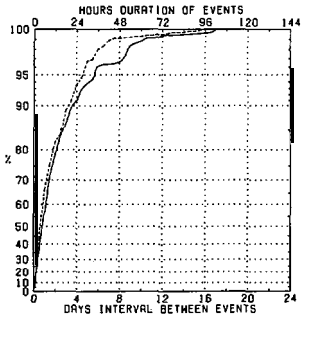
Middleton Island



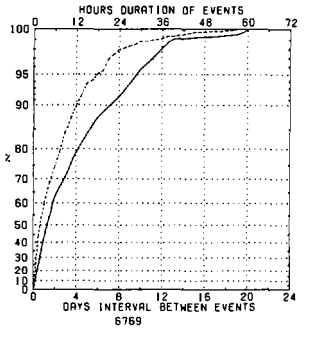
Cordova



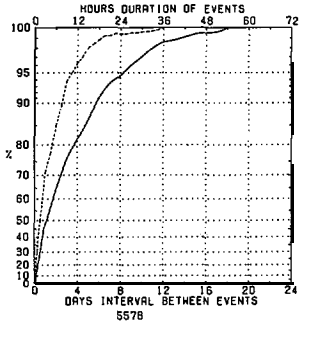
Yakataga



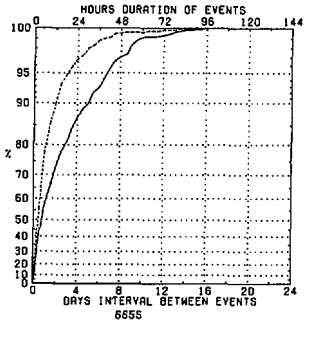
Yakutat



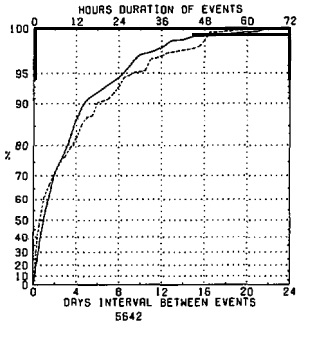
Sitka



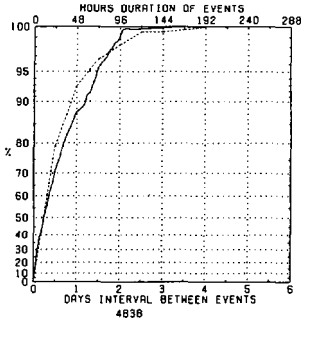
Annette



Anchorage



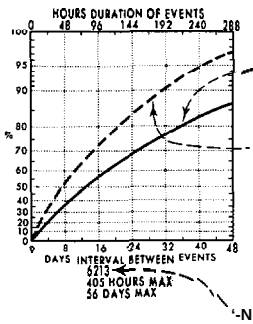
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

-- → (80% of the events hod a duration 5216 hours.)

Cumulative percent frequency of doyr interval between events equal to or less thon the number of days intersected by the broken curve

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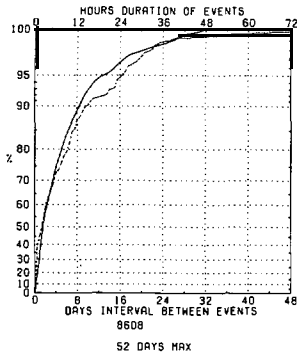
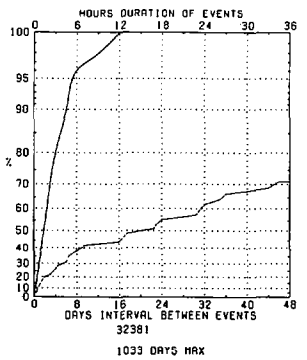
Number of observations.

Top and bottom scales ore variable to allow for variations in the dato.

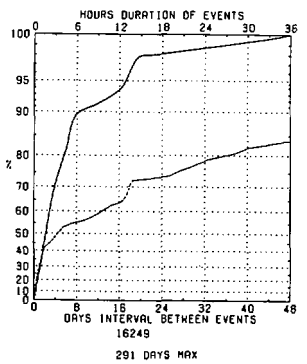
Kodiak



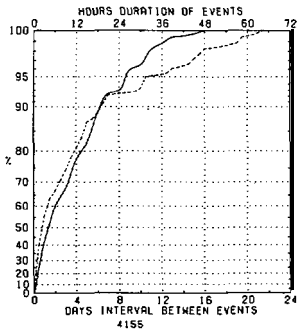
Homer



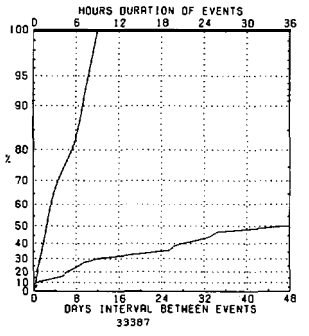
Kenai



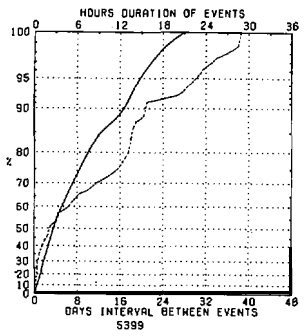
Middleton Island



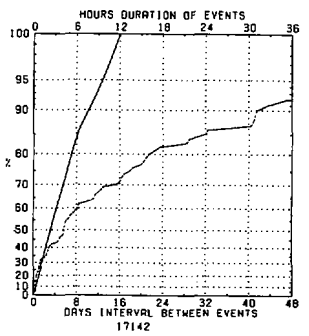
Cordova



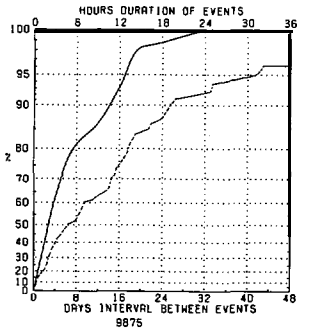
Yakataga



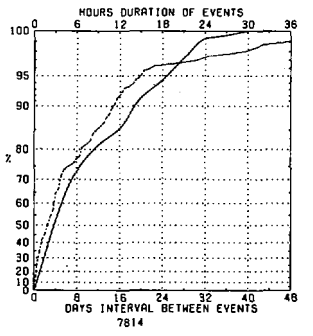
Yakutat



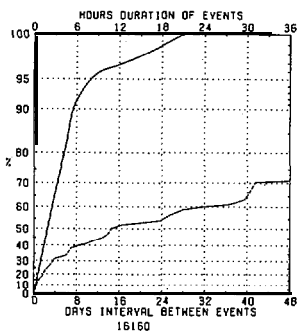
Sitka



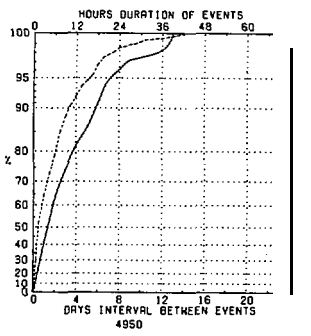
Annette



Anchorage



Cold Bay

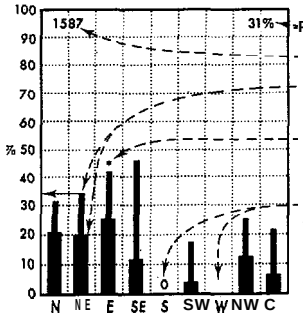


Legend

Precipitation/wind direction

% Pcpn. { % Liquid / % Snow

Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type [including freezing rain and freezing drizzle) and snow



- Percentage of present weather observations reporting precipitation.
- Number of observations.

(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.1

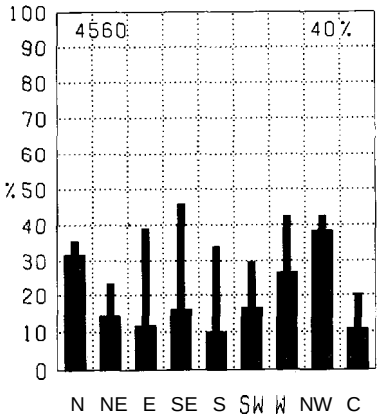
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10.30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map · Precipitation

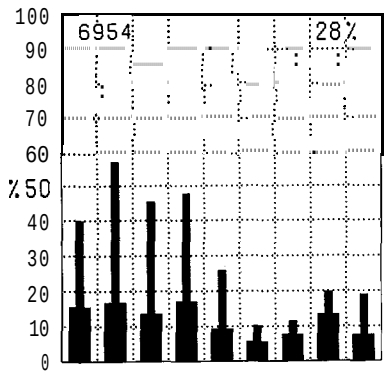
BLACK LINE . Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practicer, observers preference for certain present weather coder. and other biases.

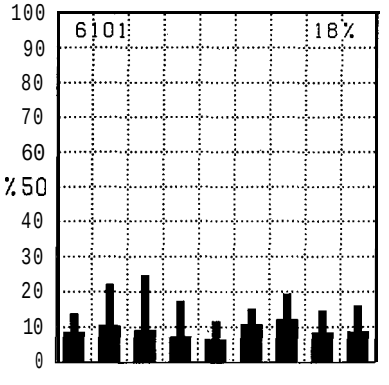
Cold Bay



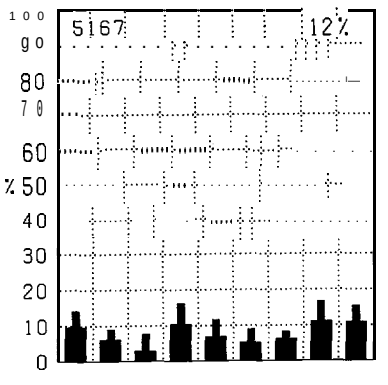
Kodiak



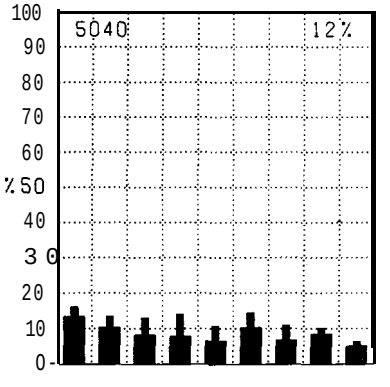
Homer



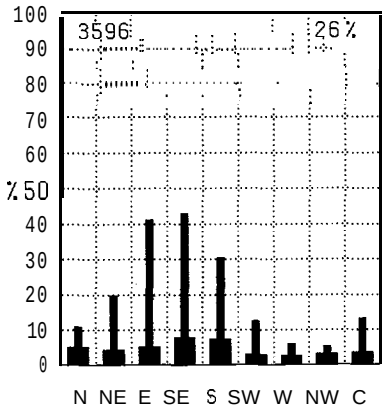
Kenai



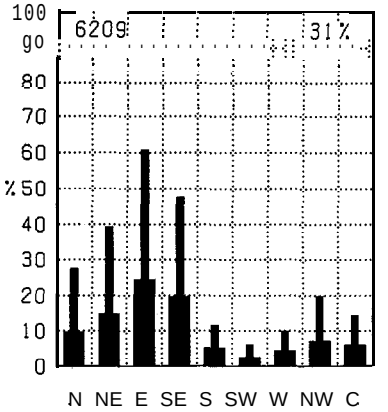
Anchorage



Middleton Island



Co rdova



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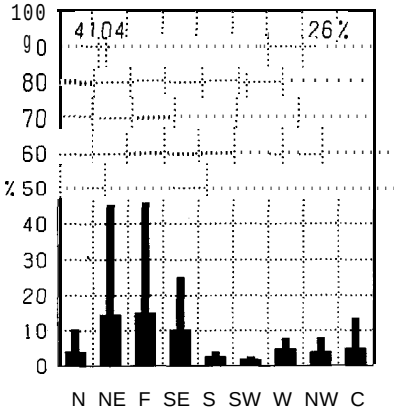
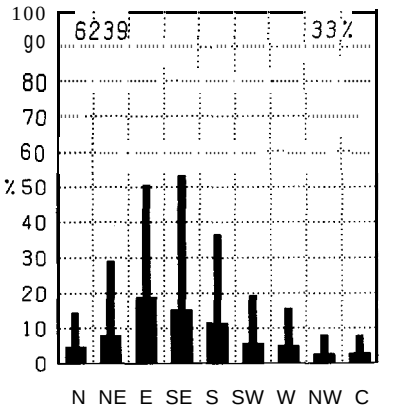
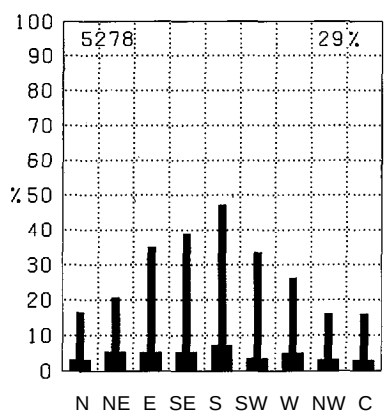


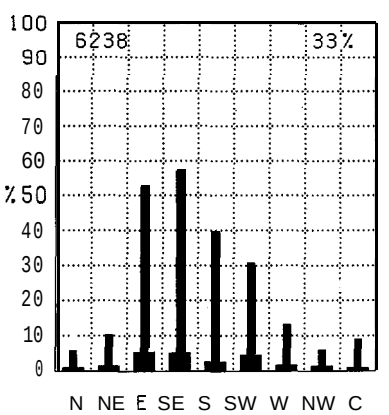
Yakutat



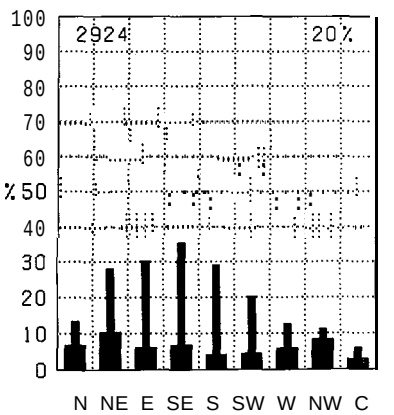
Sitka



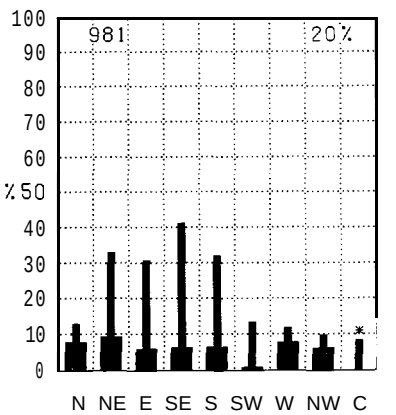
Annette

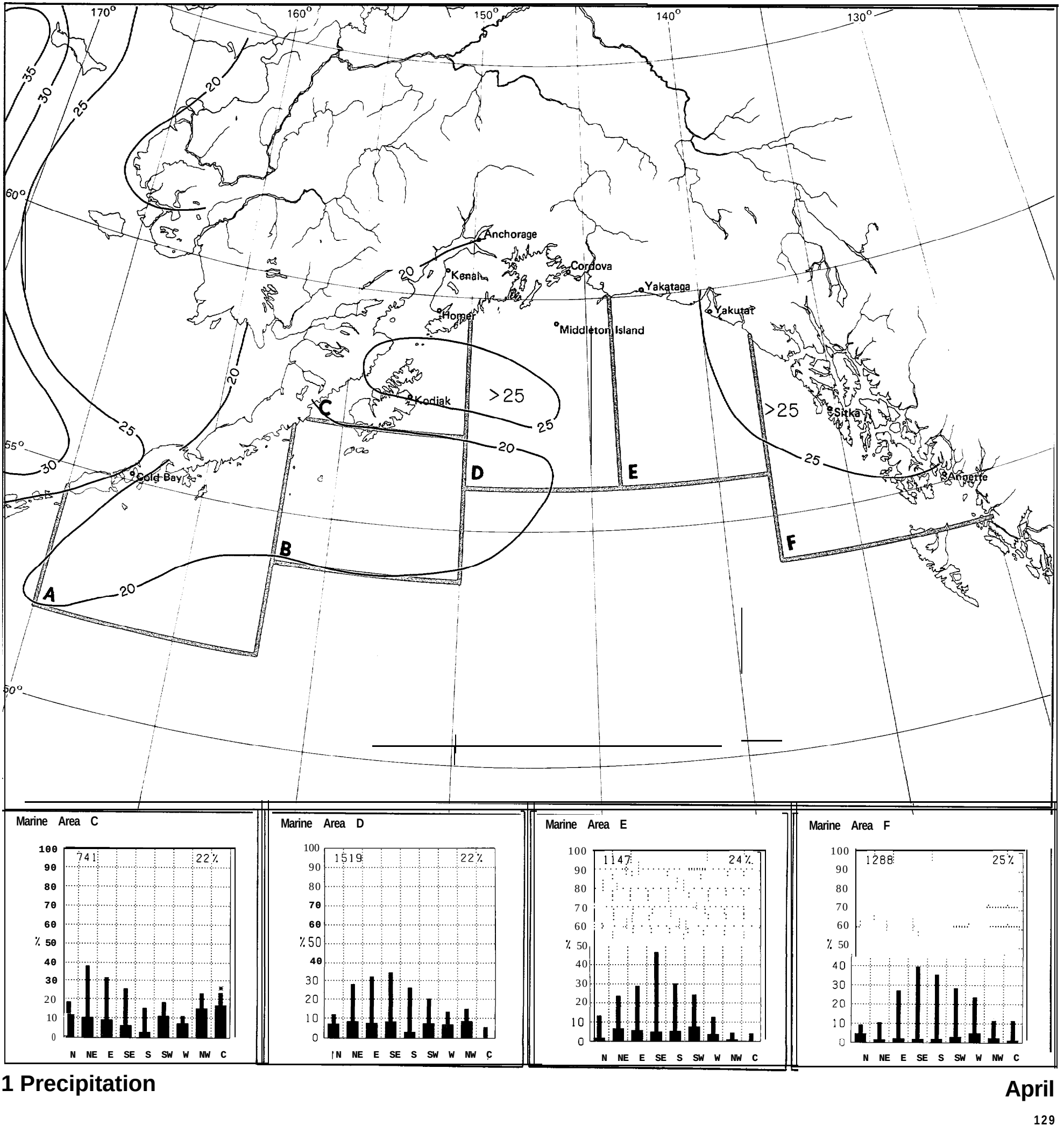


Marine Area A



Marine Area B




170°
160°
150°
140°
130°
60°
55°
50°
35
30
25
20
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Cold Bay
Sitka
St Angelle
>25
A
B
C
D
E
F

Marine Area C
741
22%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

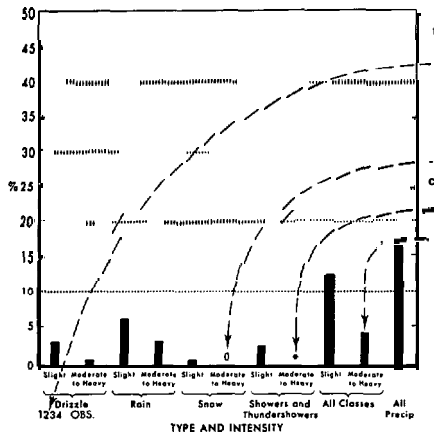
Marine Area D
1519
22%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

Marine Area E
1147
24%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

Marine Area F
1288
25%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

-0 indicates no observations in the category.

• indicates <.05% but >0.

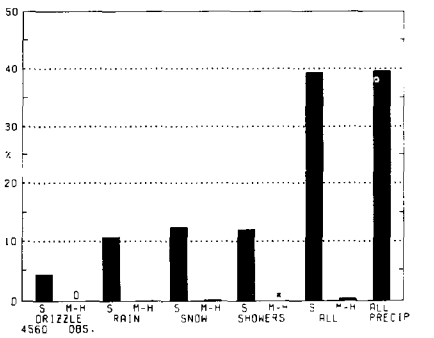
(4.0% of all observations recorded moderate to hear, precipitation.)

Map - Snow

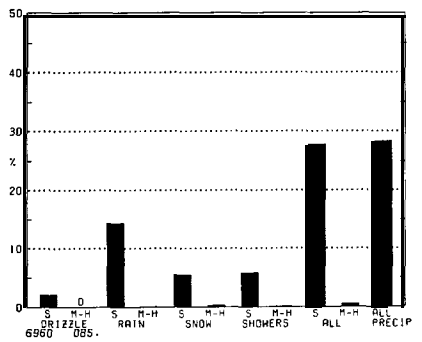
BLACK LINE Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (mop 2.).

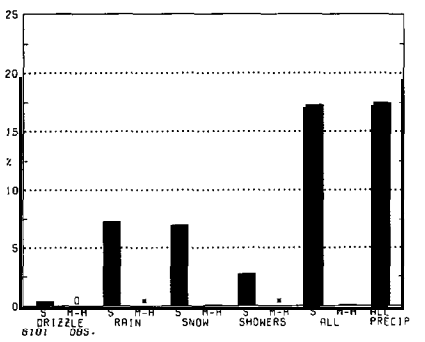
Cold Bay



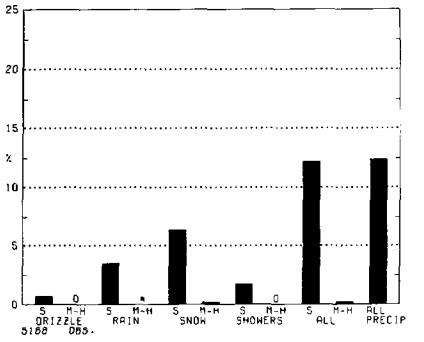
Kodiak



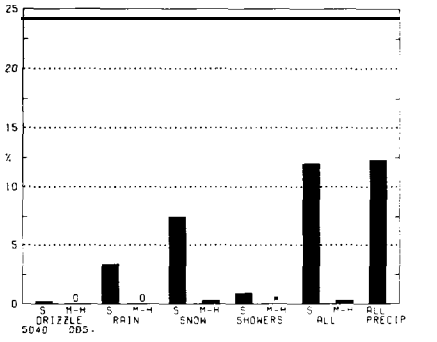
Homer



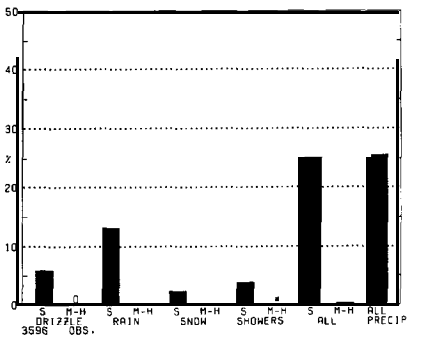
Kenai



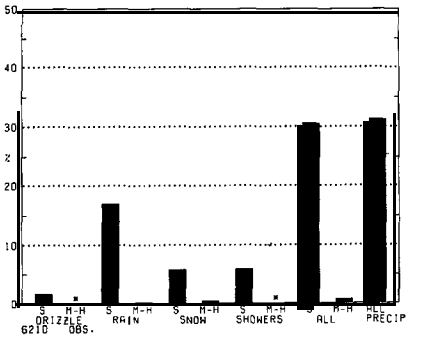
Anchorage



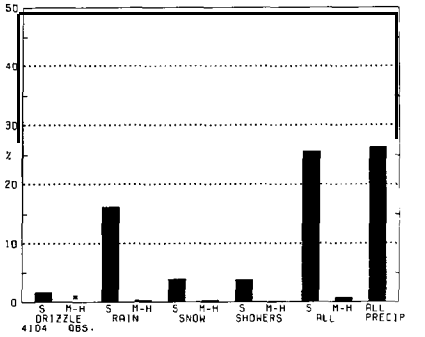
Middleton Island



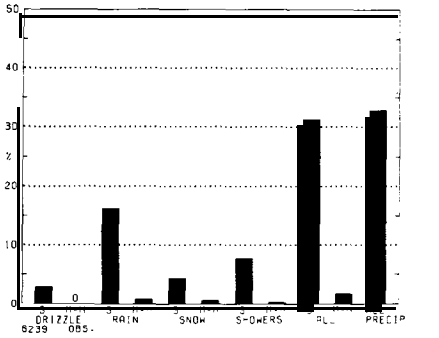
Cordova



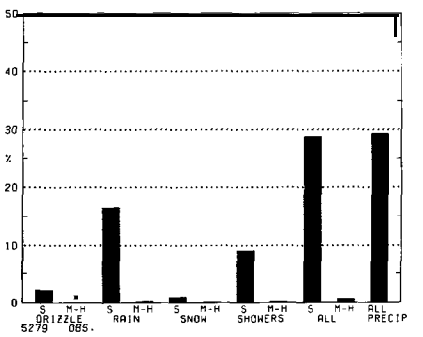
Ya kataga



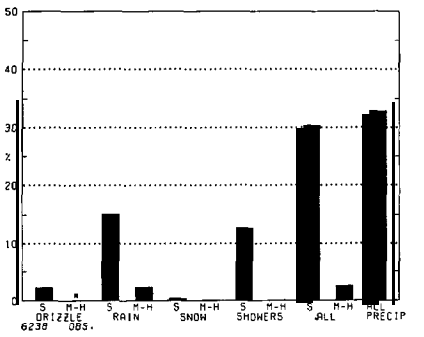
Yakutat



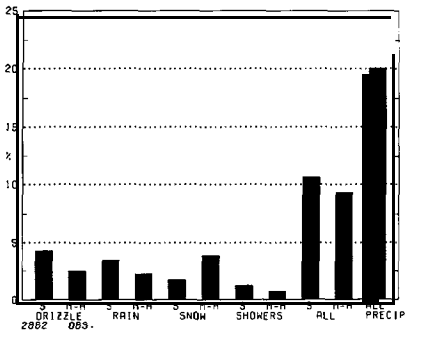
Sitka



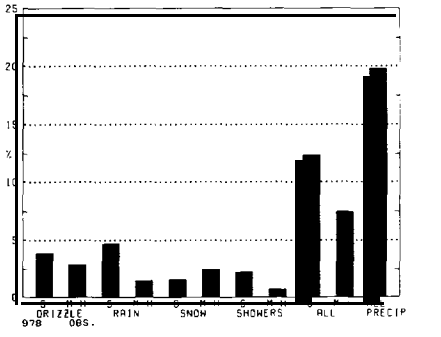
Annette

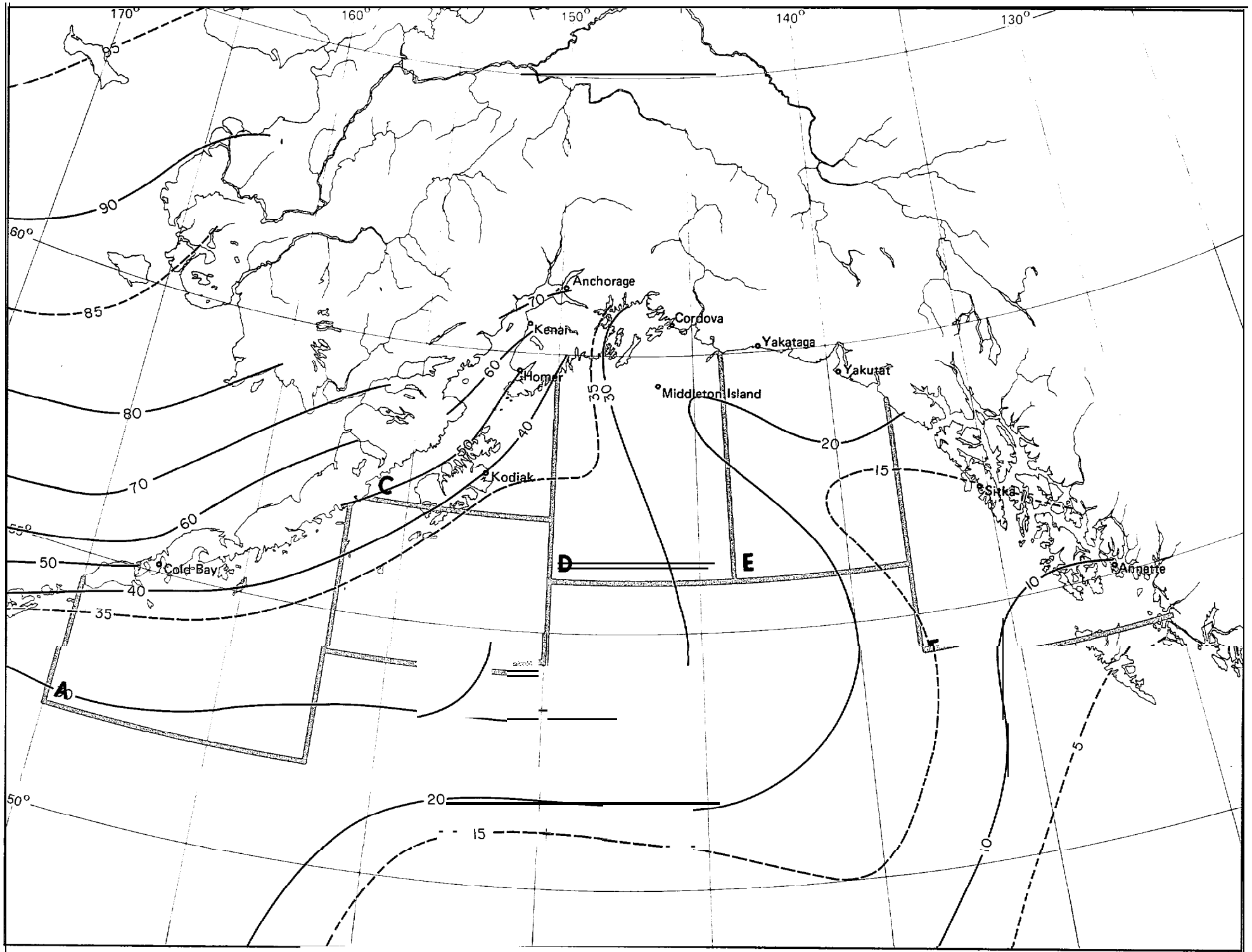


Marine Area A

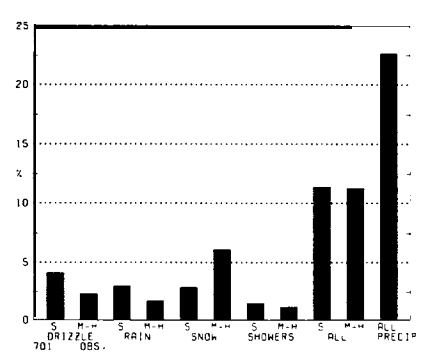


Marine Area B

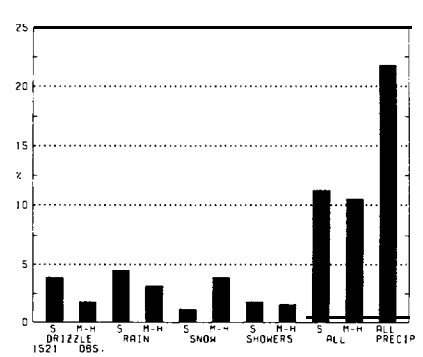




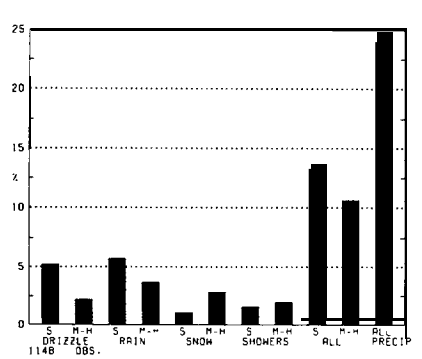
Marine Area C



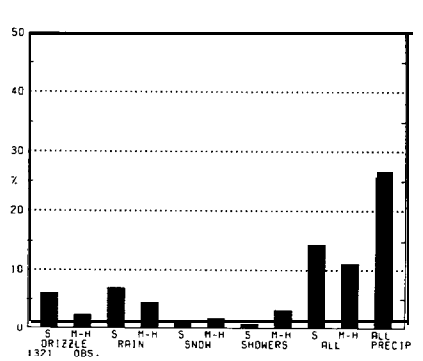
Marine Area D



Marine Area E



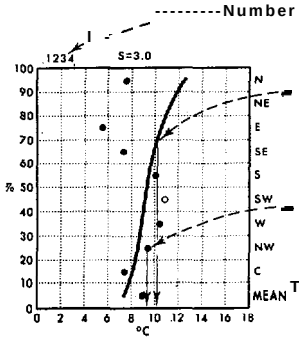
Marine Area F



2 Snow

Legend

Air temperature/wind direction



--------Number of observations

Cumulative percent frequency of temperoturer equal to or less than the temperature intersected by the curve.

(70% of *all temperatures* were ≤10.3 °C or ≤50.5 °F.)

S= Stondord deviation of temperatures (°C)

Mean temperature for each wind direction, calm ond for all data combined are represented by dots.

-(With NW winds, the *mean temperature* war 9.4 °C or 48.9 °F.)

0 Indicates that the mean temperature for a direction or calm was computed from IO-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map -Air temperature mean and thresholds

BLACK LINE · Percent frequency of temperature ≤0°C (≤32°F)

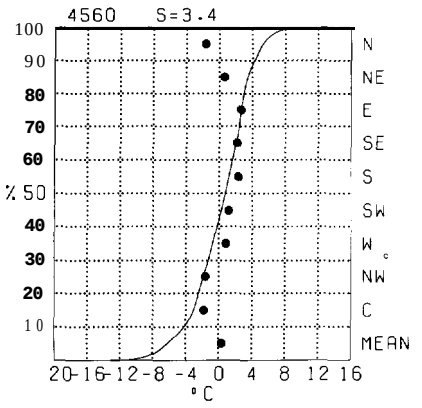
RED LINE Mean air temperature (°C)

BLUE LINE Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

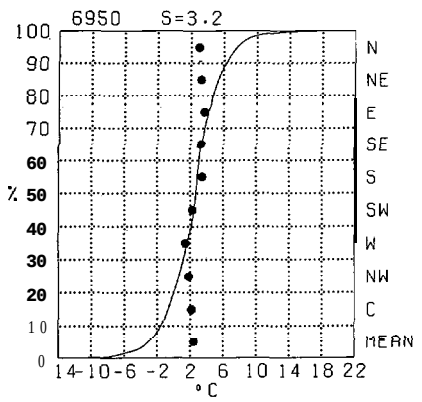
Air temperature readings recorded on transient ships in worm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns ond mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value con be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs ore bored on those observations reporting both temperature ond wind direction. The cumulative curve is bared on all observations reporting temperature with or without wind direction.

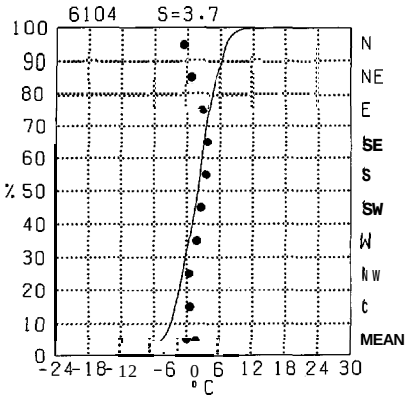
Cold Bay



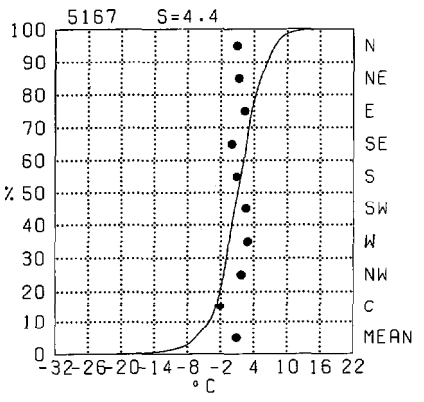
Kodiak



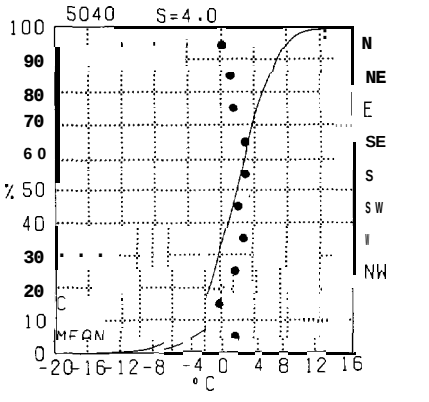
Homer



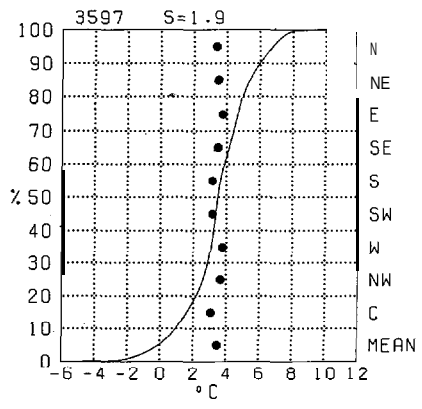
Kenai



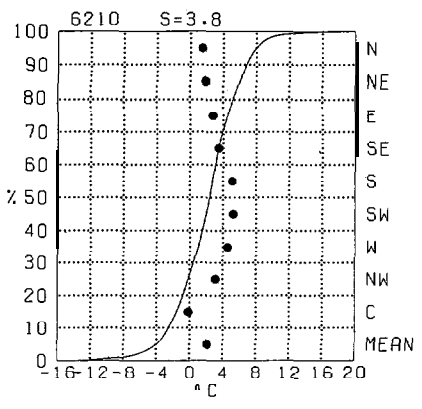
Anchorage



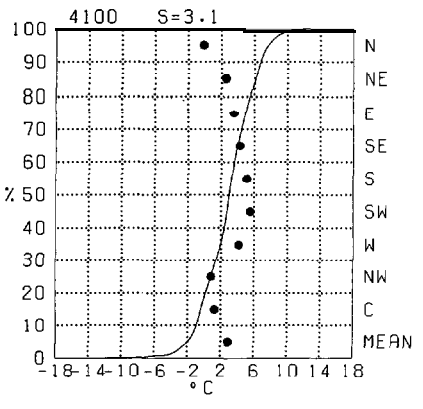
Middleton Island



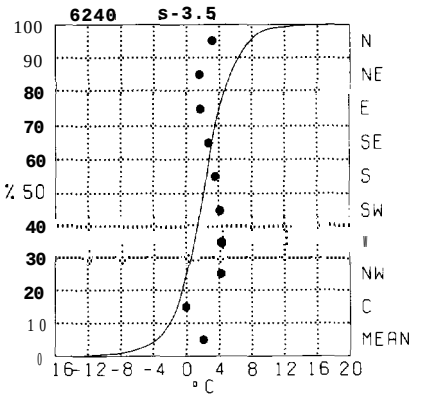
Cordova



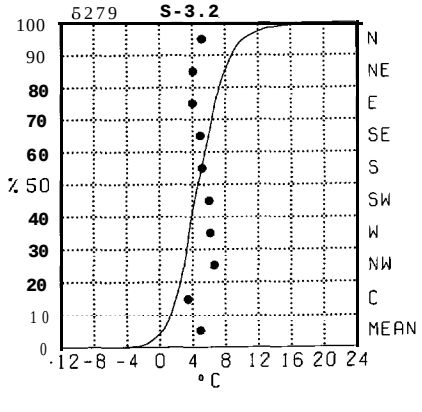
Yakataga



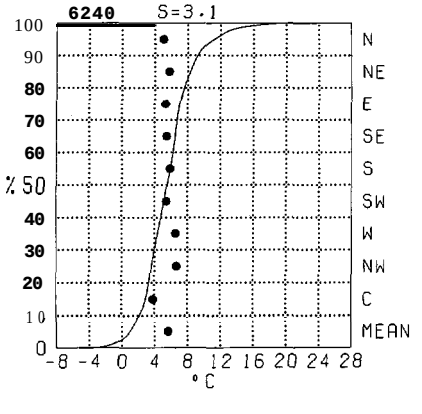
Yakutat



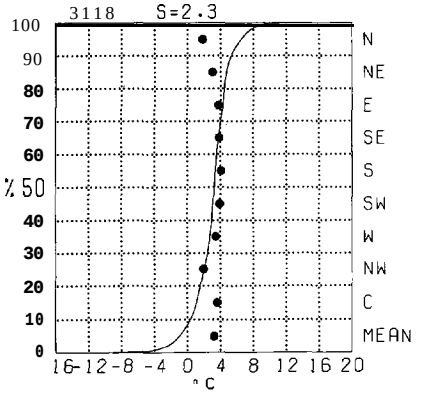
Sitka



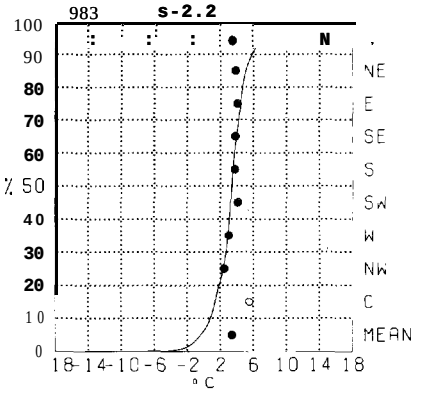
Annette

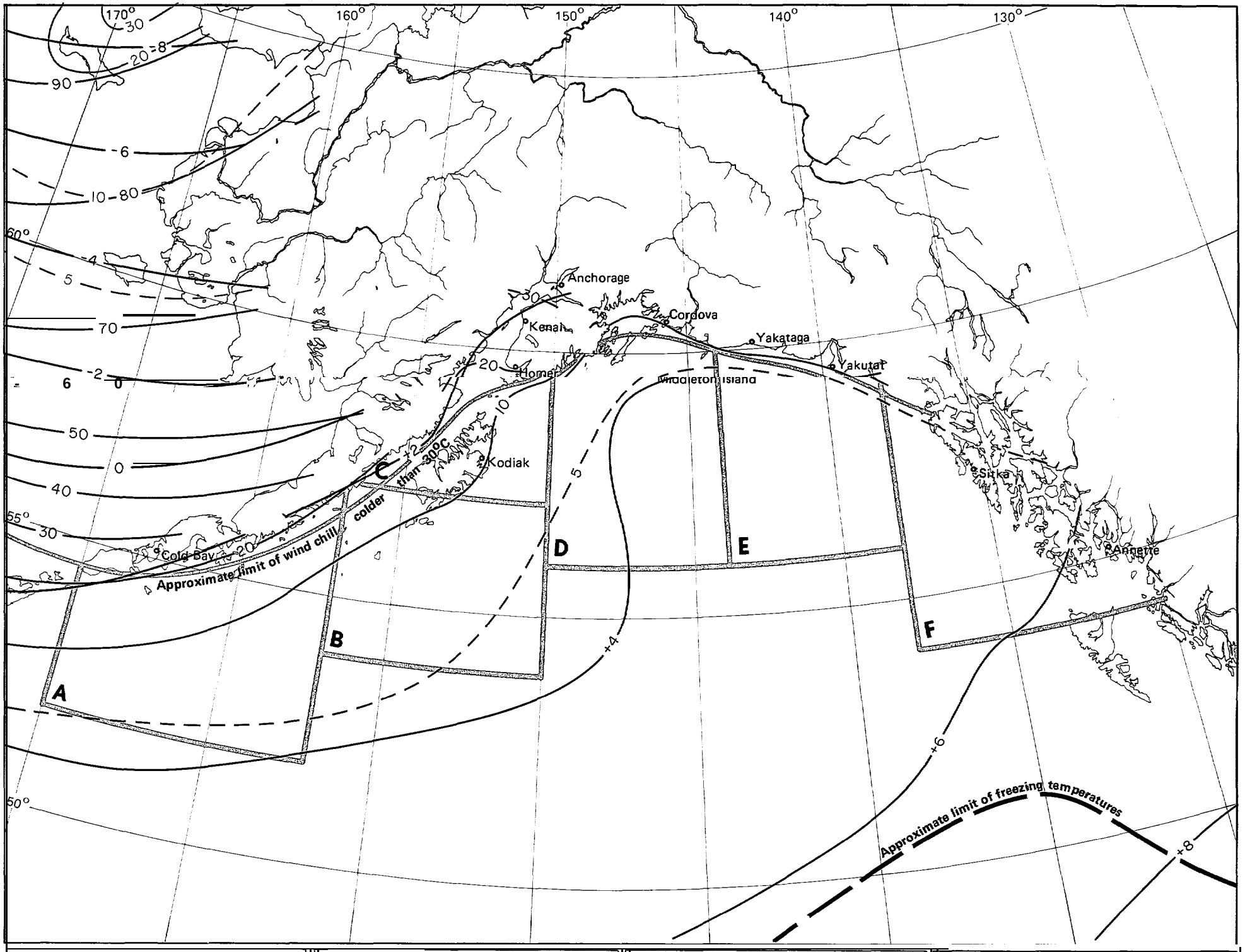


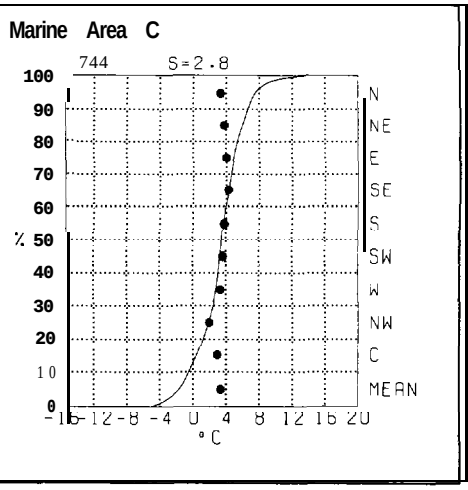
Marine Area A

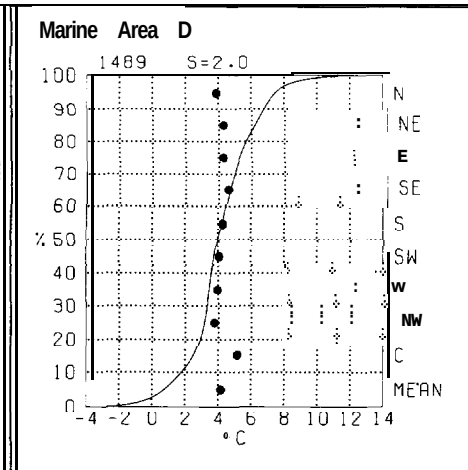


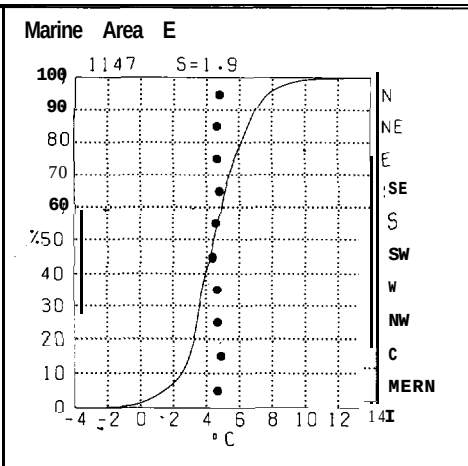
Marine Area B

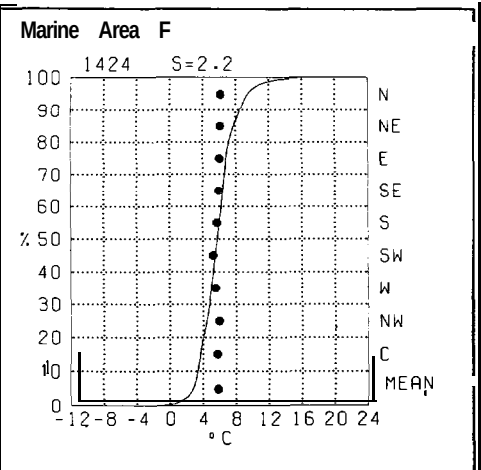










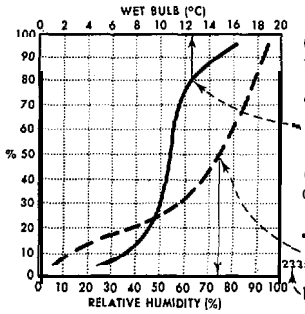


3 Air temperature mean and thresholds

April

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C)

(80% of all observed wet-bulb temperatures were 512.59 or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

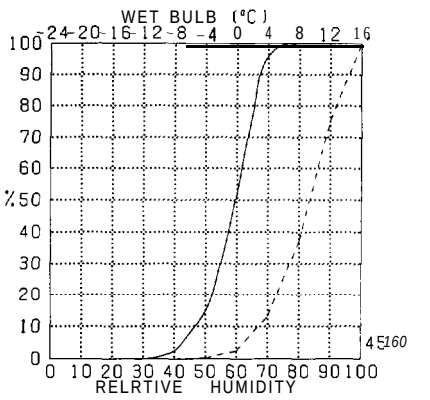
Number of observations.

Map • Mean dew point temperature

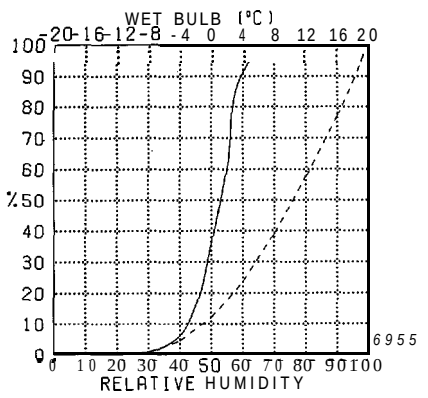
BLACK LINE • Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both ore required in computing the relative humidity. The percentage of observations of either element greater thon a given value con be obtained by subtracting the cumulative percent frequency of that value from 100%.

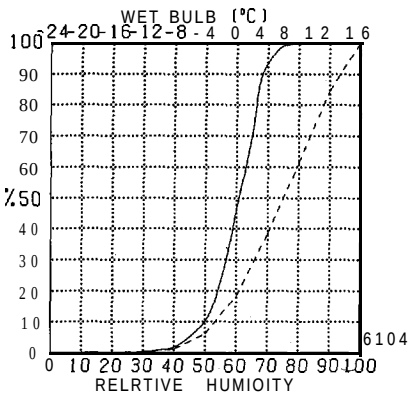
Cold Bay



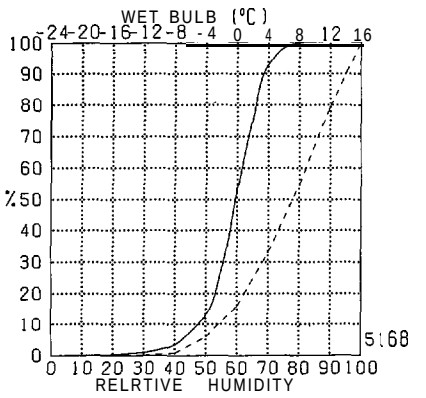
Kodiak



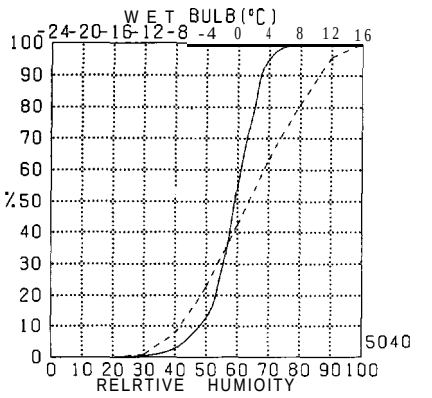
Homer



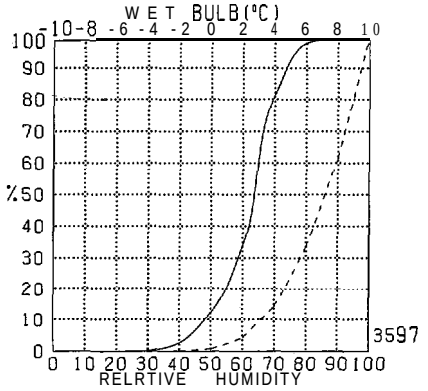
Kenai



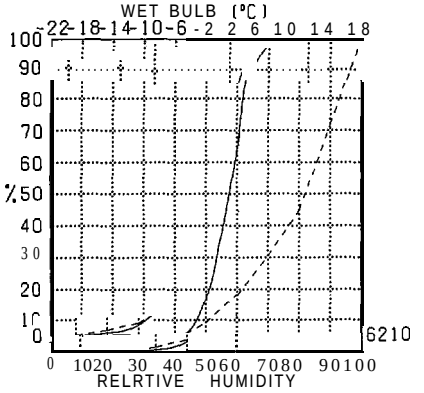
Anchorage



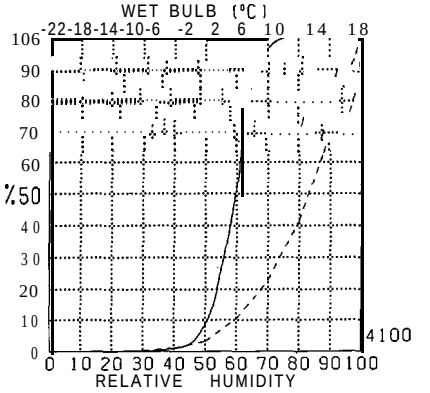
Middleton Island



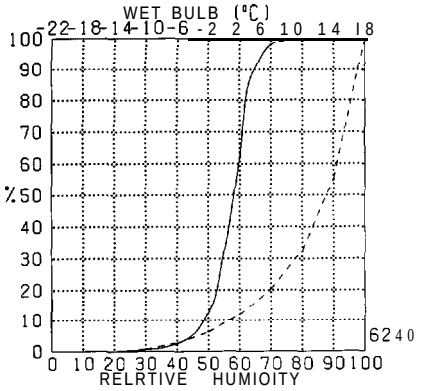
Cordova



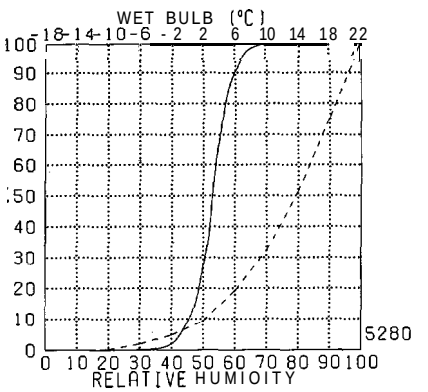
Yakataga



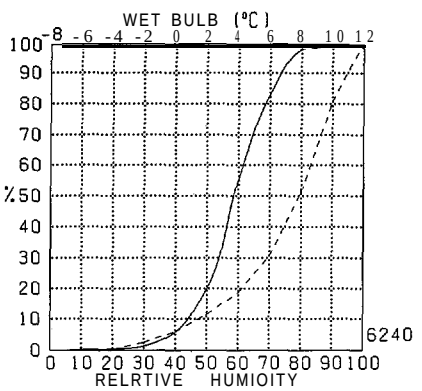
Yakutat



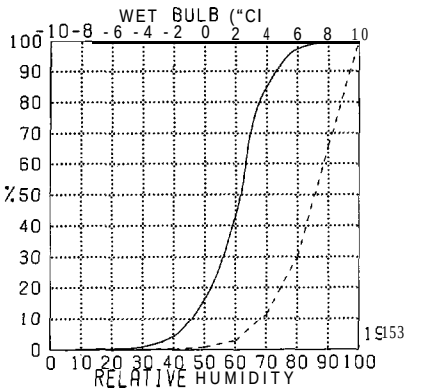
Sitka



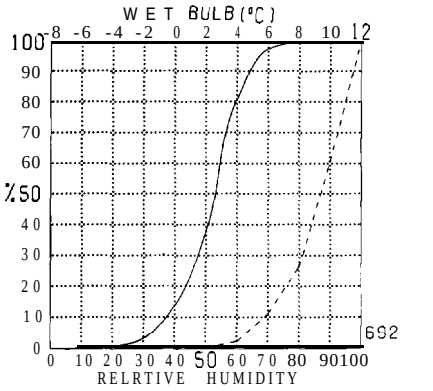
Annette

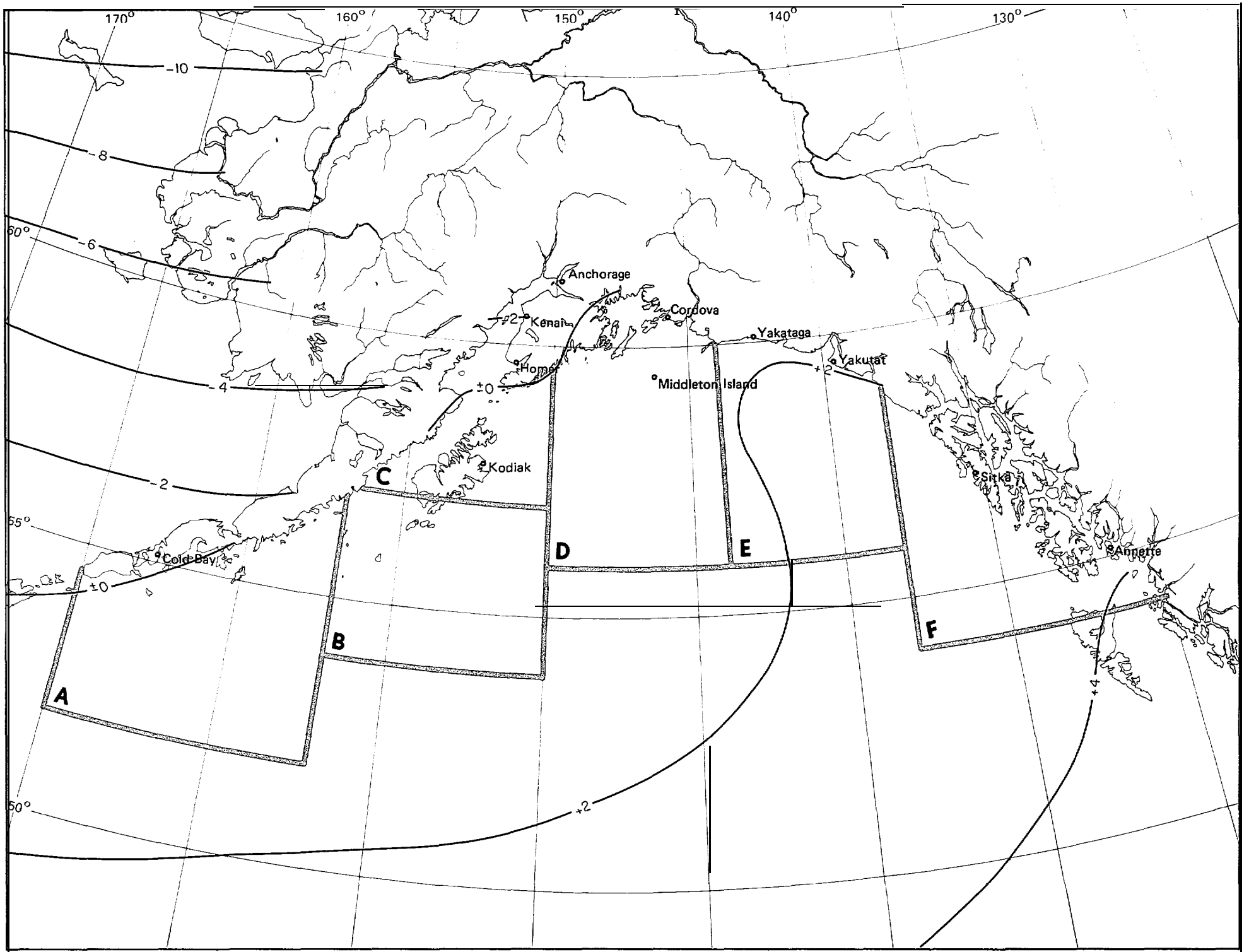


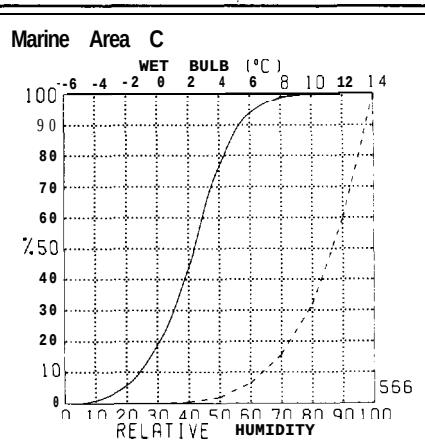
Marine Area A

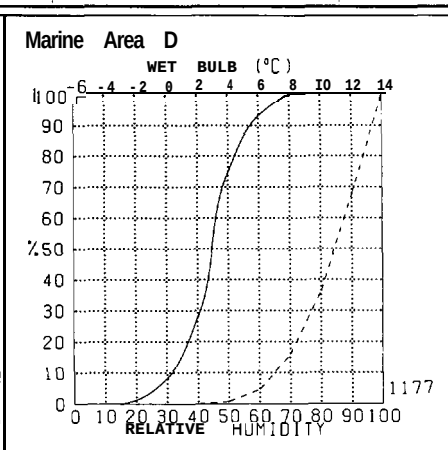


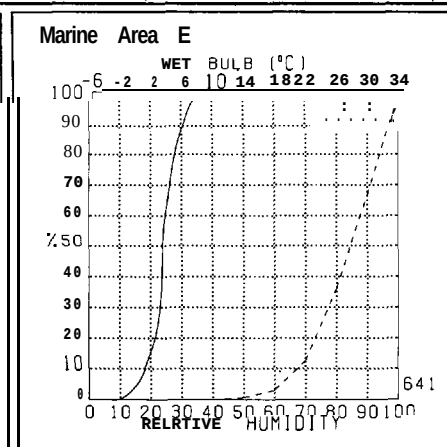
Marine Area B

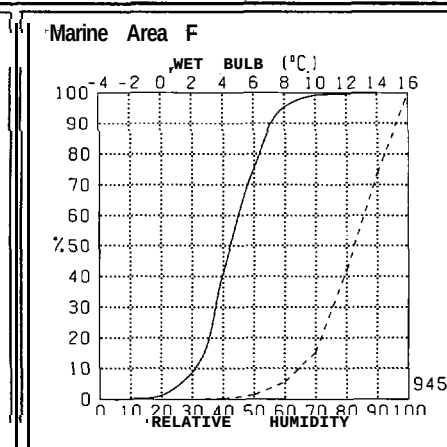












4 Mean dew point temperature

April

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4, 5	18	8	7	1	1
2, 3	17	8	7	1	1
0, 1	13	6	5	1	1
-2, -1	1	+	0	0	0
-4, -3	0	0	0	0	0
-6, -5	+	0	0	+	+
-8, -7	1	+	0	0	0
-10, -9	0	0	0	0	0
-12, -11	1	+	0	0	0
-14, -13	1	0	0	0	0
-16, -15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

(1% of all observations reported temperature 2-3°C simultaneously with wind speed of 22-33 kts.)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (“C)

BLACK LINE Maximum (99%) air temperature 0% of temperatures were greater than the given value)

BLUE LINE Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The gmph con be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases or the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph)

Cold Bay

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	0	+	0	0
12.13	+	0	+	0	0
10.11	0	+	+	+	0
8,9	+	+	+	+	0
6,7	+	1	2	1	+
4,5	+	2	5	4	+
2,3	+	6	13	7	1
0,1	+	6	10	3	+
-2,-1	+	5	9	2	+
-4.-3	+	3	6	2	+
≤-5	+	2	4	2	+

4560

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	+	+	0	0
16,17	+	+	+	0	0
14,15	0	+	+	+	0
12,13	+	+	+	+	0
10,11	+	+	+	+	0
8,9	+	1	1	+	0
6,7	1	6	3	+	+
4,5	3	9	6	1	+
2,3	7	15	11	2	+
0,1	3	6	5	1	+
≤-1	3	6	6	1	+

6950

Homer

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	0	0	0
24.25	0	0	0	0	0
22.23	0	0	0	0	0
20.21	0	0	0	0	0
18.19	0	0	0	0	0
16.17	0	+	0	0	0
14.15	0	+	+	0	0
12.13	+	+	+	0	0
10.11	+	+	+	0	0
8,9	+	2	1	0	0
≤7	28	50	17	+	0

6104

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16,17	0	+	0	0	0
14,15	0	+	+	0	0
12,13	+	+	+	0	0
10,11	0	1	+	0	0
8,9	+	2	1	0	0
6,7	1	6	2	+	0
4,5	1	8	3	+	0
2,3	3	15	4	+	+
0,1	4	11	3	+	0
-2,-1	5	9	2	+	+
≤-3	7	9	1	+	+

5167

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16,17	0	+	+	0	0
14,15	+	+	0	0	0
12,13	+	1	+	0	0
10,11	+	1	+	+	0
8,9	1	2	1	+	0
6,7	1	8	3	+	0
4,5	3	9	2	+	0
2,3	5	15	3	+	0
0,1	6	10	1	+	0
-2,-1	5	8	1	+	0
≤-3	4	8	1	+	0

5040

Middleton Island

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8.9	+	1	+	0	0
6,7	1	8	6	1	+
4,5	2	13	13	4	+
2,3	4	14	15	4	1
0,1	1	4	3	1	+
-2,-1	1	1	1	+	+
-4,-3	+	+	+	+	0
-6,-5	0	+	0	0	0
-8,-7	0	0	0	0	0
-10,-9	0	0	0	0	0
-12,-11	0	0	0	0	0

3597

Cordova

WIND SPEED IKTS I

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	+	0	0
14.15	+	+	+	0	0
12.13	+	+	0	0	0
10.11	+	1	+	0	0
8.9	1	3	1	0	0
6.7	3	8	2	0	0
4.5	4	9	3	+	0
2.3	9	14	4	+	0
0.1	8	7	1	+	0
-2,-1	9	3	+	+	0
s-3	9	1	+	0	0

6210

Yakataga

WIND SPEED IKTSI

TEtlP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	0	0	+	0	0
16.17	+	+	0	0	0
14.15	0	+	0	0	0
12.13	+	+	+	0	0
10.11	+	1	+	+	0
8.9	+	2	1	+	0
6.7	2	9	5	+	+
4.5	3	9	8	1	+
2.3	7	10	11	1	+
0.1	6	6	2	+	0
≤-1	8	6	+	+	0

4100

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	+	+	0	0	0
16.17	+	+	+	0	0
14.15	+	+	0	0	0
12.13	+	1	+	0	0
10.11	+	1	+	0	0
8,9	1	3	1	+	0
6,7	2	6	1	+	0
4,5	3	9	3	+	+
2,3	6	17	6	1	+
0,1	6	10	3	+	+
≤-1	12	7	1	0	0

6240

Sitka

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	+	+	0	0	0
18,19	+	+	+	0	0
16.17	+	+	+	0	0
14,15	+	+	+	0	0
12,13	+	1	1	+	0
10,11	+	2	1	+	0
8.9	2	5	3	+	+
6.7	4	12	8	+	0
4.5	6	13	5	+	+
2.3	9	11	3	+	+
≤1	6	4	1	+	0

5279

Annette

WIND SPEED IKTSI

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	0	+	0	0
20.21	0	+	0	0	0
18.19	+	+	+	0	0
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12,13	+	2	1	+	0
10,11	+	3	1	+	0
8.9	1	7	4	+	+
6,7	2	15	12	2	+
4.5	2	13	8	1	+
≤3	4	13	5	1	+

6240

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	+	+	+	+	+
8,9	+	1	1	+	+
6,7	1	3	4	2	1
4,5	1	7	17	9	2
2,3	2	9	13	9	2
0,1	+	2	4	3	1
-2,-1	+	1	2	1	+
-4,-3	+	+	+	1	+
-6,-5	0	+	+	+	+
≤-7	0	0	+	+	0

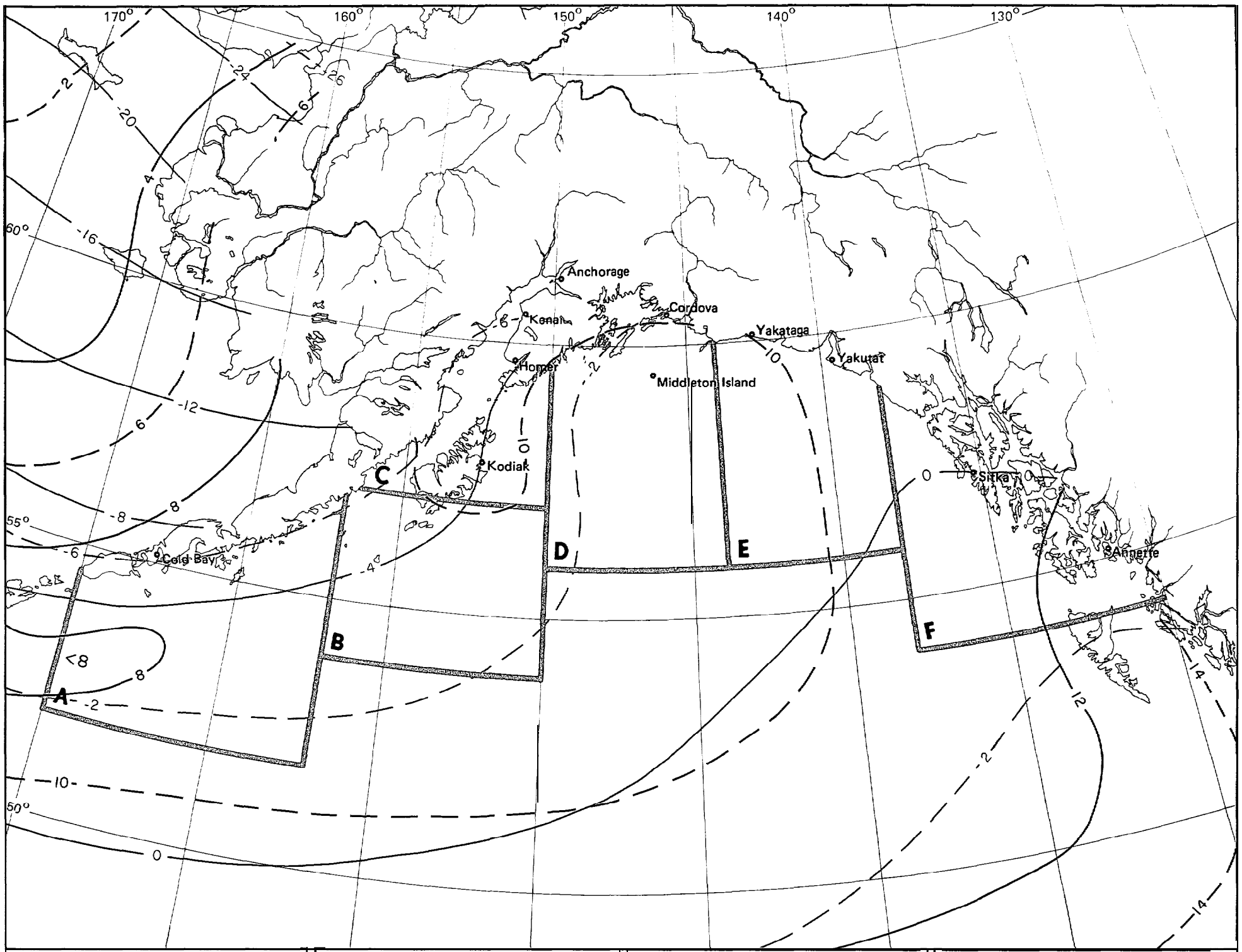
3120

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10.11	0	1	+	+	0
8,9	+	1	+	+	0
6,7	1	5	5	2	+
4,5	1	10	17	9	1
2,3	1	7	13	8	2
0,1	+	3	3	3	1
-2,-1	+	1	1	1	1
-4,-3	0	0	+	+	0
-6,-5	0	0	0	0	0
-8,-7	0	0	0	+	0
-10,-9	0	0	0	0	0

983



Marine Area C

WIND SPEED IKTSI

TEMP [°C]	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	+	0
10,11	+	1	+	0	0
8,9	1	1	1	+	+
6,7	2	6	4	2	1
4,5	3	10	12	5	1
2,3	3	9	10	4	3
0,1	2	3	3	1	1
-2,-1	1	2	2	+	1
-4,-3	+	+	1	1	+
-6,-5	0	+	+	+	+
-8,-7	0	0	0	0	0

744

Marine Area D

WIND SPEED IKTSI

TEMP [°C]	0-3	4-10	11-21	22-33	≥ 34
12,13	+	+	0	+	0
10,11	0	+	1	0	+
8,9	1	2	1	+	+
6,7	2	6	7	3	1
4,5	2	13	15	6	2
2,3	2	8	11	6	2
0,1	0	2	2	2	1
-2,-1	0	+	+	+	+
-4,-3	0	0	0	+	0
-6,-5	0	0	0	0	0
-8,-7	0	0	0	0	0

1490

Marine Area E

WIND SPEED (KTS)

TEMP [°C]	0-3	4-10	11-21	22-33	> 34
12,13	0	+	0	+	0
10,11	+	+	1	+	0
8,9	1	2	2	+	+
6,7	3	10	10	3	1
4,5	4	14	16	5	3
2,3	2	7	7	4	1
0,1	+	1	1	1	+
-2,-1	0	+	+	0	+
-4,-3	0	0	+	0	0
-6,-5	0	0	0	0	0
-8,-7	0	0	0	0	0

1149

Marine Area F

WIND SPEED IKTSI

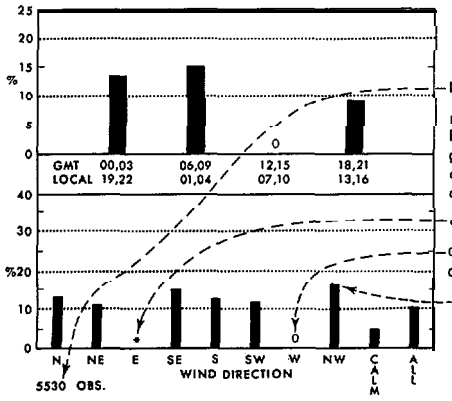
TEMP [°C]	0 - 3	4-10	11-21	22-33	≥ 34
16,17	0	+	+	0	0
14,15	+	+	0	0	0
12,13	+	1	+	+	0
10,11	1	1	1	+	+
8,9	2	5	5	1	+
6,7	4	15	15	5	1
4,5	3	9	12	4	1
2,3	1	4	4	2	1
0,1	0	+	+	+	+
-2,-1	0	0	0	+	0
-4,-3	0	0	0	0	0

1424

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

• indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

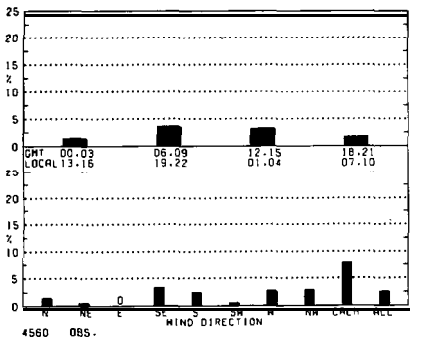
Map • Fog

BLACK LINE • Percent frequency of occurrence of all fog

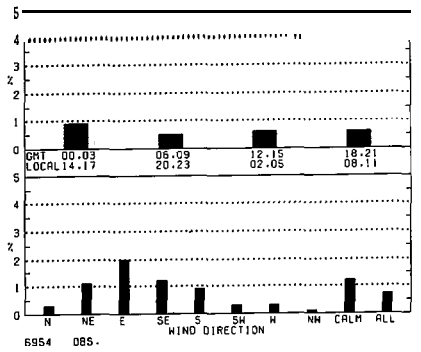
BLUE LINE • Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

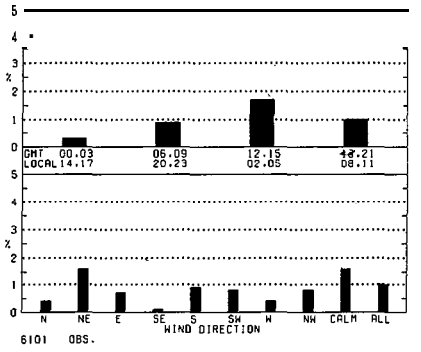
Cold Bay



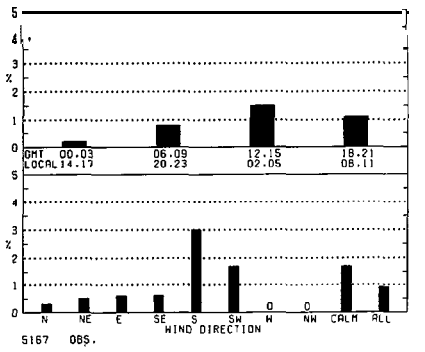
Kodiak



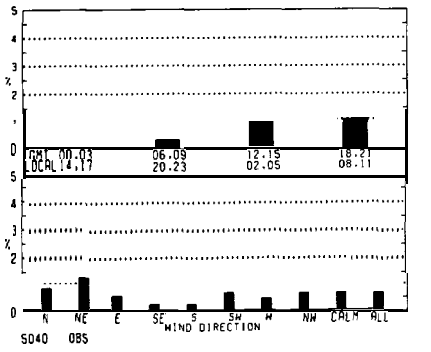
Homer



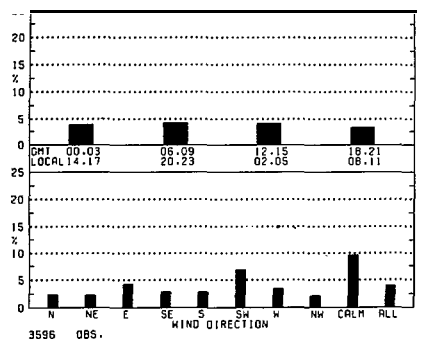
Kenai



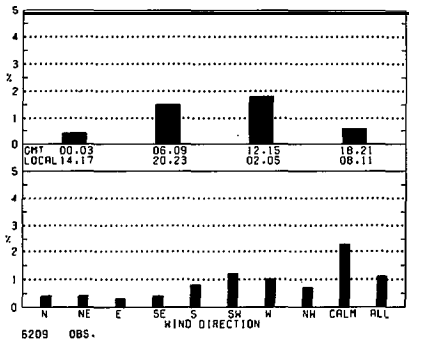
Anchorage



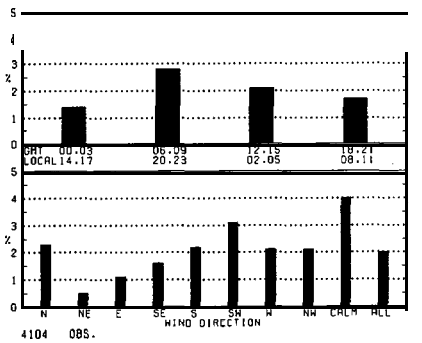
Middleton Island



Cordova



Yakataga



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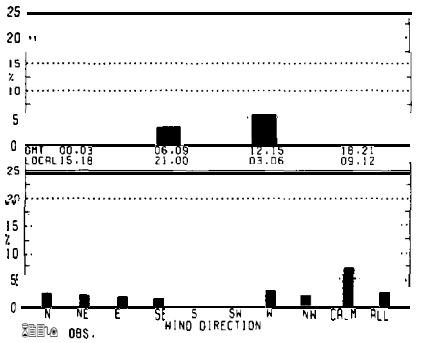
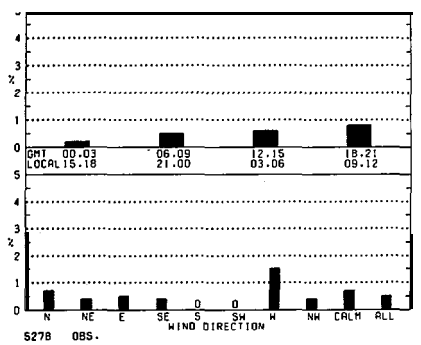
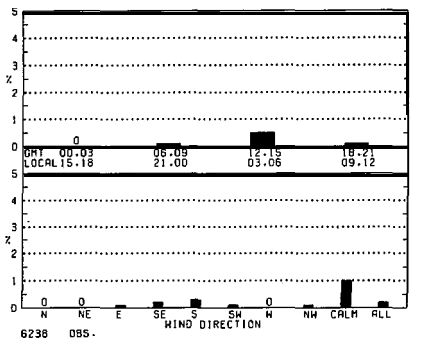


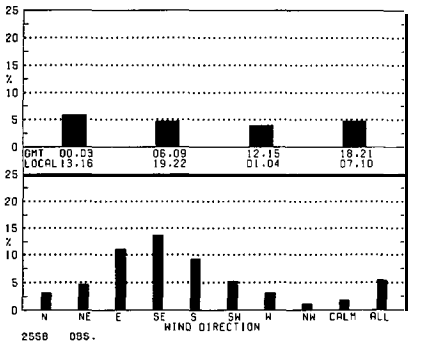
Sitka



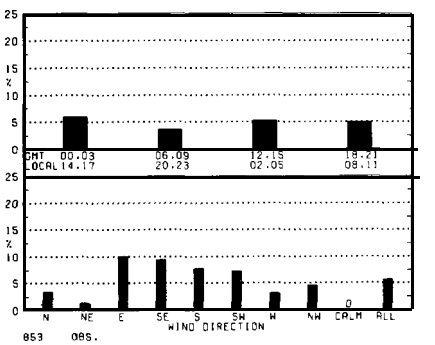
Annette

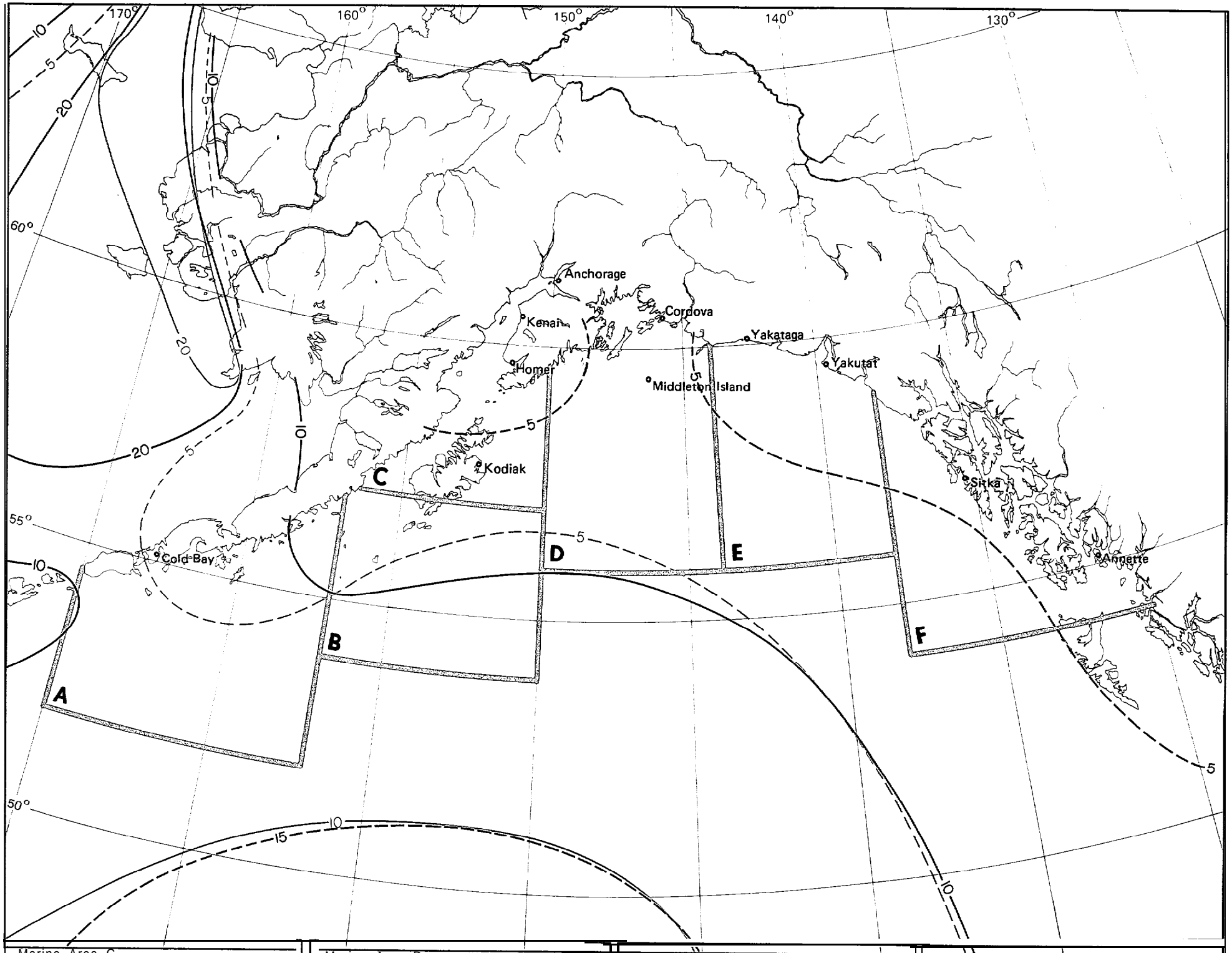


Marine Area A

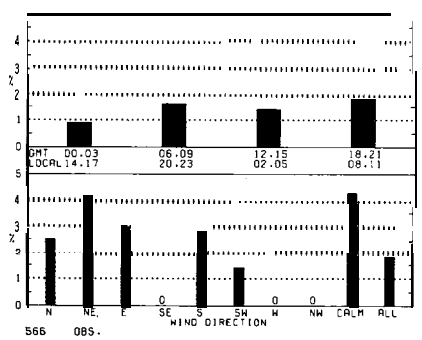


Marine Area B

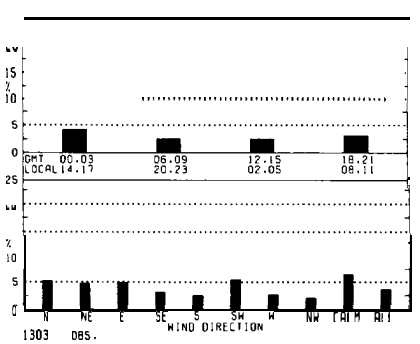




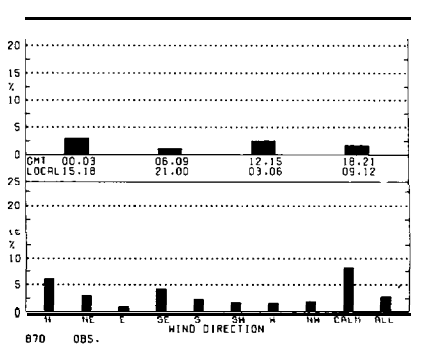
Marine Area C



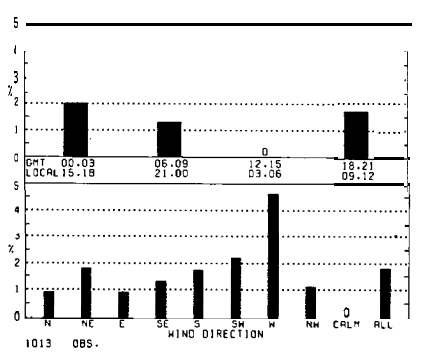
Marine Area D



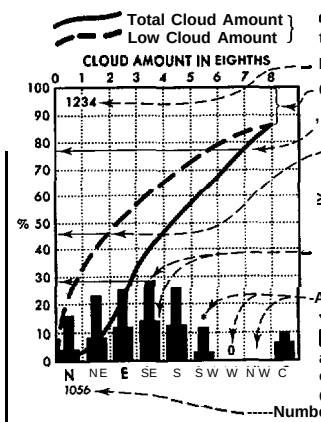
Marine Area E



Marine Area F



Legend — Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of *all total cloud amounts* were ≤7/8.)

(46% of *all low cloud amounts were* ≤2/8.)

≥5/8 { 5/8 & 6/8 ≥7/8

Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds ore clouds with bases <8000 feet.

(28% of *all* SE *winds* were accompanied by *low cloud amounts* ≥5/8 *and* 14% by *low cloud amounts* ≥7/8.)

An asterisk indicates that the percentage is based on IO-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

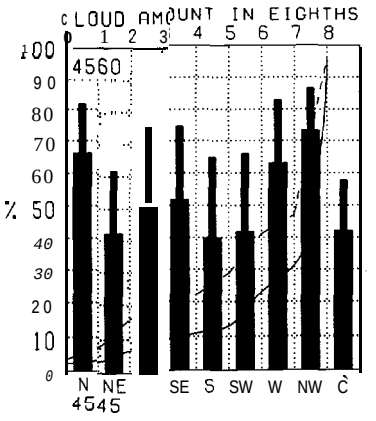
Map · Cloud amount thresholds

BLACK LINE · Percent frequency of total cloud amount ≤2/8

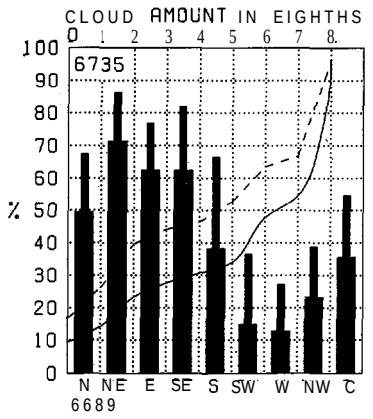
BLUE LINE Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than thot for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This moy lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The Frequency of obscured conditions moy be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations ore considered as B/8 coverage.

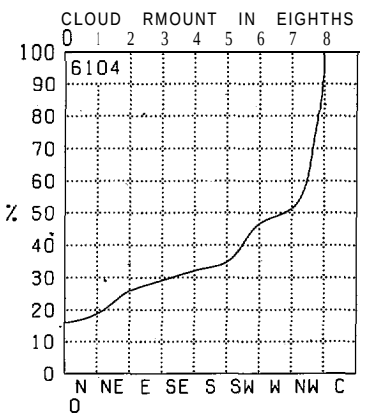
Cold Bay



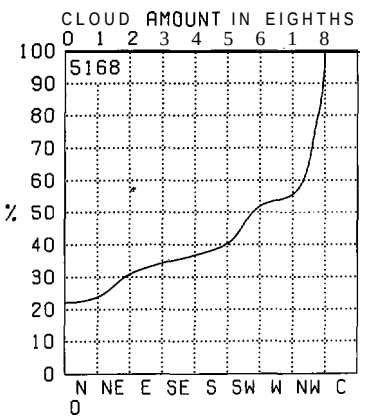
Kodiak



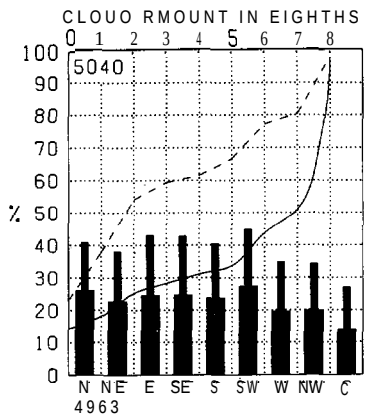
Homer



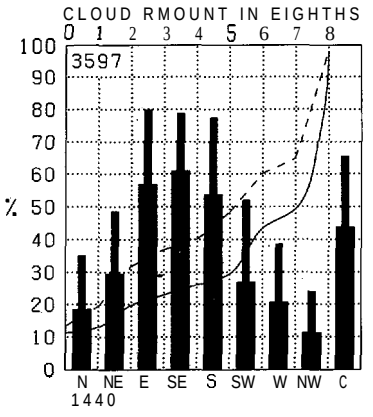
Kenai



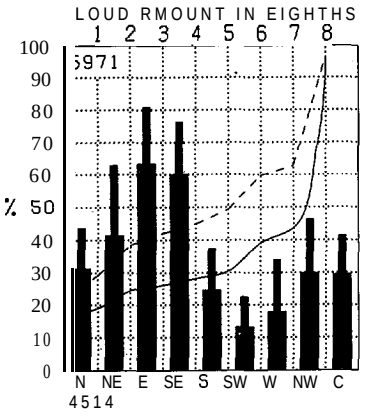
Anchorage



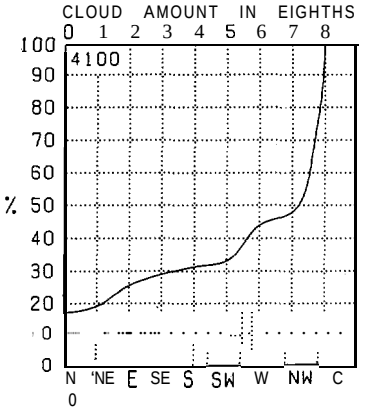
Middleton Island



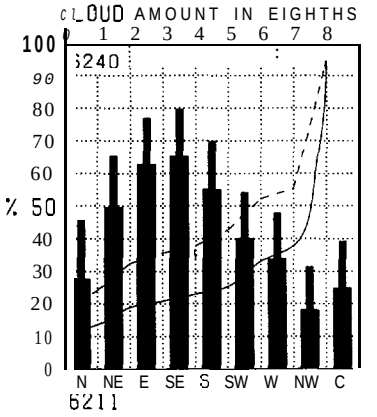
Cordova



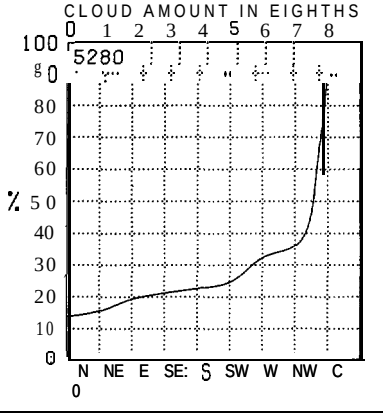
Yakataga



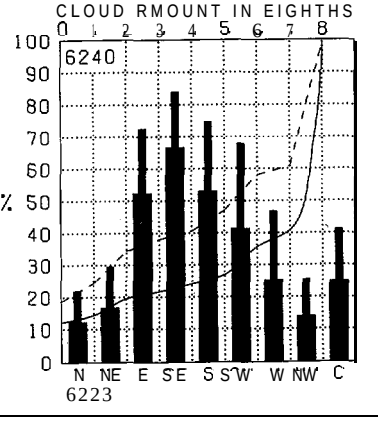
Yakutat



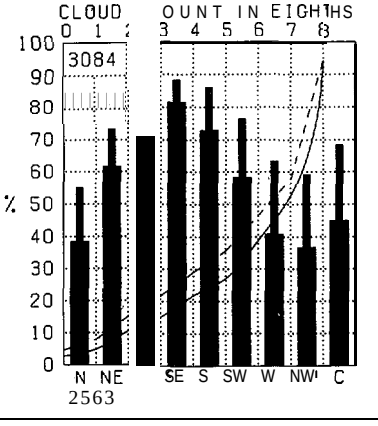
Sitka



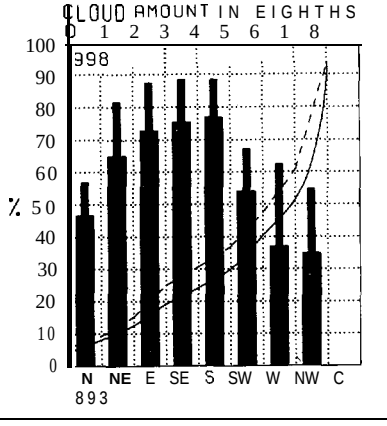
Annette

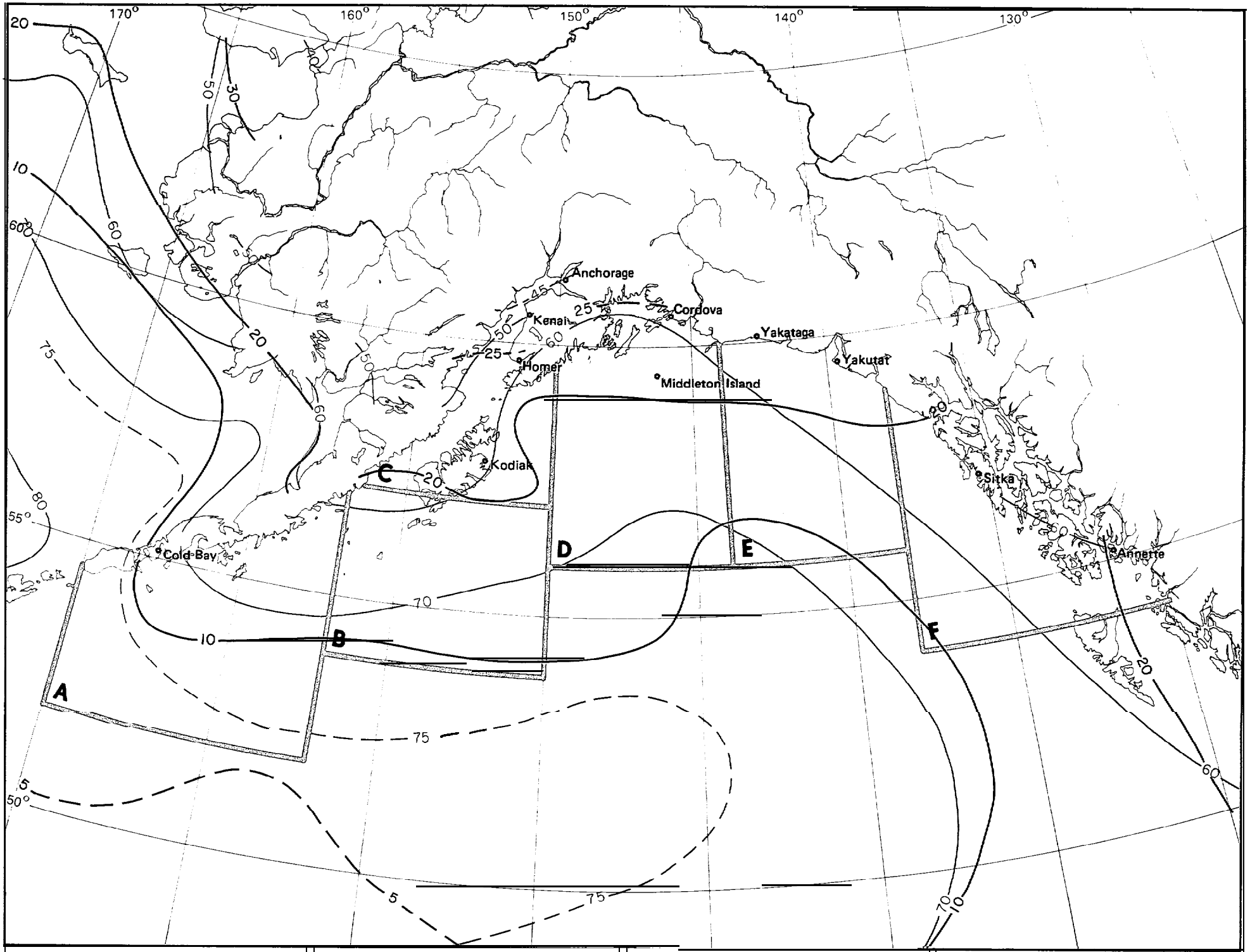


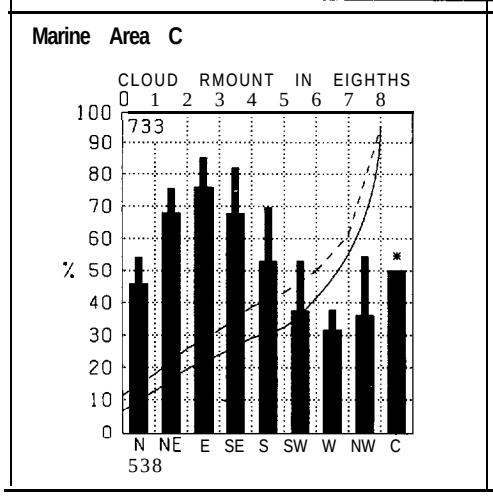
Marine Area A

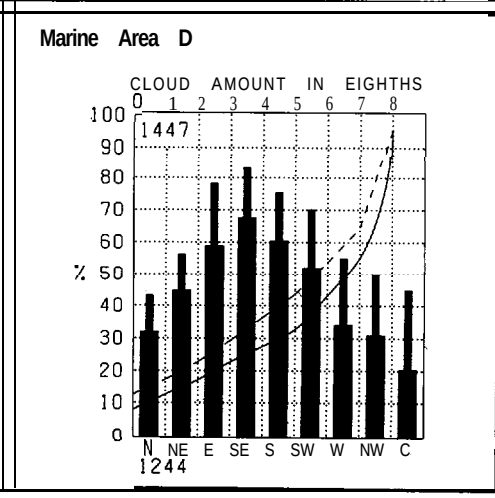


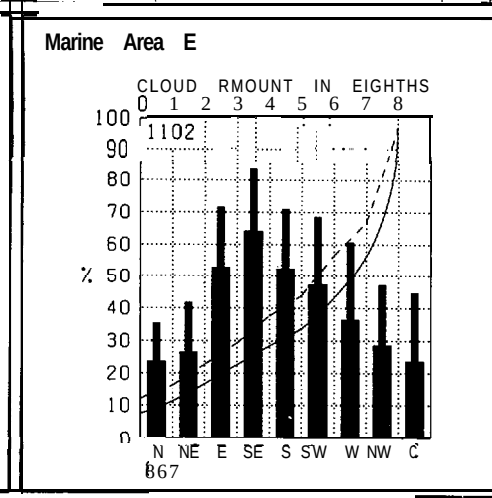
Marine Area B

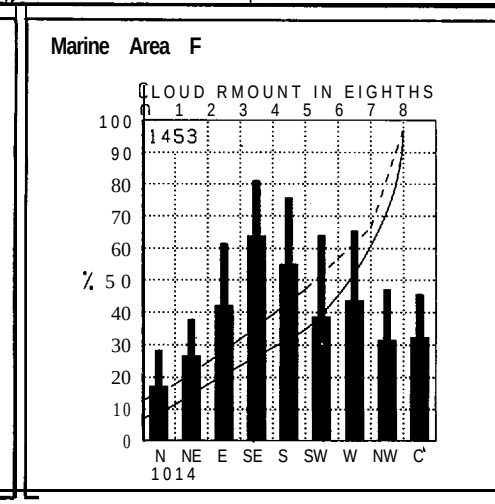








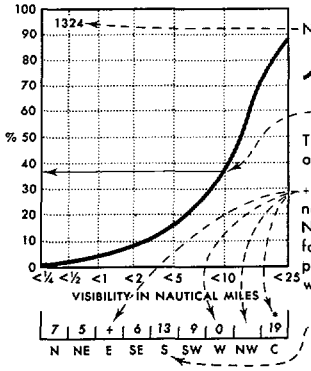




7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

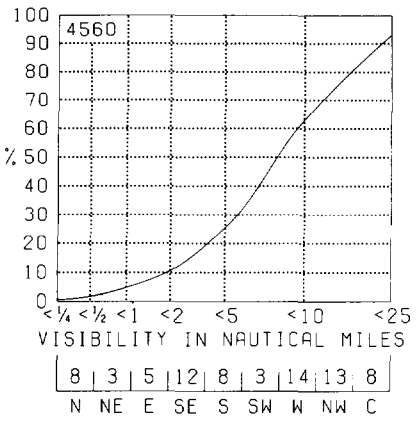
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

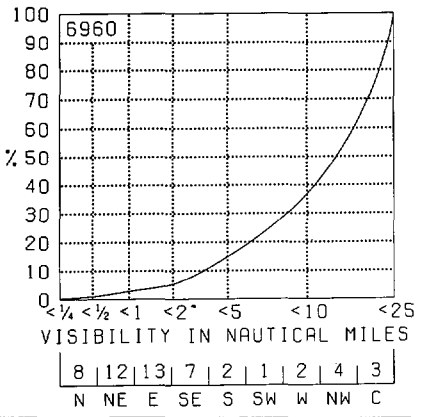
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

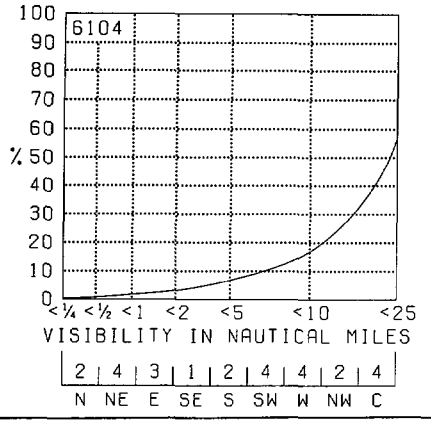
Cold Bay



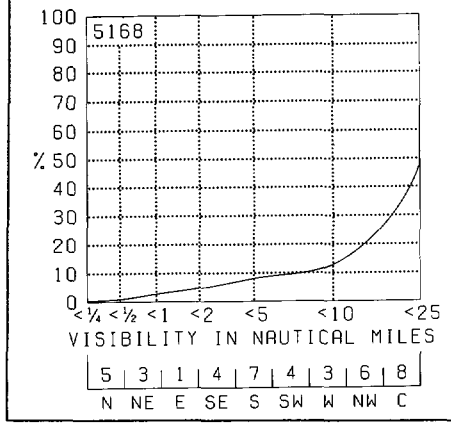
Kodiak



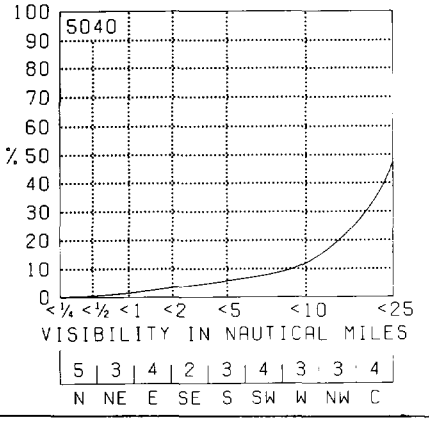
Homer



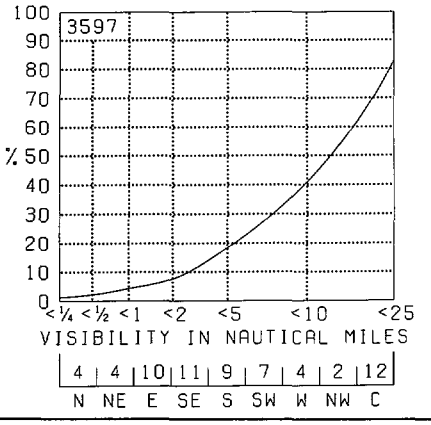
Kenai



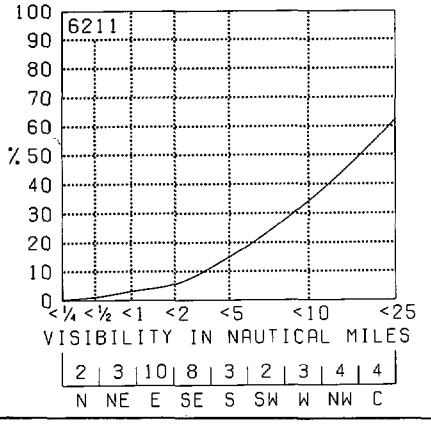
Anchorage



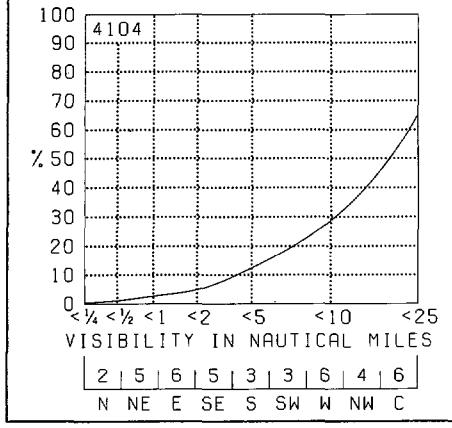
Middleton Island



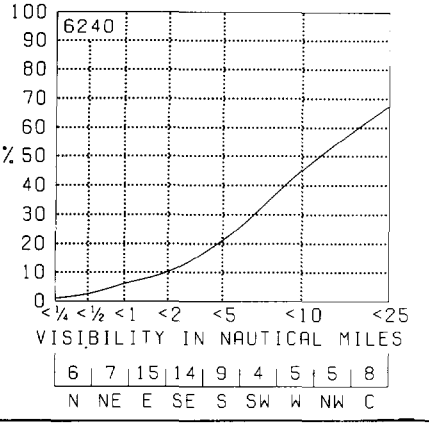
Cordova



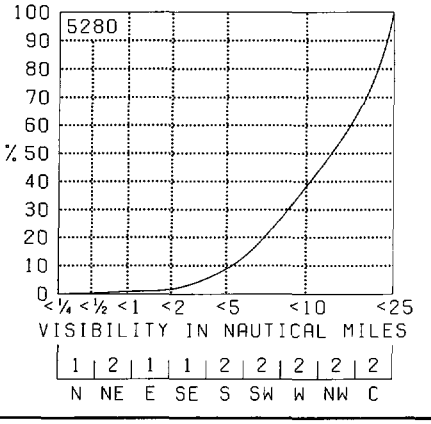
Yakataga



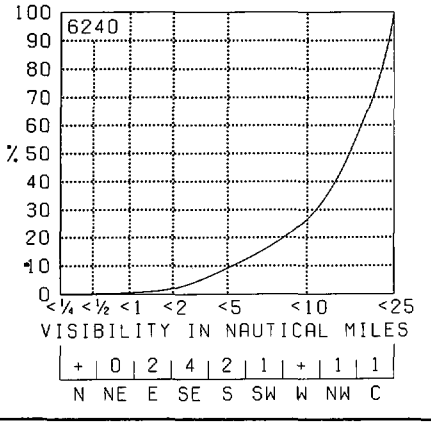
Yakutat



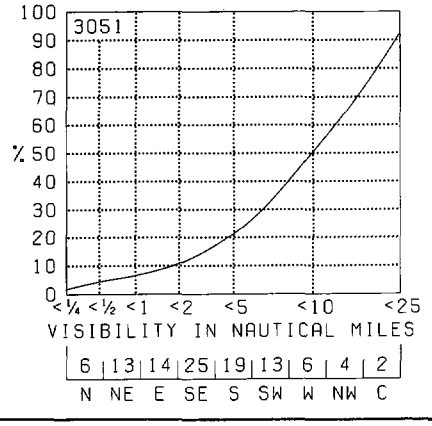
Sitka



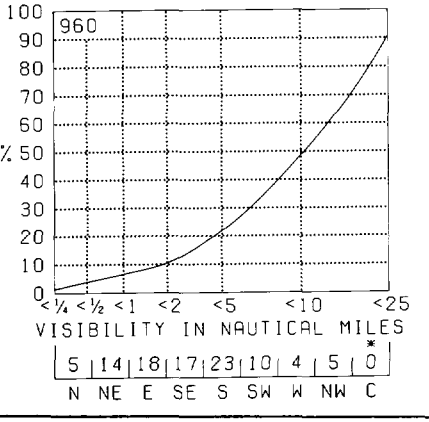
Annette

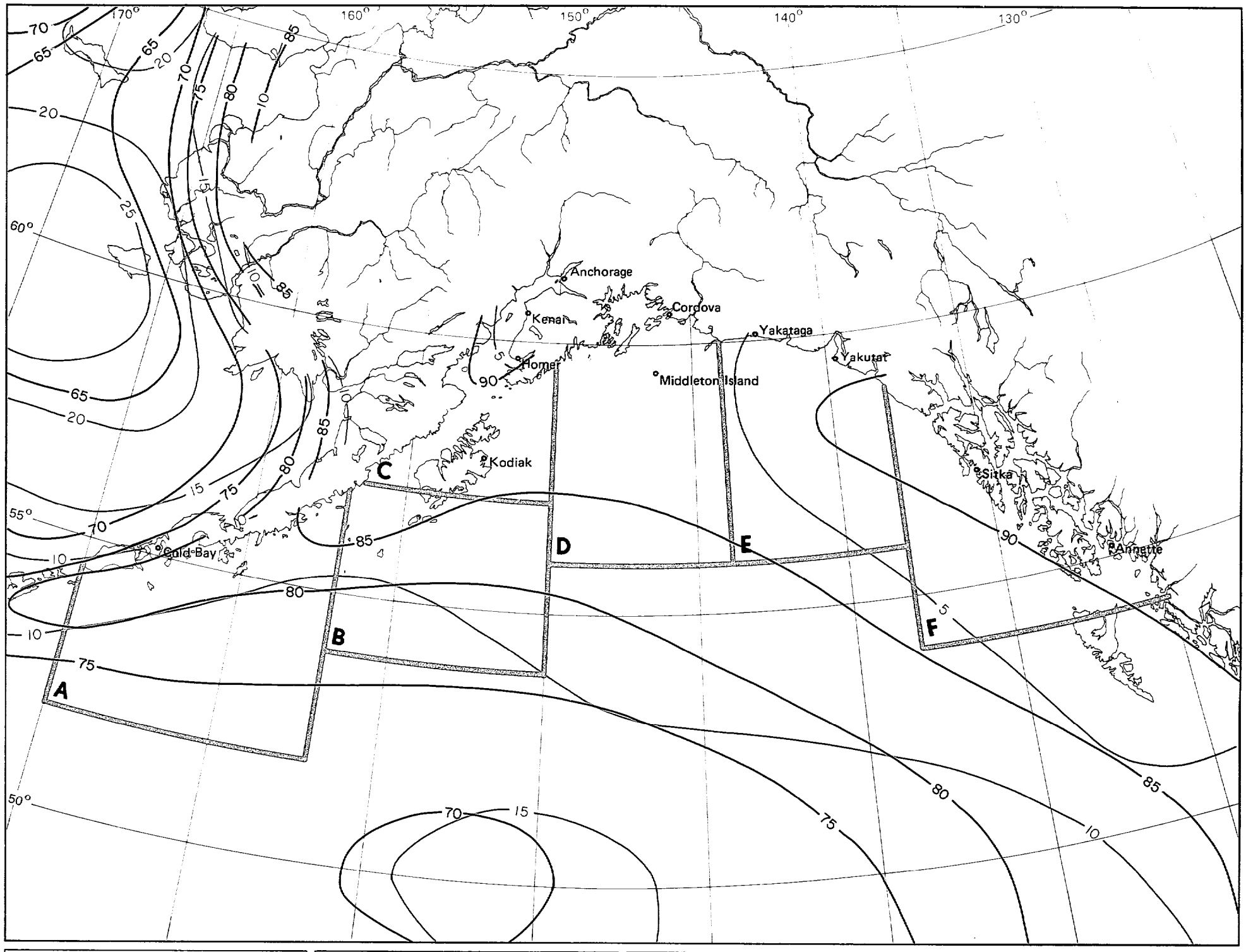


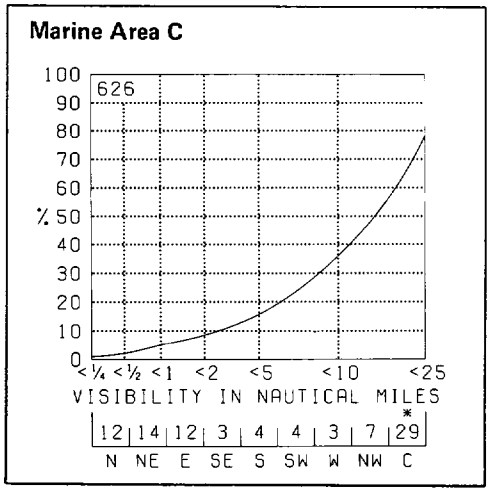
Marine Area A

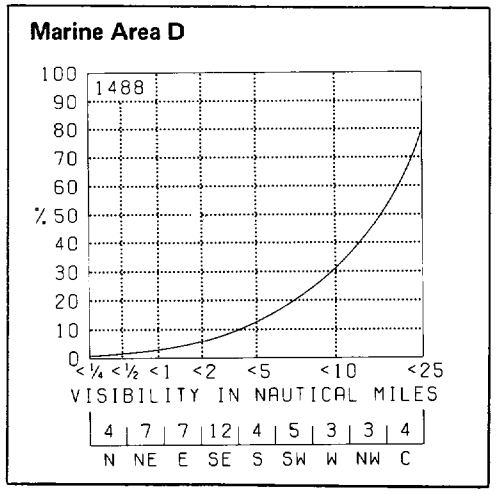


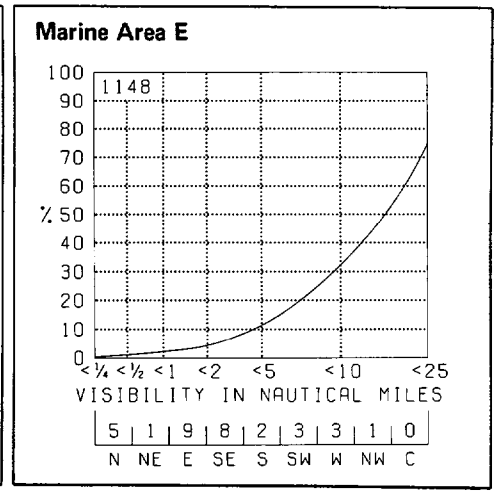
Marine Area B

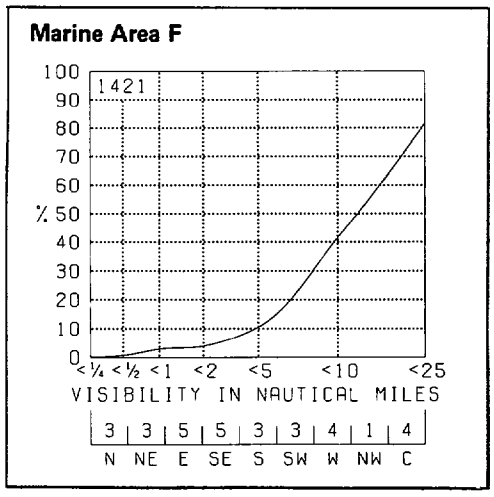










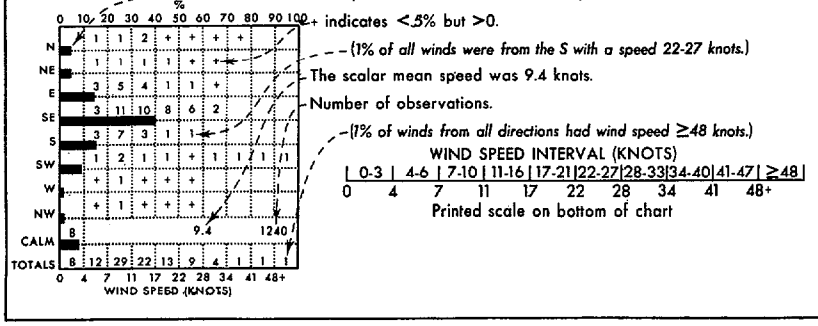


8 Visibility thresholds

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



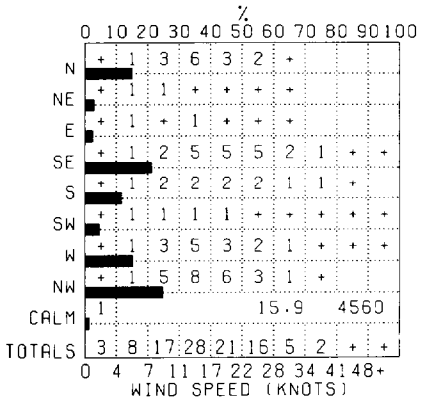
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

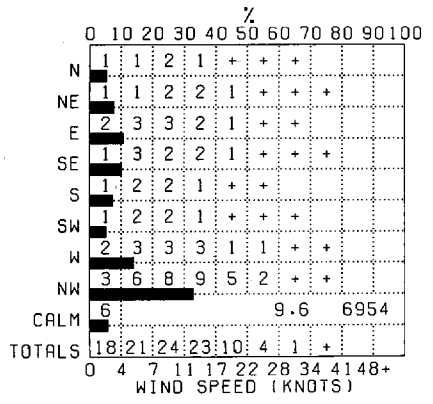
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

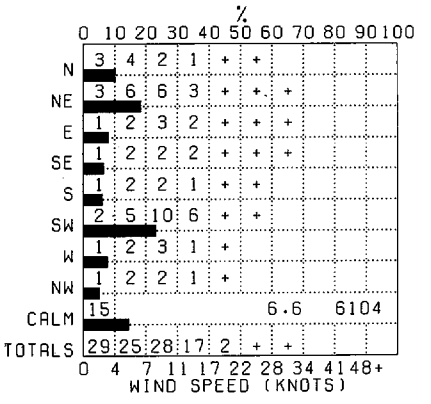
Cold Bay



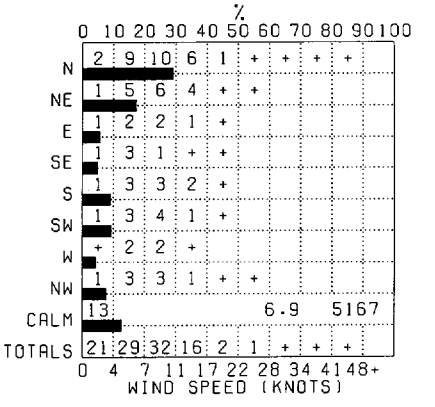
Kodiak



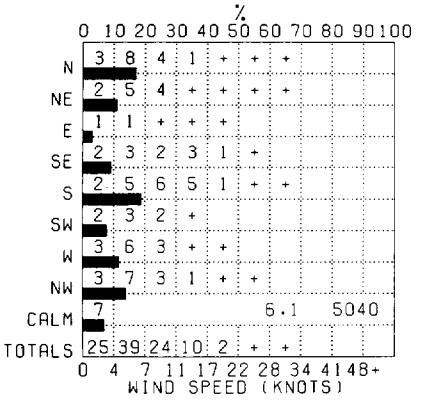
Homer



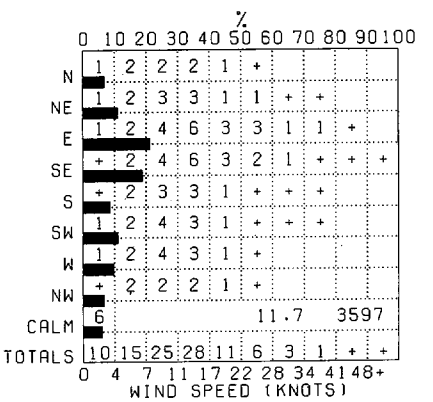
Kenai



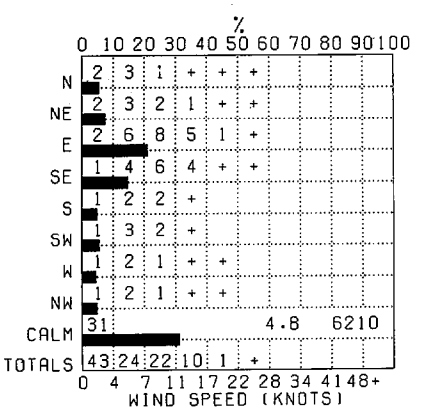
Anchorage



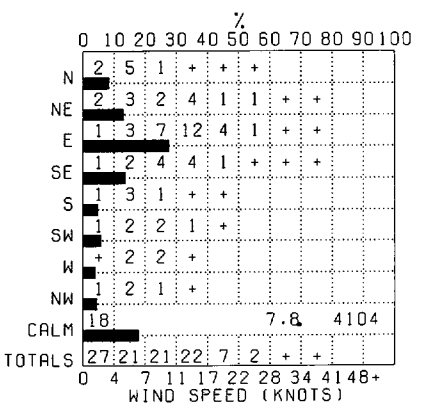
Middleton Island



Cordova



Yakataga



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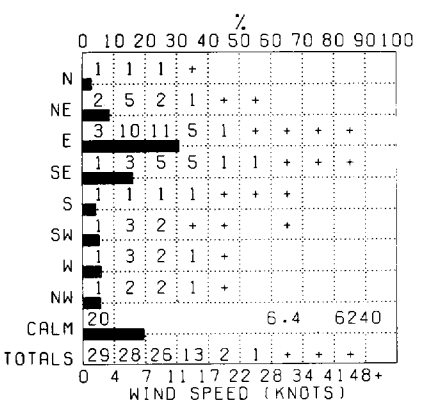
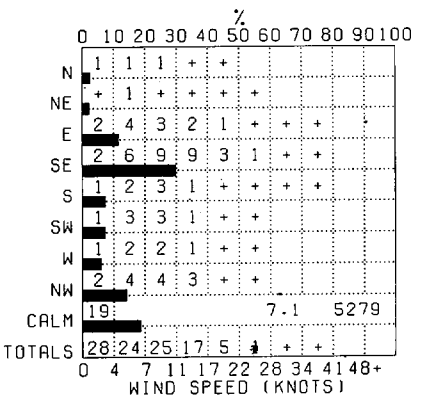
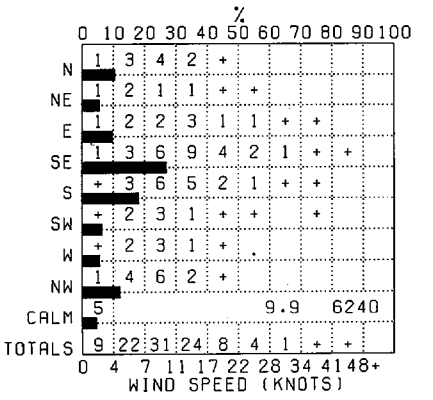


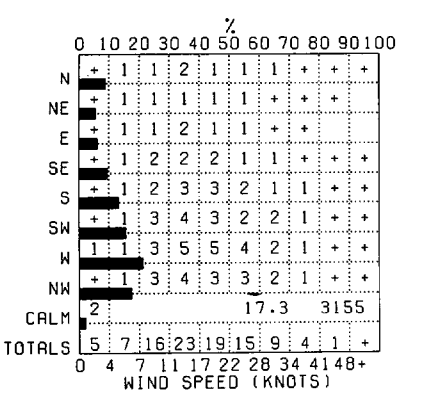
Sitka



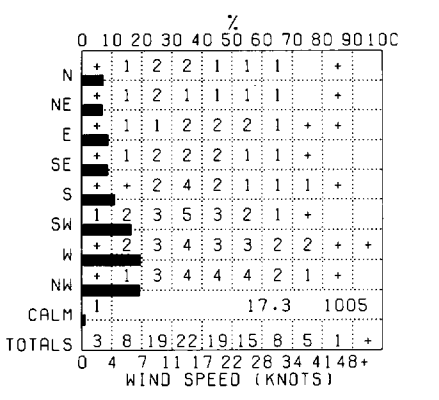
Annette

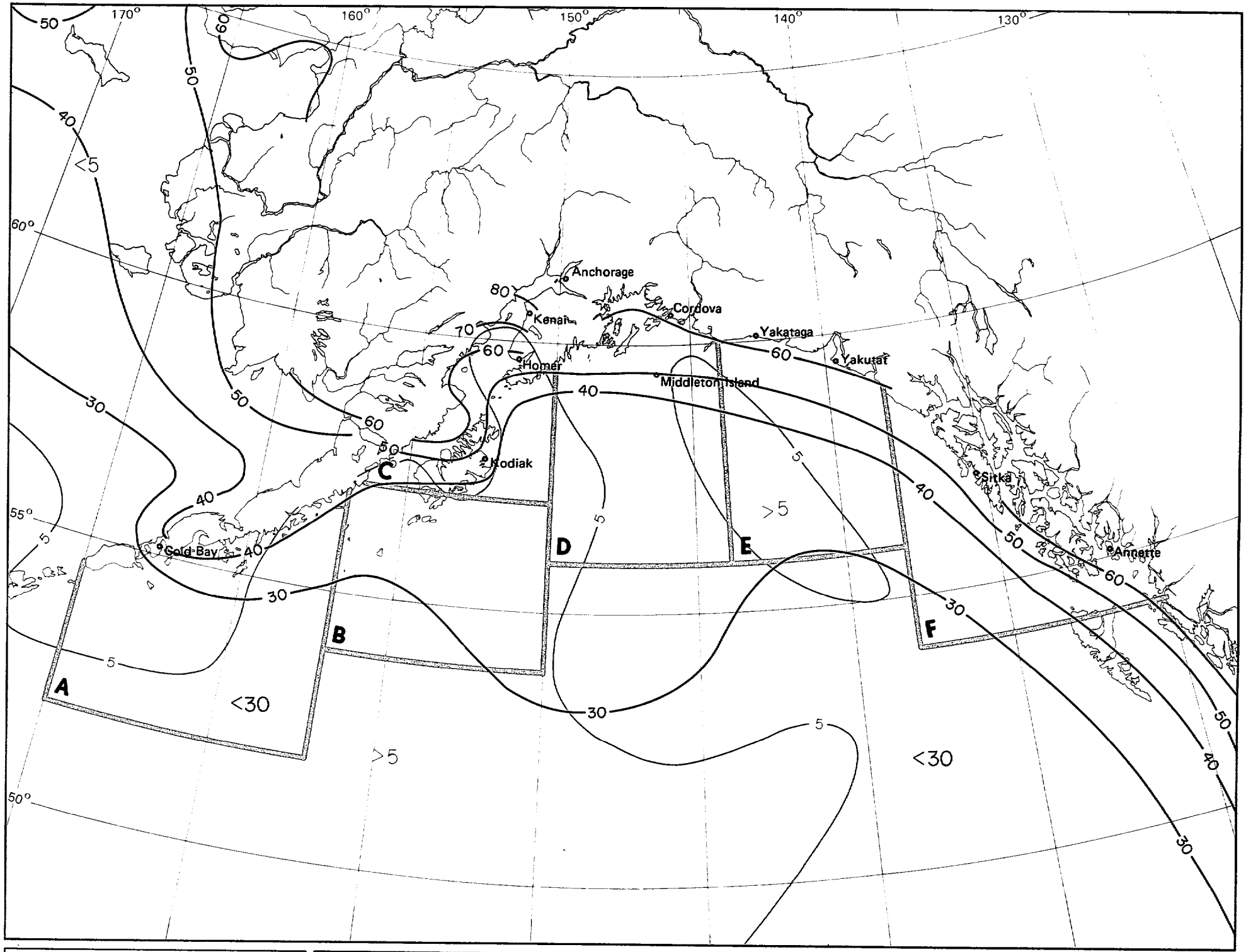


Marine Area A

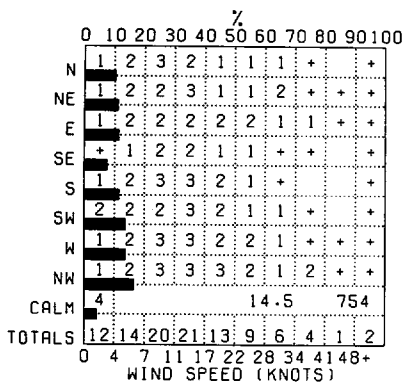


Marine Area B

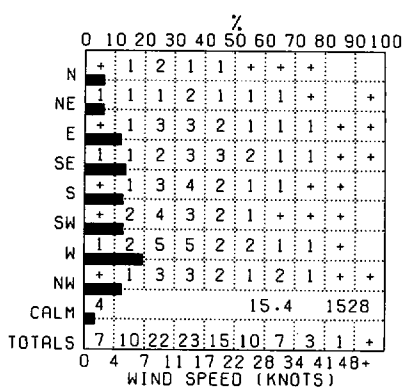




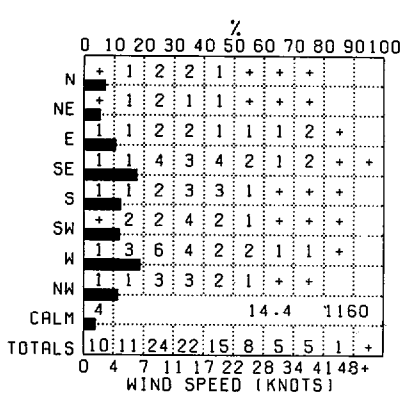
Marine Area C



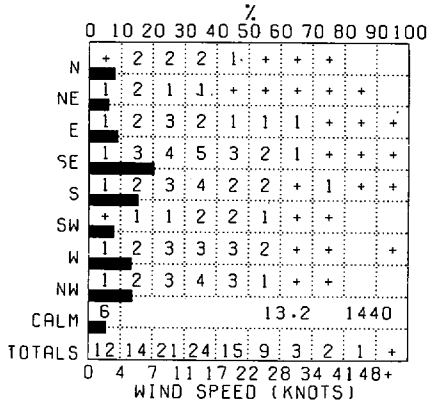
Marine Area D



Marine Area E



Marine Area F

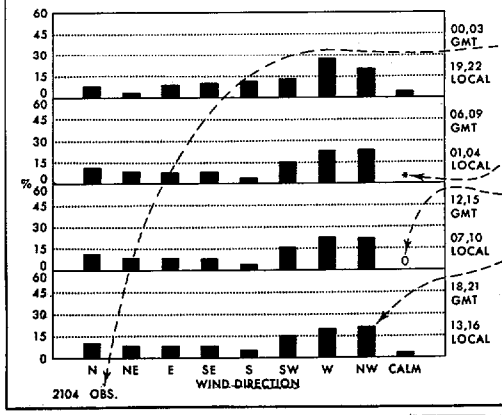


9 Wind speed thresholds

April

Legend

Wind direction/diurnal variation



— Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

▪ indicates <.05% but >0.

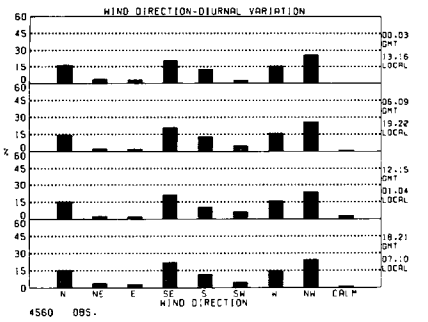
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

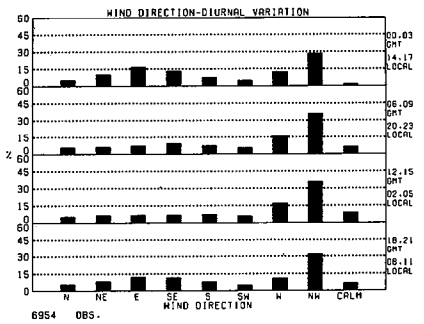
Map - Vector mean wind

Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

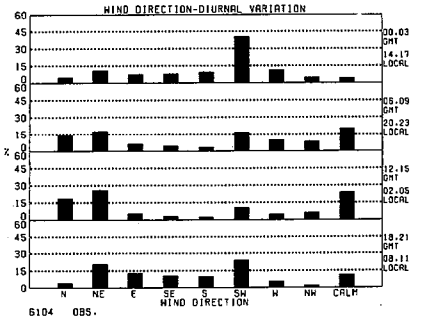
Cold Bay



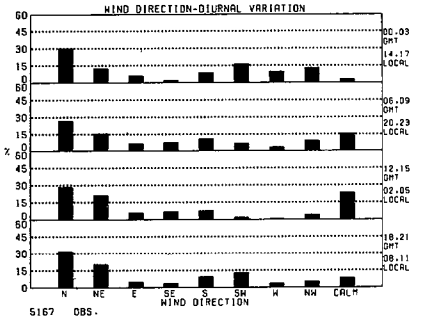
Kodiak



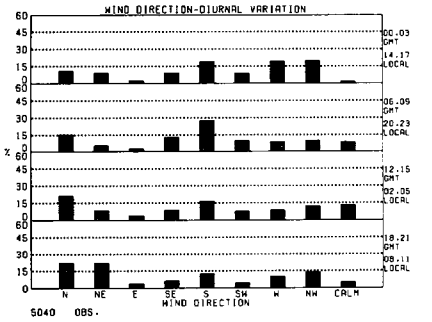
Homer



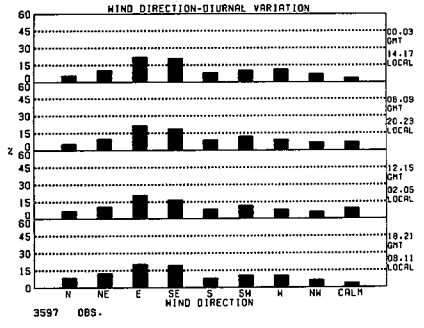
Kenai



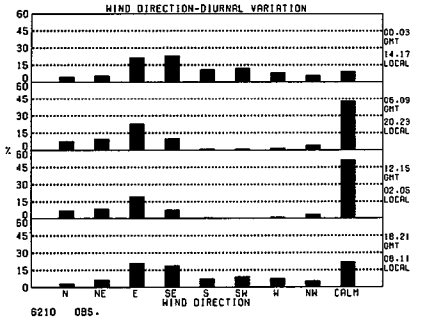
Anchorage



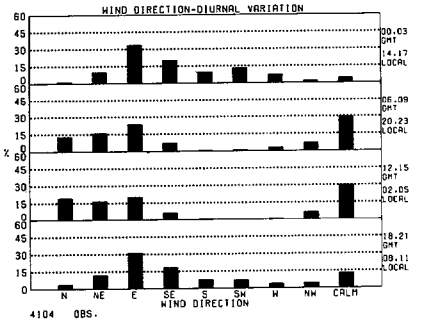
Middleton Island



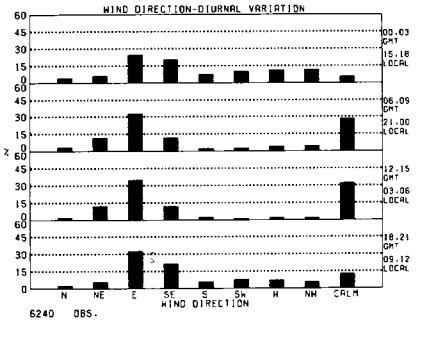
Cordova



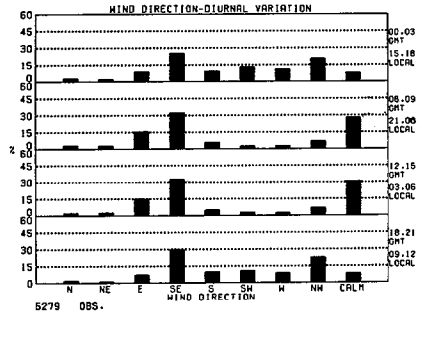
Yakataga



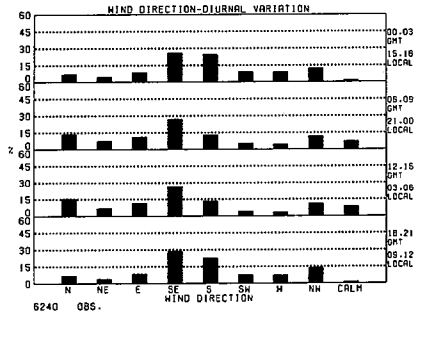
Yakutat



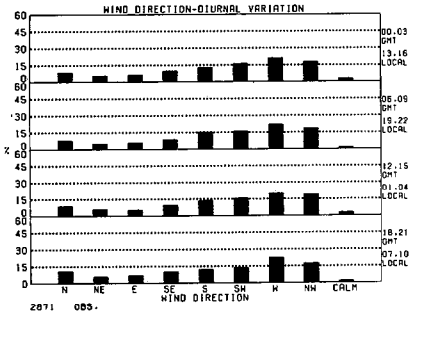
Sitka



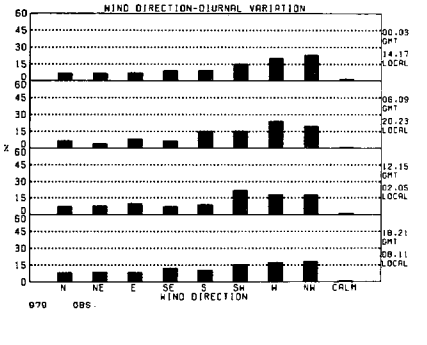
Annette

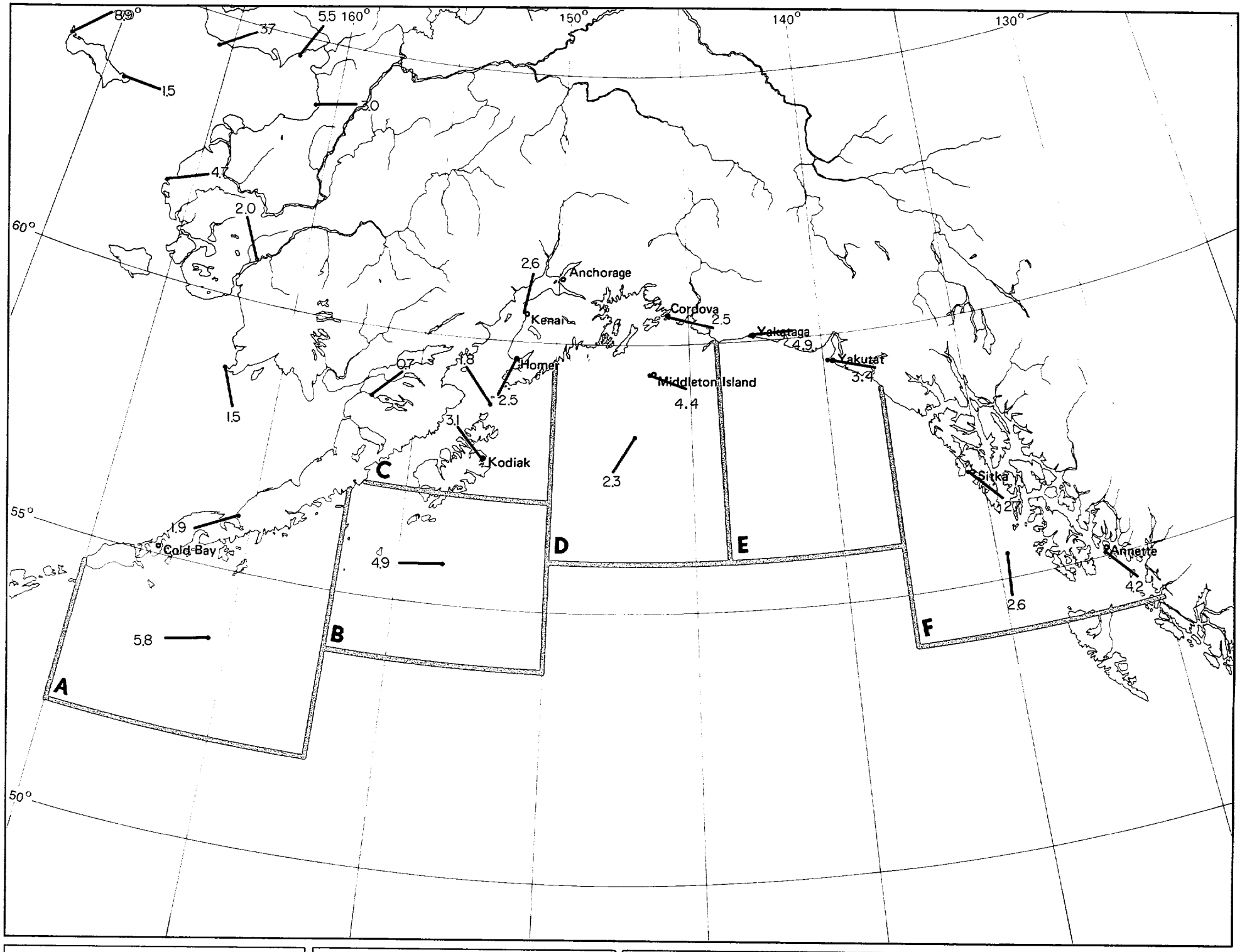


Marine Area A

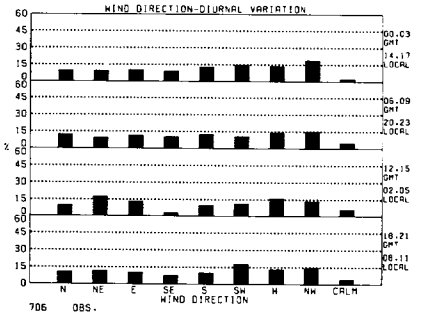


Marine Area B

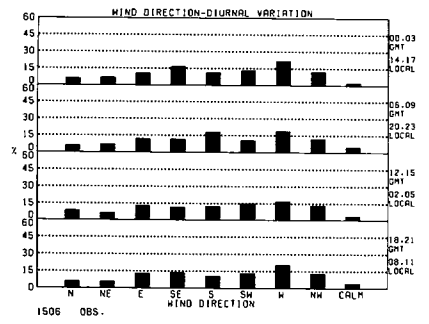




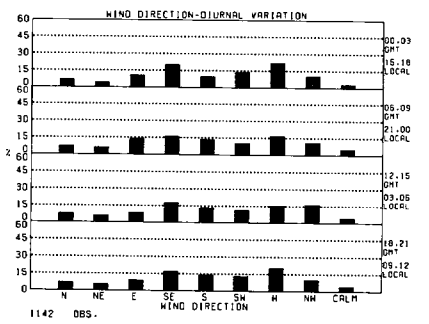
Marine Area C



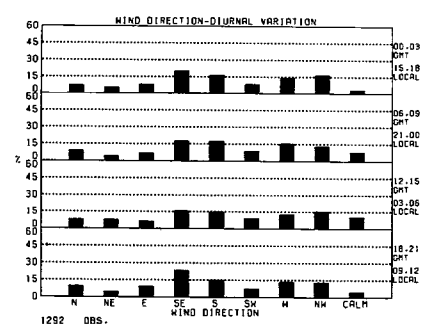
Marine Area D



Marine Area E



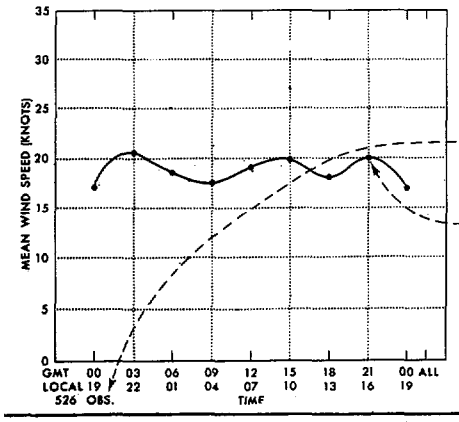
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

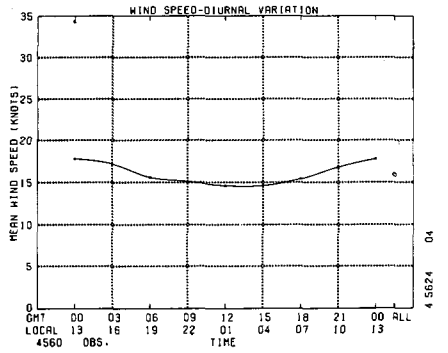
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

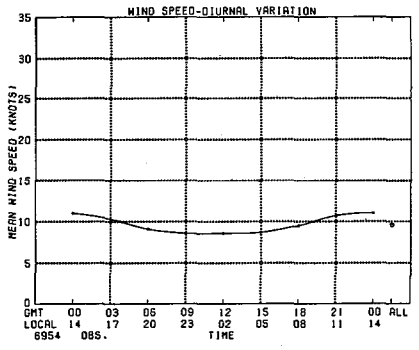
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than *00, 06, 12, 18, GMT hours on the marine area graphs.*

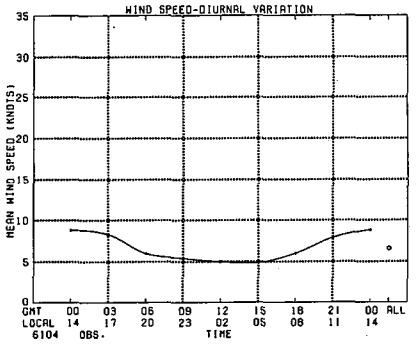
Cold Bay



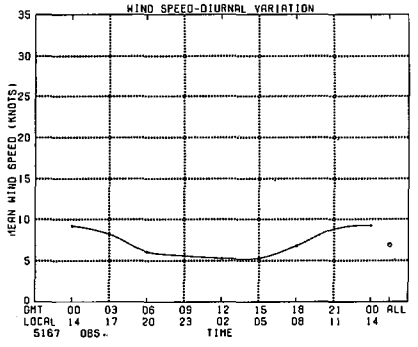
Kodiak



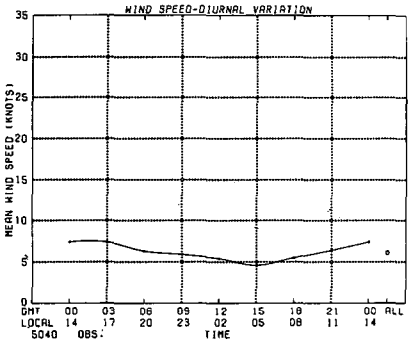
Homer



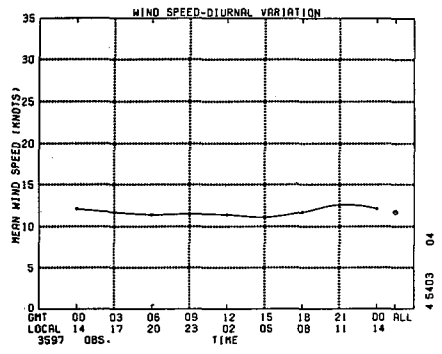
Kenai



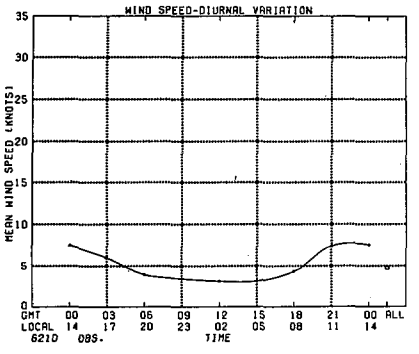
Anchorage



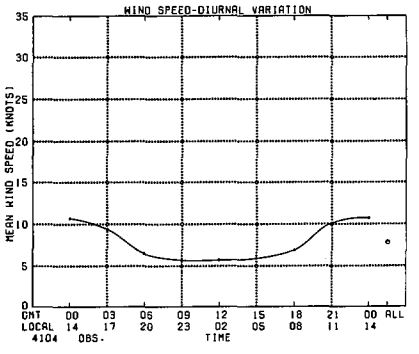
Middleton Island



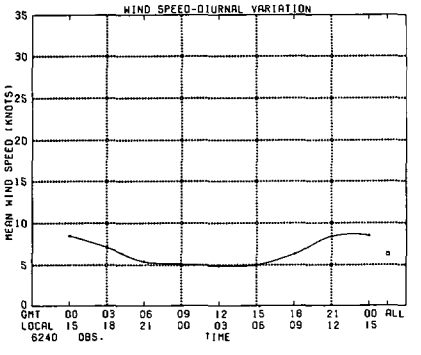
Cordova



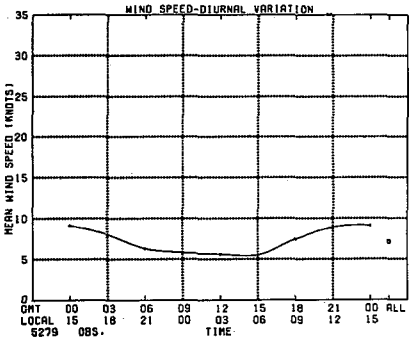
Yakataga



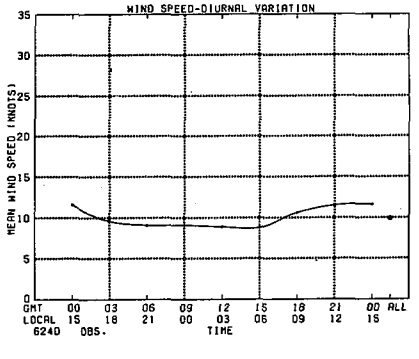
Yakutat



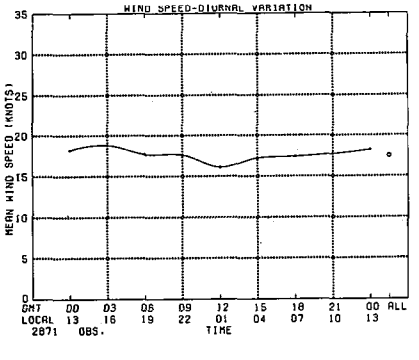
Sitka



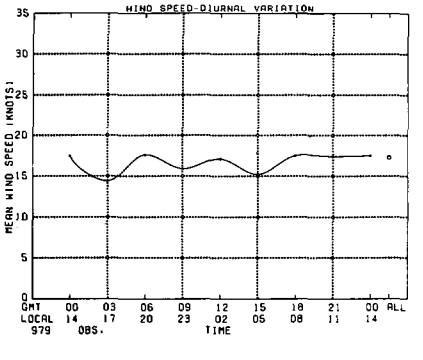
Annette

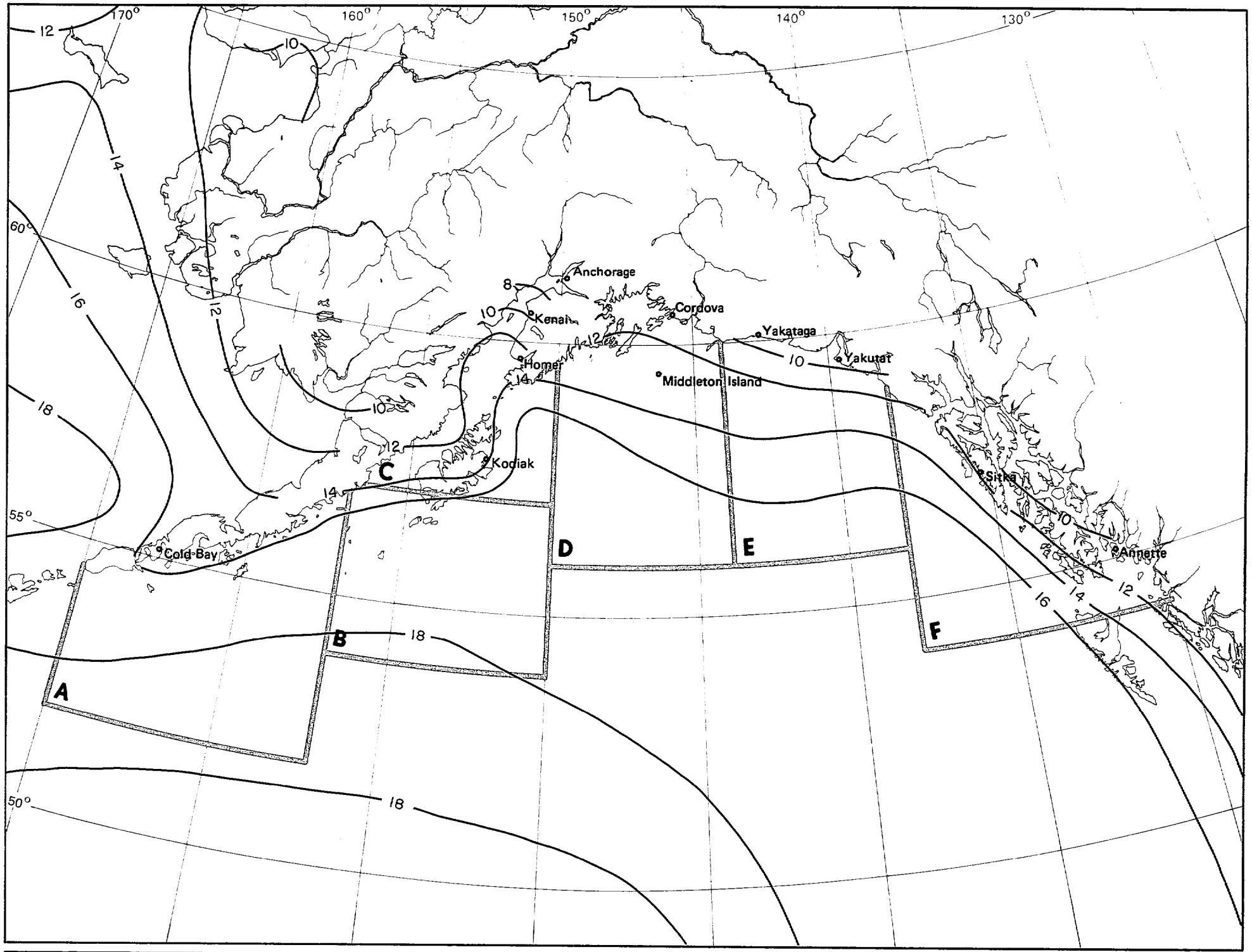


Marine Area A

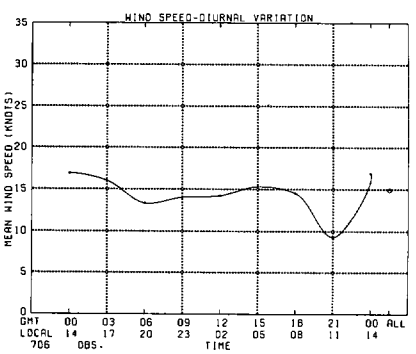


Marine Area B

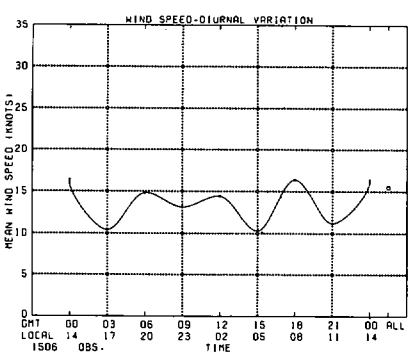




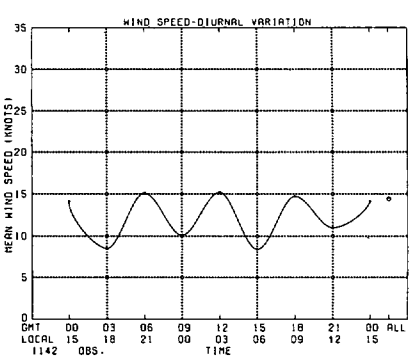
Marine Area C



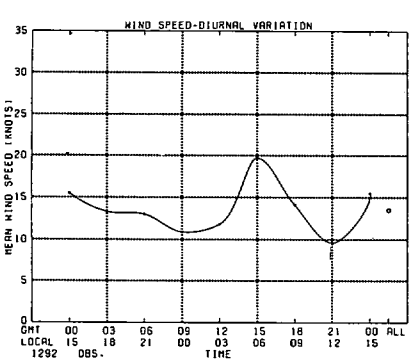
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

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Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	6	16
50<80	0	0	0	+	+	+
35<50	0	+	+	+	1	1
20<35	+	+	1	2	7	8
10<20	+	+	1	5	14	8
6<10	+	+	2	4	8	2
3<6	+	+	2	3	2	+
1.5<3	0	+	+	+	+	0
0<1.5	1	1	1	+	0	0

4545

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	+	4	44
50<80	0	0	0	+	+	1
35<50	+	0	+	+	1	3
20<35	0	+	+	1	5	10
10<20	+	+	+	3	7	4
6<10	+	+	1	3	3	1
3<6	+	+	+	2	1	+
1.5<3	0	+	+	+	+	+
0<1.5	1	1	1	1	+	0

6689

Homer

Insufficient Data

Kenai

Insufficient Data

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	63
50<80	0	0	+	0	+	8
35<50	+	0	0	+	+	6
20<35	+	+	+	+	1	7
10<20	0	+	+	1	2	3
6<10	0	+	+	+	1	1
3<6	+	+	+	1	1	+
1.5<3	0	+	+	+	+	+
0<1.5	+	1	1	+	+	0

4963

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	6	35
50<80	0	0	0	0	+	2
35<50	0	0	0	0	1	3
20<35	0	·	0	+	3	6
10<20	+	+	1	2	7	7
6<10	+	+	2	6	7	3
3<6	+	+	1	1	1	+
1.5<3	0	0	0	+	0	0
0<1.5	2	2	1	1	+	0

1440

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	45
50<80	0	0	+	0	+	2
35<50	0	0	0	+	1	5
20<35	+	0	+	1	7	10
10<20	+	+	+	5	8	3
6<10	+	+	+	1	1	+
3<6	0	+	+	+	+	+
1.5<3	0	0	0	0	0	0
0<1.5	1	2	1	1	+	+

4514

Yakataga

Insufficient Data

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	3	35
50<80	+	+	0	0	+	3
35<50	+	0	0	+	1	3
20<35	0	+	+	+	3	6
10<20	+	+	1	4	9	6
6<10	+	+	1	4	5	1
3<6	+	+	1	2	2	1
1.5<3	0	+	+	+	+	+
0<1.5	2	2	1	+	+	0

6211

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	2	4	0
50<80	0	0	0	0	0	0
35<50	0	0	0	0	8	2
20<35	0	2	0	14	29	0
10<20	0	0	0	4	12	0
6<10	0	0	2	0	10	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	2	8	2	0	0	0

51

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	41
50<80	0	0	0	+	+	2
35<50	0	0	0	0	+	4
20<35	0	0	0	+	3	11
10<20	0	0	+	3	9	13
6<10	0	+	+	2	4	2
3<6	+	+	+	1	1	+
1.5<3	+	0	+	+	+	+
0<1.5	+	+	+	+	+	0

6223

Marine Area A

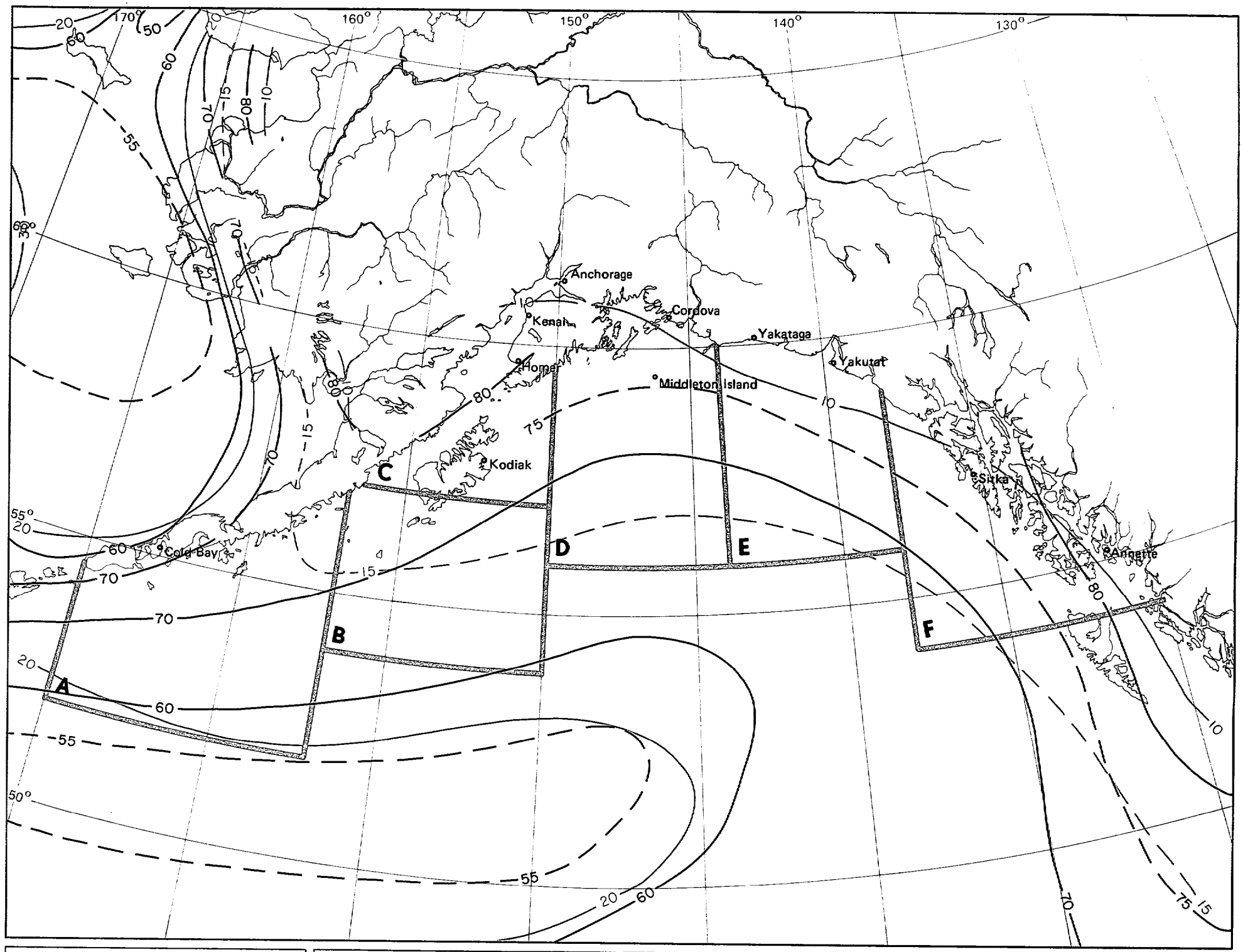
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	1	5	23
50<80	0	0	+	+	+	1
35<50	+	+	+	+	1	3
20<35	+	+	+	1	4	9
10<20	+	+	1	3	8	13
6<10	+	1	1	2	5	4
3<6	+	+	1	1	1	1
1.5<3	0	0	+	+	+	+
0<1.5	3	1	1	1	1	+

2403

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	5	26
50<80	0	0	0	+	+	+
35<50	0	0	+	+	2	2
20<35	+	0	+	1	4	7
10<20	+	+	+	3	7	10
6<10	+	+	1	4	5	5
3<6	0	+	+	1	2	1
1.5<3	+	0	+	1	1	0
0<1.5	3	1	2	1	1	+

843



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	3	36
50<80	0	0	0	0	+	1
35<50	0	0	+	+	1	2
20<35	0	+	+	1	2	5
10<20	0	+	+	1	5	13
6<10	+	0	1	1	4	7
3<6	0	0	+	1	1	1
1.5<3	0	+	1	1	1	1
0<1.5	2	3	1	1	1	0

518

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	3	34
50<80	0	0	0	+	+	1
35<50	0	0	0	+	1	3
20<35	0	0	0	1	2	7
10<20	0	+	+	1	3	17
6<10	+	+	+	1	4	9
3<6	+	0	+	1	1	2
1.5<3	0	+	+	+	+	1
0<1.5	1	1	1	1	1	+

1183

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	2	36
50<80	0	0	0	0	0	1
35<50	0	0	+	+	1	3
20<35	0	0	+	1	4	9
10<20	0	+	+	1	6	12
6<10	0	+	0	1	4	8
3<6	0	0	+	1	1	2
1.5<3	0	+	0	+	+	+
0<1.5	1	1	1	+	1	+

805

Marine Area F

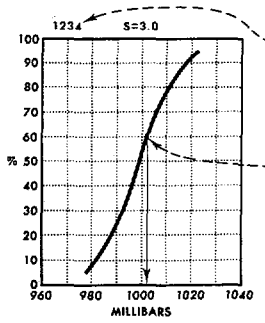
LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	+	3	37
50<80	0	0	0	0	+	1
35<50	0	0	0	0	1	4
20<35	+	0	0	1	3	8
10<20	+	0	0	1	6	12
6<10	0	+	+	2	5	6
3<6	0	0	0	1	1	1
1.5<3	0	+	0	0	1	+
0<1.5	1	0	+	2	2	+

931

12 Low cloud ceiling and visibility thresholds

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

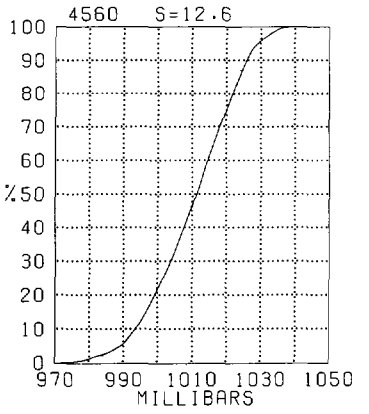
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

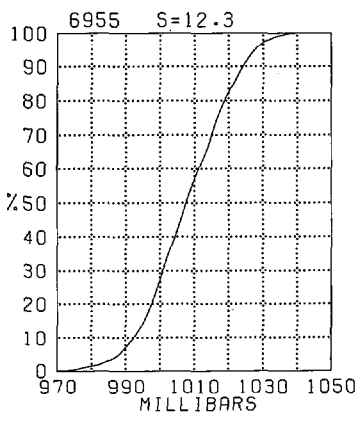
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

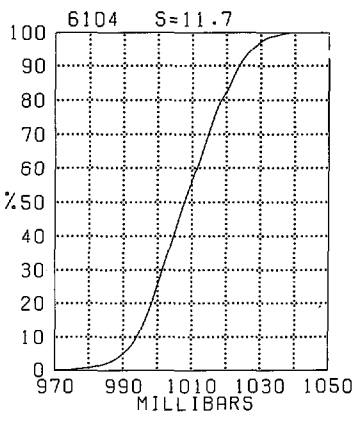
Cold Bay



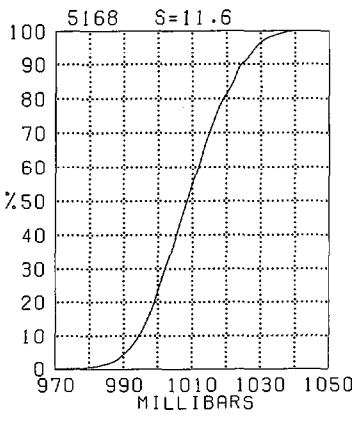
Kodiak



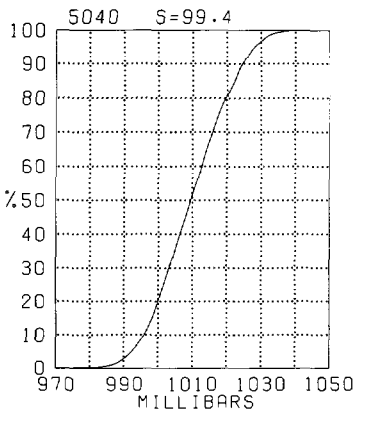
Homer



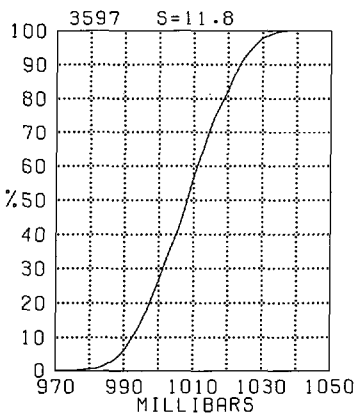
Kenai



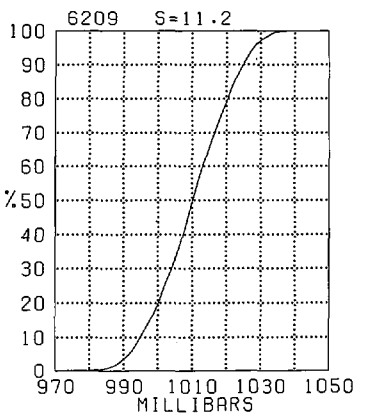
Anchorage



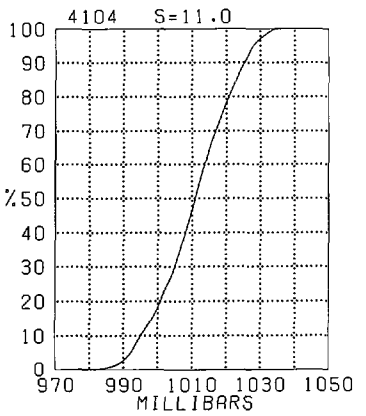
Middleton Island



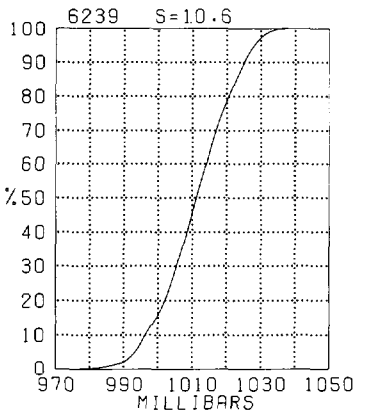
Cordova



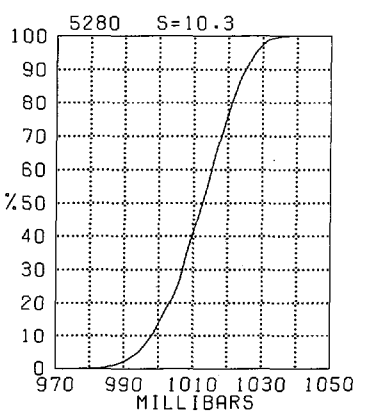
Yakataga



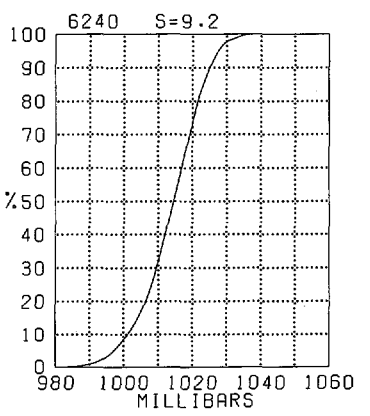
Yakutat



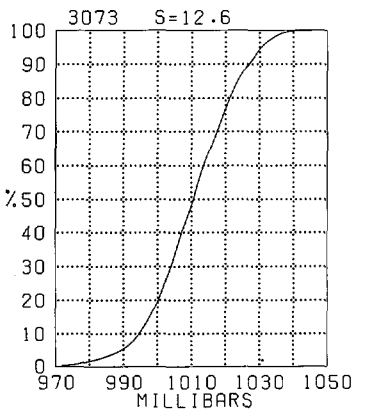
Sitka



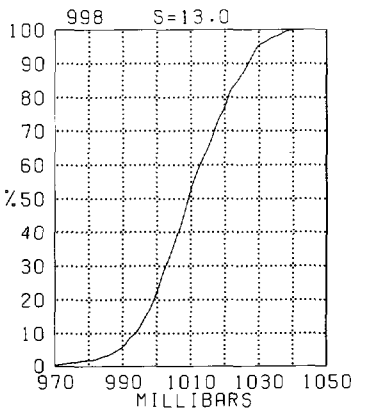
Annette

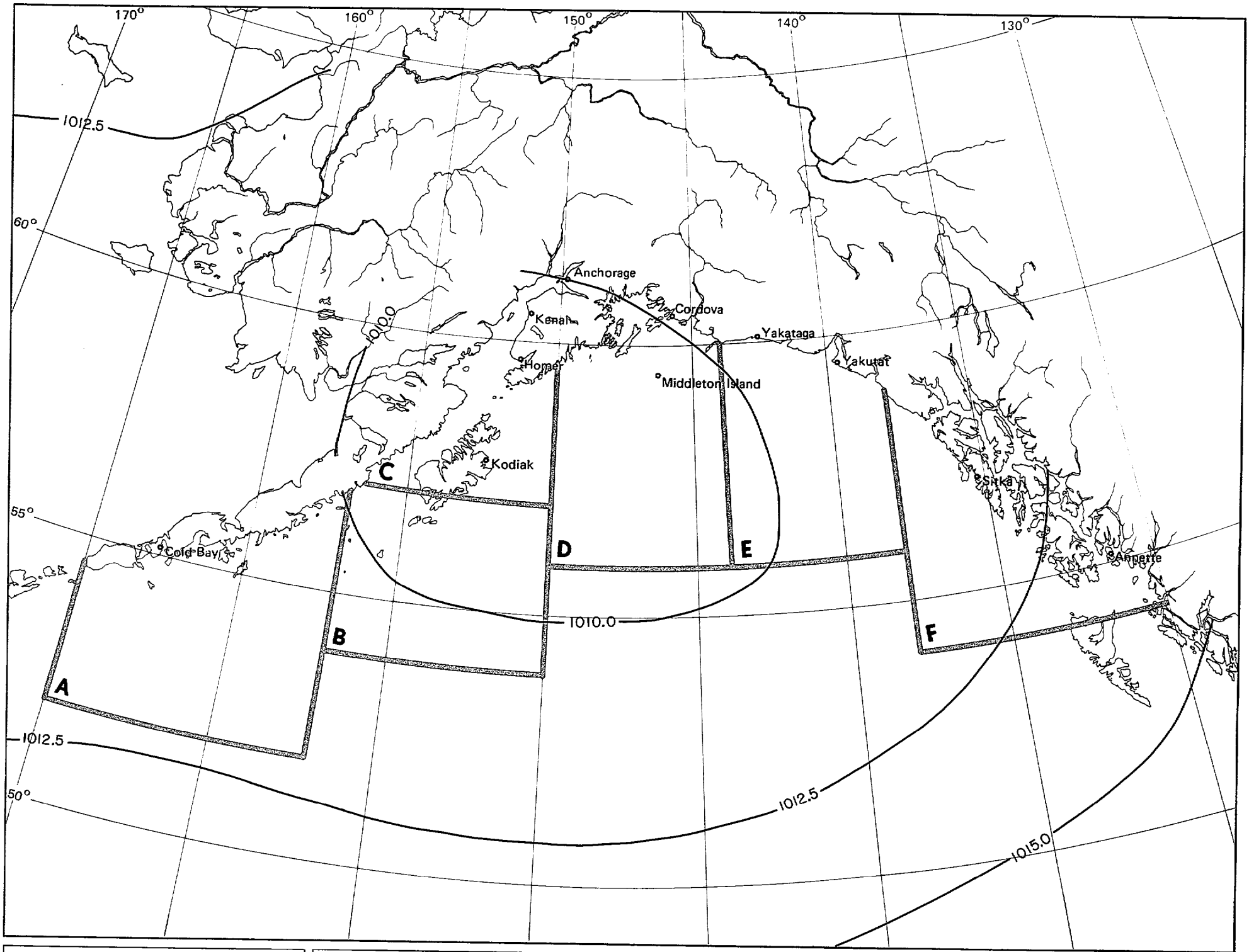


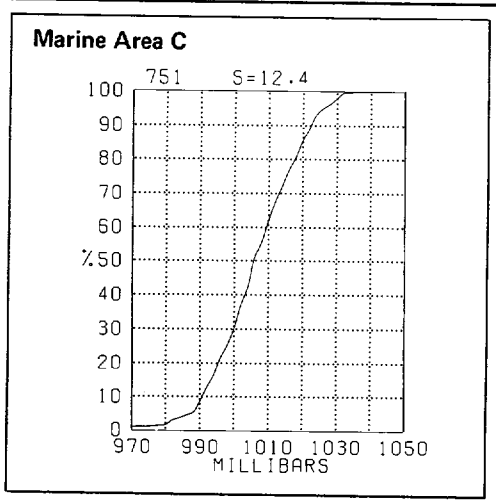
Marine Area A

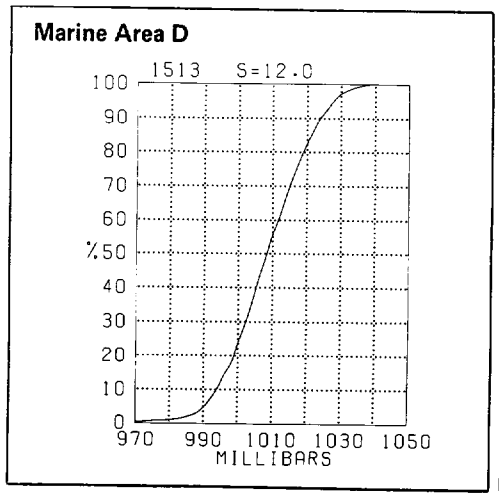


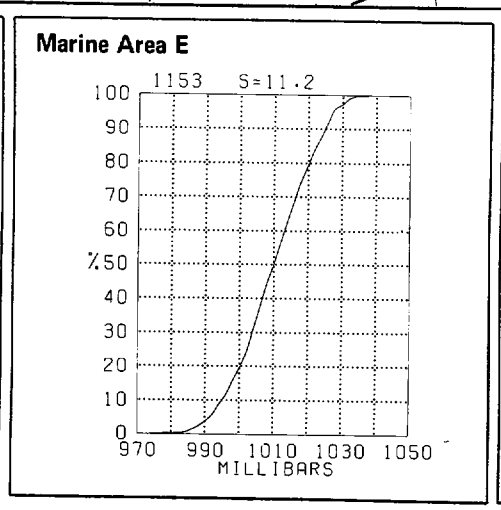
Marine Area B

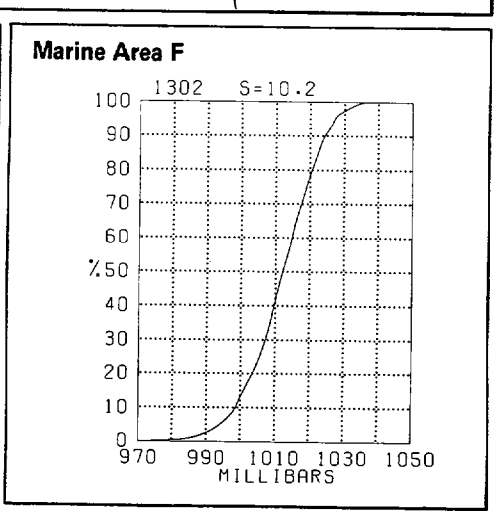










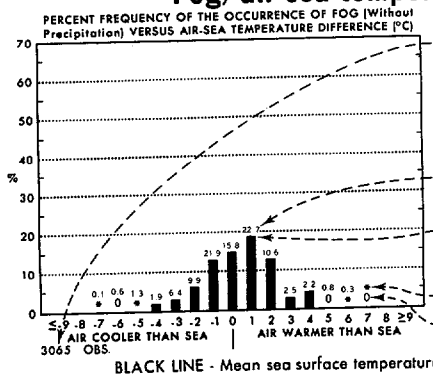


13 Mean sea level pressure

April

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

— — (22.7% of all observations had Air-Sea temperature difference of +1 °C.)

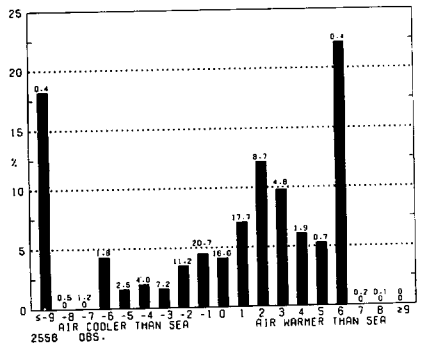
— — (19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

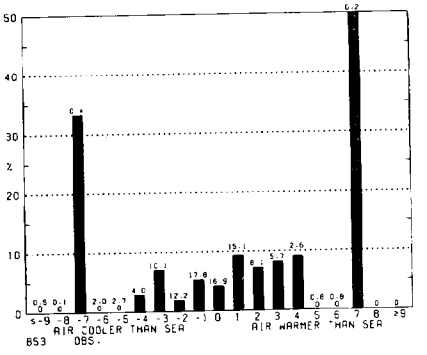
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

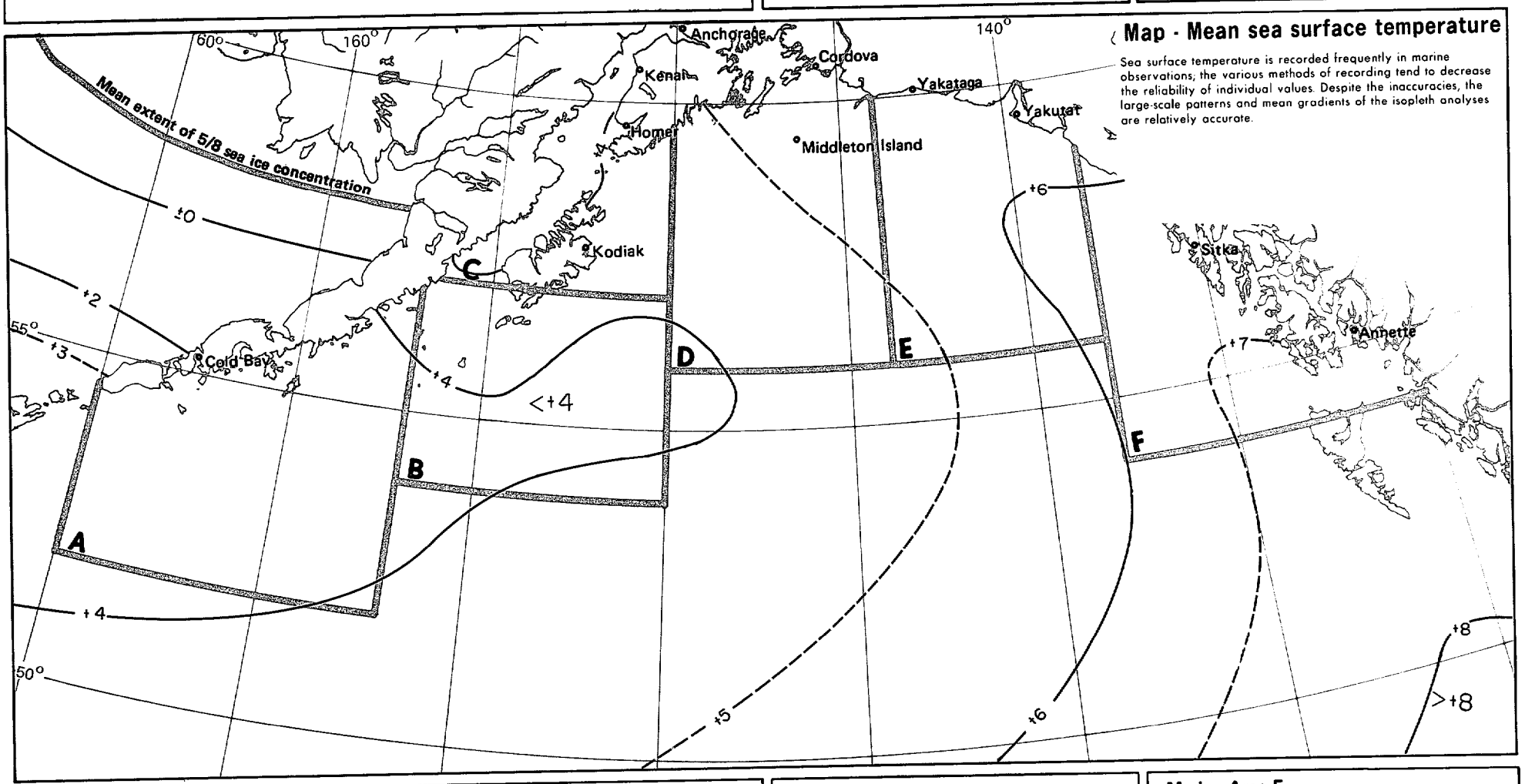


Marine Area B

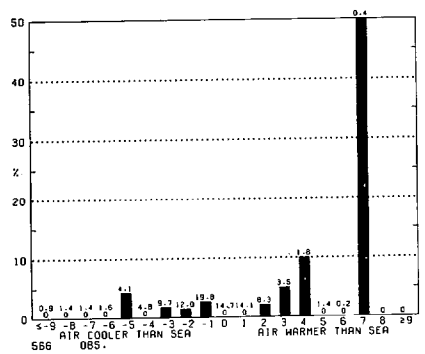


Map - Mean sea surface temperature

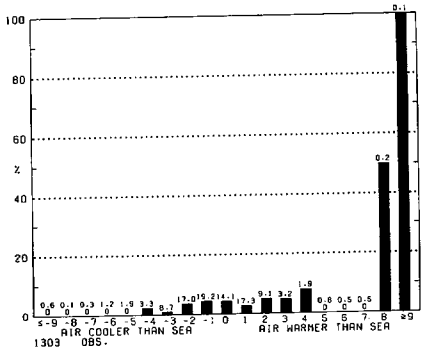
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



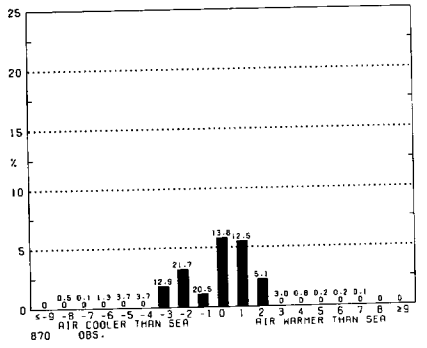
Marine Area C



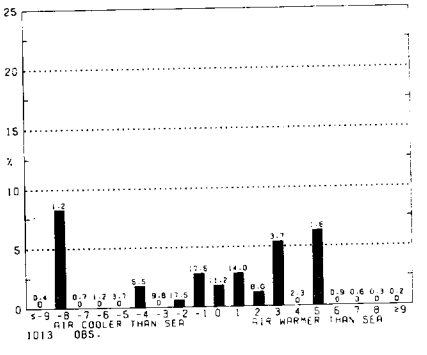
Marine Area D



Marine Area E

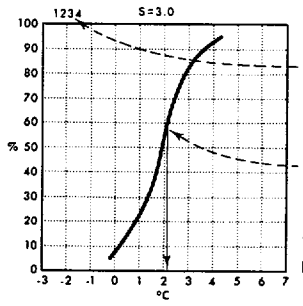


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

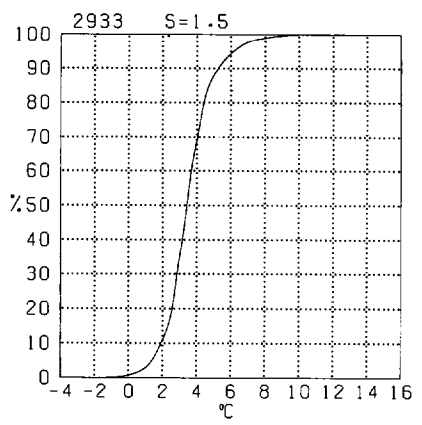
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

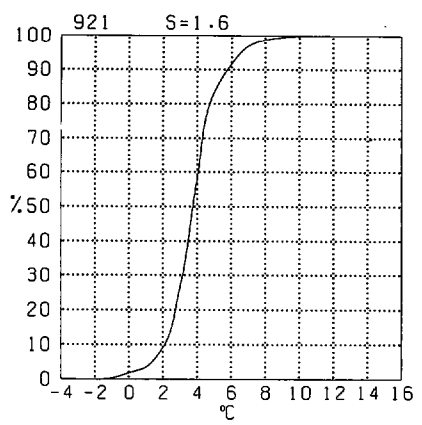
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A

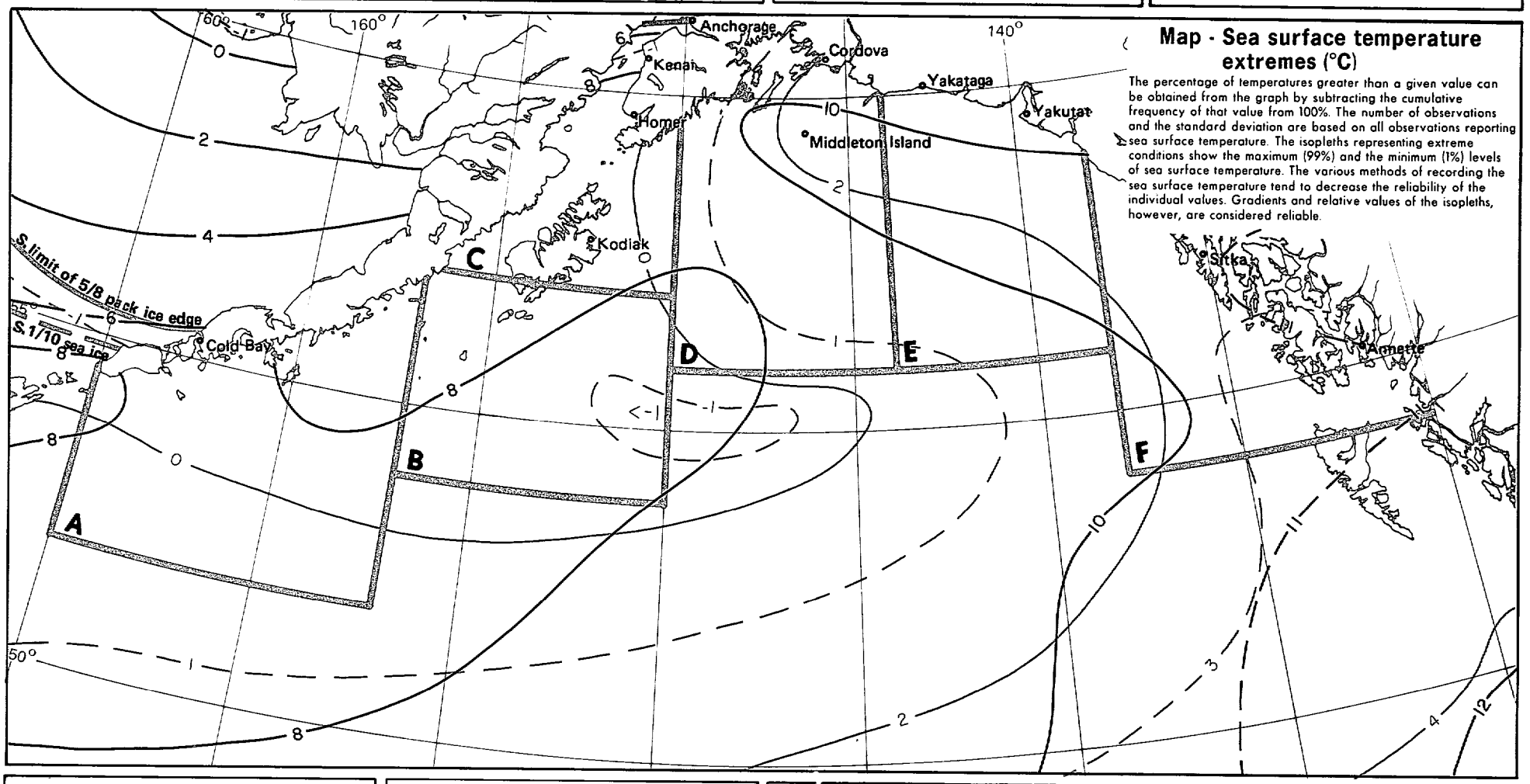


Marine Area B

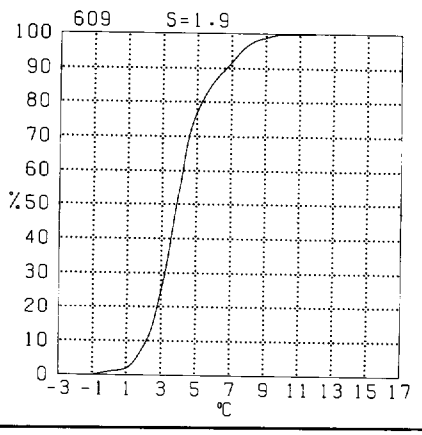


Map - Sea surface temperature extremes (°C)

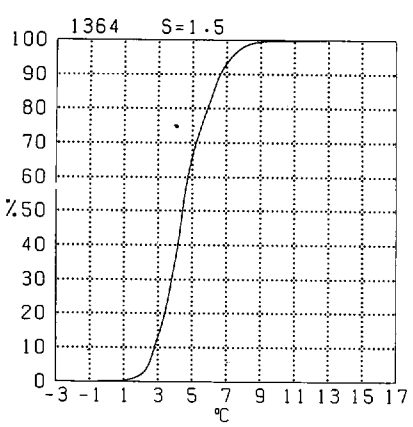
The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.



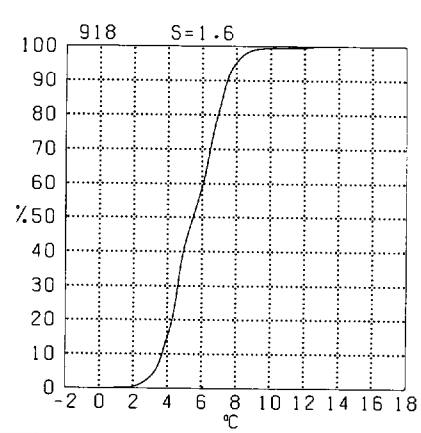
Marine Area C



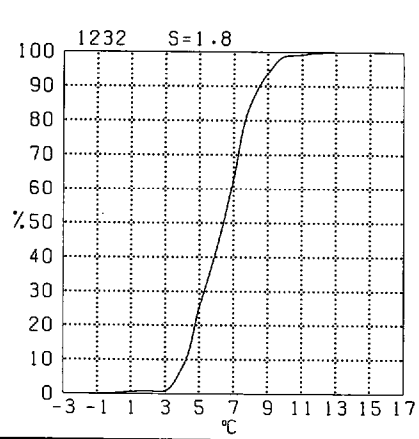
Marine Area D



Marine Area E



Marine Area F

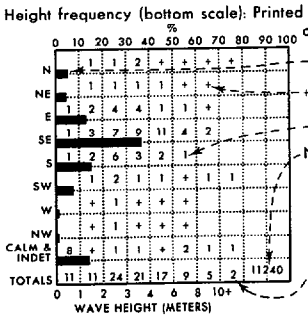


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



- (5% of all waves were from the N.)
- + indicates <.5% but >0.
- (1% of all waves were from the S with heights from 6-7.5 meters.)
- Number of observations.
- (2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL

Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

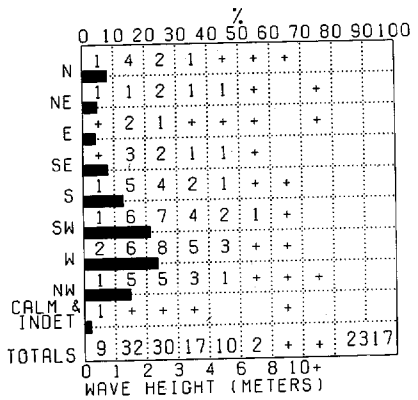
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

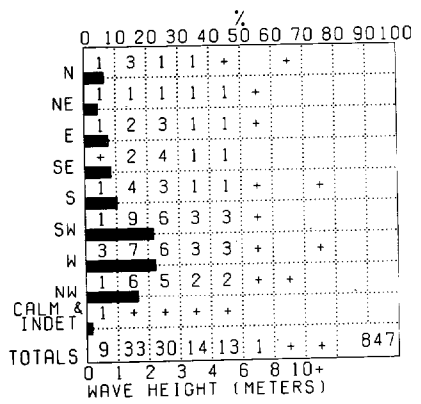
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

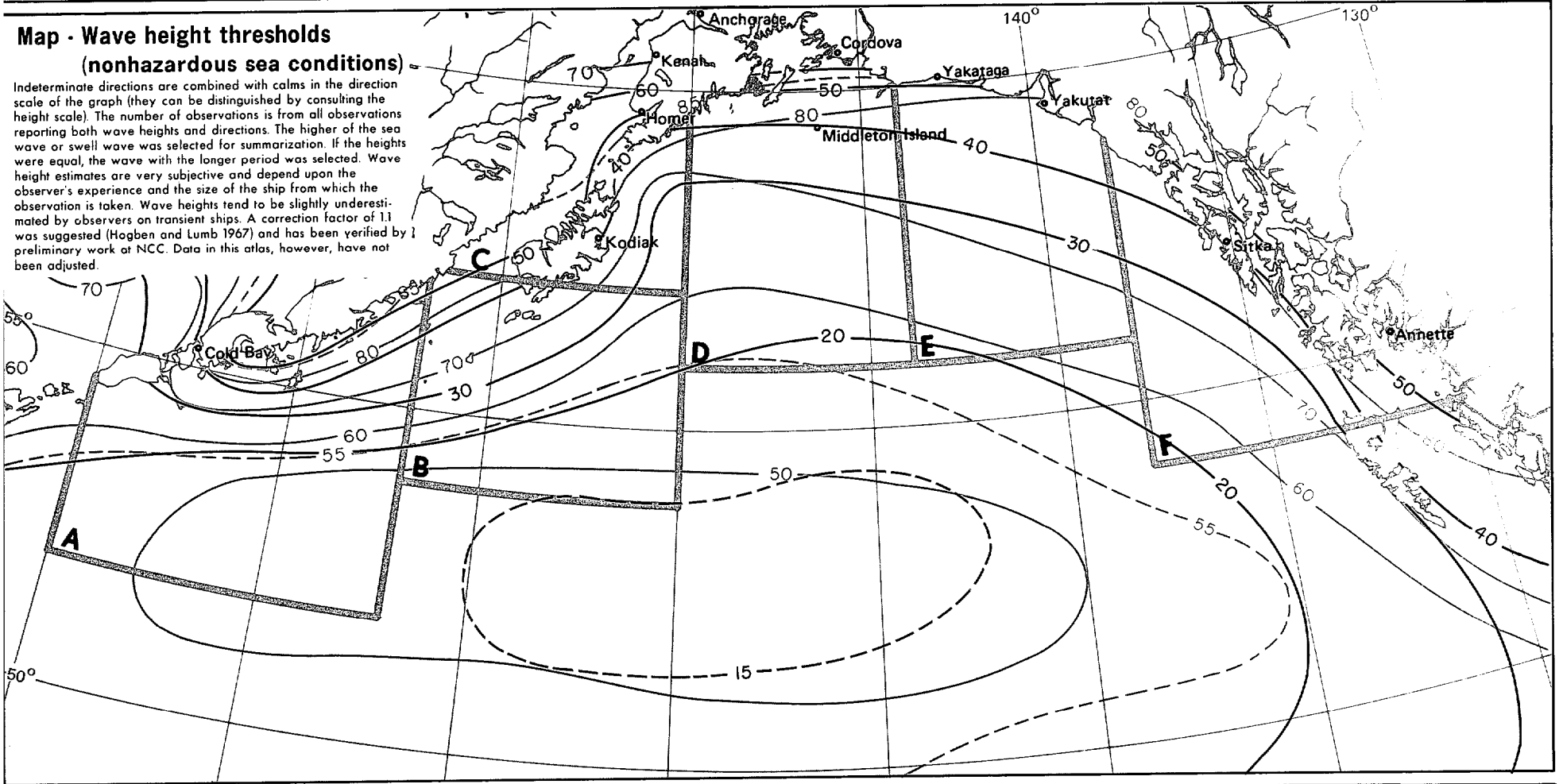


Marine Area B

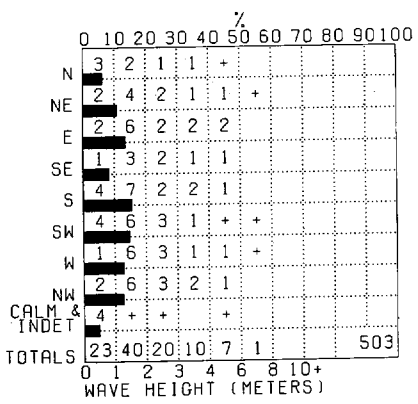


Map - Wave height thresholds (nonhazardous sea conditions)

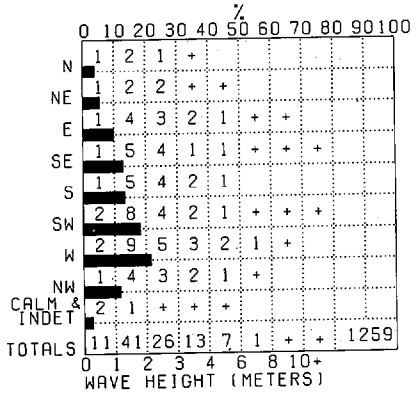
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



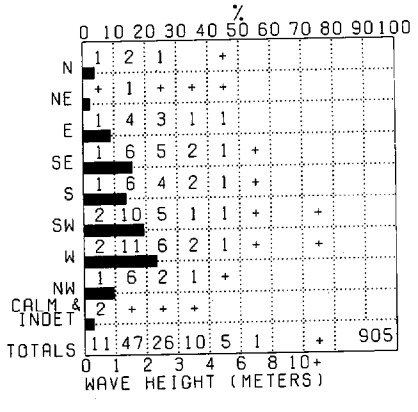
Marine Area C



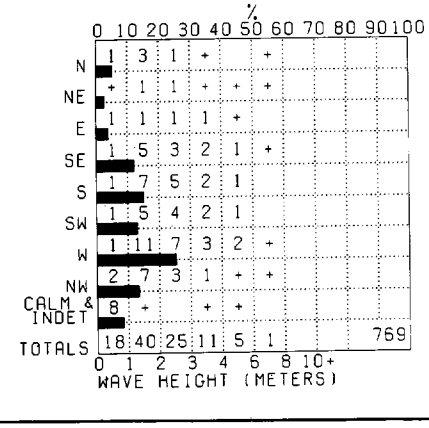
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	1	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	8	1	+	+	0	0	2
1-1.5	14	10	4	2	1	+	2
2-2.5	8	9	7	3	1	1	1
3-3.5	2	6	4	2	1	+	1
4-5.5	1	2	4	2	1	+	+
6-7.5	0	+	1	1	+	+	+
8-9.5	0	+	+	+	0	+	0
≥10	0	0	+	+	0	0	0

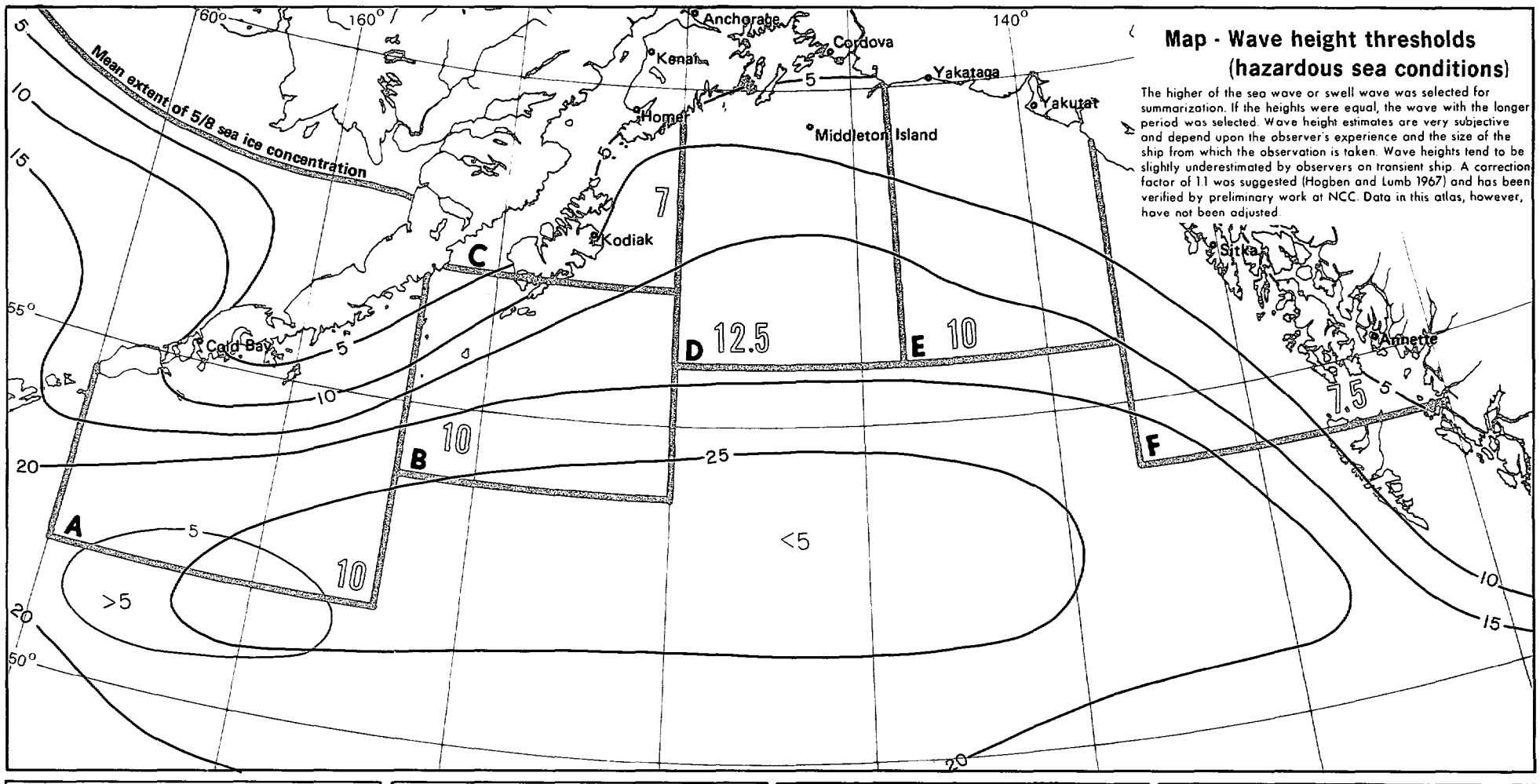
2365

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	+	+	0	0	2
1-1.5	12	11	4	1	2	1	3
2-2.5	5	13	6	2	2	1	1
3-3.5	2	4	4	1	1	1	1
4-5.5	1	1	5	3	1	+	1
6-7.5	0	0	1	+	0	0	+
8-9.5	0	0	0	0	0	+	0
≥10	0	0	0	+	0	0	+

854



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	20	1	1	1	0	0	4
1-1.5	21	10	3	1	1	+	2
2-2.5	6	6	3	1	1	+	1
3-3.5	3	3	3	+	+	+	0
4-5.5	1	2	1	1	0	0	1
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

537

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	1	+	1	0	0	3
1-1.5	20	11	4	1	2	+	1
2-2.5	8	8	5	2	1	1	1
3-3.5	3	3	3	2	+	1	+
4-5.5	+	2	2	1	1	+	1
6-7.5	0	+	+	+	+	+	+
8-9.5	0	+	+	0	+	0	0
≥10	0	0	+	0	+	0	0

1301

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	8	1	0	+	0	0	4
1-1.5	23	13	4	1	2	+	2
2-2.5	5	7	7	3	1	1	1
3-3.5	1	3	2	2	2	+	+
4-5.5	1	1	1	1	+	+	+
6-7.5	0	+	0	+	+	+	+
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	+	0	0

925

Marine Area F

PERIOD (SECONDS)

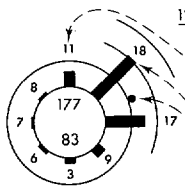
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	18	1	+	+	0	0	7
1-1.5	17	10	3	2	2	1	2
2-2.5	7	7	5	1	1	1	0
-3.5	2	1	3	2	+	1	+
4-5.5	0	1	2	1	1	+	+
6-7.5	0	+	+	+	+	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

866

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

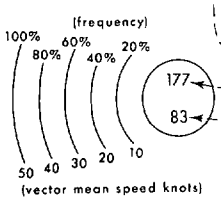


Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)



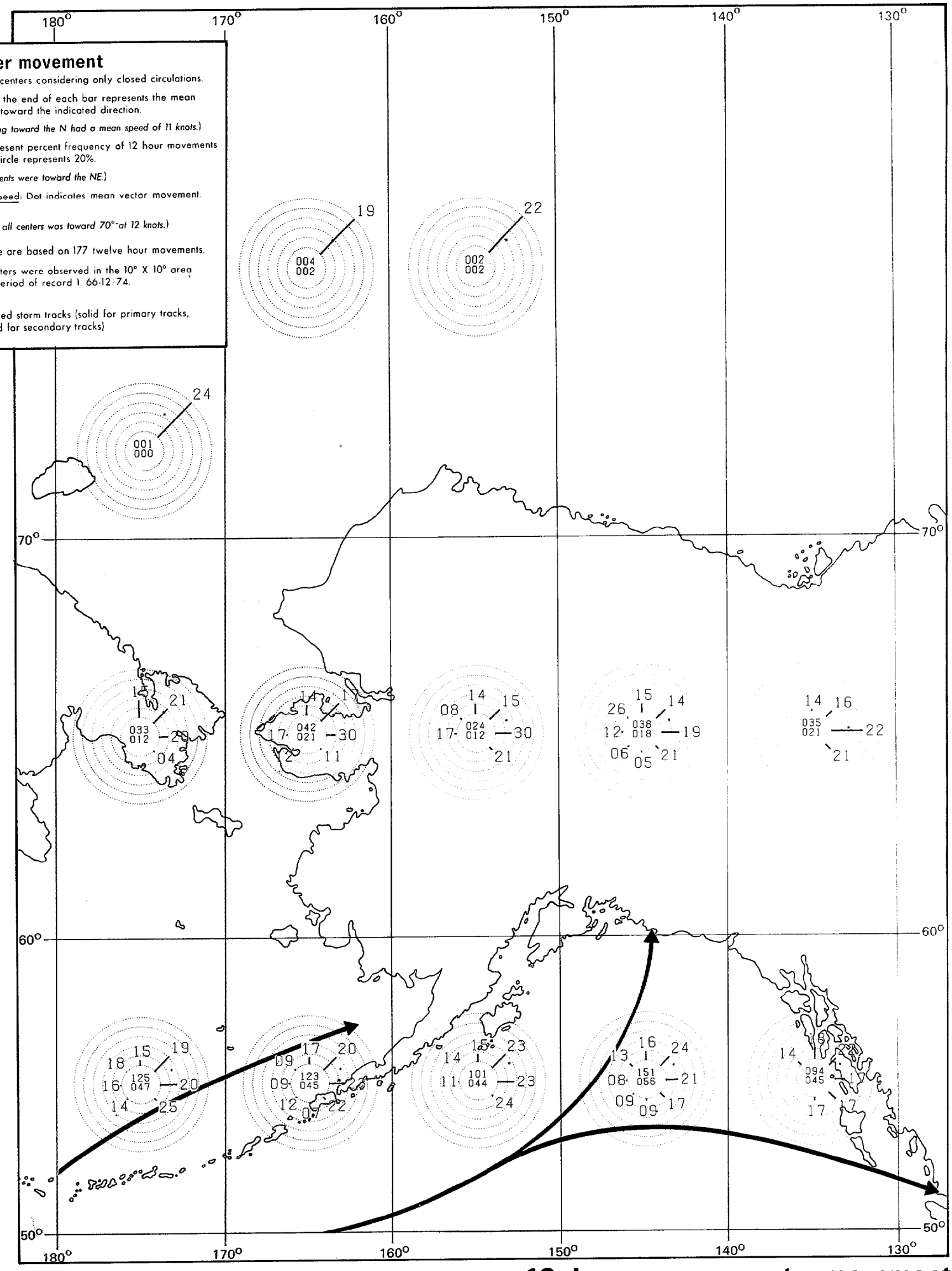
Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70°-at 12 knots.)

177 — Statistics for this rose are based on 177 twelve hour movements.

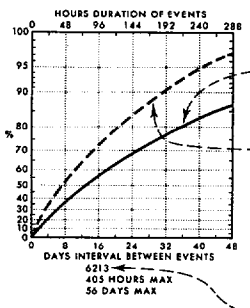
83 — 83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1-66-12-74.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)



Legend

Persistence of visibility <2 n. mi.



Hours duration of events · Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

– – – (80% *of the events had a duration ≤216 hours.*)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

– – → (88% *of the events were followed by another event in 28 days or less.*)

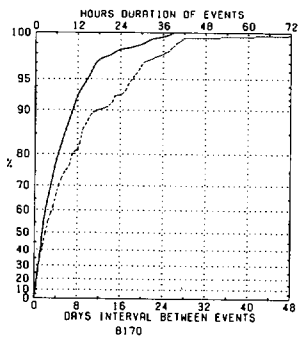
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

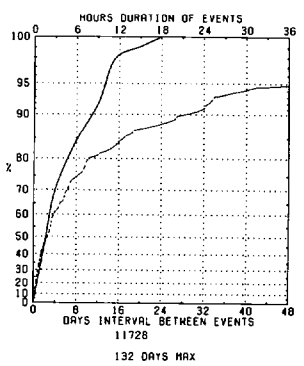
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

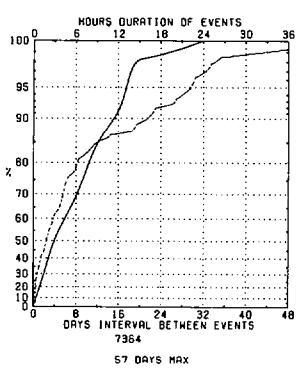
Kodiak



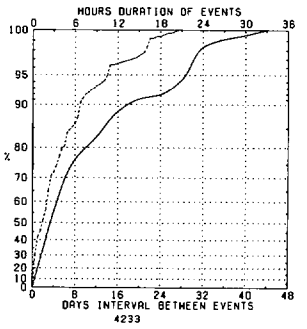
Homer



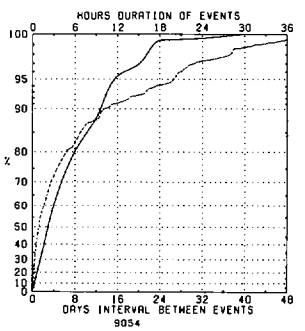
Kenai



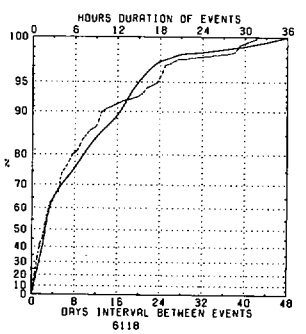
Middleton Island



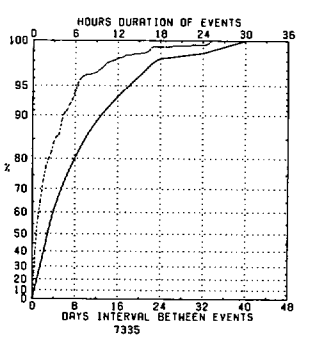
Cordova



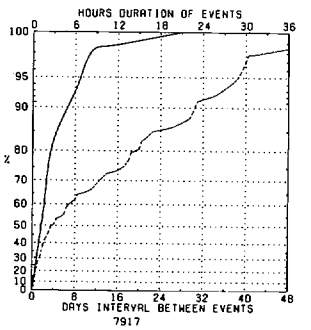
Yakataga



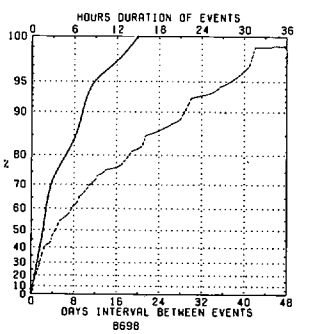
Yakutat



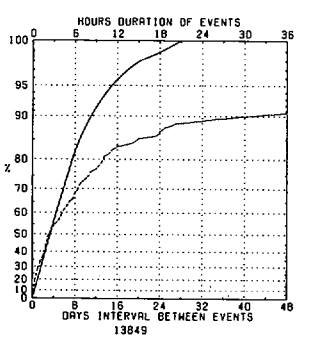
Sitka



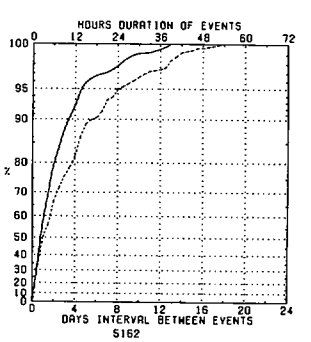
Annette



Anchorage



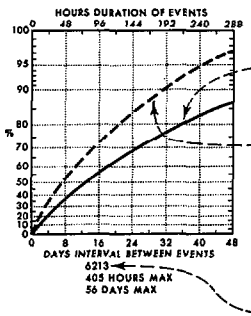
Cold Bay



Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

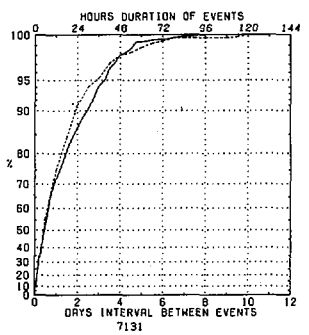
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

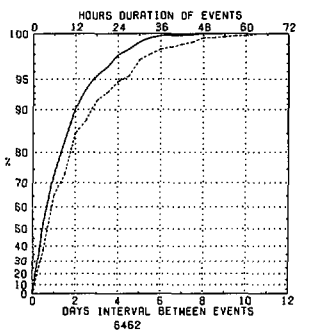
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

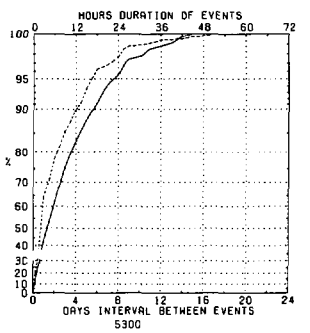
Kodiak



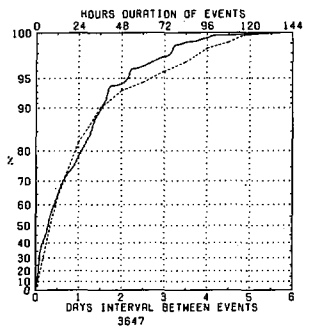
Homer



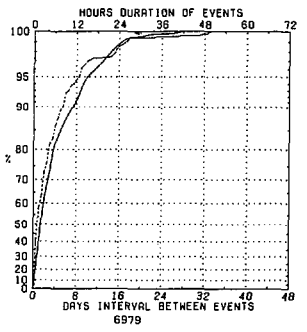
Kenai



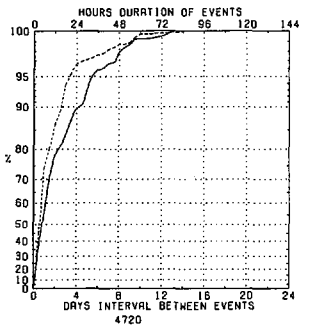
Middleton Island



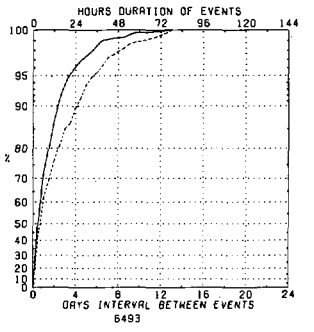
Cordova



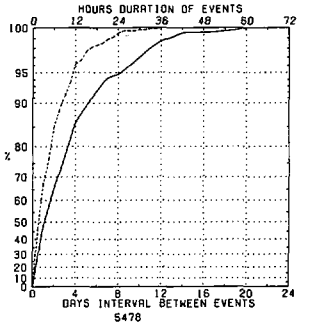
Yakataga



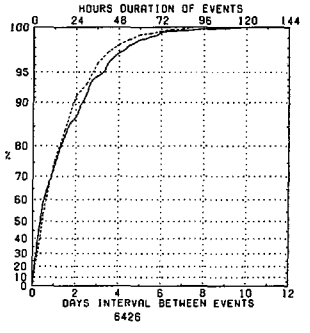
Yakutat



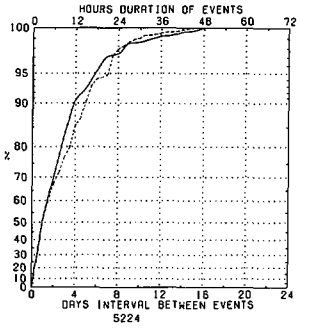
Sitka



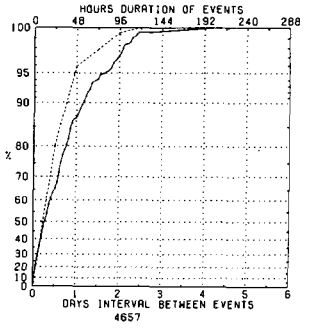
Annette



Anchorage



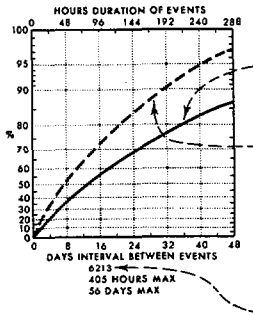
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

———(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

– – –(88% of the events were followed by another event in 28 days or less.)

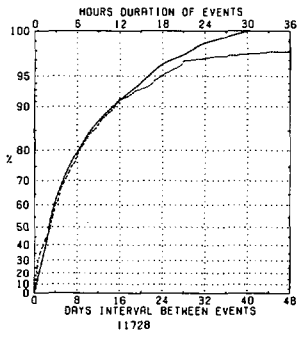
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

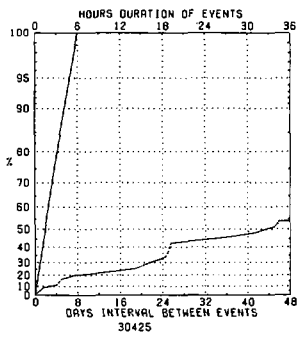
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

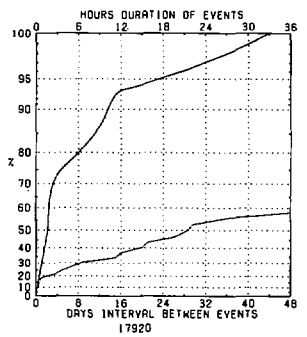
Kodiak



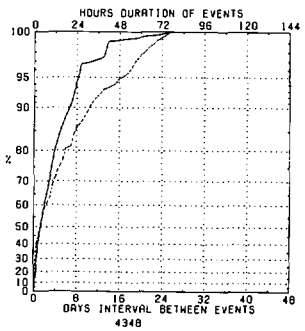
Homer



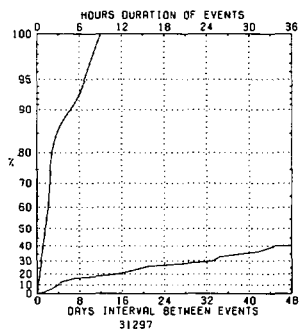
Kenai



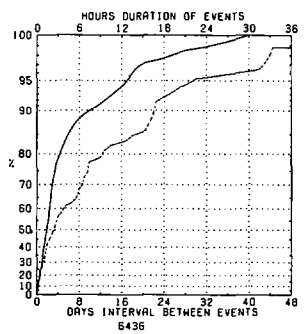
Middleton Island



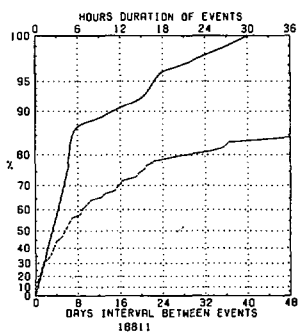
Cordova



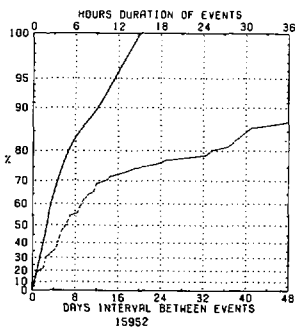
Yakataga



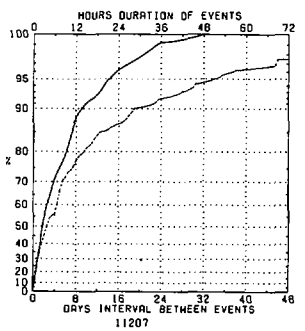
Yakutat



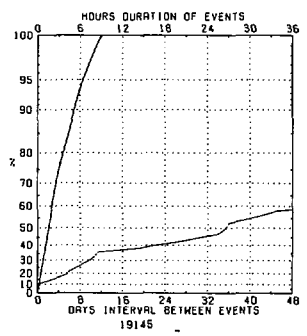
Sitka



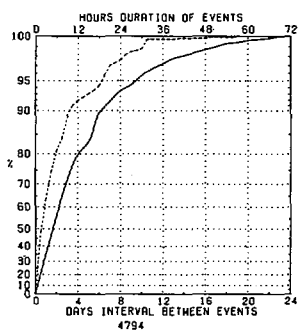
Annette



Anchorage



Cold Bay

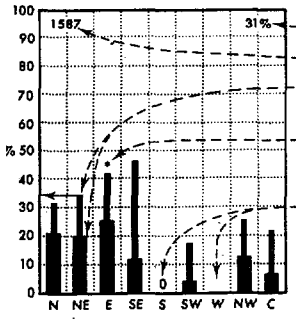


Legend

Precipitation/wind direction

% Pcpn. { % Liquid / % Snow

Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.



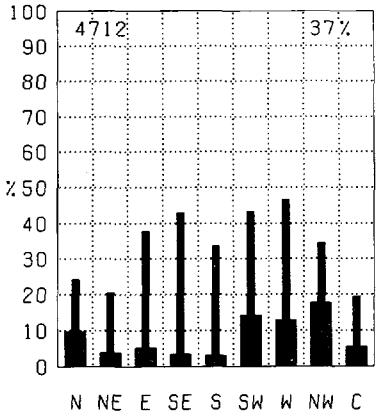
- Percentage of present weather observations reporting precipitation.
- Number of observations.
- *(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)*
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

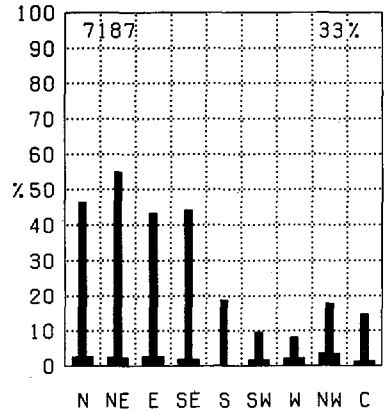
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

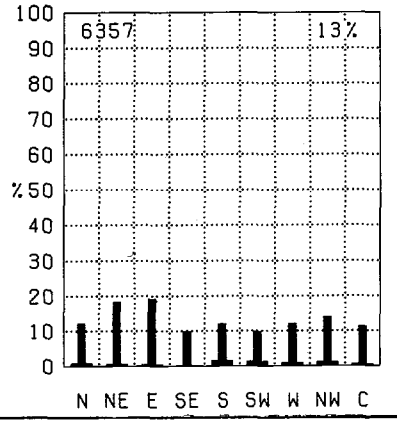
Cold Bay



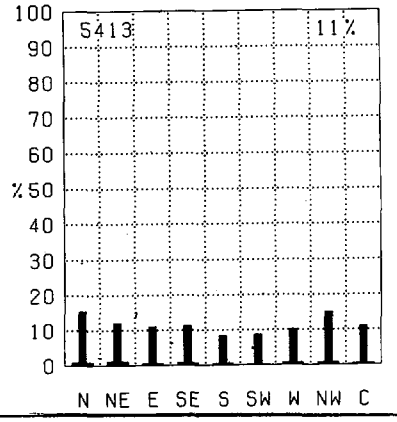
Kodiak



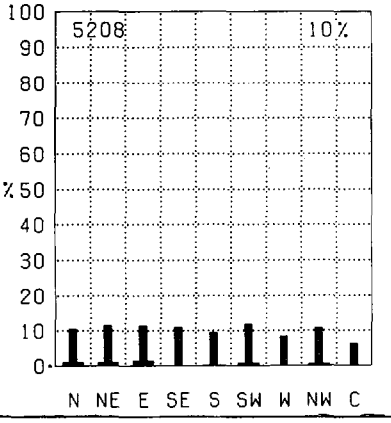
Homer



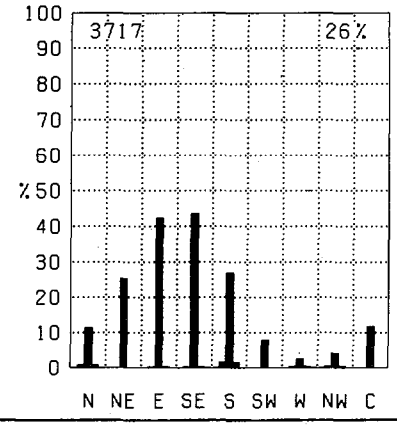
Kenai



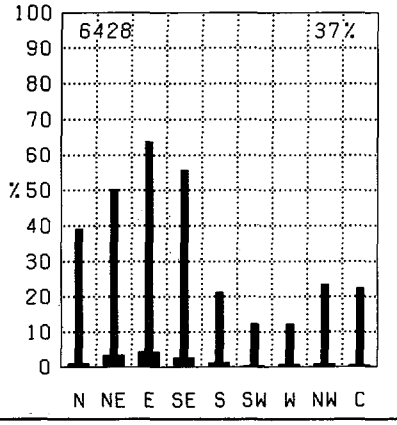
Anchorage



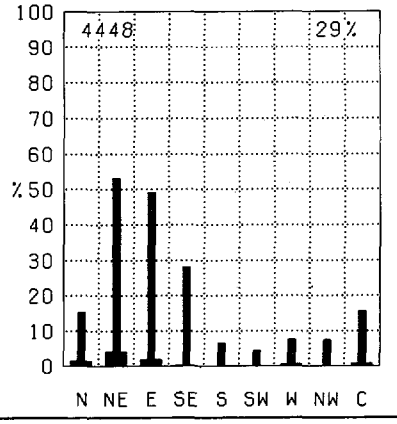
Middleton Island



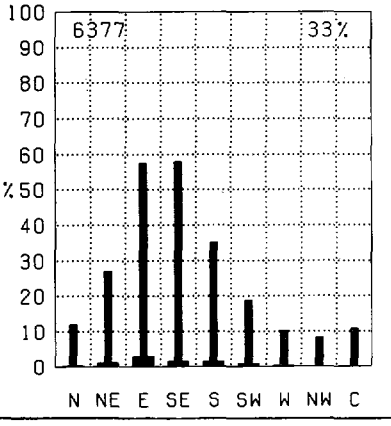
Cordova



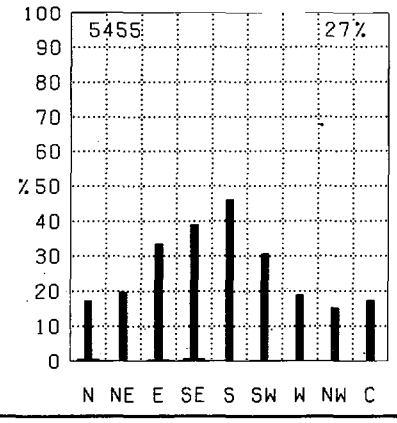
Yakataga



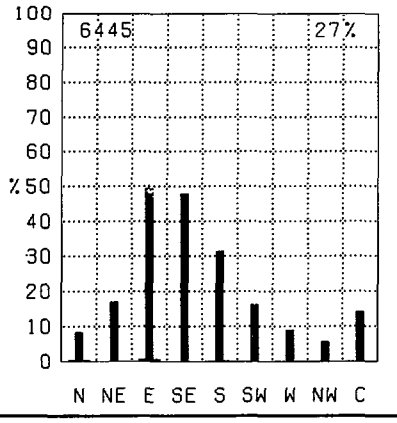
Yakutat



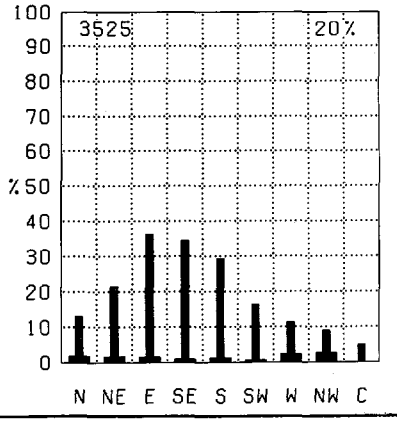
Sitka



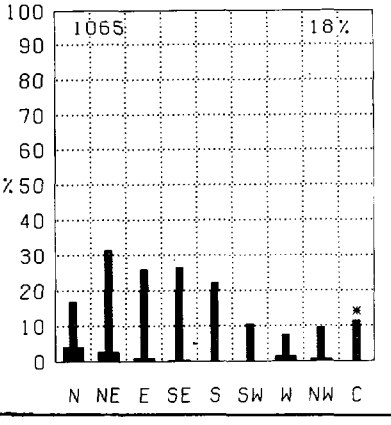
Annette

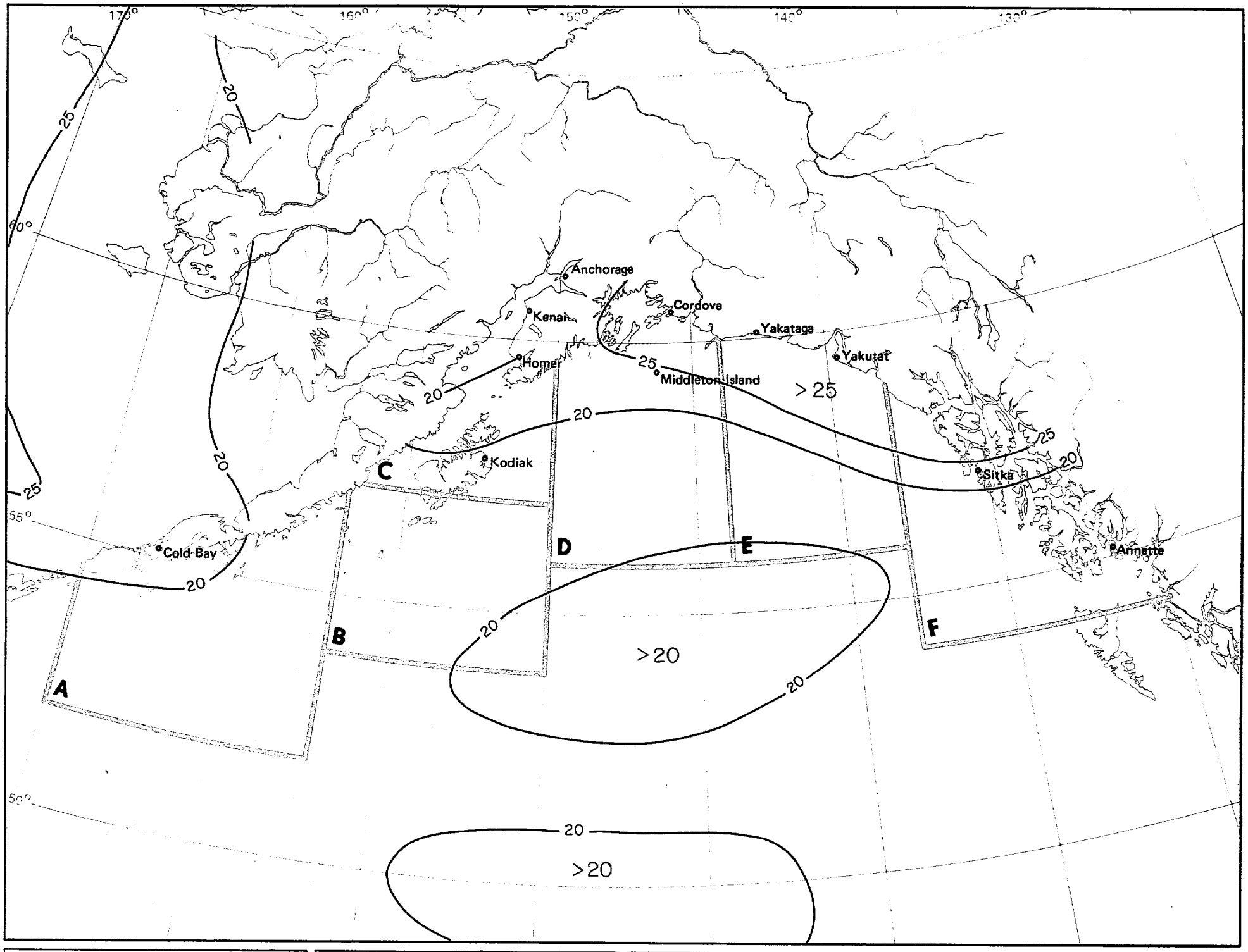


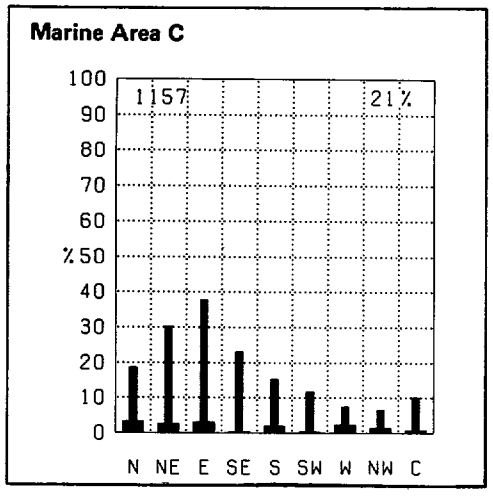
Marine Area A

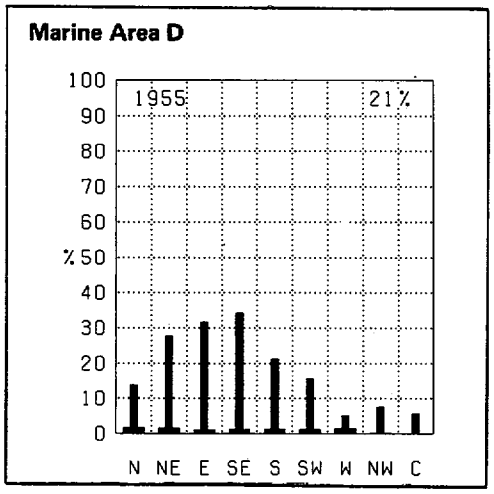


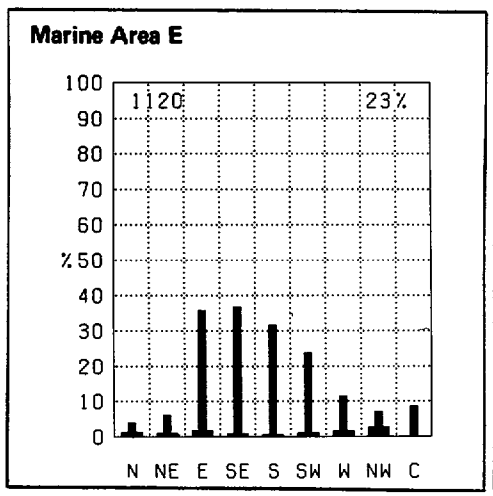
Marine Area B

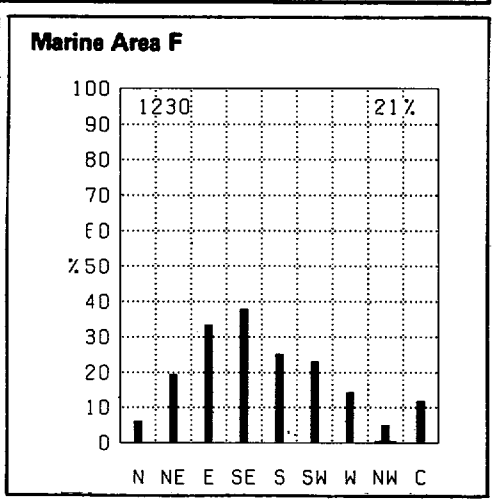



170°
160°
150°
140°
130°
60°
55°
50°
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
25
20
>25
>20


Marine Area C
1157
21%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

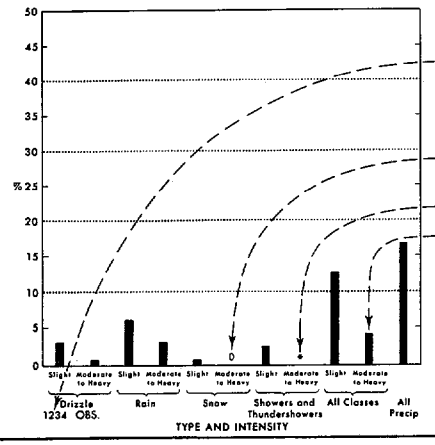

Marine Area D
1955
21%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
1120
23%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1230
21%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

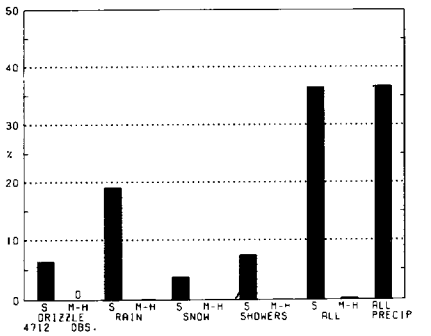
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

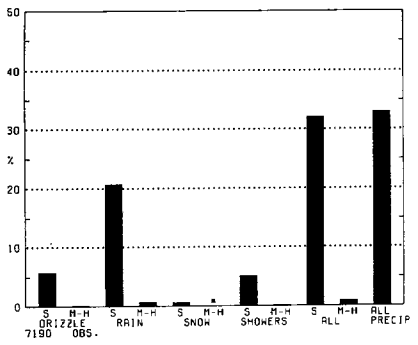
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

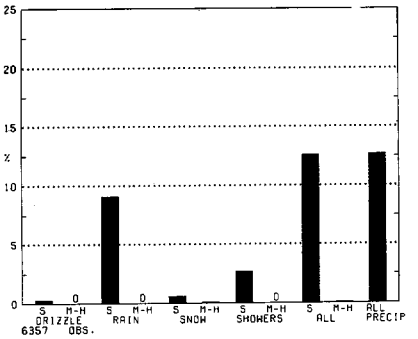
Cold Bay



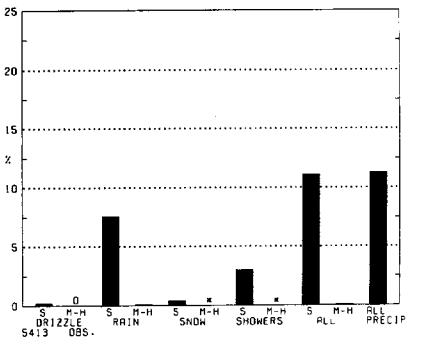
Kodiak



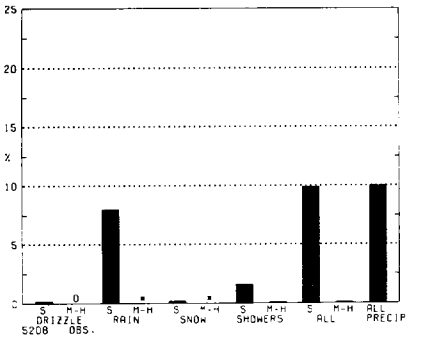
Homer



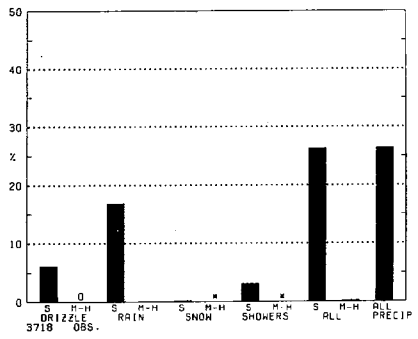
Kenai



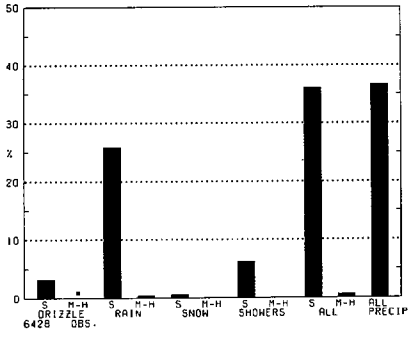
Anchorage



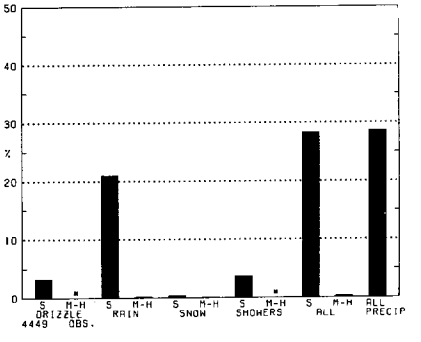
Middleton Island



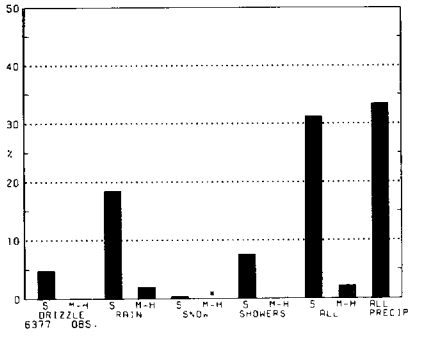
Cordova



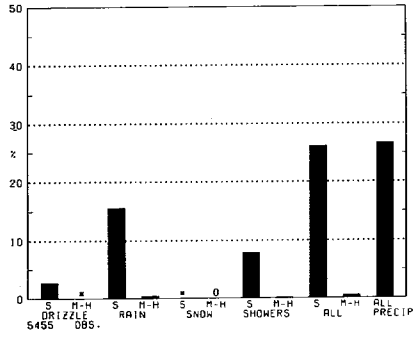
Yakataga



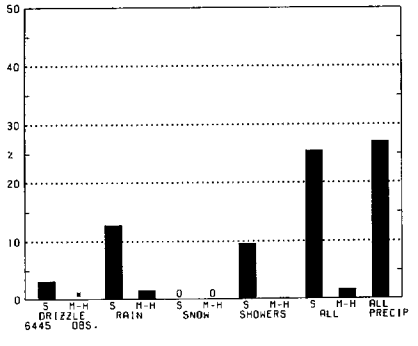
Yakutat



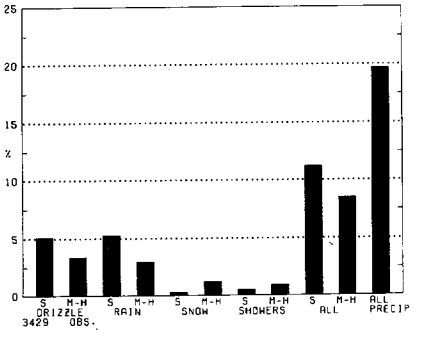
Sitka



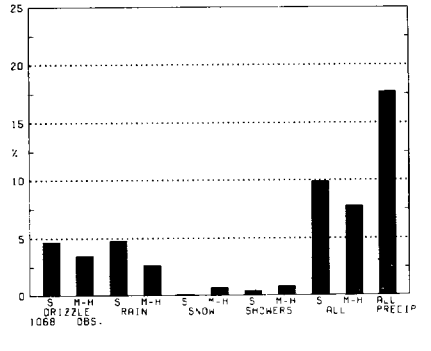
Annette

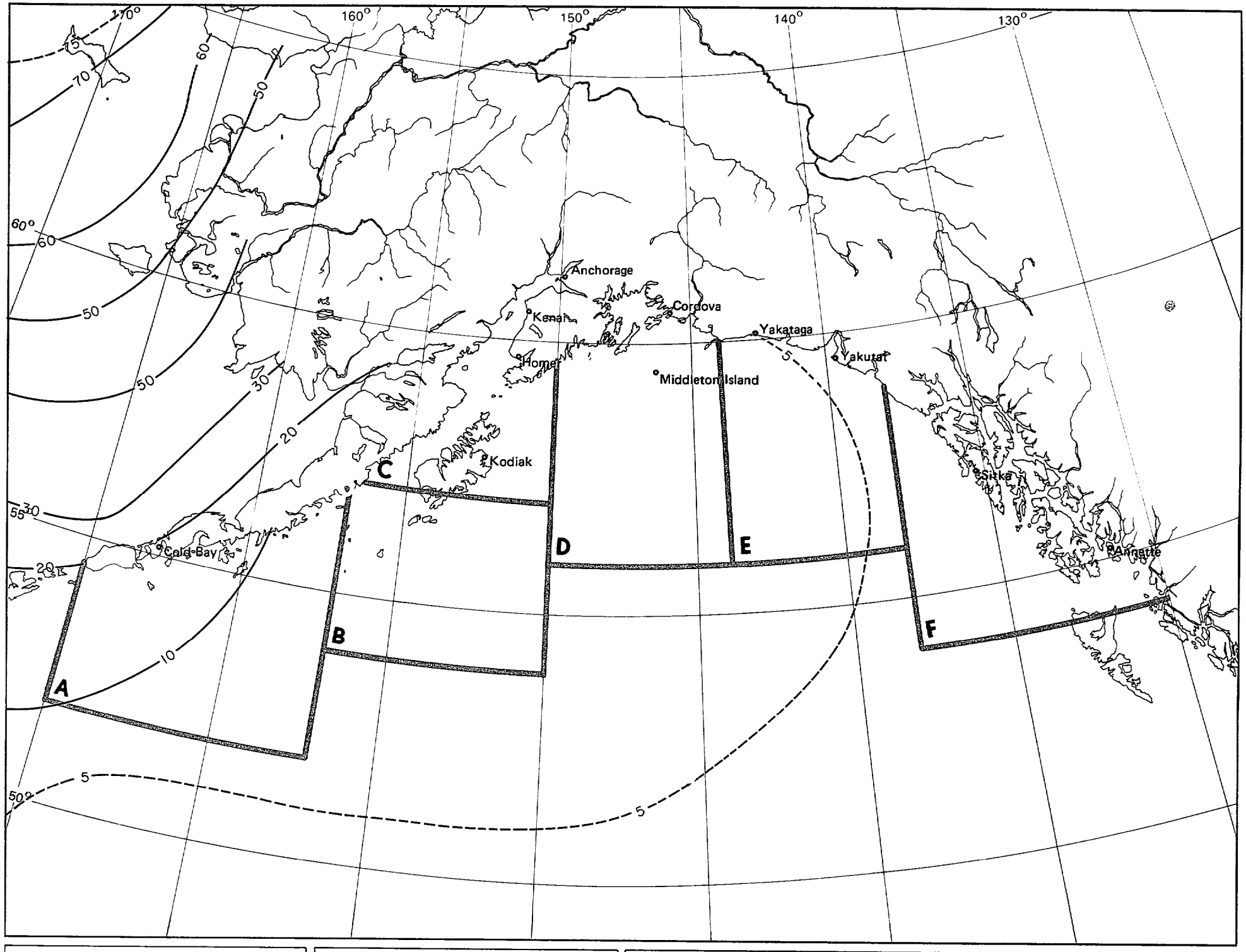


Marine Area A



Marine Area B




170°
160°
150°
140°
130°
60°
55°
50°
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
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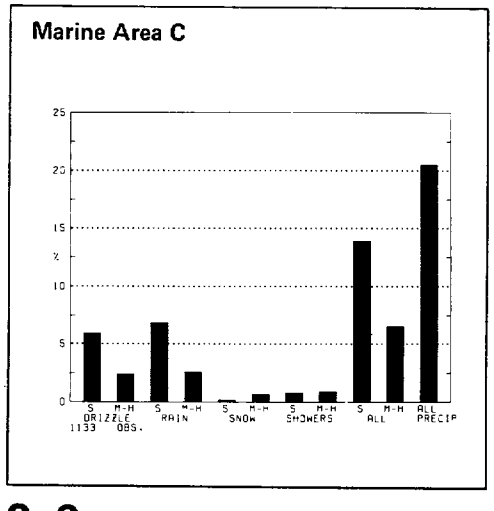
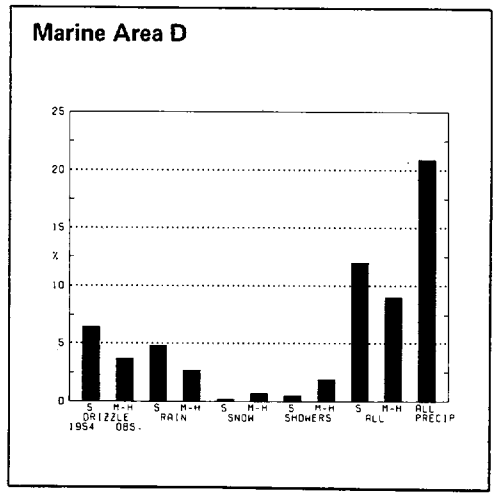
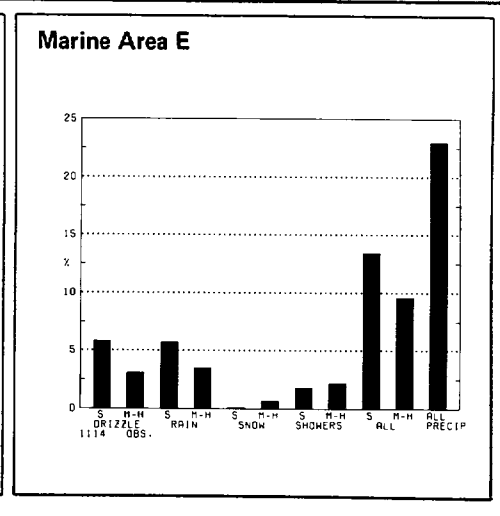
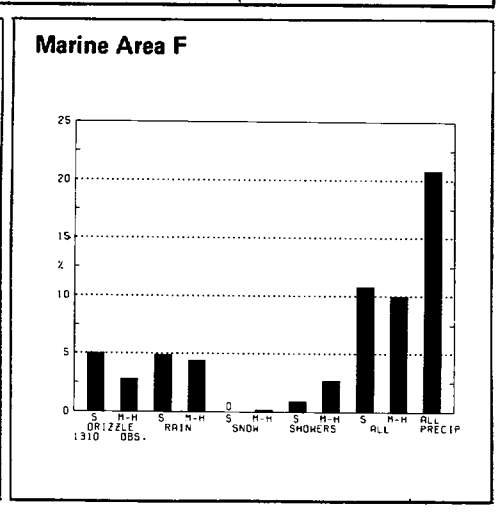
50
60
70
5


Marine Area C
25
20
15
%
10
5
0
S ORIZZLE 1133
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

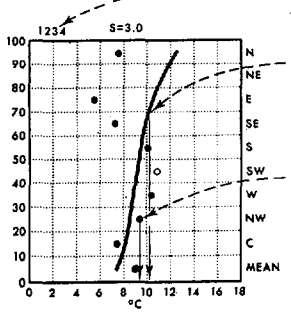

Marine Area D
25
20
15
%
10
5
0
S ORIZZLE 1954
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
25
20
15
%
10
5
0
S ORIZZLE 1114
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
25
20
15
%
10
5
0
S ORIZZLE 1310
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures.(°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

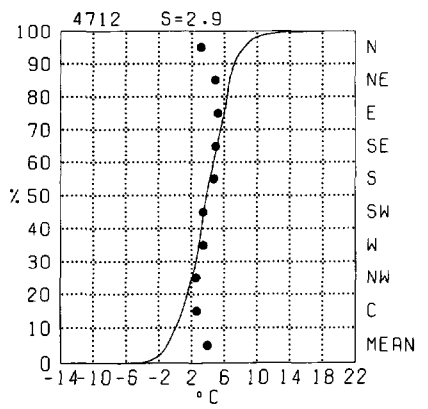
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

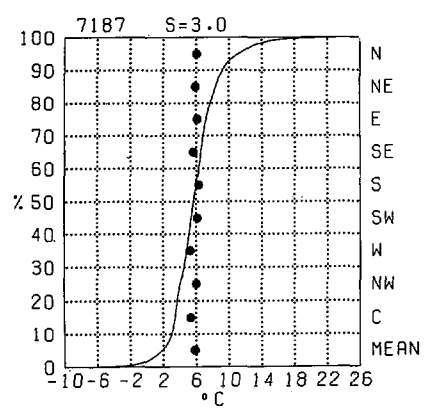
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

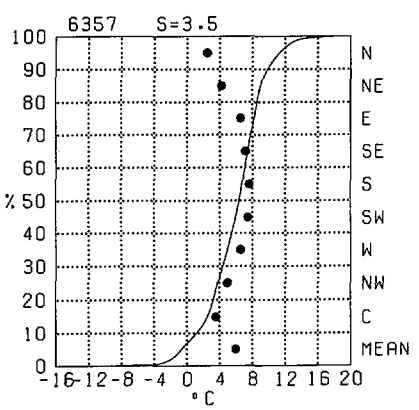
Cold Bay



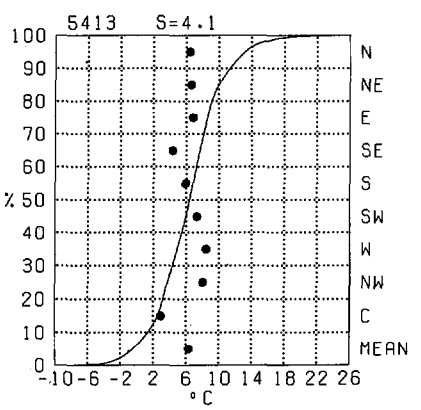
Kodiak



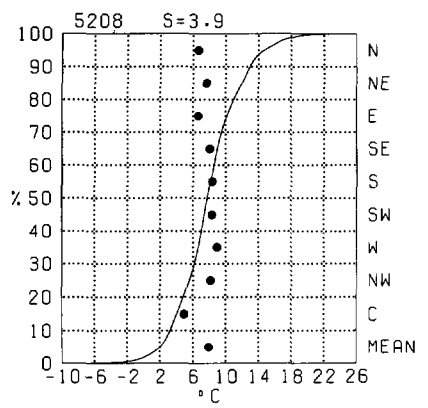
Homer



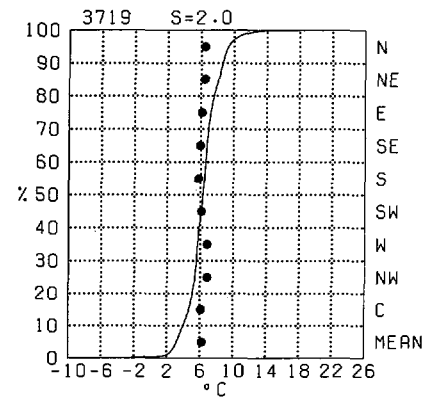
Kenai



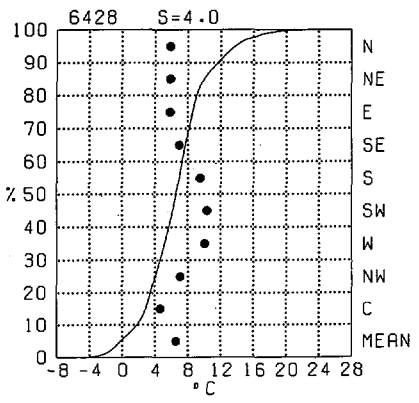
Anchorage



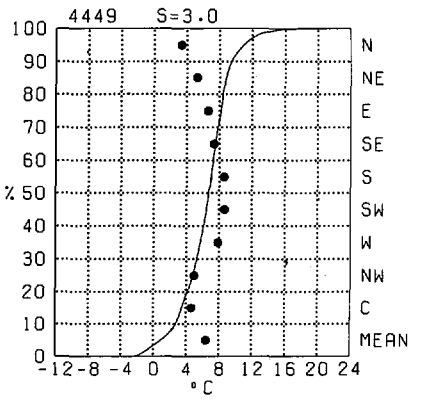
Middleton Island



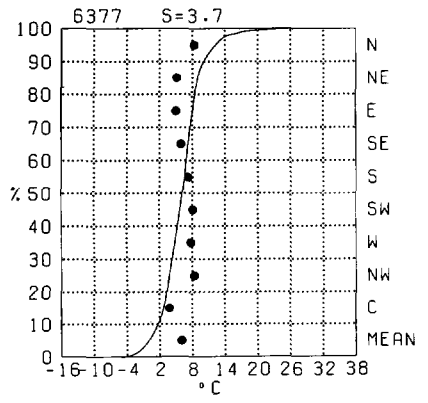
Cordova



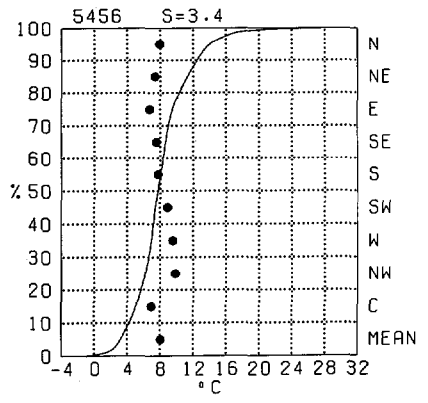
Yakataga



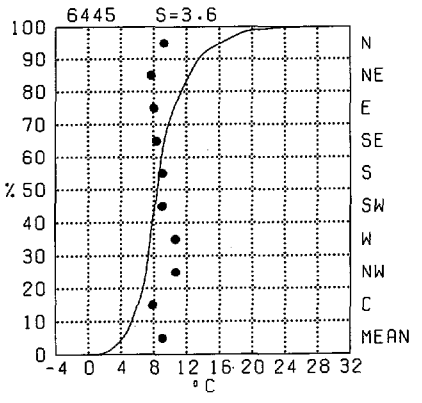
Yakutat



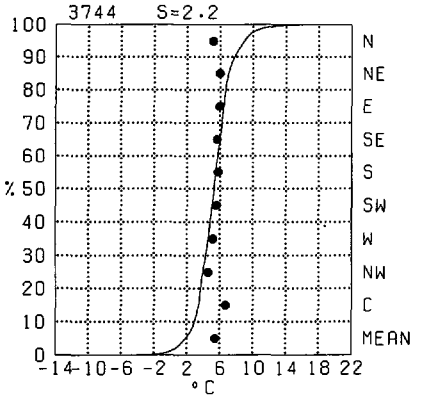
Sitka



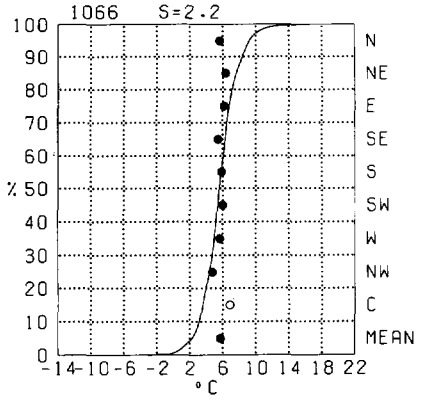
Annette

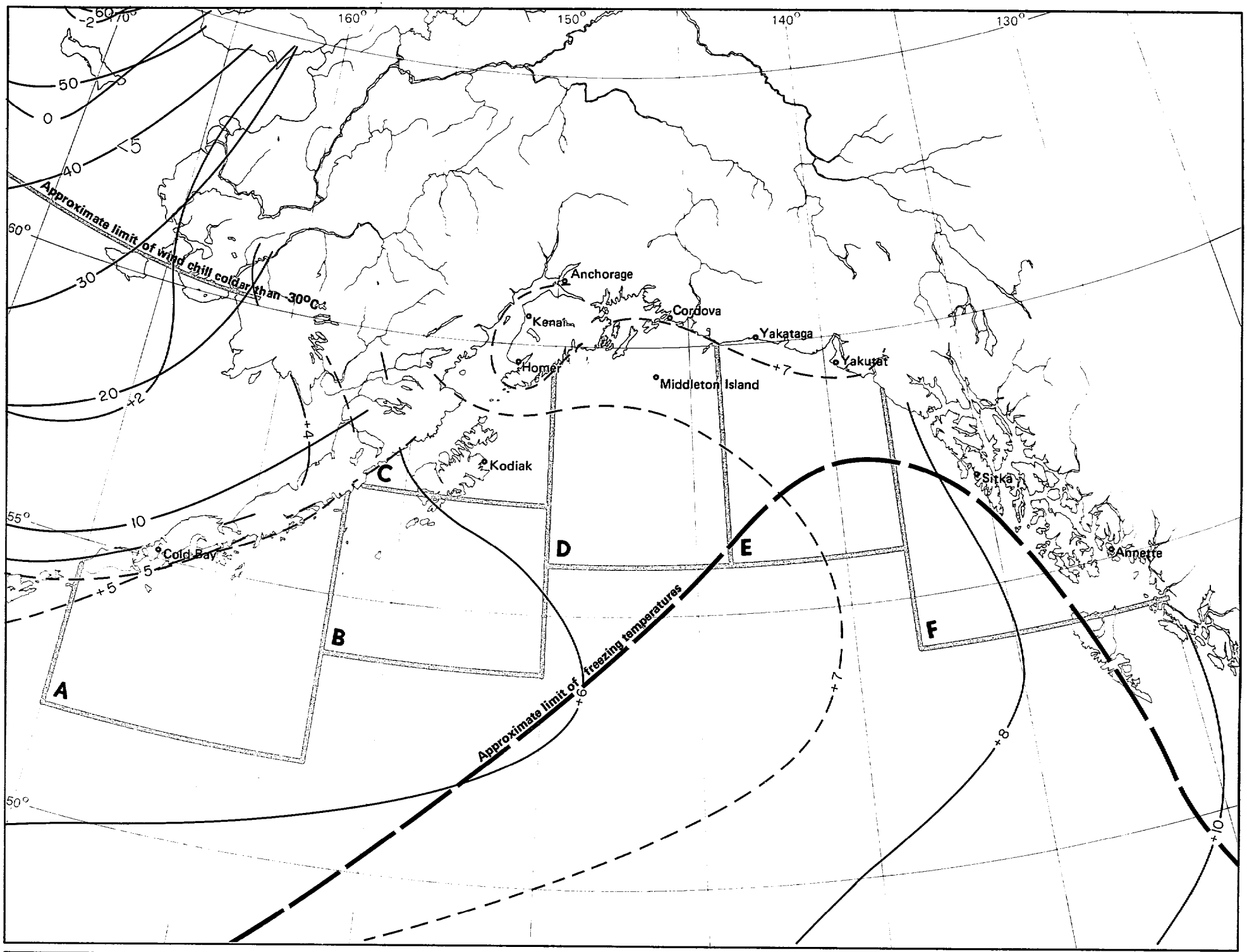


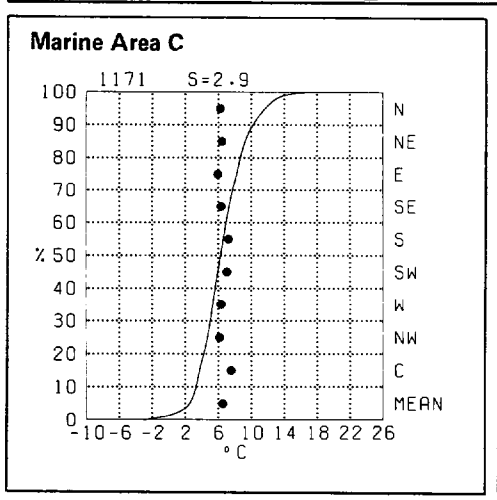
Marine Area A

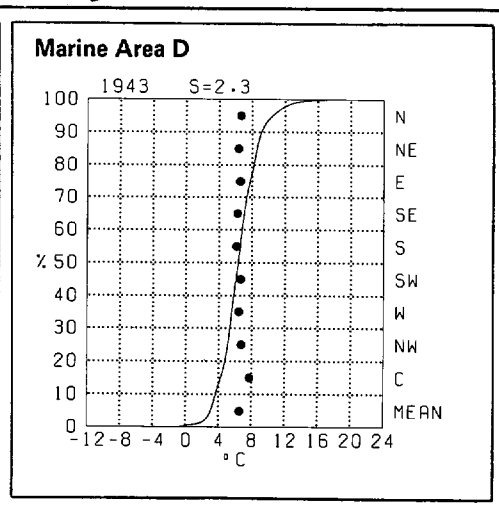


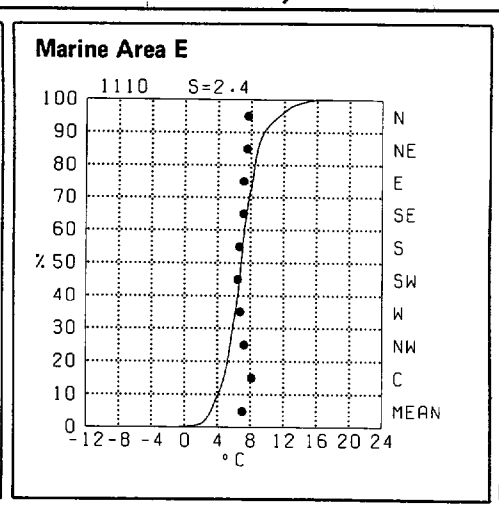
Marine Area B

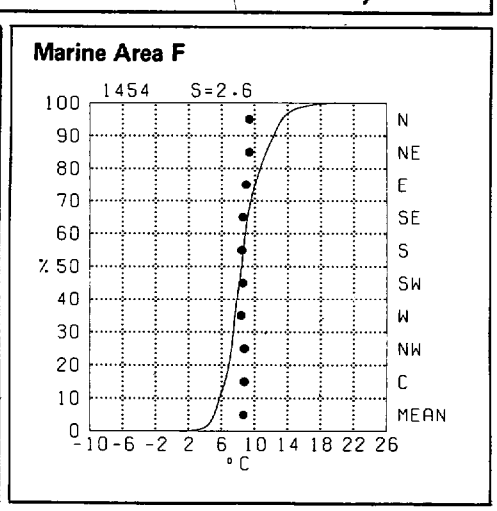








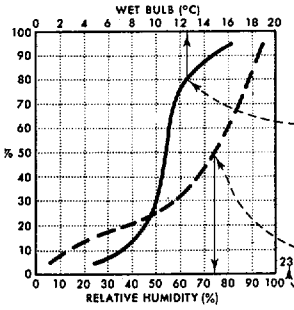




3 Air temperature mean and thresholds

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

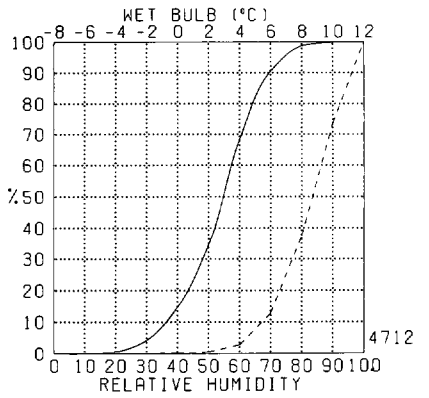
Number of observations.

Map - Mean dew point temperature

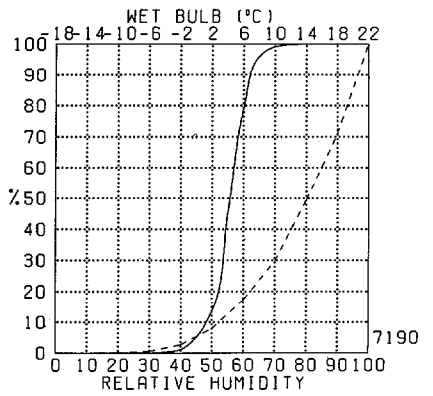
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

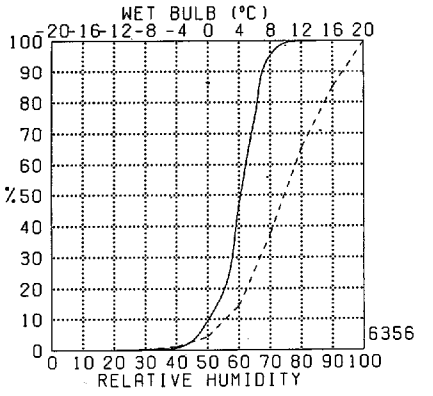
Cold Bay



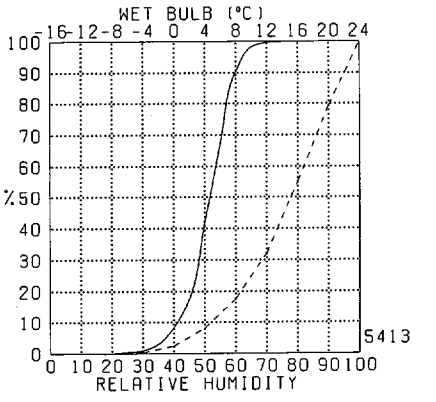
Kodiak



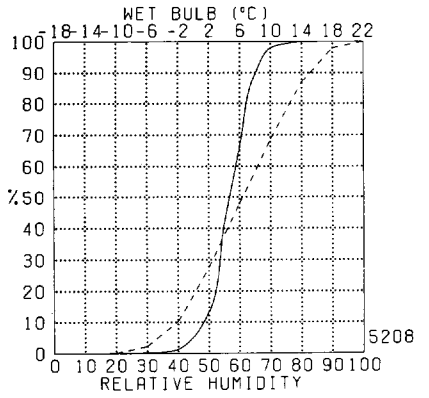
Homer



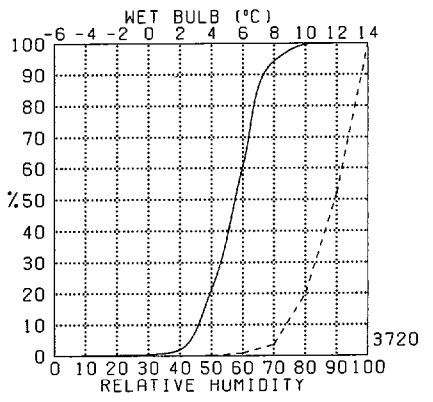
Kenai



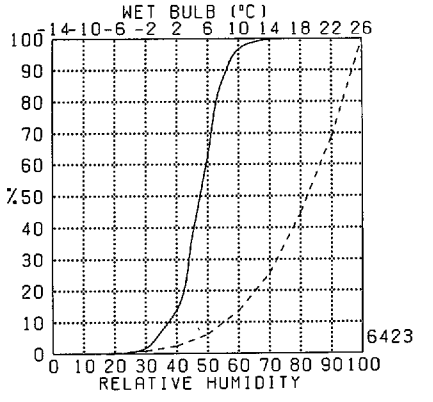
Anchorage



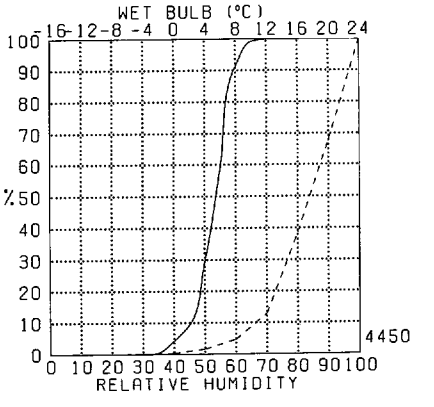
Middleton Island



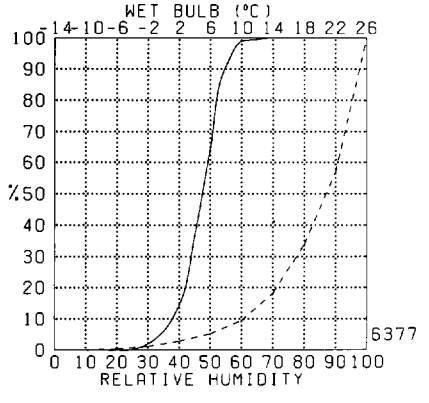
Cordova



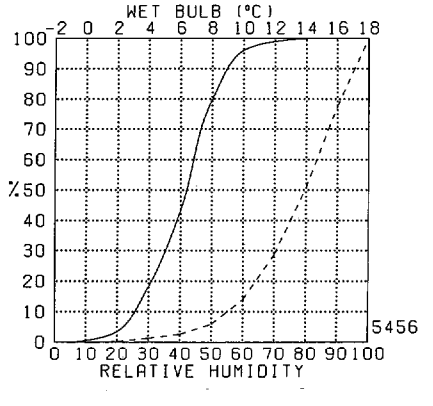
Yakataga



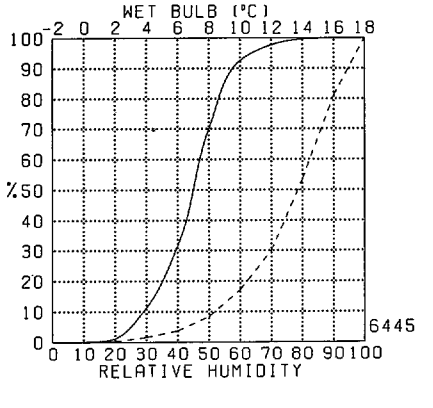
Yakutat



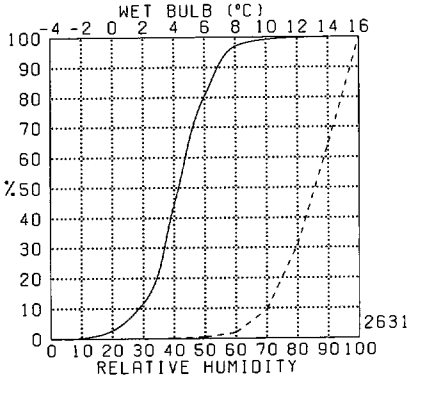
Sitka



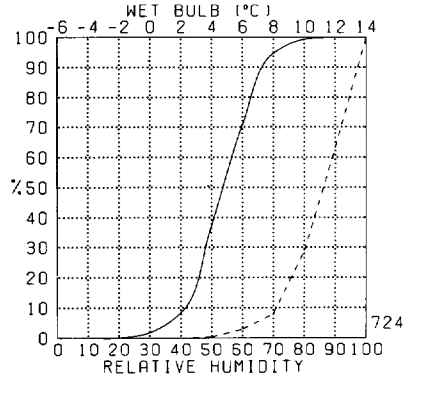
Annette



Marine Area A



Marine Area B



Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥ 34
4.5	18	8	7	1	1
2.3	17	8	7	1	1
0.1	13	6	5	1	1
-2.-1	1	+	0	0	0
-4.-3	0	0	0	0	0
-6.-5	+	0	0	+	+
-8.-7	1	+	0	0	0
-10.-9	0	0	0	0	0
-12.-11	1	+	0	0	0
-14.-13	1	0	0	0	0
-16.-15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

(1% of *all observations reported temperature 2-3°C simultaneously with wind speed of 22-33 kts.*)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	+	+	0	0
14.15	0	+	+	0	0
12.13	+	+	+	+	0
10.11	+	1	1	+	0
8.9	+	2	3	1	+
6.7	1	6	11	5	+
4.5	+	6	11	4	+
2.3	1	8	15	4	+
0.1	1	4	6	1	+
-2.-1	+	2	3	1	0
≤-3	+	+	1	+	0

4712

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	0	+	0	0
24.25	0	+	+	0	0
22.23	0	+	+	0	0
20.21	0	+	+	0	0
18.19	0	+	+	0	0
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	+	2	1	0	0
10.11	1	3	1	+	0
8.9	3	8	3	+	0
≤7	14	39	22	2	+

7187

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	0	0	0
18.19	0	+	0	0	0
16.17	+	+	+	0	0
14.15	+	+	+	0	0
12.13	+	3	1	0	0
10.11	1	5	2	0	0
8.9	2	13	5	+	0
6.7	6	16	5	+	0
4.5	5	9	3	+	0
2.3	6	5	1	+	0
≤1	5	4	1	0	0

6357

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	0	+	0	0
24.25	0	0	0	0	0
22.23	0	+	+	0	0
20.21	0	+	+	0	0
18.19	+	+	+	0	0
16.17	+	1	+	0	0
14.15	+	2	1	0	0
12.13	+	4	2	+	0
10.11	1	7	2	+	0
8.9	1	11	4	+	0
≤7	15	39	10	+	0

5413

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
24.25	0	+	+	0	0
22.23	+	+	0	0	0
20.21	+	+	+	0	0
18.19	+	1	+	0	0
16.17	+	2	+	0	0
14.15	+	3	1	0	0
12.13	1	6	3	+	0
10.11	1	8	4	+	0
8.9	3	14	5	+	0
6.7	6	14	4	+	0
≤5	9	12	2	+	0

5208

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	0	0	0	0
14.15	+	+	0	0	0
12.13	+	1	+	0	0
10.11	+	2	1	0	0
8.9	2	11	5	+	0
6.7	6	21	17	3	+
4.5	3	10	9	2	+
2.3	1	2	1	+	+
0.1	+	+	+	0	0
-2.-1	0	+	+	+	0
-4.-3	0	+	+	0	0

3719

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	0	0	0
24.25	0	+	+	0	0
22.23	+	+	0	0	0
20.21	0	+	0	0	0
18.19	+	1	+	0	0
16.17	+	1	+	0	0
14.15	1	2	+	0	0
12.13	1	4	1	0	0
10.11	2	5	1	0	0
8.9	6	10	2	0	0
≤7	32	26	6	+	+

6428

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	0	0	0
18.19	+	+	0	0	0
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	+	2	1	+	0
10.11	1	5	2	+	0
8.9	3	12	7	1	0
6.7	7	14	11	1	0
4.5	6	5	5	+	+
2.3	4	3	2	+	0
≤1	4	2	+	+	0

4449

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30.31	0	+	0	0	0
28.29	0	0	0	0	0
26.27	0	0	0	0	0
24.25	0	+	+	0	0
22.23	0	+	+	0	0
20.21	+	+	+	0	0
18.19	+	+	+	0	0
16.17	+	1	+	0	0
14.15	+	1	+	0	0
12.13	+	3	1	0	0
≤11	23	52	17	1	+

6377

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	0	+	0	0	0
26.27	0	+	+	0	0
24.25	0	+	+	0	0
22.23	+	+	+	0	0
20.21	+	+	+	0	0
18.19	+	+	+	0	0
16.17	+	1	+	0	0
14.15	1	2	+	+	0
12.13	1	5	2	+	0
10.11	2	7	3	+	0
≤9	27	36	10	+	0

5456

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	+	+	0	0	0
26.27	0	+	0	0	0
24.25	0	+	+	0	0
22.23	+	+	+	0	0
20.21	+	1	+	0	0
18.19	+	1	+	0	0
16.17	+	2	1	0	0
14.15	+	2	1	0	0
12.13	1	7	2	+	0
10.11	1	10	3	+	0
≤9	10	37	16	2	+

6445

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	+	+	0	0
12.13	+	+	+	0	0
10.11	+	1	1	+	+
8.9	2	4	4	1	+
6.7	2	11	16	7	1
4.5	2	8	14	7	2
2.3	1	3	6	3	1
0.1	+	+	1	1	+
-2.-1	+	+	+	+	+
-4.-3	0	0	0	0	+
-6.-5	0	0	0	0	0

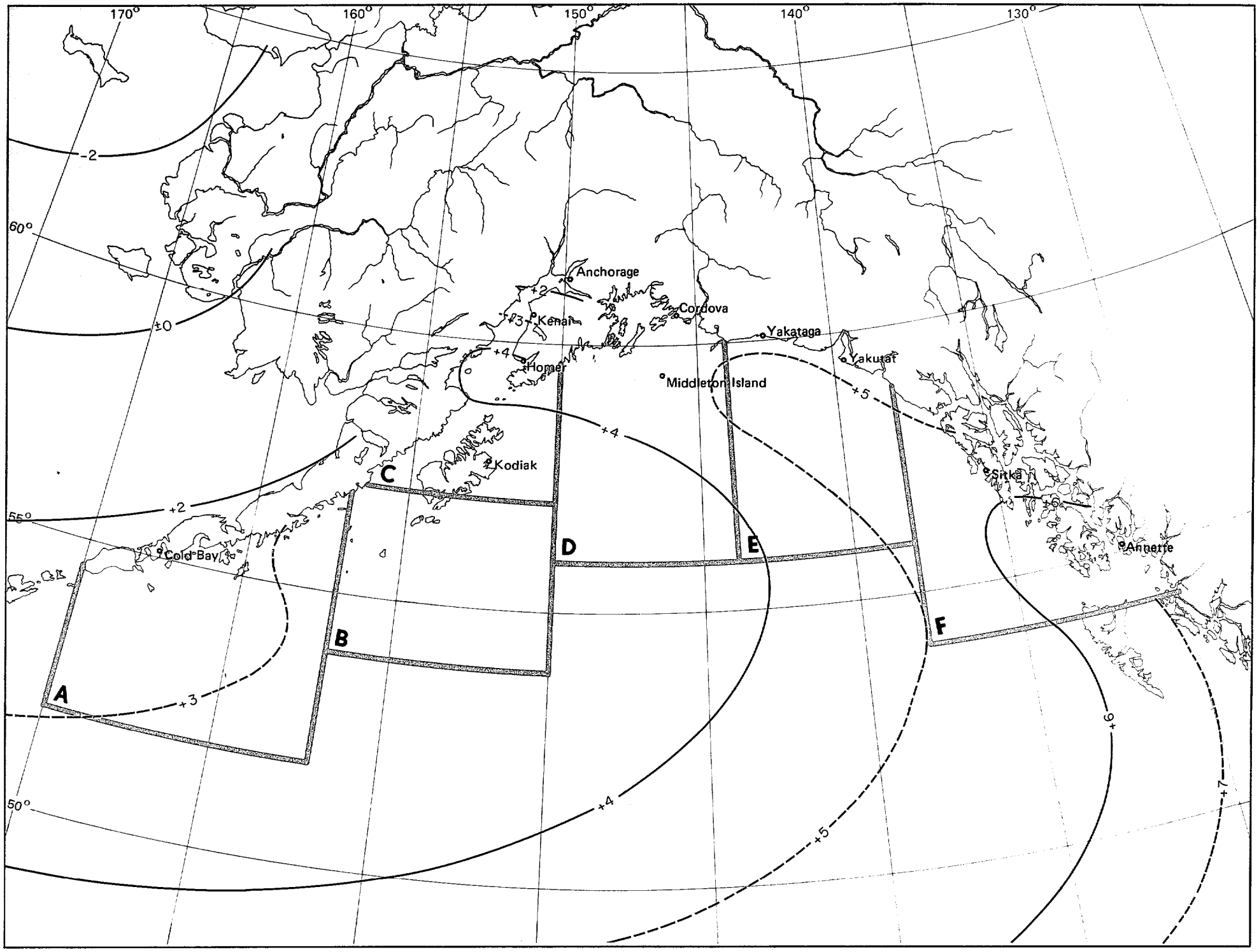
3744

Marine Area B

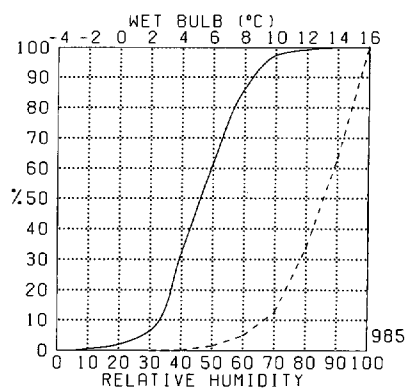
WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	+	+	0	0
12.13	+	+	+	0	0
10.11	+	1	1	1	0
8.9	1	7	8	1	+
6.7	2	11	16	6	1
4.5	1	6	18	5	1
2.3	+	2	4	3	1
0.1	+	+	+	1	+
-2.-1	0	0	+	0	0
-4.-3	0	0	+	0	0
-6.-5	0	0	0	0	0

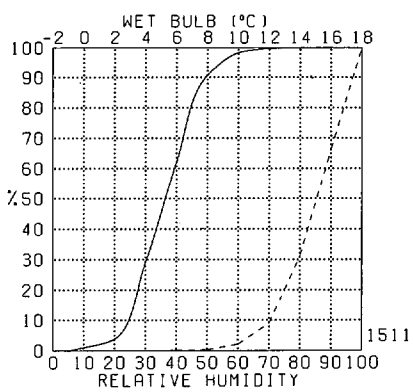
1066



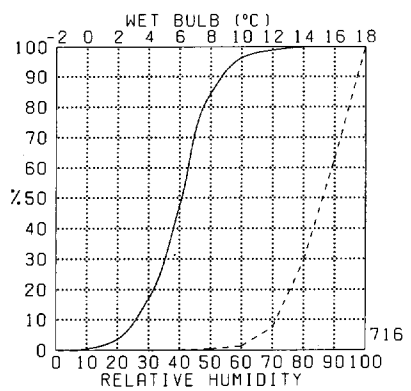
Marine Area C



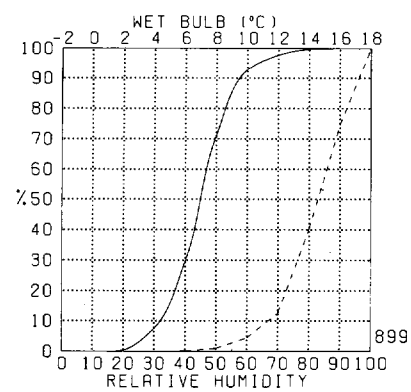
Marine Area D



Marine Area E

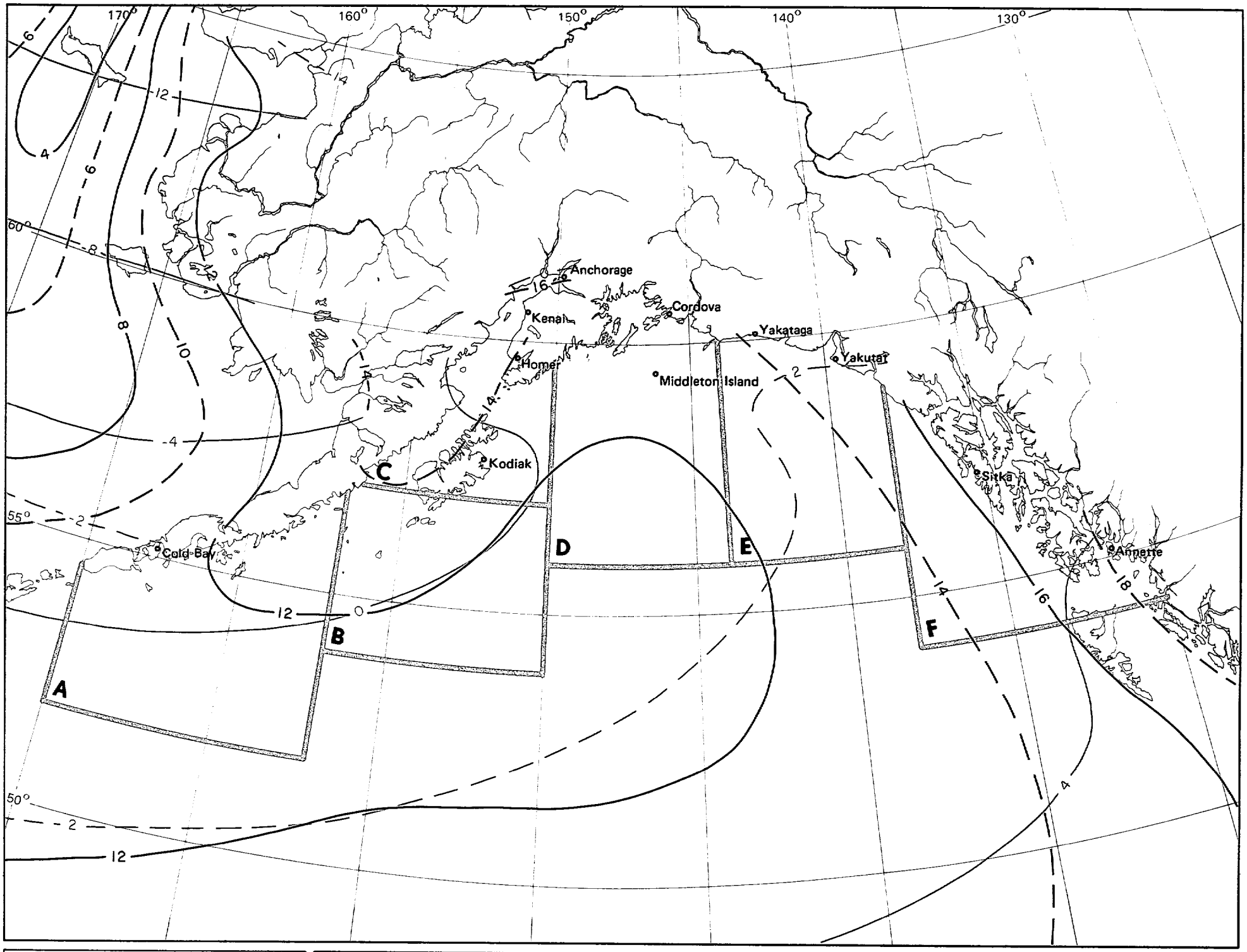


Marine Area F



4 Mean dew point temperature

May



Marine Area C

WIND SPEED (KTS)					
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	+	+	0	0
14.15	1	1	+	0	0
12.13	1	2	1	0	0
10.11	3	4	2	+	0
8.9	4	10	5	1	+
6.7	5	11	13	3	+
4.5	2	8	9	3	1
2.3	2	2	3	2	1
0.1	+	+	+	+	+
-2.-1	+	0	+	+	+
-4.-3	0	0	0	0	+

1171

Marine Area D

WIND SPEED (KTS)					
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	+	0	0
14.15	+	+	+	0	0
12.13	1	1	+	+	0
10.11	2	4	2	+	0
8.9	3	8	7	1	+
6.7	5	14	16	4	1
4.5	1	8	10	4	1
2.3	+	2	2	1	1
0.1	0	+	+	+	+
-2.-1	0	+	0	0	+
-4.-3	0	0	0	0	0

1943

Marine Area E

WIND SPEED (KTS)					
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	+	2	1	0	0
10.11	2	4	3	+	0
8.9	4	10	10	2	+
6.7	3	15	15	5	1
4.5	1	6	7	2	1
2.3	+	2	2	+	+
0.1	0	0	+	+	+
-2.-1	0	+	0	0	0
-4.-3	0	0	0	0	0

1110

Marine Area F

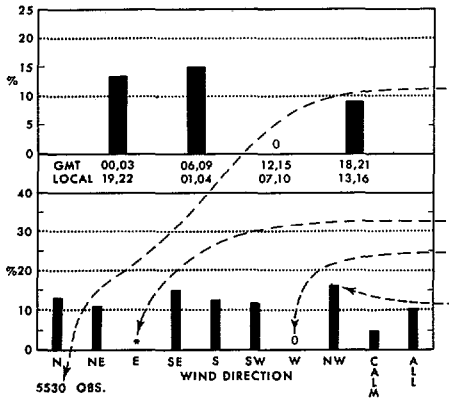
WIND SPEED (KTS)					
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	0	0	0
18.19	+	+	+	0	0
16.17	+	1	1	0	0
14.15	+	2	+	0	0
12.13	1	5	2	+	0
10.11	3	11	5	1	+
8.9	4	15	12	3	1
6.7	2	9	11	4	+
4.5	1	2	2	+	+
2.3	+	+	+	+	0
0.1	0	0	0	0	0

1454

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based *on 100% for each hour-group and direction* category.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

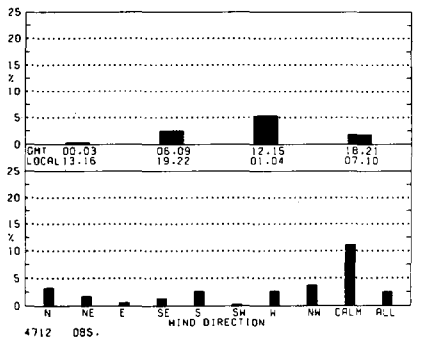
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

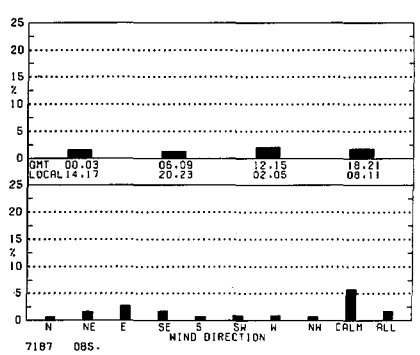
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

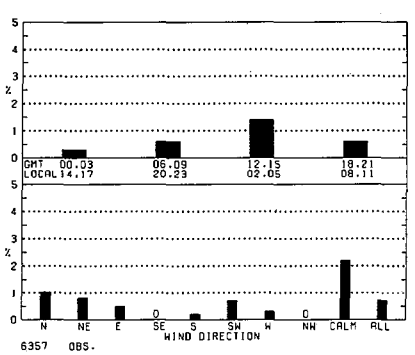
Cold Bay



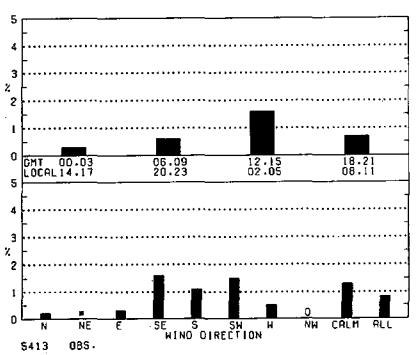
Kodiak



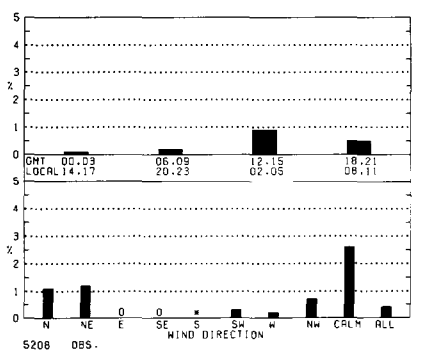
Homer



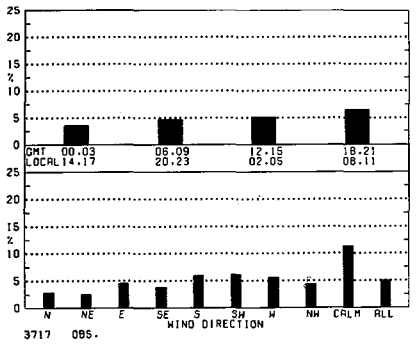
Kenai



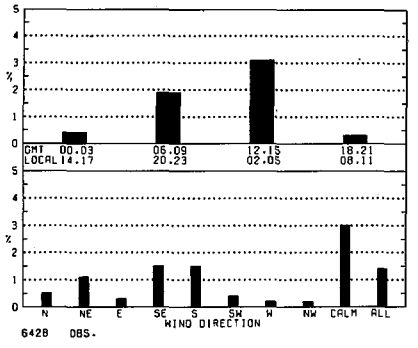
Anchorage



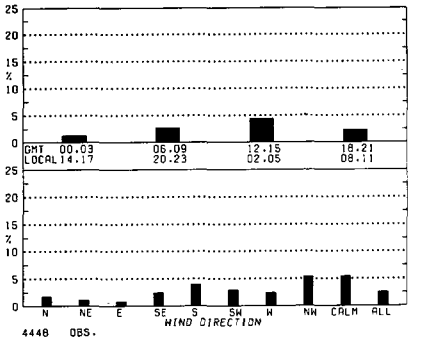
Middleton Island



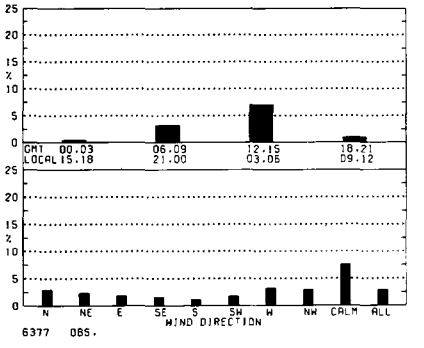
Cordova



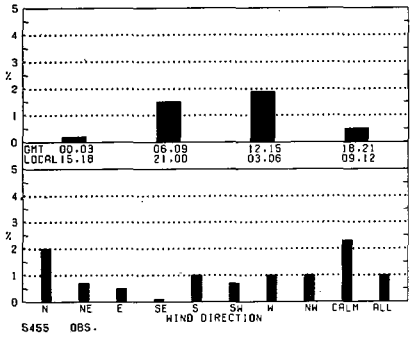
Yakataga



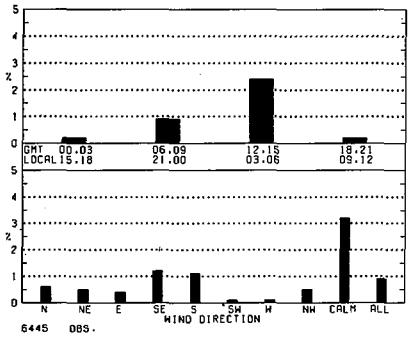
Yakutat



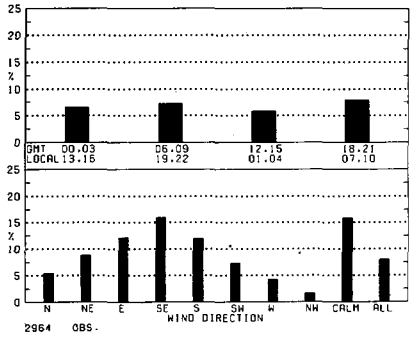
Sitka



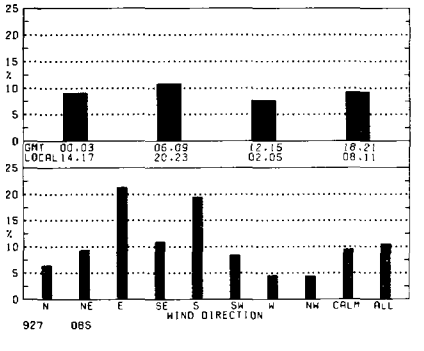
Annette

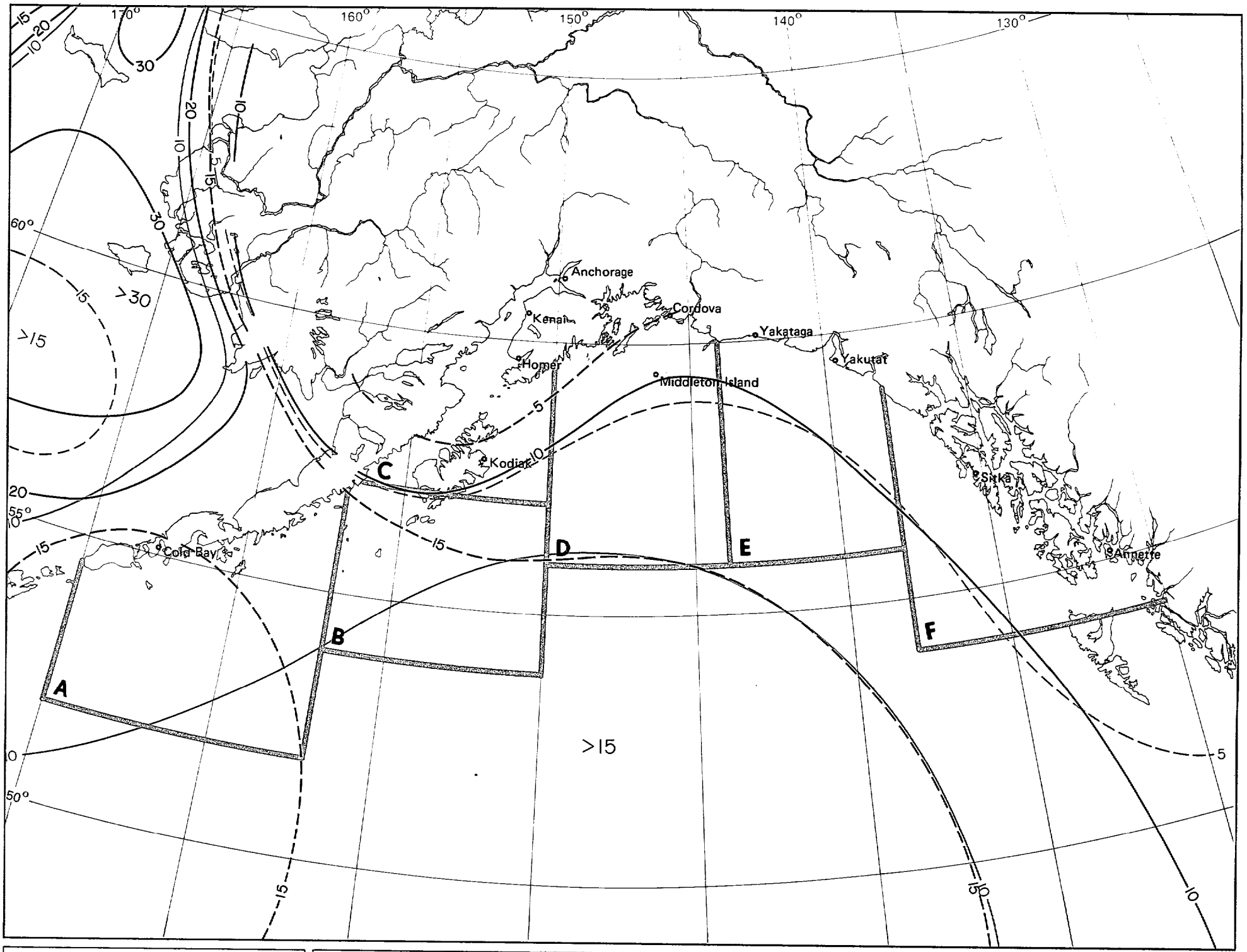


Marine Area A

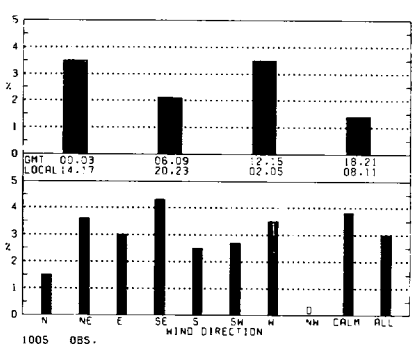


Marine Area B

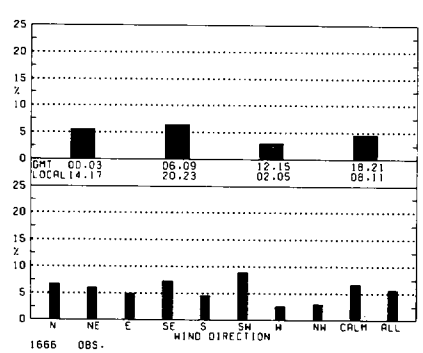




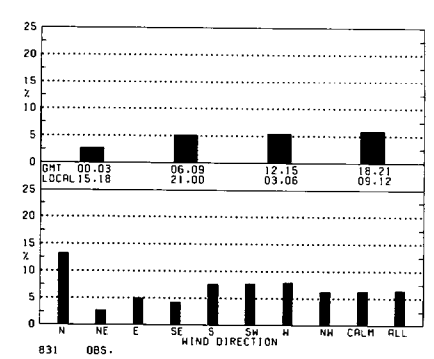
Marine Area C



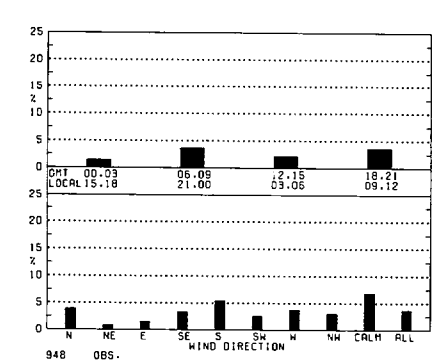
Marine Area D



Marine Area E

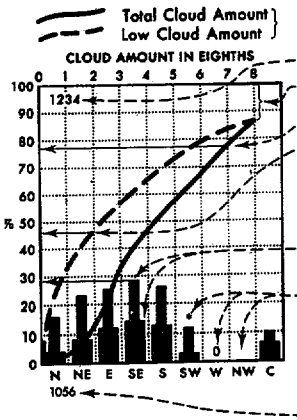


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 [5/8 & 6/8 ≥7/8]

Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

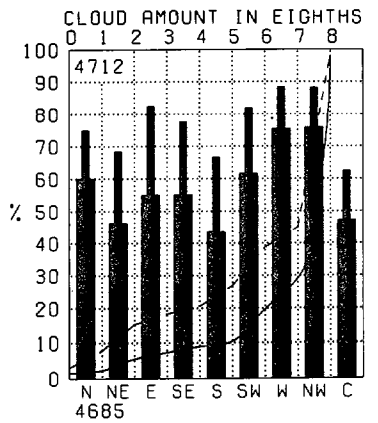
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

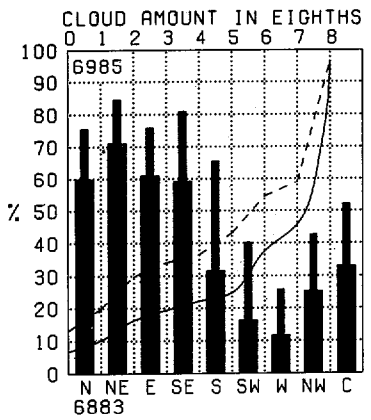
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

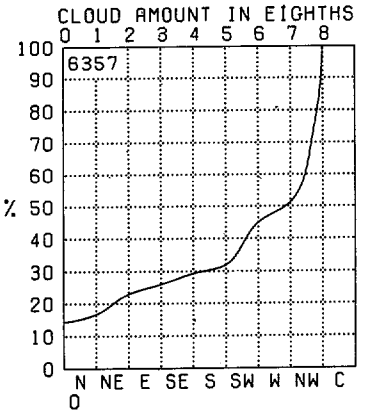
Cold Bay



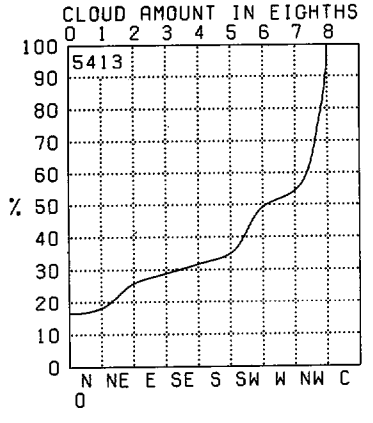
Kodiak



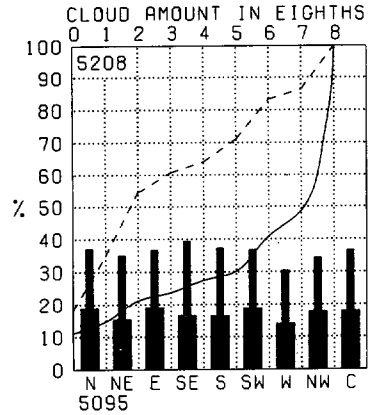
Homer



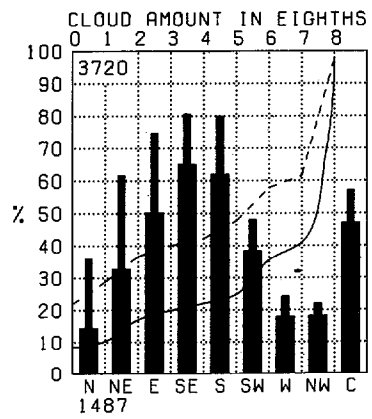
Kenai



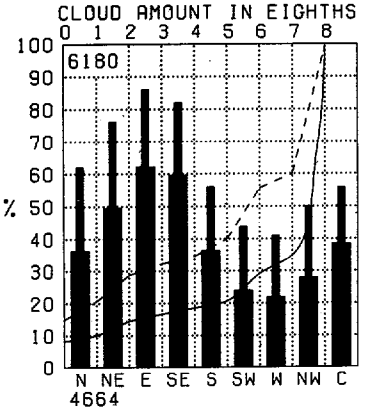
Anchorage



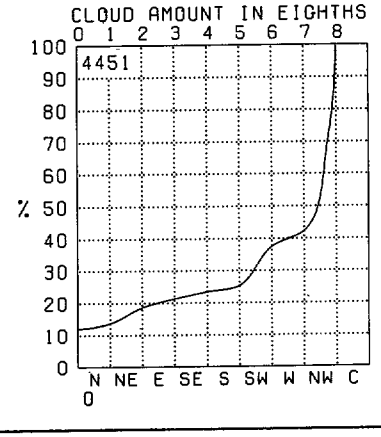
Middleton Island



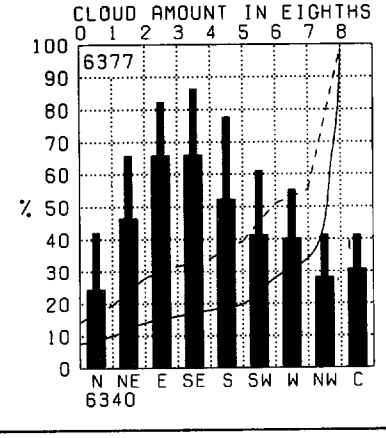
Cordova



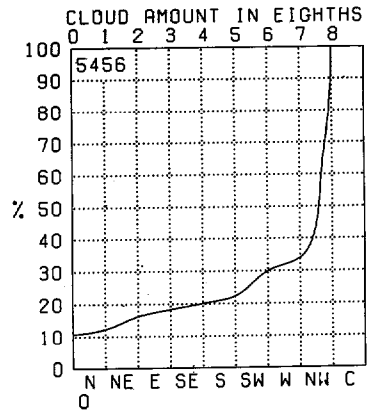
Yakataga



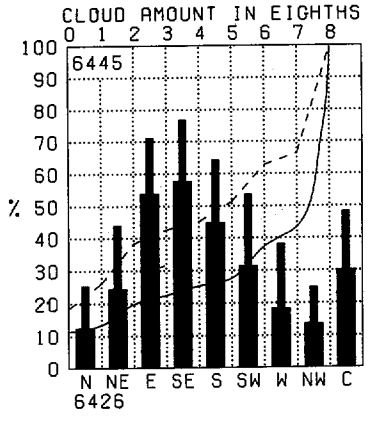
Yakutat



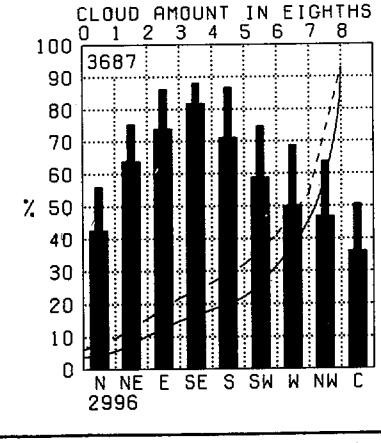
Sitka



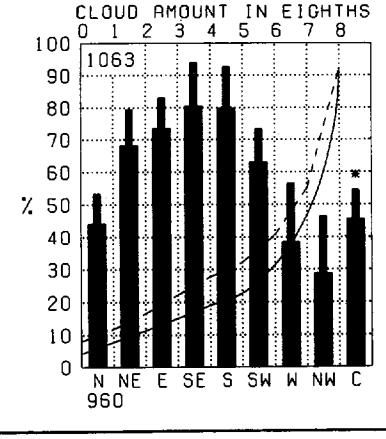
Annette

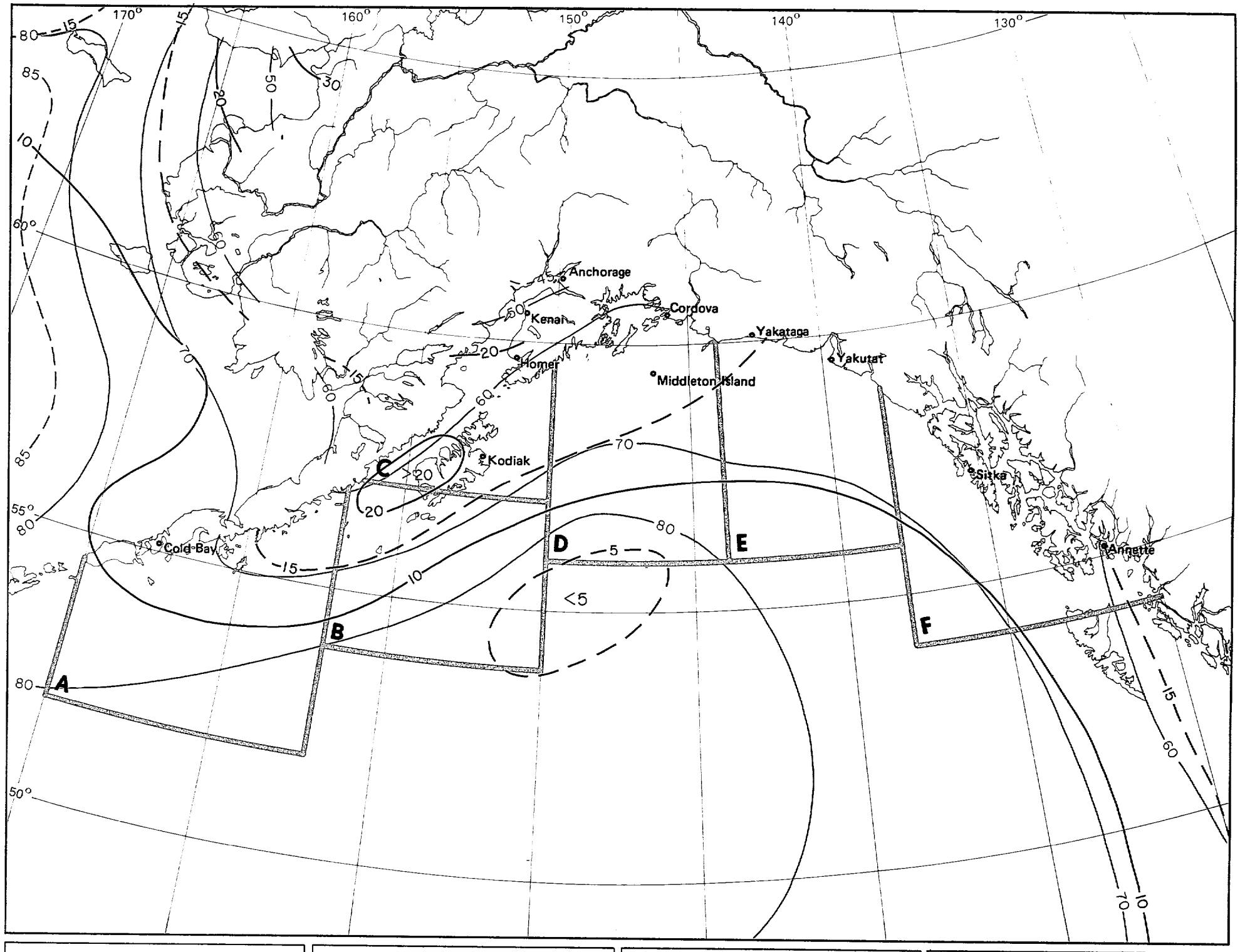


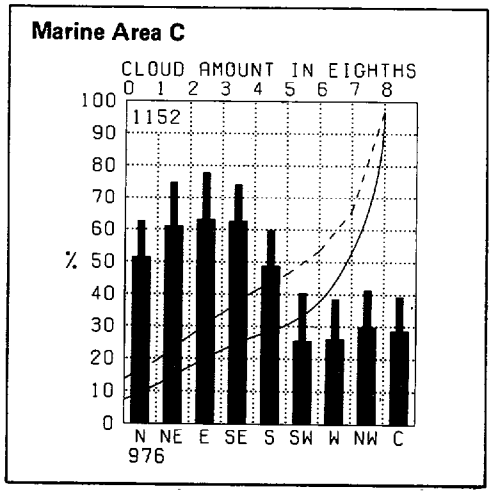
Marine Area A

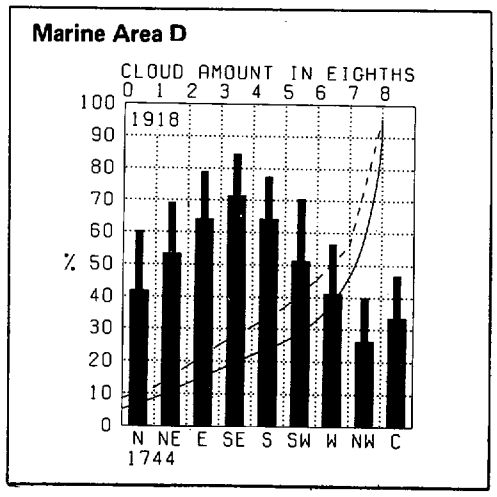


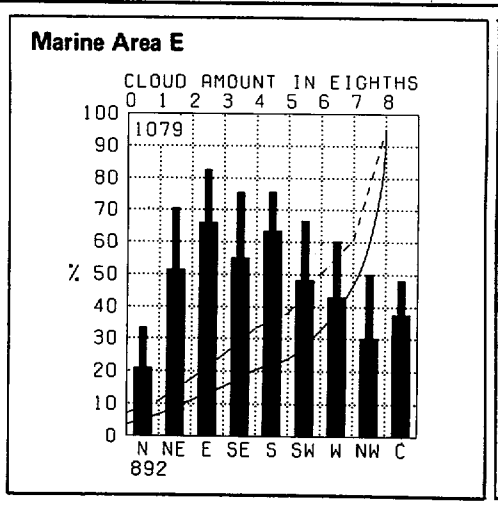
Marine Area B

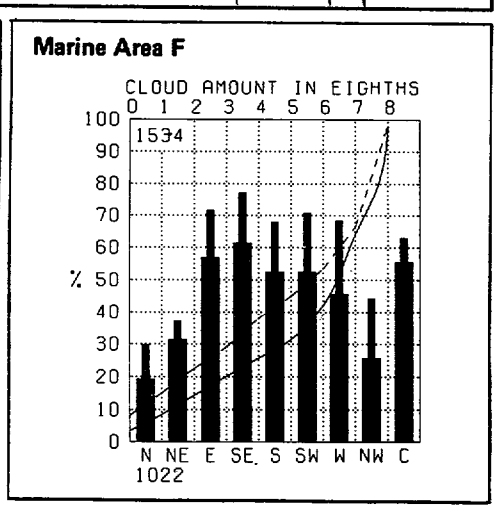








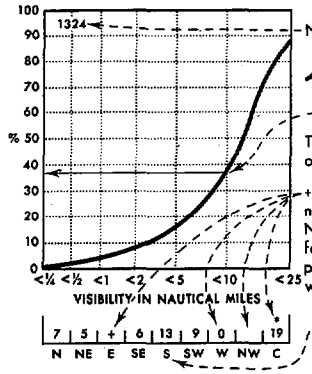




7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

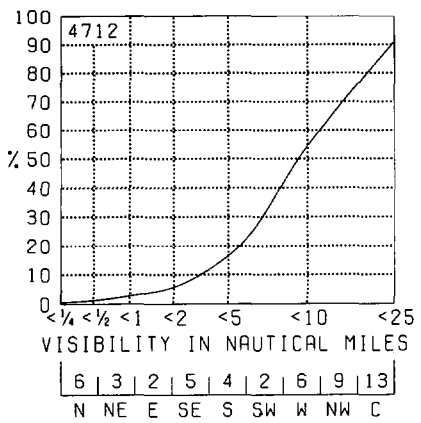
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

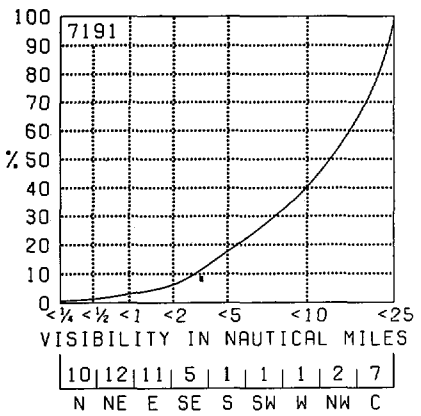
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

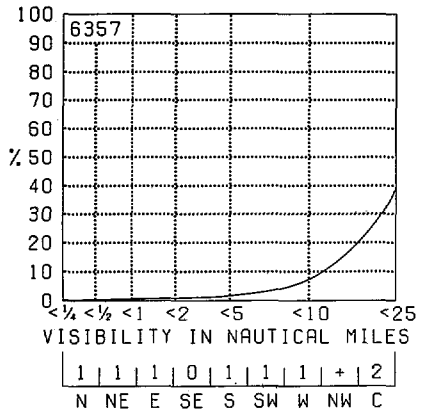
Cold Bay



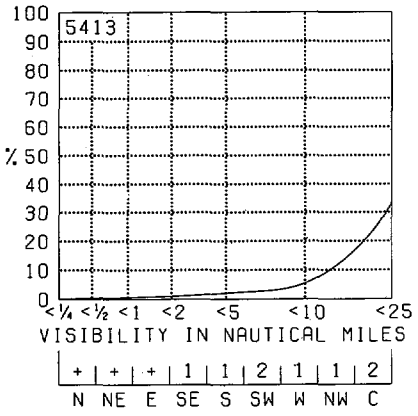
Kodiak



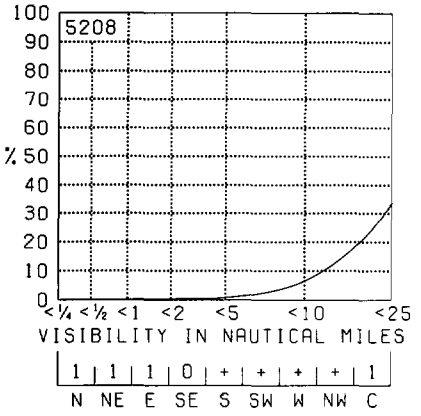
Homer



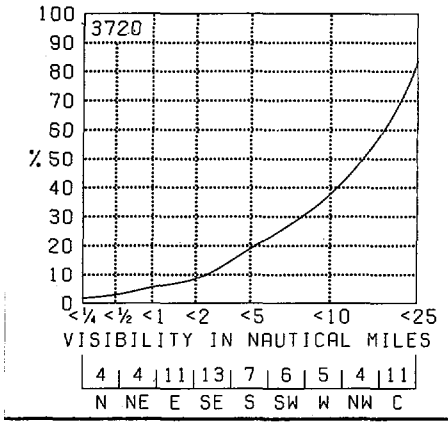
Kenai



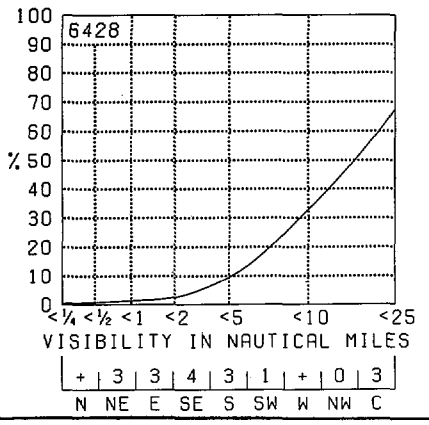
Anchorage



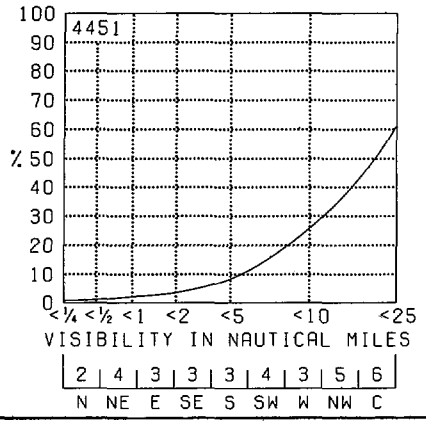
Middleton Island



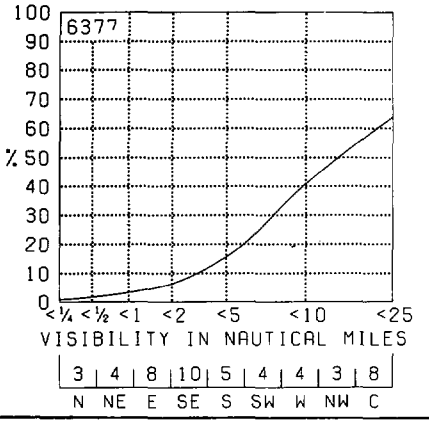
Cordova



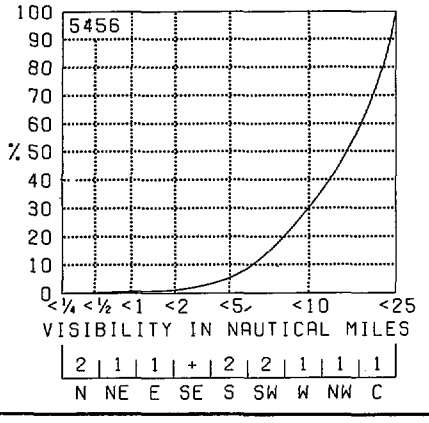
Yakataga



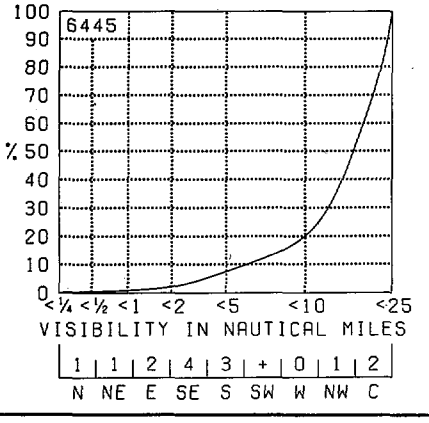
Yakutat



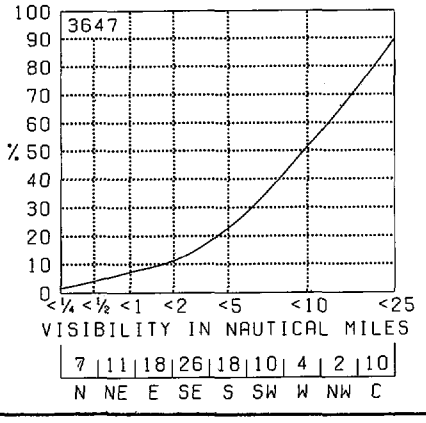
Sitka



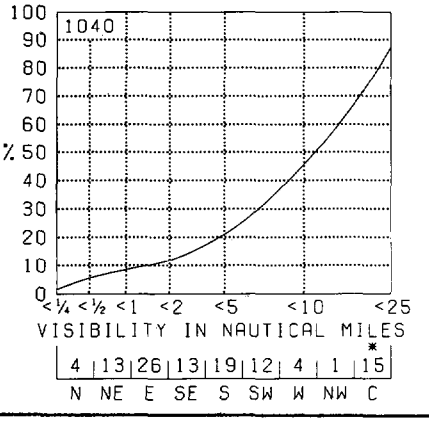
Annette

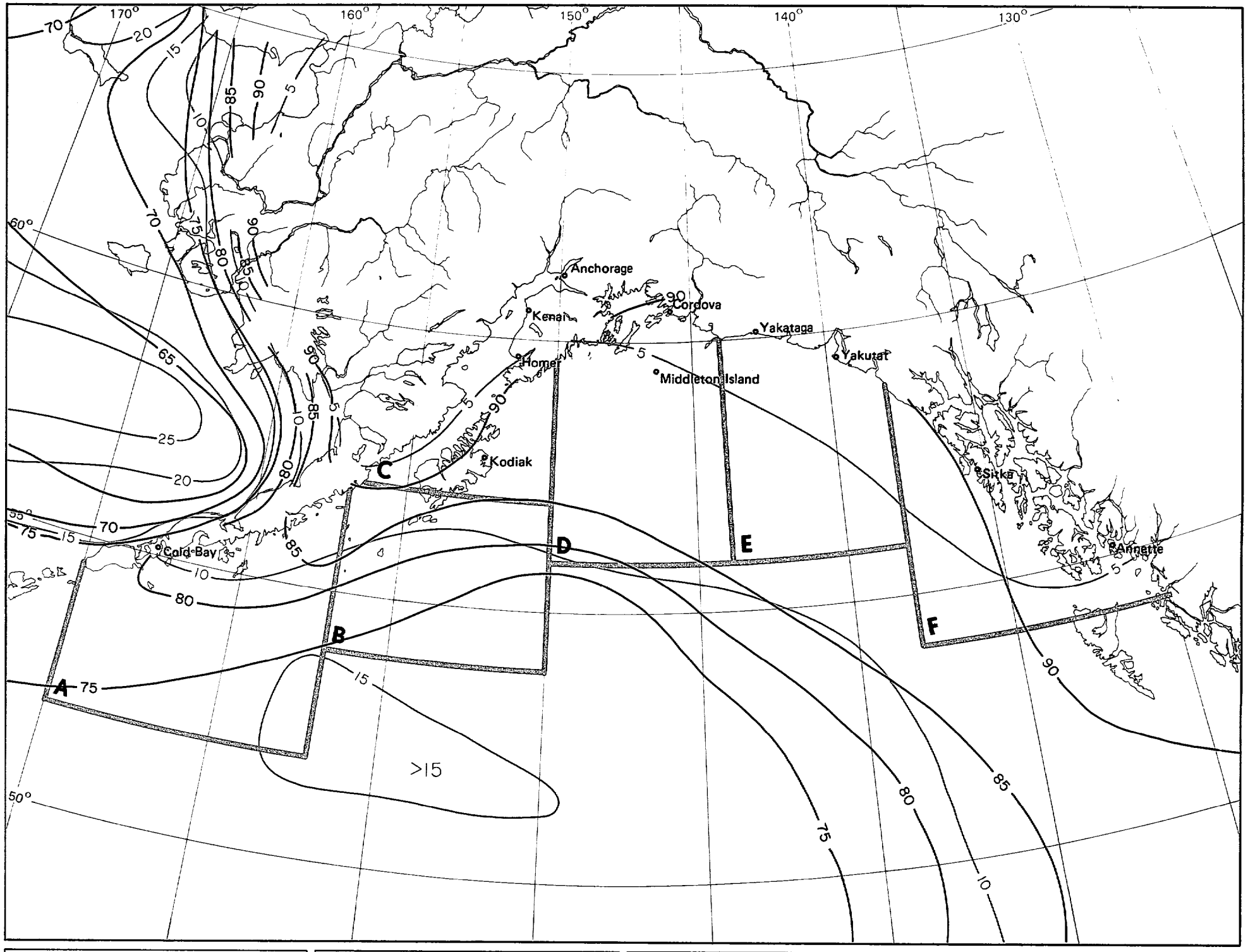


Marine Area A

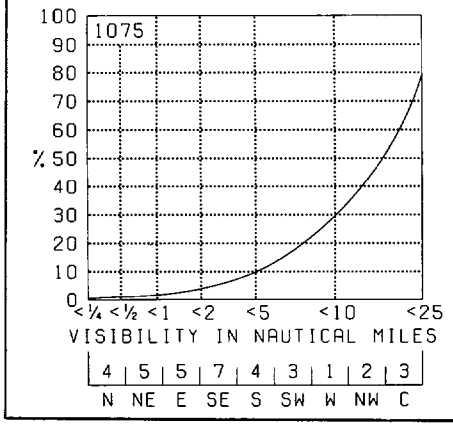


Marine Area B

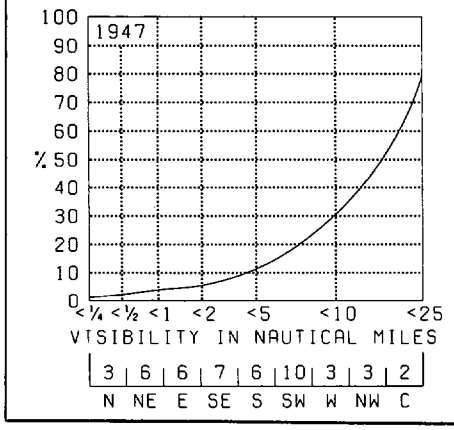




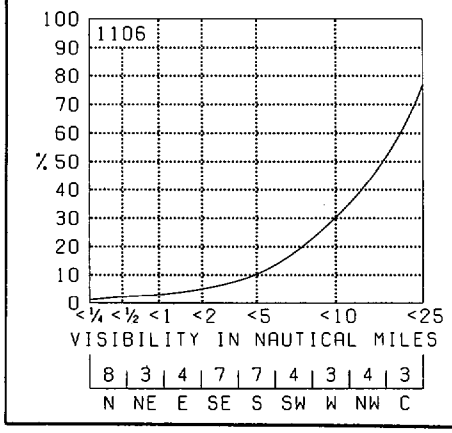
Marine Area C



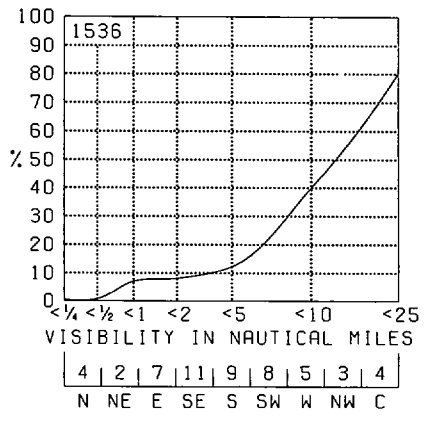
Marine Area D



Marine Area E



Marine Area F

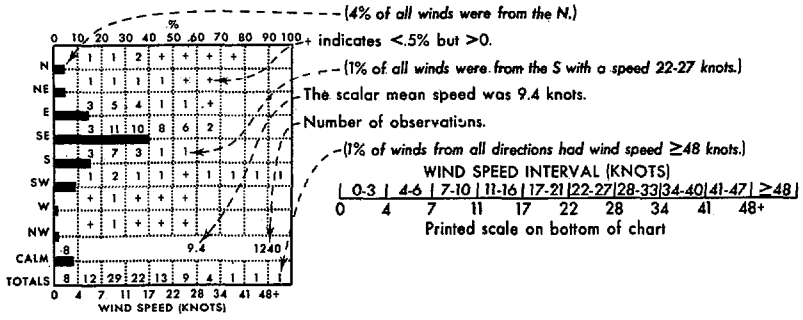


8 Visibility thresholds

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



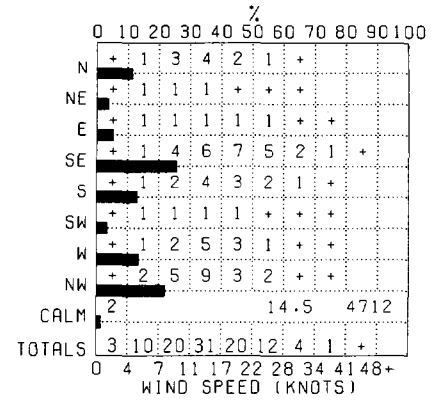
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

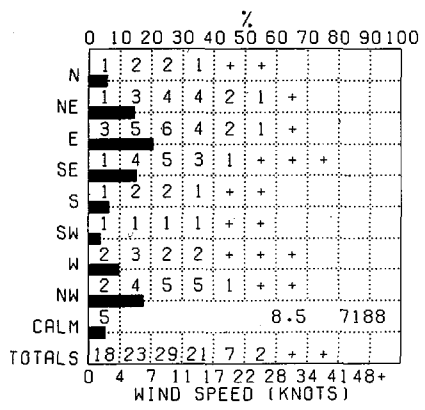
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

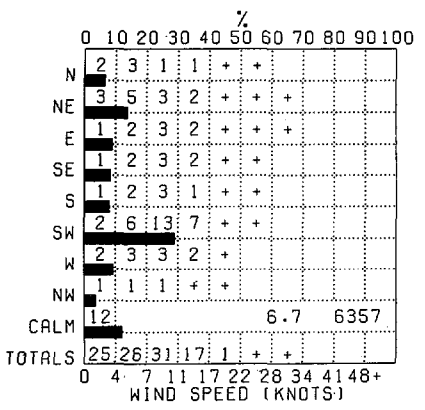
Cold Bay



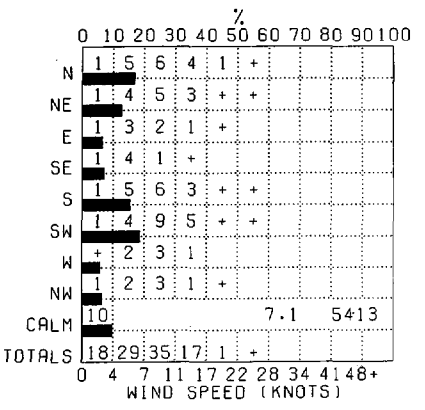
Kodiak



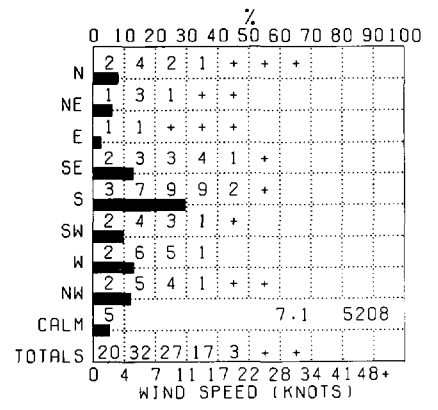
Homer



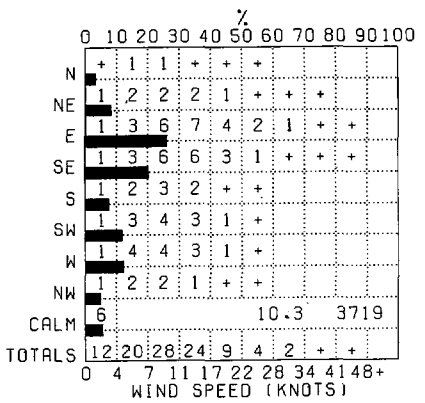
Kenai



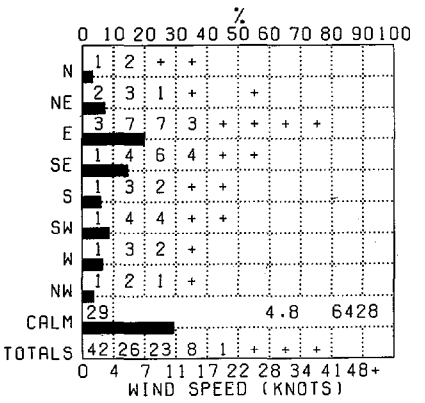
Anchorage



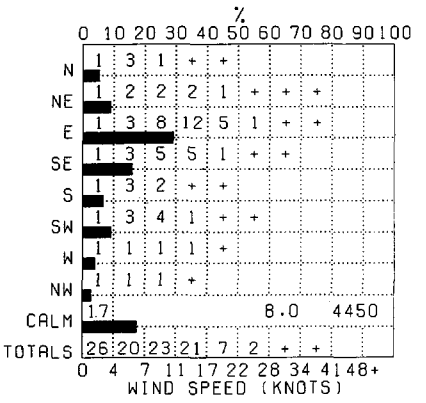
Middleton Island



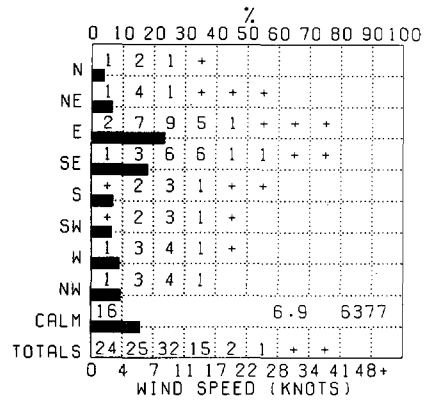
Cordova



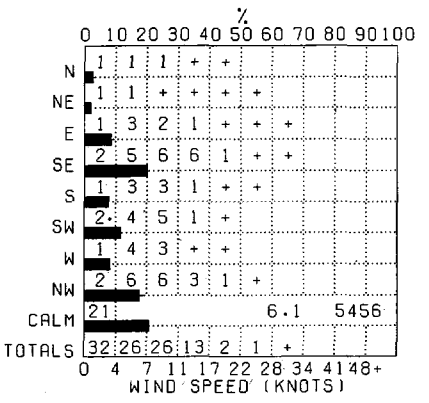
Yakataga



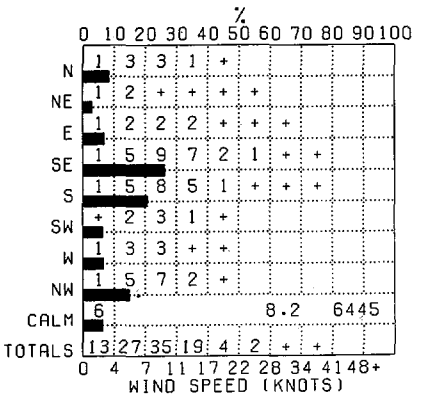
Yakutat



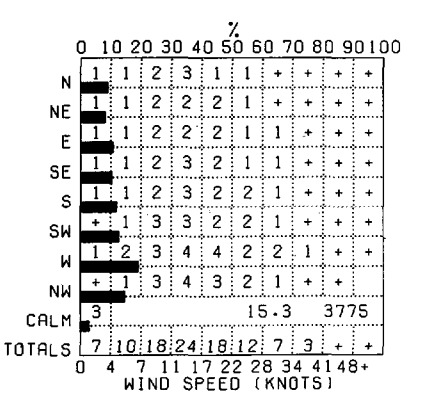
Sitka



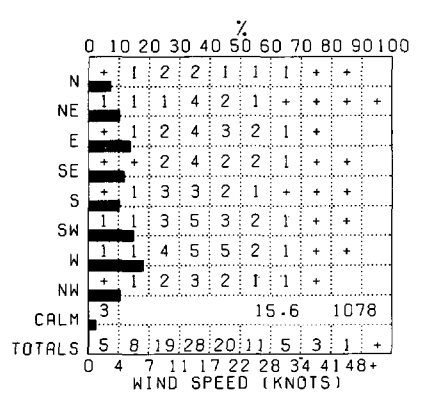
Annette

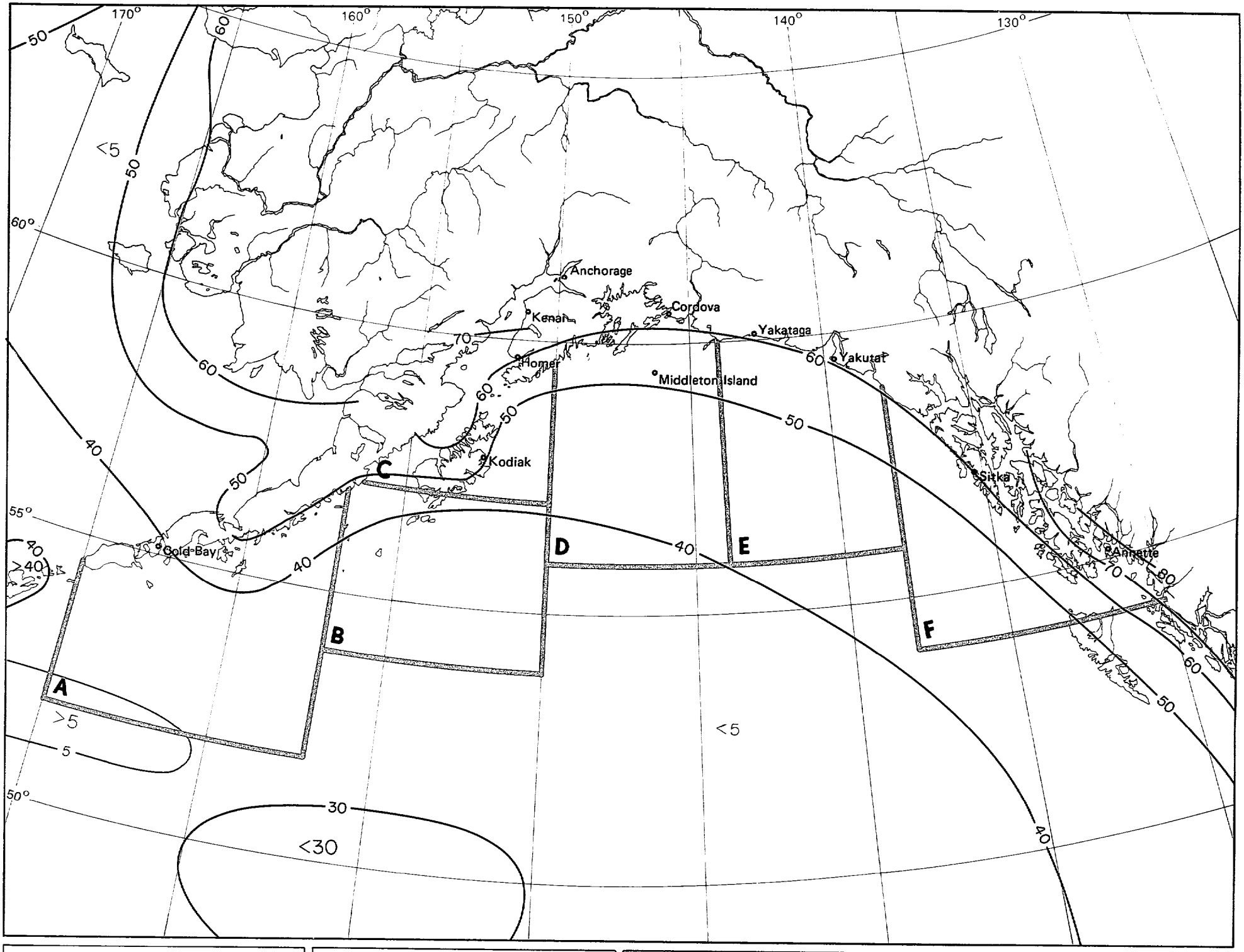


Marine Area A

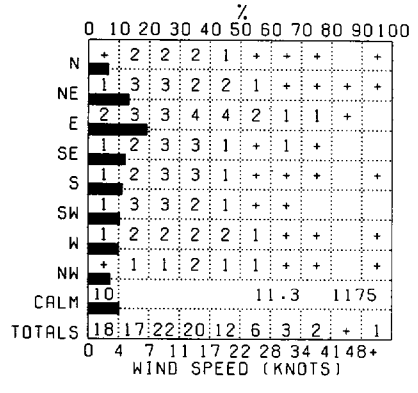


Marine Area B

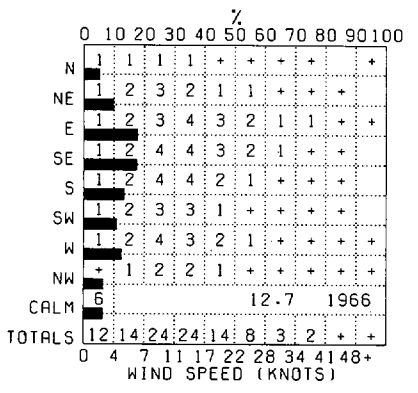




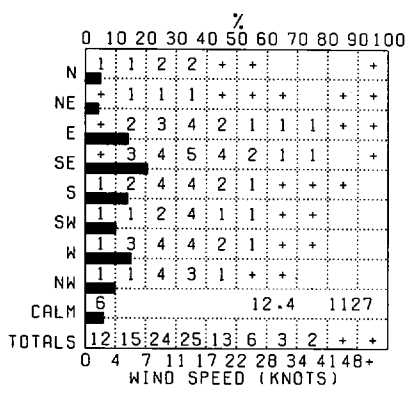
Marine Area C



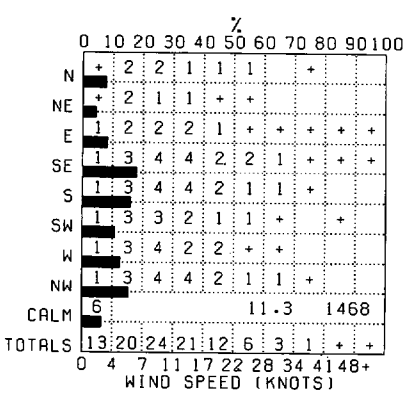
Marine Area D



Marine Area E



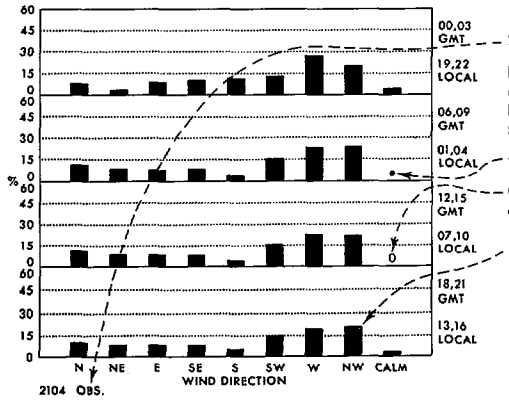
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% *for each hour-group.*

* indicates <.05% but >0.

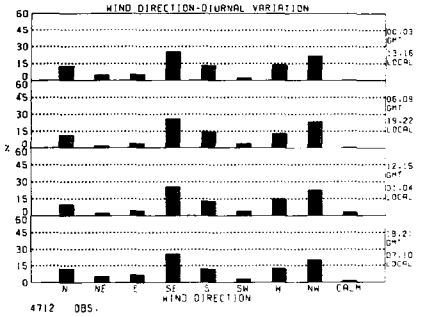
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

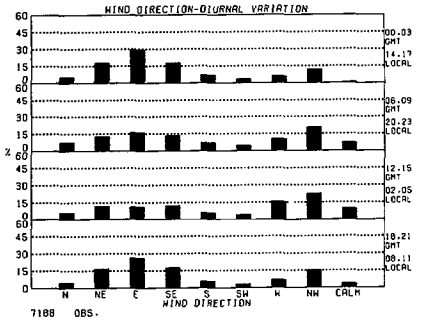
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

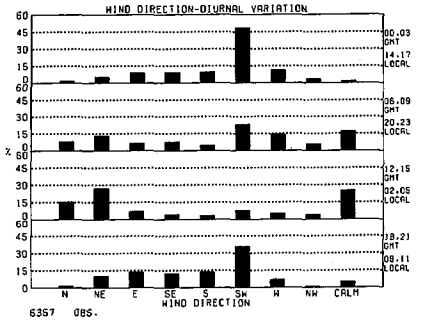
Cold Bay



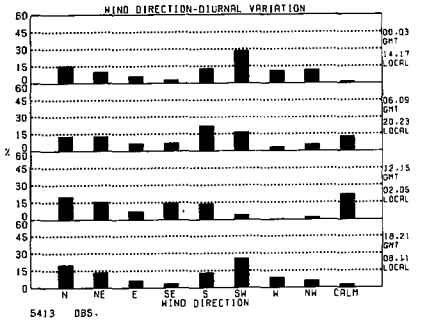
Kodiak



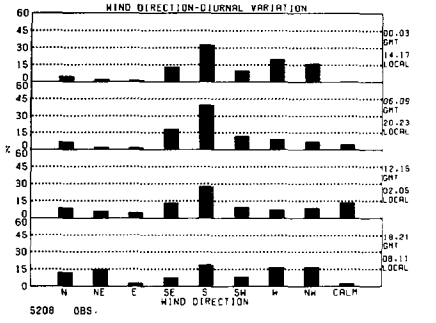
Homer



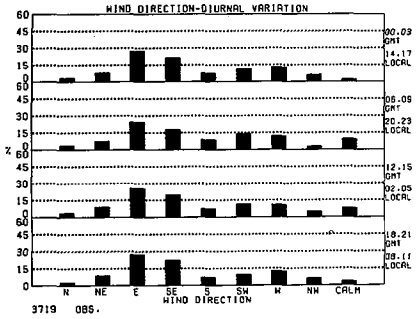
Kenai



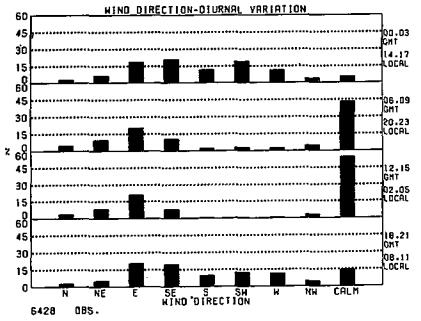
Anchorage



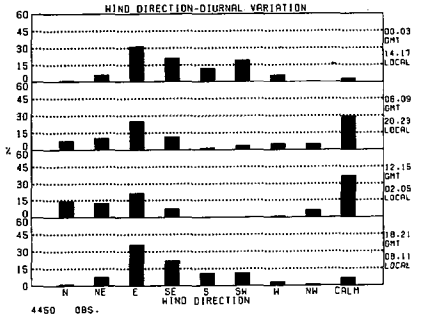
Middleton Island



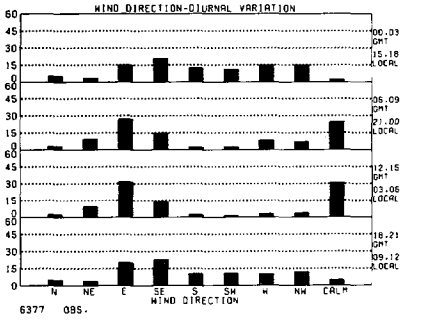
Cordova



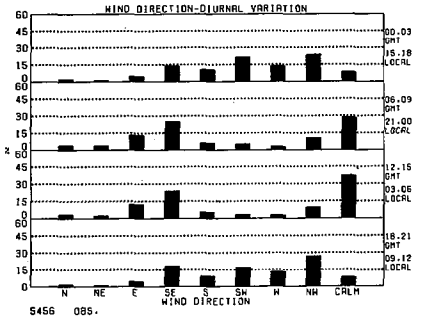
Yakataga



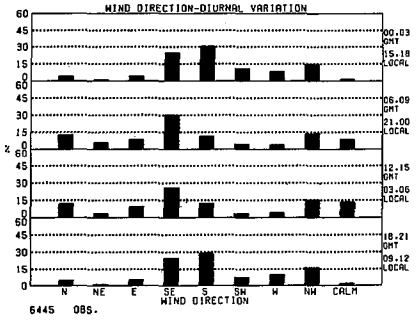
Yakutat



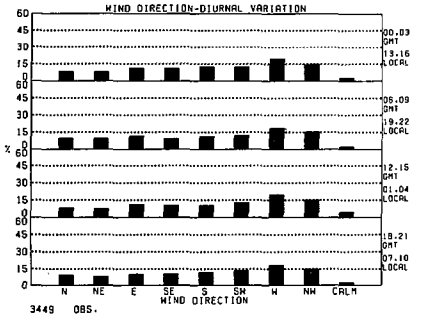
Sitka



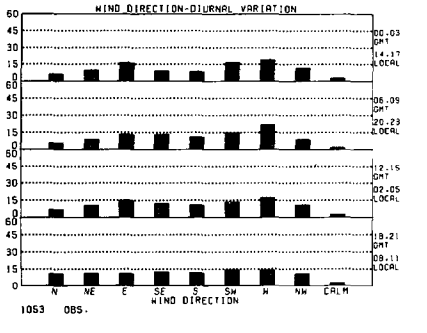
Annette

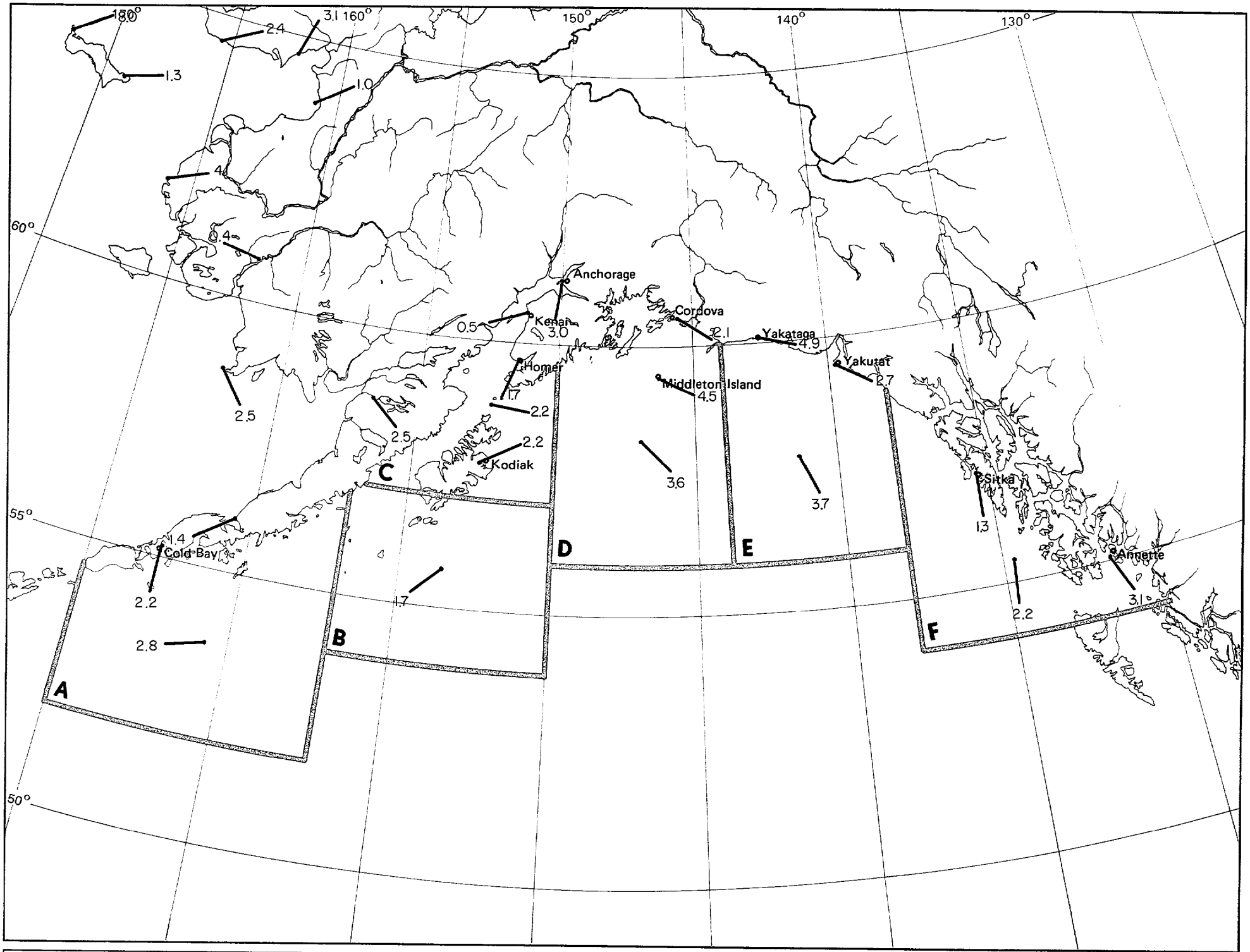


Marine Area A

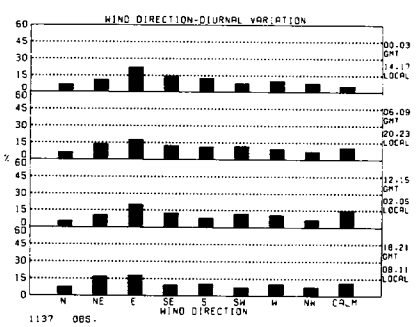


Marine Area B

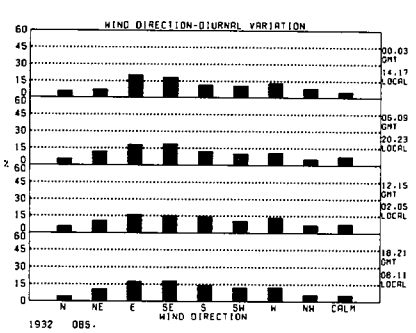




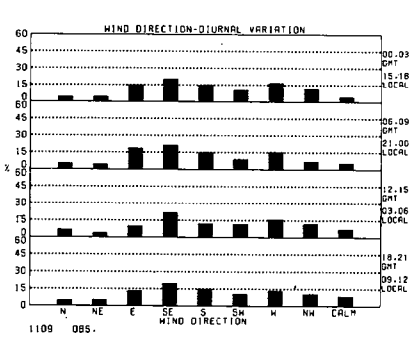
Marine Area C



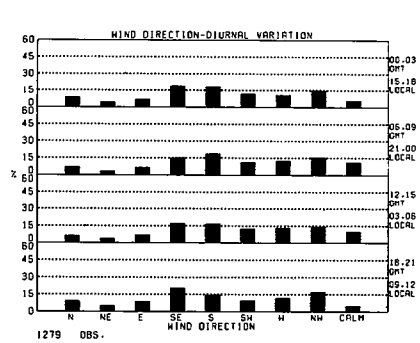
Marine Area D



Marine Area E



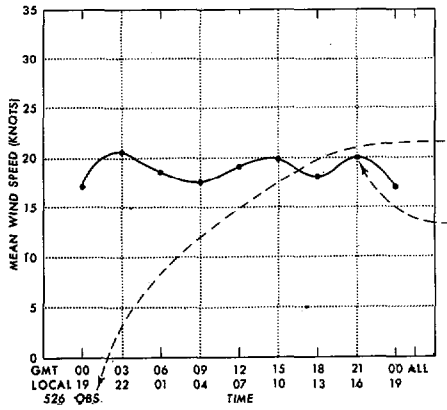
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

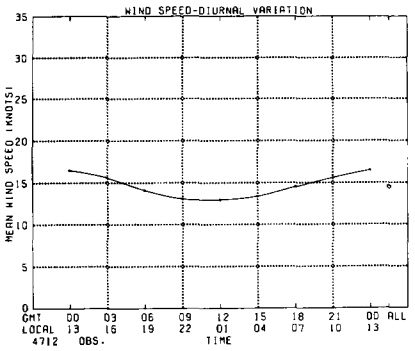
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

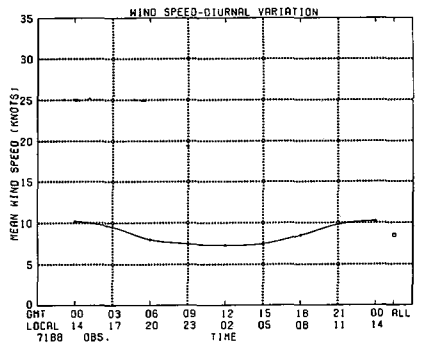
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

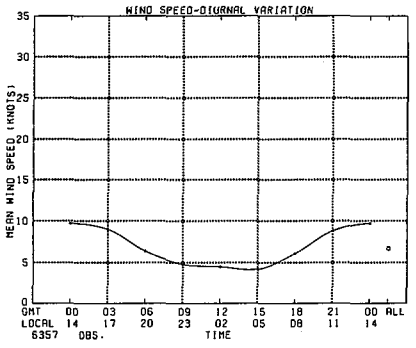
Cold Bay



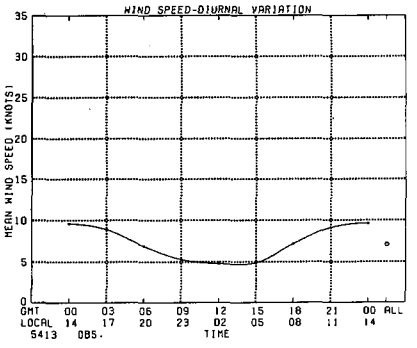
Kodiak



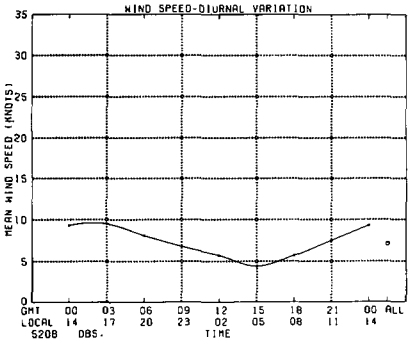
Homer



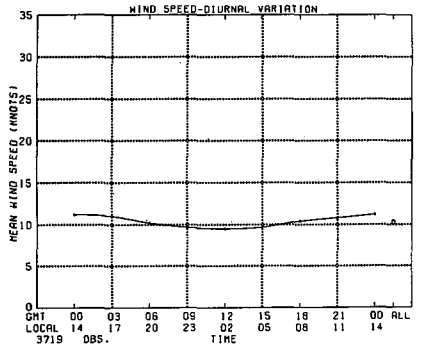
Kenai



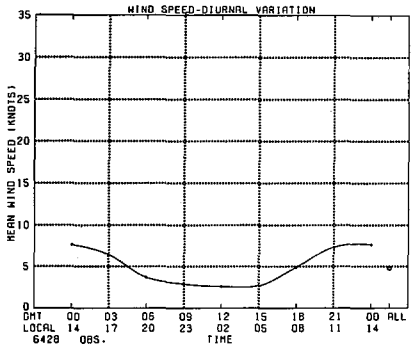
Anchorage



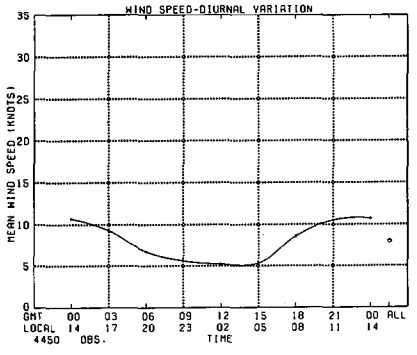
Middleton Island



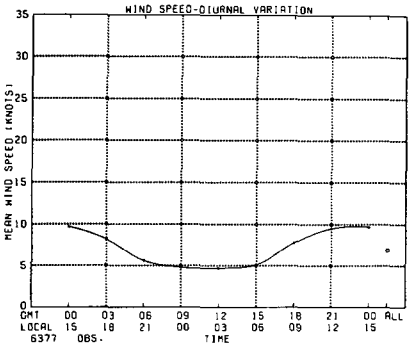
Cordova



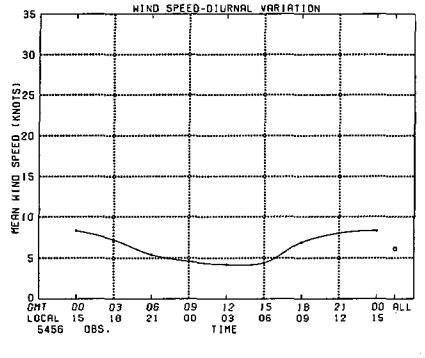
Yakataga



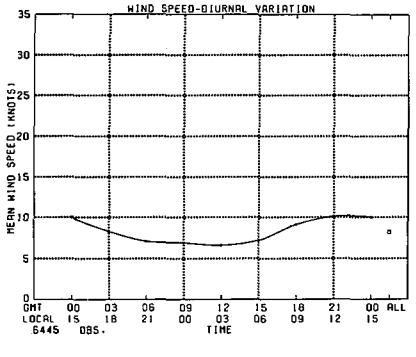
Yakutat



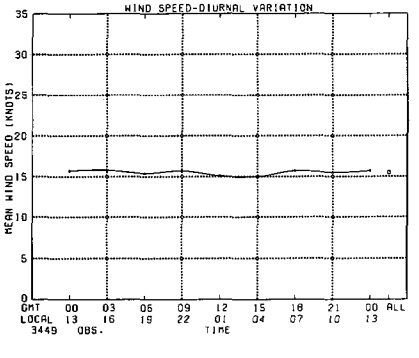
Sitka



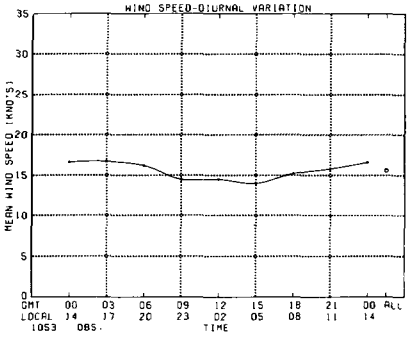
Annette

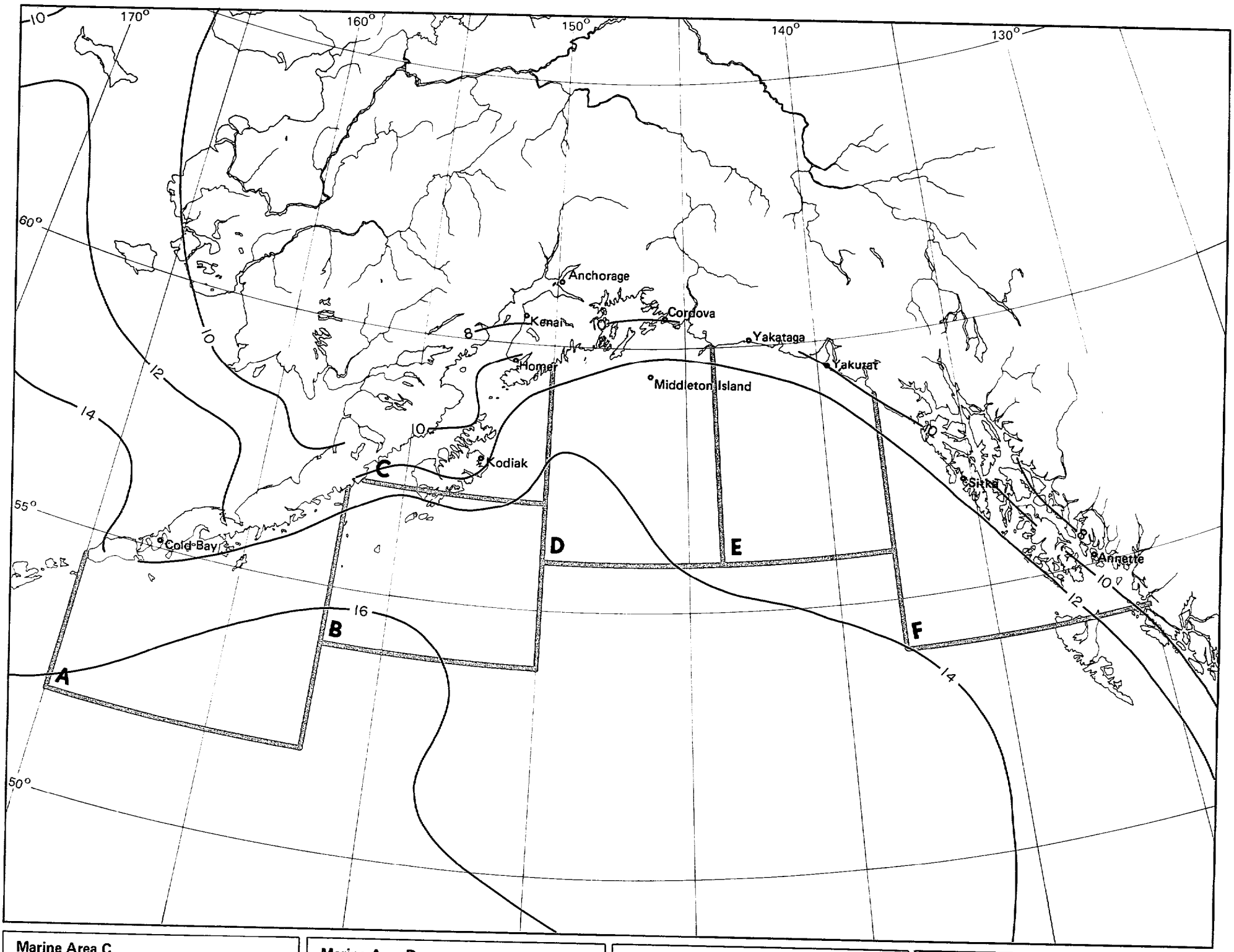


Marine Area A

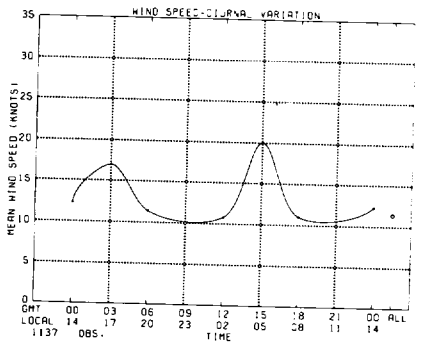


Marine Area B

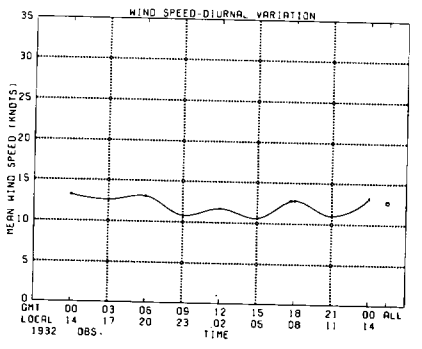




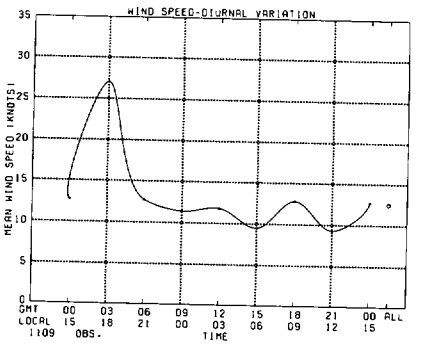
Marine Area C



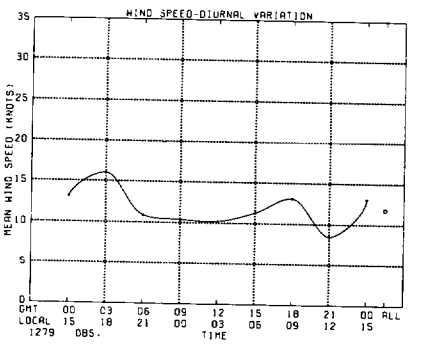
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	4	17
50<80	0	0	0	0	+	+
35<50	0	+	+	+	1	2
20<35	0	+	+	+	5	10
10<20	+	+	+	2	13	11
6<10	+	+	1	4	12	4
3<6	0	+	1	4	5	1
1.5<3	0	+	+	+	+	+
0<1.5	1	1	+	+	+	0

4685

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	3	34
50<80	+	0	+	0	+	1
35<50	+	0	0	0	+	3
20<35	0	0	0	+	3	11
10<20	0	+	+	3	8	8
6<10	+	+	+	4	6	2
3<6	+	+	1	3	2	+
1.5<3	+	+	+	+	+	0
0<1.5	1	1	1	1	+	0

6883

Homer

Insufficient Data

Kenai

Insufficient Data

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	2	66
50<80	0	0	0	+	+	10
35<50	0	0	0	0	+	6
20<35	0	+	0	+	1	7
10<20	+	0	+	+	1	3
6<10	0	0	+	+	1	1
3<6	+	+	+	+	+	+
1.5<3	0	0	+	+	+	0
0<1.5	+	+	+	0	0	0

5095

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	3	40
50<80	0	0	0	0	0	2
35<50	0	0	0	0	+	3
20<35	0	0	0	+	2	6
10<20	+	0	+	1	7	10
6<10	+	1	2	4	5	2
3<6	+	+	1	2	1	1
1.5<3	+	0	+	+	0	+
0<1.5	2	2	1	1	+	0

1487

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	2	36
50<80	0	0	0	0	+	2
35<50	0	0	0	+	1	5
20<35	0	0	0	1	9	17
10<20	0	+	+	3	10	6
6<10	0	+	+	1	2	1
3<6	0	+	+	+	+	+
1.5<3	0	0	0	0	0	0
0<1.5	+	+	+	+	+	0

4664

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	0	1	37
50<80	0	0	0	0	0	4
35<50	0	0	0	0	+	5
20<35	0	0	0	+	6	20
10<20	0	+	0	3	6	5
6<10	0	0	1	+	1	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	5	4	+	+	0	0

243

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	+	+	1	2	32
50<80	0	0	+	0	+	2
35<50	+	0	+	0	+	2
20<35	+	0	+	1	3	9
10<20	+	+	+	3	12	11
6<10	+	+	1	3	5	2
3<6	+	+	1	2	2	1
1.5<3	0	+	+	+	+	+
0<1.5	1	+	+	+	+	0

6340

Sitka

Insufficient Data

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	47
50<80	+	0	0	0	+	3
35<50	0	+	+	0	+	5
20<35	0	0	0	+	2	11
10<20	+	0	+	1	5	12
6<10	0	+	+	2	3	2
3<6	0	+	1	2	1	+
1.5<3	0	+	+	+	+	+
0<1.5	+	+	+	+	+	0

6426

Marine Area A

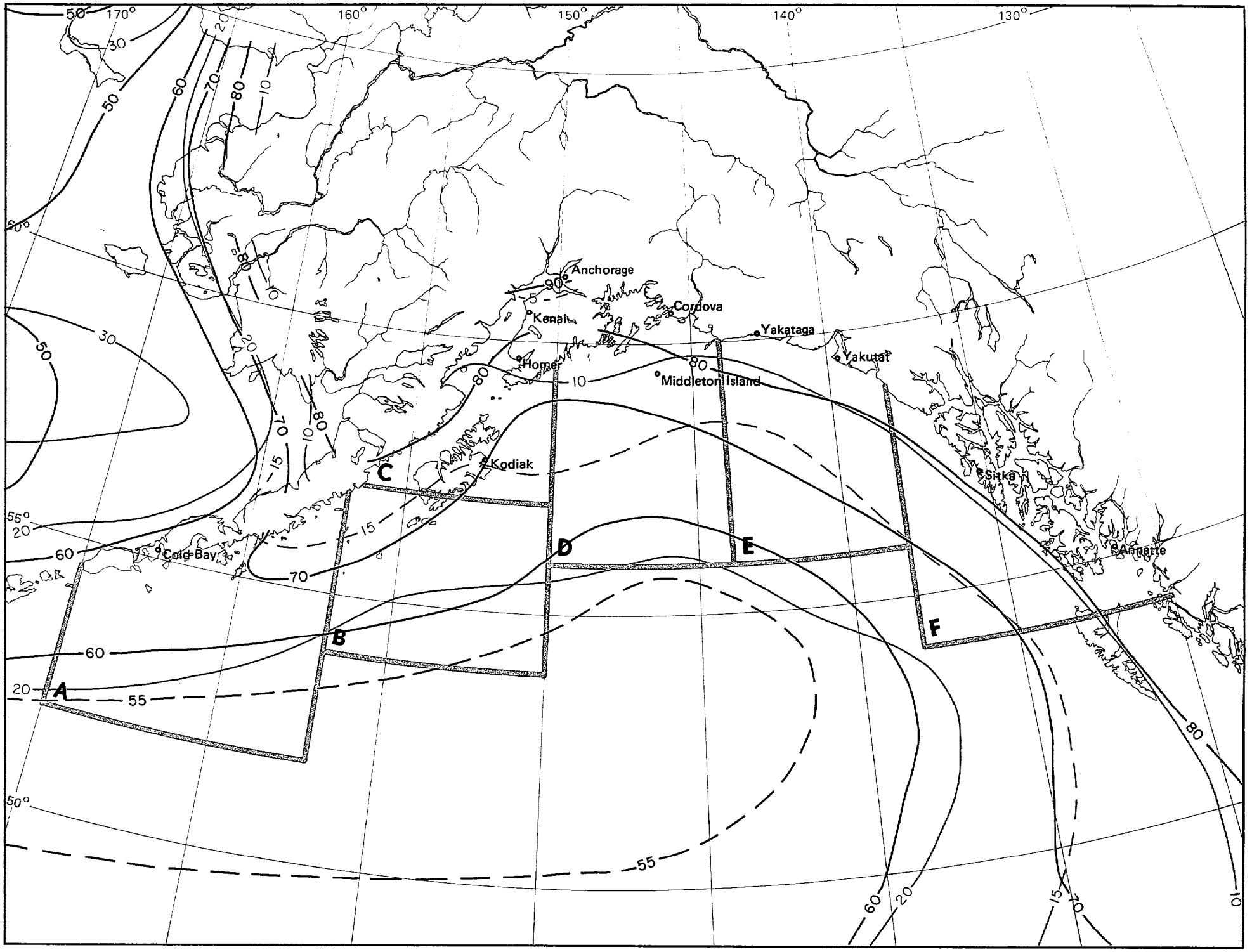
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	1	5	22
50<80	0	0	0	+	+	1
35<50	0	0	+	+	1	2
20<35	+	+	+	1	3	6
10<20	+	+	1	3	9	13
6<10	+	+	1	2	6	7
3<6	+	+	+	1	2	1
1.5<3	0	+	+	+	+	+
0<1.5	4	2	1	2	1	+

2811

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	4	25
50<80	0	0	0	+	+	2
35<50	0	0	0	+	1	2
20<35	+	0	+	2	4	6
10<20	+	1	1	3	8	13
6<10	+	+	1	2	5	6
3<6	+	1	+	1	1	1
1.5<3	0	0	+	+	+	+
0<1.5	5	2	1	1	1	+

913



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	3	39
50<80	0	0	0	0	1	1
35<50	0	0	0	0	1	3
20<35	0	0	+	+	2	6
10<20	0	0	0	1	4	13
6<10	0	+	+	1	5	7
3<6	+	+	0	1	2	2
1.5<3	0	0	+	+	1	+
0<1.5	1	+	1	1	+	1

923

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	2	29
50<80	0	0	0	0	1	2
35<50	0	0	0	+	1	2
20<35	0	0	+	1	2	8
10<20	0	+	+	1	4	19
6<10	0	+	+	1	6	9
3<6	0	+	+	1	2	3
1.5<3	+	+	+	+	+	+
0<1.5	2	1	+	1	1	+

1603

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	3	32
50<80	0	0	0	0	+	1
35<50	0	0	0	0	+	4
20<35	0	+	+	1	4	9
10<20	+	+	0	+	6	17
6<10	+	0	+	1	4	7
3<6	0	0	+	+	1	3
1.5<3	0	0	0	0	+	+
0<1.5	2	+	+	1	1	+

837

Marine Area F

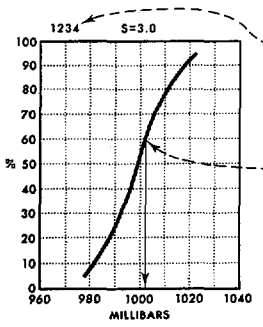
LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	2	38
50<80	0	0	0	0	+	1
35<50	0	0	0	+	1	4
20<35	0	0	0	1	2	10
10<20	+	0	+	1	5	14
6<10	0	+	+	1	4	7
3<6	0	+	+	+	1	2
1.5<3	0	0	0	0	+	+
0<1.5	1	1	1	1	1	+

920

12 Low cloud ceiling and visibility thresholds

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S=Standard deviation of pressure (mbs).

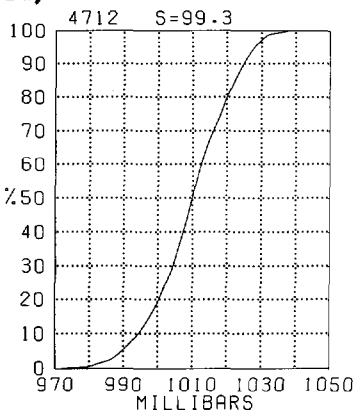
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

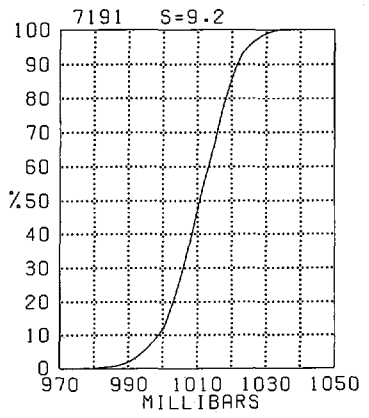
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

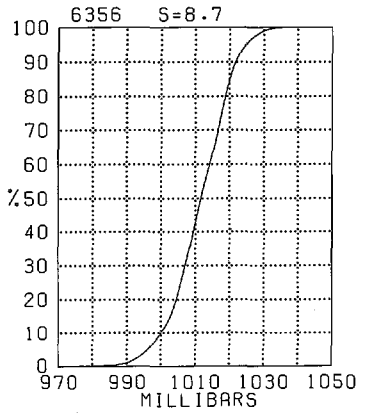
Cold Bay



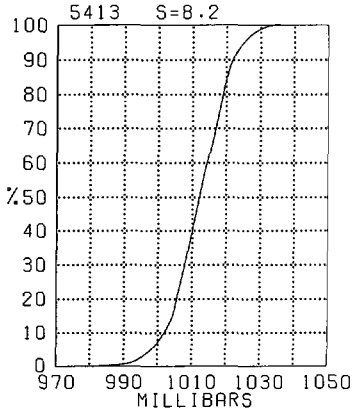
Kodiak



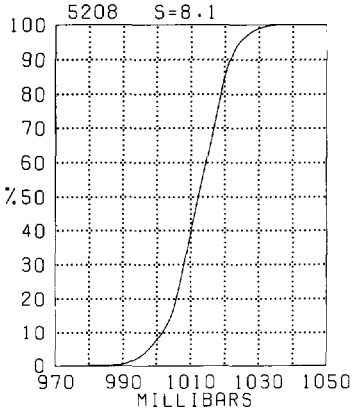
Homer



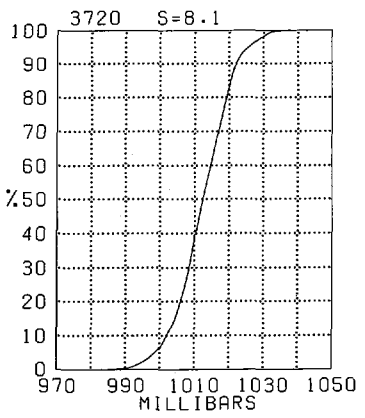
Kenai



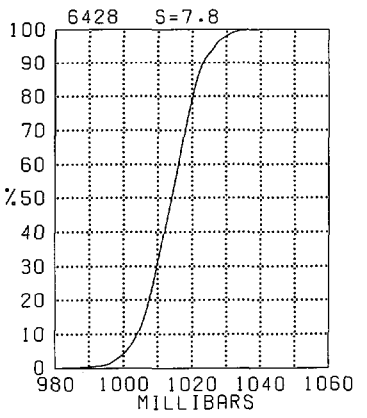
Anchorage



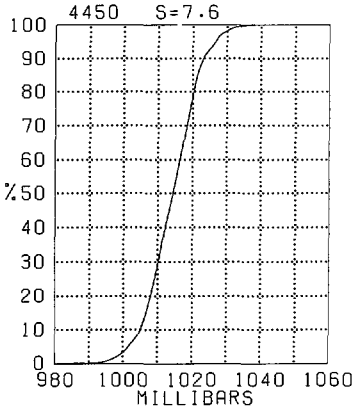
Middleton Island



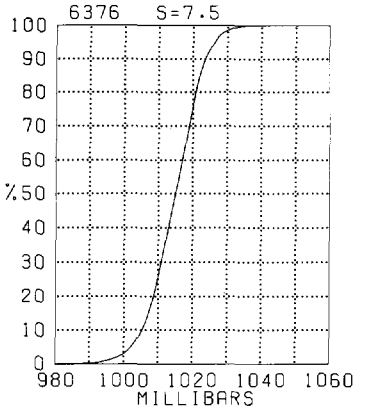
Cordova



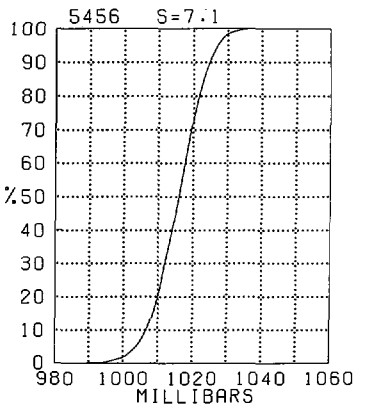
Yakataga



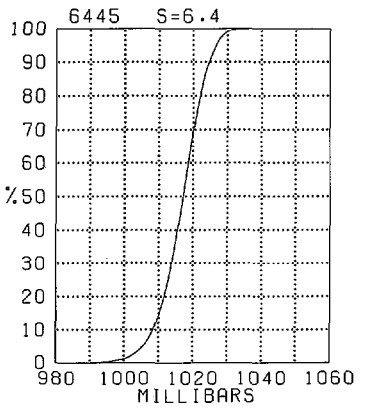
Yakutat



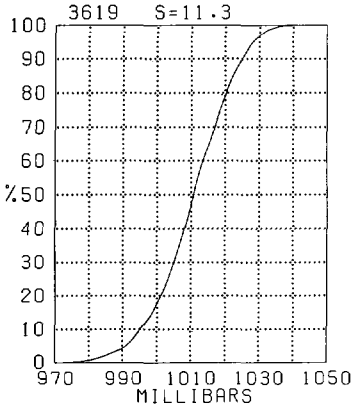
Sitka



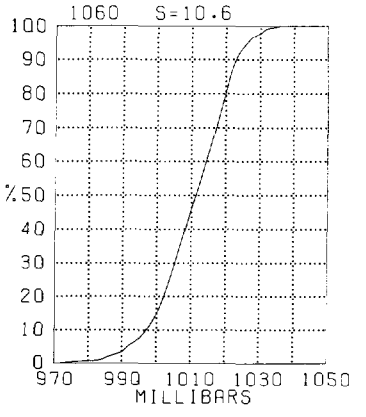
Annette

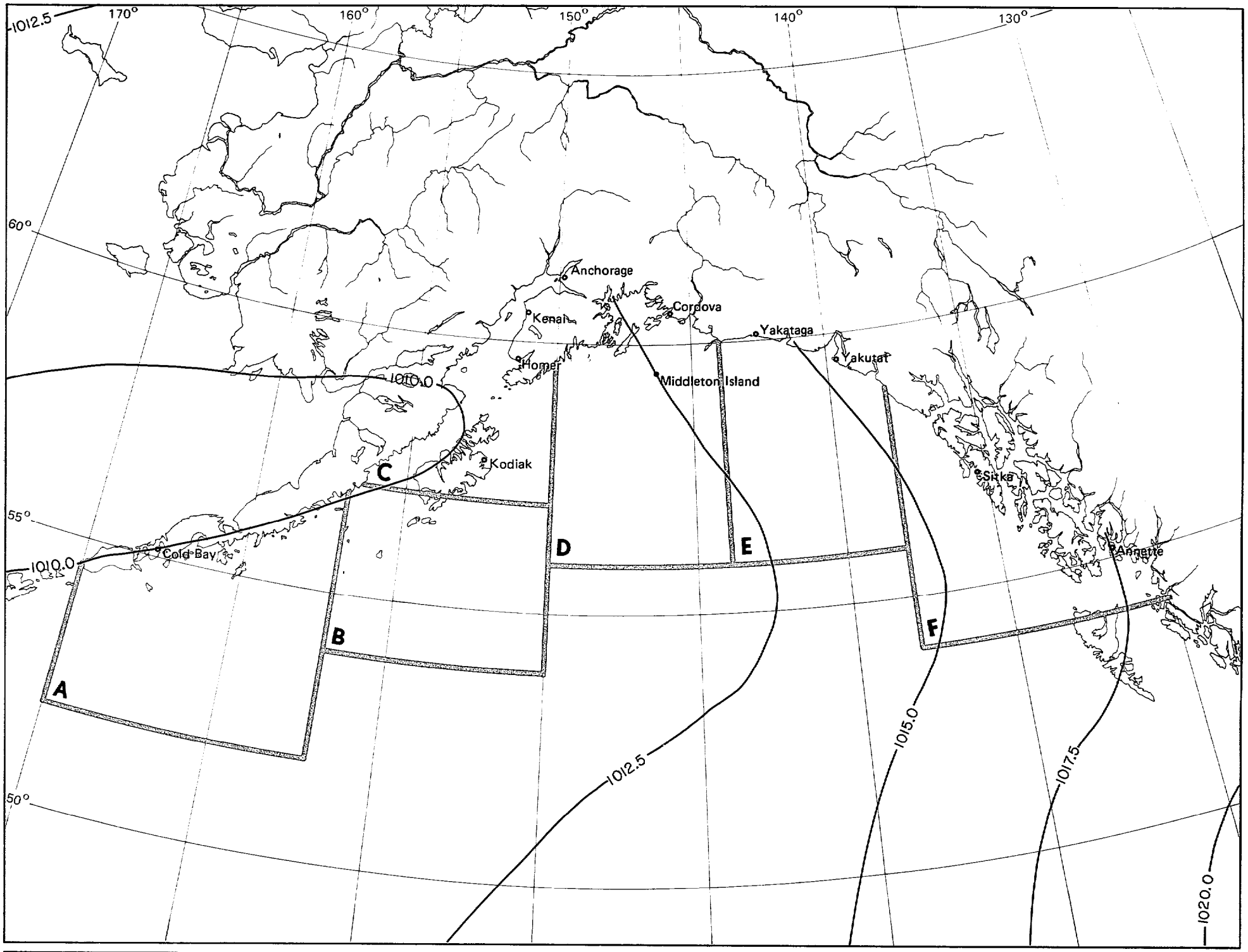


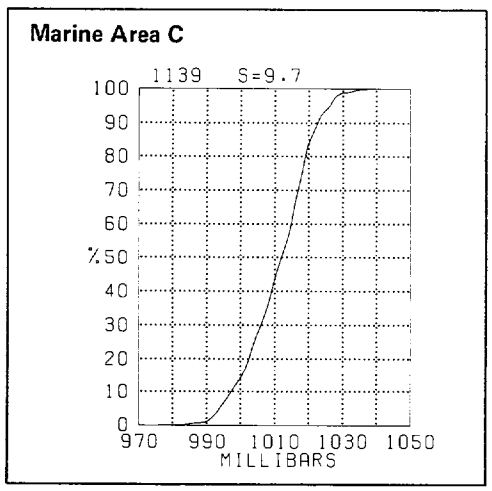
Marine Area A

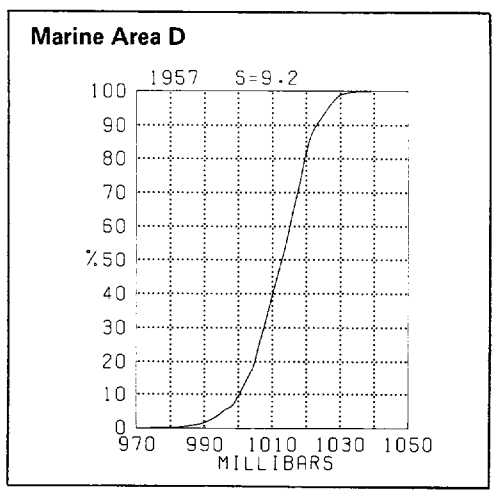


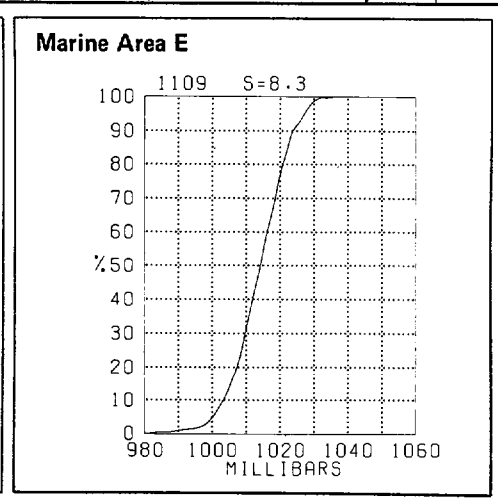
Marine Area B

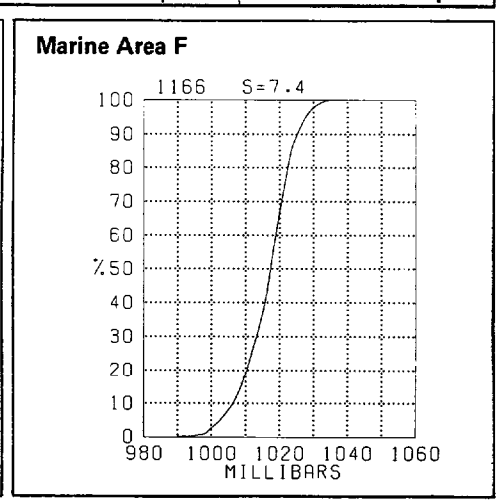








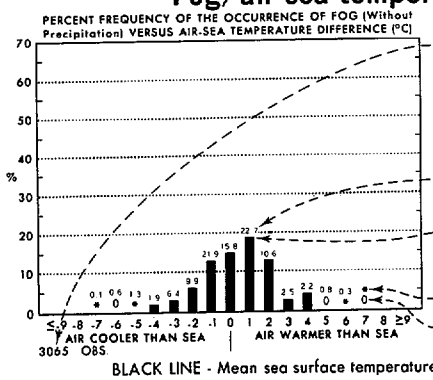




13 Mean sea level pressure

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

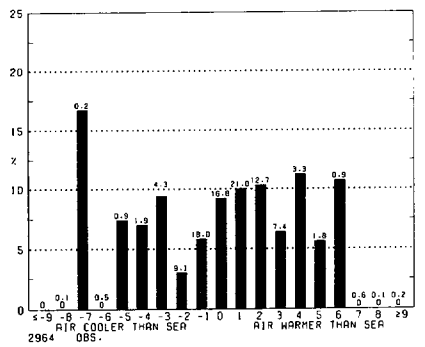
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

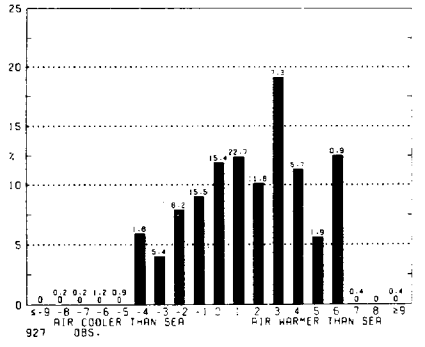
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

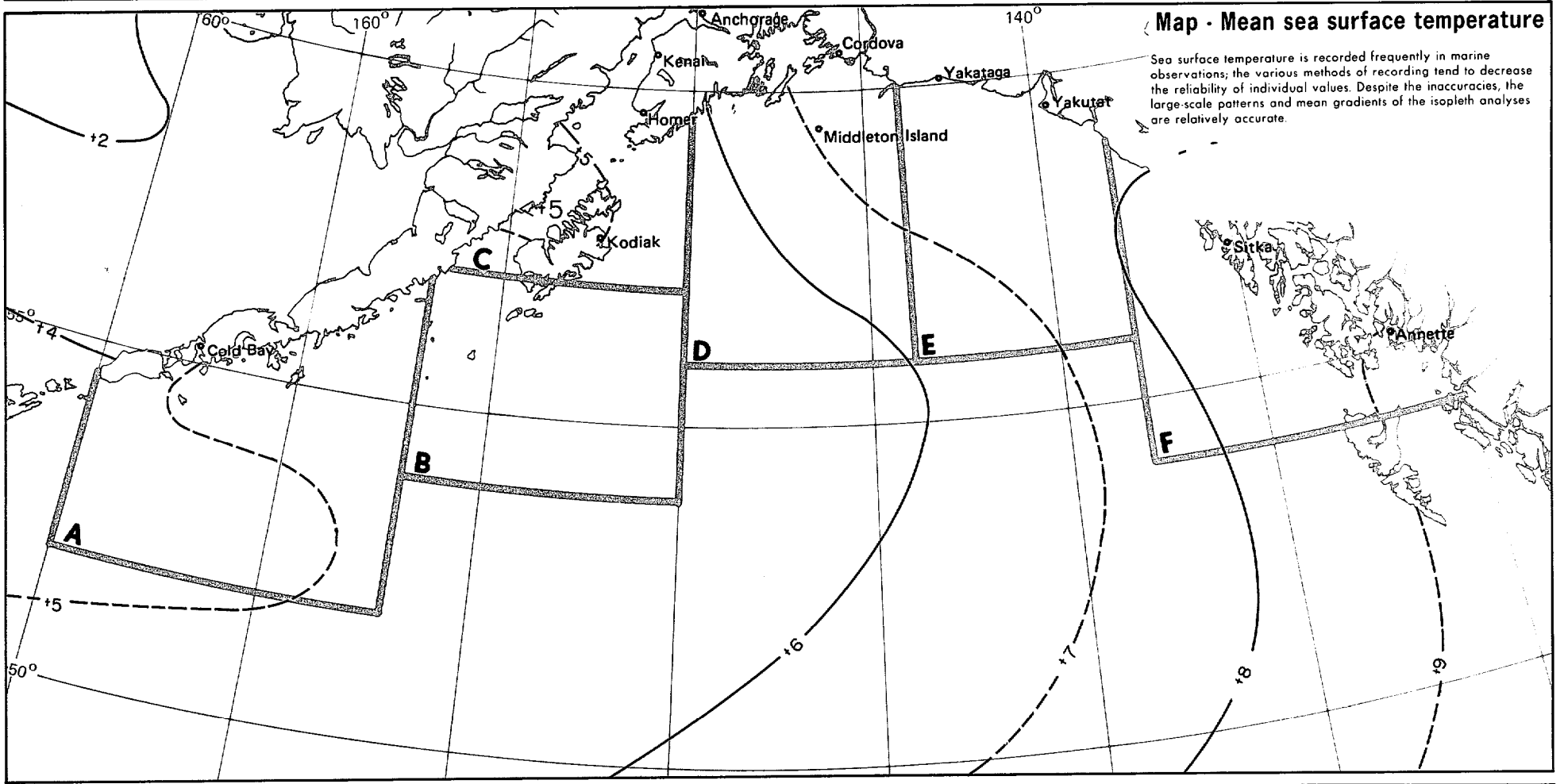


Marine Area B

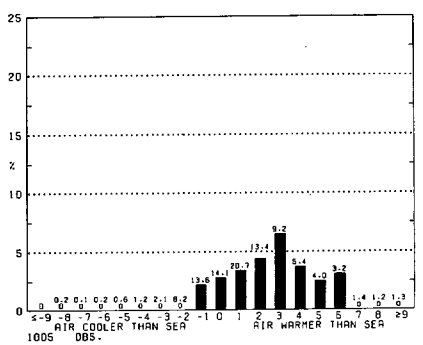


Map - Mean sea surface temperature

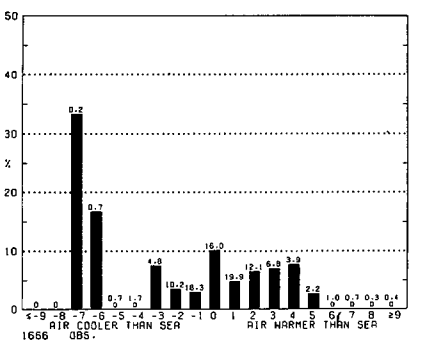
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



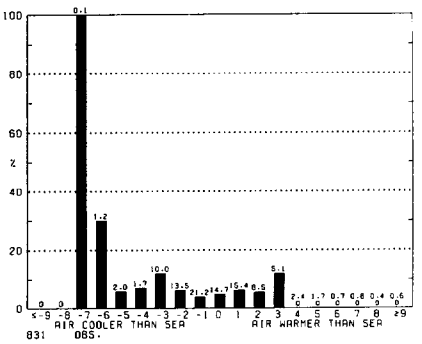
Marine Area C



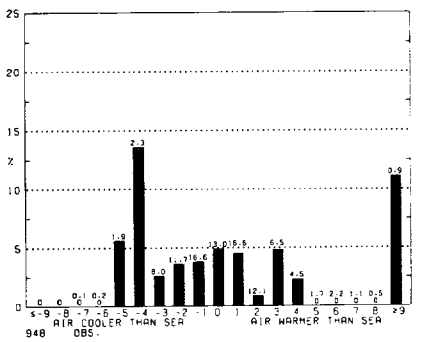
Marine Area D



Marine Area E

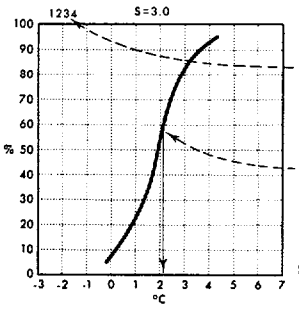


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

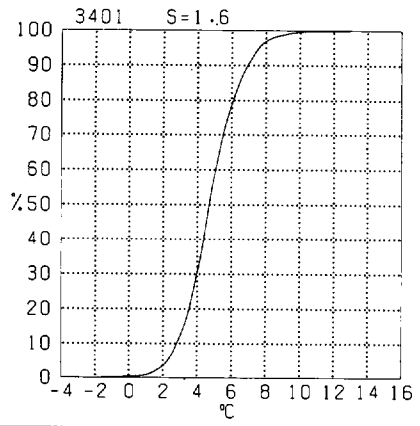
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

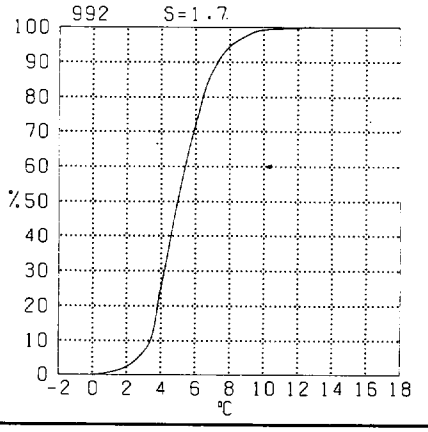
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

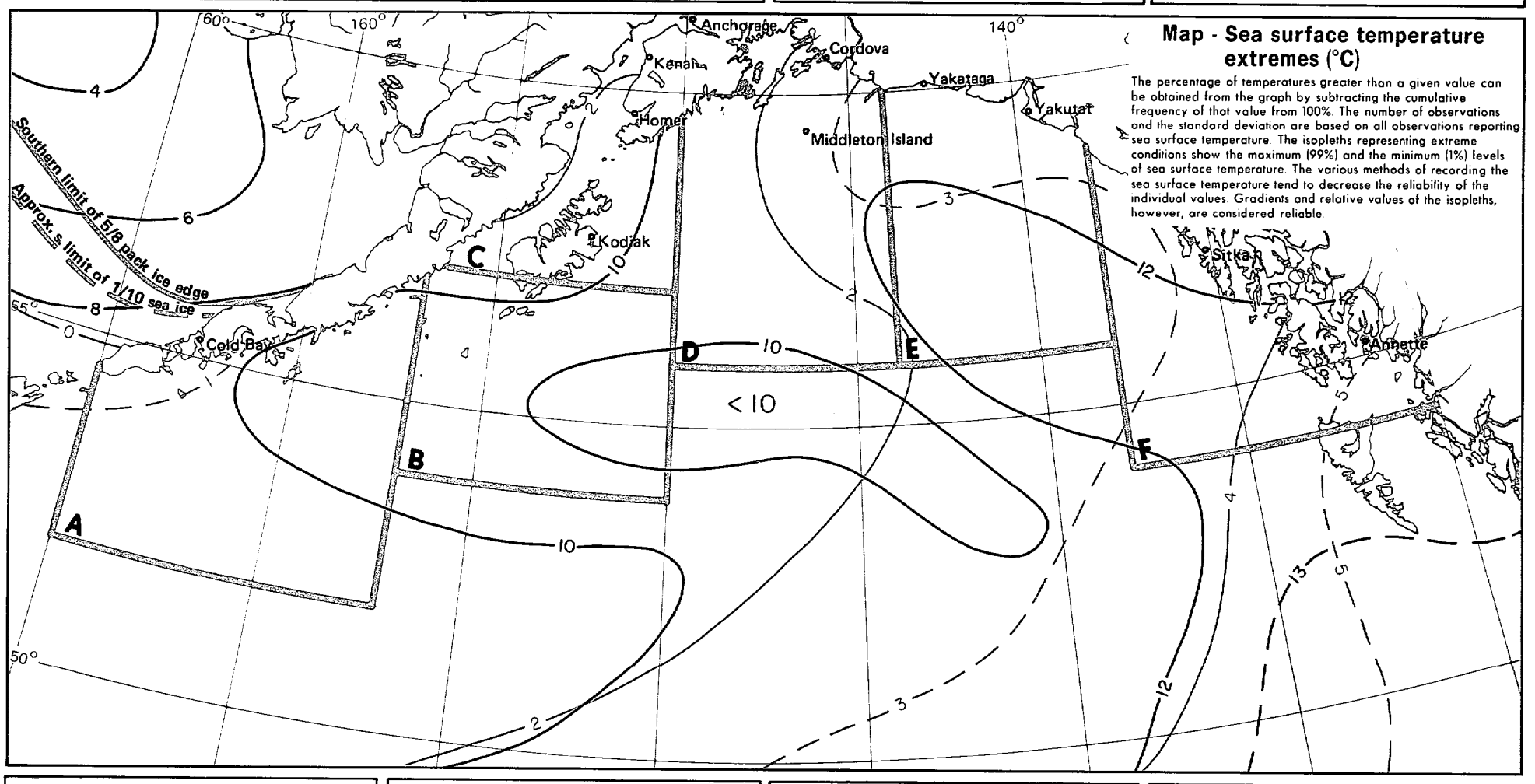
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

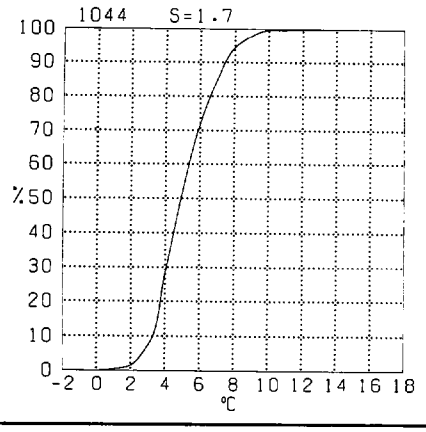




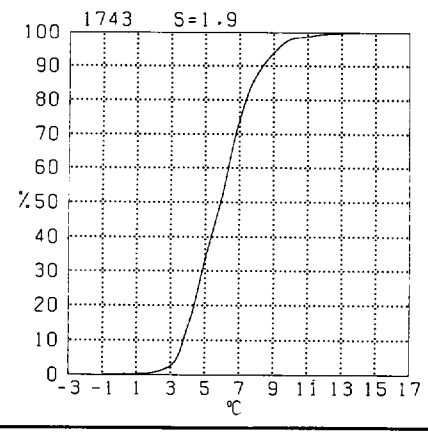
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

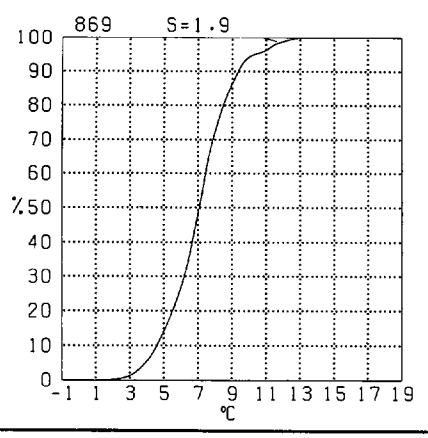
Marine Area C



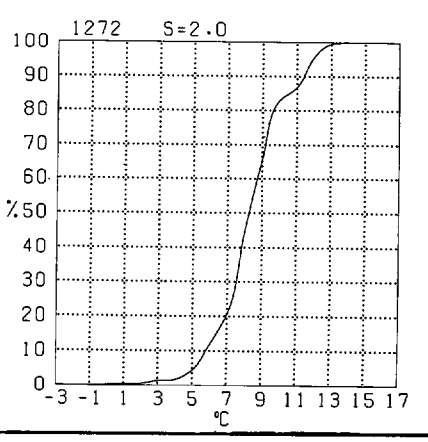
Marine Area D



Marine Area E



Marine Area F

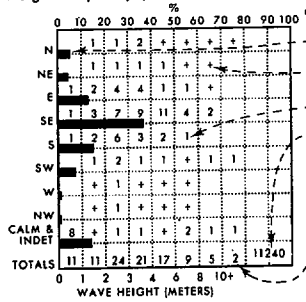


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



(5% of all waves were from the N.)

+ indicates <.5% but >0.

(1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

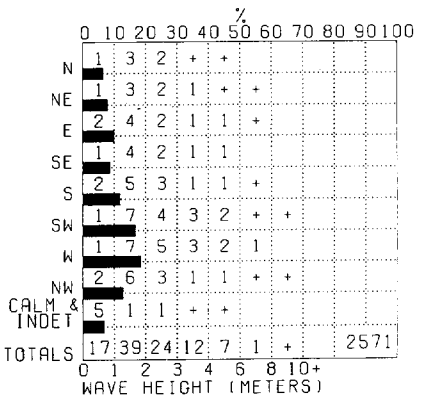
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

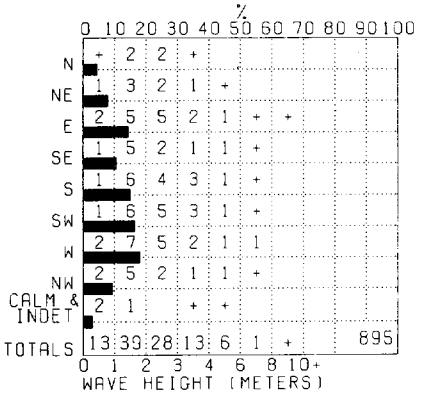
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

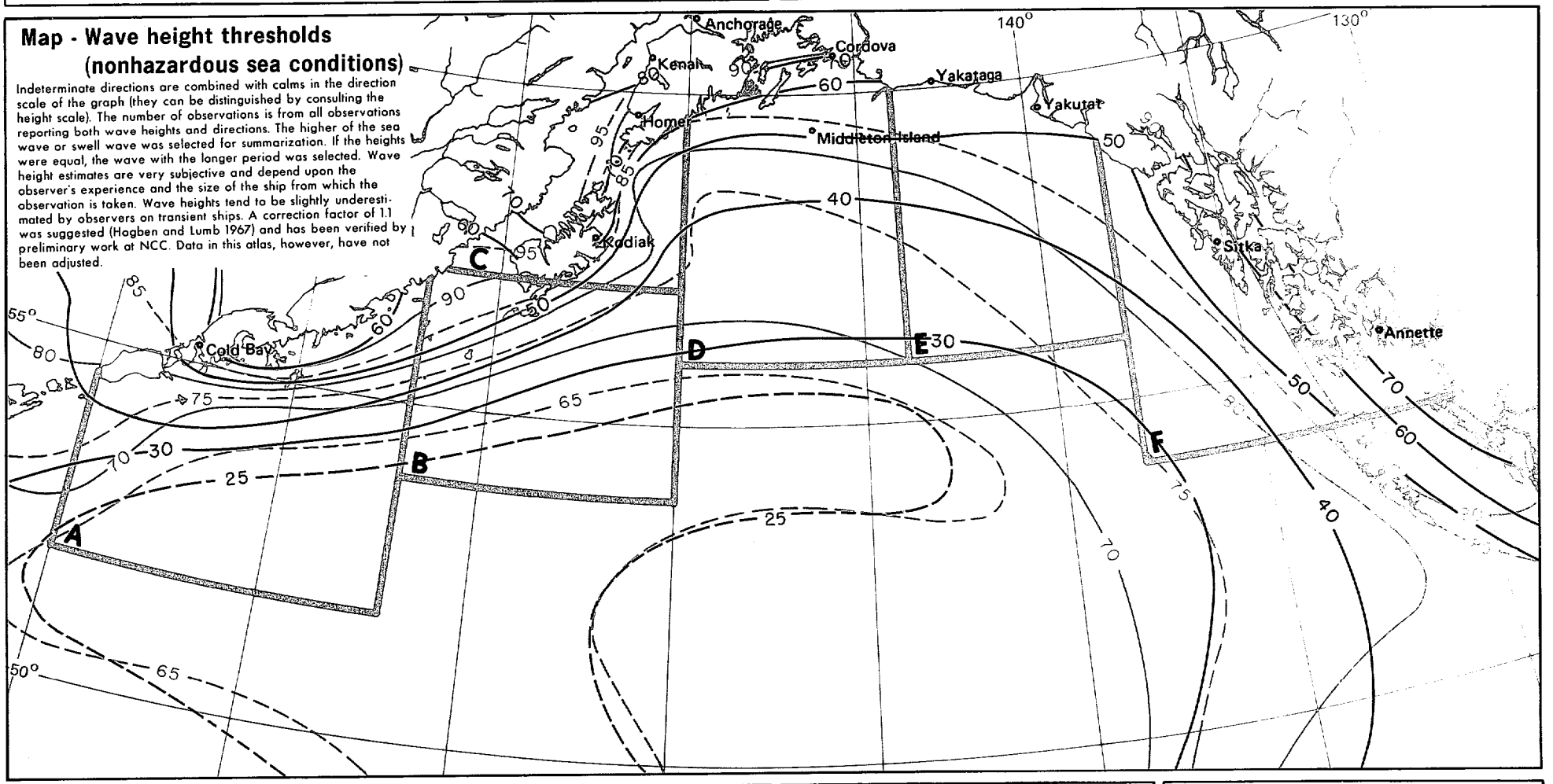


Marine Area B

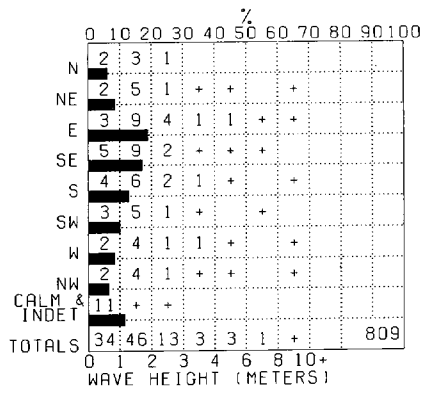


Map - Wave height thresholds (nonhazardous sea conditions)

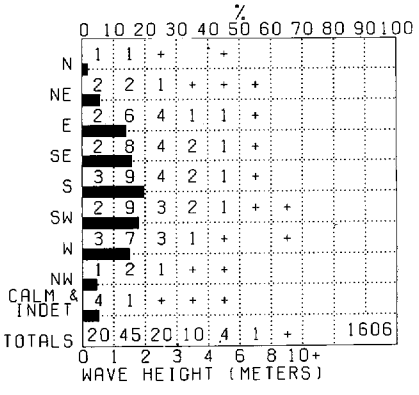
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



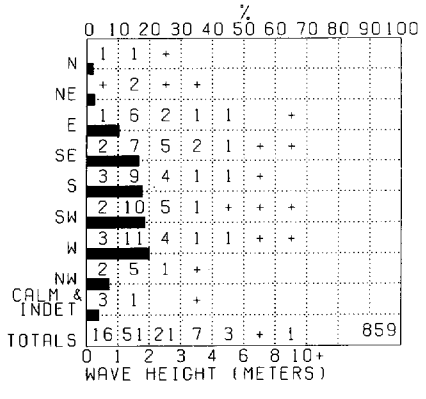
Marine Area C



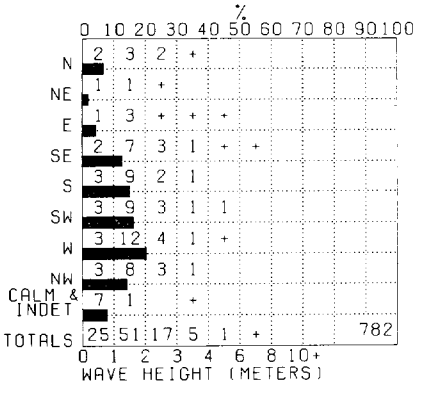
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND.
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	12	1	+	+	0	-0	7
1-1.5	17	12	4	1	1	+	2
2-2.5	4	8	6	3	1	+	1
3-3.5	1	4	4	1	1	+	+
4-5.5	+	1	3	1	1	+	+
6-7.5	0	+	+	+	+	+	+
8-9.5	0	+	0	+	0	0	0
≥10	0	0	0	0	0	0	0

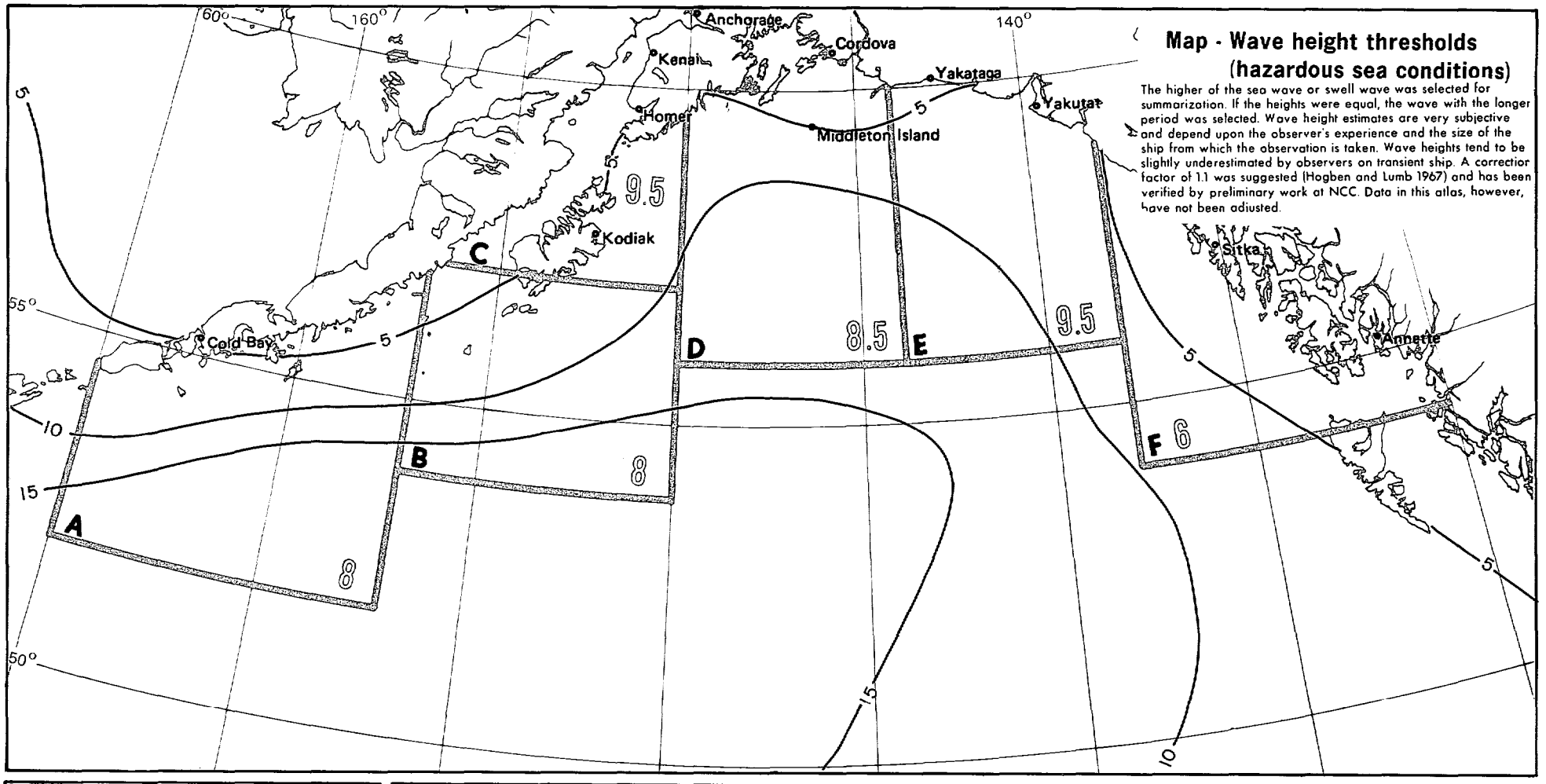
2675

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	1	+	1	0	0	3
1-1.5	17	11	5	1	1	1	2
2-2.5	7	9	5	3	1	1	2
3-3.5	2	4	4	1	1	+	1
4-5.5	+	1	2	1	1	+	+
6-7.5	0	+	1	+	+	0	0
8-9.5	0	0	+	0	0	0	0
≥10	0	0	0	0	0	0	0

918



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	25	3	+	1	0	0	12
1-1.5	23	9	4	1	2	0	1
2-2.5	4	4	2	1	+	+	+
3-3.5	1	1	1	+	+	+	+
4-5.5	+	1	1	+	+	0	+
6-7.5	0	+	+	+	0	0	+
8-9.5	0	0	0	0	0	+	+
≥10	0	0	0	0	0	0	0

906

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	15	2	+	+	0	0	5
1-1.5	21	12	5	1	1	+	2
2-2.5	5	6	4	2	+	1	1
3-3.5	2	4	2	1	+	+	+
4-5.5	+	1	1	1	+	+	+
6-7.5	0	+	+	+	0	+	+
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	0	0

1671

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	13	1	+	1	0	0	4
1-1.5	22	15	5	2	3	1	2
2-2.5	6	7	4	2	1	1	+
3-3.5	1	2	2	1	1	1	+
4-5.5	+	1	1	1	+	+	+
6-7.5	0	0	+	0	0	0	0
8-9.5	0	0	0	0	+	+	+
≥10	0	0	0	0	0	0	0

891

Marine Area F

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	19	1	1	1	0	0	8
1-1.5	22	15	6	1	2	+	2
2-2.5	4	5	4	1	1	1	1
3-3.5	1	2	1	1	+	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	0	+	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

832

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)

Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

Statistics for this rose are based on 177 twelve hour movements.

83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1966-1974.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)

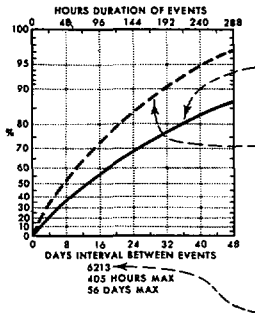
(frequency)

(vector mean speed knots)

Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

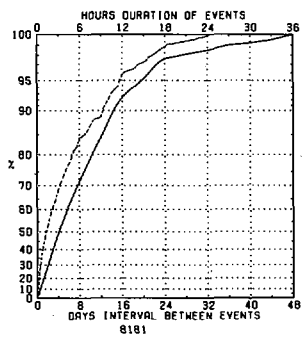
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

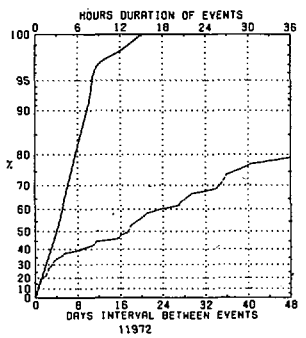
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

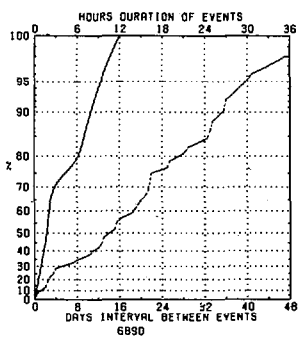
Kodiak



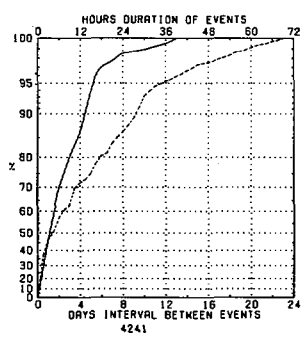
Homer



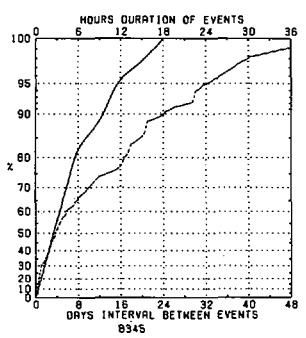
Kenai



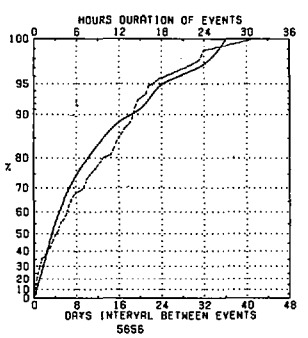
Middleton Island



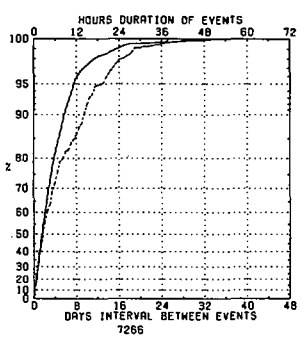
Cordova



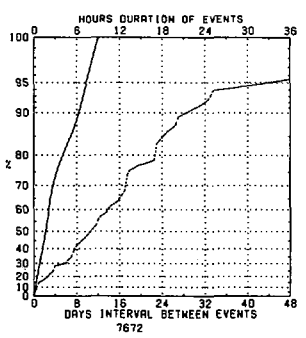
Yakataga



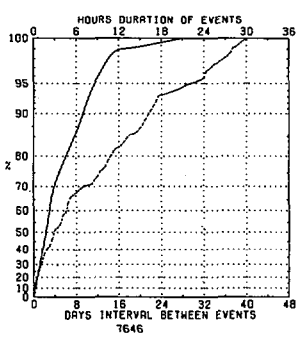
Yakutat



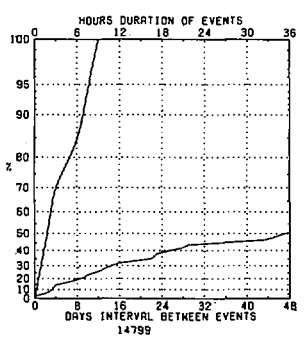
Sitka



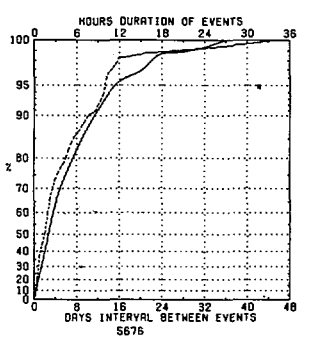
Annette



Anchorage



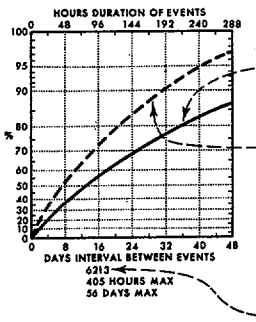
Cold Bay



Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

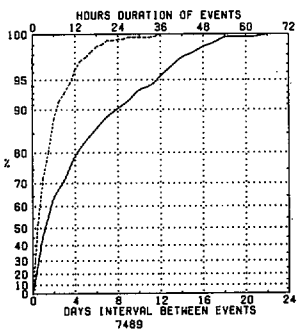
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

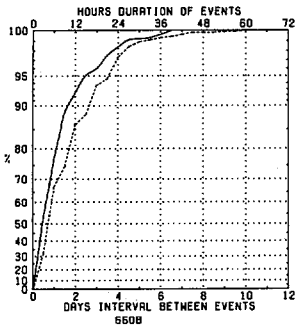
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

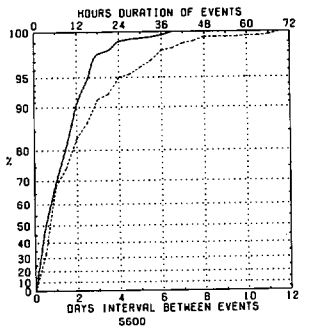
Kodiak



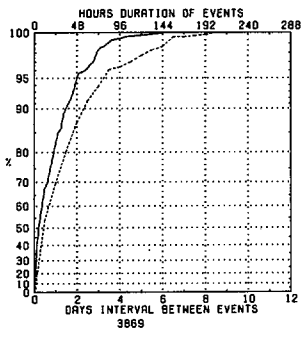
Homer



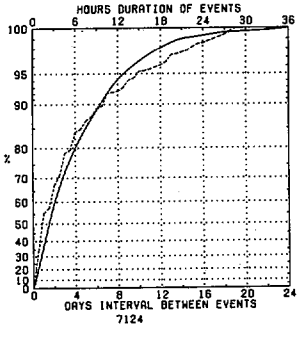
Kenai



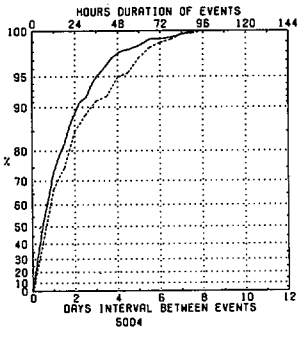
Middleton Island



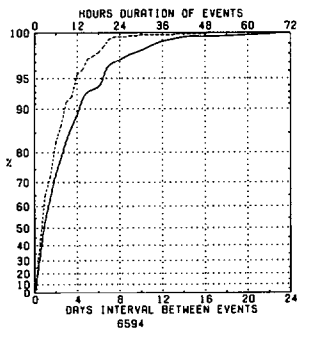
Cordova



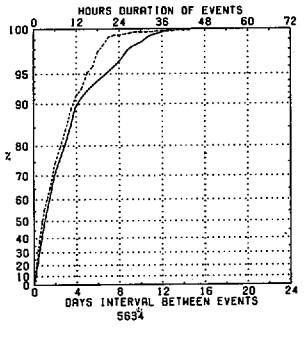
Yakataga



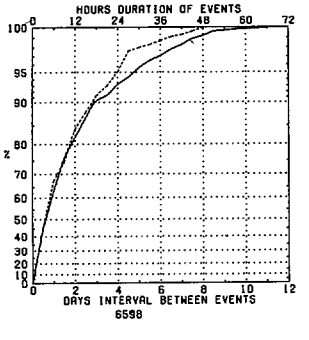
Yakutat



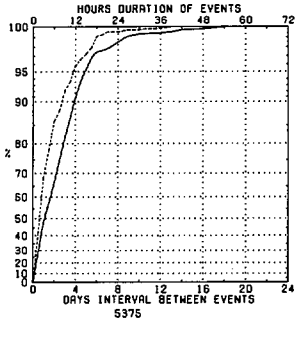
Sitka



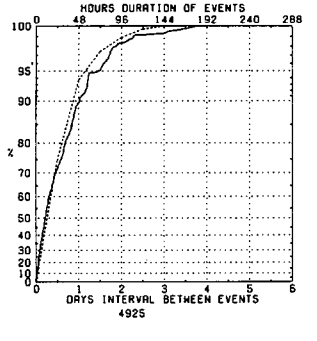
Annette



Anchorage



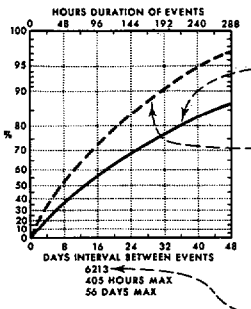
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

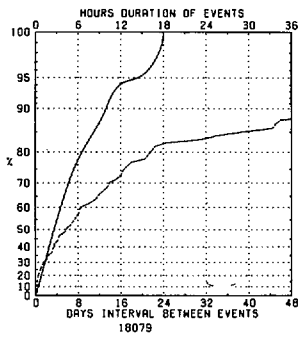
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

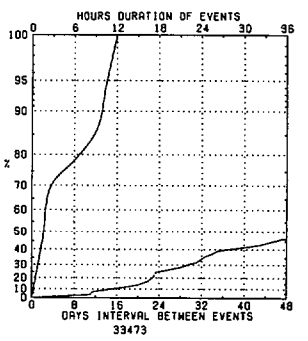
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

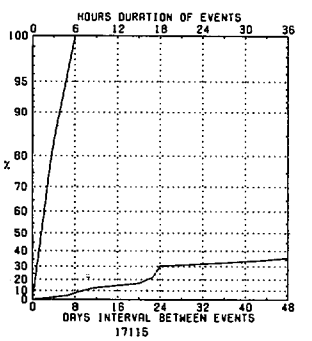
Kodiak



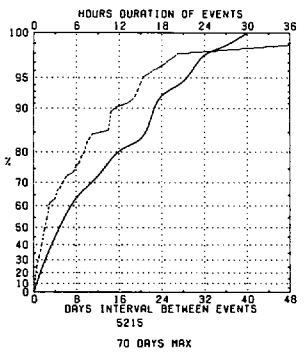
Homer



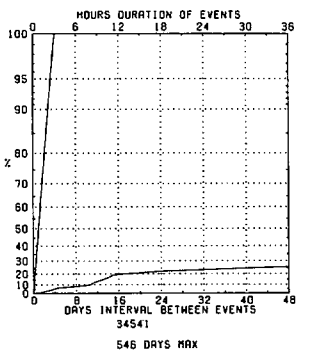
Kenai



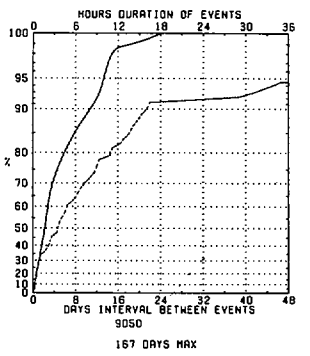
Middleton Island



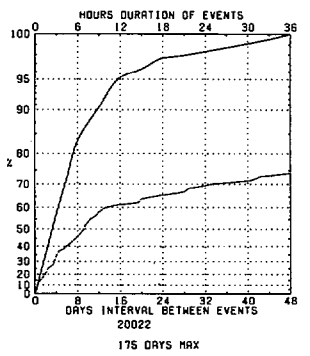
Cordova



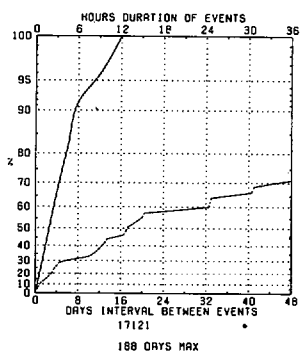
Yakataga



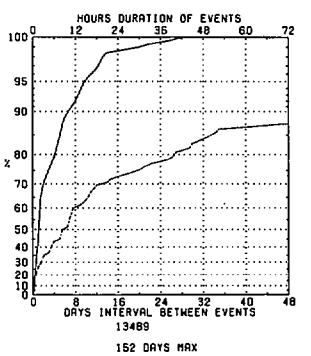
Yakutat



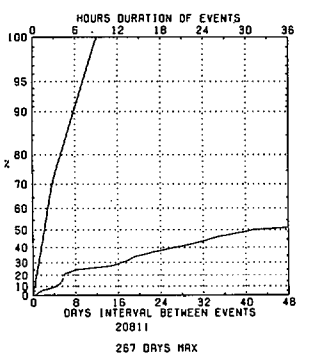
Sitka



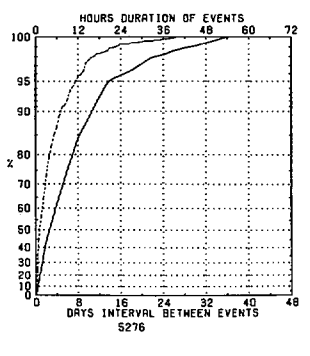
Annette



Anchorage

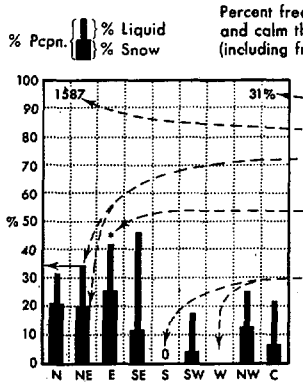


Cold Bay



Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.

Percentage of present weather observations reporting precipitation.

Number of observations.

(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)

An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.

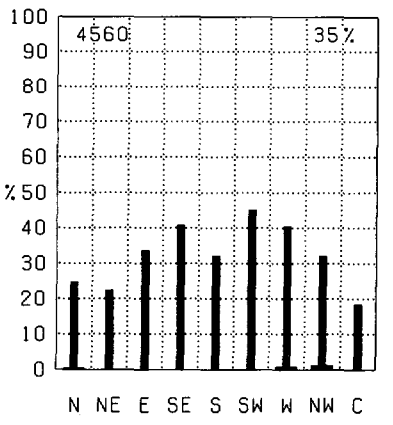
0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

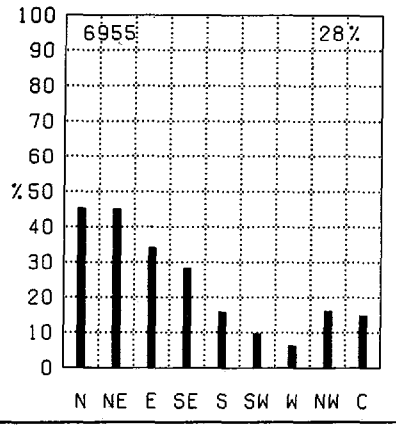
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

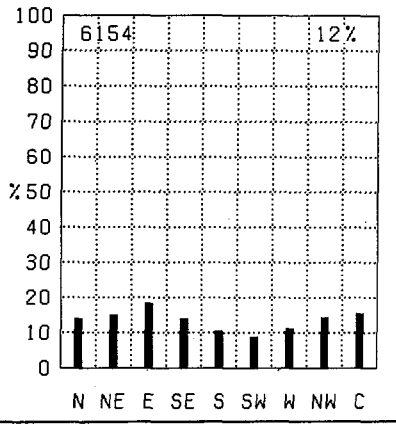
Cold Bay



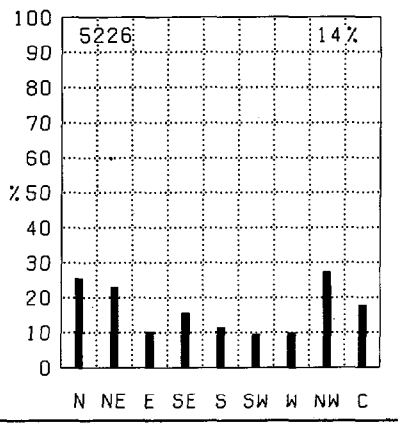
Kodiak



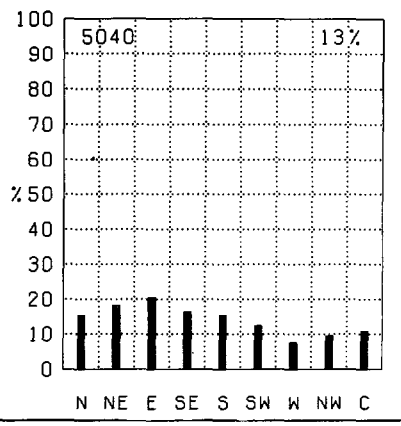
Homer



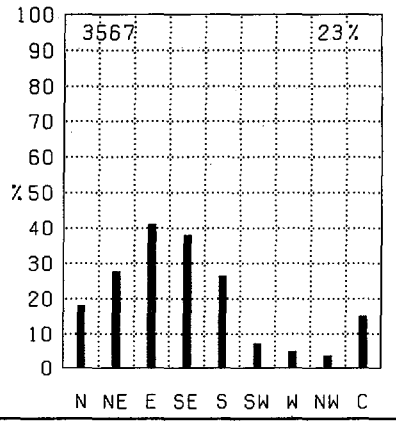
Kenai



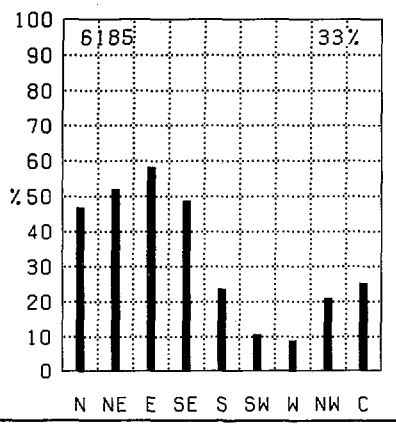
Anchorage



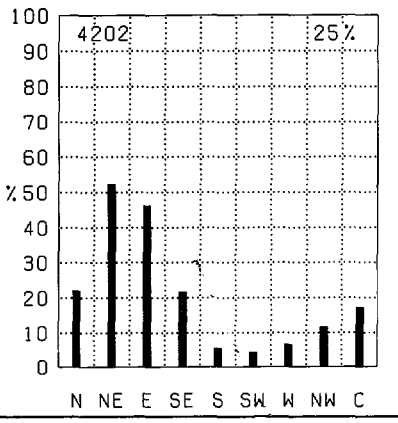
Middleton Island



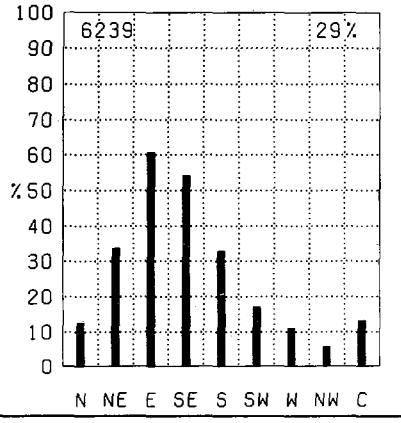
Cordova



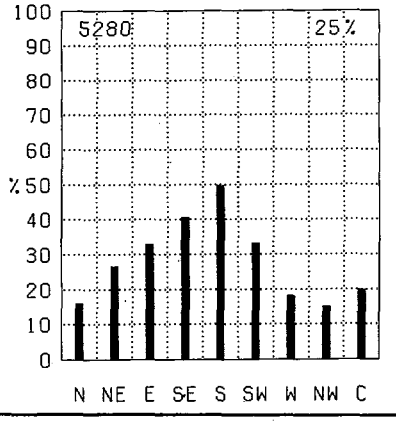
Yakataga



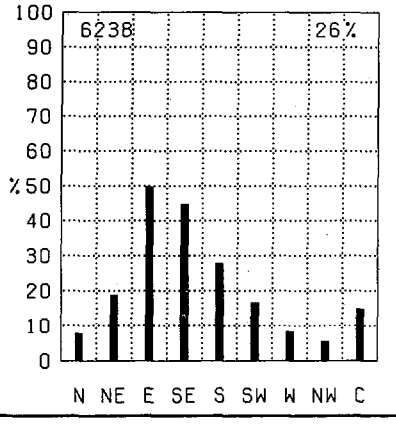
Yakutat



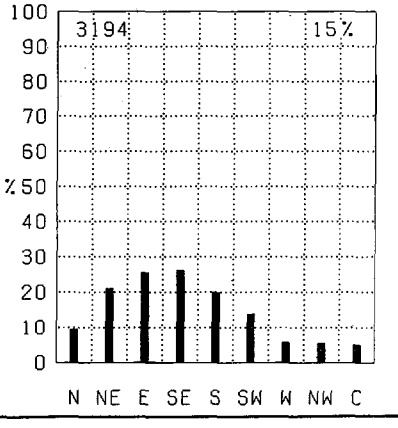
Sitka



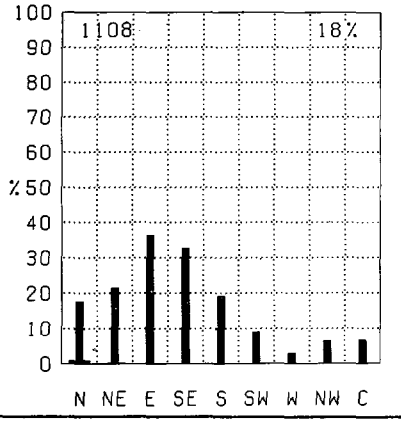
Annette

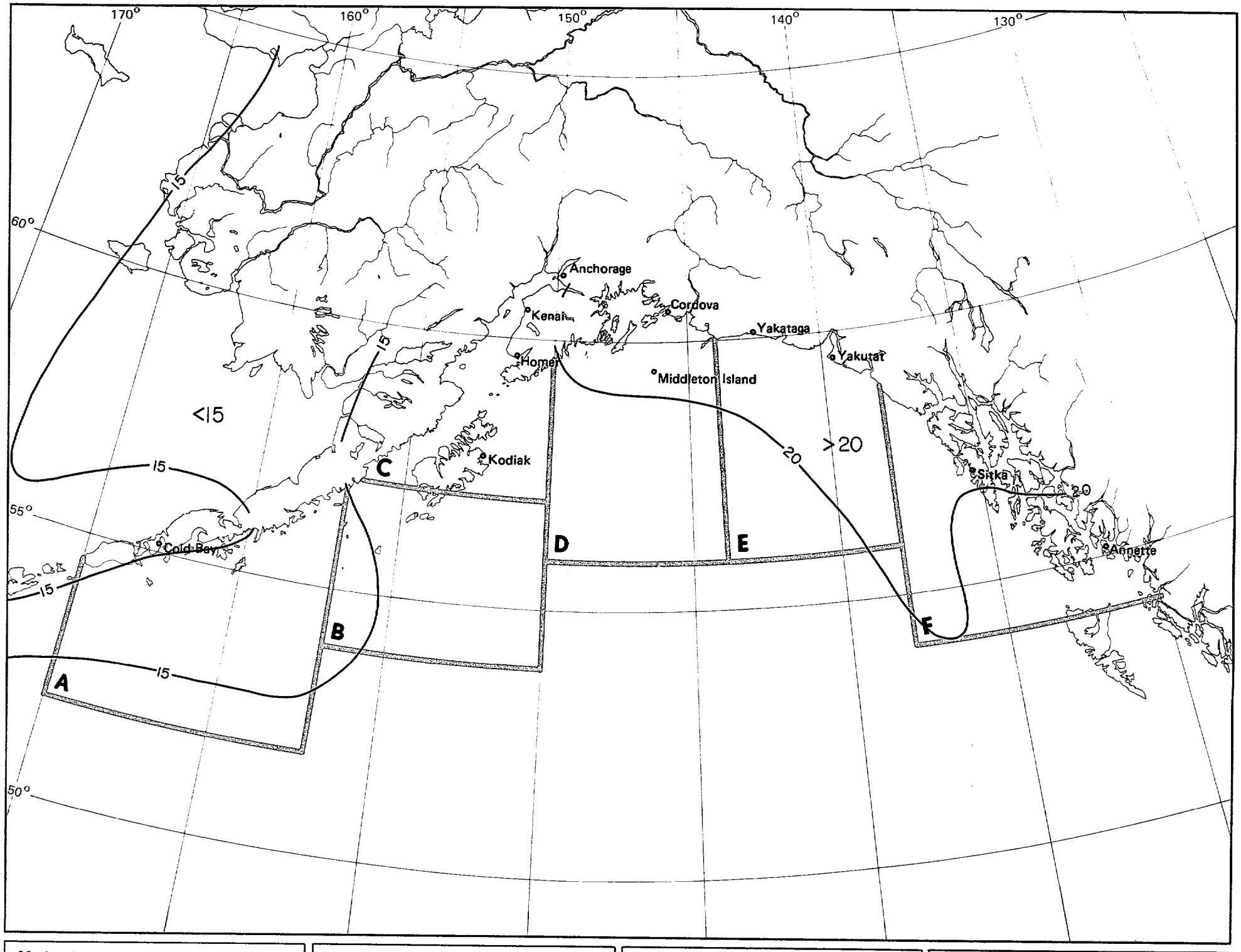


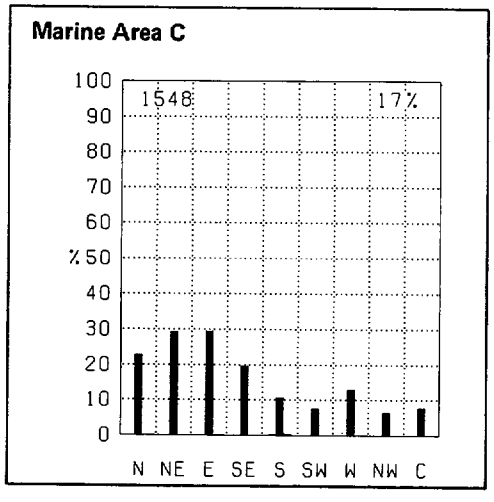
Marine Area A

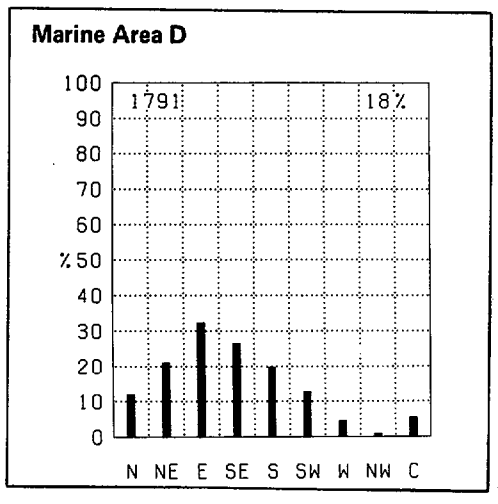


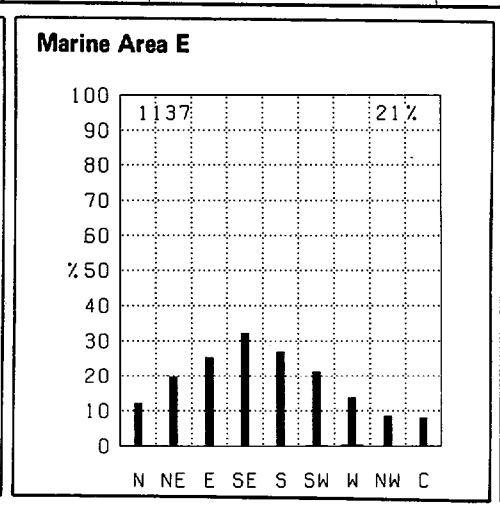
Marine Area B

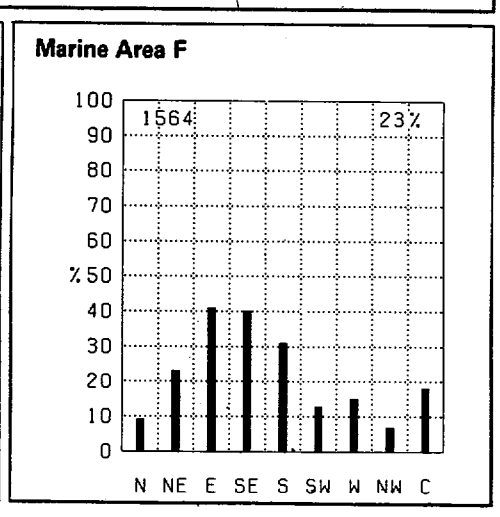








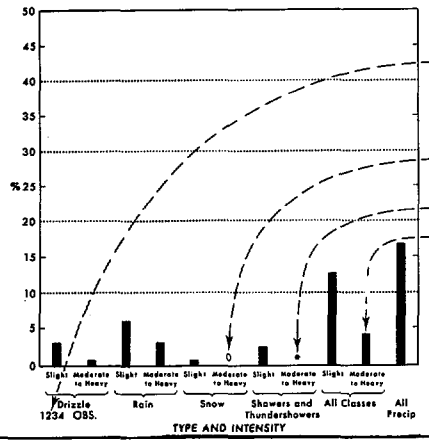




1 Precipitation

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

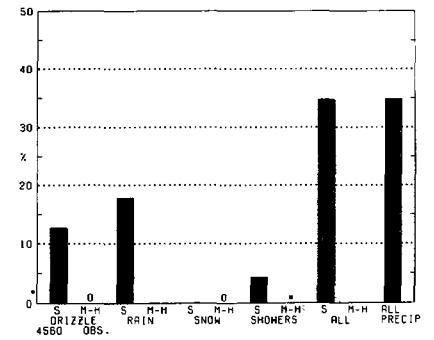
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

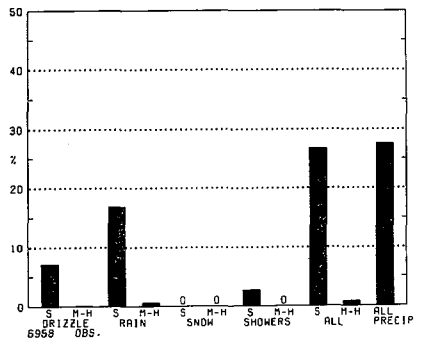
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

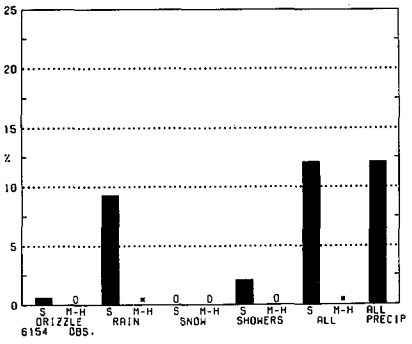
Cold Bay



Kodiak



Homer



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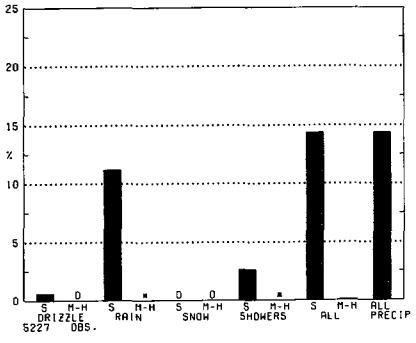
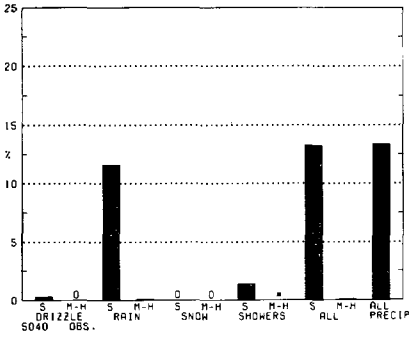
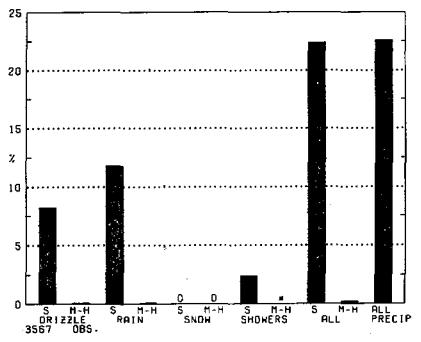


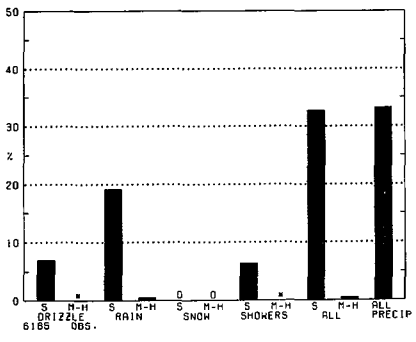
Anchorage



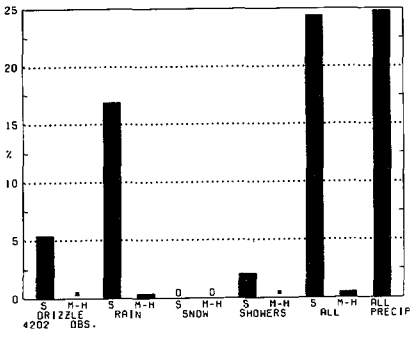
Middleton Island



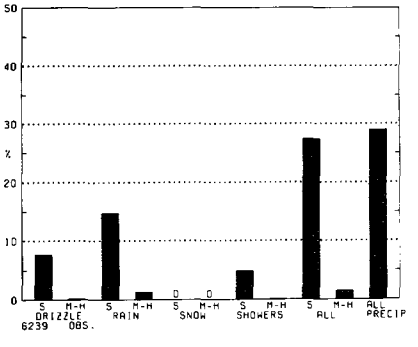
Cordova



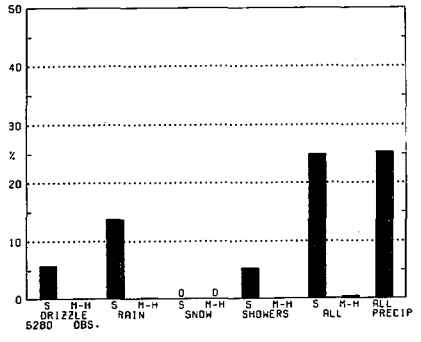
Yakataga



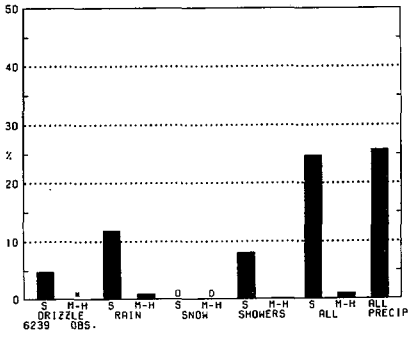
Yakutat



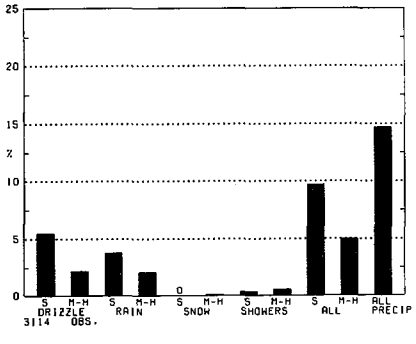
Sitka



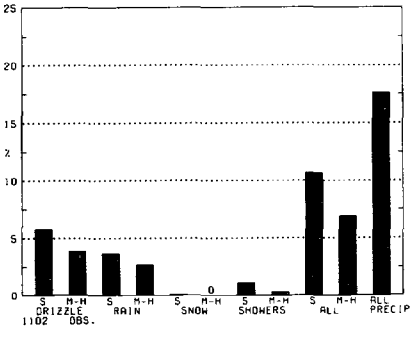
Annette

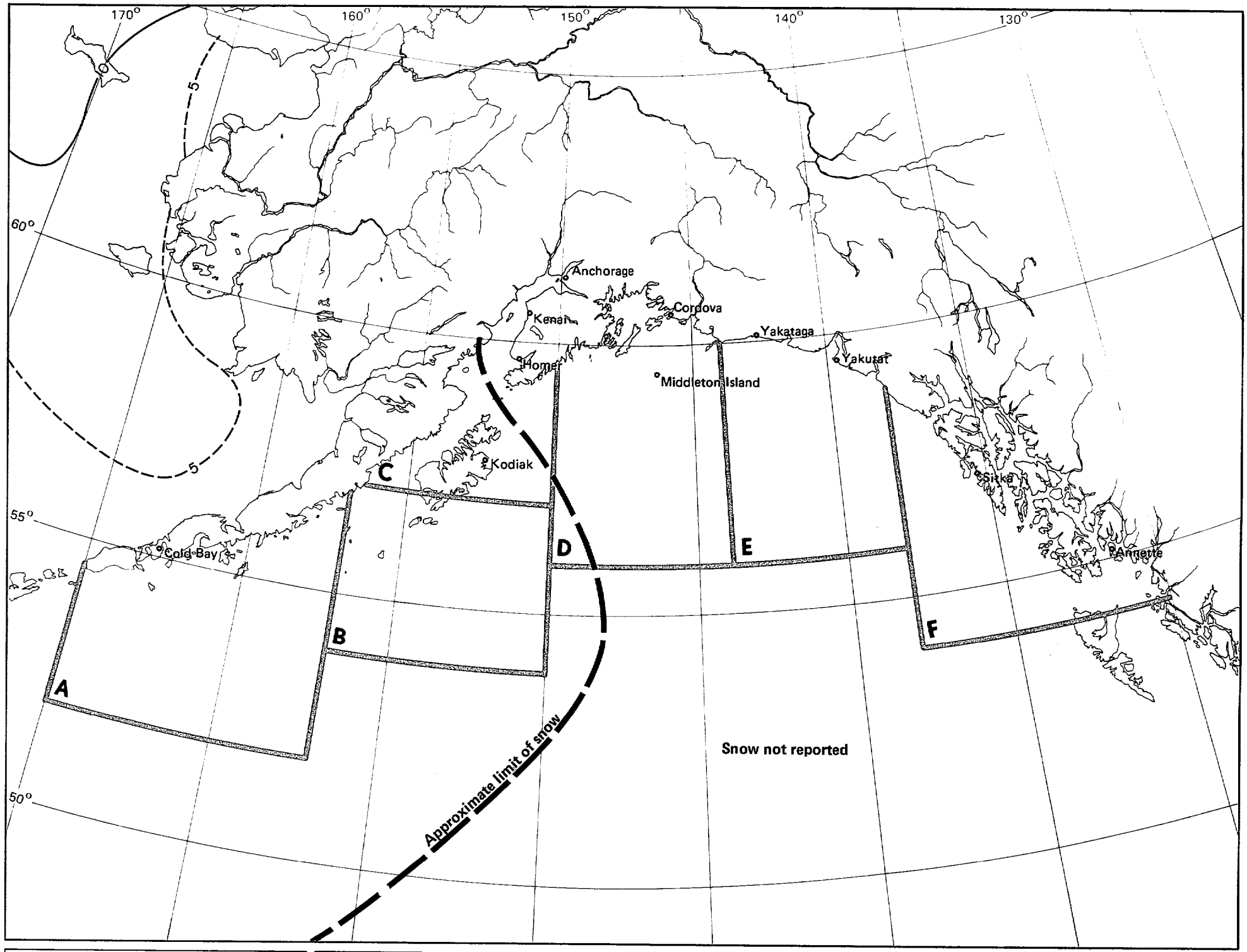


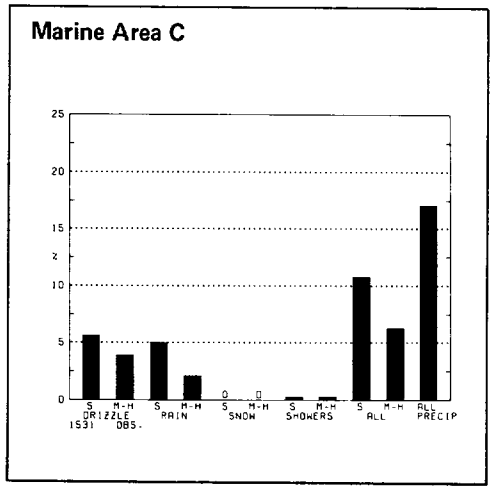
Marine Area A

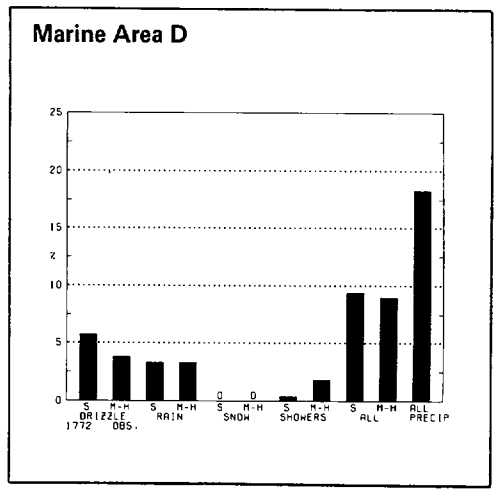


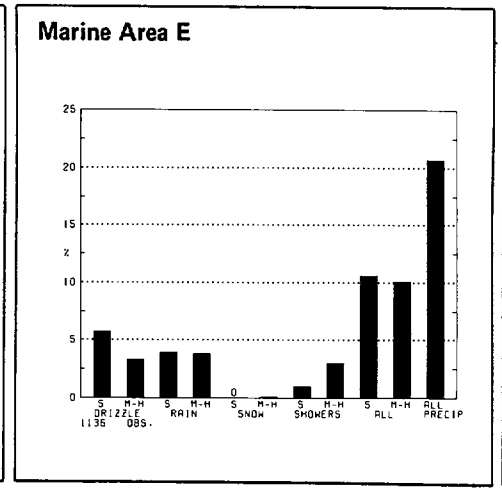
Marine Area B

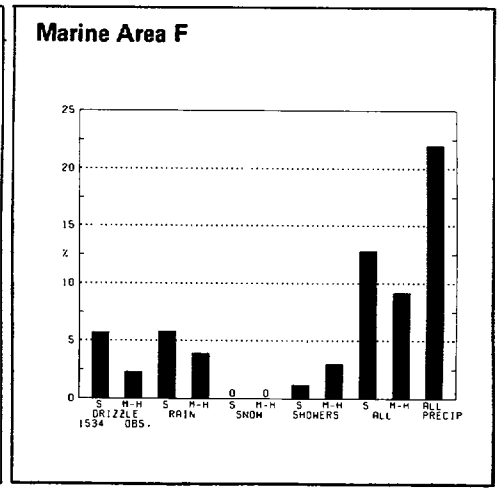



170°
160°
150°
140°
130°
60°
55°
50°
5
5
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
Approximate limit of snow
Snow not reported


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 1531
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

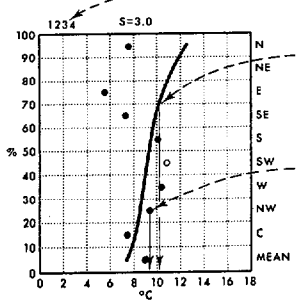

Marine Area D
25
20
15
%
10
5
0
S DRIZZLE 1772
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
25
20
15
%
10
5
0
S DRIZZLE 1136
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
25
20
15
%
10
5
0
S DRIZZLE 1534
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

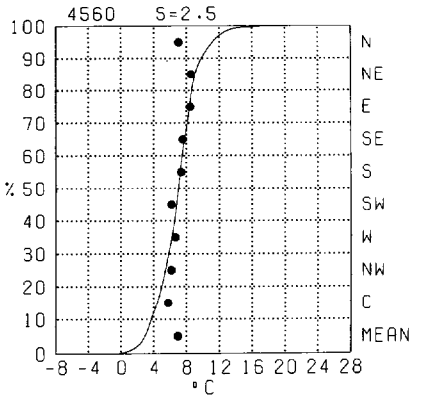
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

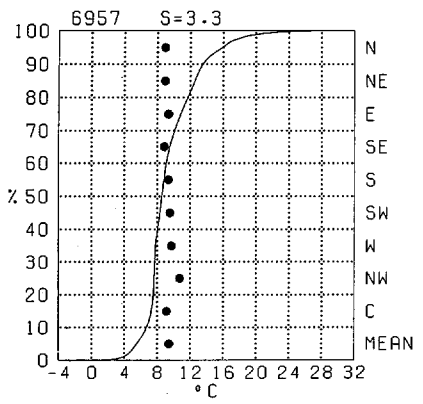
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

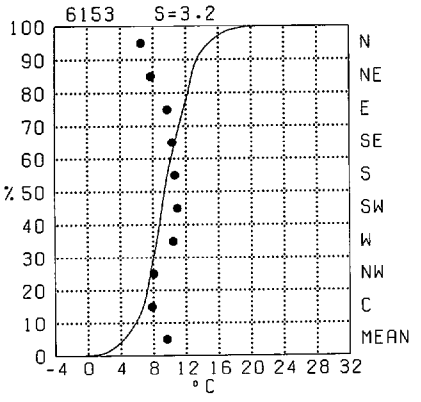
Cold Bay



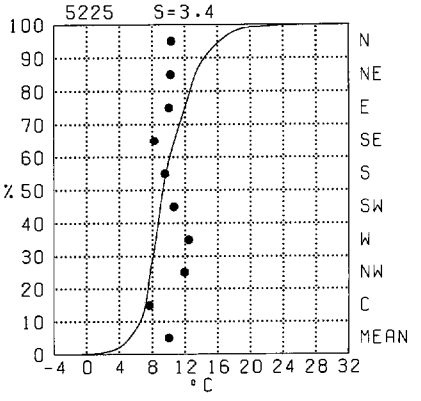
Kodiak



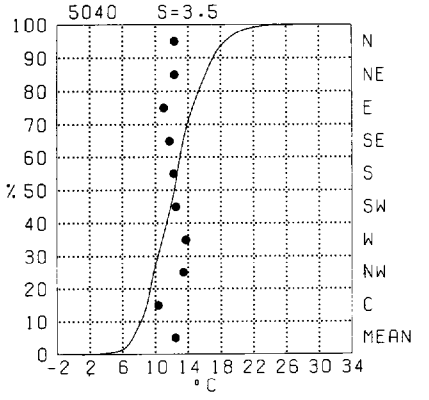
Homer



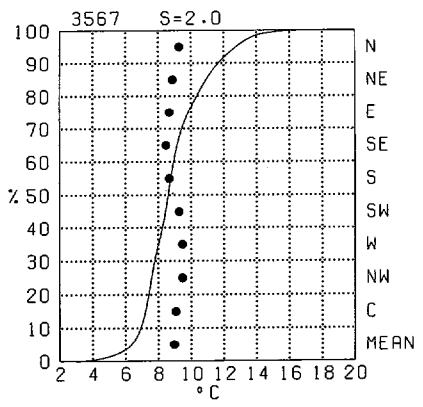
Kenai



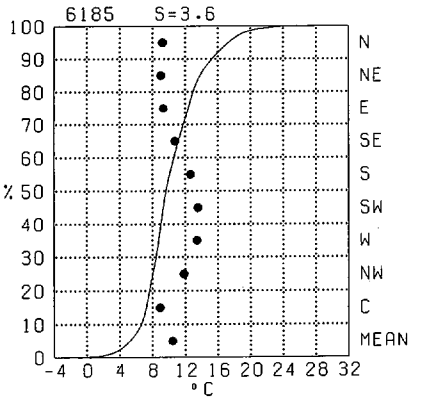
Anchorage



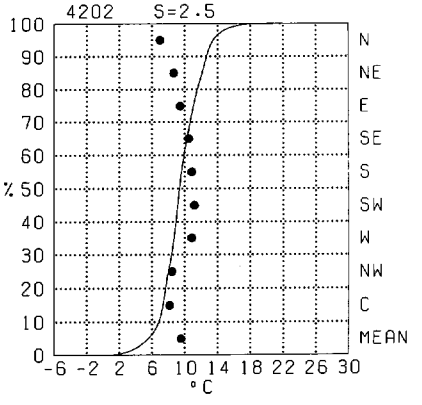
Middleton Island



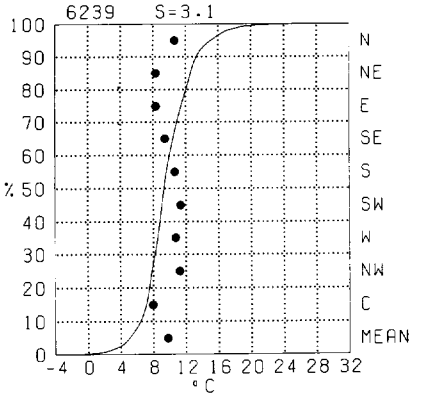
Cordova



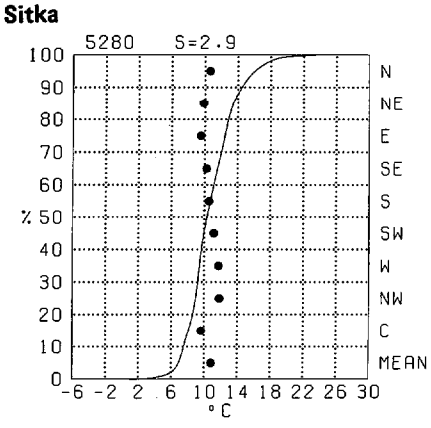
Yakataga



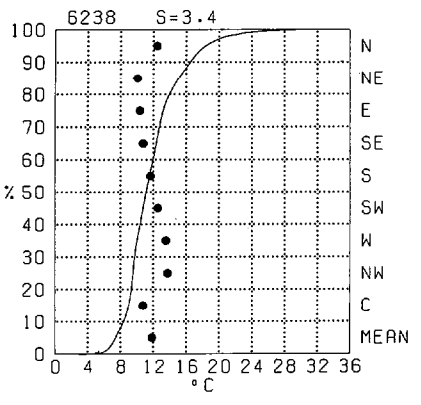
Yakutat



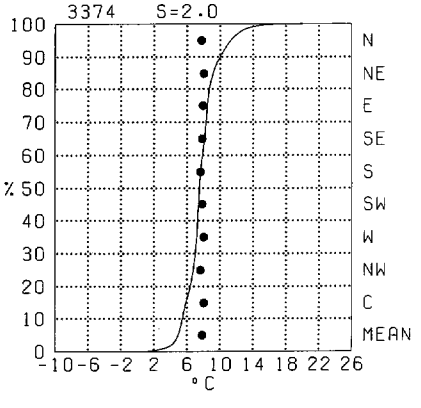
Sitka



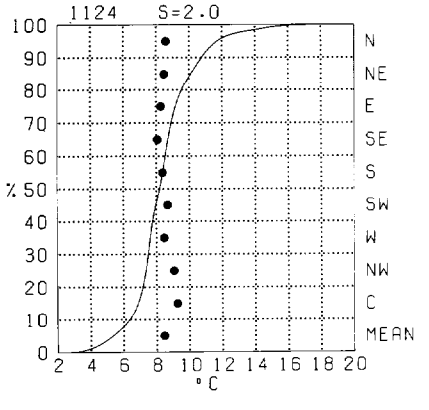
Annette

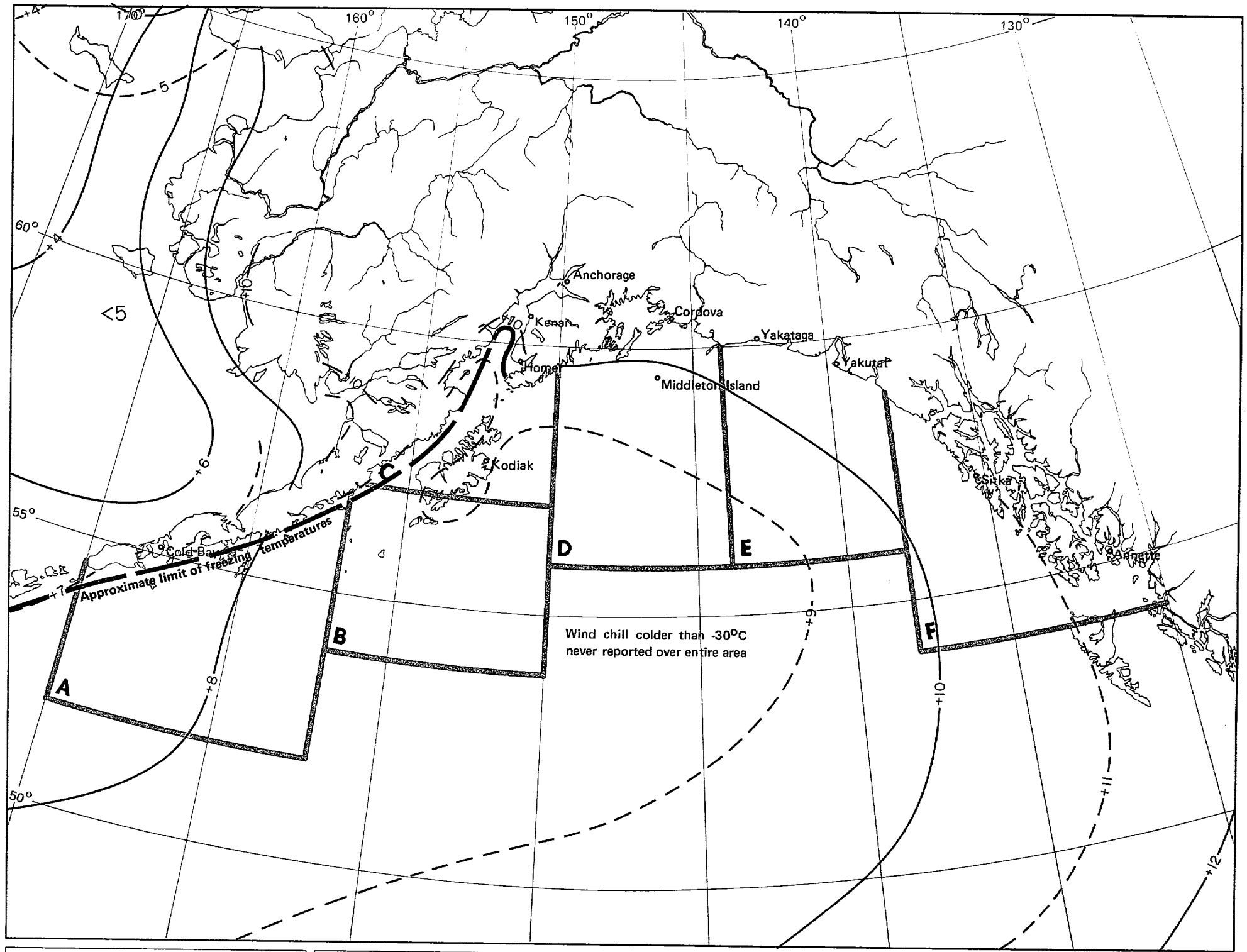


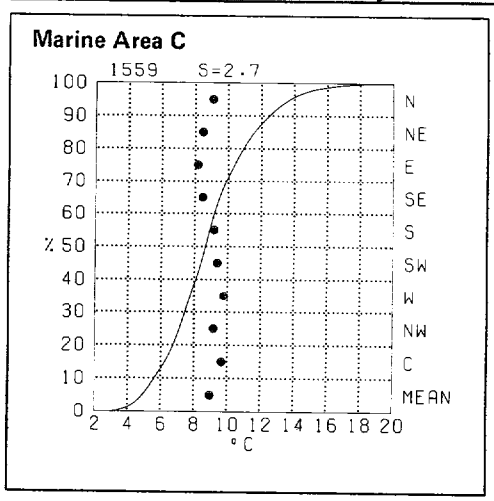
Marine Area A

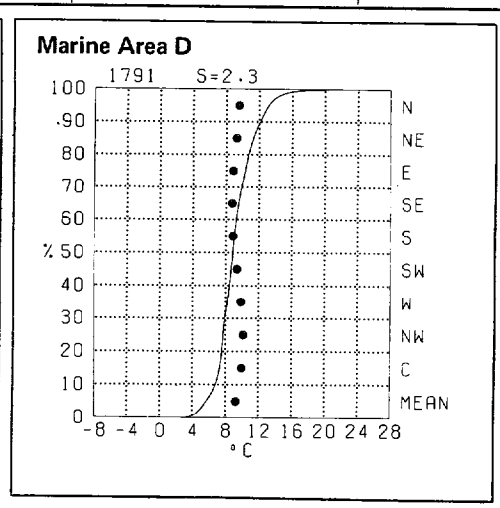


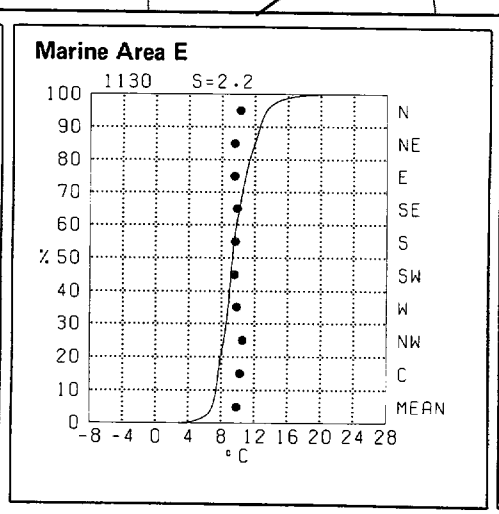
Marine Area B

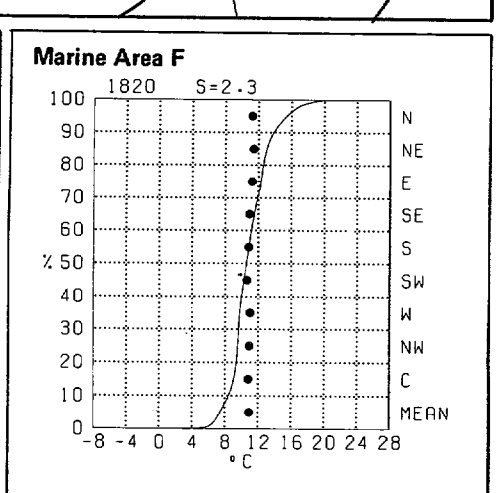










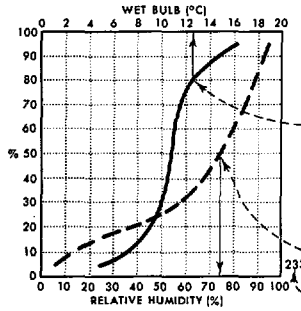


3 Air temperature mean and thresholds

June

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

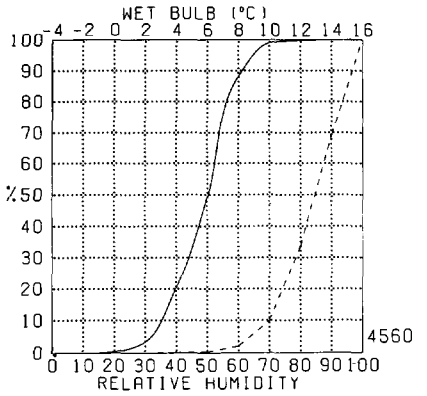
Number of observations.

Map - Mean dew point temperature

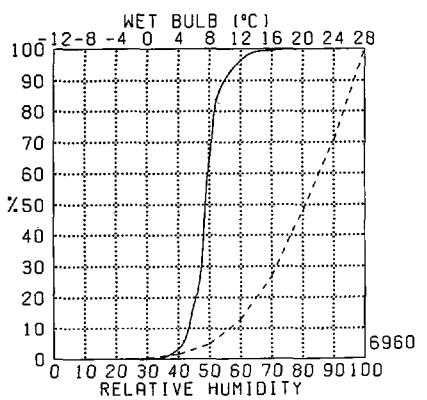
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

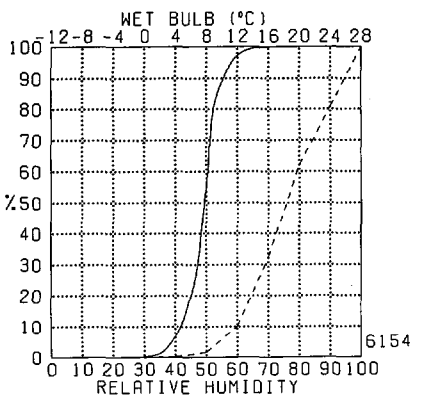
Cold Bay



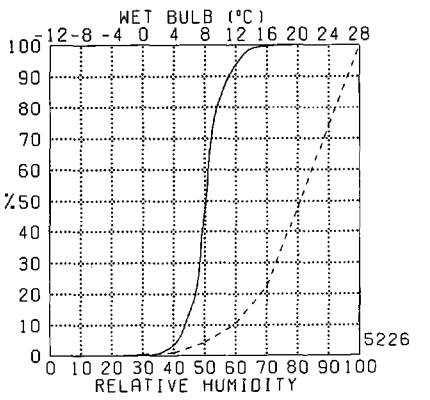
Kodiak



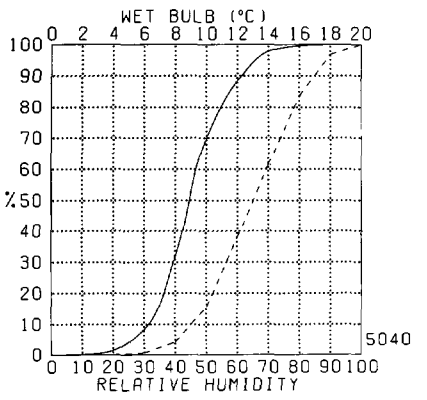
Homer



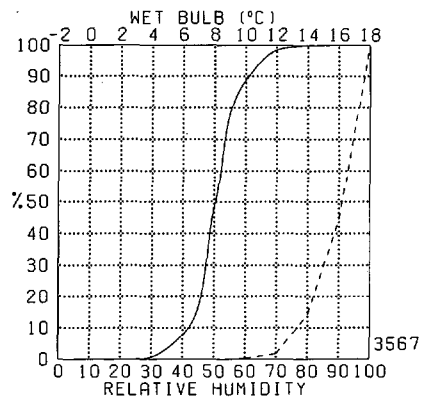
Kenai



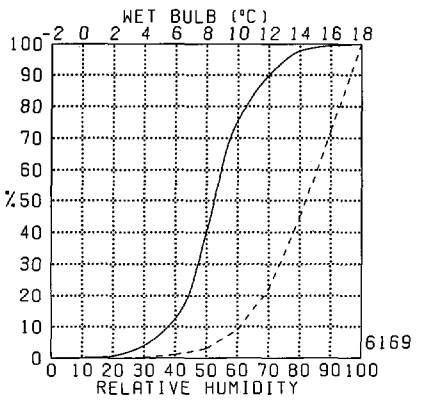
Anchorage



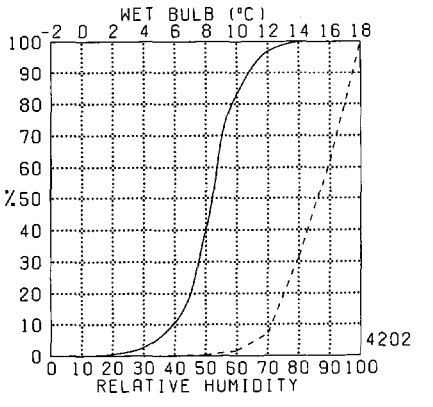
Middleton Island



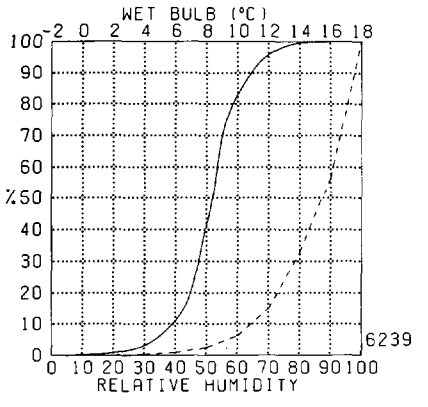
Cordova



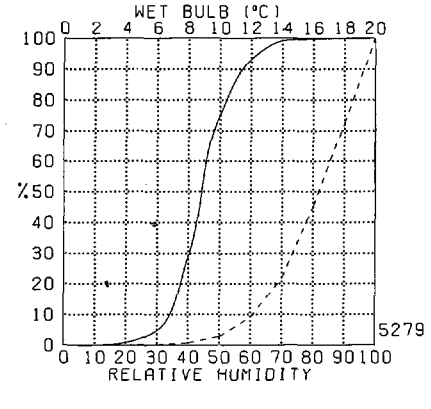
Yakataga



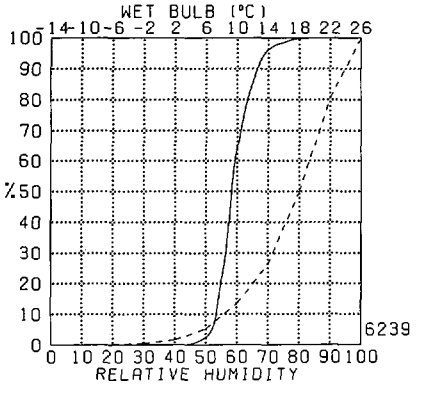
Yakutat



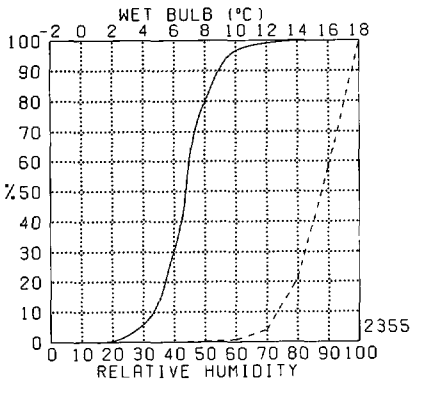
Sitka



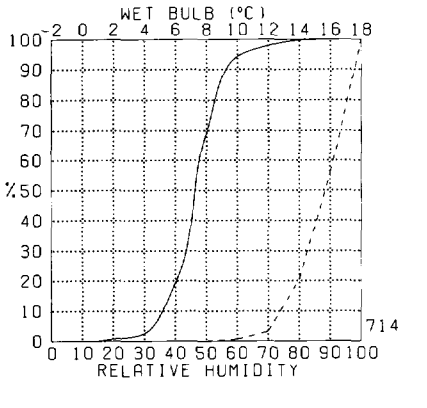
Annette

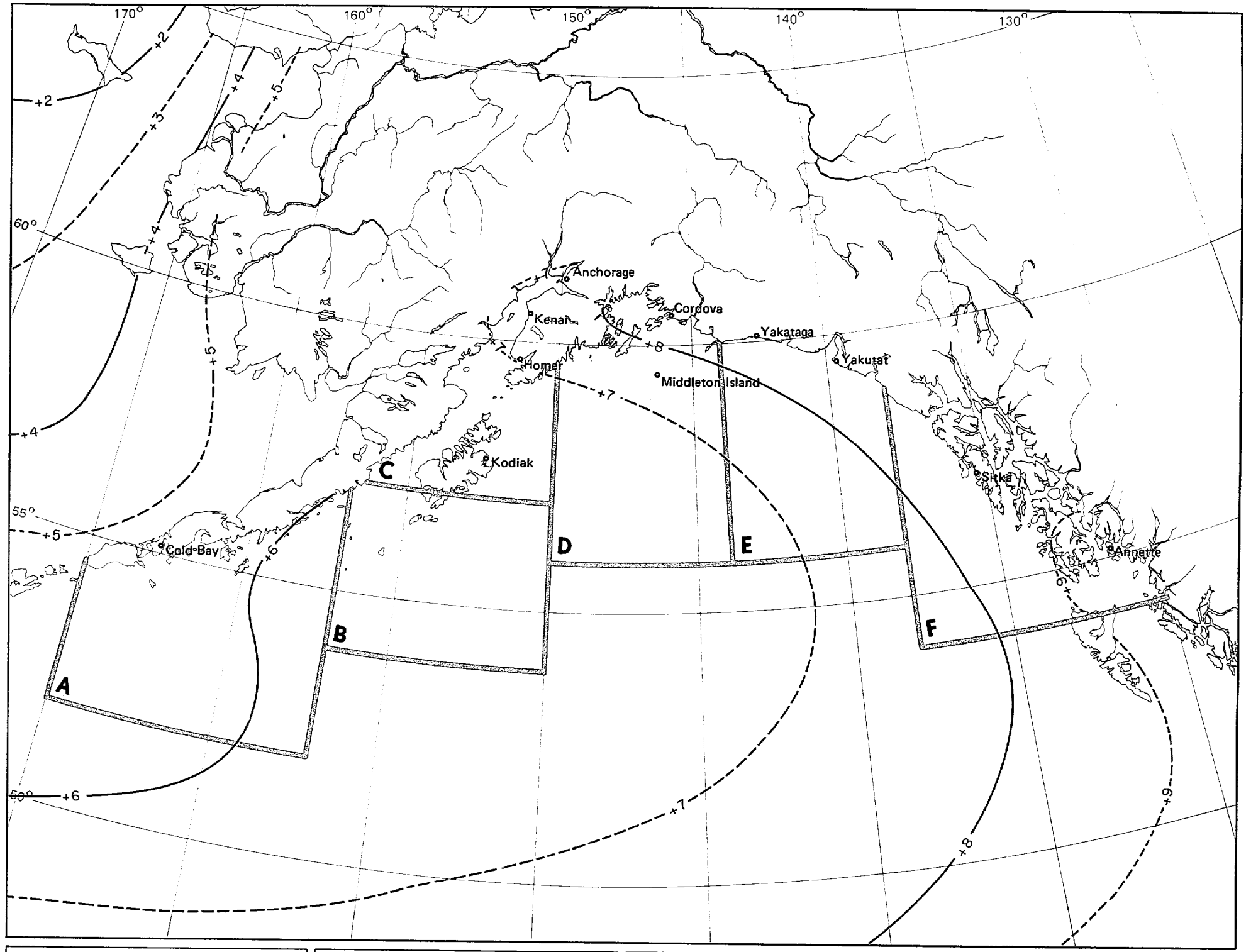


Marine Area A

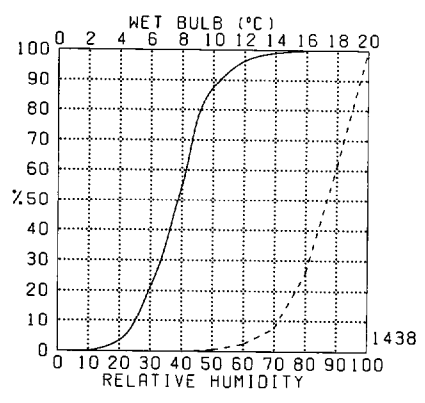


Marine Area B

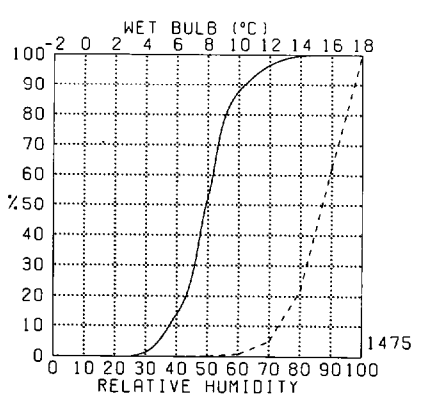




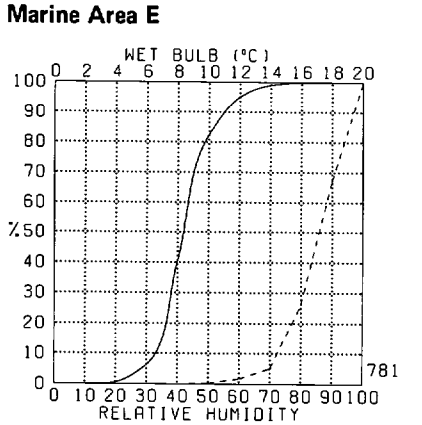
Marine Area C



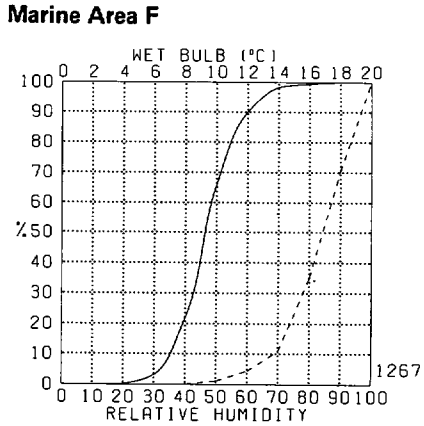
Marine Area D



Marine Area E



Marine Area F

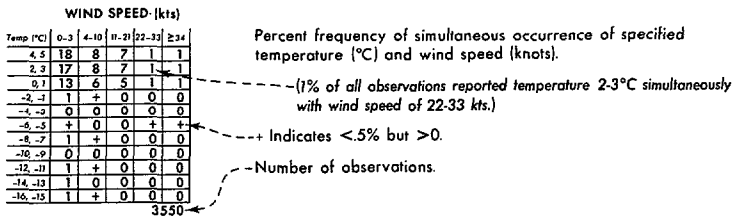


4 Mean dew point temperature

June

Legend

Air temperature/wind speed



Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	0	+	+	0	0
16.17	0	+	+	0	0
14.15	+	+	+	+	0
12.13	+	2	2	+	0
10.11	+	3	5	1	+
8.9	1	8	14	4	+
6.7	1	11	17	5	1
4.5	+	6	8	2	+
2.3	+	2	4	1	0
0.1	+	+	+	+	0
-2.-1	+	0	0	0	0

4560

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30.31	0	0	+	0	0
28.29	0	+	+	0	0
26.27	0	+	+	0	0
24.25	+	+	+	0	0
22.23	+	+	+	0	0
20.21	+	+	+	+	0
18.19	+	+	+	+	0
16.17	1	2	1	+	0
14.15	1	3	1	+	0
12.13	3	7	2	+	0
≤11	20	41	17	1	0

6957

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	0	0	0
24.25	0	0	0	0	0
22.23	0	+	0	0	0
20.21	+	+	+	0	0
18.19	+	1	+	0	0
16.17	+	2	1	0	0
14.15	1	4	2	0	0
12.13	2	12	4	0	0
10.11	4	13	4	+	0
8.9	9	14	4	+	0
≤7	12	11	1	+	0

6153

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
32.33	0	+	+	0	0
30.31	0	0	0	0	0
28.29	0	+	0	0	0
26.27	0	+	+	0	0
24.25	0	+	+	0	0
22.23	+	+	+	0	0
20.21	0	+	+	0	0
18.19	+	1	+	0	0
16.17	+	4	1	0	0
14.15	+	5	1	0	0
≤13	15	55	16	+	+

5225

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	+	+	+	0	0
26.27	0	0	+	0	0
24.25	0	+	+	0	0
22.23	+	1	+	0	0
20.21	+	1	+	0	0
18.19	1	4	1	0	0
16.17	1	8	3	0	0
14.15	2	9	4	+	0
12.13	5	15	6	+	0
10.11	4	11	3	0	0
≤9	7	12	3	+	0

5040

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	0	+	0	0	0
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	1	6	2	0	0
10.11	3	12	6	+	0
8.9	6	23	13	1	+
6.7	4	11	6	1	+
4.5	+	1	+	+	0
2.3	+	+	0	0	0
0.1	0	0	0	0	0
-2.-1	0	0	0	0	0

3567

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	+	+	0	0	0
26.27	0	+	0	0	0
24.25	+	+	0	0	0
22.23	+	+	0	0	0
20.21	+	1	+	0	0
18.19	+	2	+	+	0
16.17	1	4	1	0	0
14.15	2	5	1	0	0
12.13	6	10	1	0	0
10.11	9	11	1	0	0
≤9	27	17	1	0	0

6185

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	0	0	0
18.19	+	+	+	0	0
16.17	+	1	+	0	0
14.15	1	2	1	+	0
12.13	2	11	5	+	0
10.11	6	14	6	+	0
8.9	11	14	7	+	0
6.7	6	5	3	+	0
4.5	2	1	+	0	0
2.3	1	+	0	0	0
0.1	+	+	0	0	0

4202

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	+	0	0
24.25	+	+	+	0	0
22.23	+	+	+	0	0
20.21	+	+	+	0	0
18.19	+	1	+	0	0
16.17	+	2	1	0	0
14.15	+	4	1	0	0
12.13	1	11	3	0	0
10.11	5	15	3	+	0
8.9	8	17	4	+	+
≤7	9	10	3	+	+

6239

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	0	0	0
24.25	0	+	+	0	0
22.23	+	+	+	+	0
20.21	+	+	0	0	0
18.19	+	1	+	0	0
16.17	1	3	1	+	0
14.15	1	5	2	+	0
12.13	4	13	4	+	0
10.11	8	15	3	+	+
8.9	11	14	2	+	0
≤7	5	4	1	0	0

5280

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30.31	0	+	0	0	0
28.29	0	+	+	0	0
26.27	0	+	+	0	0
24.25	+	+	+	0	0
22.23	+	1	+	0	0
20.21	+	1	+	0	0
18.19	+	2	+	0	0
16.17	1	5	1	0	0
14.15	1	7	2	+	0
12.13	3	16	5	+	0
≤11	8	31	13	1	0

6238

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	+	0	0	0	0
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	1	1	2	+	0
10.11	1	5	5	1	+
8.9	3	14	17	4	1
6.7	3	12	16	6	1
4.5	+	2	2	1	+
2.3	+	+	+	+	+
0.1	0	+	+	0	0
-2.-1	0	0	0	0	0

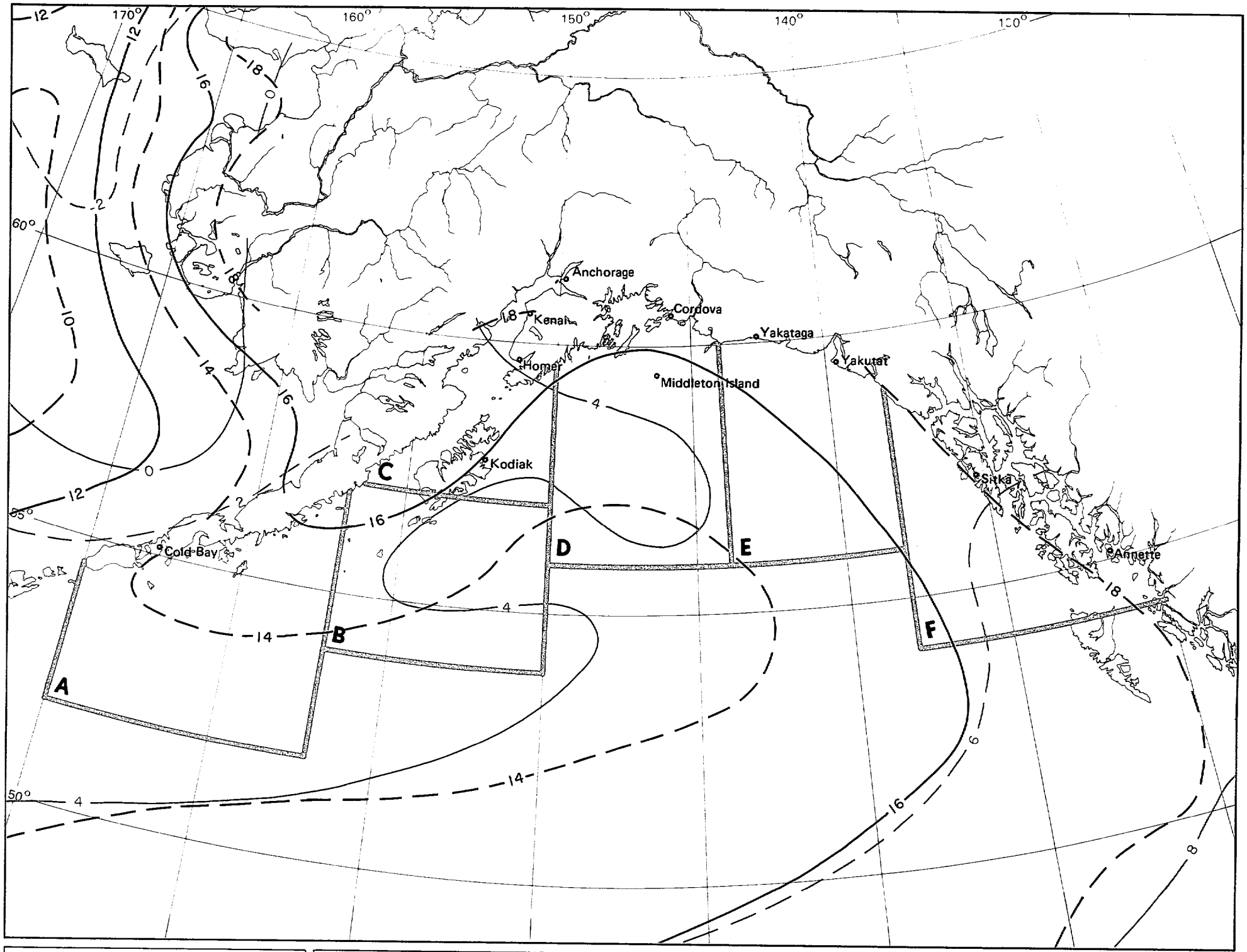
3374

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	+	0	0
14.15	+	1	+	0	0
12.13	1	2	2	0	0
10.11	3	10	6	1	+
8.9	4	17	18	4	1
6.7	2	8	14	4	+
4.5	+	1	2	1	+
2.3	0	+	+	0	0
0.1	0	0	0	0	0
-2.-1	0	0	0	0	0
-4.-3	0	0	0	0	0

1124



Marine Area C

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	+	+	+	0	0
16.17	1	1	+	0	0
14.15	1	1	1	0	0
12.13	4	6	3	+	+
10.11	5	10	6	1	0
8.9	6	13	10	2	0
6.7	3	10	7	1	+
4.5	1	3	3	1	+
2.3	+	+	+	+	0
0.1	0	0	0	0	0
-2.-1	0	0	0	0	0

1559

Marine Area D

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	+	0	0
18.19	+	0	+	0	0
16.17	1	+	+	0	0
14.15	+	1	1	+	0
12.13	2	6	4	+	+
10.11	3	12	10	2	+
8.9	4	15	13	3	1
6.7	2	6	8	3	+
4.5	+	1	1	+	+
2.3	0	+	0	0	0
0.1	0	0	0	0	0

1791

Marine Area E

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	0	+	0	0
18.19	+	+	+	0	0
16.17	+	1	1	0	0
14.15	+	2	1	+	0
12.13	2	8	5	+	+
10.11	4	13	12	2	+
8.9	3	16	14	3	+
6.7	1	4	4	1	+
4.5	+	+	+	0	0
2.3	0	+	0	0	0
0.1	0	0	0	0	0

1130

Marine Area F

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	+	+	0	0	0
18.19	1	+	+	0	0
16.17	1	2	1	0	0
14.15	1	4	2	+	+
12.13	5	13	6	1	+
10.11	6	16	12	2	+
8.9	3	8	8	2	+
6.7	1	2	1	+	+
4.5	+	0	+	+	0
2.3	0	0	0	0	0
0.1	0	0	0	0	0

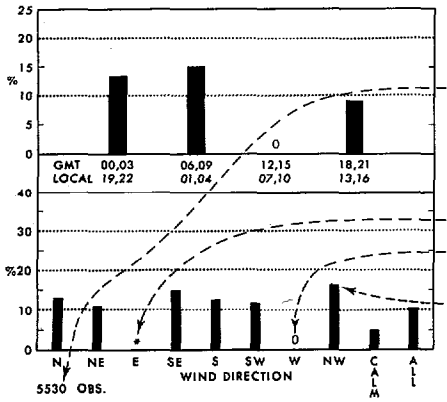
1820

5 Air temperature extremes (°C)

June

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

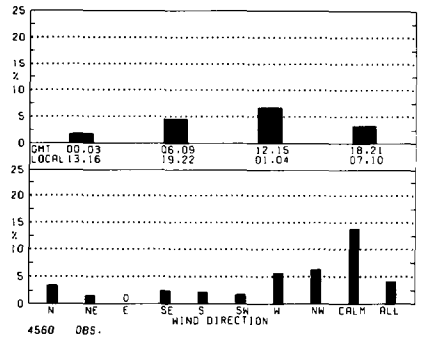
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

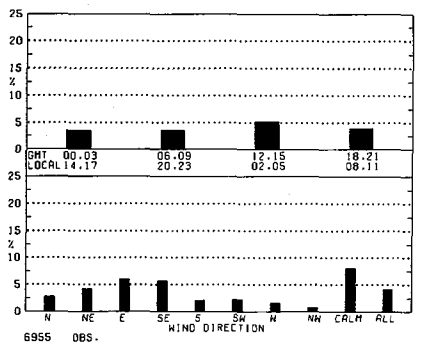
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

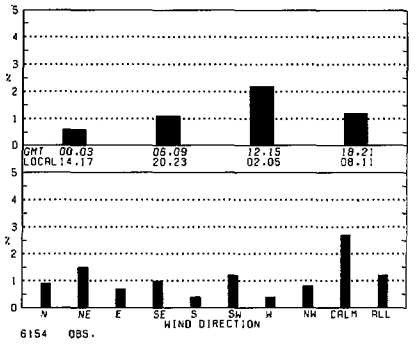
Cold Bay



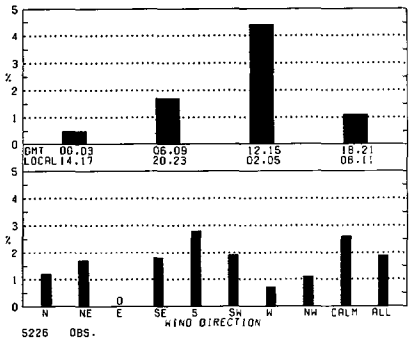
Kodiak



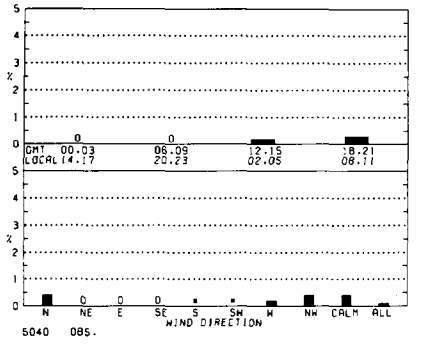
Homer



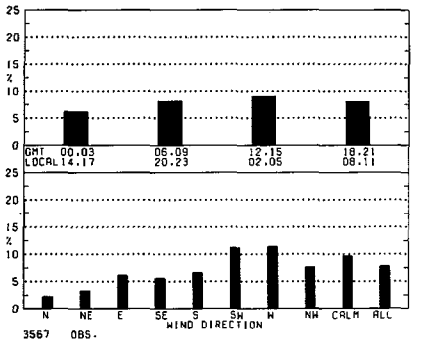
Kenai



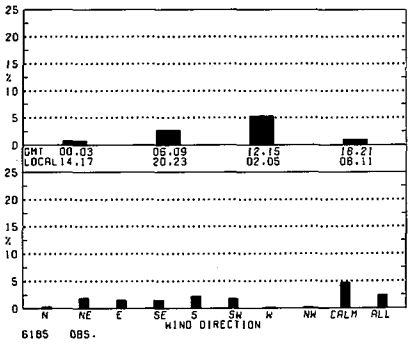
Anchorage



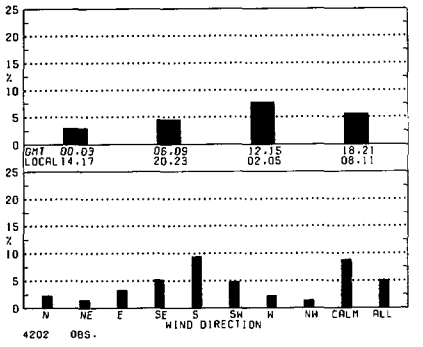
Middleton Island



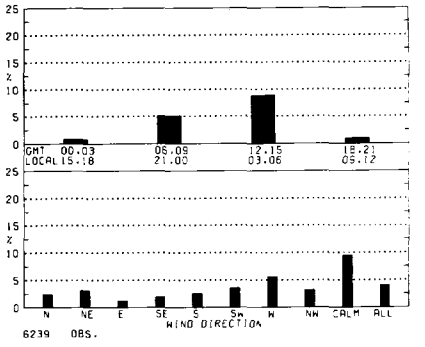
Cordova



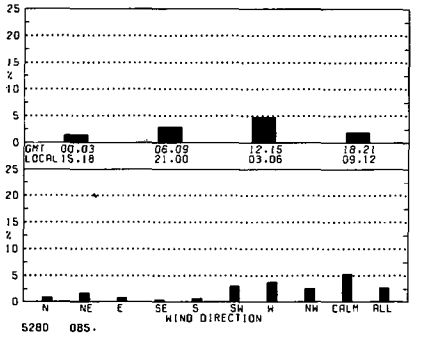
Yakataga



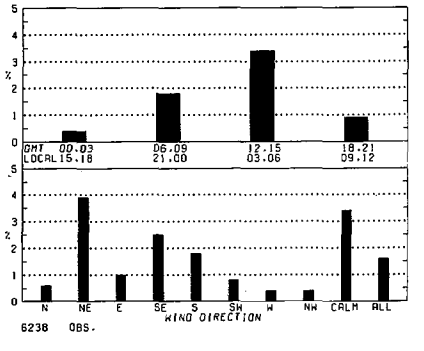
Yakutat



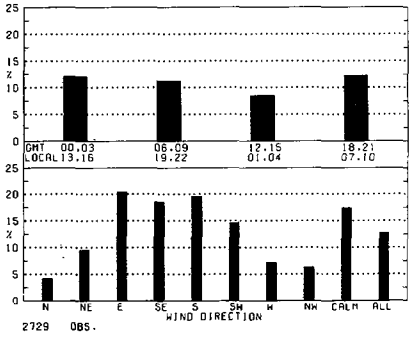
Sitka



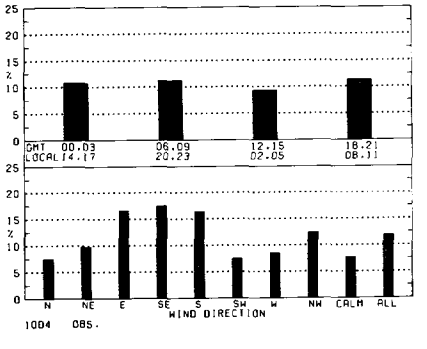
Annette

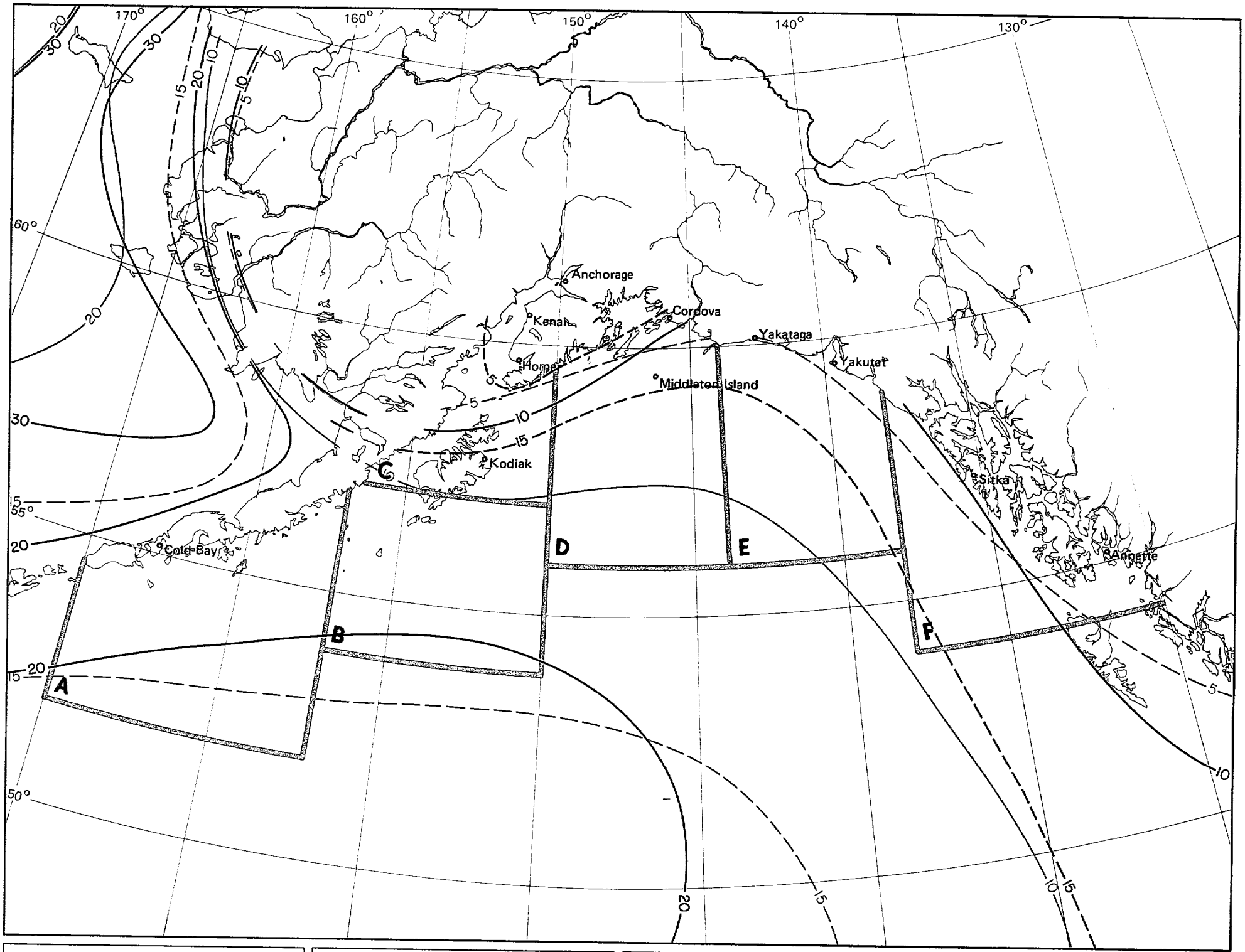


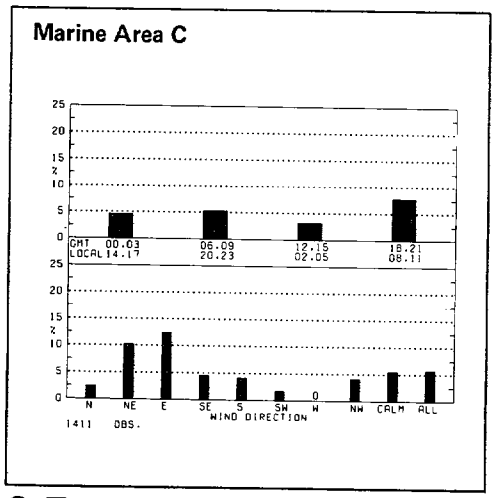
Marine Area A

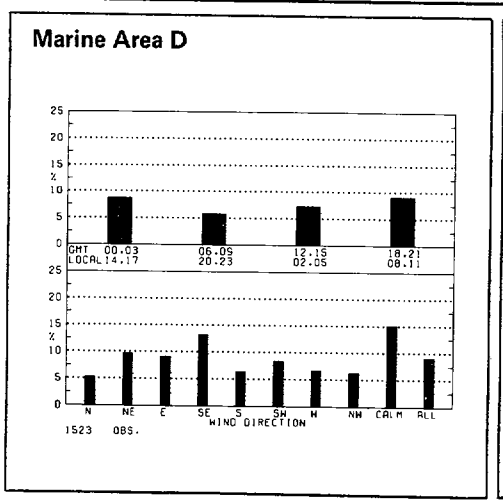


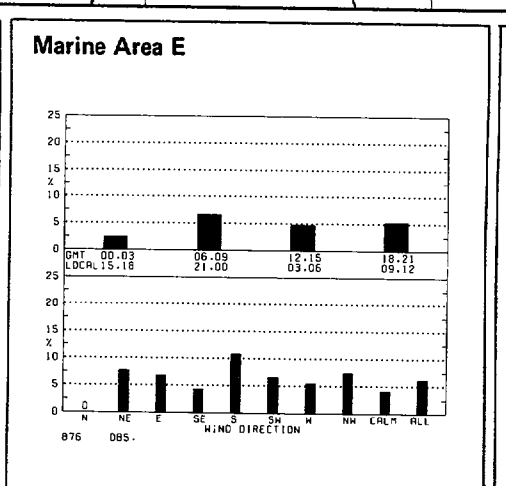
Marine Area B

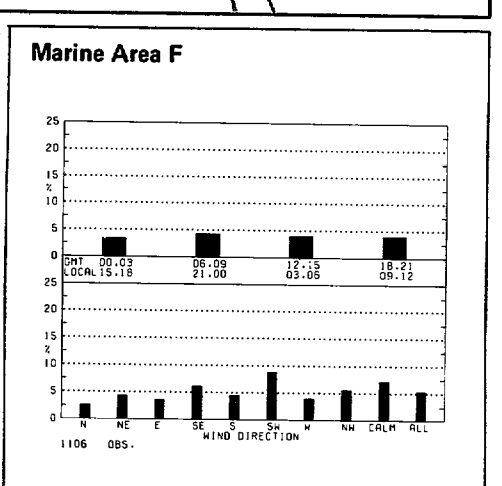



170°
160°
150°
140°
130°
60°
55°
50°
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F


Marine Area C
GMT 00.03 06.09 12.15 18.21
LOCAL 14.17 20.23 02.05 08.11
N NE E SE S SW W NW CALM ALL
1411 OBS.
WIND DIRECTION

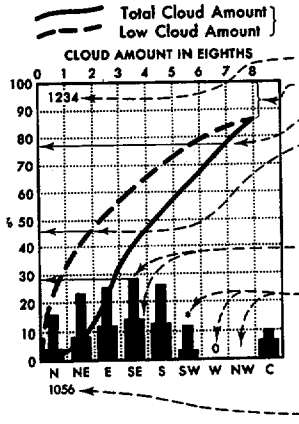

Marine Area D
GMT 00.03 06.09 12.15 18.21
LOCAL 14.17 20.23 02.05 08.11
N NE E SE S SW W NW CALM ALL
1523 OBS.
WIND DIRECTION


Marine Area E
GMT 00.03 06.09 12.15 18.21
LOCAL 15.18 21.00 03.06 09.12
N NE E SE S SW W NW CALM ALL
876 OBS.
WIND DIRECTION


Marine Area F
GMT 00.03 06.09 12.15 18.21
LOCAL 15.18 21.00 03.06 09.12
N NE E SE S SW W NW CALM ALL
1106 OBS.
WIND DIRECTION

Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 (5/8 & 6/8 ≥7/8) Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

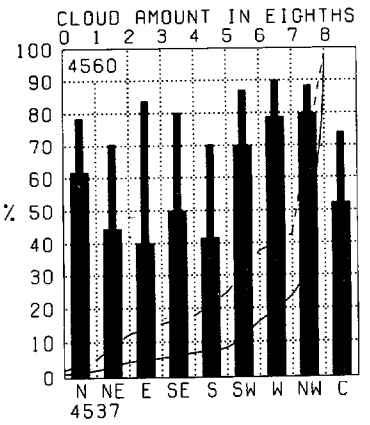
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

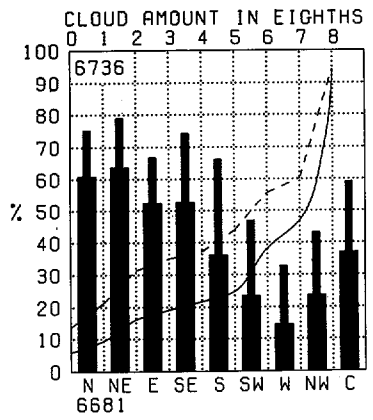
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

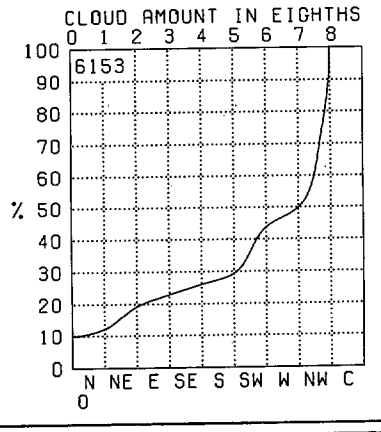
Cold Bay



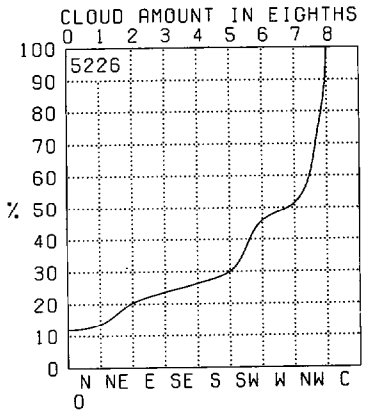
Kodiak



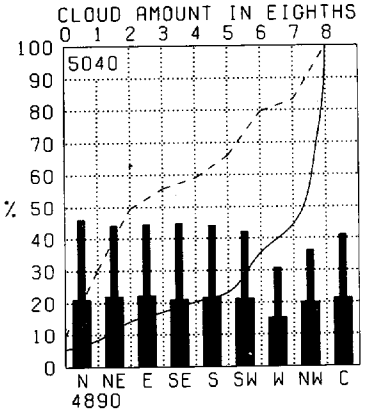
Homer



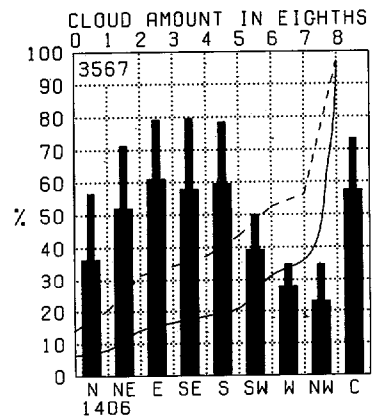
Kenai



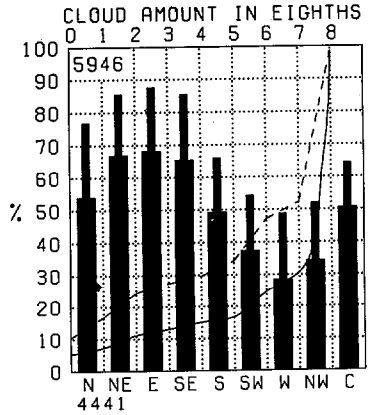
Anchorage



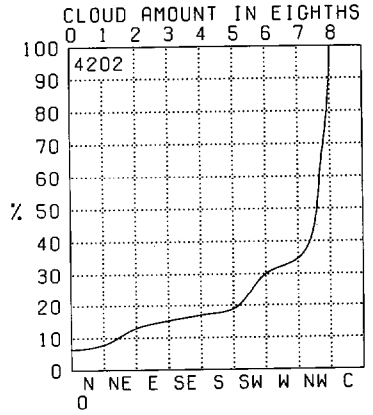
Middleton Island



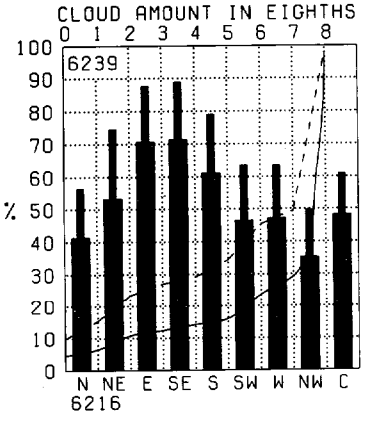
Cordova



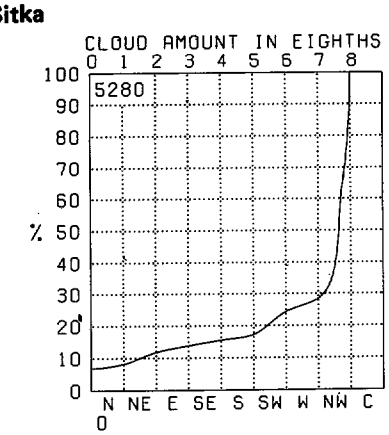
Yakataga



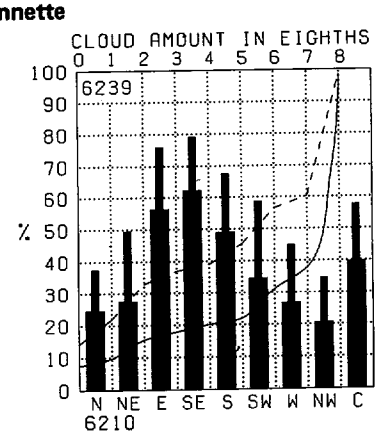
Yakutat



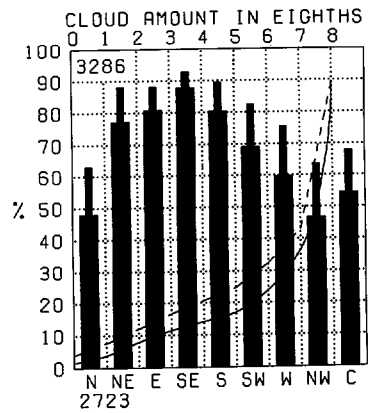
Sitka



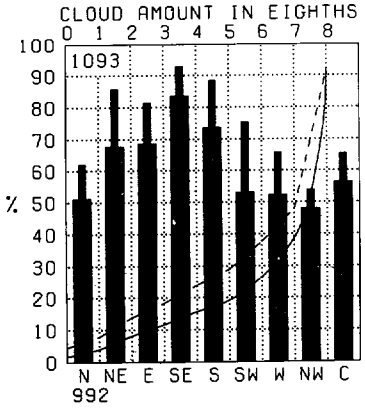
Annette

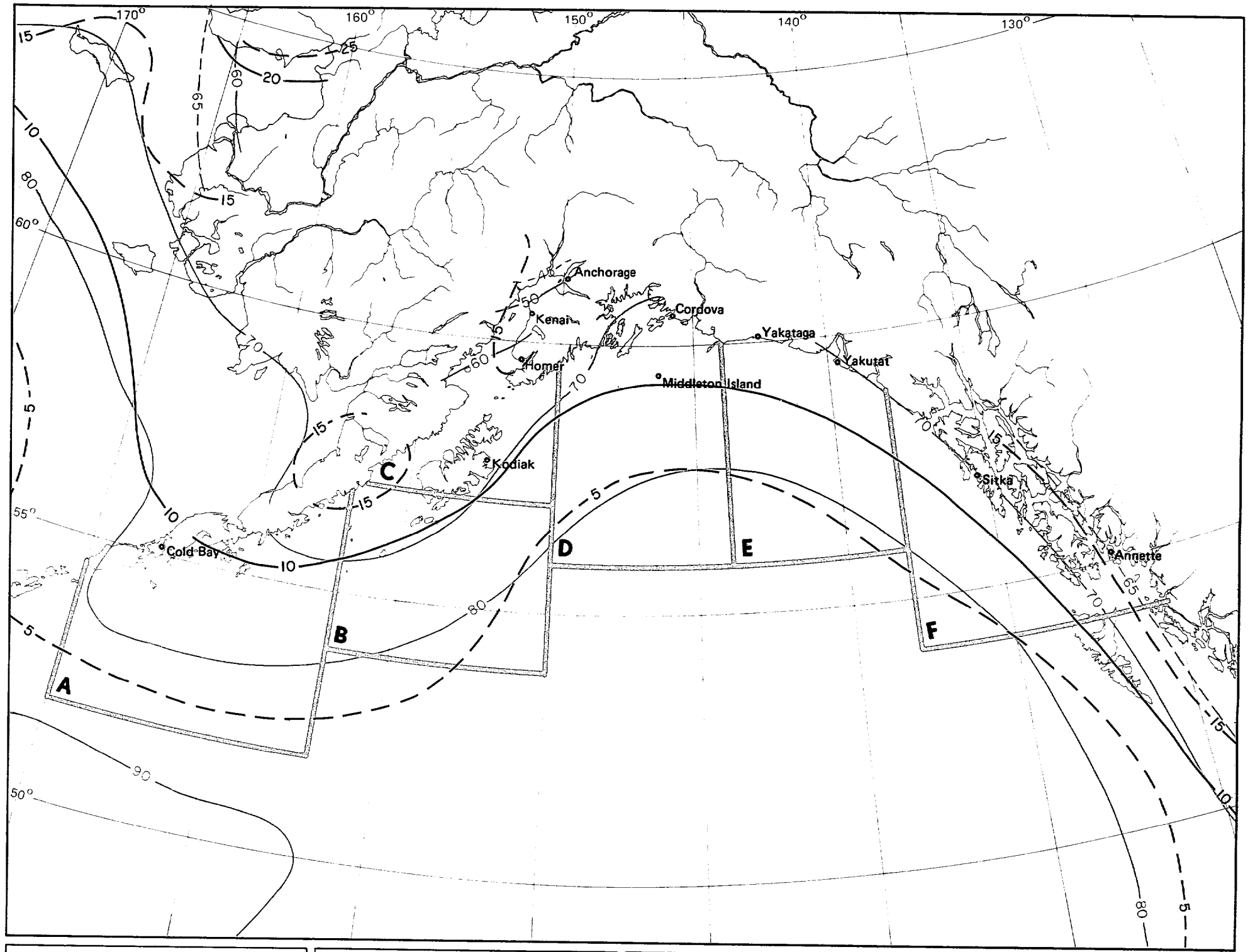


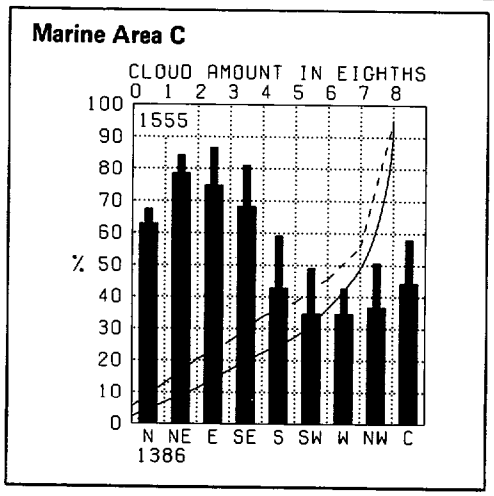
Marine Area A

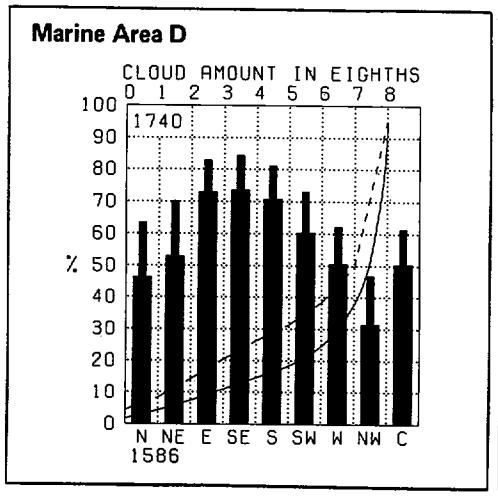


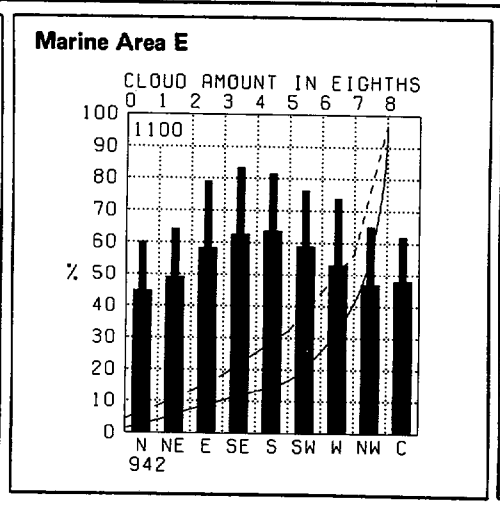
Marine Area B

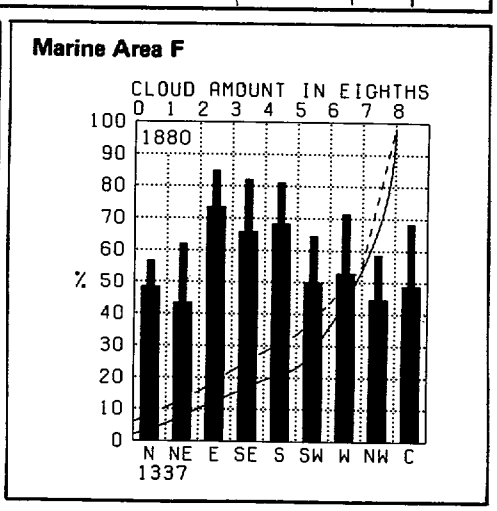








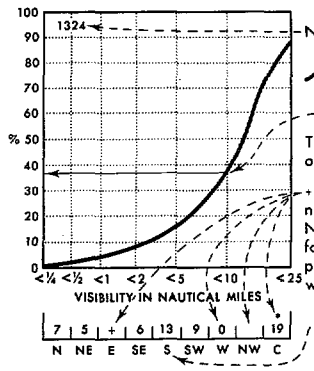




7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

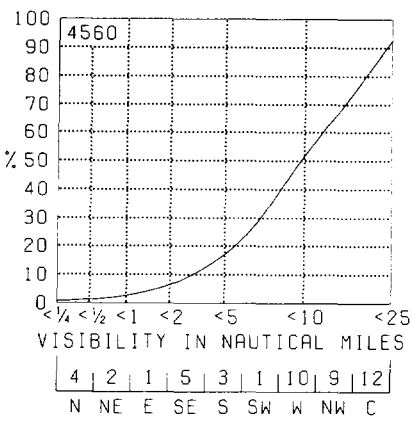
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

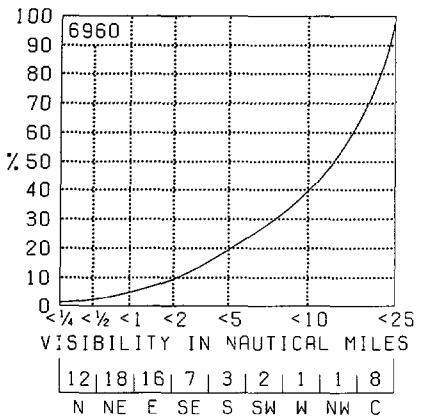
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

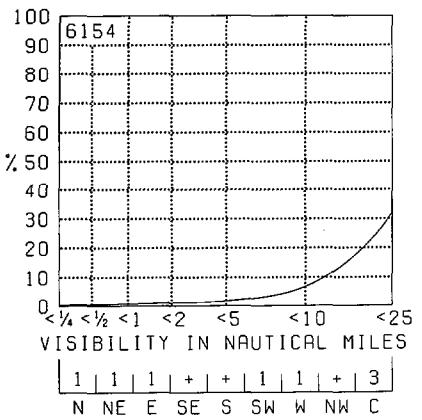
Cold Bay



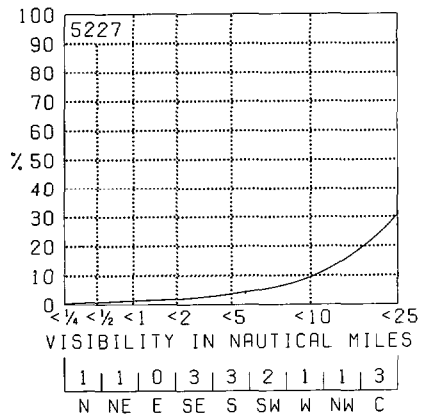
Kodiak



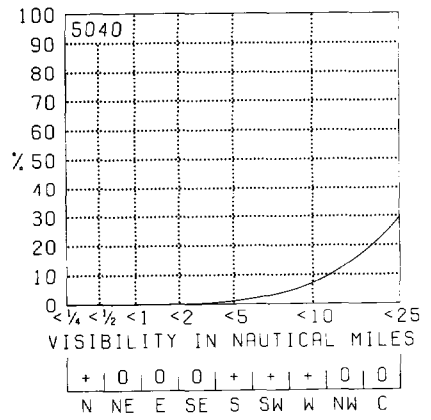
Homer



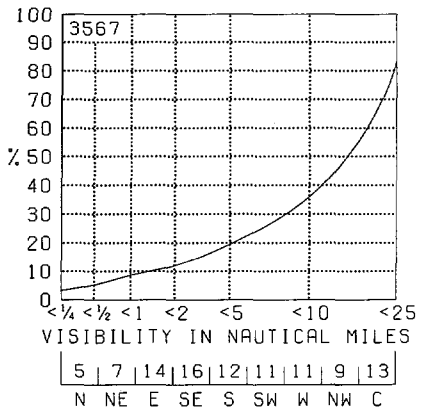
Kenai



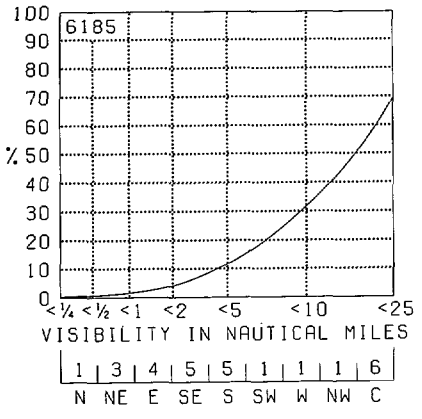
Anchorage



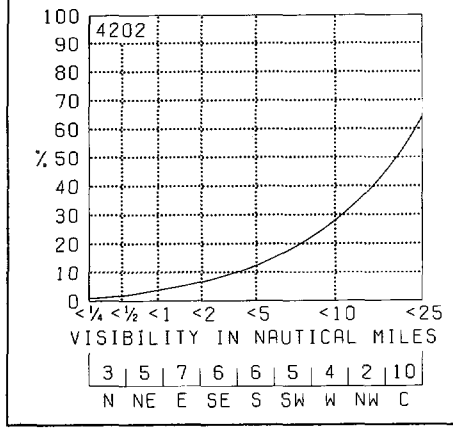
Middleton Island



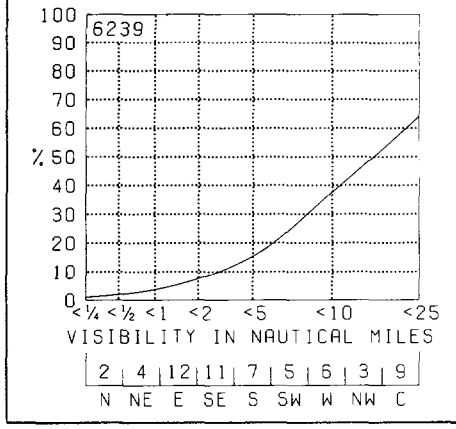
Cordova



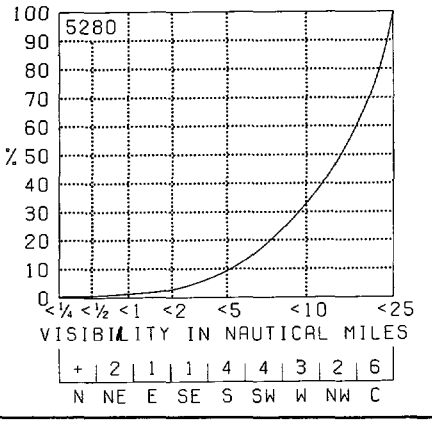
Yakataga



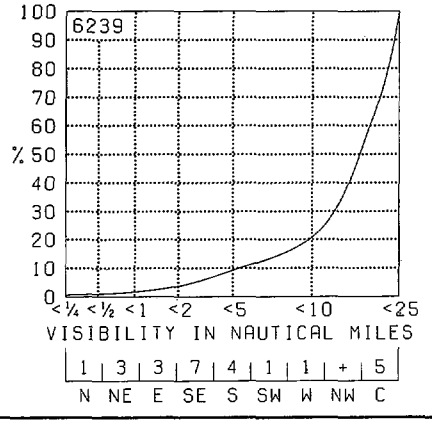
Yakutat



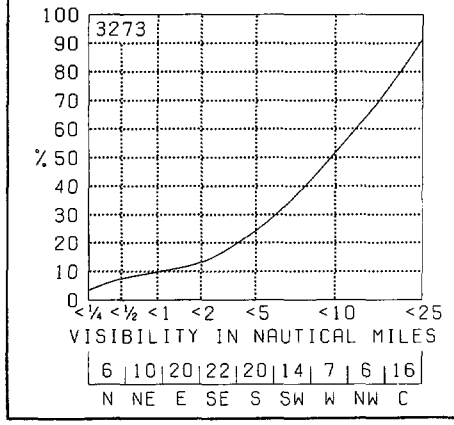
Sitka



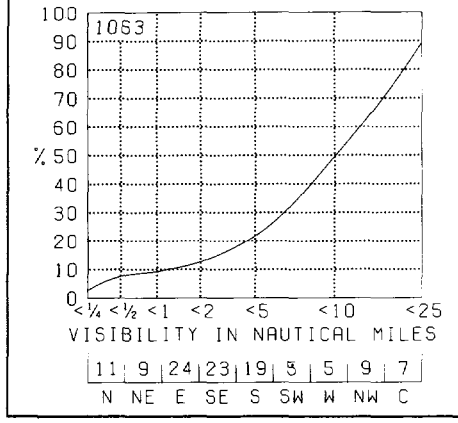
Annette

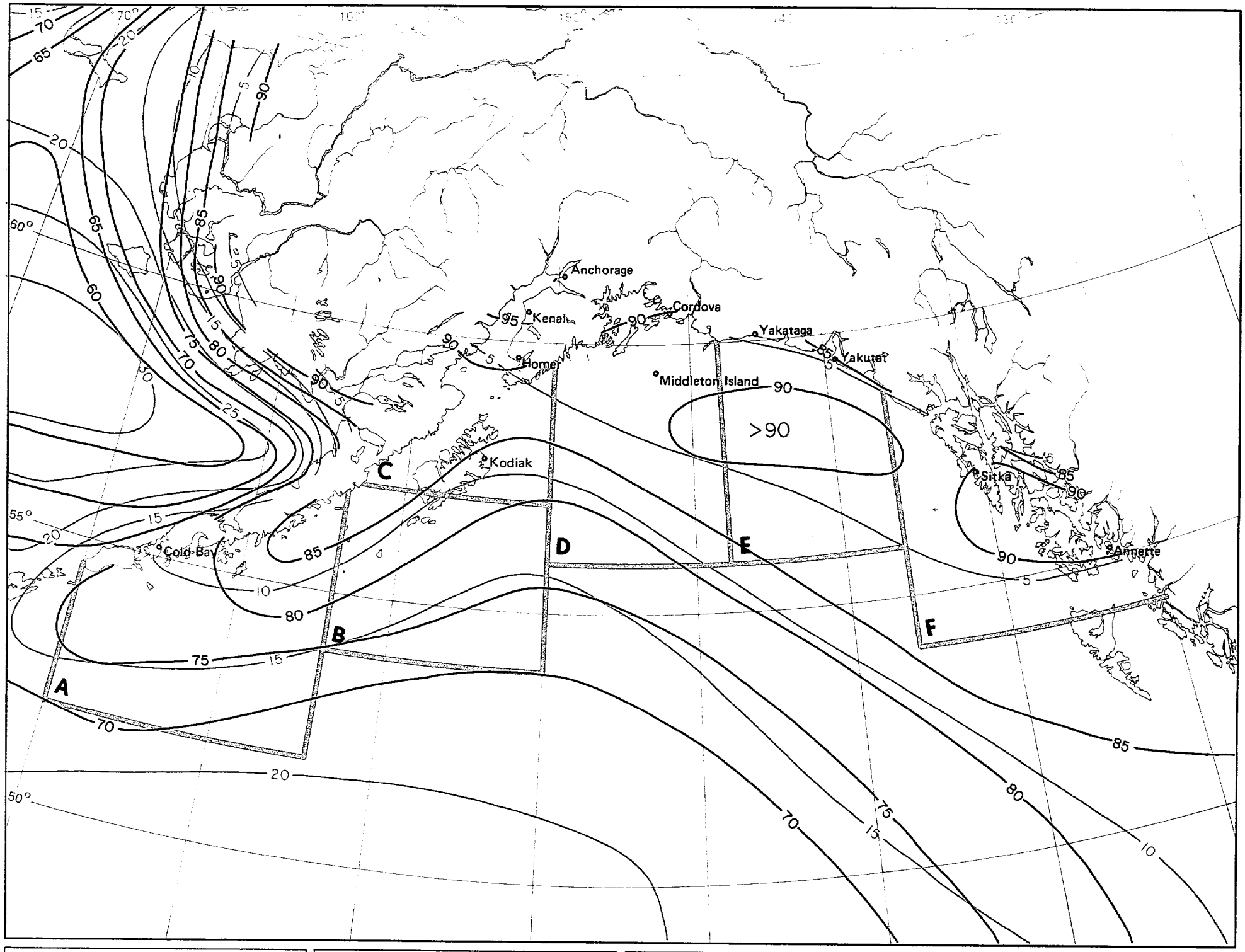


Marine Area A

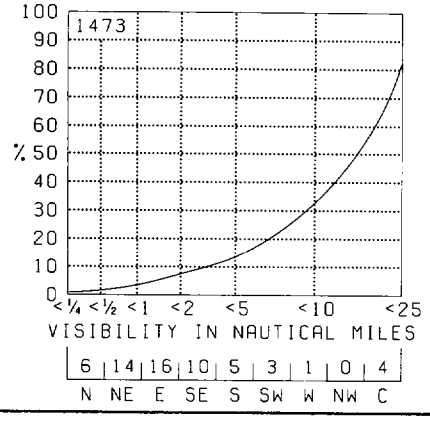


Marine Area B

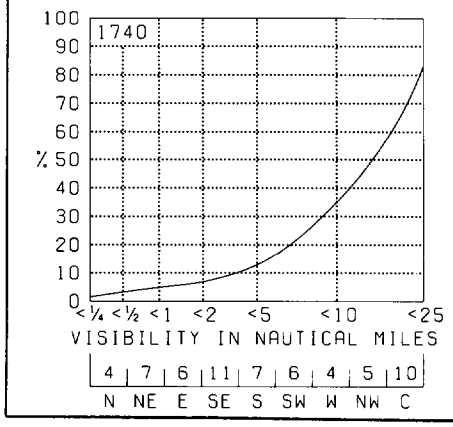




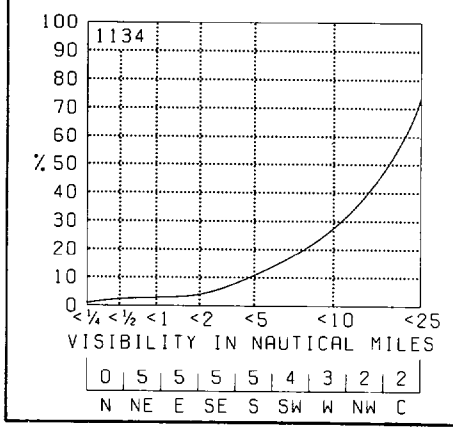
Marine Area C



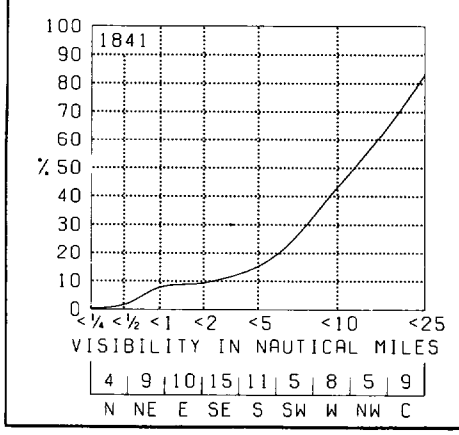
Marine Area D



Marine Area E



Marine Area F



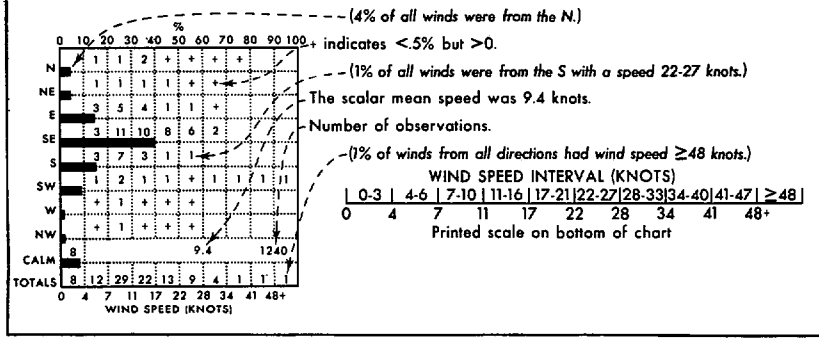
8 Visibility thresholds

June

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



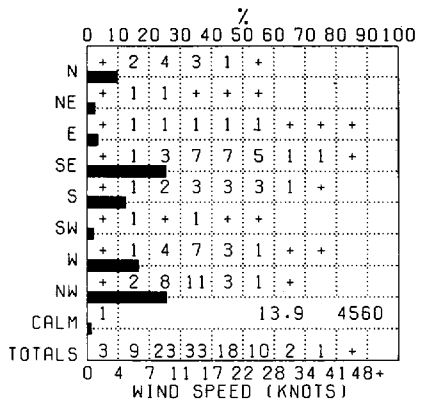
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

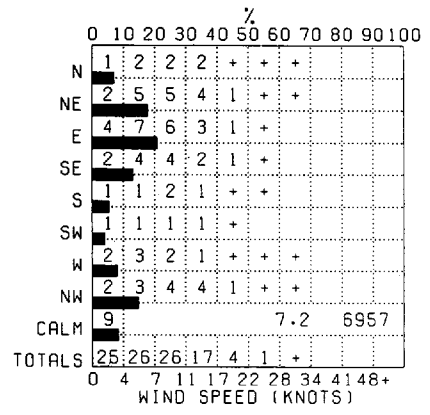
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

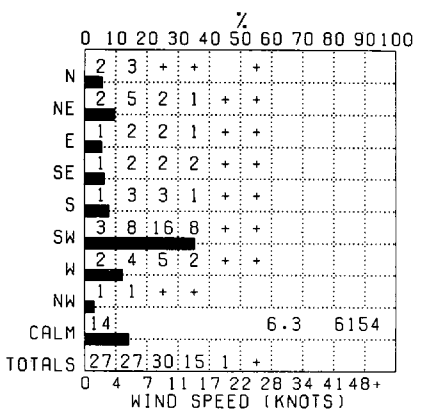
Cold Bay



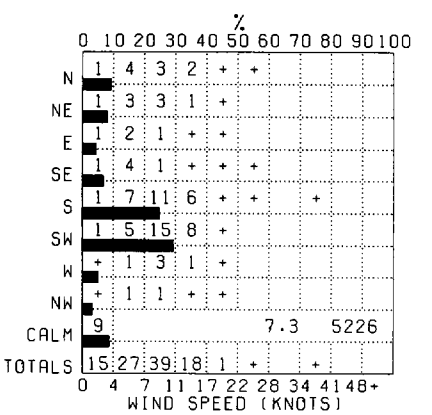
Kodiak



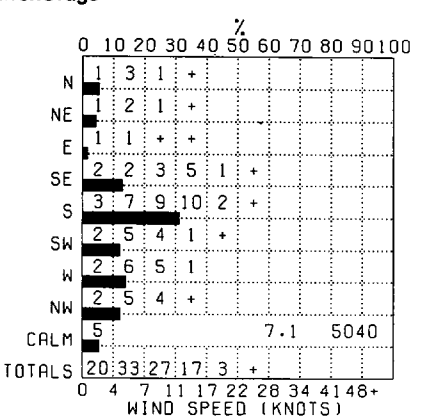
Homer



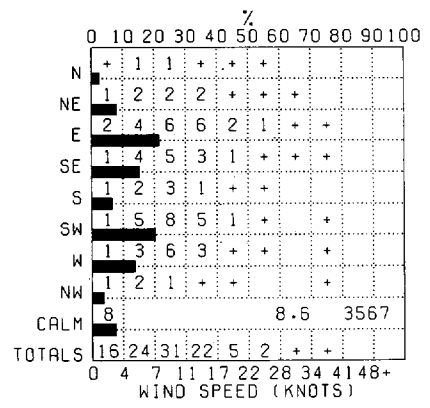
Kenai



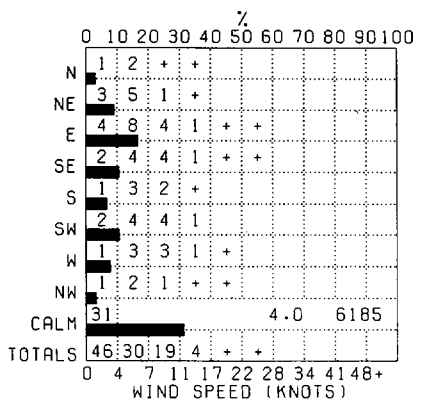
Anchorage



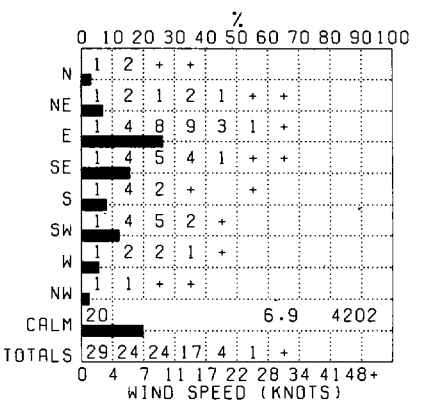
Middleton Island



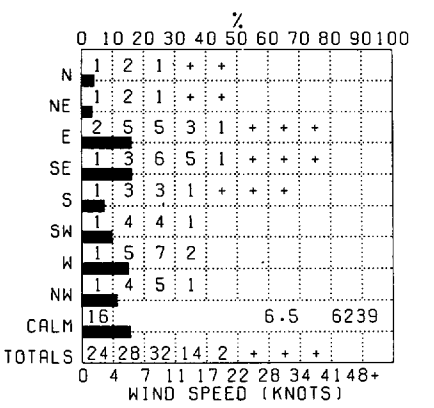
Cordova



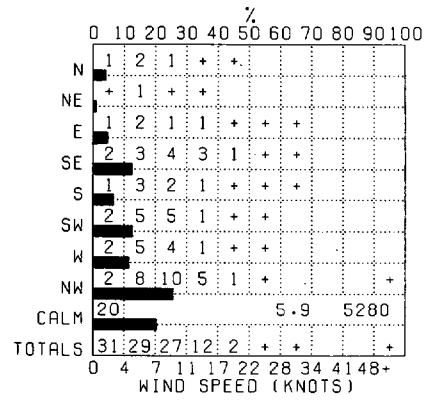
Yakataga



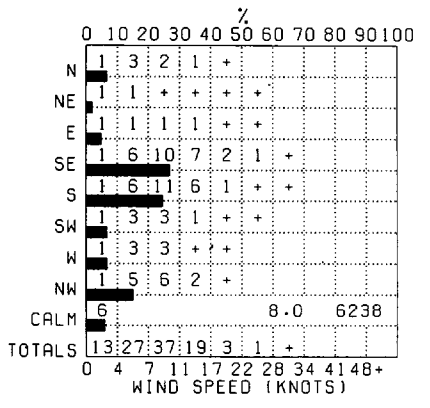
Yakutat



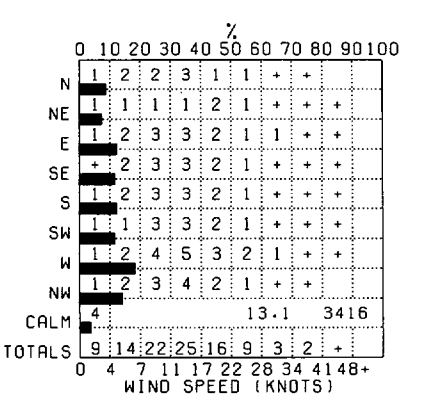
Sitka



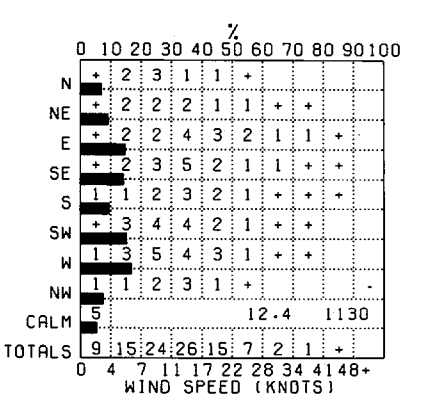
Annette

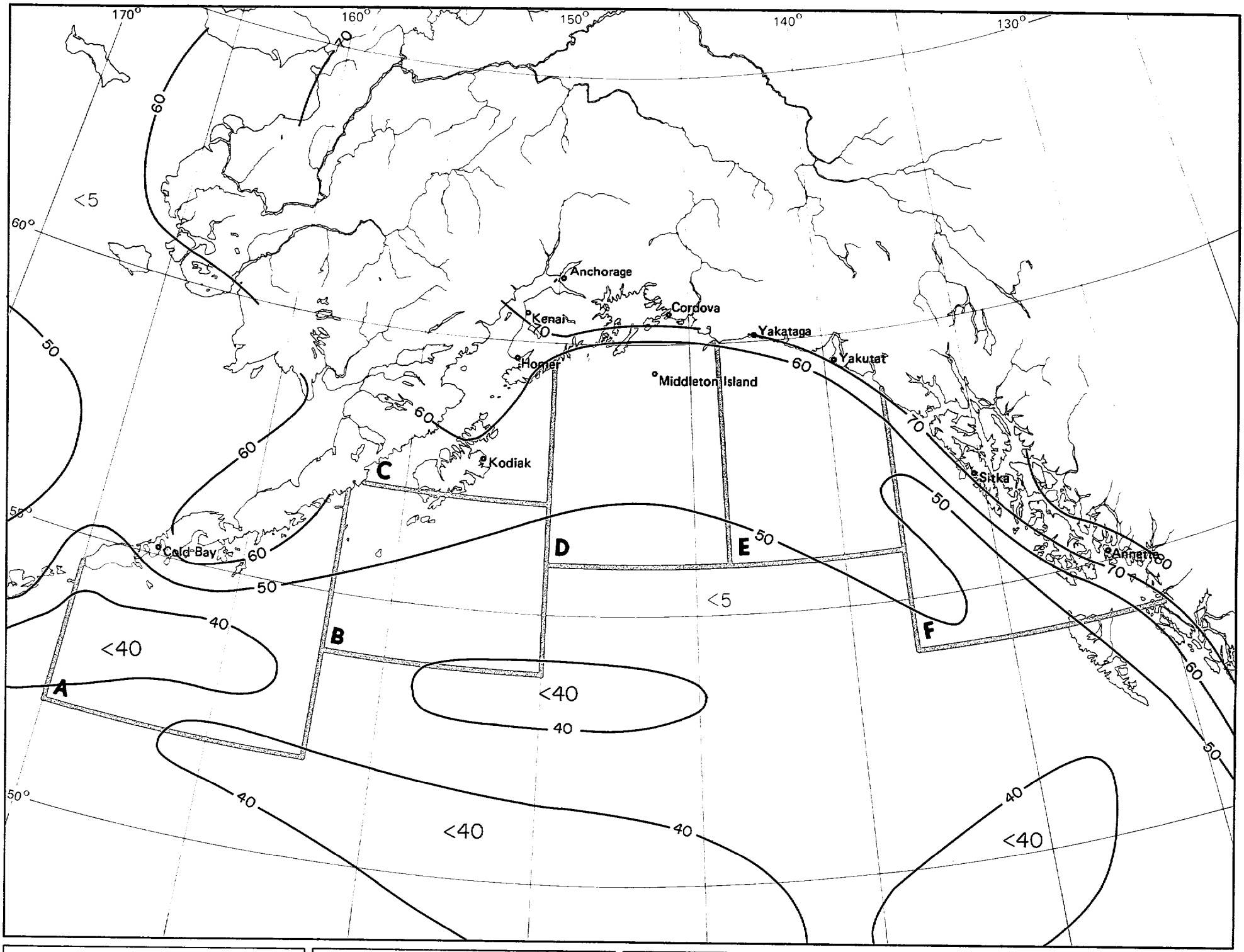


Marine Area A

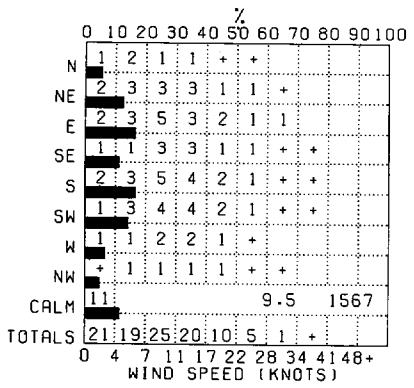


Marine Area B

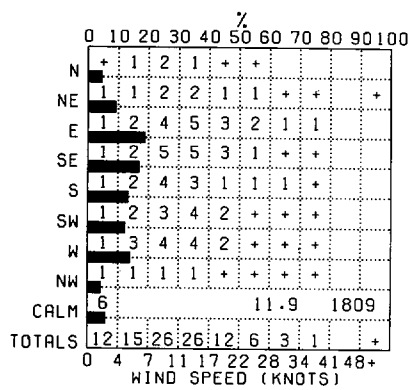




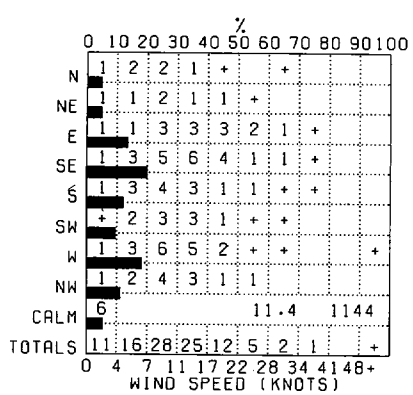
Marine Area C



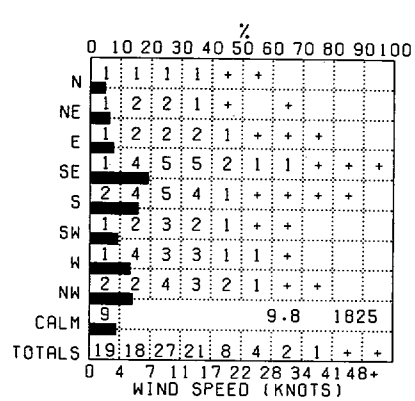
Marine Area D



Marine Area E



Marine Area F

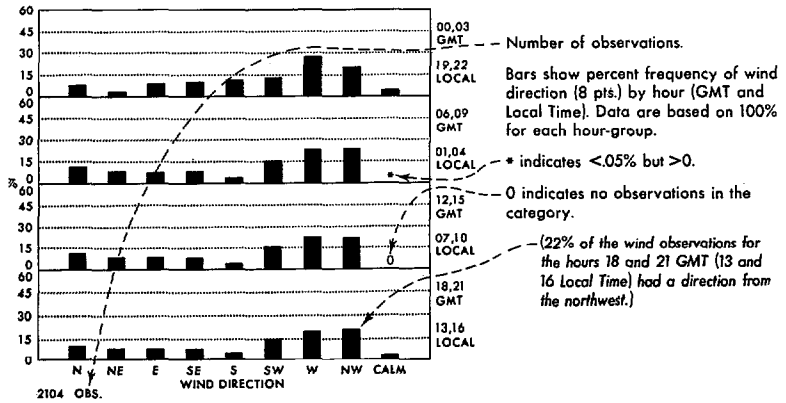


9 Wind speed thresholds

June

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

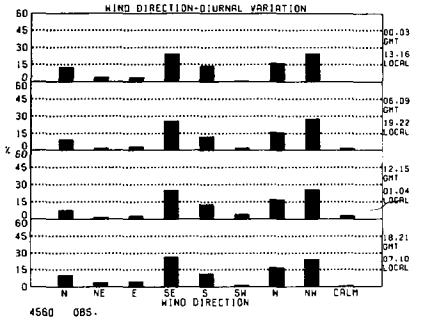
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

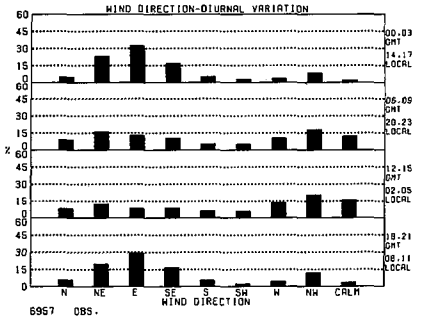
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

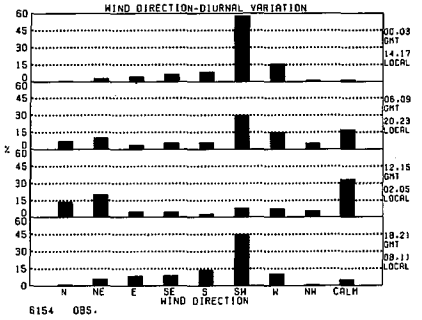
Cold Bay



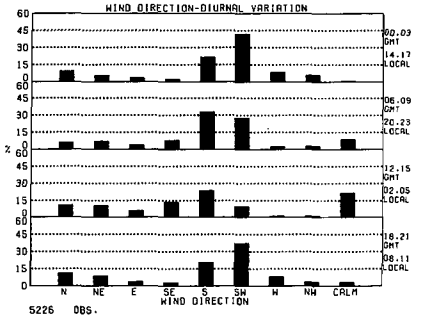
Kodiak



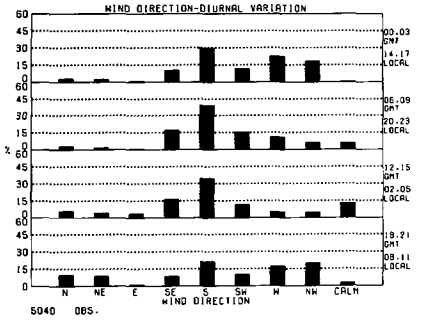
Homer



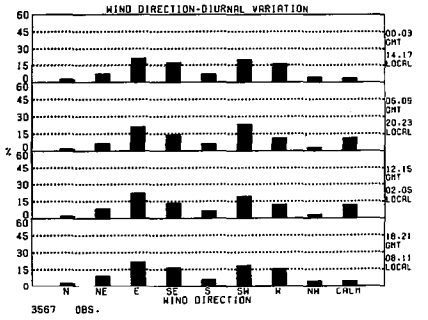
Kenai



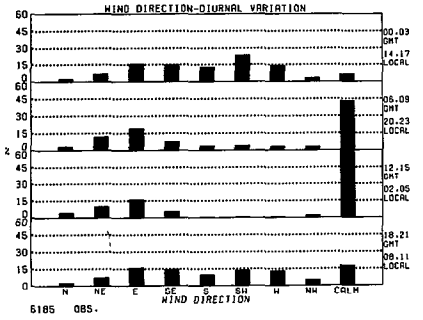
Anchorage



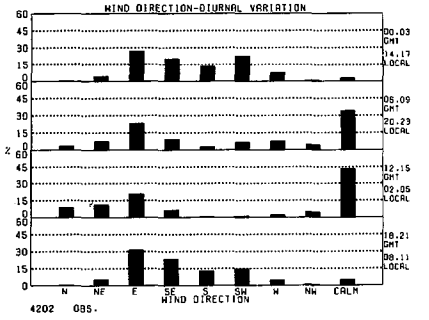
Middleton Island



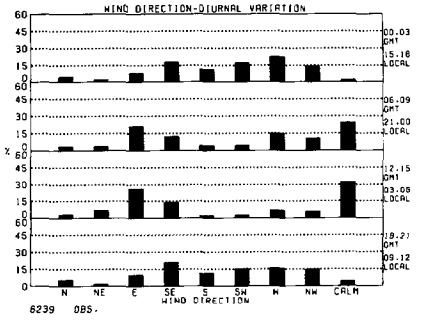
Cordova



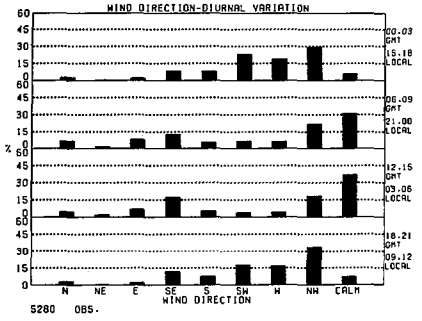
Yakataga



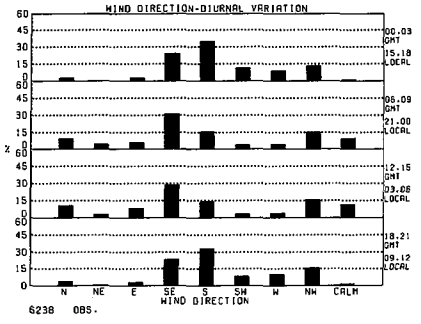
Yakutat



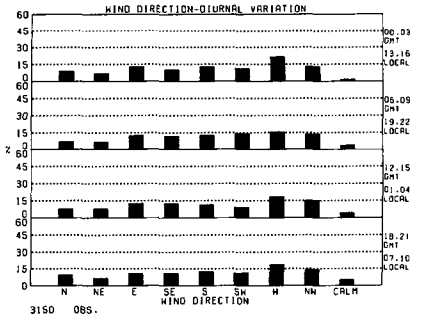
Sitka



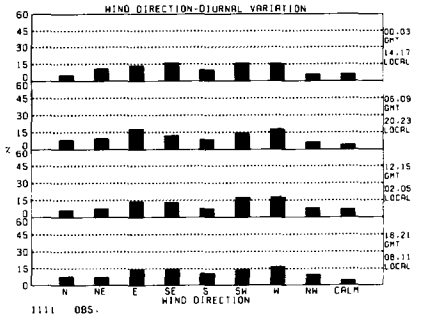
Annette

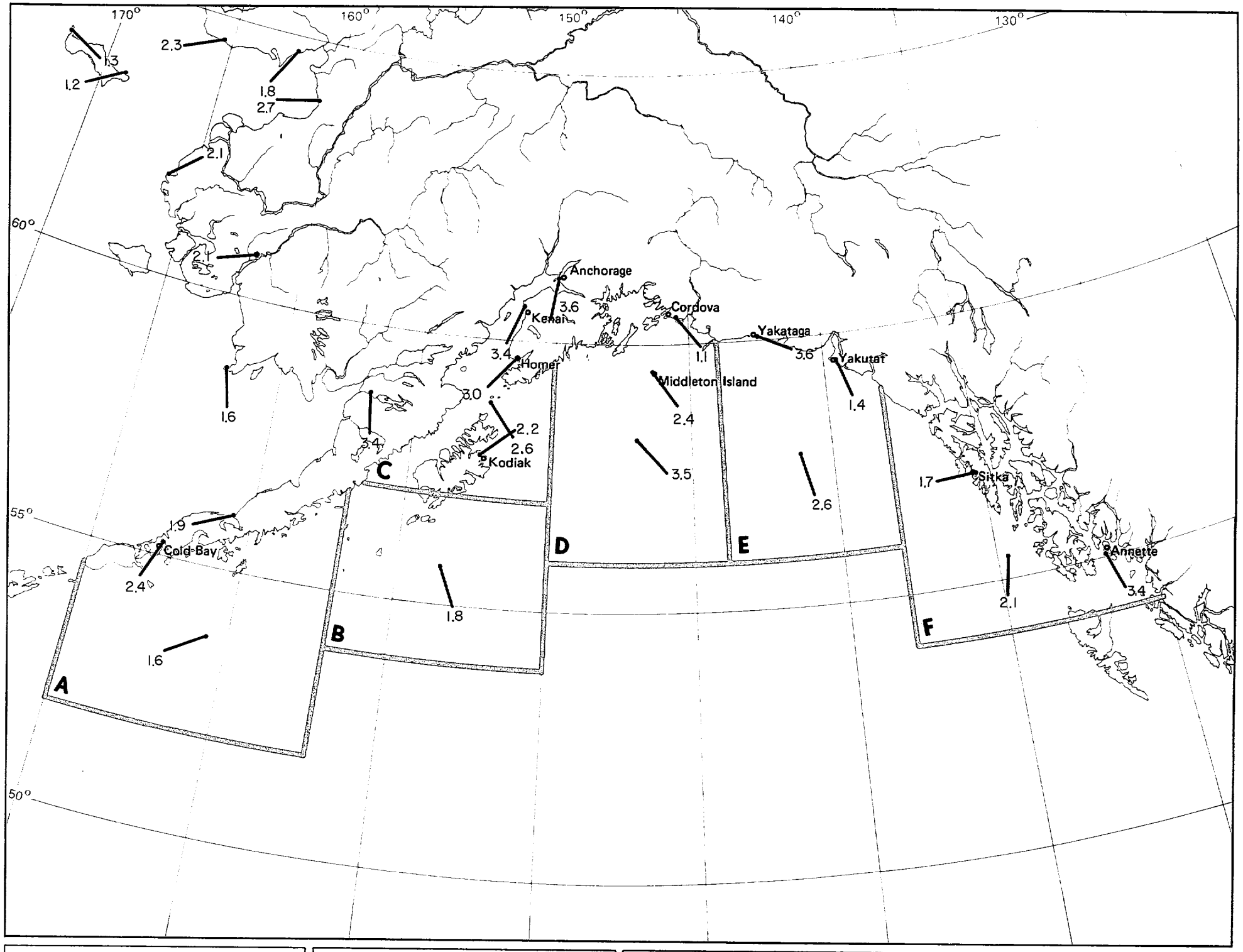


Marine Area A

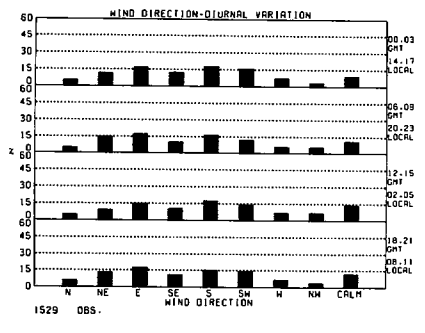


Marine Area B

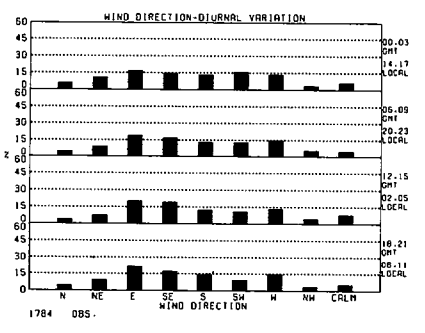




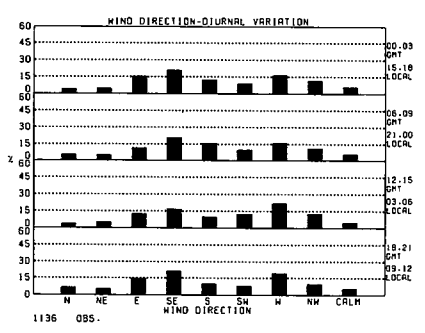
Marine Area C



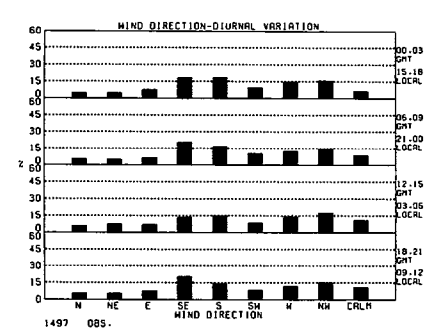
Marine Area D



Marine Area E



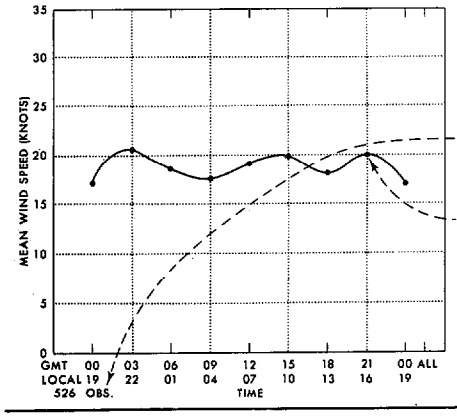
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

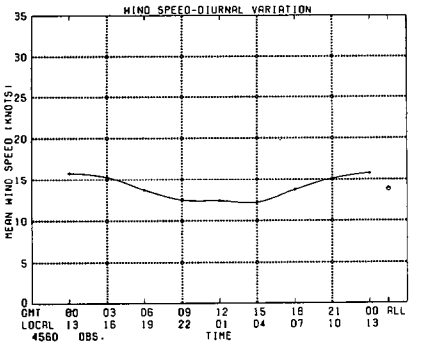
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

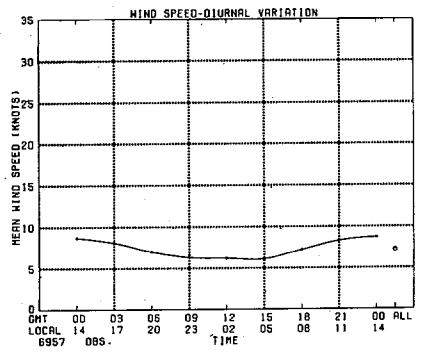
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

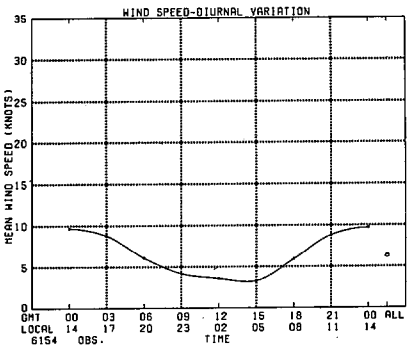
Cold Bay



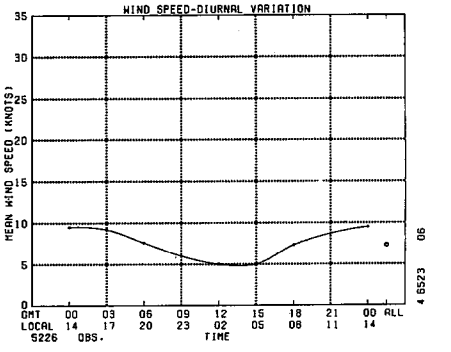
Kodiak



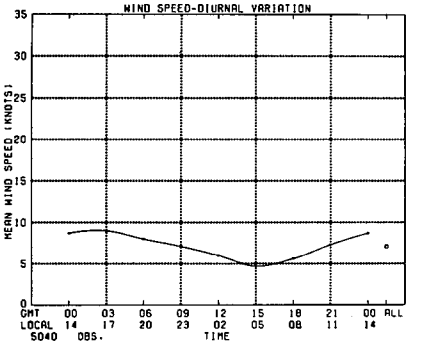
Homer



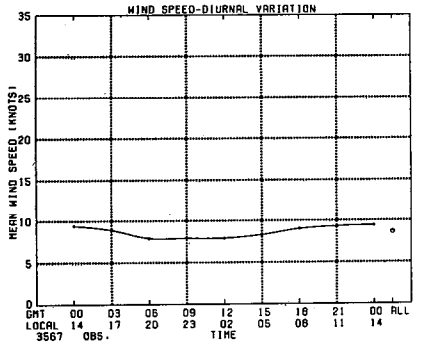
Kenai



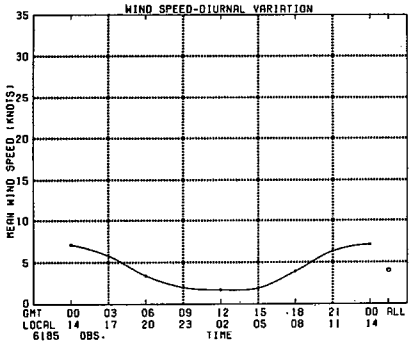
Anchorage



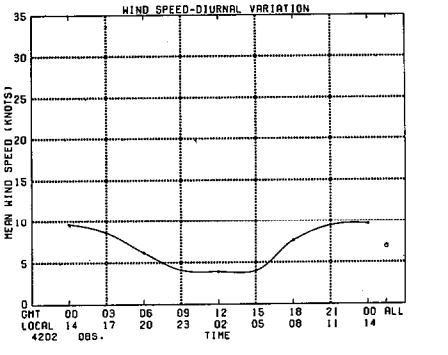
Middleton Island



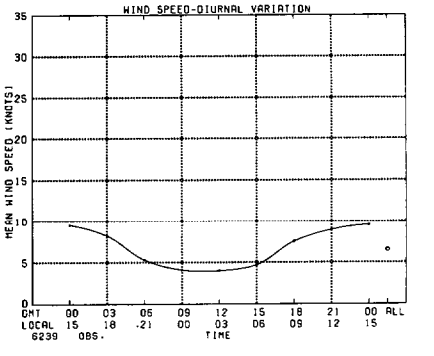
Cordova



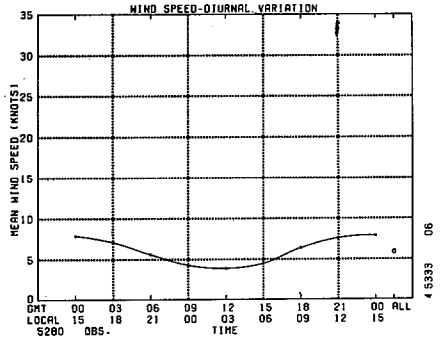
Yakataga



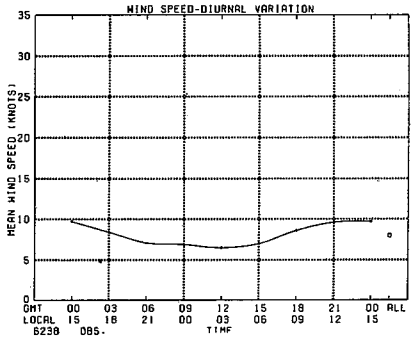
Yakutat



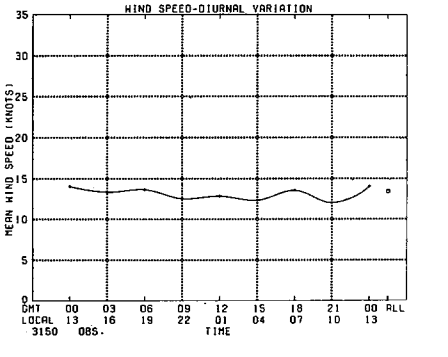
Sitka



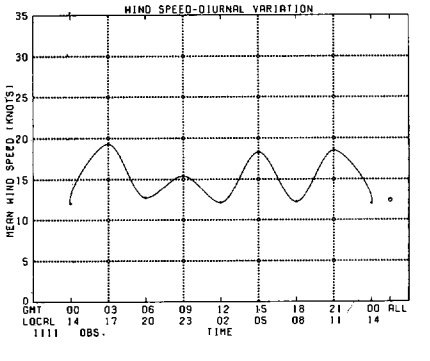
Annette

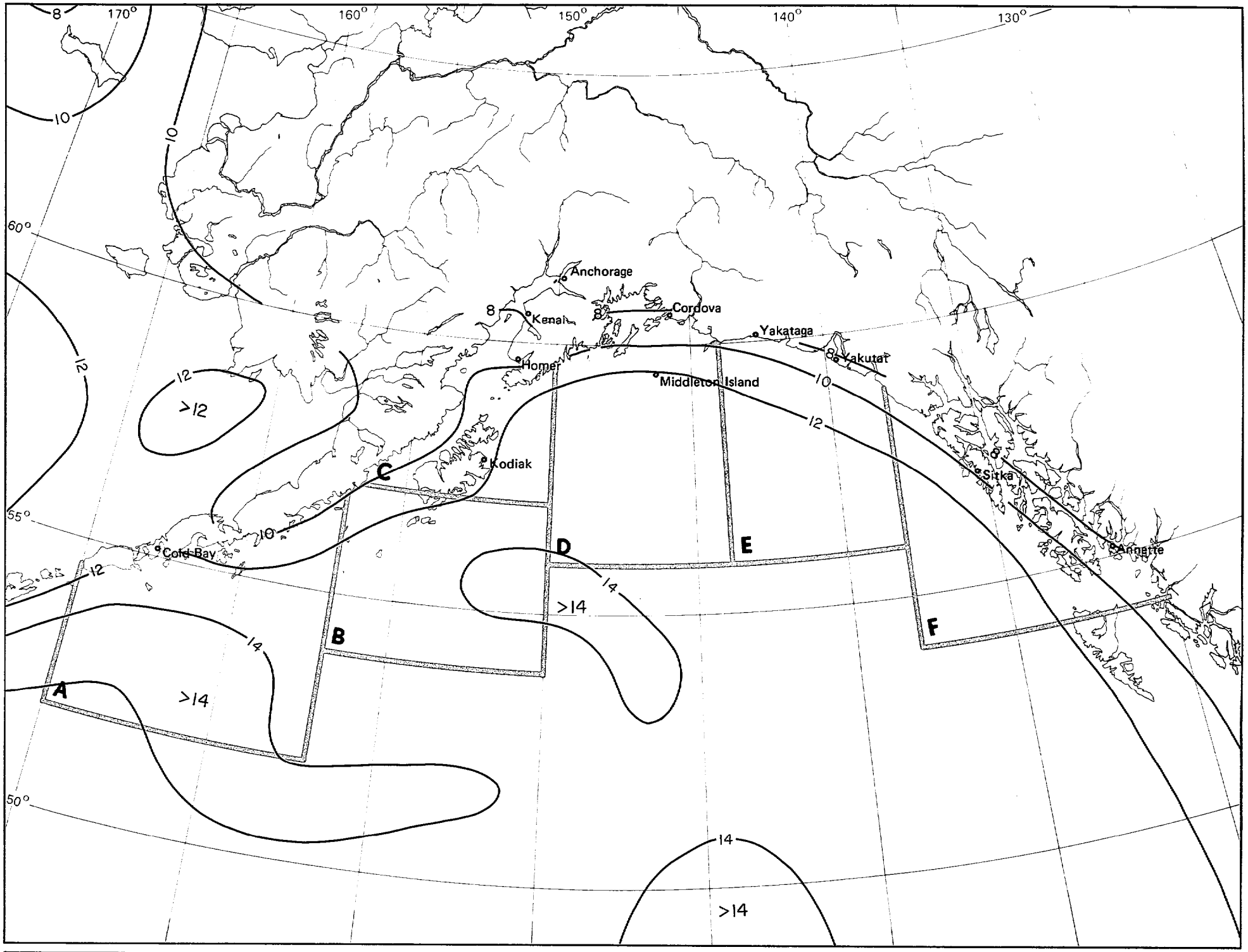


Marine Area A

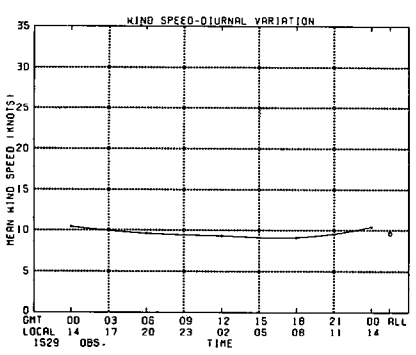


Marine Area B

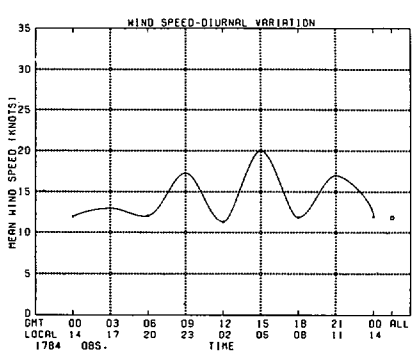




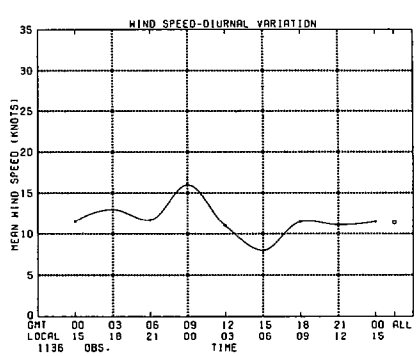
Marine Area C



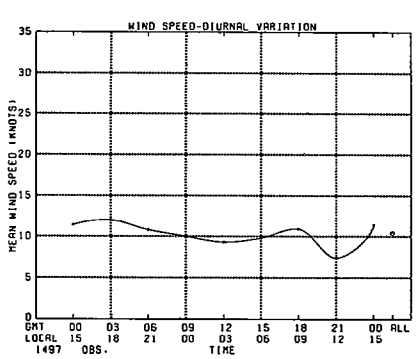
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	15
50<80	0	0	0	+	+	+
35<50	0	0	0	0	+	1
20<35	+	0	+	0	2	8
10<20	0	+	+	1	9	15
6<10	0	+	1	3	14	6
3<6	+	+	2	6	7	1
1.5<3	+	+	+	+	+	+
0<1.5	1	1	+	+	0	0

4537

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	4	35
50<80	+	+	0	0	+	2
35<50	0	0	+	0	1	3
20<35	+	0	+	+	2	11
10<20	0	0	+	2	5	6
6<10	0	+	1	2	5	3
3<6	+	1	2	4	3	1
1.5<3	+	+	+	+	+	+
0<1.5	2	2	1	1	+	0

6681

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	2	73
50<80	0	0	0	0	0	8
35<50	0	0	0	0	2	7
20<35	0	0	0	0	0	5
10<20	0	0	0	0	0	3
6<10	0	0	0	0	0	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	0	0	0	0	0	0

60

Kenai

Insufficient Data

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	+	2	63
50<80	0	0	0	0	+	9
35<50	0	0	0	+	+	7
20<35	0	0	0	+	1	7
10<20	0	0	+	+	1	5
6<10	0	0	0	+	1	1
3<6	0	0	+	+	1	+
1.5<3	0	0	0	+	+	+
0<1.5	0	0	0	+	+	0

4890

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	0	+	+	2	36
50<80	0	+	0	0	+	3
35<50	0	0	0	0	0	2
20<35	0	+	0	+	1	9
10<20	0	0	+	1	6	11
6<10	0	+	1	3	8	4
3<6	+	1	1	1	1	+
1.5<3	0	+	+	+	0	0
0<1.5	2	2	2	1	+	0

1406

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	31
50<80	0	0	0	0	+	2
35<50	0	0	0	0	1	4
20<35	0	+	+	+	7	19
10<20	0	+	+	3	8	10
6<10	+	+	1	2	3	1
3<6	+	+	+	1	1	+
1.5<3	0	0	0	+	0	+
0<1.5	1	+	1	+	0	0

4441

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	1	32
50<80	0	0	0	0	0	8
35<50	0	0	0	0	2	12
20<35	0	0	0	2	4	14
10<20	0	0	0	3	7	3
6<10	0	0	1	2	2	1
3<6	0	1	+	+	+	+
1.5<3	0	0	0	0	0	0
0<1.5	1	2	1	0	+	0

237

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	+	+	1	2	28
50<80	0	0	+	+	+	2
35<50	0	0	0	+	+	3
20<35	0	+	+	+	2	10
10<20	0	+	+	2	8	14
6<10	0	+	1	3	7	5
3<6	+	1	2	2	3	1
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	+

6216

Sitka

Insufficient Data

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	41
50<80	0	0	0	0	+	3
35<50	0	0	0	0	+	5
20<35	+	0	0	+	1	13
10<20	0	+	+	1	4	12
6<10	+	+	+	2	3	4
3<6	+	+	1	2	2	1
1.5<3	0	+	+	+	+	+
0<1.5	1	+	+	+	+	+

6210

Marine Area A

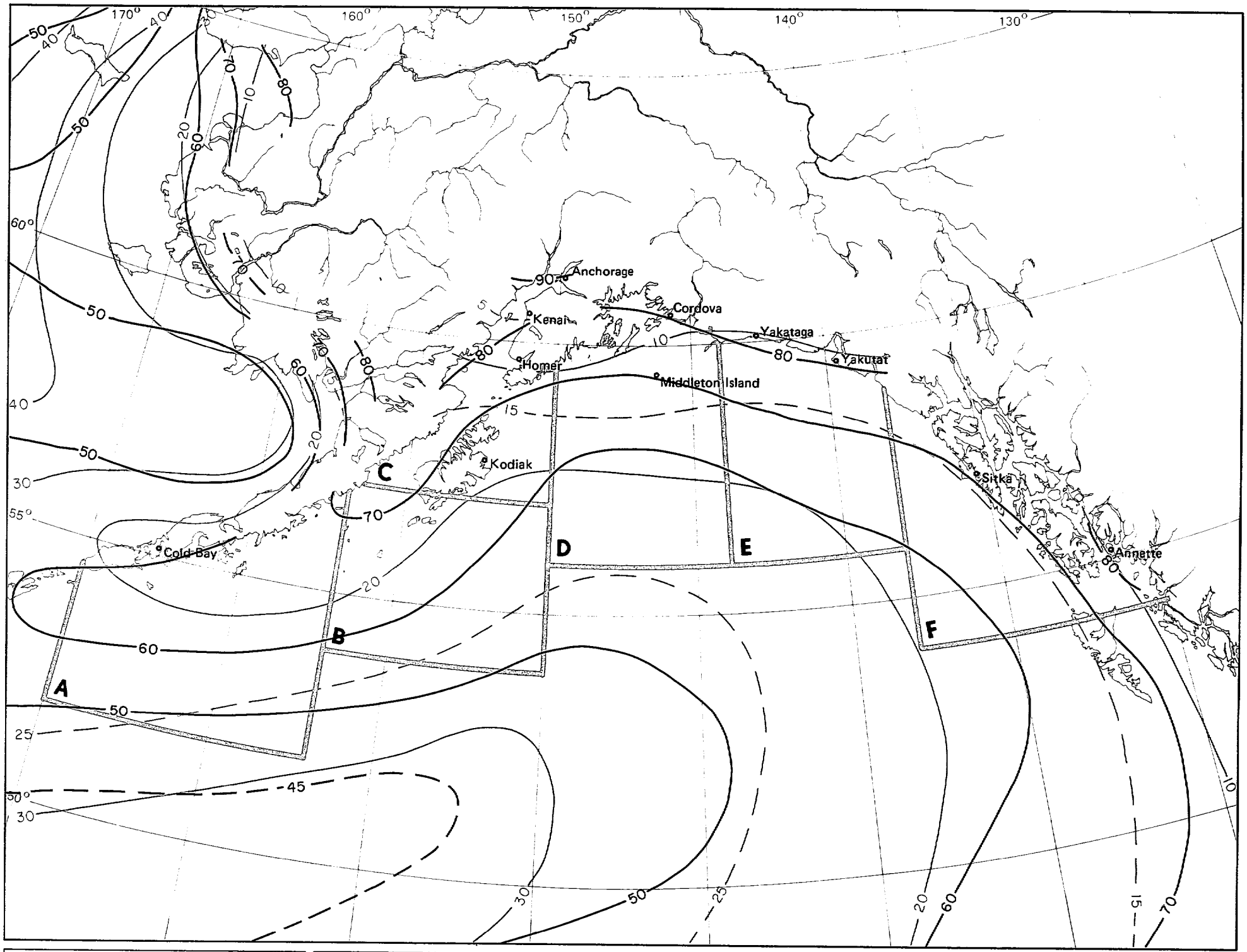
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	3	19
50<80	0	0	0	0	+	1
35<50	+	0	0	+	1	2
20<35	0	+	+	1	4	8
10<20	+	+	1	3	8	13
6<10	+	+	+	3	6	7
3<6	+	+	+	1	2	2
1.5<3	0	+	+	+	+	+
0<1.5	8	1	1	1	1	+

2547

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	5	21
50<80	+	+	0	+	+	2
35<50	0	0	0	+	2	3
20<35	+	0	+	1	6	12
10<20	+	0	+	2	8	8
6<10	+	+	+	2	4	5
3<6	+	0	1	1	3	1
1.5<3	+	+	+	+	+	+
0<1.5	7	1	.1	1	1	+

936



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	32
50<80	0	0	0	0	+	3
35<50	0	0	0	+	1	5
20<35	0	0	+	+	3	6
10<20	+	+	+	1	5	13
6<10	0	+	+	2	5	6
3<6	0	0	1	1	2	2
1.5<3	0	0	+	+	1	+
0<1.5	1	1	2	1	1	+

1358

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	2	24
50<80	0	0	0	0	+	2
35<50	0	+	0	0	+	2
20<35	+	+	+	1	3	9
10<20	0	+	+	1	5	17
6<10	+	+	+	2	6	10
3<6	0	+	+	1	2	2
1.5<3	0	0	+	+	1	1
0<1.5	3	1	1	1	1	+

1538

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	1	24
50<80	0	0	0	0	+	2
35<50	0	0	0	0	+	4
20<35	0	0	0	+	2	13
10<20	+	+	+	1	4	18
6<10	+	0	+	1	4	11
3<6	0	+	+	1	2	3
1.5<3	0	0	+	1	1	1
0<1.5	2	+	+	1	1	1

898

Marine Area F

LOW CLOUD CEILING	VISIBILITY					
	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	2	24
50<80	0	0	0	+	+	4
35<50	0	0	0	1	1	3
20<35	0	+	+	1	2	10
10<20	0	1	+	1	5	16
6<10	0	1	0	2	5	6
3<6	+	1	+	+	1	3
1.5<3	+	+	+	1	1	+
0<1.5	2	1	+	1	1	+

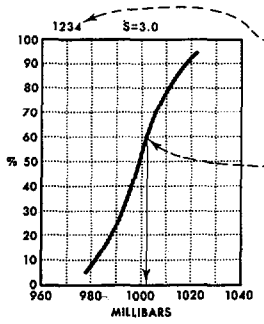
1252

12 Low cloud ceiling and visibility thresholds

June

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

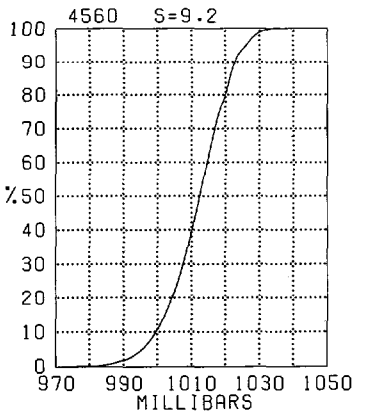
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

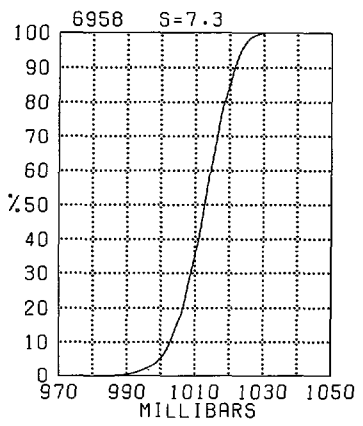
BLACK LINE - *Mean sea level pressure (millibars)*

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

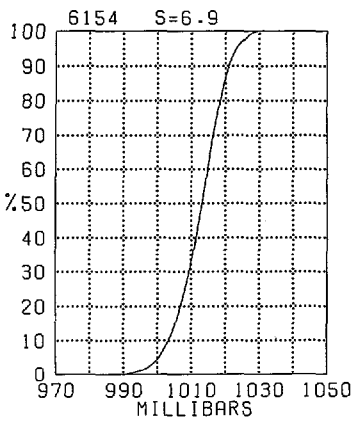
Cold Bay



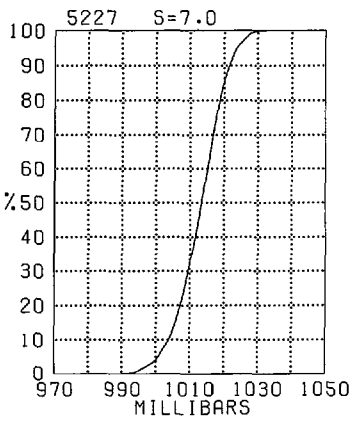
Kodiak



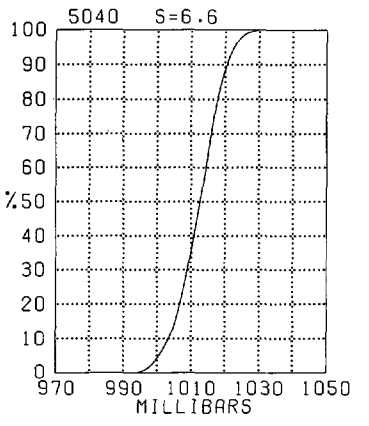
Homer



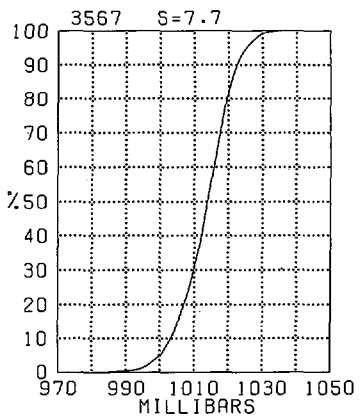
Kenai



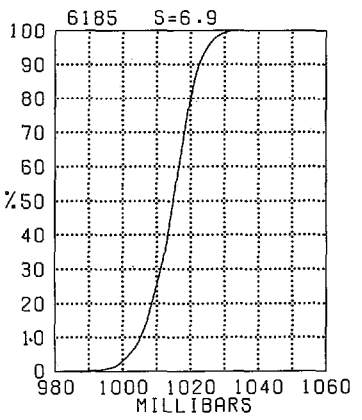
Anchorage



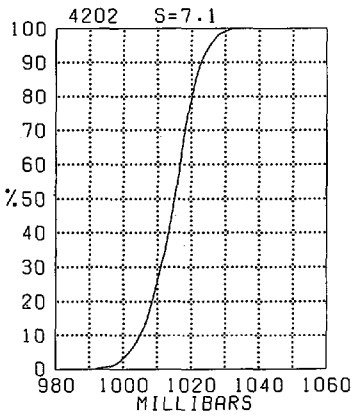
Middleton Island



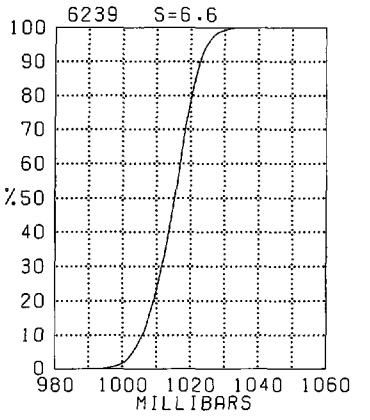
Cordova



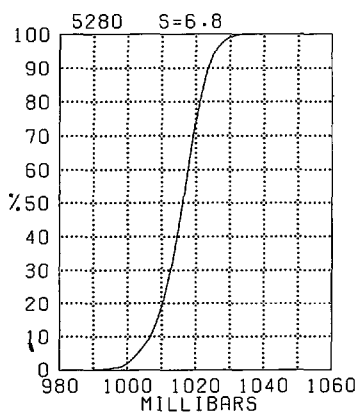
Yakataga



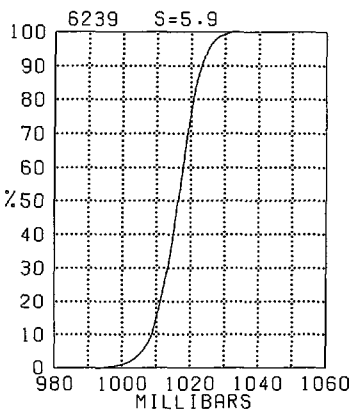
Yakutat



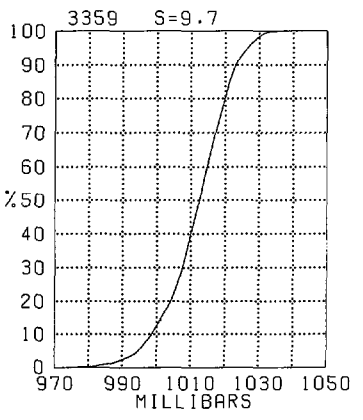
Sitka



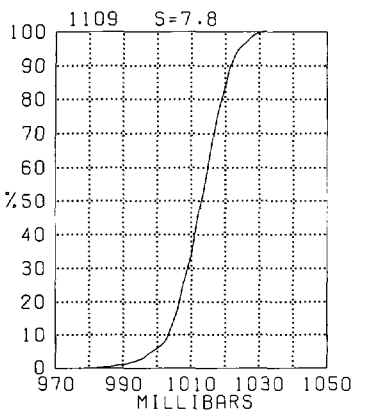
Annette

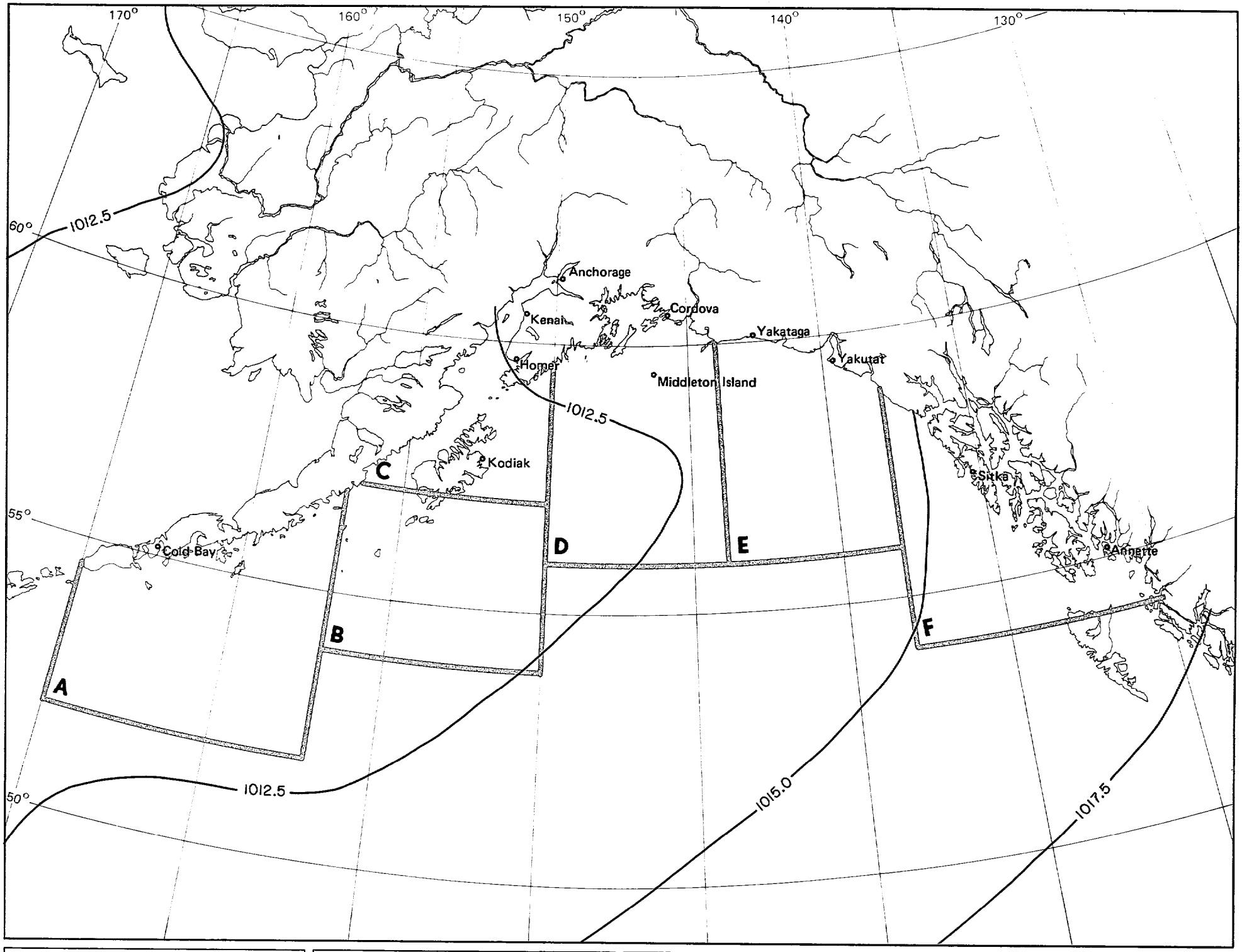


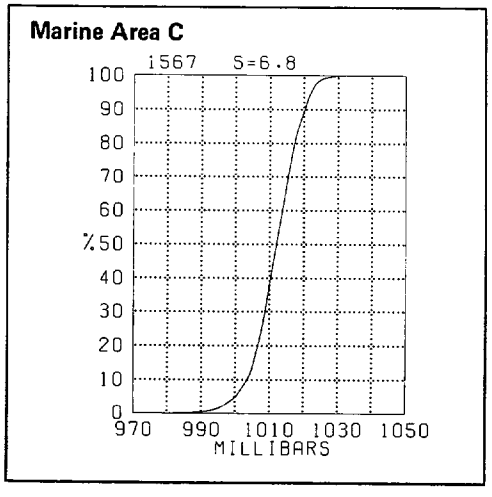
Marine Area A

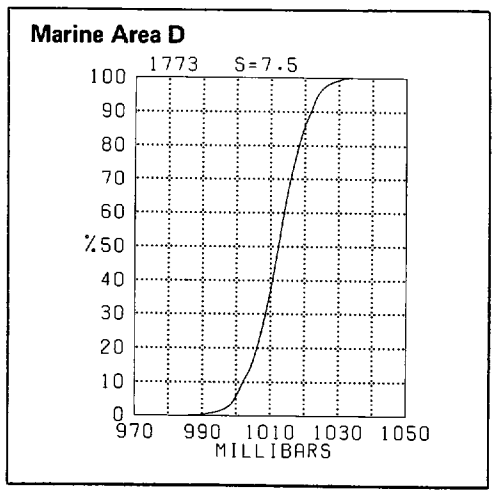


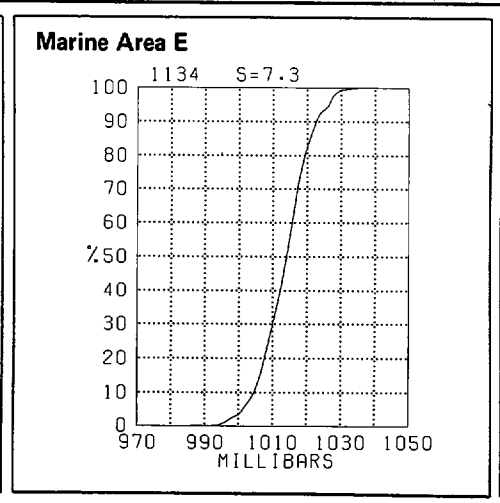
Marine Area B

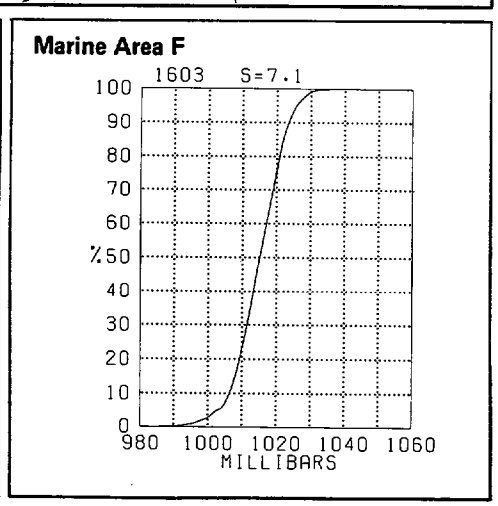










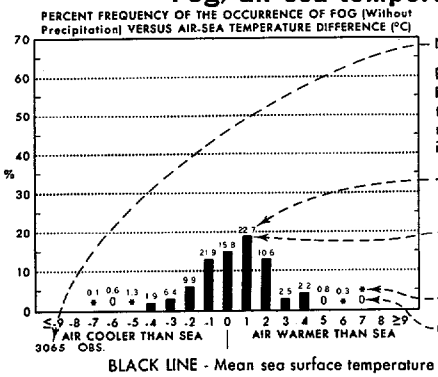


13 Mean sea level pressure

June

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

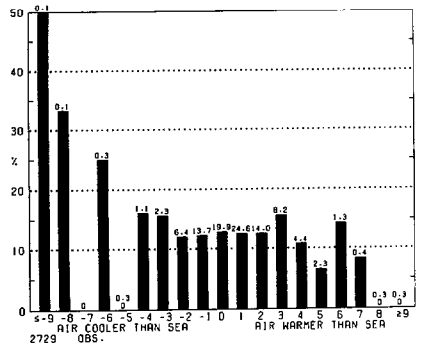
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

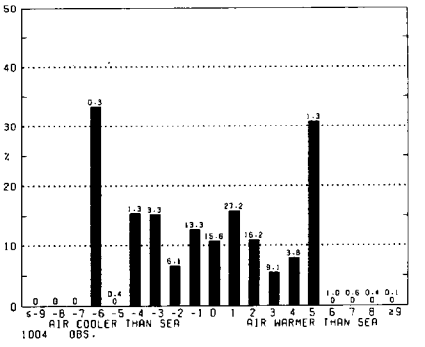
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

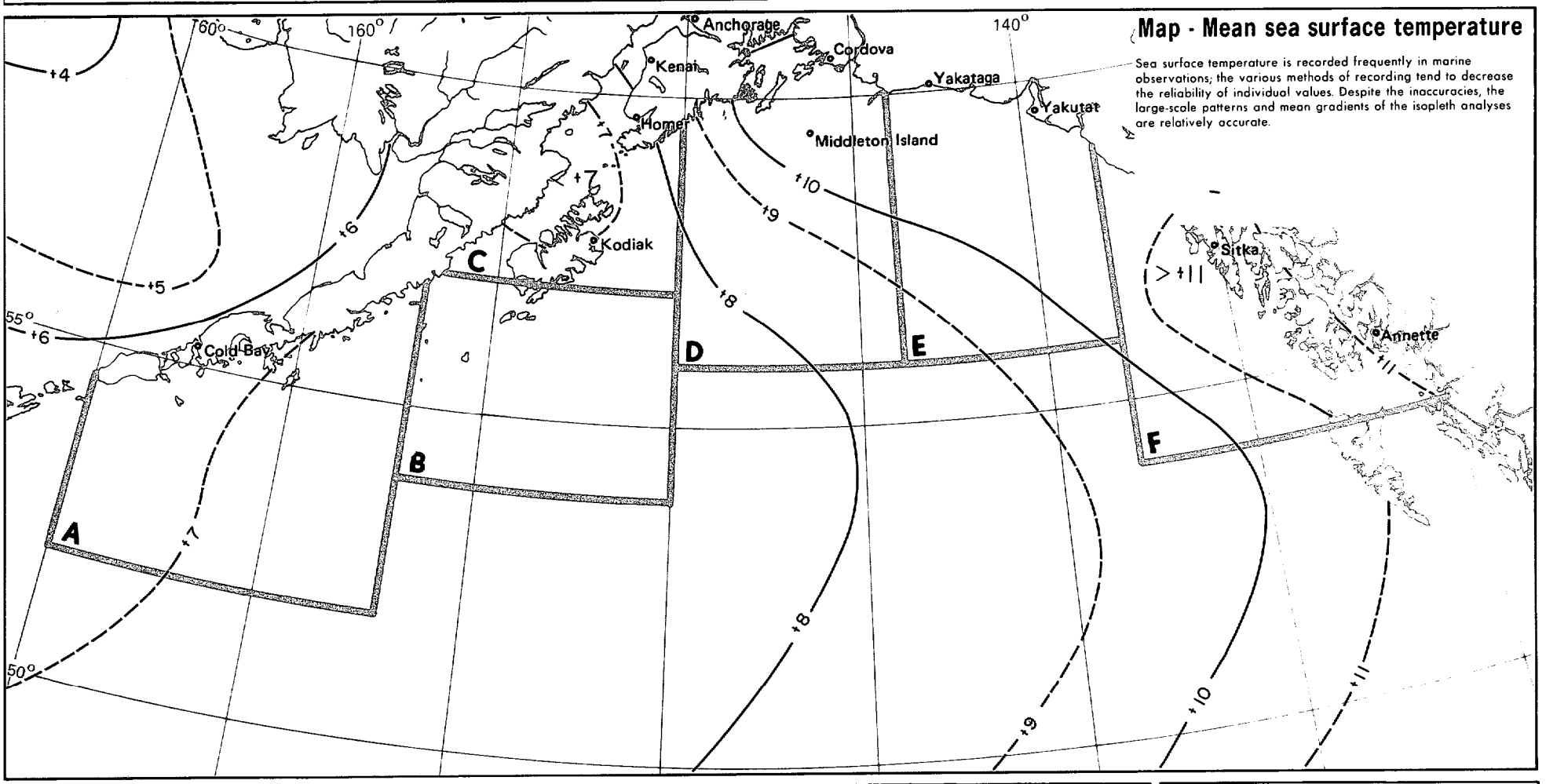


Marine Area B

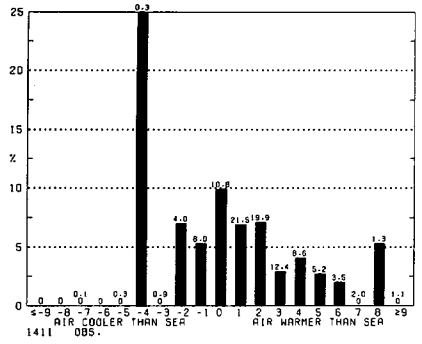


Map - Mean sea surface temperature

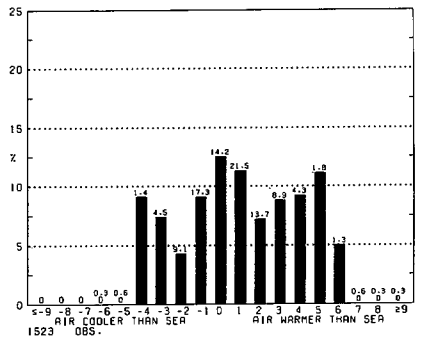
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



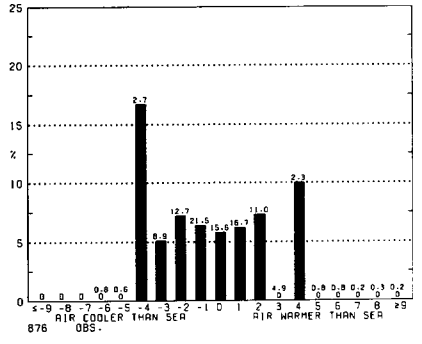
Marine Area C



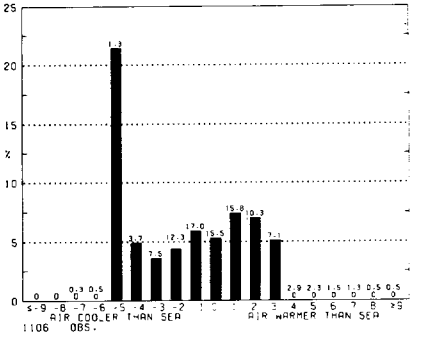
Marine Area D



Marine Area E



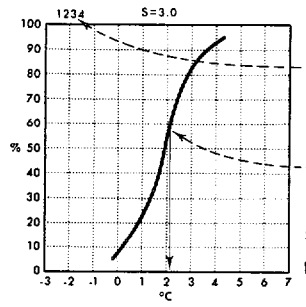
Marine Area F



14 Fog/air-sea temperature difference
Mean sea surface temperature

Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

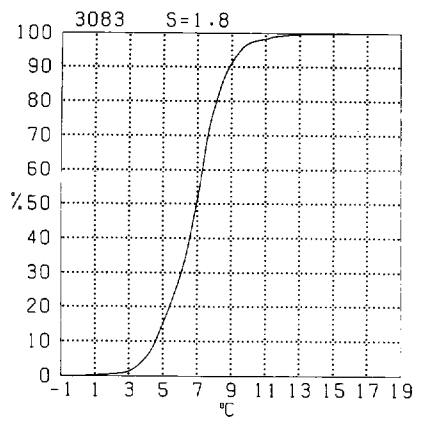
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

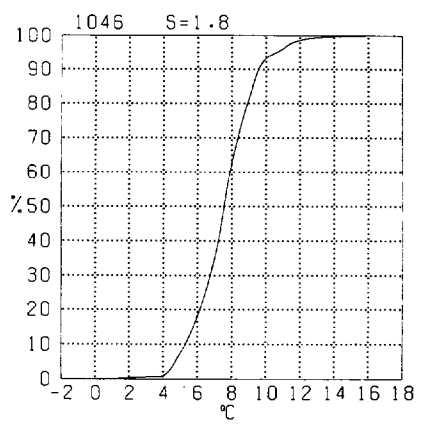
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

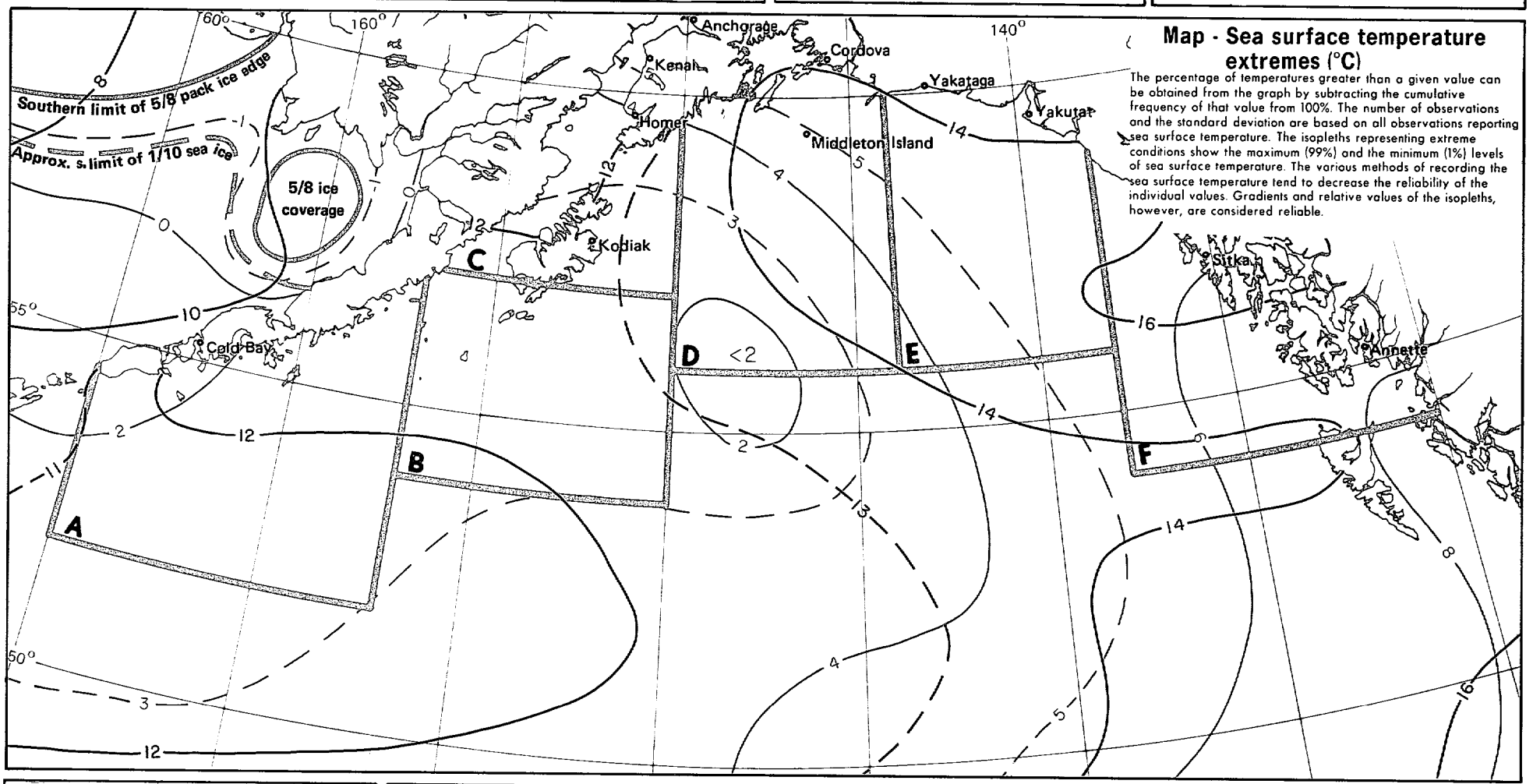
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

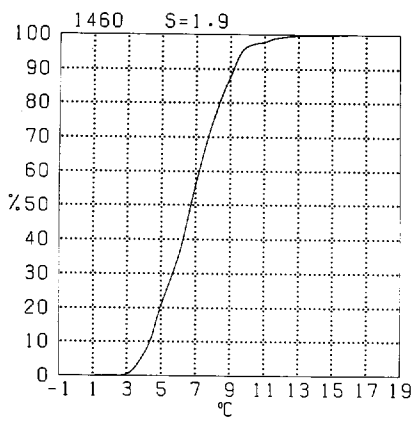




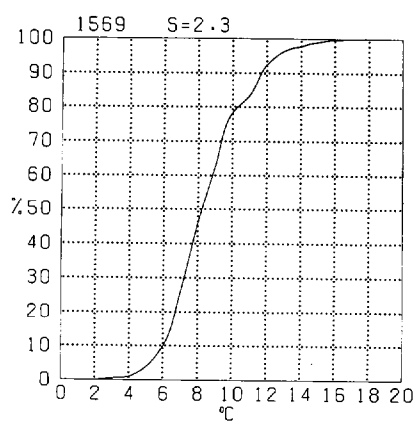
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

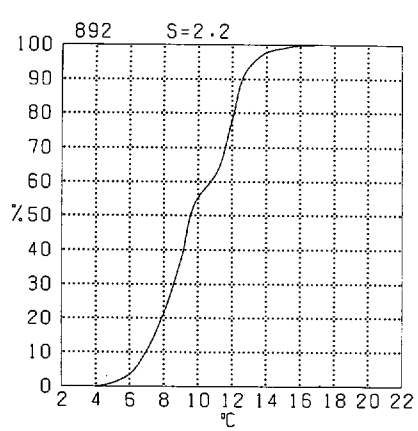
Marine Area C



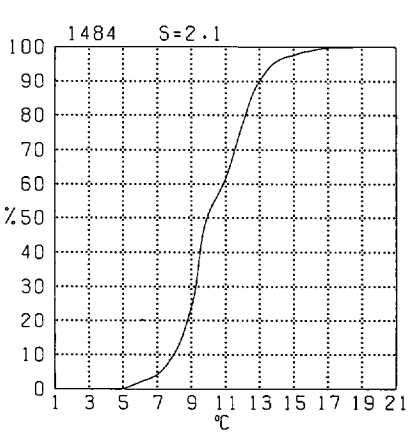
Marine Area D



Marine Area E



Marine Area F

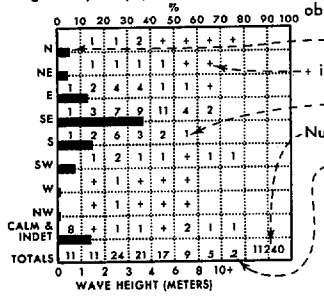


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



(5% of all waves were from the N.)

+ indicates <.5% but >0.

(1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

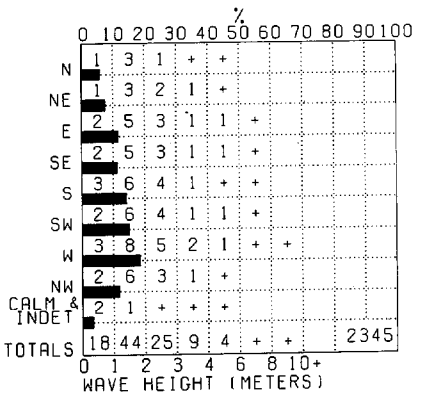
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

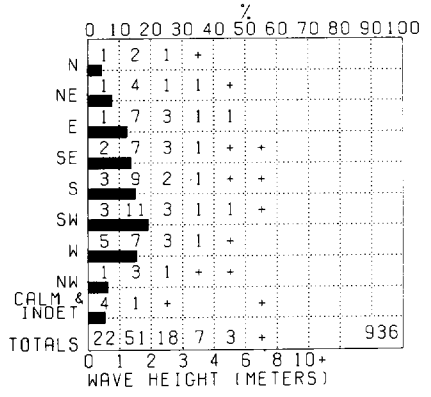
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

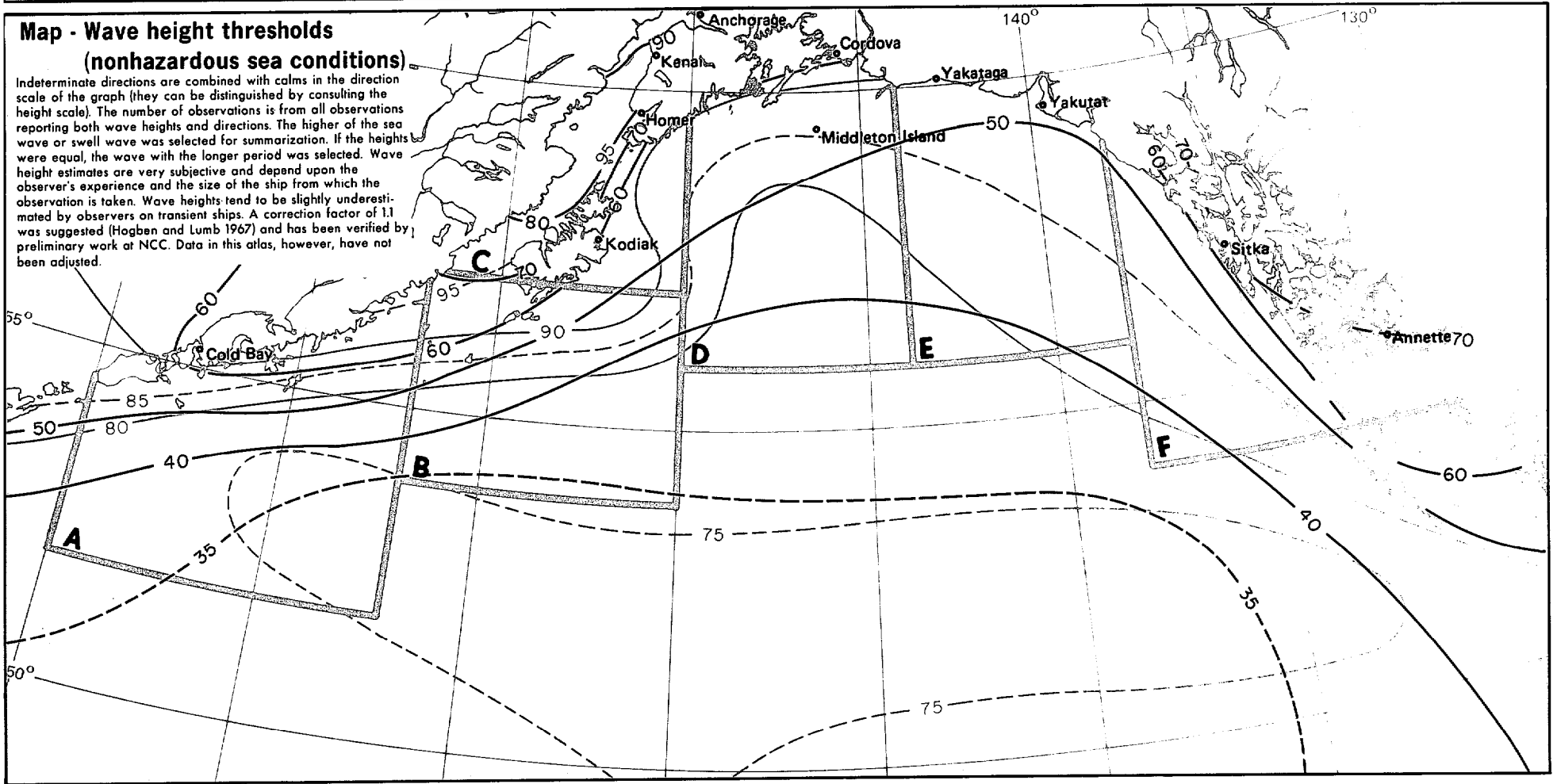


Marine Area B

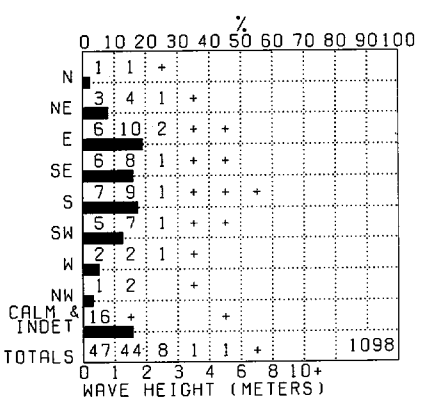


Map - Wave height thresholds (nonhazardous sea conditions)

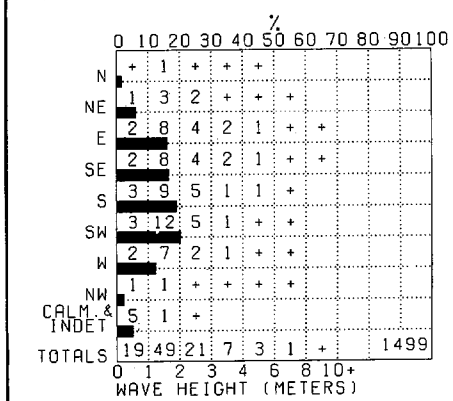
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



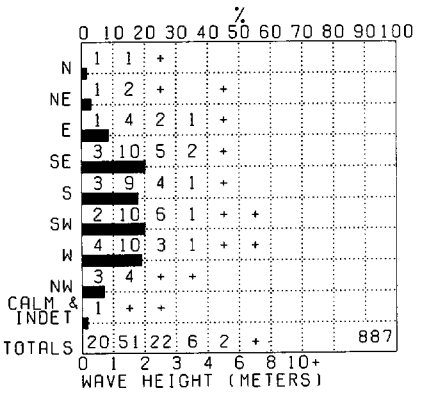
Marine Area C



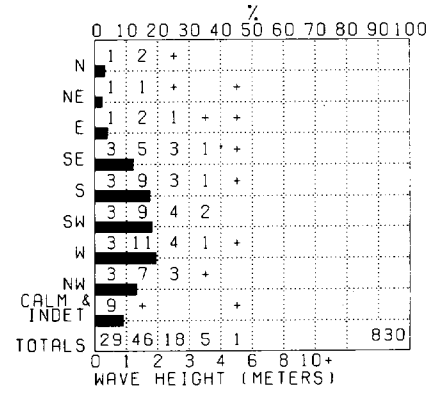
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	13	2	1	+	0	0	4
1-1.5	21	13	5	1	1	+	3
2-2.5	5	8	7	2	+	+	2
3-3.5	1	3	2	1	+	+	1
4-5.5	+	1	1	1	+	+	+
6-7.5	0	+	+	0	+	+	0
8-9.5	0	+	0	0	0	0	0
≥10	0	0	0	0	0	0	0

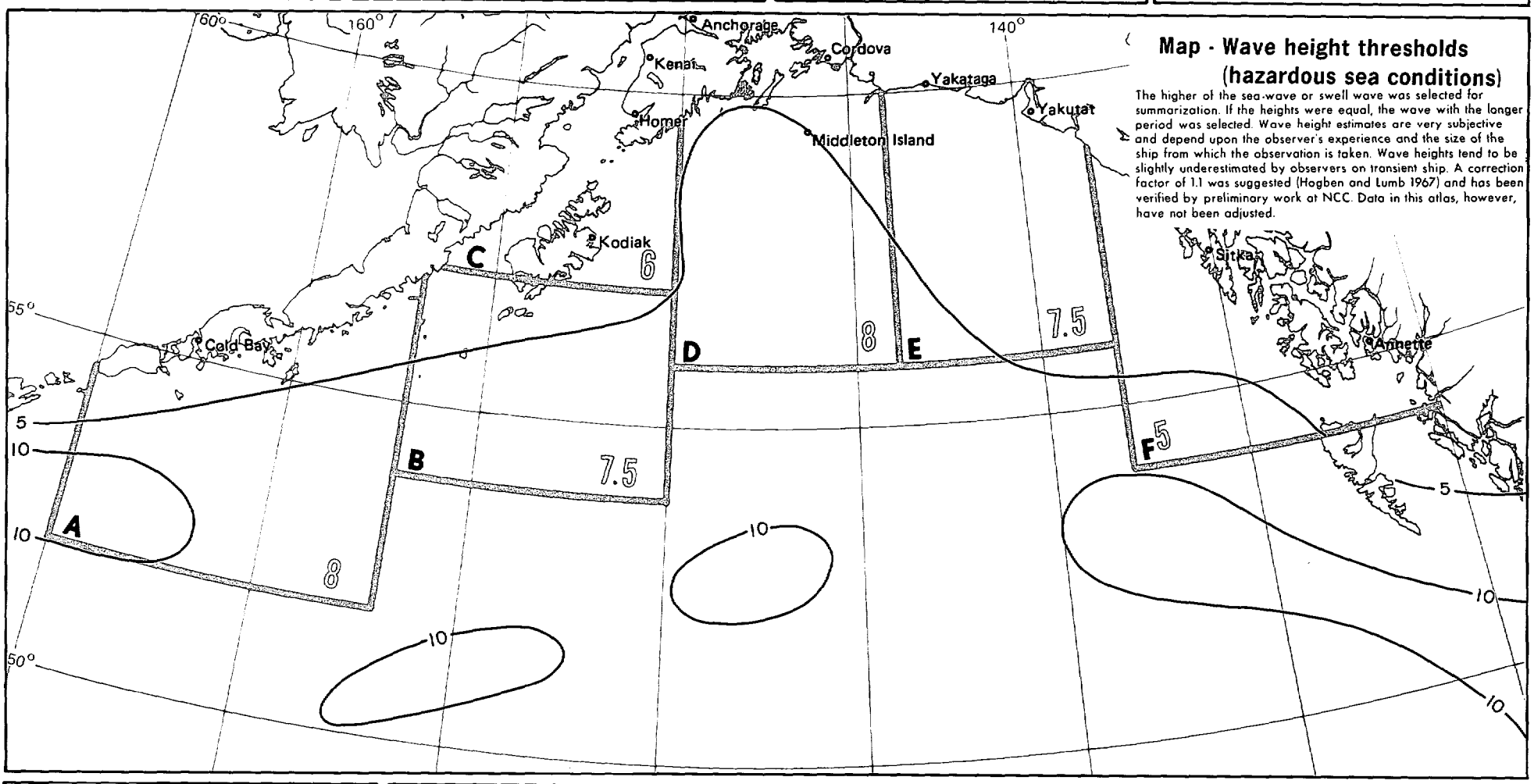
2415

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	2	+	+	0	0	6
1-1.5	20	18	5	1	1	+	3
2-2.5	3	7	4	1	1	0	1
3-3.5	1	2	1	1	+	0	1
4-5.5	+	1	1	+	+	+	+
6-7.5	0	+	0	0	0	+	+
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

968



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea-wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	37	2	1	2	0	0	14
1-1.5	23	7	2	2	1	+	1
2-2.5	2	2	2	+	+	+	+
3-3.5	+	+	+	0	0	+	0
4-5.5	+	+	0	0	+	+	+
6-7.5	0	0	+	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1321

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	13	2	1	1	0	0	5
1-1.5	24	14	6	2	2	+	1
2-2.5	5	7	4	2	1	1	1
3-3.5	1	3	2	1	+	+	+
4-5.5	+	1	+	1	+	0	0
6-7.5	0	+	0	+	+	+	0
8-9.5	0	0	+	0	0	0	0
≥10	0	0	0	0	0	0	0

1542

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	3	1	1	0	0	3
1-1.5	21	16	7	2	2	+	1
2-2.5	5	8	4	3	+	1	1
3-3.5	1	2	2	1	+	+	0
4-5.5	+	+	+	1	+	+	0
6-7.5	0	+	0	0	0	+	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

930

Marine Area F

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	2	1	+	0	0	11
1-1.5	18	13	7	2	1	+	1
2-2.5	4	6	4	1	1	+	+
3-3.5	1	1	2	1	+	+	+
4-5.5	+	+	1	+	0	+	+
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

894

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)

Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

177 — Statistics for this rose are based on 177 twelve hour movements.

83 — 83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1 66-12 74.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)

(Frequency) 100% 80% 60% 40% 20%

50 40 30 20 10 (vector mean speed knots)

180° 170° 160° 150° 140° 130°

70° 60° 50°

08 13 / 008 004 / 23

19 / 008 004 / 19

27 / 008 004 / 22 / 11

26 / 006 002 / 27 / 12 12

16 / 003 002 / 23

18 11 15 / 027 011 / 18 11 15

13 25 14 / 013 007 / 09 12 / 10

10 11 16 / 016 010 044 / 10 19 / 09

08 09 10 / 018 012 / 12 22

08 10 / 037 018 / 20 / 15

11 13 17 / 098 027 / 11 17 / 11 11 08

18 18 17 / 083 030 / 12 16 / 13 10 17

12 14 16 / 093 034 / 10 17 / 08 09 14

14 11 14 / 125 038 / 07 14 / 09 07 10

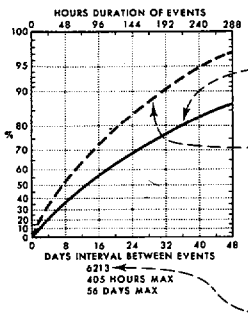
08 11 / 063 027 / 09 12 / 09 05 14

18 Low pressure center movement

Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

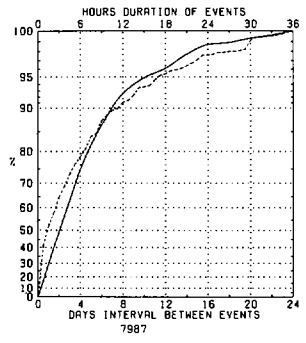
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

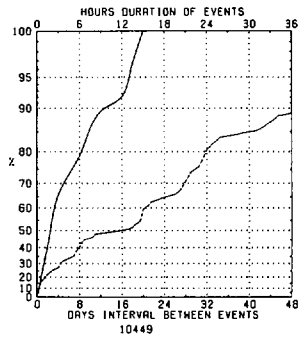
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

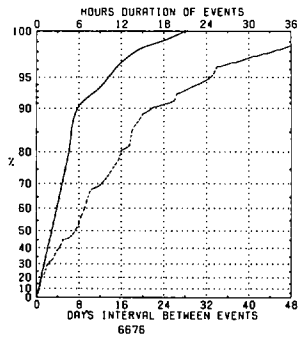
Kodiak



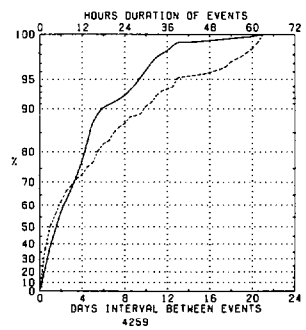
Homer



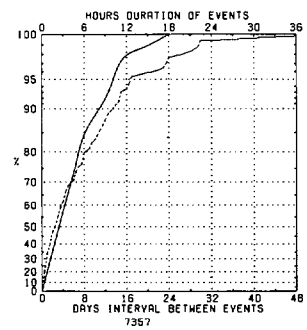
Kenai



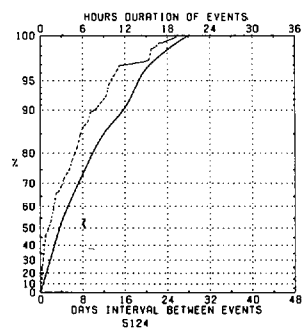
Middleton Island



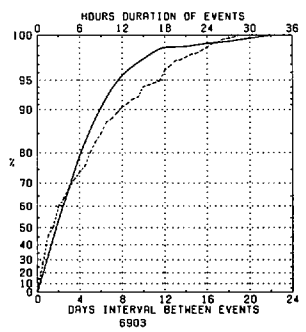
Cordova



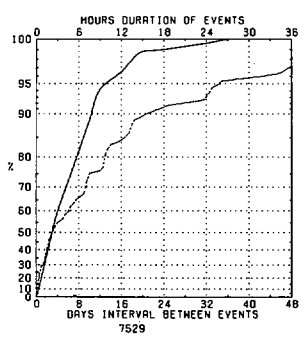
Yakataga



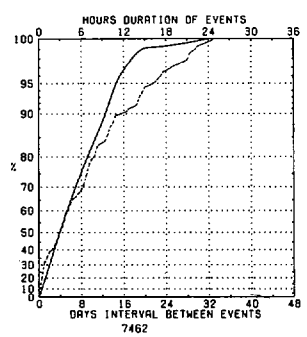
Yakutat



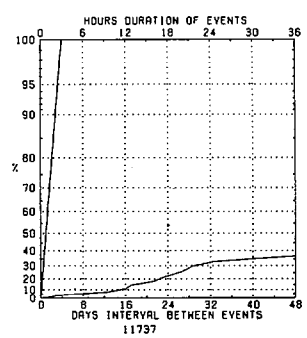
Sitka



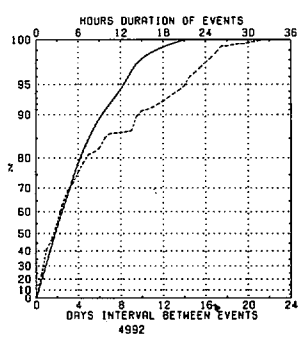
Annette



Anchorage



Cold Bay

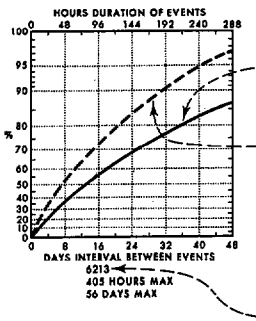


19 Persistence of visibility < 2 n. mi.

Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

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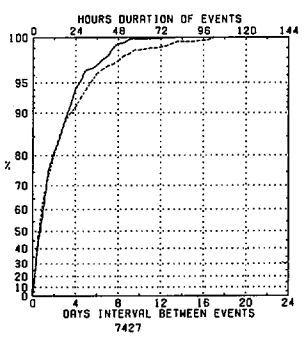
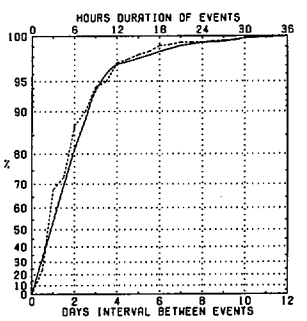
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

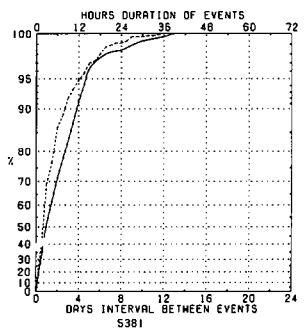
Kodiak



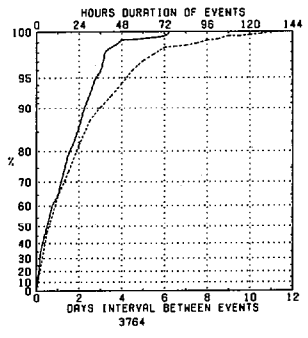
Homer



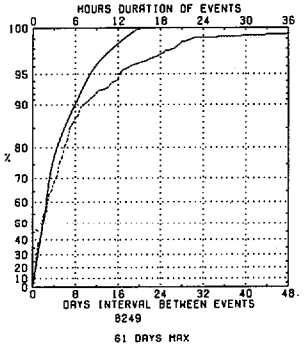
Kenai



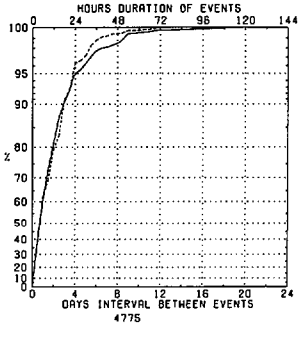
Middleton Island



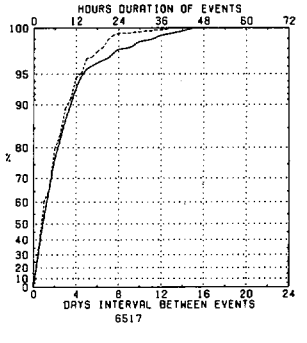
Cordova



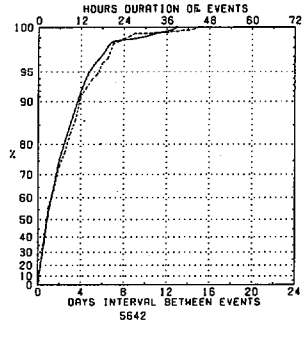
Yakataga



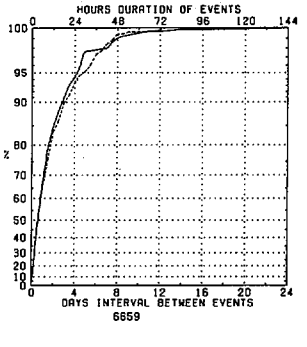
Yakutat



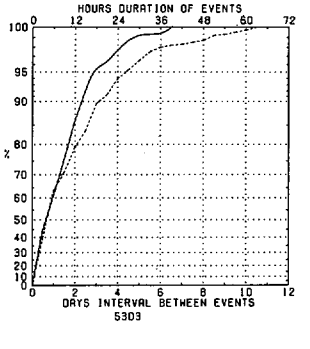
Sitka



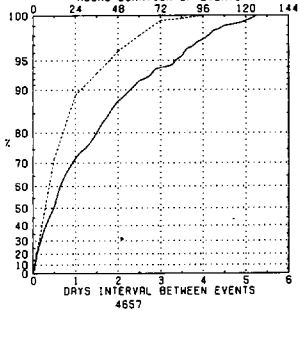
Annette



Anchorage

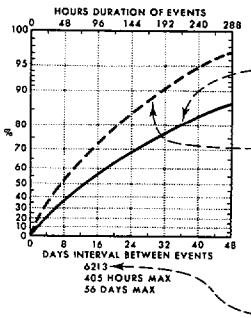


Cold Bay



Legend

Persistence of wind ≥20 kts.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

---(80% *of the events had a duration ≤216 hours.*)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

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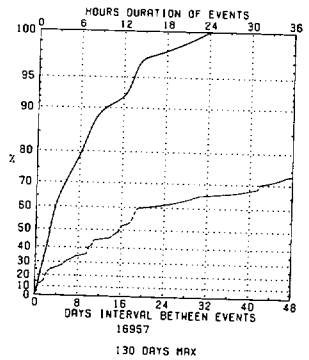
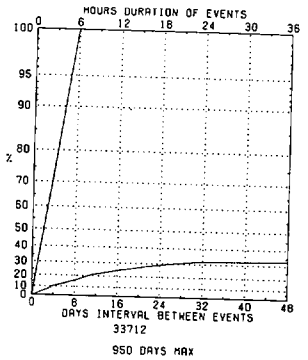
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

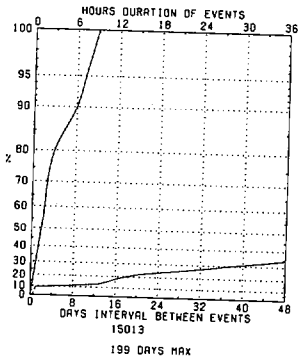
Kodiak



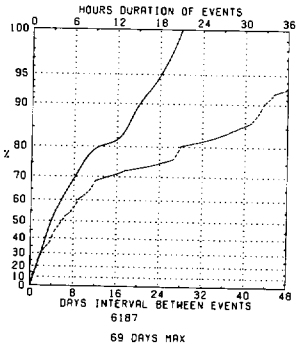
Homer



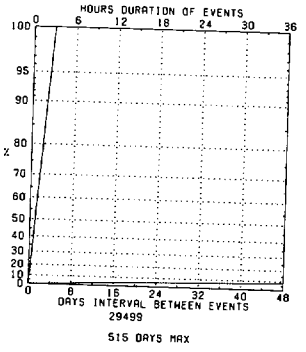
Kenai



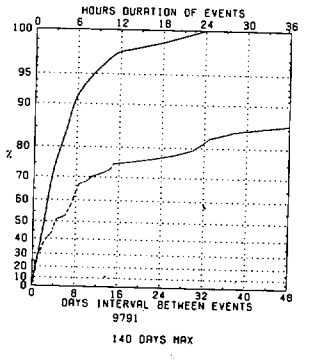
Middleton Island



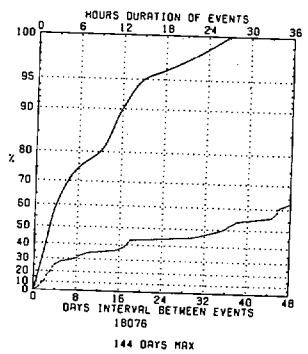
Cordova



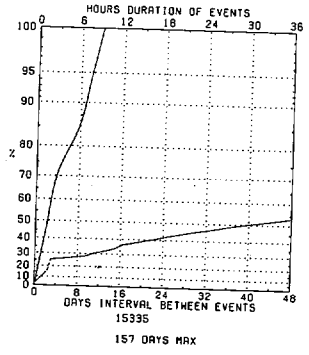
Yakataga



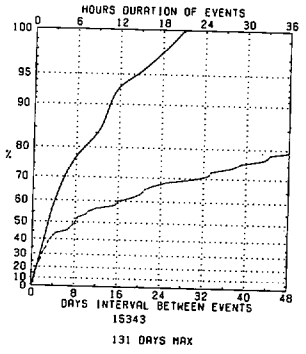
Yakutat



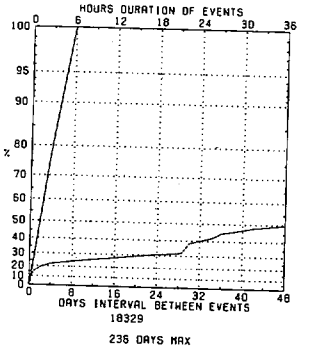
Sitka



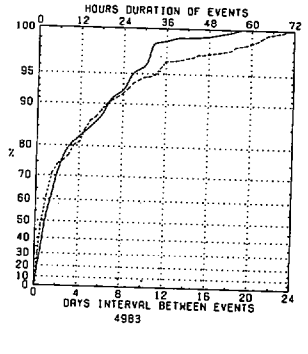
Annette



Anchorage



Cold Bay

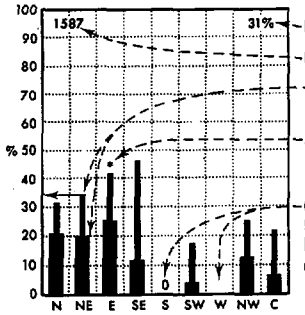


Legend

Precipitation/wind direction

% Pcpn. { % Liquid / % Snow

Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.



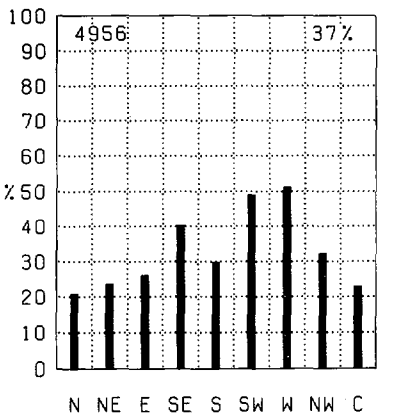
- Percentage of present weather observations reporting precipitation.
- Number of observations.
- *(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)*
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

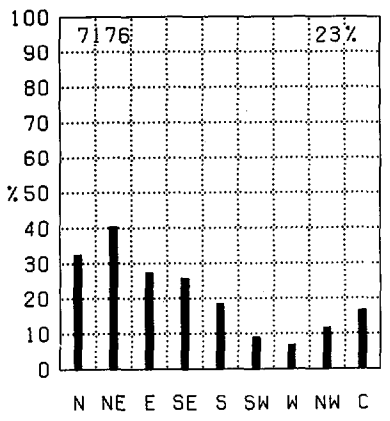
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

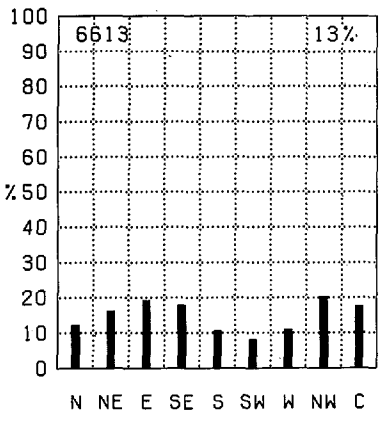
Cold Bay



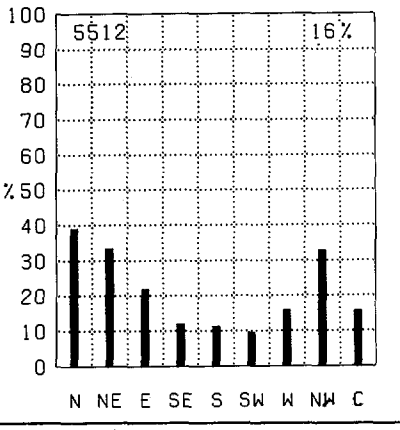
Kodiak



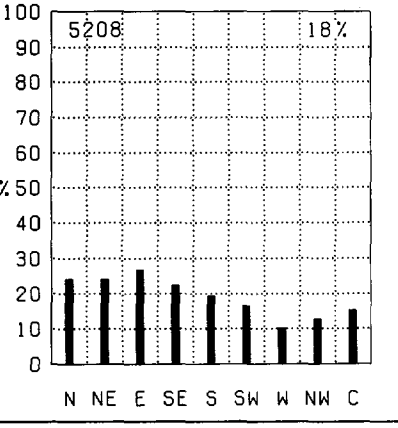
Homer



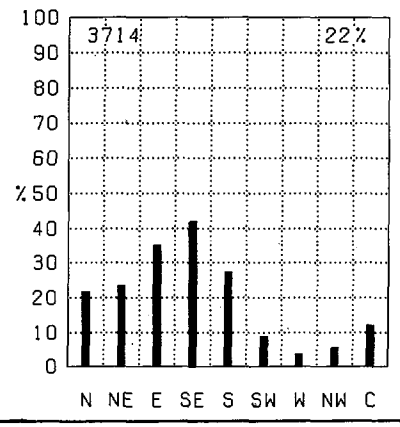
Kenai



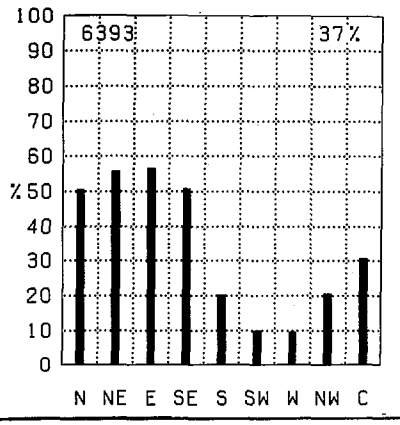
Anchorage



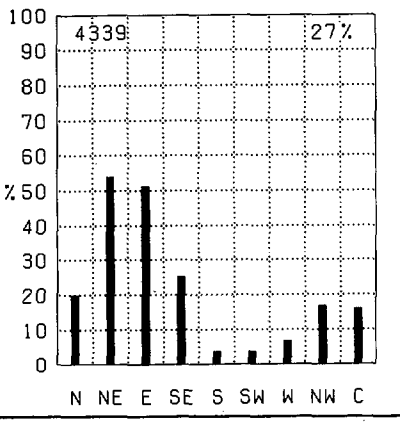
Middleton Island



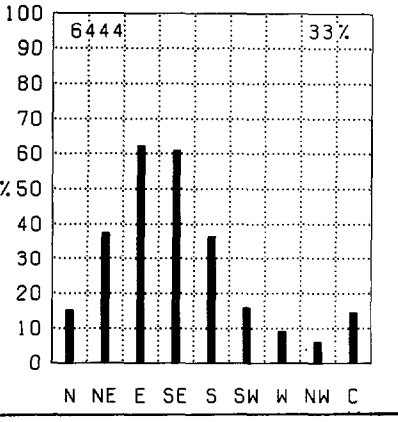
Cordova



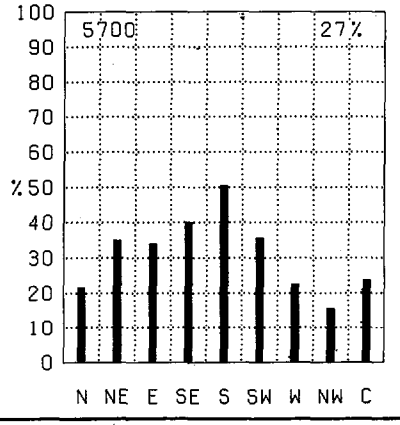
Yakataga



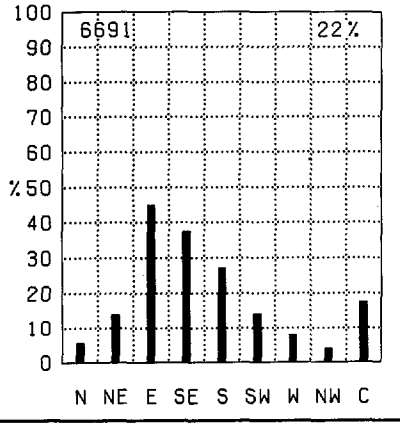
Yakutat



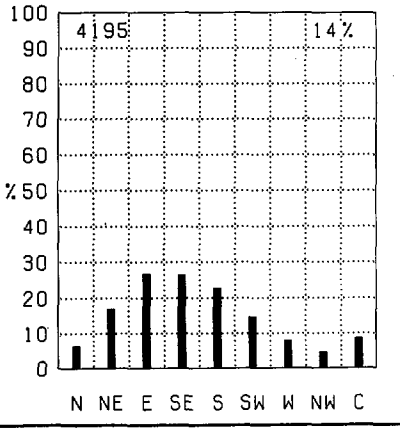
Sitka



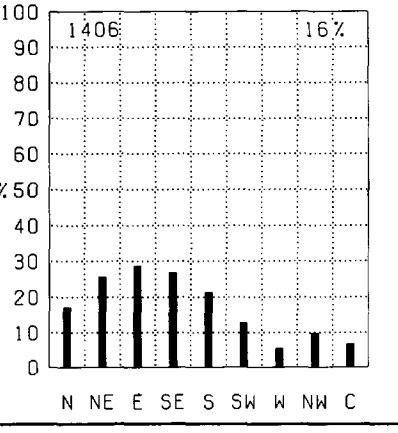
Annette

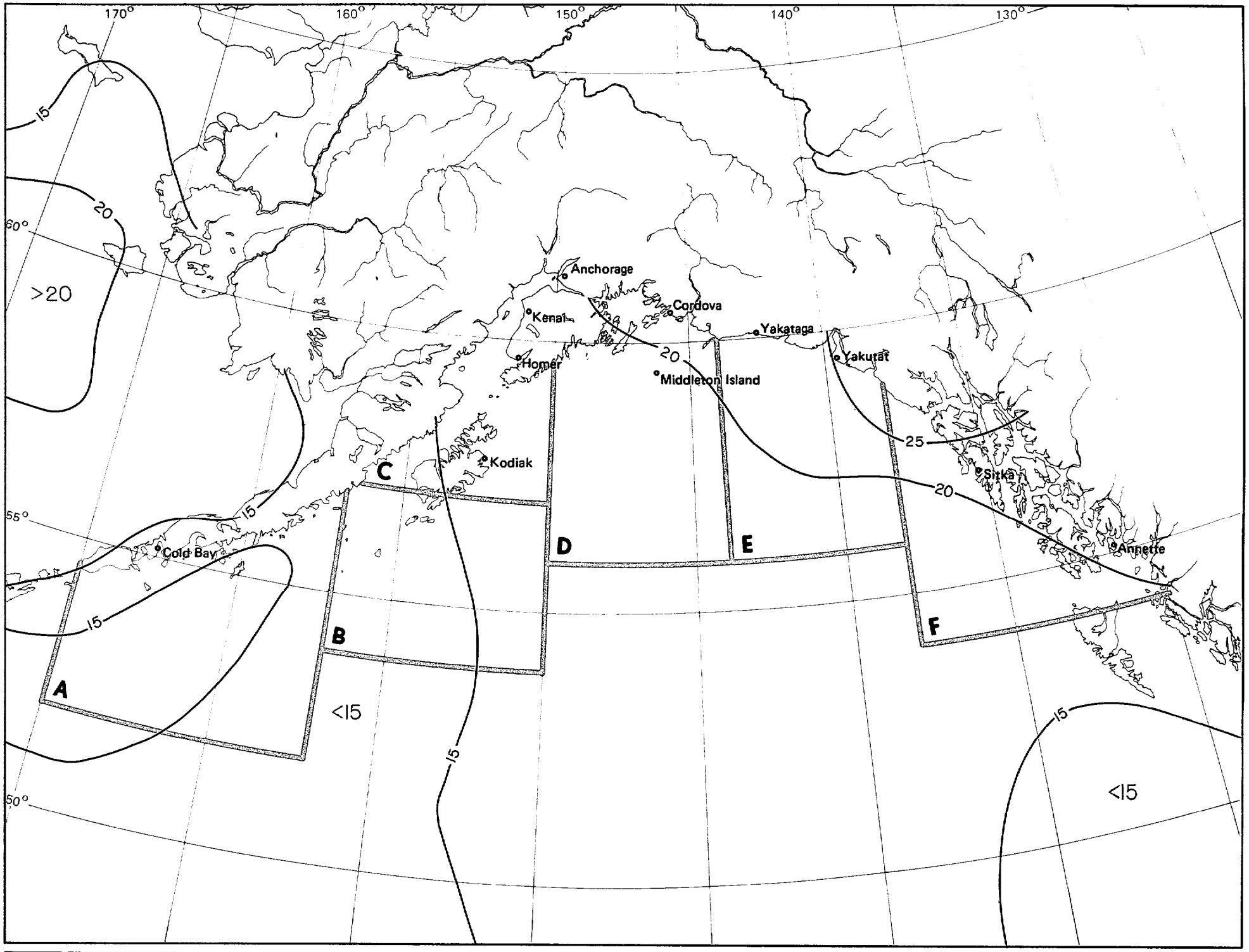


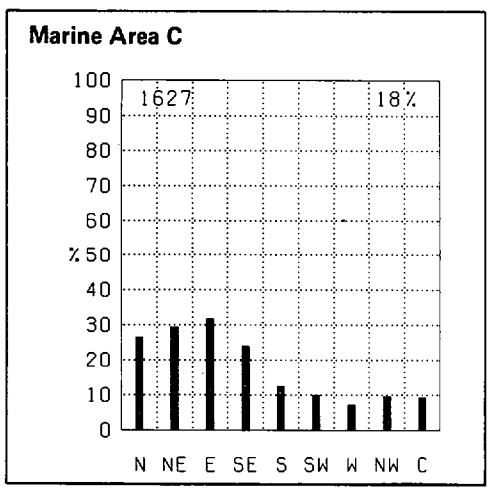
Marine Area A

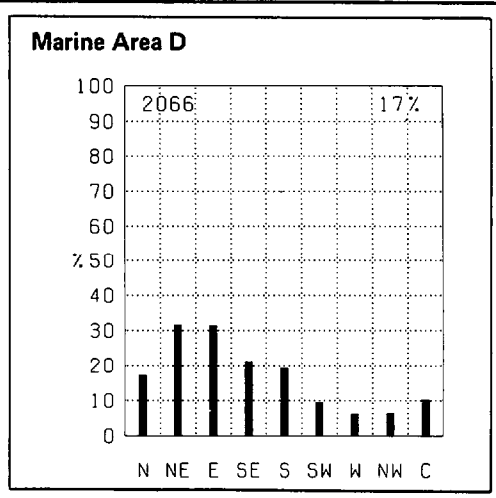


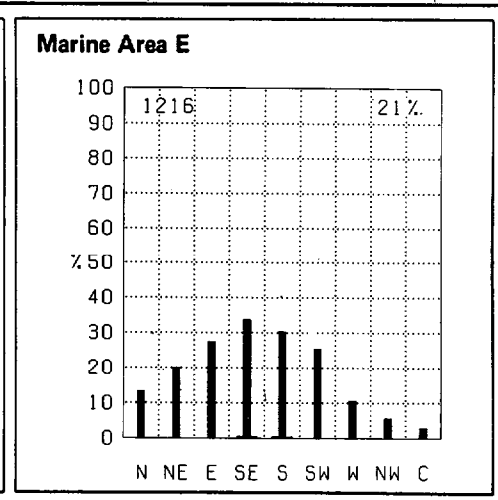
Marine Area B

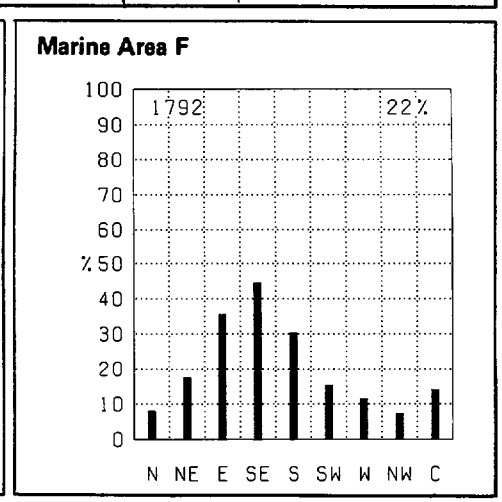










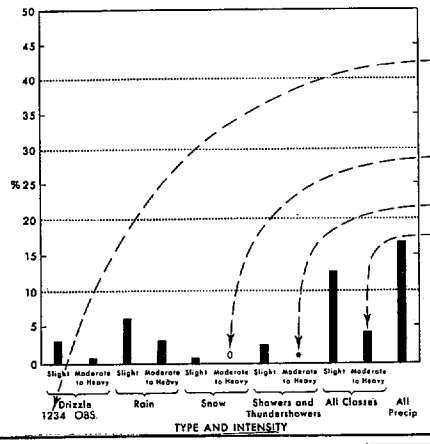


1 Precipitation

July

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

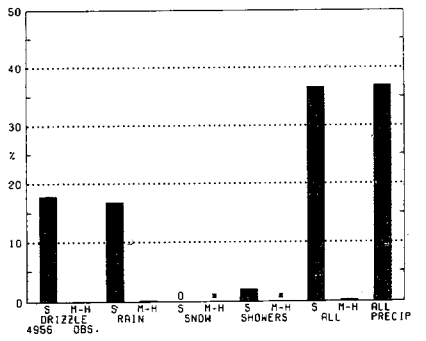
—(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

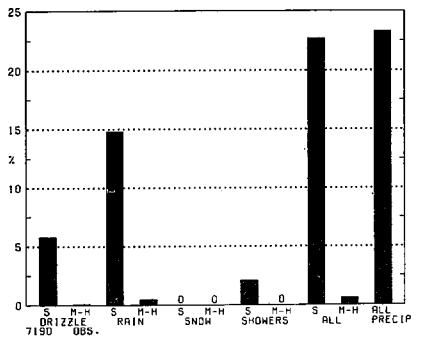
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

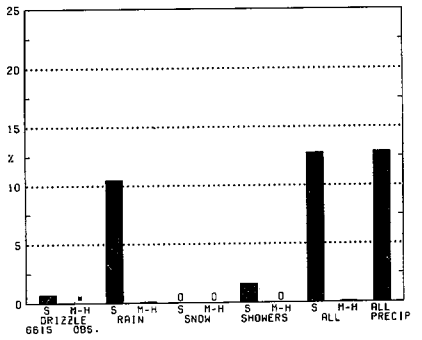
Cold Bay



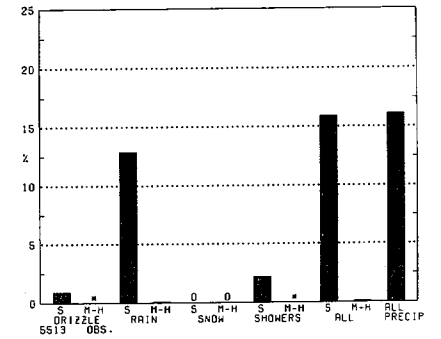
Kodiak



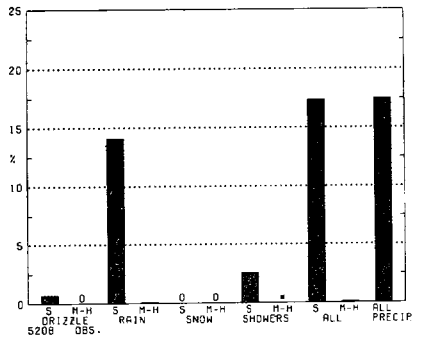
Homer



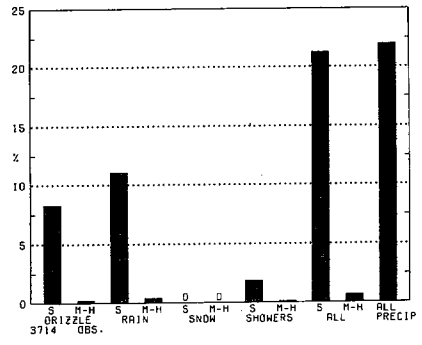
Kenai



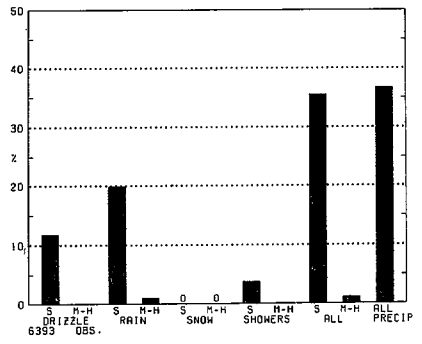
Anchorage



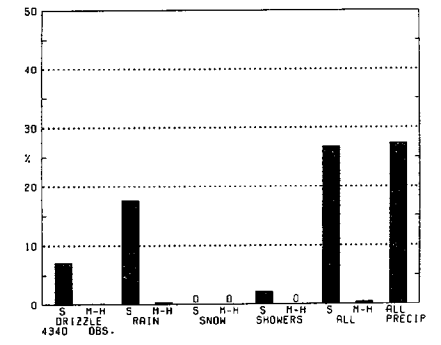
Middleton Island



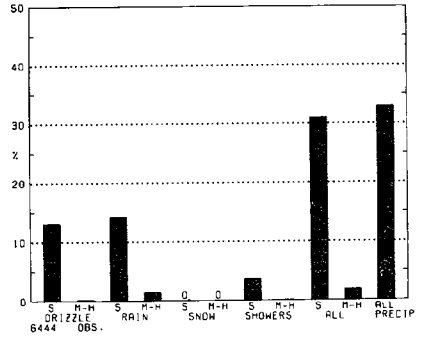
Cordova



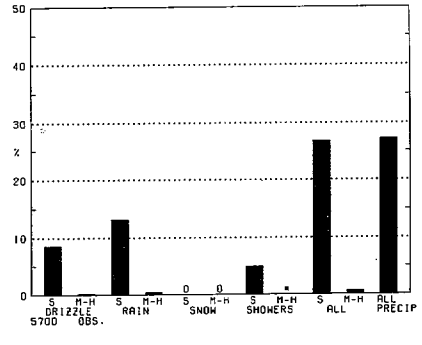
Yakataga



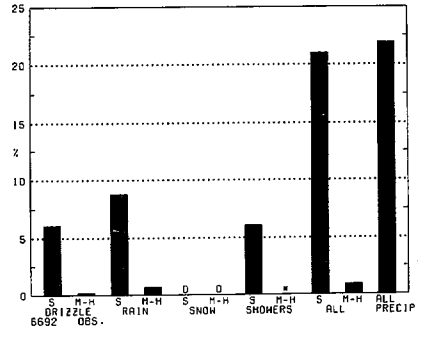
Yakutat



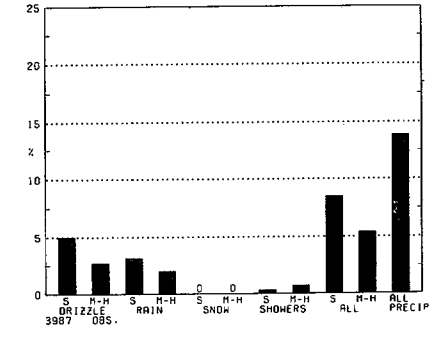
Sitka



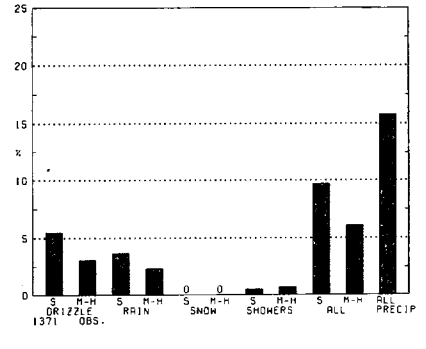
Annette

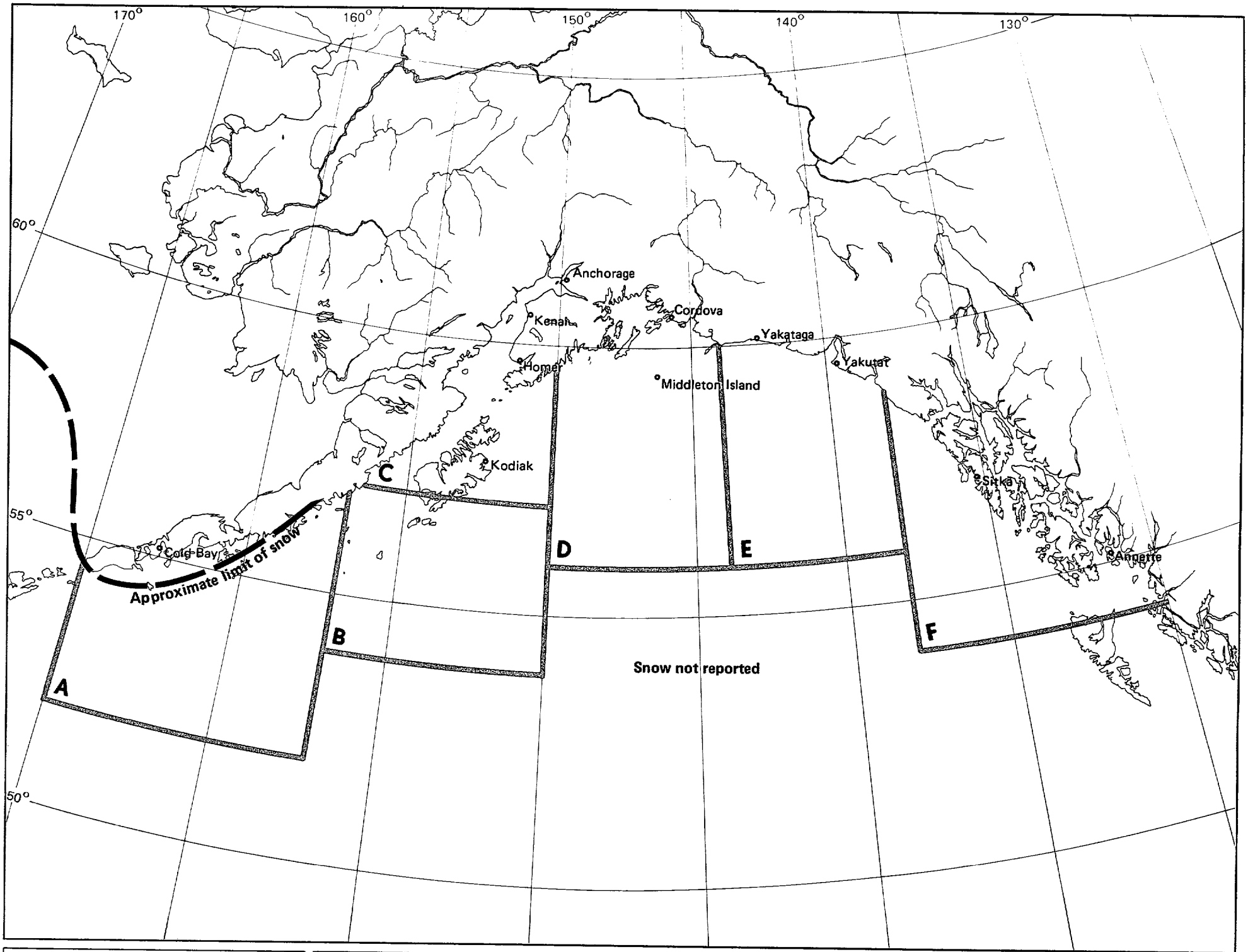


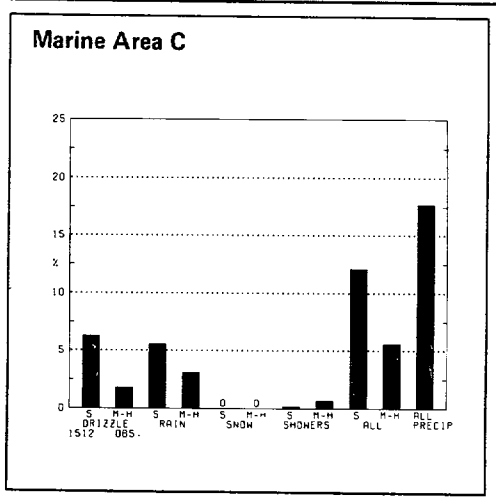
Marine Area A

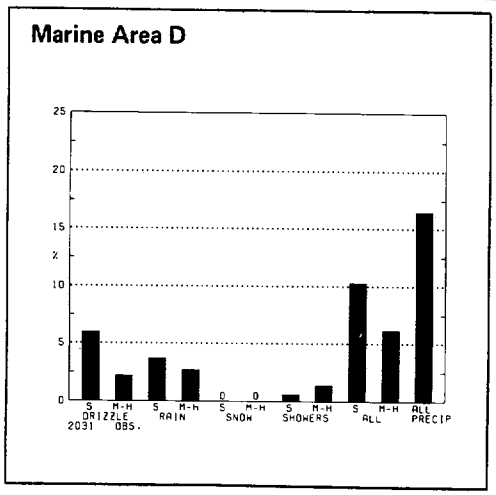


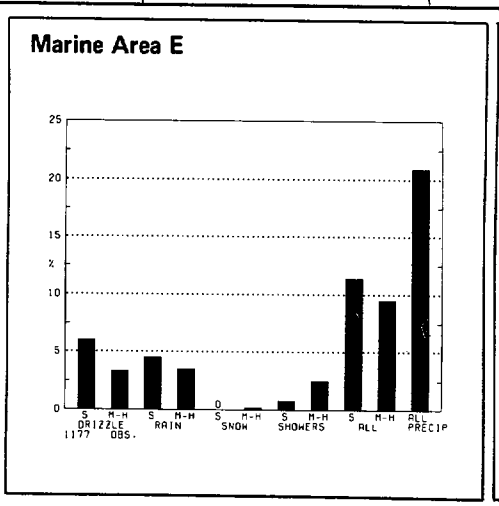
Marine Area B

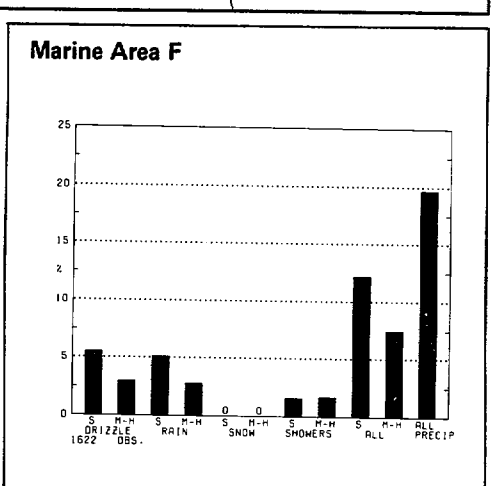



170°
160°
150°
140°
130°
60°
55°
50°
Anchorage
Kenai
Cordova
Yakataga
Homer
Middleton Island
Yakutat
Kodiak
Sitka
Annette
Cold Bay
Approximate limit of snow
A
B
C
D
E
F
Snow not reported


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 1512 OBS.
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

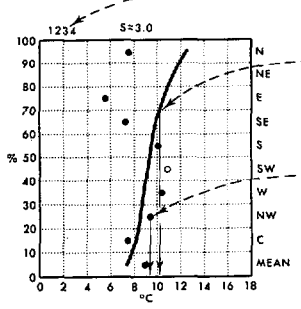

Marine Area D
25
20
15
%
10
5
0
S DRIZZLE 2031 OBS.
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
25
20
15
%
10
5
0
S DRIZZLE 1177 OBS.
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
25
20
15
%
10
5
0
S DRIZZLE 1622 OBS.
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

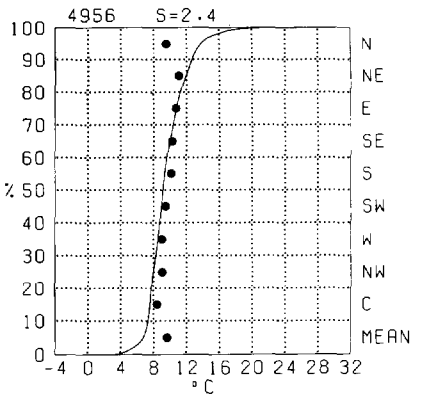
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

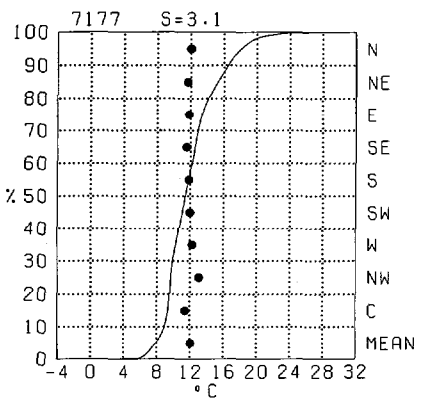
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

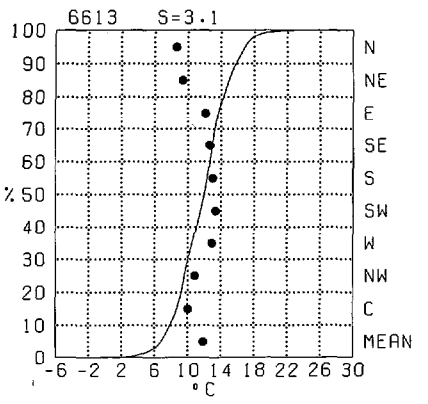
Cold Bay



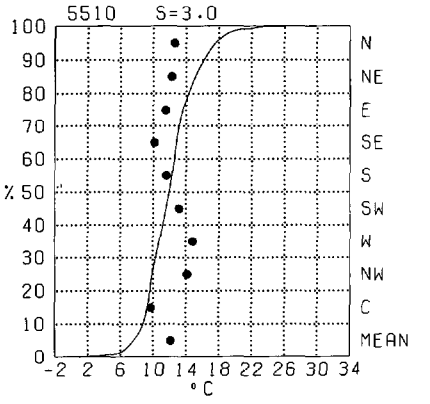
Kodiak



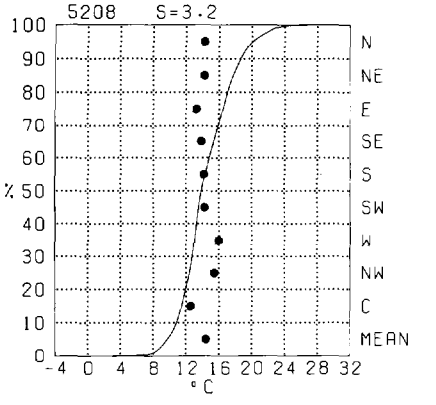
Homer



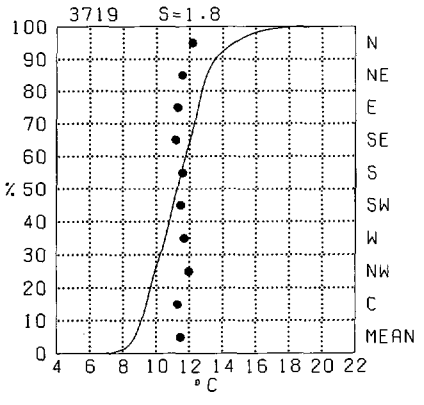
Kenai



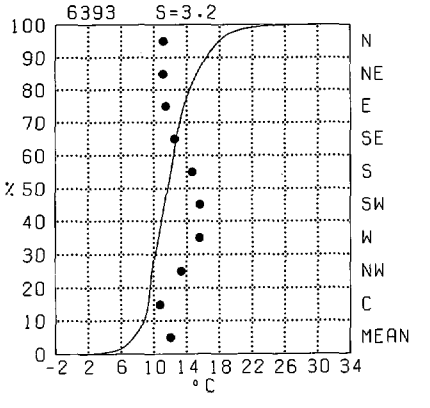
Anchorage



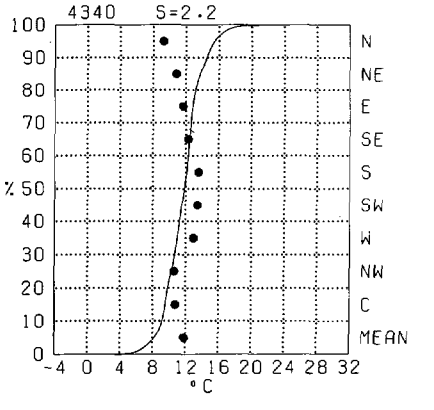
Middleton Island



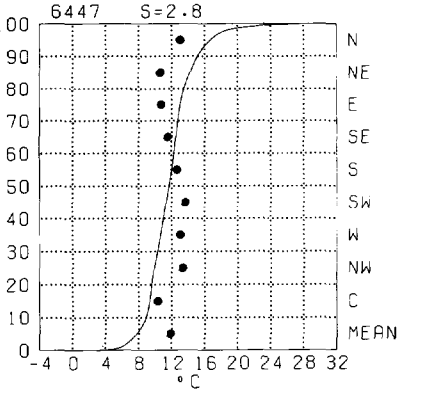
Cordova



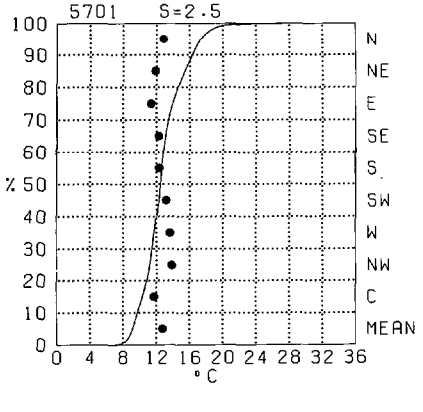
Yakataga



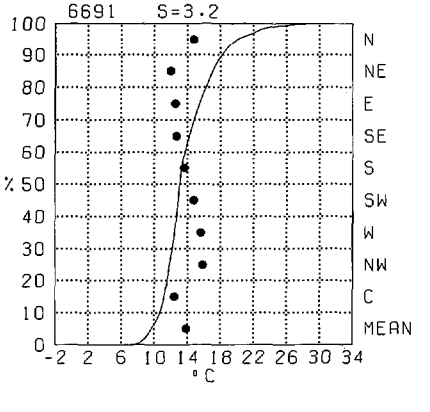
Yakutat



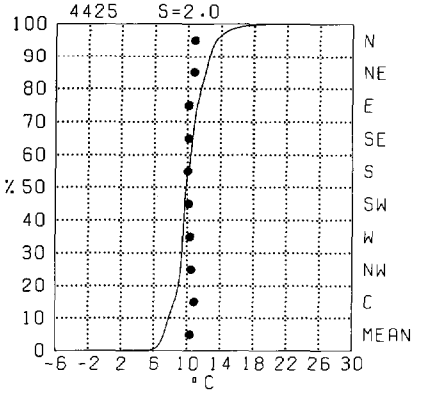
Sitka



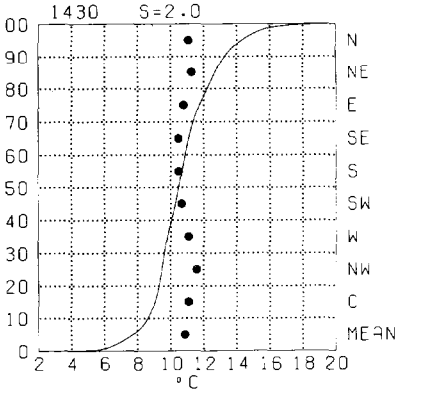
Annette

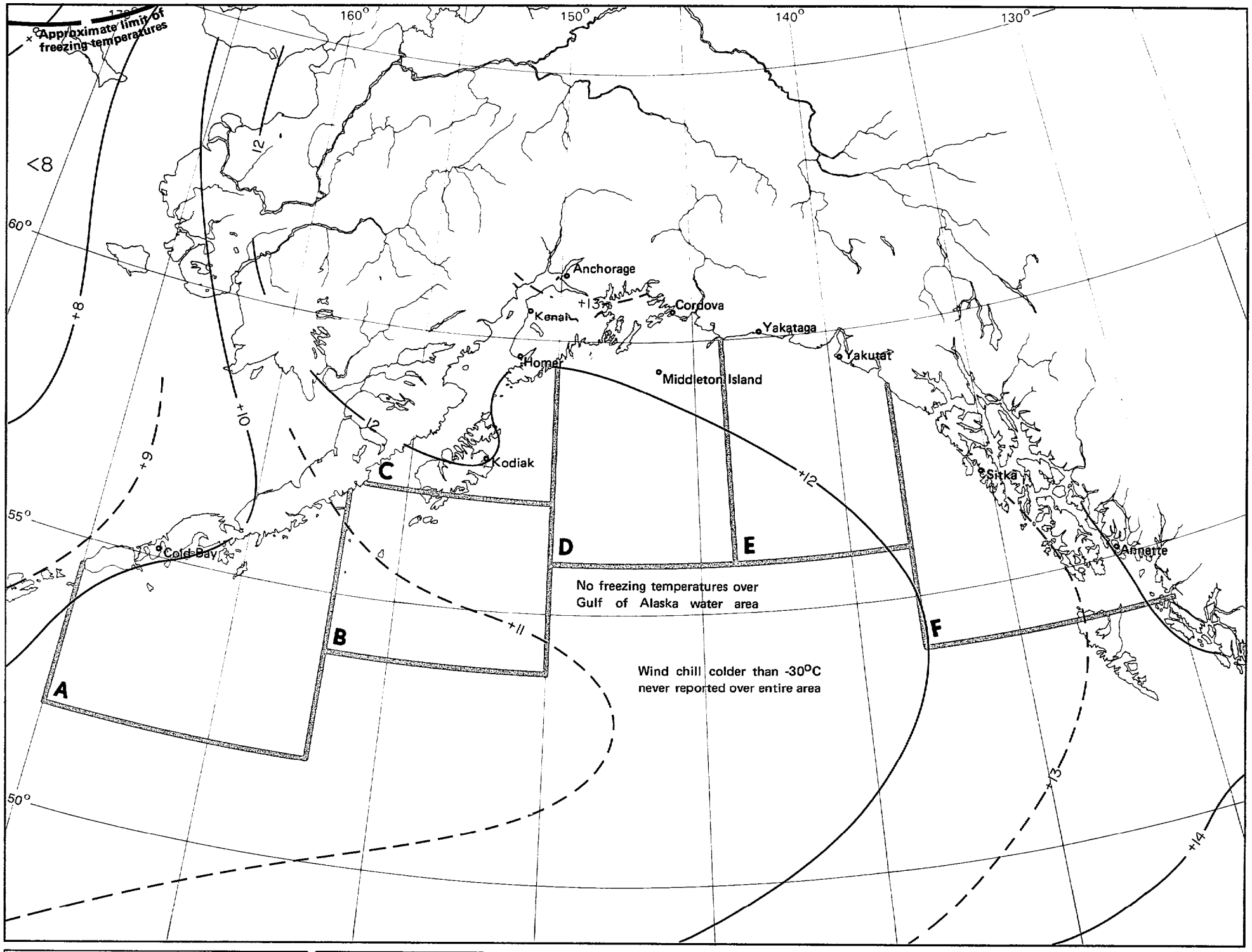


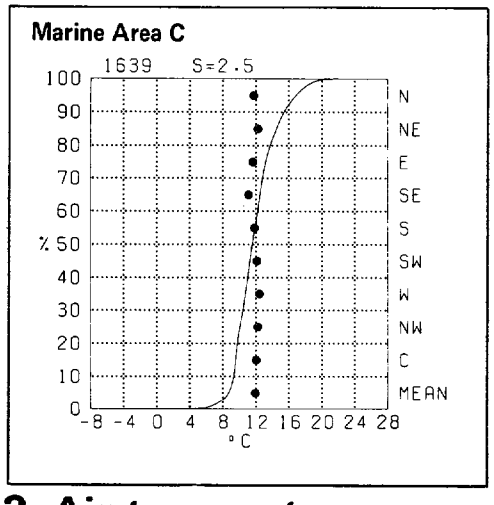
Marine Area A

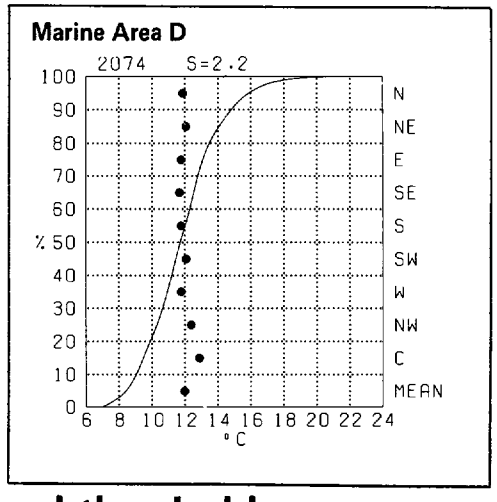


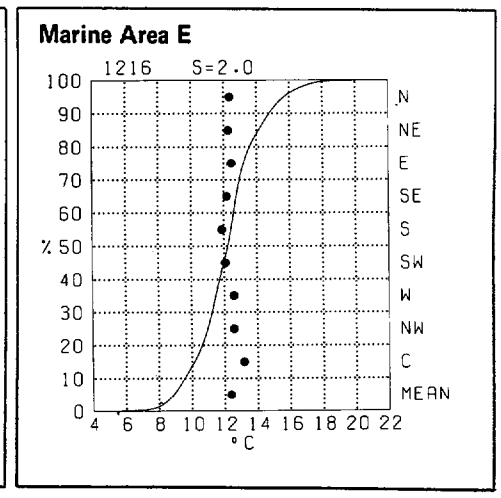
Marine Area B

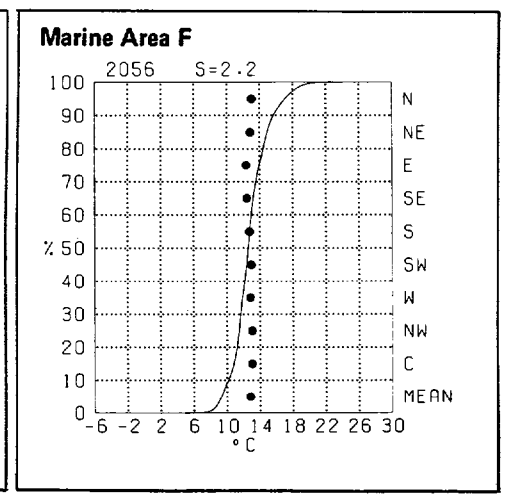










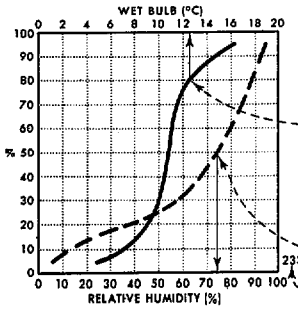


3 Air temperature mean and thresholds

July

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

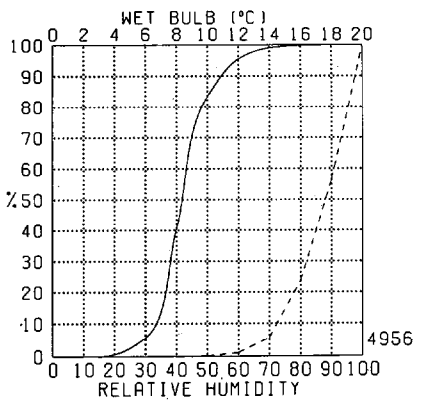
Number of observations.

Map - Mean dew point temperature

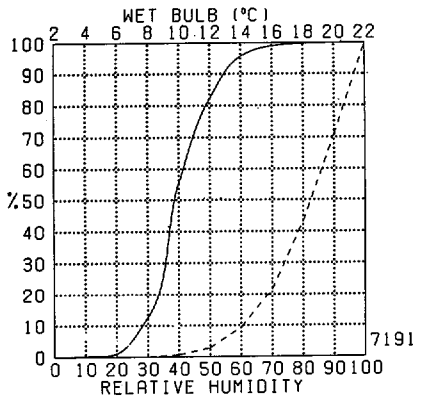
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

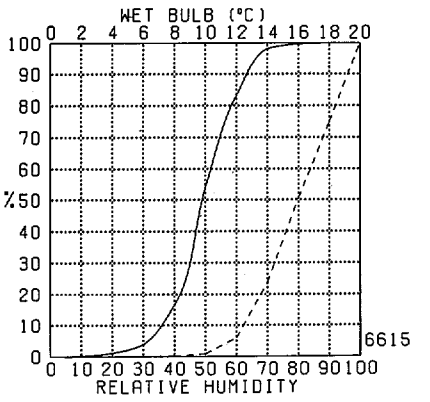
Cold Bay



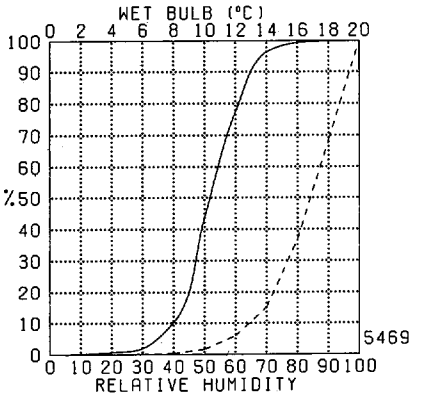
Kodiak



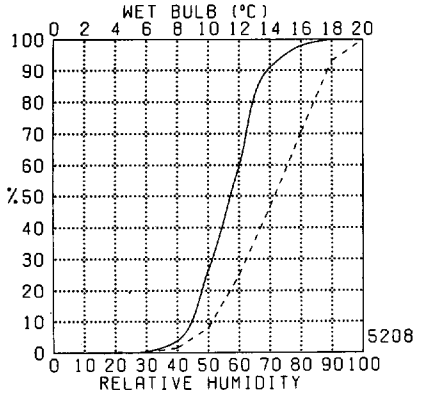
Homer



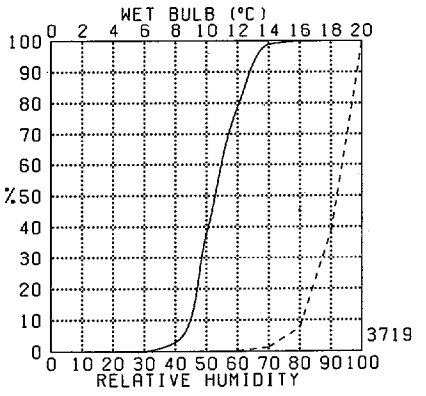
Kenai



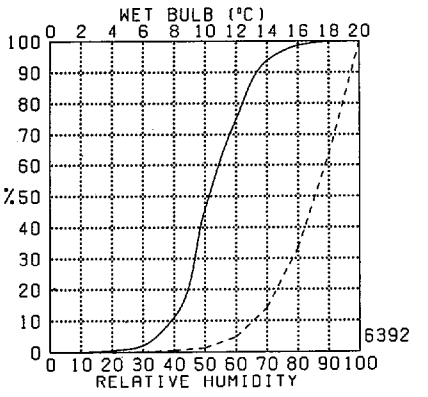
Anchorage



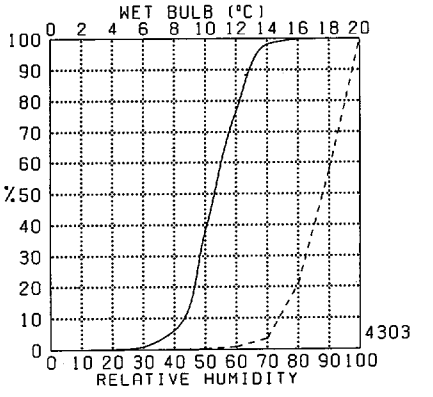
Middleton Island



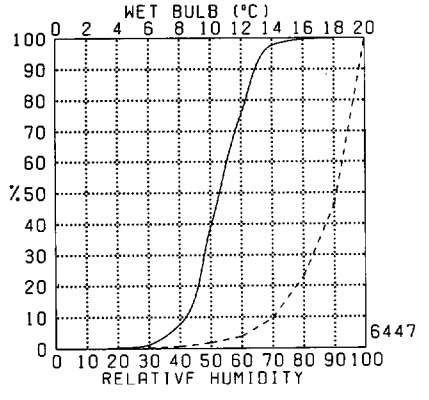
Cordova



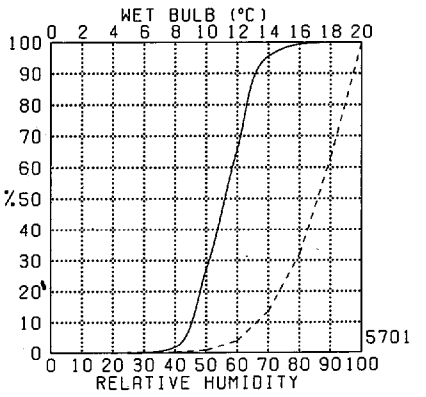
Yakataga



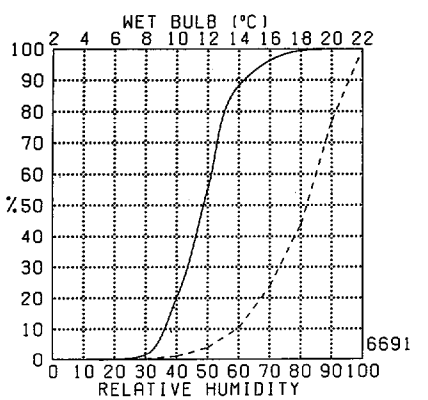
Yakutat



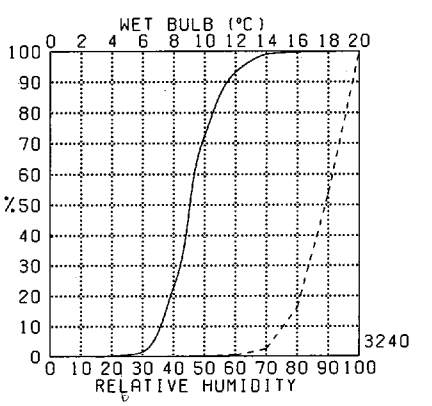
Sitka



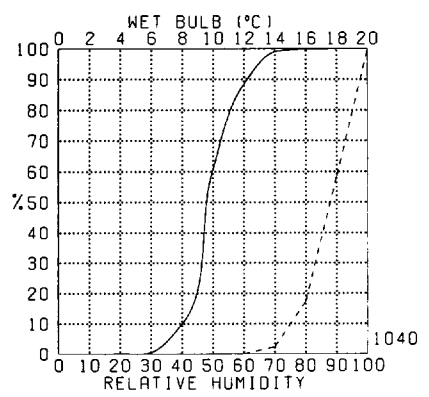
Annette

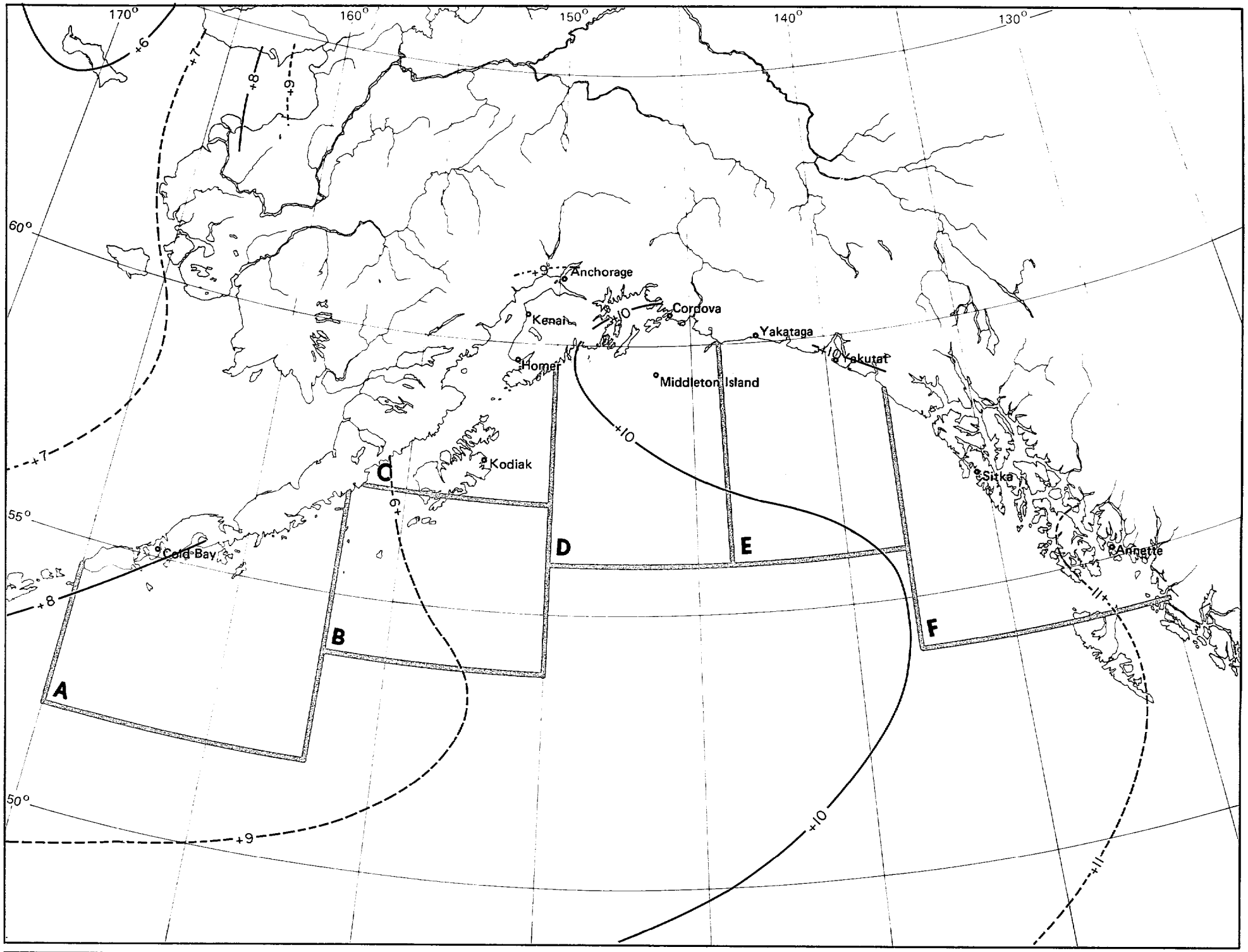


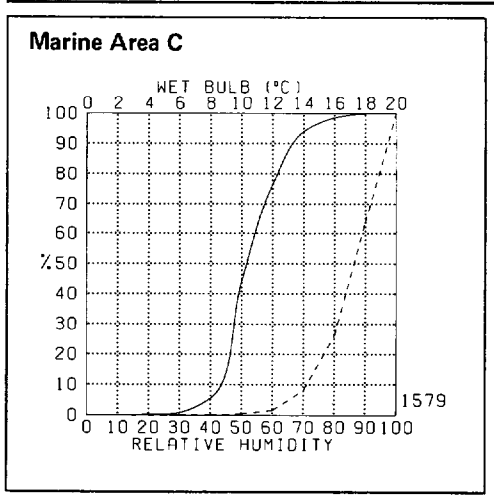
Marine Area A

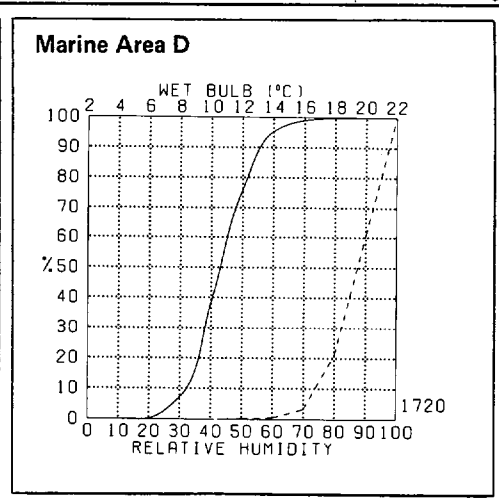


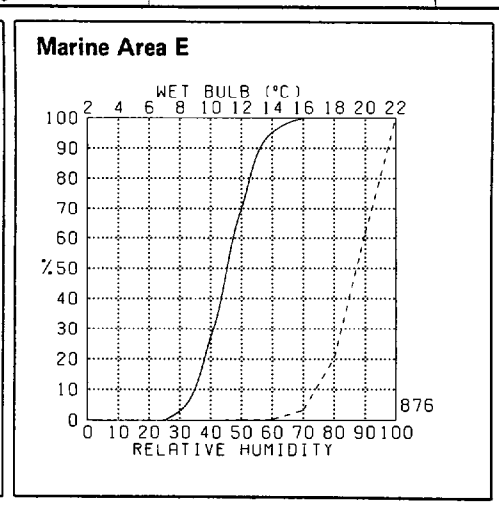
Marine Area B

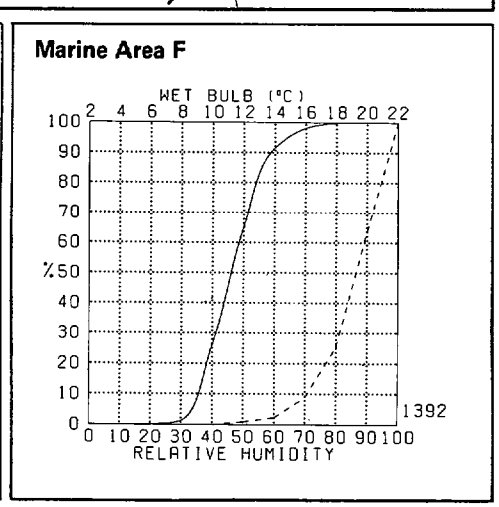












4 Mean dew point temperature

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4, 5	18	8	7	1	1
2, 3	17	8	7	1	1
0, 1	13	6	5	1	1
-2, -1	1	+	0	0	0
-4, -3	0	0	0	0	0
-6, -5	+	0	0	+	+
-8, -7	1	+	0	0	0
-10, -9	0	0	0	0	0
-12, -11	1	+	0	0	0
-14, -13	1	0	0	0	0
-16, -15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

(1% of all observations reported temperature 2-3°C simultaneously with wind speed of 22-33 kts.)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
24,25	0	+	0	0	0
22,23	0	+	+	0	0
20,21	0	+	+	0	0
18,19	0	+	+	+	0
16,17	+	1	1	+	0
14,15	+	1	2	+	0
12,13	+	5	8	2	+
10,11	1	9	12	4	+
8,9	2	12	19	4	+
6,7	1	6	7	2	+
≤5	+	1	+	0	0

4956

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26,27	0	+	+	0	0
24,25	+	+	+	0	0
22,23	+	+	+	0	0
20,21	+	1	+	+	0
18,19	1	2	1	0	0
16,17	3	4	1	0	0
14,15	4	5	1	+	0
12,13	9	14	3	+	0
10,11	10	14	3	+	0
8,9	6	10	3	+	0
≤7	1	1	+	+	0

7177

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26,27	0	+	0	0	0
24,25	0	0	+	0	0
22,23	+	+	+	0	0
20,21	+	+	+	0	0
18,19	+	2	+	0	0
16,17	1	7	2	0	0
14,15	3	10	3	0	0
12,13	7	18	3	+	0
10,11	8	9	1	+	0
8,9	9	6	+	0	0
≤7	5	3	+	0	0

6613

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28,29	0	+	0	0	0
26,27	0	+	+	0	0
24,25	0	+	0	0	0
22,23	+	+	+	0	0
20,21	+	1	+	0	0
18,19	+	2	1	0	0
16,17	+	7	2	0	0
14,15	1	9	3	0	0
12,13	3	21	6	+	0
10,11	5	14	4	+	0
≤9	8	10	1	0	0

5510

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26,27	+	+	0	0	0
24,25	+	+	+	0	0
22,23	+	2	+	0	0
20,21	1	3	+	+	0
18,19	1	7	2	0	0
16,17	3	11	3	+	0
14,15	4	13	3	+	0
12,13	9	19	3	+	0
10,11	4	5	1	0	0
8,9	2	1	+	0	0
≤7	1	+	+	0	0

5208

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20,21	0	+	0	0	0
18,19	+	+	0	0	0
16,17	1	2	+	0	0
14,15	2	6	1	0	0
12,13	7	23	8	+	0
10,11	7	19	8	1	0
8,9	3	9	3	+	+
6,7	+	+	+	0	0
4,5	0	0	0	0	0
2,3	0	0	0	0	0
0,1	0	0	0	0	0

3719

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28,29	+	0	0	0	0
26,27	+	+	0	0	0
24,25	+	+	+	0	0
22,23	+	+	+	0	0
20,21	+	1	+	0	0
18,19	1	3	+	0	0
16,17	2	6	+	0	0
14,15	4	7	+	0	0
12,13	13	14	1	+	0
10,11	16	10	1	0	0
≤9	16	4	+	0	0

6393

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
24,25	0	+	+	0	0
22,23	+	0	0	0	0
20,21	+	+	+	0	0
18,19	+	+	+	0	0
16,17	1	3	1	+	0
14,15	2	8	3	+	0
12,13	10	19	11	+	0
10,11	9	11	6	+	0
8,9	6	4	1	0	0
6,7	2	1	0	0	0
4,5	+	+	0	0	0

4340

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28,29	0	+	0	0	0
26,27	0	+	+	0	0
24,25	+	+	+	0	0
22,23	+	+	+	0	0
20,21	+	+	+	0	0
18,19	+	1	+	0	0
16,17	1	5	1	0	0
14,15	2	8	2	+	0
12,13	8	22	4	+	0
10,11	8	15	4	+	0
≤9	8	8	1	0	0

6447

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28,29	0	+	0	0	0
26,27	0	+	0	0	0
24,25	+	+	+	0	0
22,23	+	+	0	0	0
20,21	+	+	+	0	0
18,19	1	2	1	+	0
16,17	2	6	3	+	0
14,15	5	9	2	+	0
12,13	15	21	3	+	0
10,11	12	10	1	+	0
≤9	4	2	+	0	0

5701

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30,31	0	0	+	0	0
28,29	0	+	+	0	0
26,27	+	+	+	0	0
24,25	+	1	+	0	0
22,23	+	1	1	0	0
20,21	+	2	+	0	0
18,19	1	5	1	0	0
16,17	2	10	2	+	0
14,15	3	12	3	+	0
12,13	7	23	7	+	0
≤11	5	11	3	+	0

6691

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20,21	+	+	0	0	0
18,19	+	+	+	0	0
16,17	+	1	+	+	0
14,15	1	2	2	+	+
12,13	2	7	9	2	+
10,11	3	14	18	4	+
8,9	2	11	15	4	+
6,7	+	1	2	1	+
4,5	0	+	+	0	0
2,3	0	0	0	0	0
0,1	0	+	+	+	0

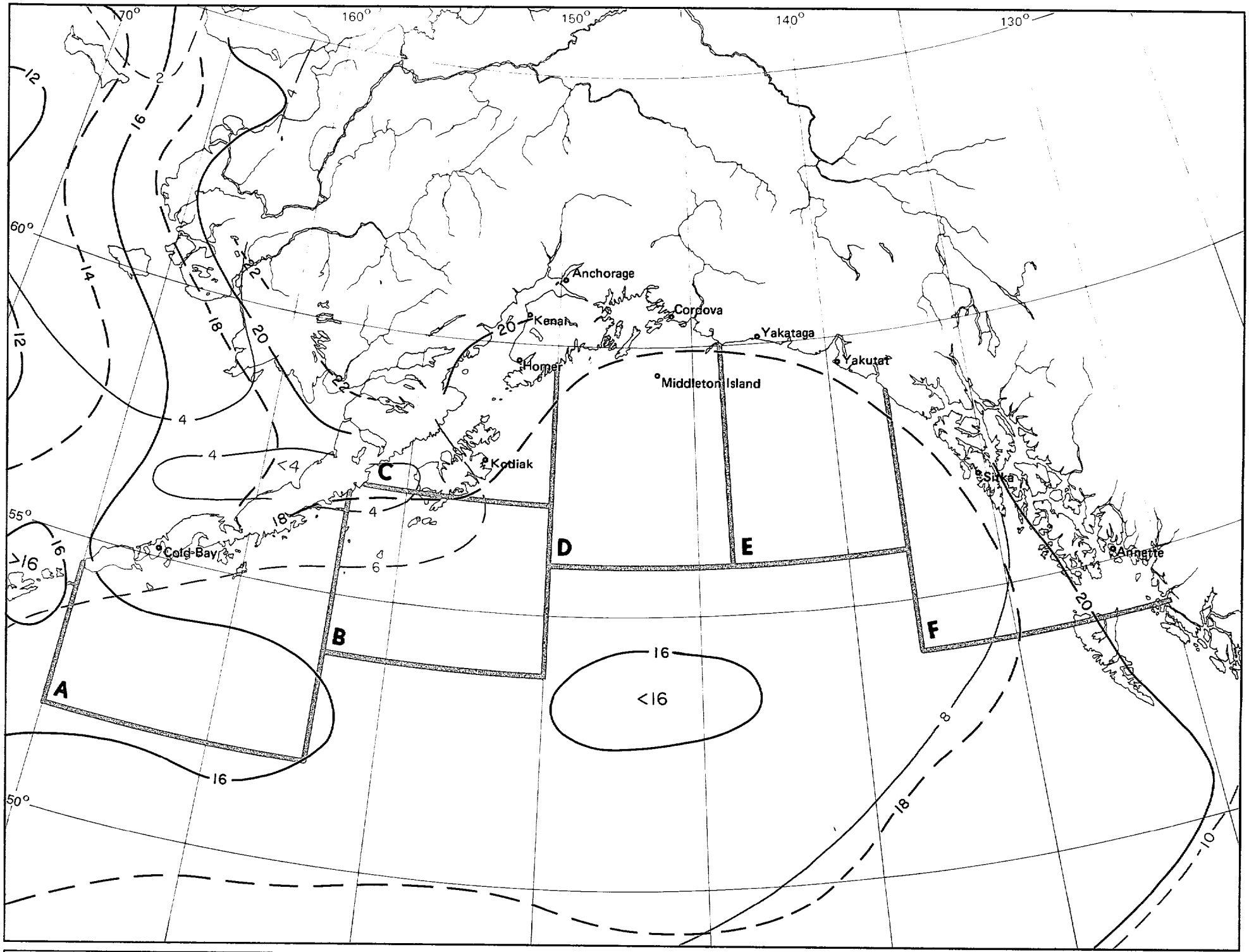
4425

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20,21	0	0	+	0	0
18,19	+	+	0	0	0
16,17	1	1	1	0	0
14,15	1	3	2	1	0
12,13	3	11	10	2	+
10,11	3	16	21	3	+
8,9	2	6	8	3	+
6,7	+	+	1	+	0
4,5	0	+	+	0	+
2,3	0	0	0	0	0
0,1	0	0	0	0	0

1430



Marine Area C

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
20.21	+	+	+	0	0
18.19	2	1	+	+	0
16.17	3	2	2	+	0
14.15	5	5	3	+	+
12.13	7	13	9	1	0
10.11	6	12	10	3	+
8.9	3	4	4	1	+
6.7	+	+	+	+	0
4.5	0	0	+	+	0
2.3	0	0	0	0	0
0.1	0	0	0	0	0

1639

Marine Area D

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
22.23	+	0	0	0	0
20.21	+	+	+	0	0
18.19	1	1	+	+	0
16.17	2	3	2	0	0
14.15	3	7	3	+	+
12.13	5	17	12	2	+
10.11	4	13	12	2	+
8.9	1	4	3	1	+
6.7	+	+	+	+	+
4.5	0	0	0	0	0
2.3	0	0	0	0	0

2074

Marine Area E

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
20.21	0	0	+	0	0
18.19	+	+	+	0	0
16.17	1	3	2	+	0
14.15	4	8	5	1	0
12.13	6	17	16	3	+
10.11	3	10	12	1	+
8.9	+	3	2	1	+
6.7	+	+	+	0	+
4.5	0	0	0	0	0
2.3	0	0	0	0	0
0.1	0	0	0	0	0

1216

Marine Area F

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
22.23	+	0	+	0	0
20.21	+	+	+	0	0
18.19	1	2	+	0	0
16.17	2	4	2	+	0
14.15	4	10	5	1	0
12.13	7	19	15	2	+
10.11	4	9	8	2	+
8.9	1	1	1	+	+
6.7	+	+	0	0	0
4.5	+	0	0	0	0
2.3	0	0	0	0	0

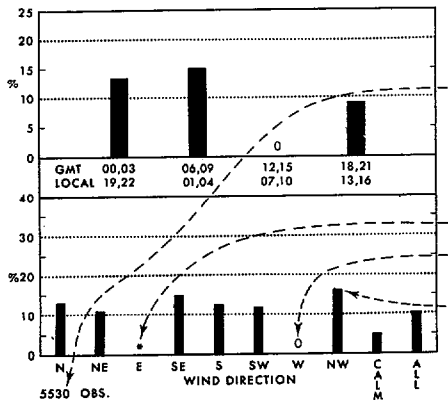
2057

5 Air temperature extremes (°C)

July

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

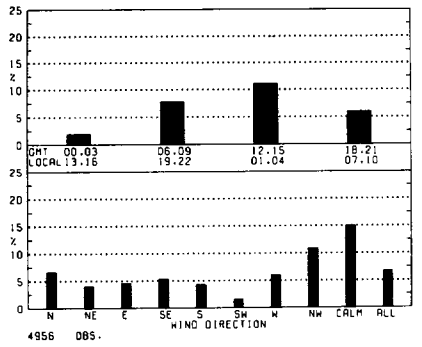
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

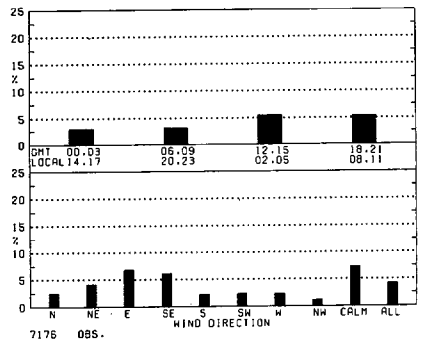
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

Cold Bay



Kodiak



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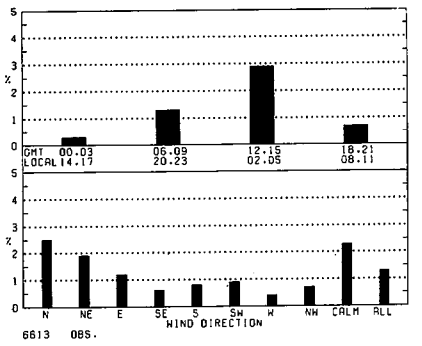

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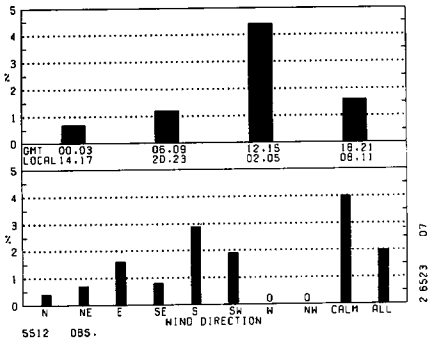

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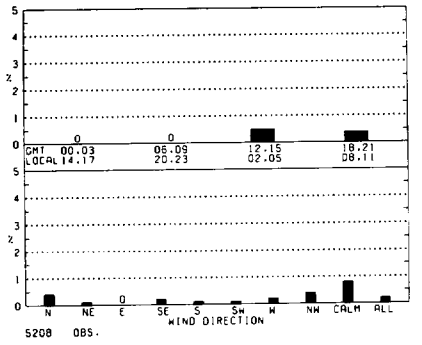
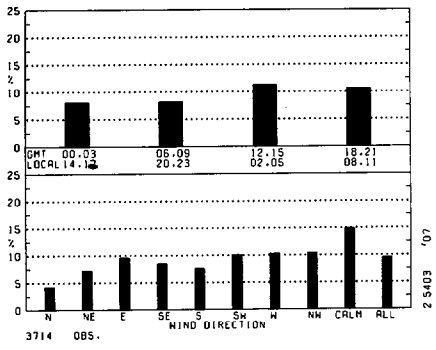


Middleton Island



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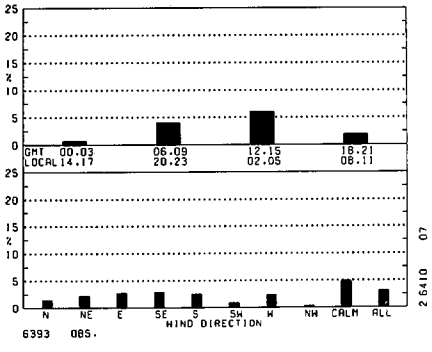

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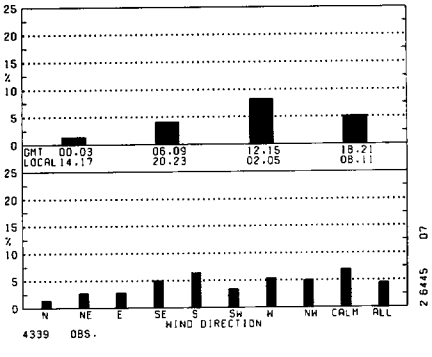

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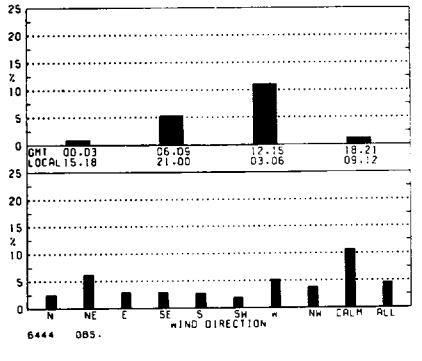

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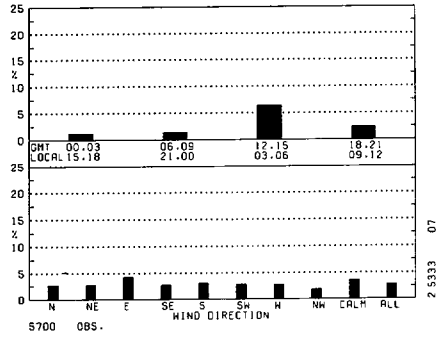
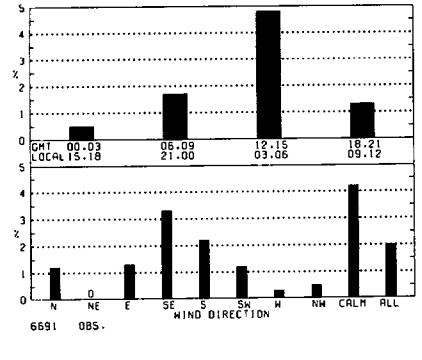
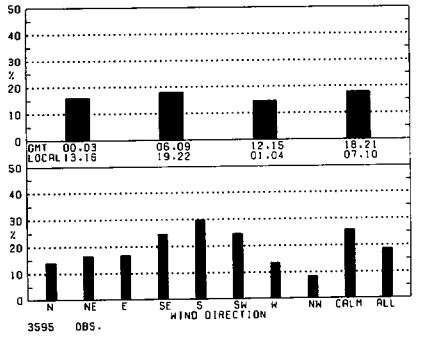


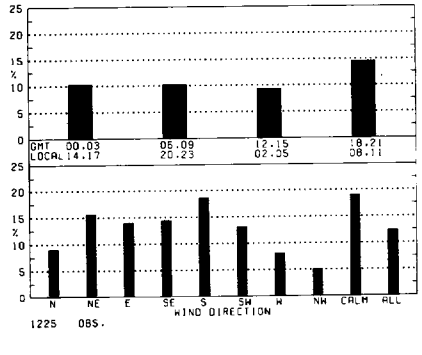
Annette

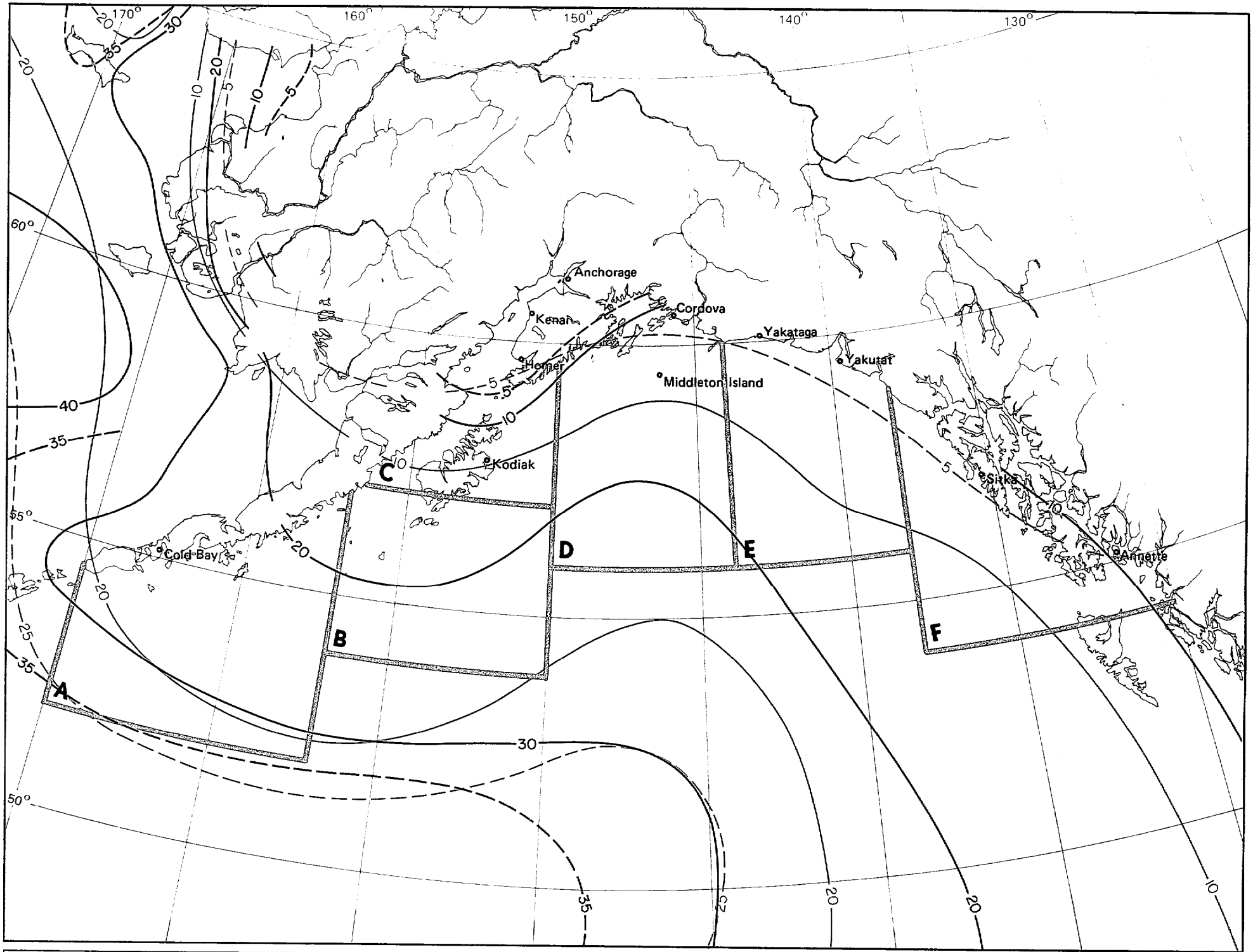


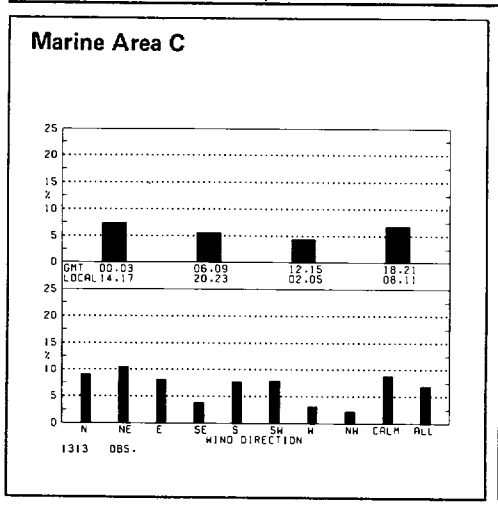
Marine Area A

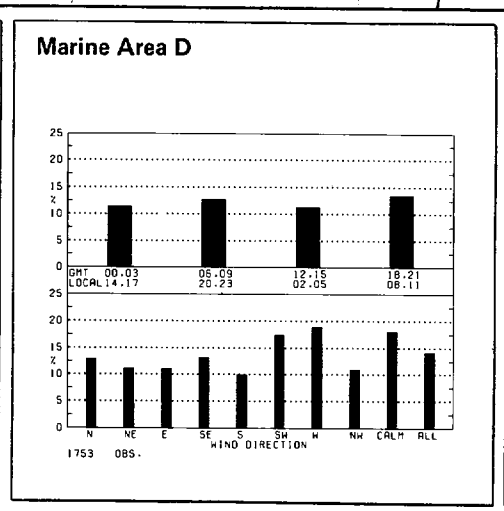


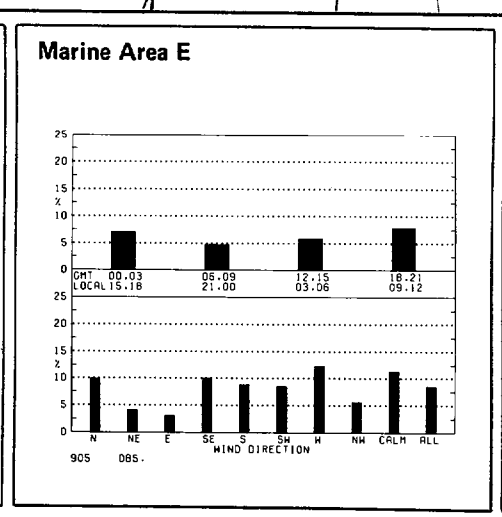
Marine Area B

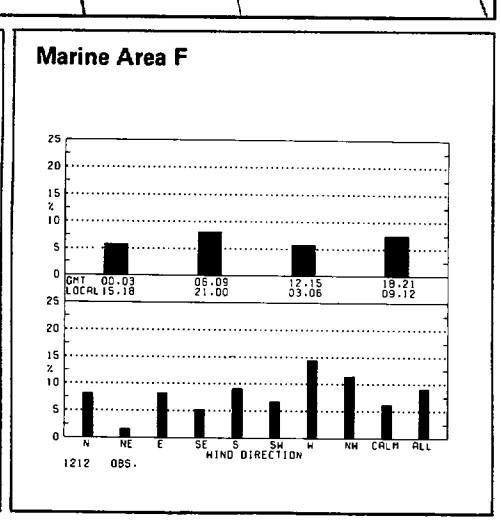



170°
160°
150°
140°
130°
60°
55°
50°
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
20
30
35
40
25
10
5


Marine Area C
GMT 00.03 06.09 12.15 18.21
LOCAL 14.17 20.23 02.05 08.11
N NE E SE S SW W NW CALM ALL
WIND DIRECTION
1313 OBS.

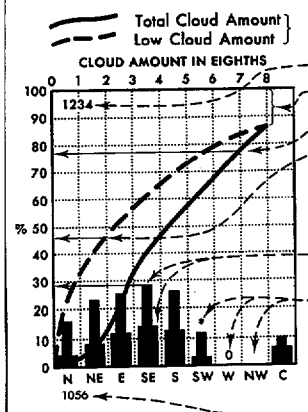

Marine Area D
GMT 00.03 06.09 12.15 18.21
LOCAL 14.17 20.23 02.05 08.11
N NE E SE S SW W NW CALM ALL
WIND DIRECTION
1753 OBS.


Marine Area E
GMT 00.03 06.09 12.15 18.21
LOCAL 15.18 21.00 03.06 09.12
N NE E SE S SW W NW CALM ALL
WIND DIRECTION
905 OBS.


Marine Area F
GMT 00.03 06.09 12.15 18.21
LOCAL 15.18 21.00 03.06 09.12
N NE E SE S SW W NW CALM ALL
WIND DIRECTION
1212 OBS.

Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 (5/8 & 6/8 ≥7/8) Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

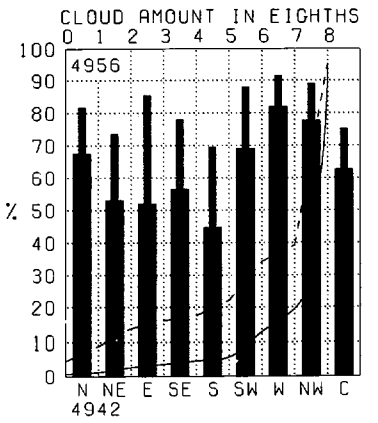
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

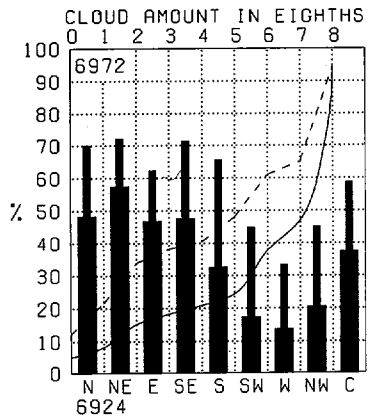
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

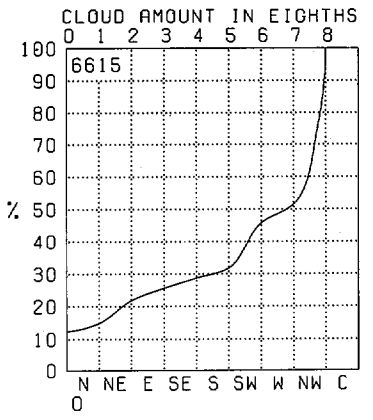
Cold Bay



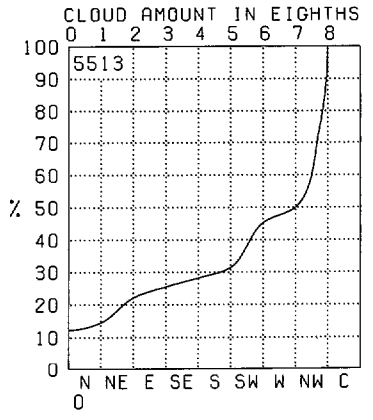
Kodiak



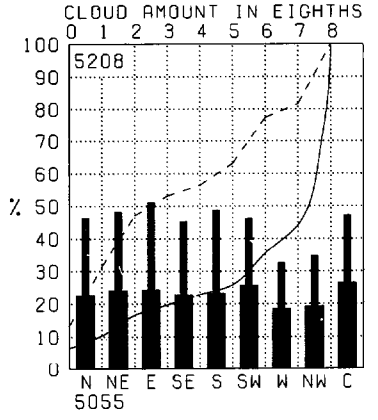
Homer



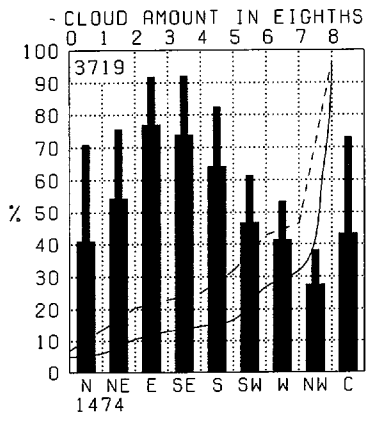
Kenai



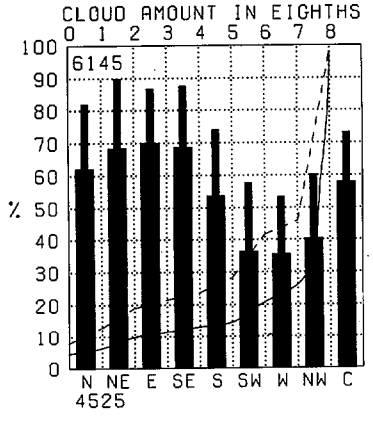
Anchorage



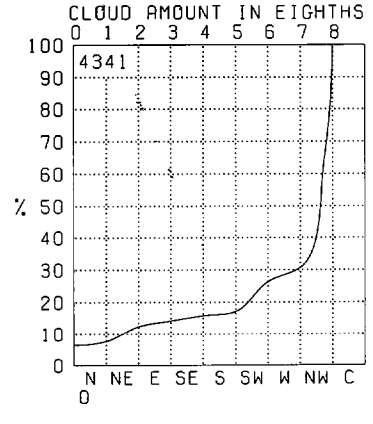
Middleton Island



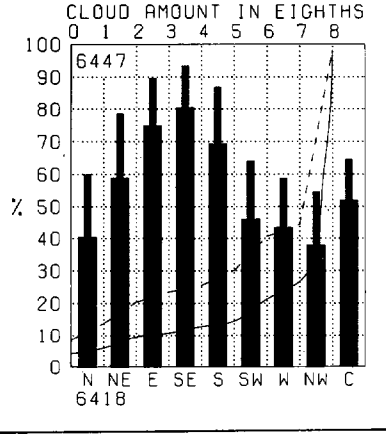
Cordova



Yakataga



Yakutat



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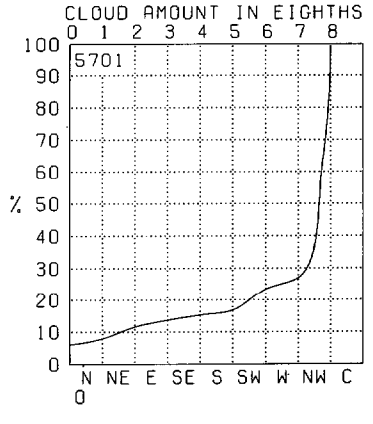
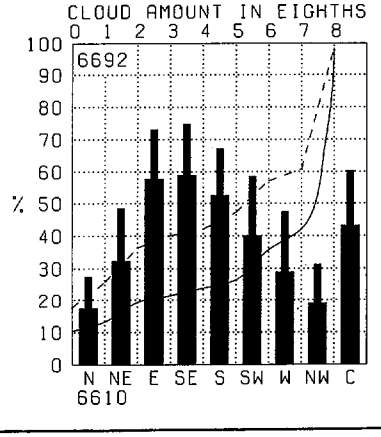
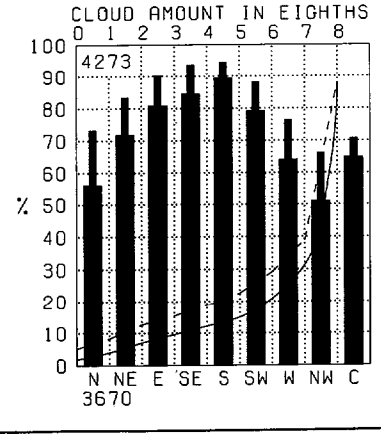


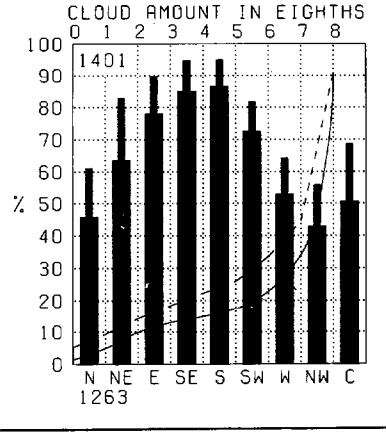
Annette

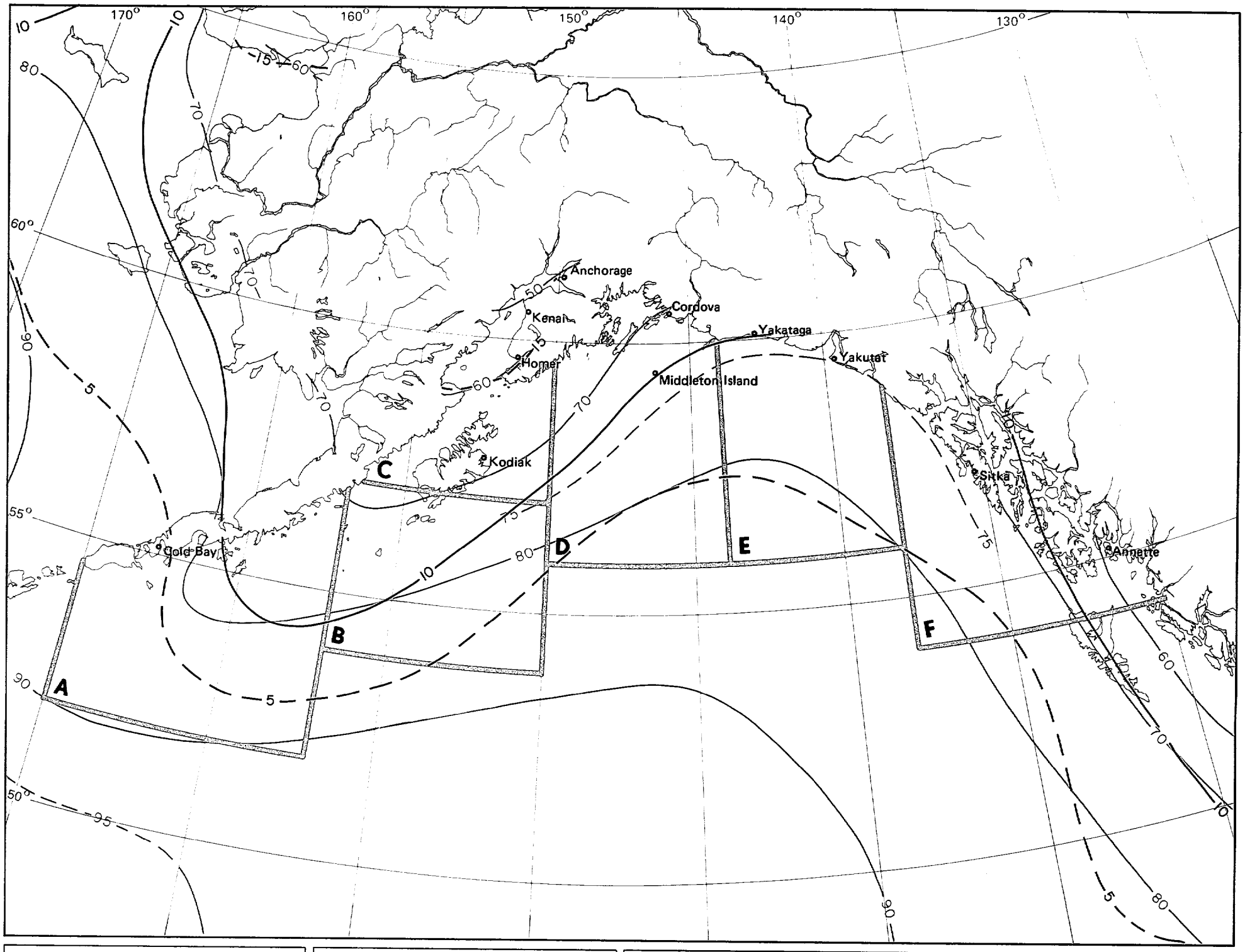


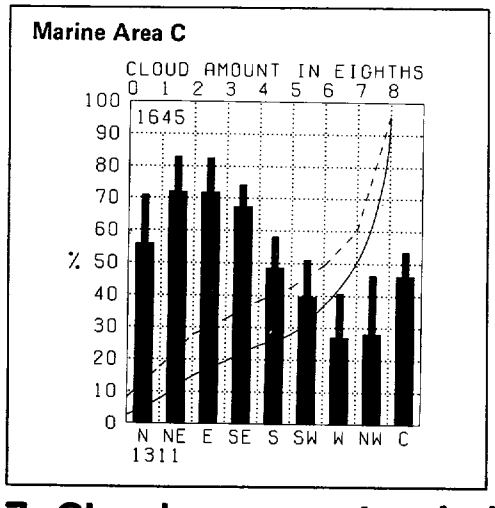
Marine Area A

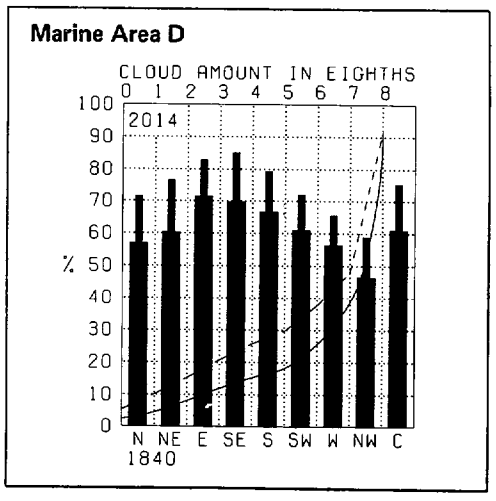


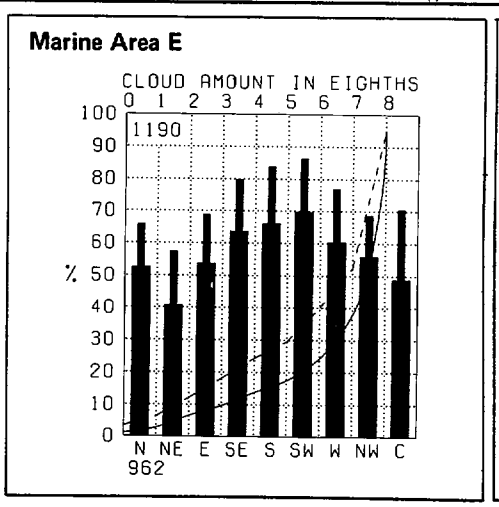
Marine Area B

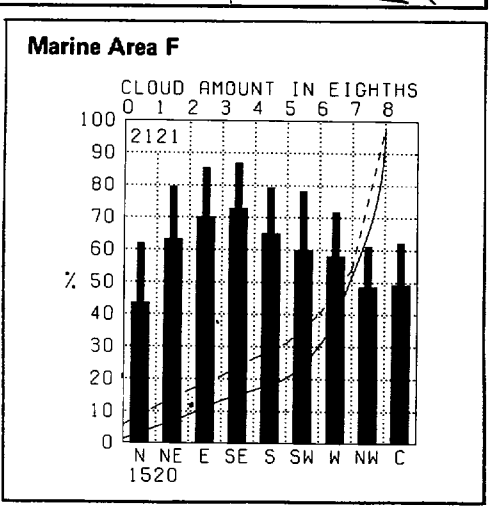










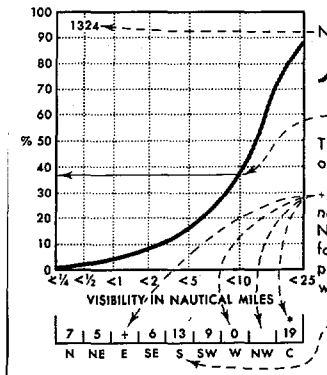


7 Cloud amount thresholds

July

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 *nautical miles were observed* with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

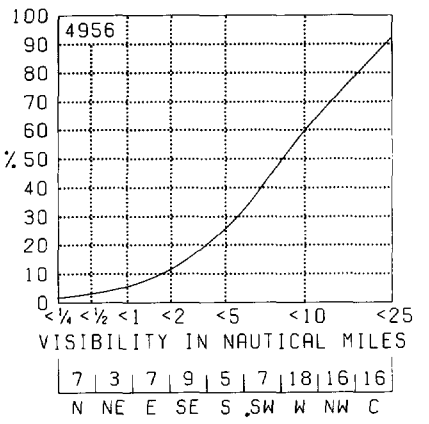
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

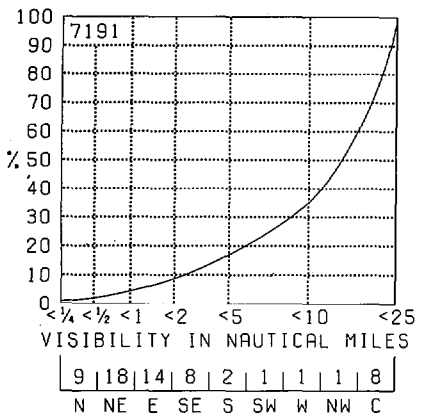
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

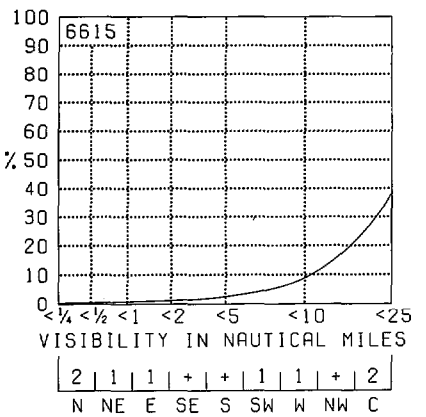
Cold Bay



Kodiak



Homer



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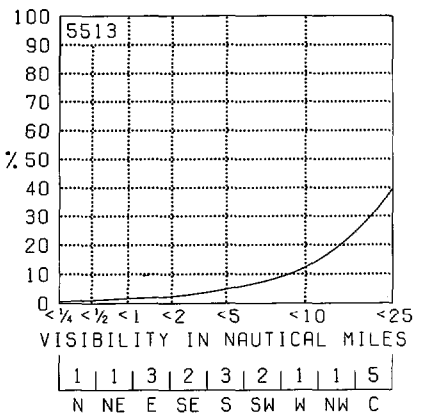
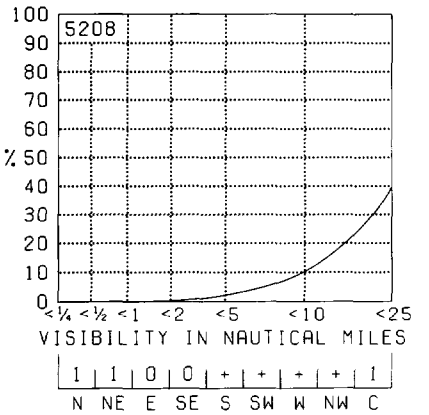
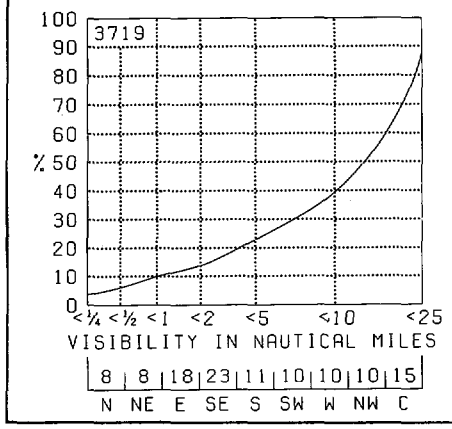


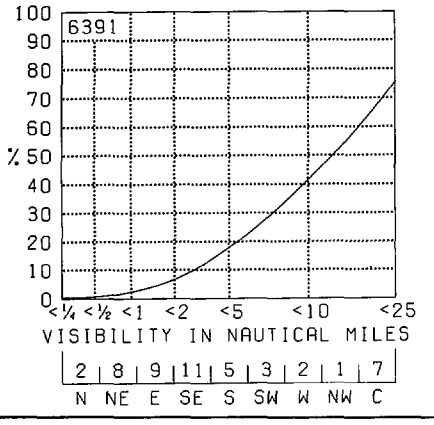
Anchorage



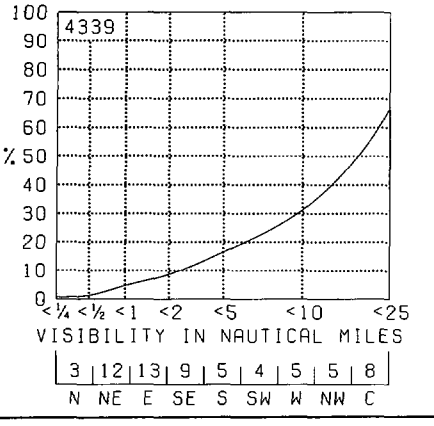
Middleton Island



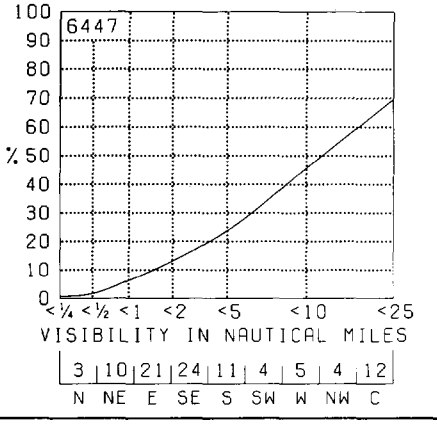
Cordova



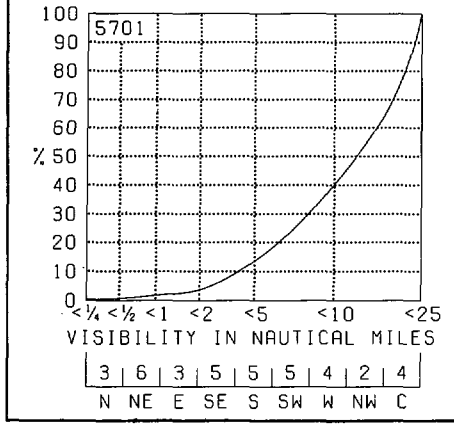
Yakataga



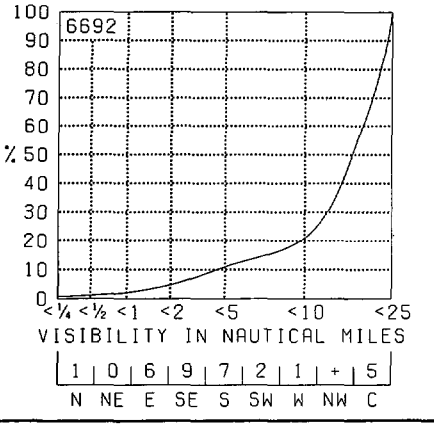
Yakutat



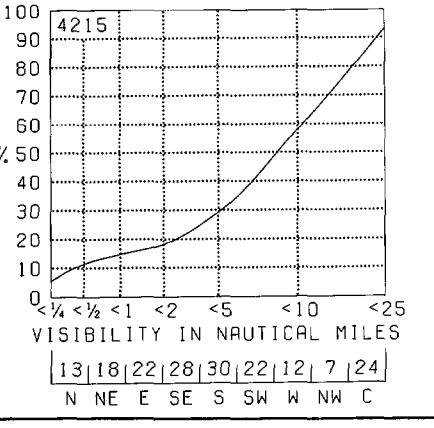
Sitka



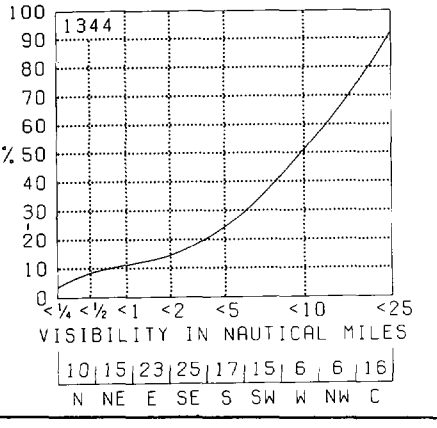
Annette

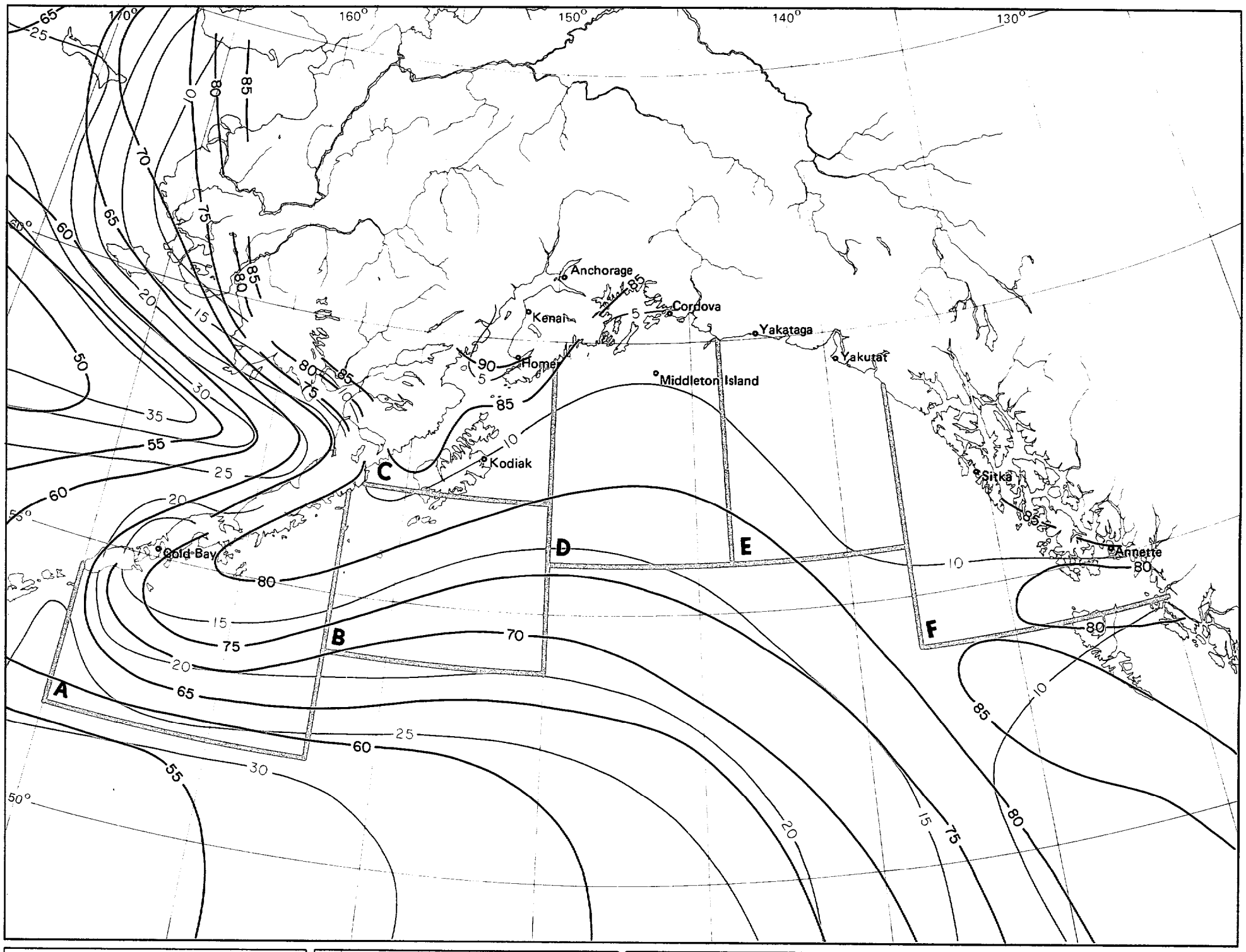


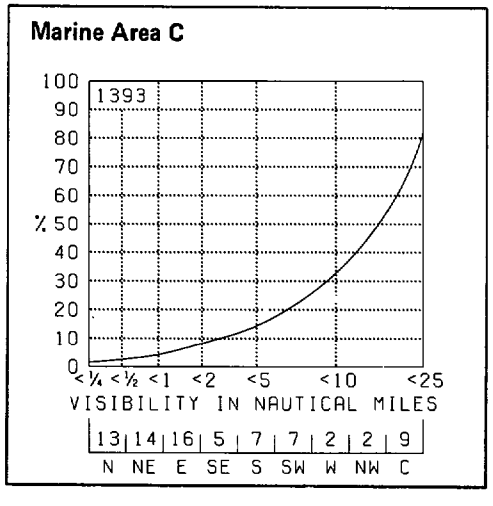
Marine Area A

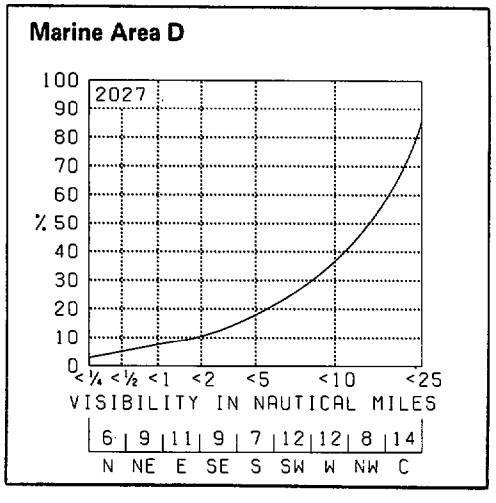


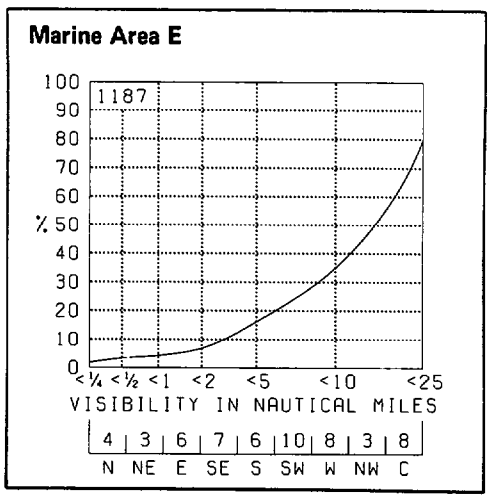
Marine Area B

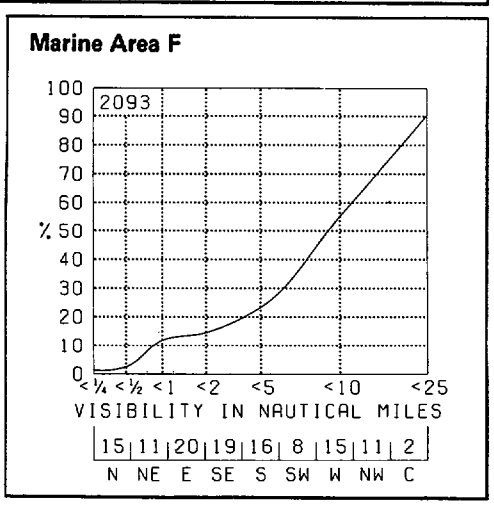










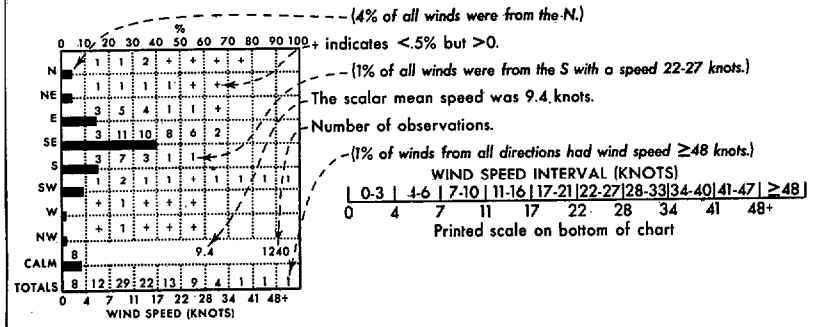


8 Visibility thresholds

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



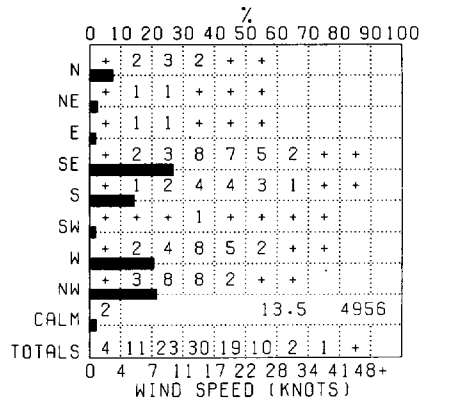
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

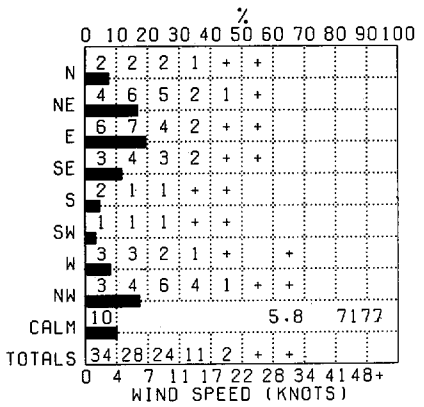
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

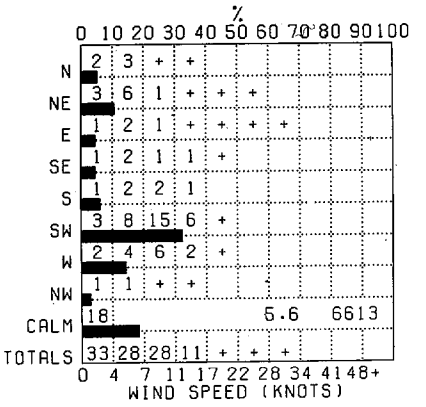
Cold Bay



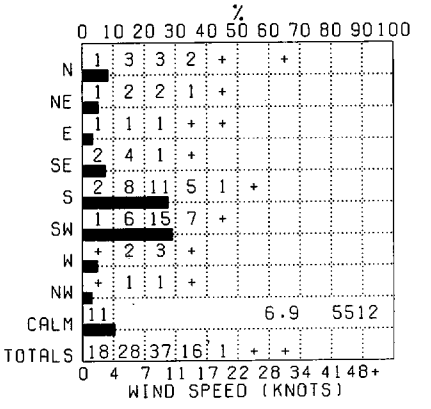
Kodiak



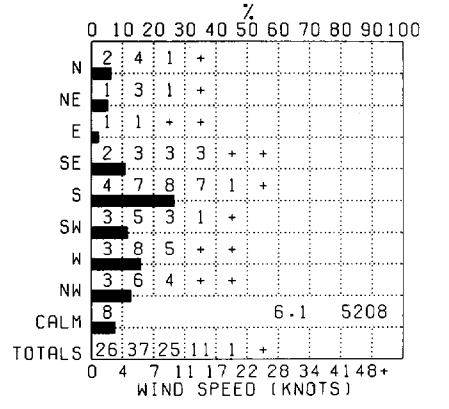
Homer



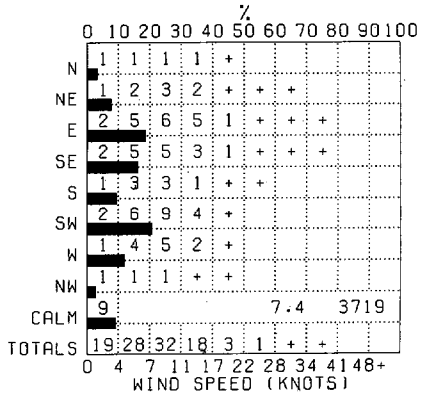
Kenai



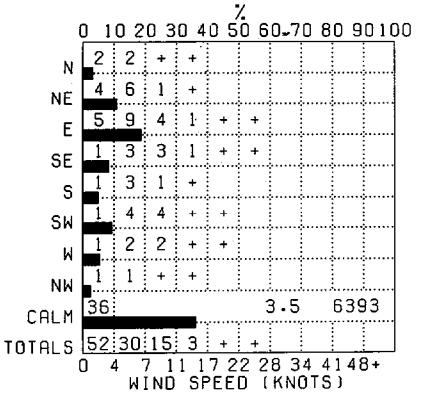
Anchorage



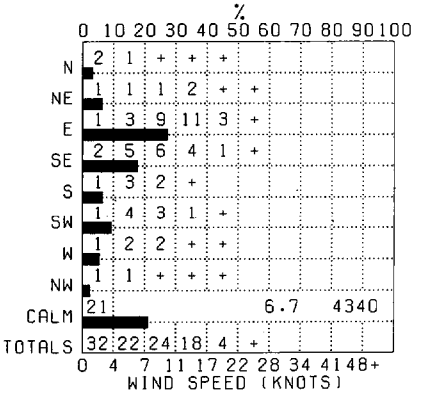
Middleton Island



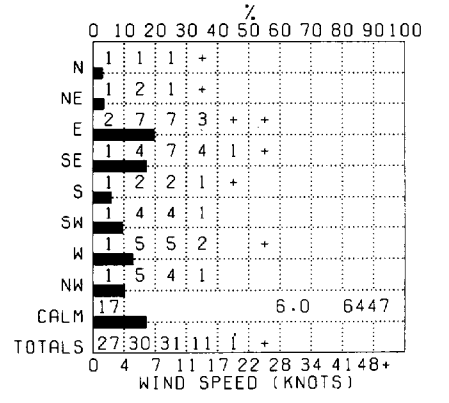
Cordova



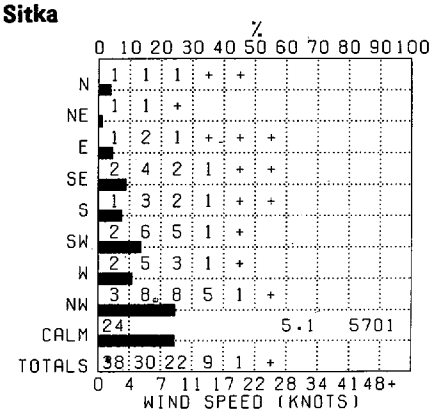
Yakataga



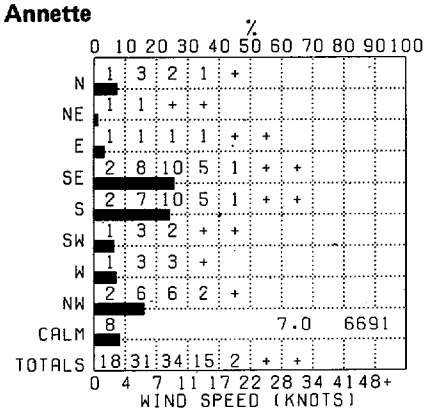
Yakutat



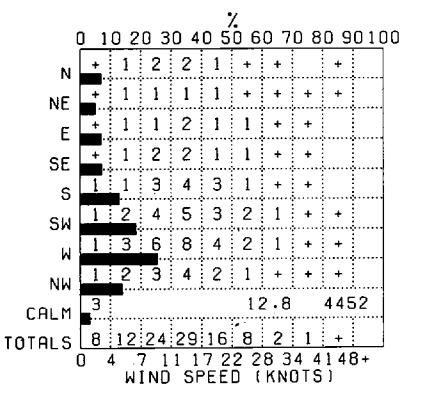
Sitka



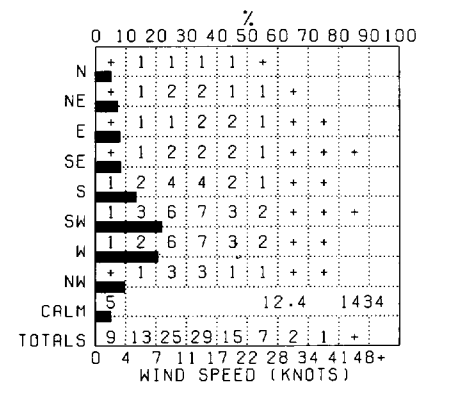
Annette

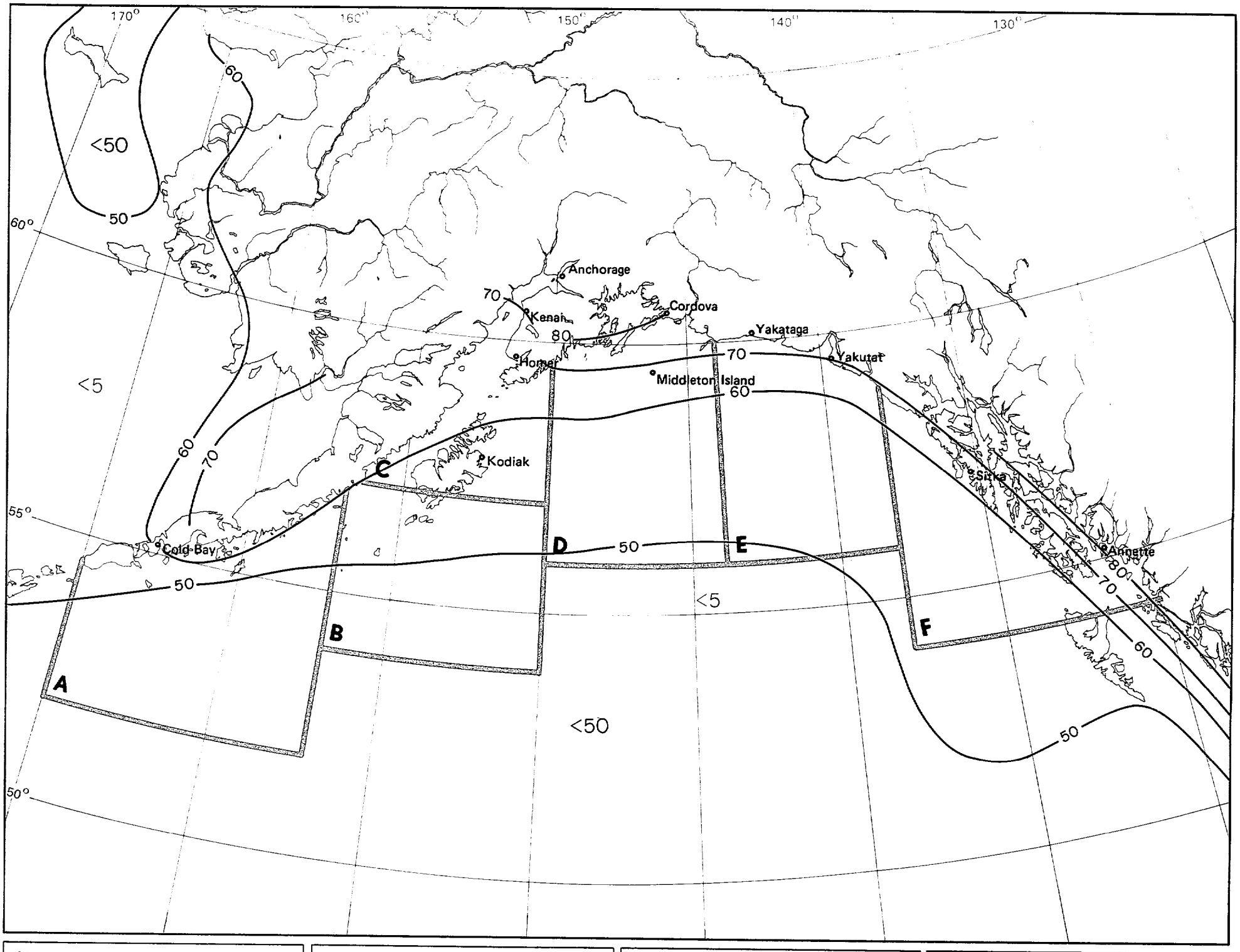


Marine Area A

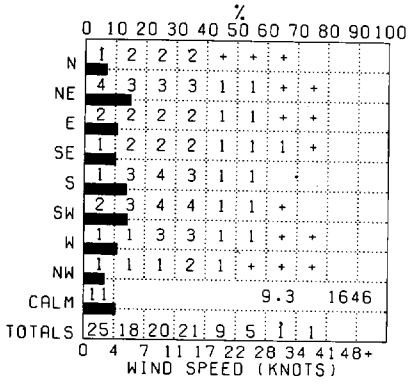


Marine Area B

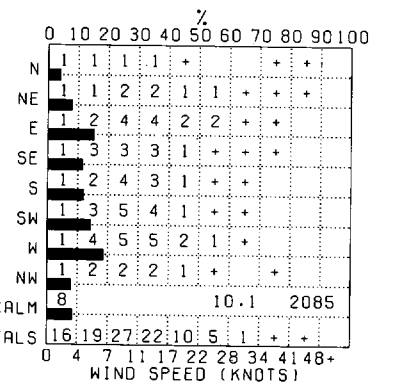




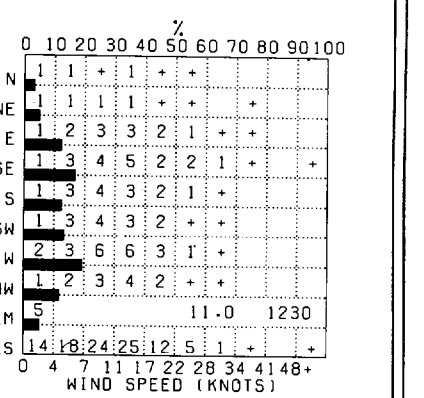
Marine Area C



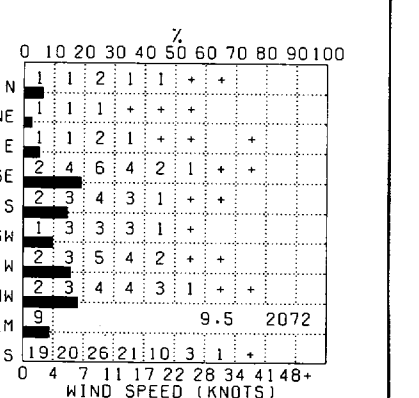
Marine Area D



Marine Area E



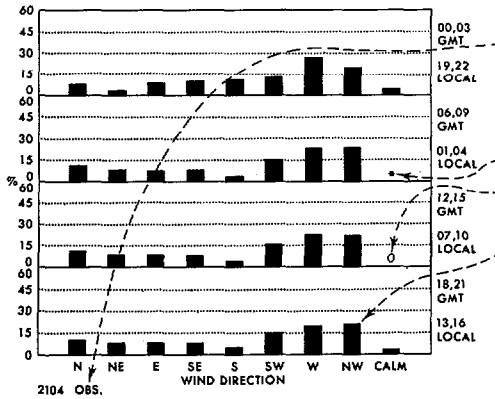
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

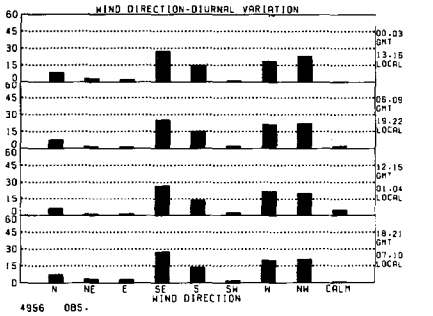
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

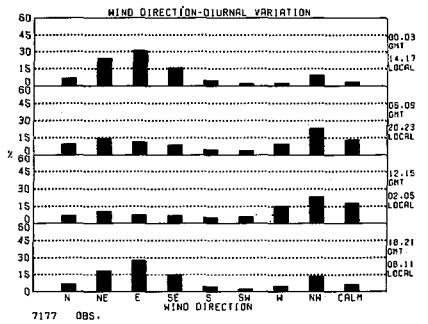
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

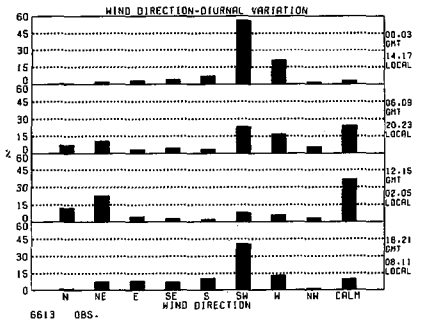
Cold Bay



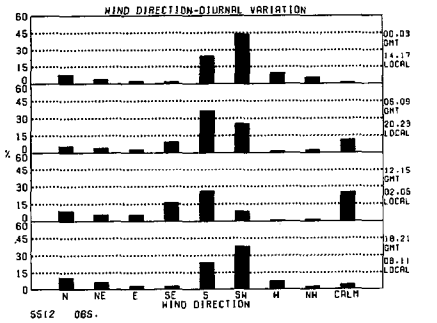
Kodiak



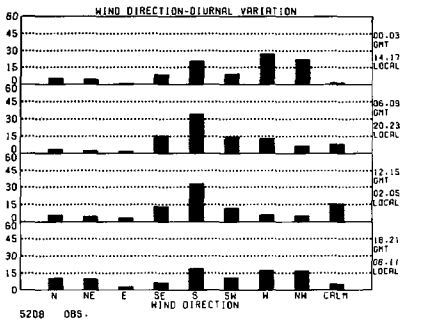
Homer



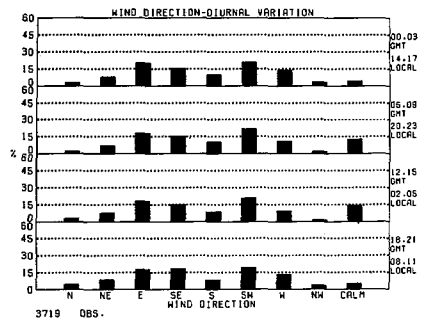
Kenai



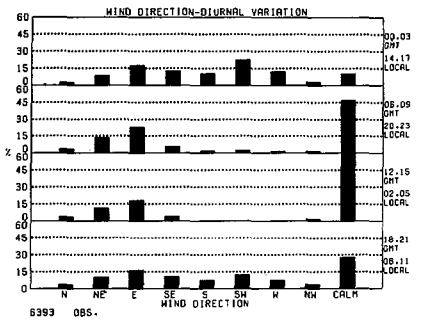
Anchorage



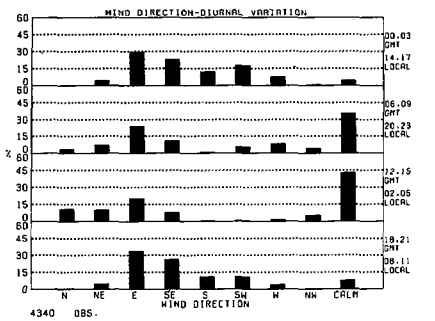
Middleton Island



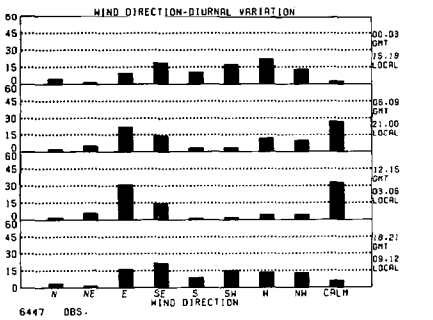
Cordova



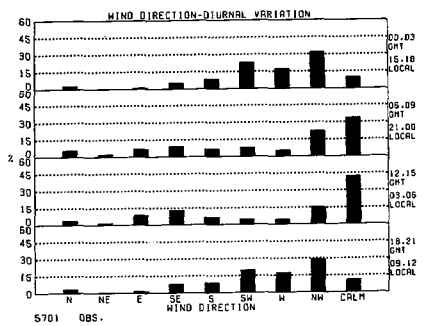
Yakataga



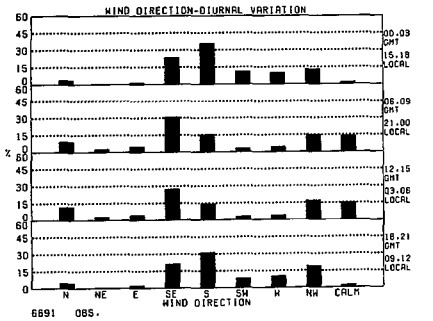
Yakutat



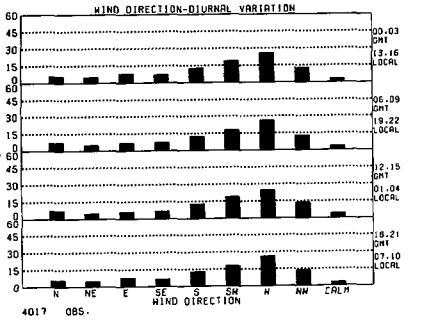
Sitka



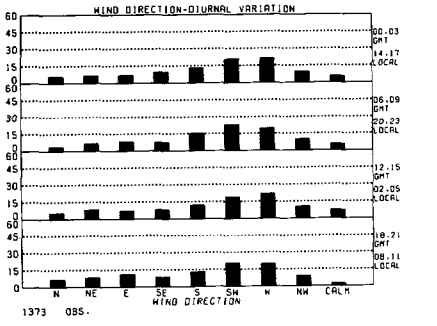
Annette

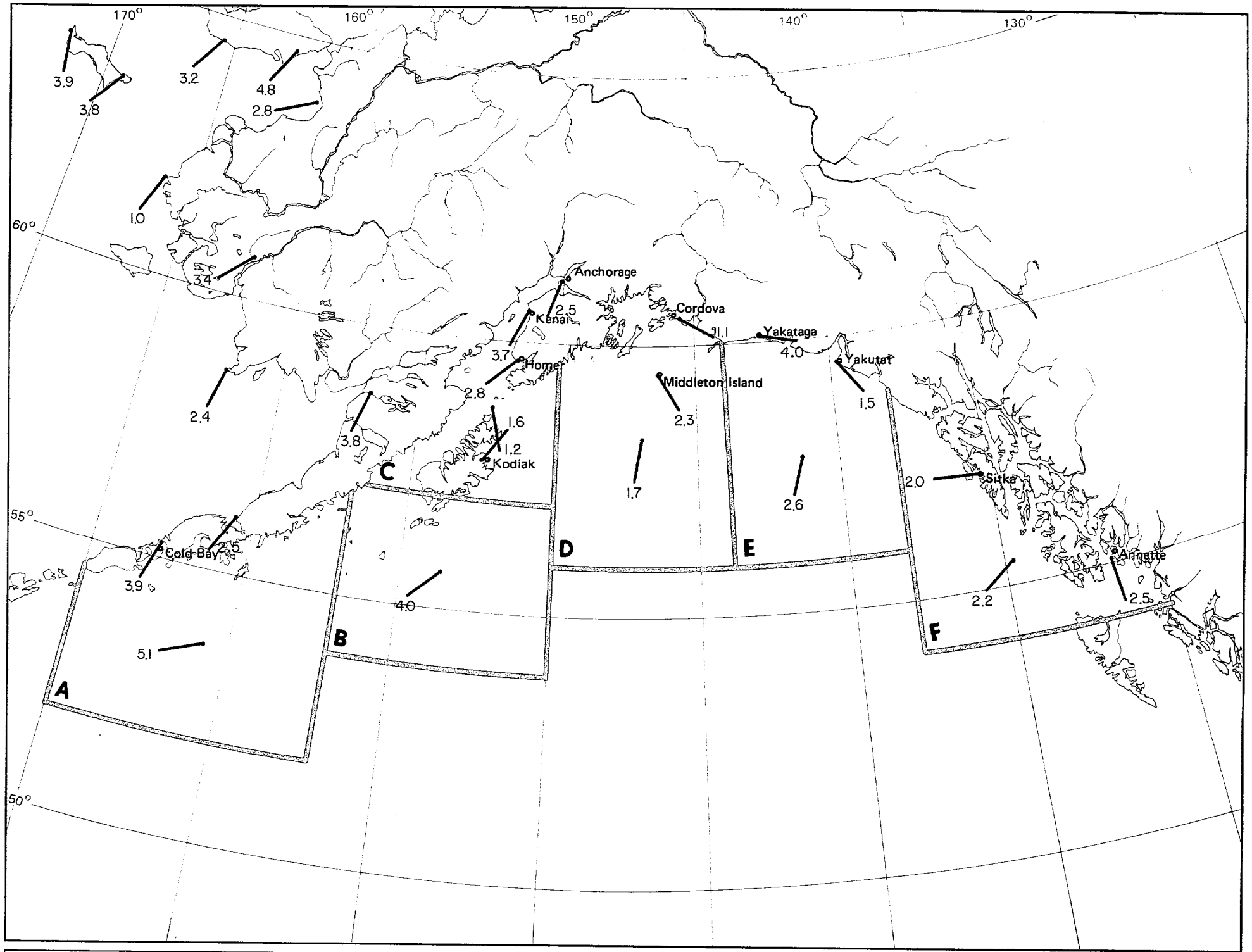


Marine Area A

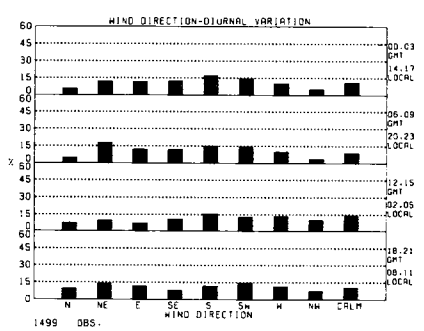


Marine Area B

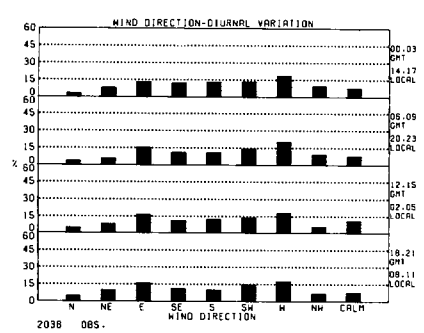




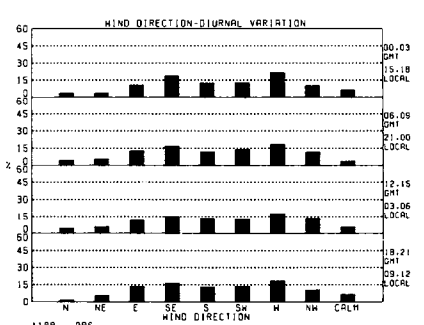
Marine Area C



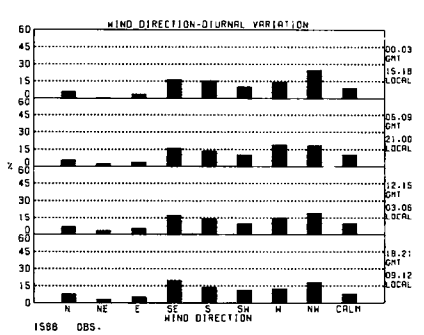
Marine Area D



Marine Area E



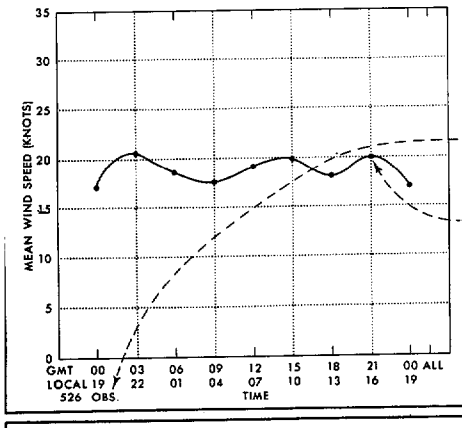
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

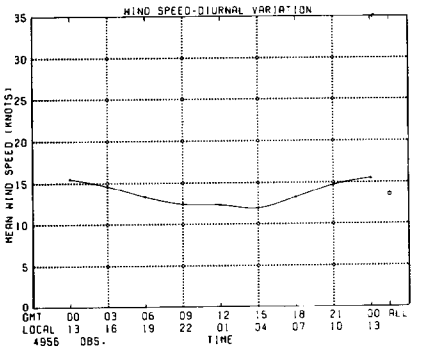
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

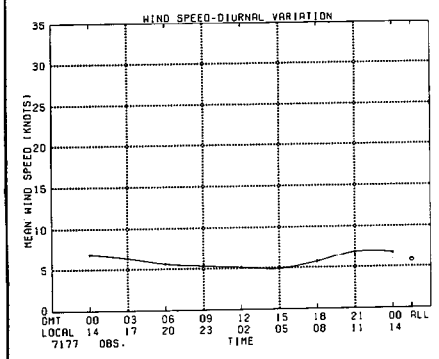
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

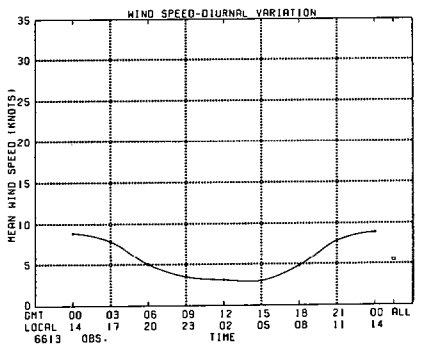
Cold Bay



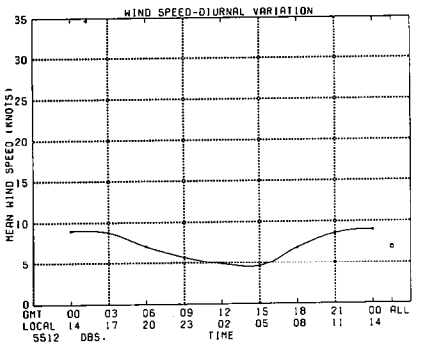
Kodiak



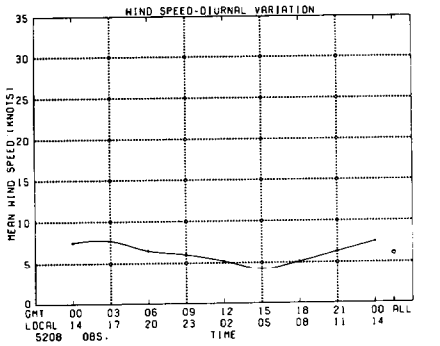
Homer



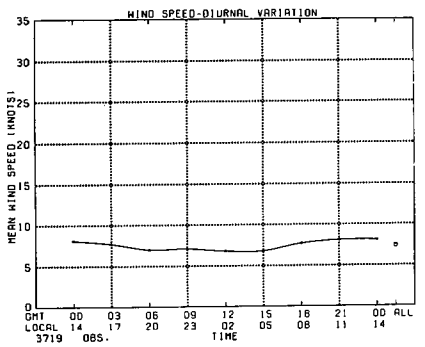
Kenai



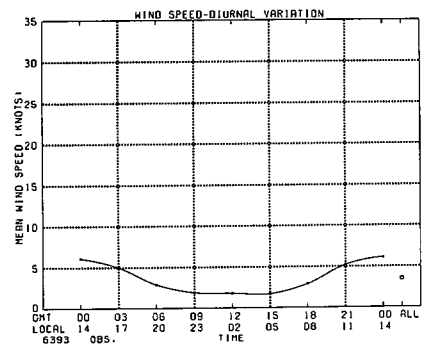
Anchorage



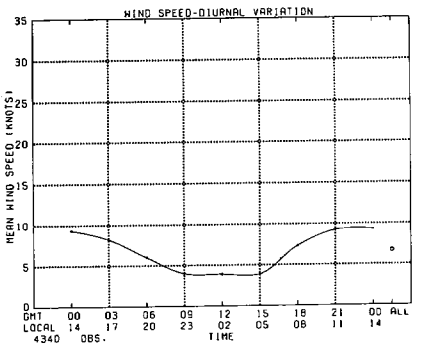
Middleton Island



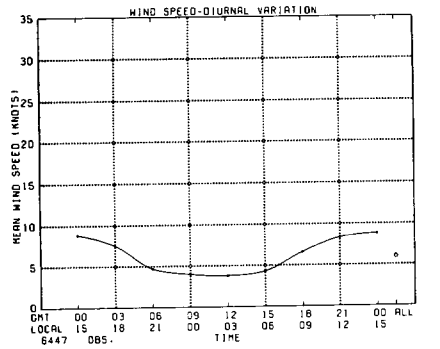
Cordova



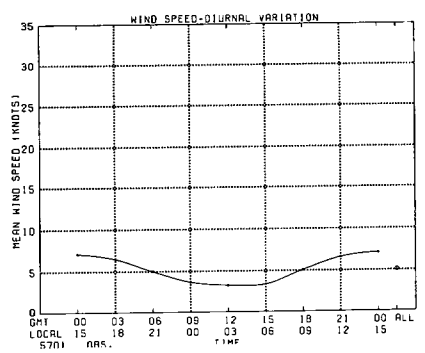
Yakataga



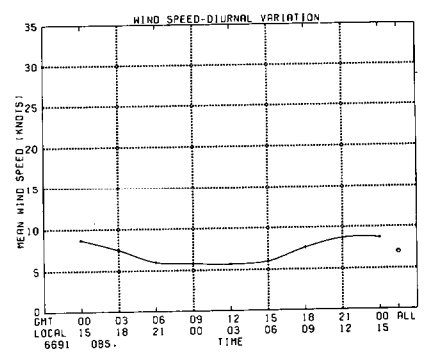
Yakutat



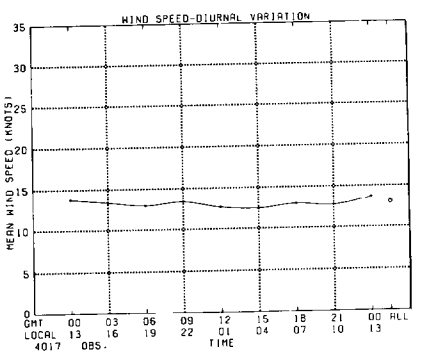
Sitka



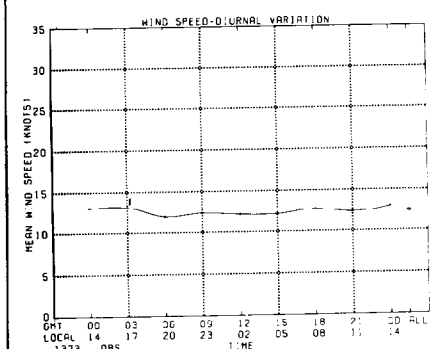
Annette

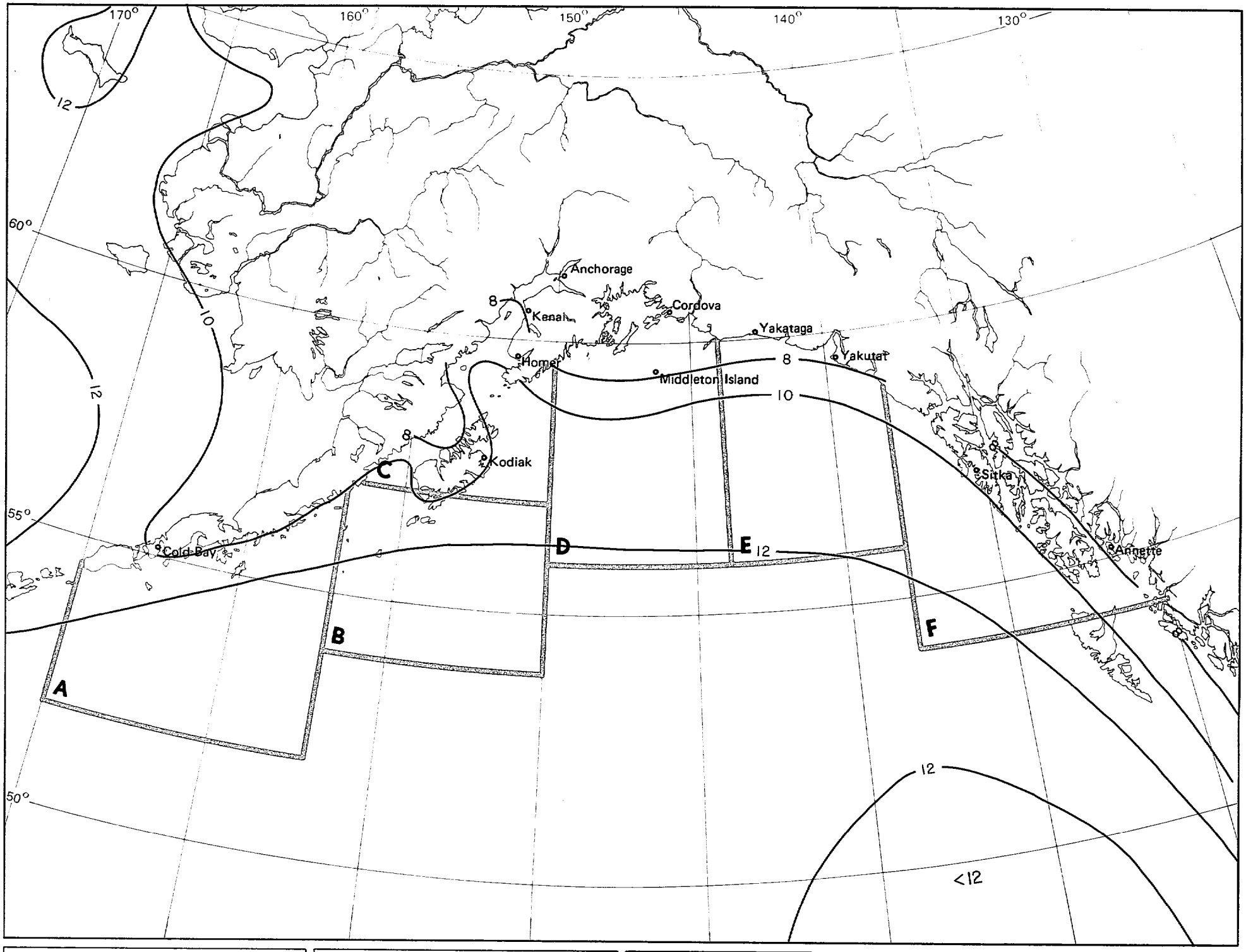


Marine Area A

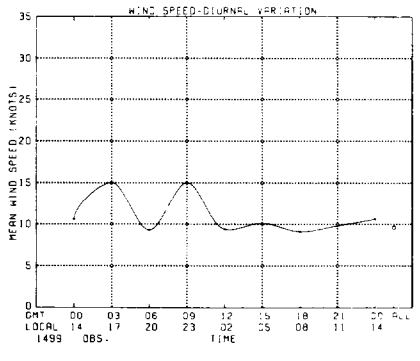


Marine Area B

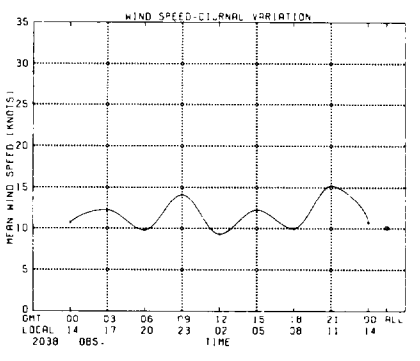




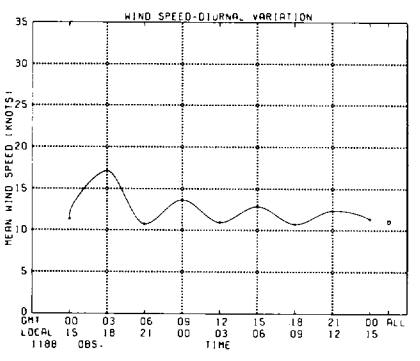
Marine Area C



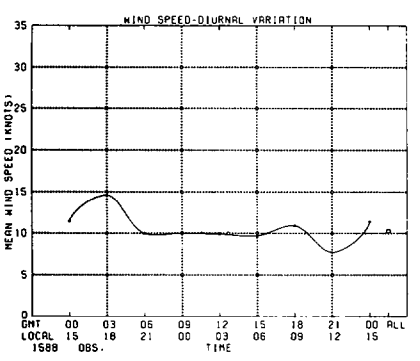
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

July

Legend

Low cloud ceiling/visibility

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5"

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	4	13
50<80	0	0	0	0	+	+
35<50	0	0	0	+	+	1
20<35	0	+	+	+	2	5
10<20	+	+	+	1	7	12
6<10	0	+	1	4	12	6
3<6	+	1	3	7	9	2
1.5<3	+	+	1	1	+	+
0<1.5	3	1	1	+	+	0

4942

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	4	39
50<80	0	+	0	+	+	2
35<50	0	+	0	+	1	4
20<35	0	0	+	+	2	10
10<20	+	+	+	1	4	6
6<10	+	+	+	2	4	2
3<6	0	1	2	4	3	1
1.5<3	+	+	+	+	+	+
0<1.5	2	2	2	1	+	+

6924

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	1	45
50<80	0	0	0	0	0	10
35<50	0	0	0	0	0	22
20<35	0	0	0	0	4	10
10<20	0	0	0	0	3	2
6<10	0	0	0	+	+	+
3<6	0	0	0	0	0	+
1.5<3	0	0	0	0	0	+
0<1.5	+	0	0	+	0	0

271

Kenai

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	6	59
50<80	0	0	0	0	0	11
35<50	0	0	0	0	0	6
20<35	0	0	0	0	3	4
10<20	0	0	+	1	2	1
6<10	0	0	+	0	2	1
3<6	0	+	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	+	+	0	0	0	0

229

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	+	1	2	57
50<80	+	0	0	+	+	8
35<50	0	0	0	+	+	7
20<35	0	0	+	+	1	8
10<20	0	0	0	+	2	6
6<10	0	0	+	+	2	2
3<6	0	0	+	+	1	1
1.5<3	0	0	0	+	+	+
0<1.5	0	+	0	0	+	+

5055

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	1	26
50<80	0	0	0	0	+	2
35<50	0	0	0	+	+	4
20<35	0	0	+	0	1	9
10<20	0	0	+	1	4	16
6<10	+	+	1	3	8	6
3<6	+	+	1	3	3	1
1.5<3	0	0	0	0	+	0
0<1.5	4	3	1	1	0	0

1474

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	1	23
50<80	0	0	0	0	+	2
35<50	0	0	0	+	+	4
20<35	0	0	+	1	6	17
10<20	0	+	1	5	10	9
6<10	0	1	2	4	5	2
3<6	+	+	1	1	2	1
1.5<3	0	+	0	+	+	+
0<1.5	1	1	1	+	+	+

4525

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	1	0	1	1	33
50<80	0	0	1	0	0	5
35<50	0	0	0	0	2	17
20<35	0	0	0	0	4	16
10<20	0	0	1	3	2	7
6<10	0	0	3	1	1	0
3<6	0	0	0	1	0	0
1.5<3	0	0	0	0	0	0
0<1.5	1	3	1	0	0	0

193

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	1	+	1	1	24
50<80	+	+	0	0	+	1
35<50	+	0	+	+	+	2
20<35	0	0	+	+	2	7
10<20	+	+	+	1	6	14
6<10	0	1	2	4	8	5
3<6	+	2	3	4	4	2
1.5<3	+	1	+	+	+	+
0<1.5	1	1	+	+	+	0

6418

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	1	0	3	39
50<80	0	0	0	0	0	3
35<50	0	0	0	0	3	6
20<35	0	0	0	1	5	5
10<20	0	0	0	2	2	1
6<10	0	0	0	3	1	0
3<6	0	0	0	4	1	0
1.5<3	0	0	0	1	0	0
0<1.5	7	3	4	3	0	0

156

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	43
50<80	+	0	0	0	+	3
35<50	0	0	0	0	+	4
20<35	0	0	0	+	+	11
10<20	0	+	+	1	2	12
6<10	+	+	1	2	3	4
3<6	+	+	1	3	2	2
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	0

6610

Marine Area A

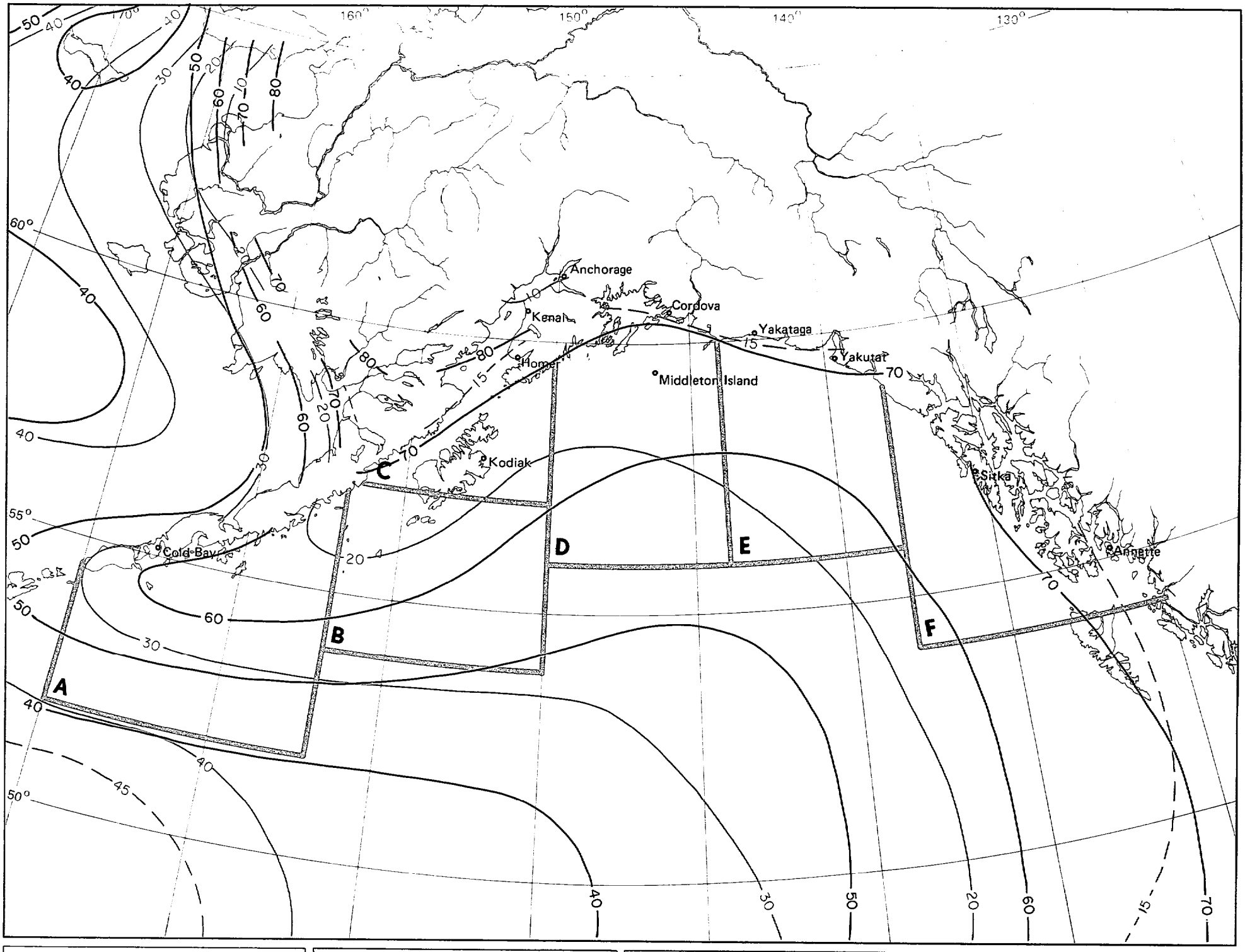
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	3	15
50<80	+	0	0	+	+	1
35<50	0	+	+	+	1	2
20<35	+	+	+	1	5	7
10<20	1	+	1	3	8	12
6<10	1	+	1	3	6	6
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	1	+
0<1.5	10	1	1	1	1	+

3386

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	4	18
50<80	+	0	+	+	+	1
35<50	0	0	0	+	2	2
20<35	+	0	0	2	5	9
10<20	+	+	1	3	7	12
6<10	+	+	+	3	5	6
3<6	0	+	+	1	2	1
1.5<3	0	+	+	+	+	+
0<1.5	7	1	1	1	+	+

1180



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	2	35
50<80	+	0	0	0	+	2
35<50	0	0	0	0	1	4
20<35	0	0	+	+	2	8
10<20	+	+	1	1	4	13
6<10	+	+	+	1	4	5
3<6	+	+	+	1	1	1
1.5<3	+	0	+	1	1	1
0<1.5	2	1	1	1	1	+

1192

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	24
50<80	0	0	0	0	+	1
35<50	0	0	0	+	1	3
20<35	0	0	+	+	2	9
10<20	+	0	1	1	4	16
6<10	+	+	+	1	4	10
3<6	0	+	+	1	2	3
1.5<3	+	+	+	1	1	1
0<1.5	5	2	1	1	1	+

1747

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	1	21
50<80	0	0	0	+	0	1
35<50	+	0	0	+	1	3
20<35	0	0	0	1	2	12
10<20	+	+	+	2	7	17
6<10	0	+	+	2	4	11
3<6	0	+	+	1	2	3
1.5<3	+	+	0	1	+	1
0<1.5	3	1	1	1	1	1

886

Marine Area F

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	2	22
50<80	0	0	0	+	1	2
35<50	0	+	0	+	1	3
20<35	0	+	+	1	5	10
10<20	+	1	+	2	6	13
6<10	+	2	+	3	5	6
3<6	+	+	+	1	3	2
1.5<3	+	0	+	+	1	+
0<1.5	2	1	1	1	+	+

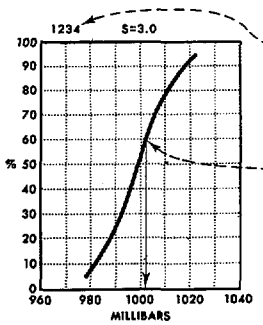
1288

12 Low cloud ceiling and visibility thresholds

July

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S=Standard deviation of pressure (mbs).

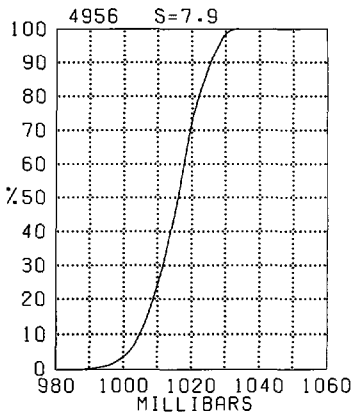
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

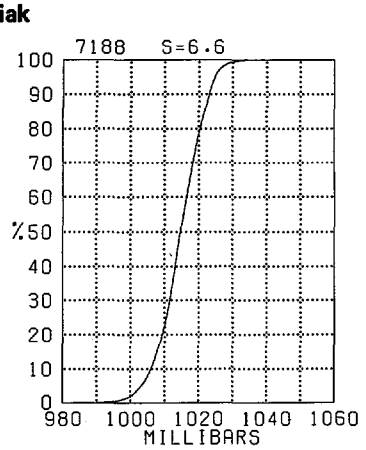
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

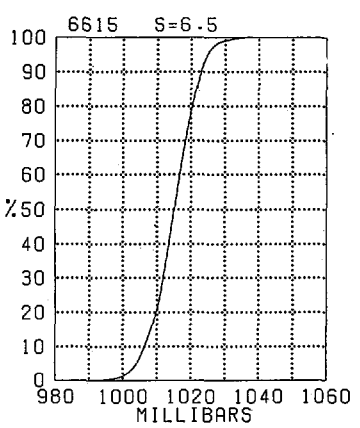
Cold Bay



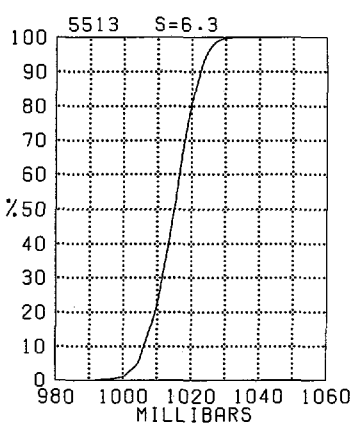
Kodiak



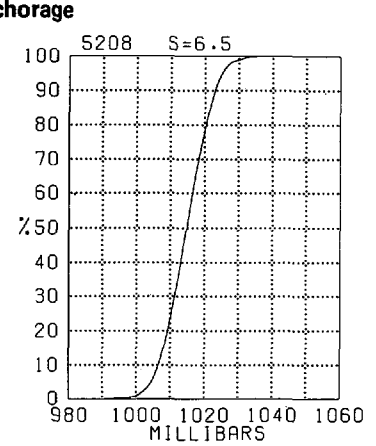
Homer



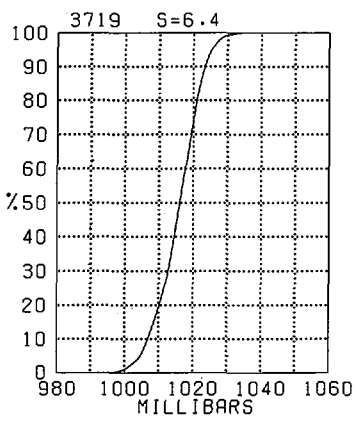
Kenai



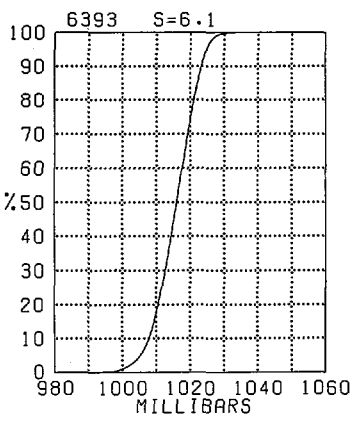
Anchorage



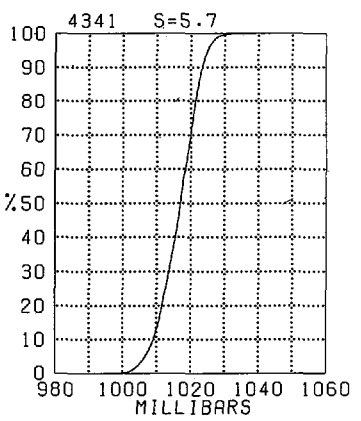
Middleton Island



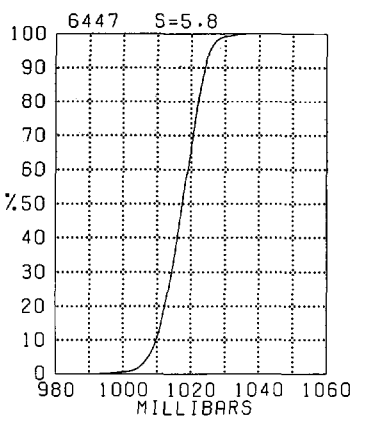
Cordova



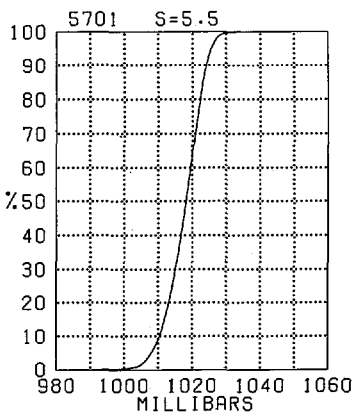
Yakataga



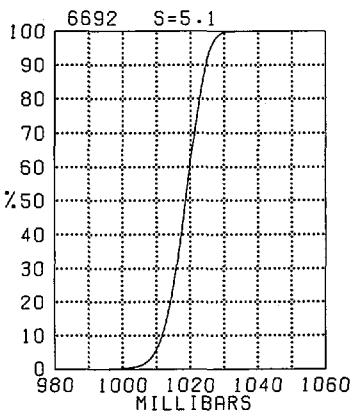
Yakutat



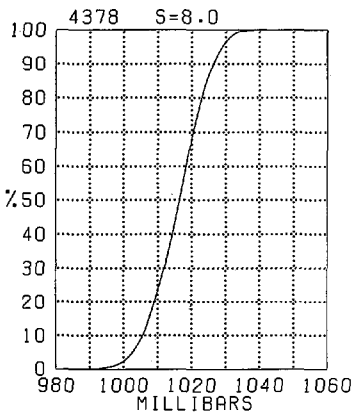
Sitka



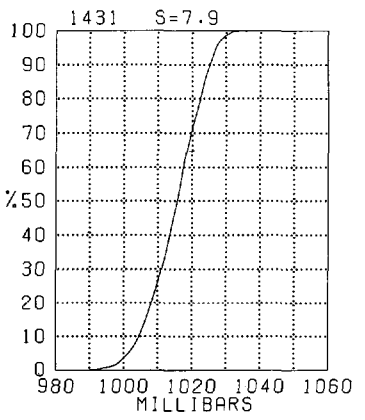
Annette

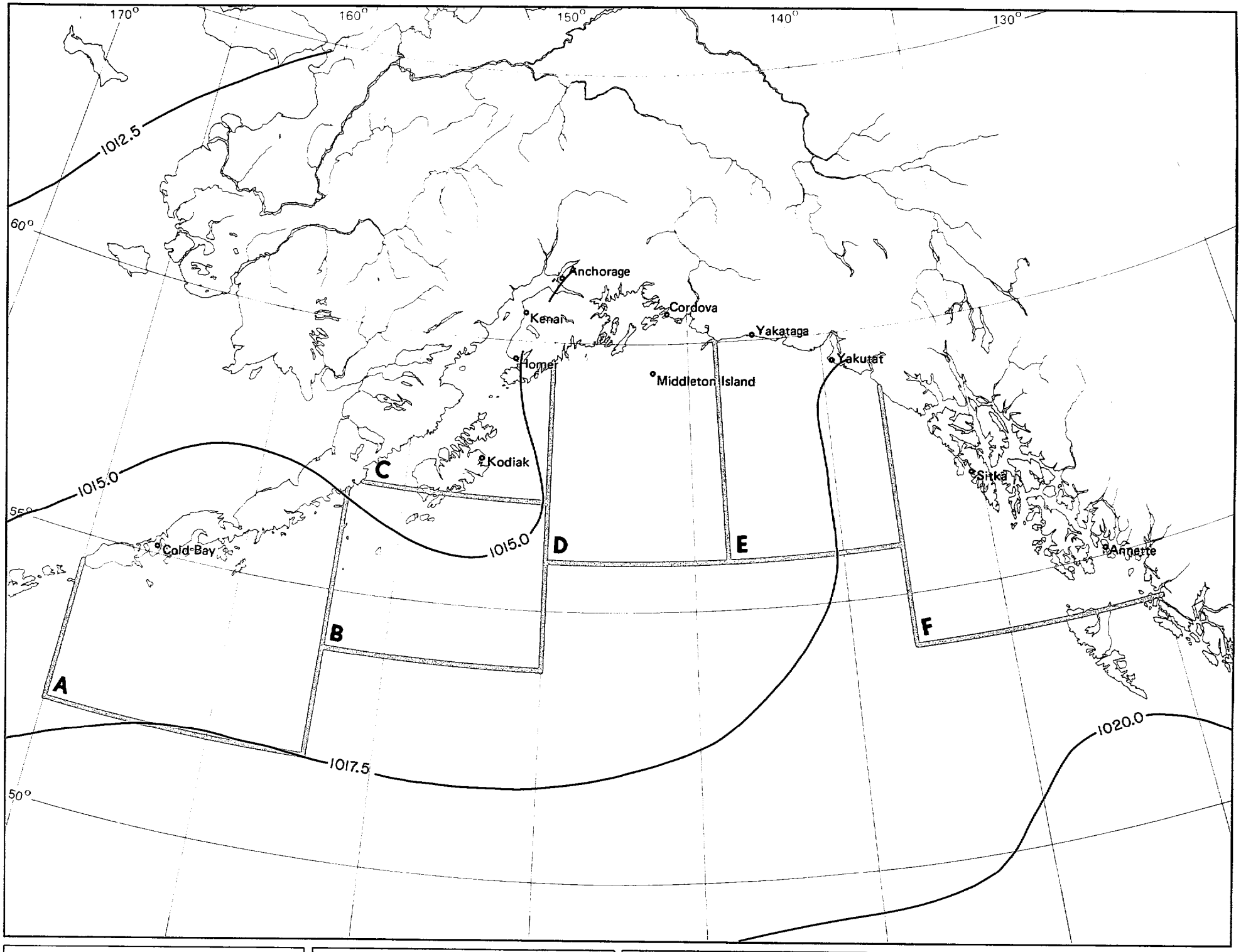


Marine Area A

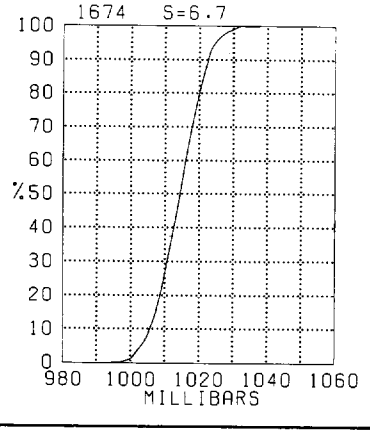


Marine Area B

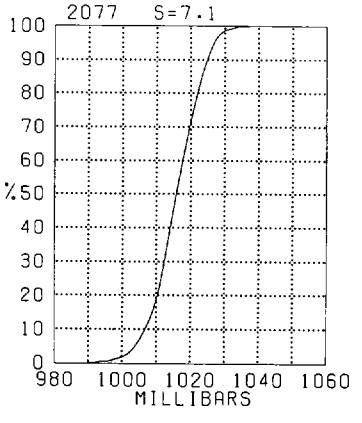




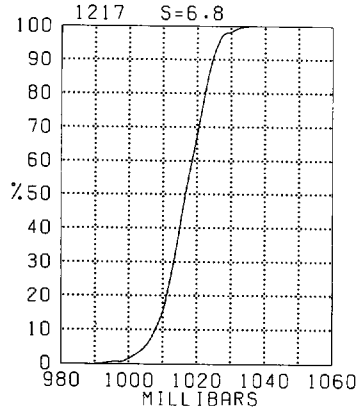
Marine Area C



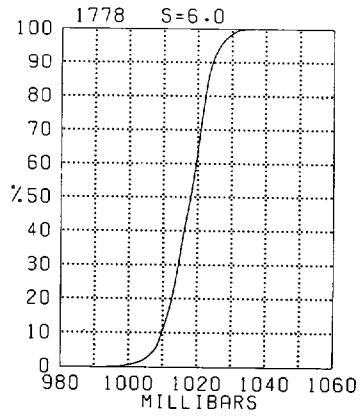
Marine Area D



Marine Area E



Marine Area F

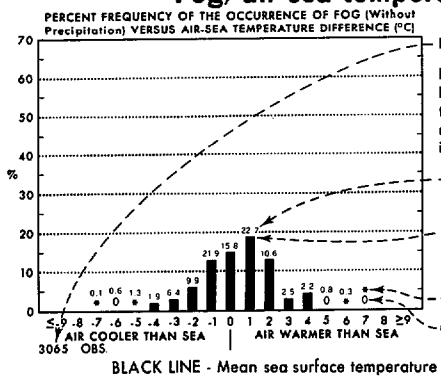


13 Mean sea level pressure

July

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

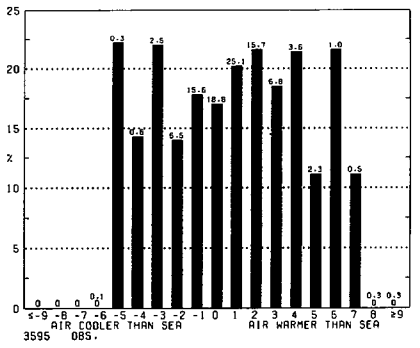
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

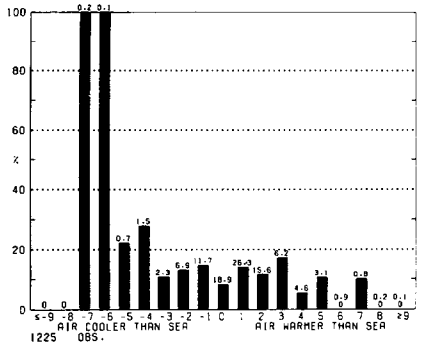
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

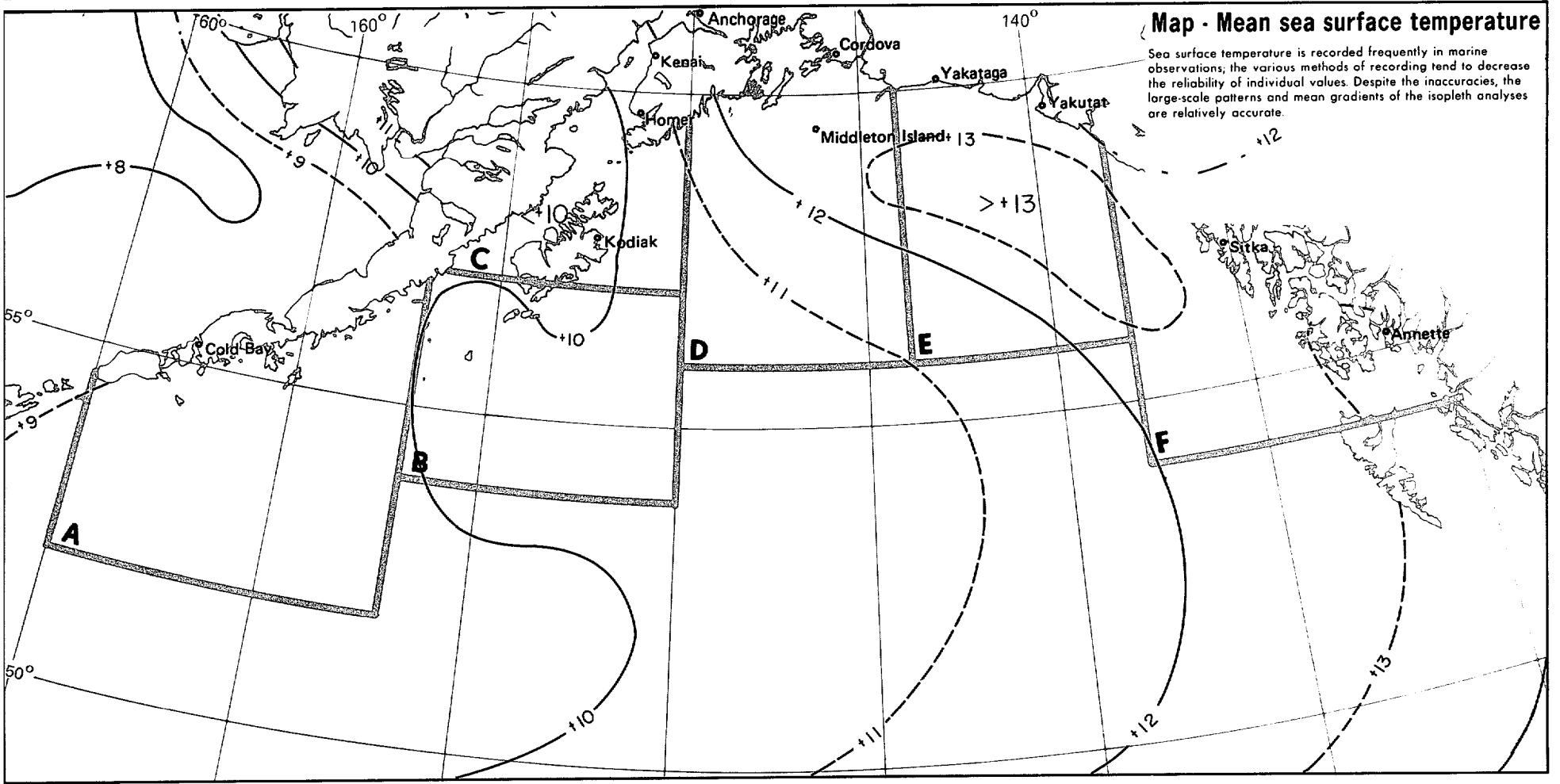


Marine Area B

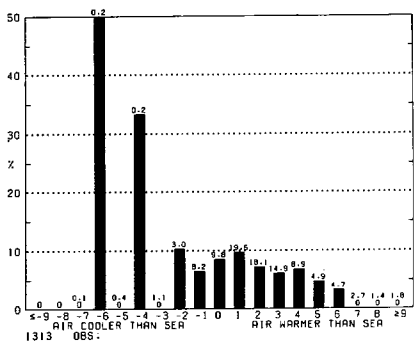


Map - Mean sea surface temperature

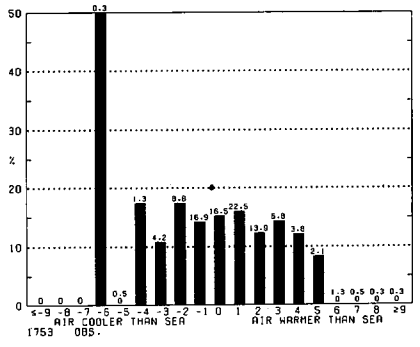
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



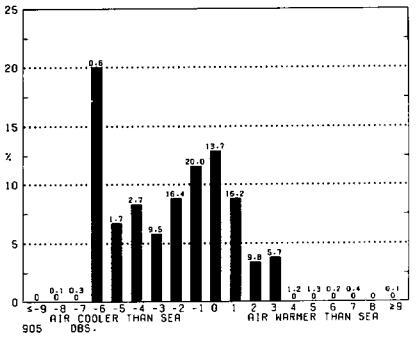
Marine Area C



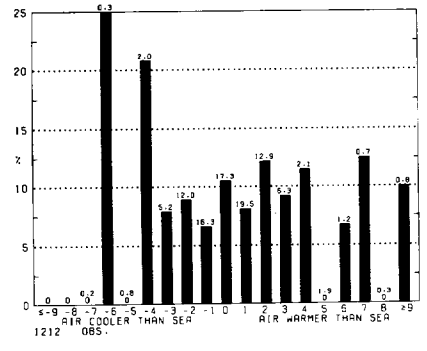
Marine Area D



Marine Area E

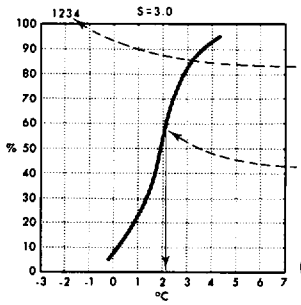


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

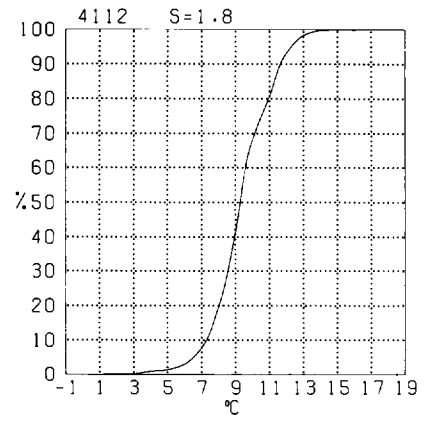
(60% of *all observed sea surface temperatures were* ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

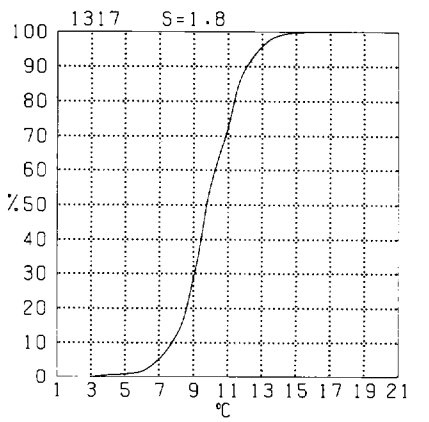
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

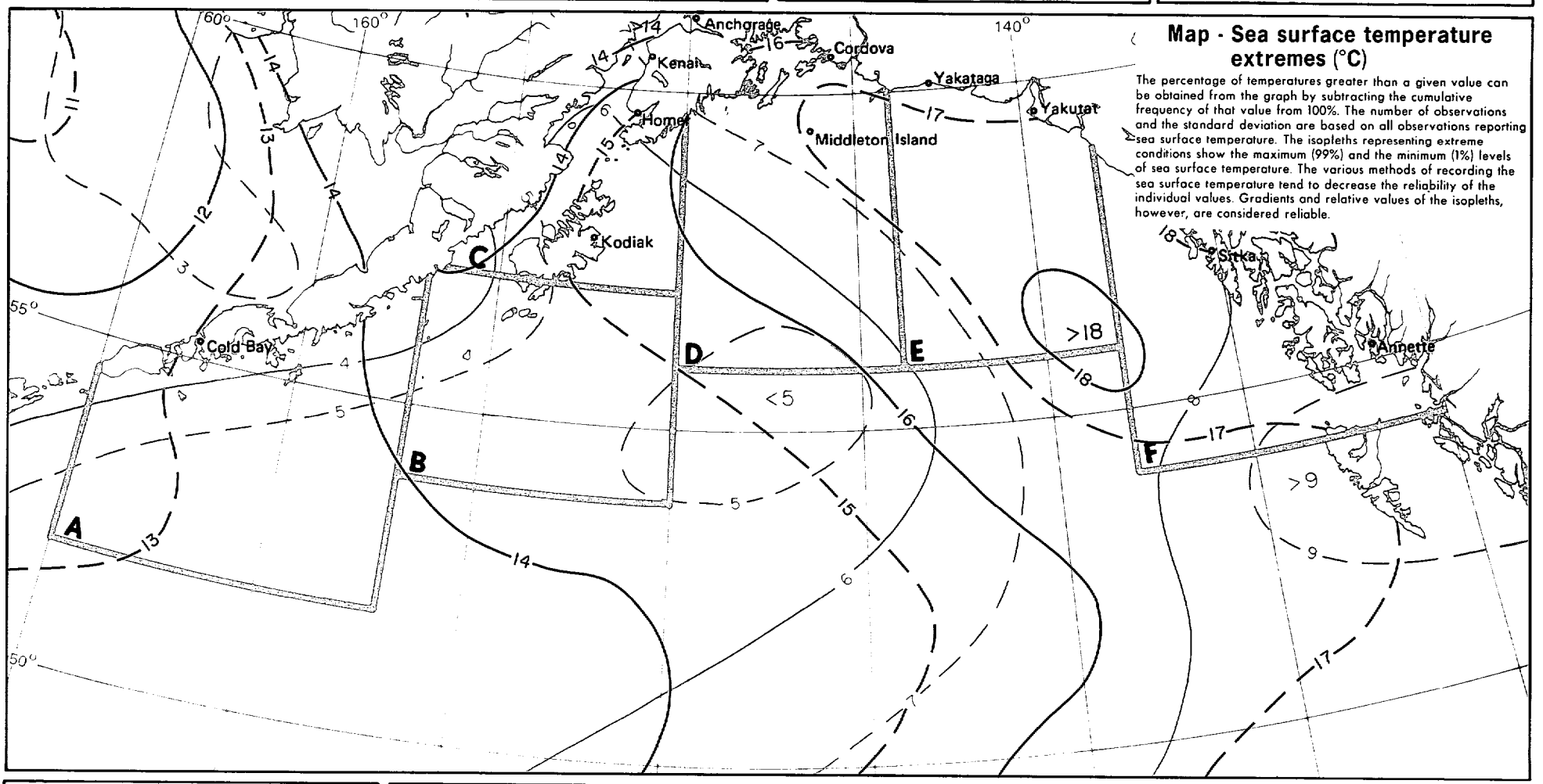
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

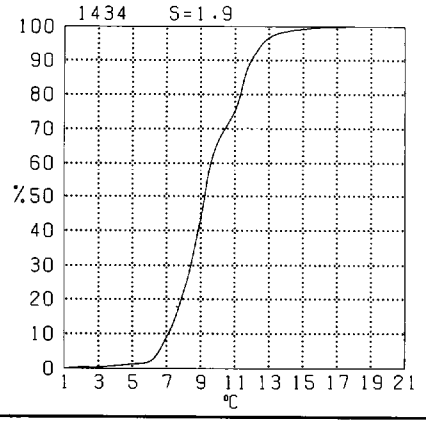




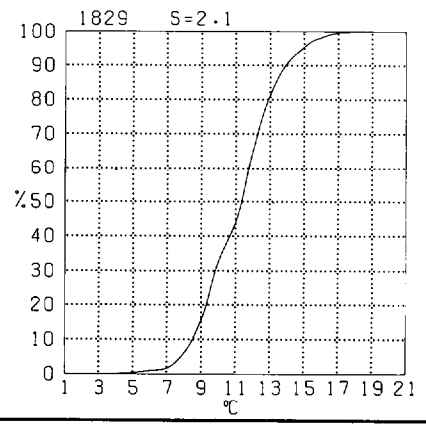
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

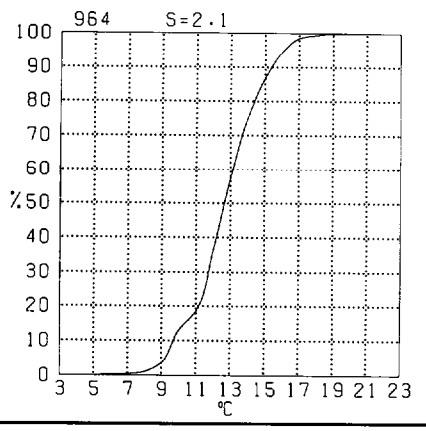
Marine Area C



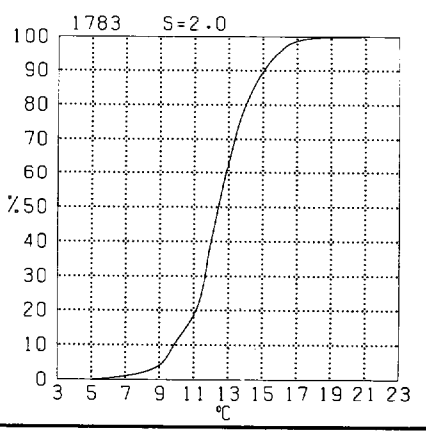
Marine Area D



Marine Area E



Marine Area F

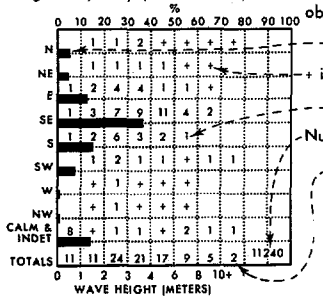


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



(5% of all waves were from the N.)

+ indicates <.5% but >0.

(1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

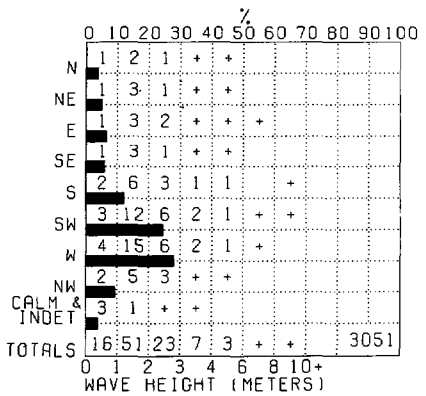
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

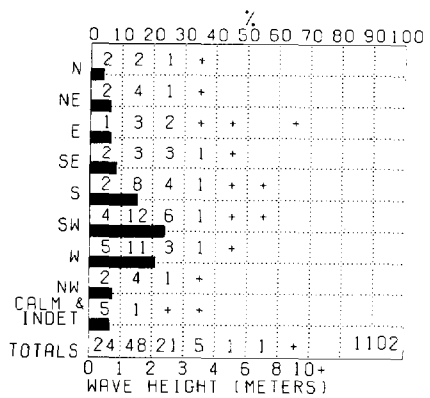
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

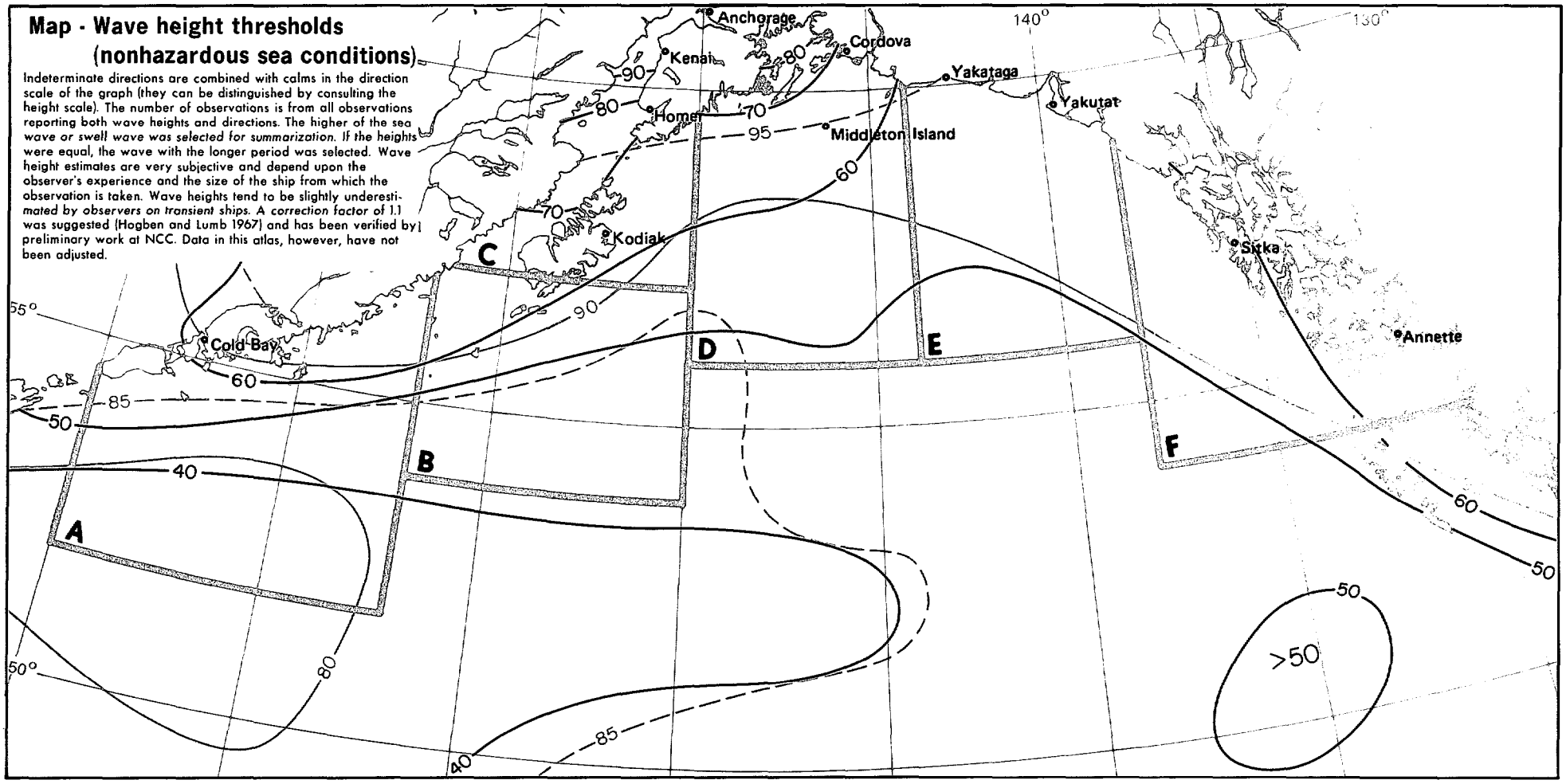


Marine Area B

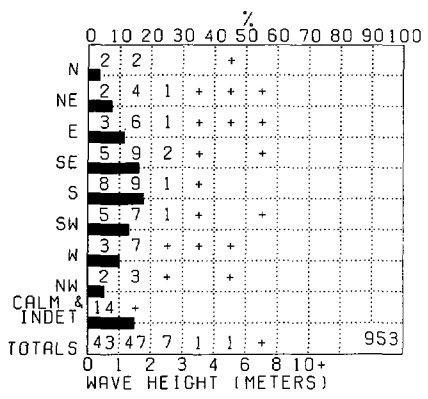


Map - Wave height thresholds (nonhazardous sea conditions)

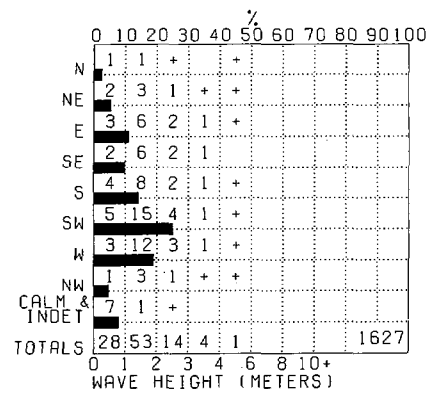
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea *wave or swell wave was selected for summarization.* If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underesti*mated by observers on transient ships.* A *correction factor* of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



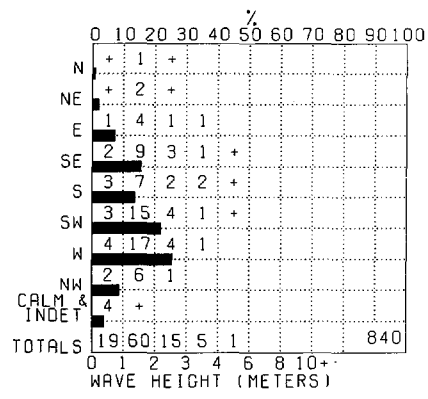
Marine Area C



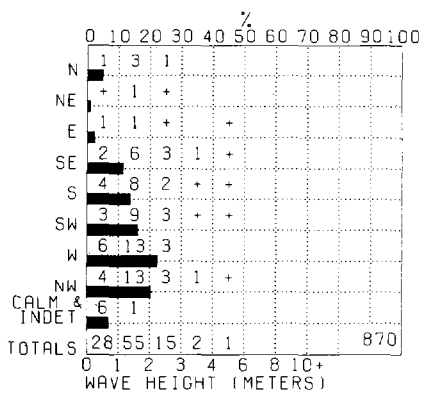
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	13	2	+	+	0	0	4
1-1.5	23	16	6	1	1	+	3
2-2.5	5	9	5	2	+	1	1
3-3.5	1	3	2	1	+	+	+
4-5.5	+	1	1	+	+	+	+
6-7.5	0	+	0	+	0	0	0
8-9.5	0	0	+	0	0	0	0
≥10	0	0	0	0	0	0	0

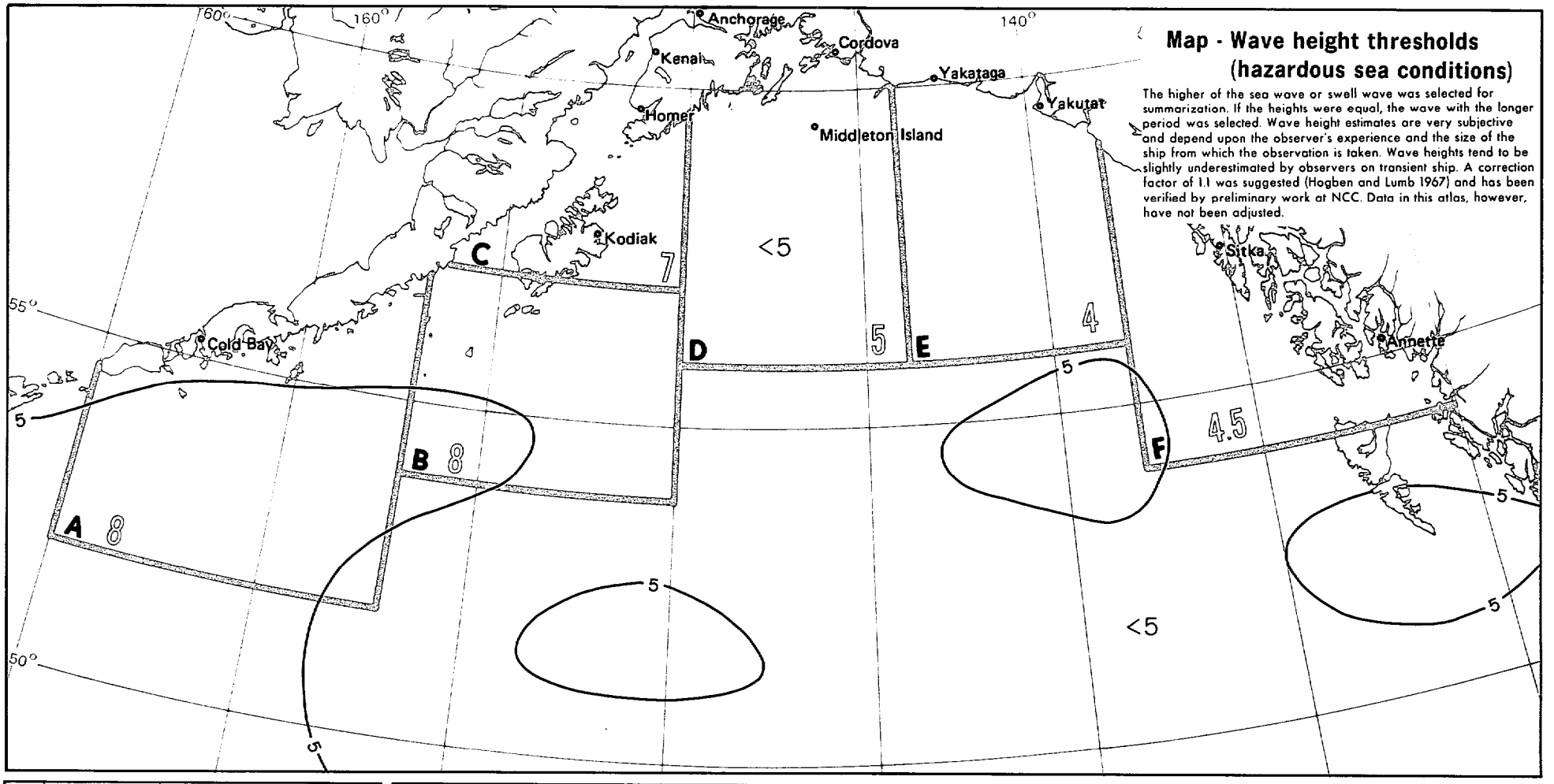
3155

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	3	1	1	0	0	5
1-1.5	22	13	6	2	+	+	4
2-2.5	7	9	3	1	+	+	1
3-3.5	1	3	1	+	+	+	+
4-5.5	0	0	+	+	0	+	0
6-7.5	0	0	+	+	0	0	0
8-9.5	0	0	+	0	0	0	0
≥10	0	0	0	0	0	0	0

1124



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	35	3	1	1	0	0	13
1-1.5	27	8	2	1	+	0	1
2-2.5	2	2	1	+	+	+	+
3-3.5	1	+	+	+	0	0	0
4-5.5	+	0	+	0	+	0	0
6-7.5	0	0	+	+	0	+	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1130

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	20	2	1	1	0	0	7
1-1.5	24	16	6	1	2	+	1
2-2.5	4	4	2	1	+	1	+
3-3.5	1	1	1	+	0	+	0
4-5.5	+	+	+	+	0	0	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1716

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	18	3	+	+	0	0	4
1-1.5	27	17	6	3	2	+	1
2-2.5	4	5	3	2	+	+	+
3-3.5	+	2	1	1	+	0	0
4-5.5	+	+	+	0	0	0	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

909

Marine Area F

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	19	3	2	+	0	0	9
1-1.5	21	15	7	3	2	0	3
2-2.5	4	3	3	2	1	1	1
3-3.5	+	1	+	+	+	+	0
4-5.5	+	+	+	0	0	0	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

936

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)

Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

177 — Statistics for this rose are based on 177 twelve hour movements.

83 — 83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1/66-12/74.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)

(Frequency) 100% 80% 60% 40% 20%

(vector mean speed knots) 50 40 30 20 10

180° 170° 160° 150° 140° 130°

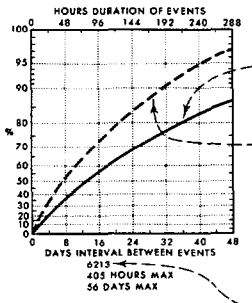
70° 60° 50°

18 Low pressure center movement

Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

----(*80% of the events had a duration ≤216 hours.*)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

----(*88% of the events were followed by another event in 28 days or less.*)

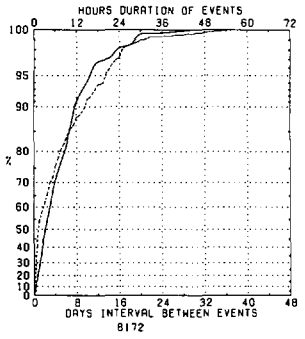
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

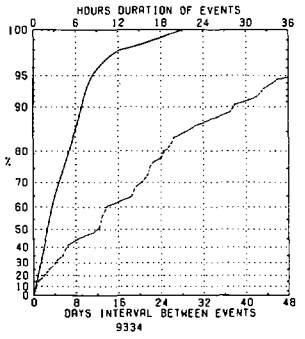
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

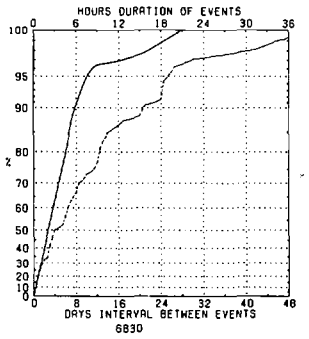
Kodiak



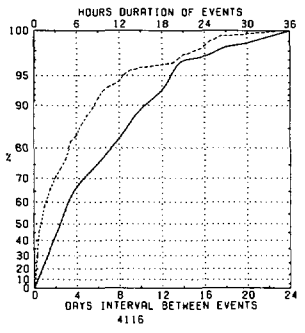
Homer



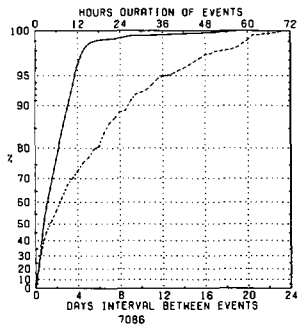
Kenai



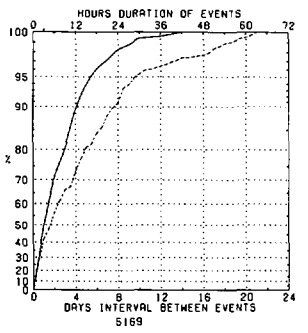
Middleton Island



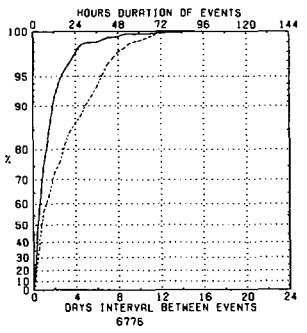
Cordova



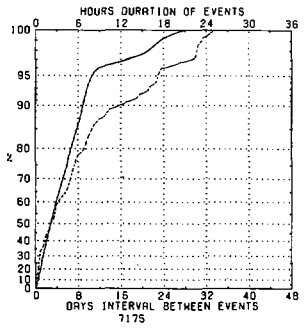
Yakataga



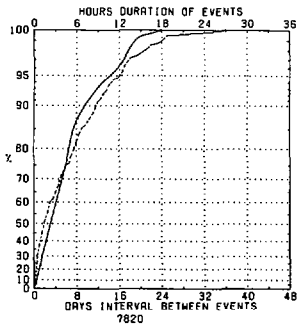
Yakutat



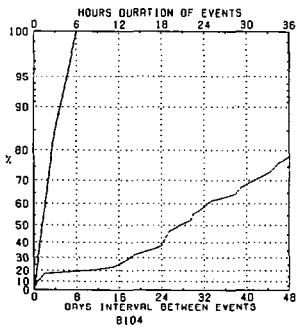
Sitka



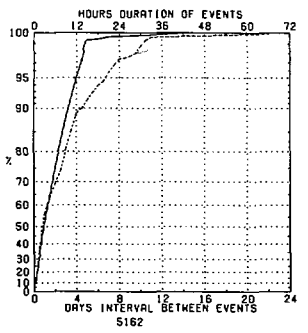
Annette



Anchorage



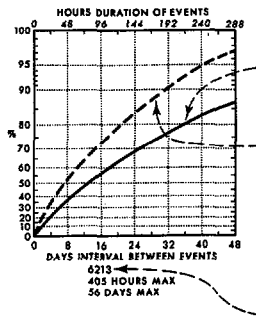
Cold Bay



Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

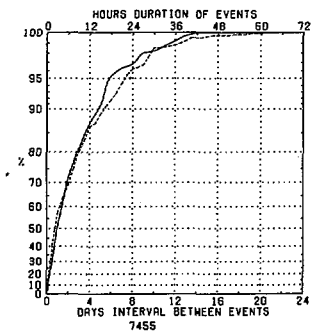
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

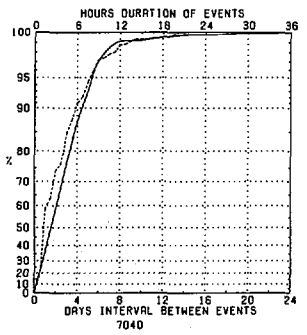
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

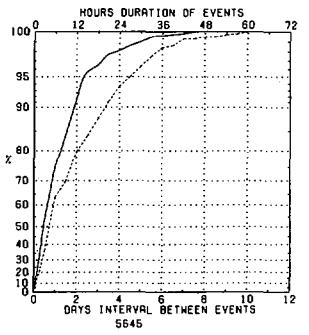
Kodiak



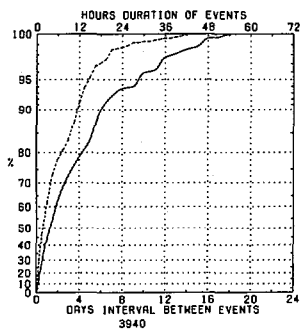
Homer



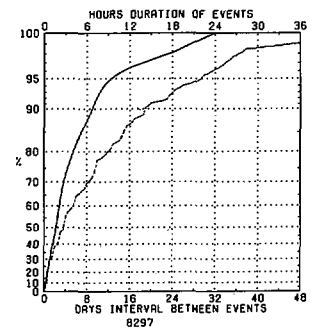
Kenai



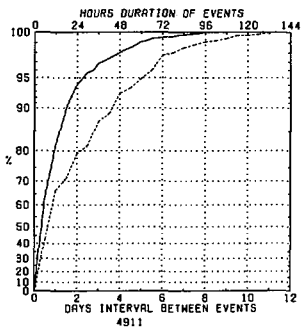
Middleton Island



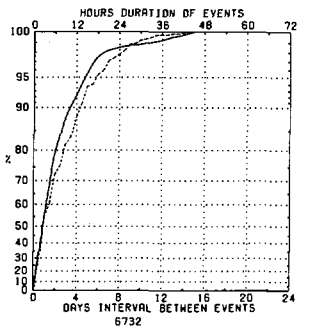
Cordova



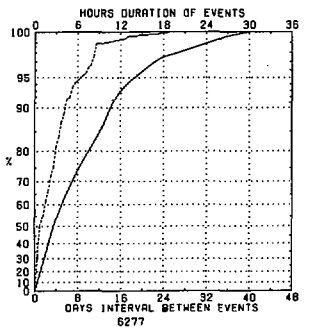
Yakataga



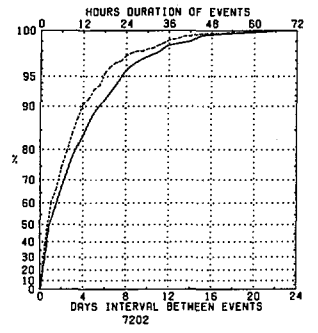
Yakutat



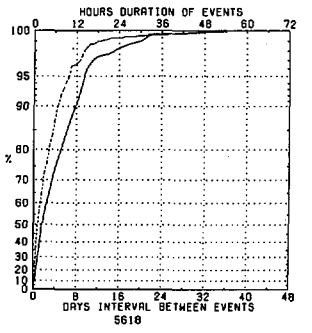
Sitka



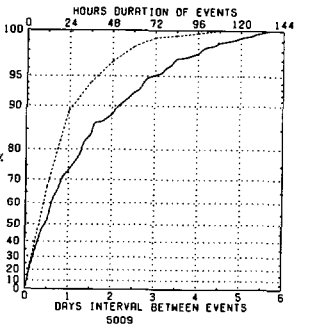
Annette

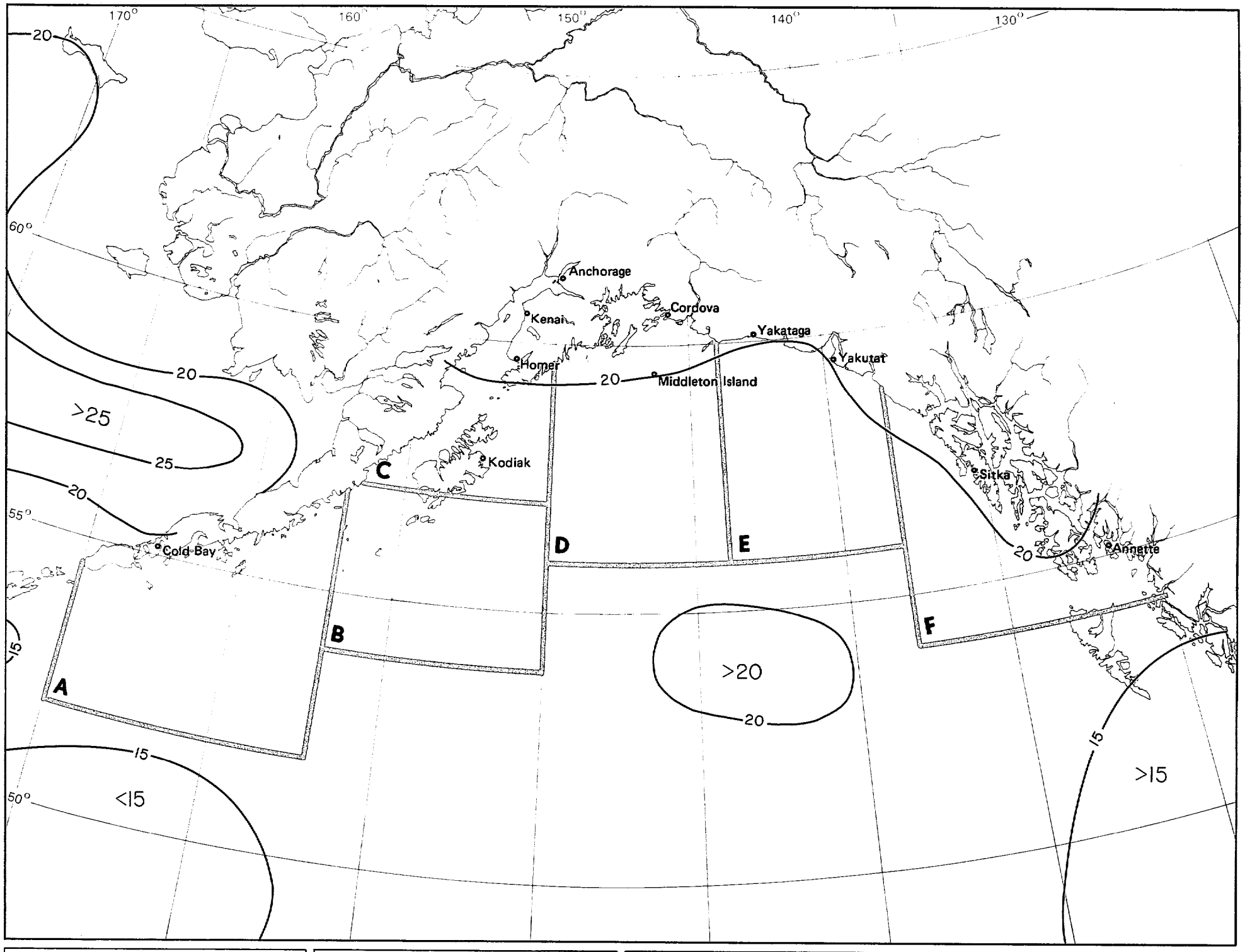


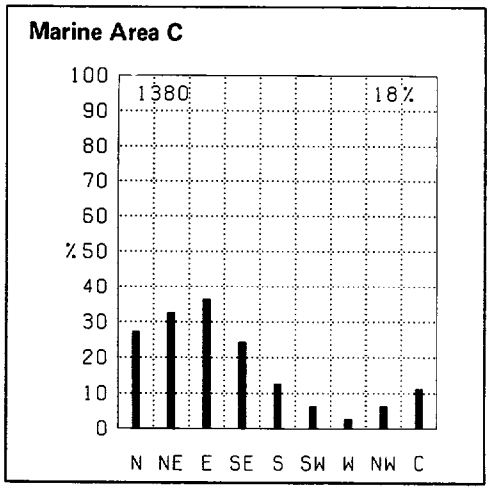
Anchorage

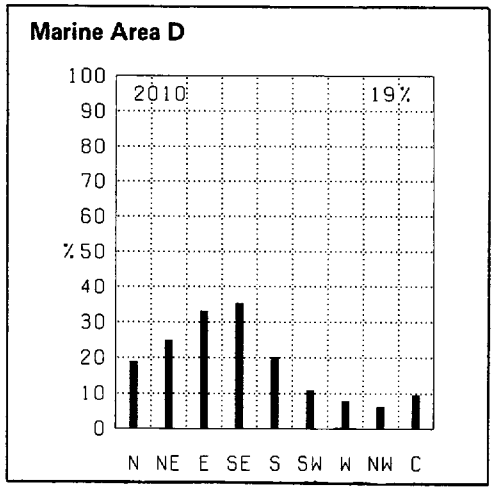


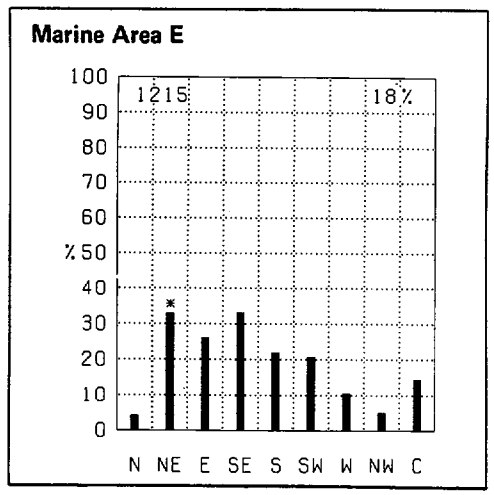
Cold Bay

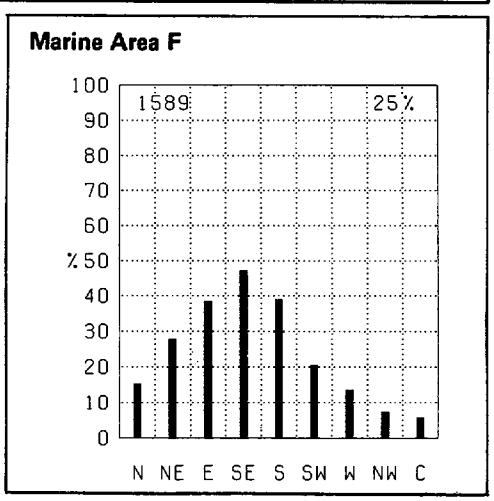










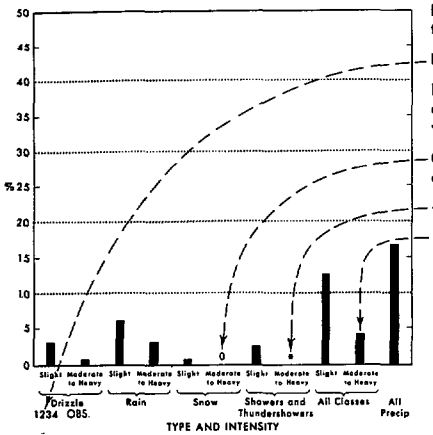


1 Precipitation

August

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

• indicates <.05% but >0.

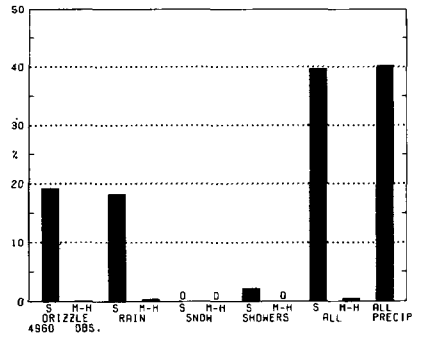
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

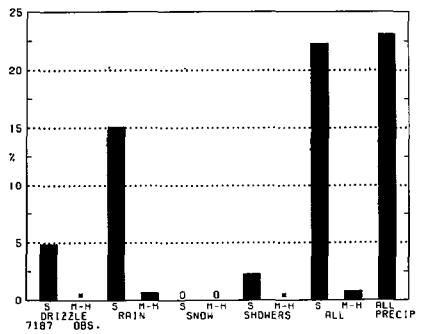
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations *reporting precipitation (map 1.) with that of precipitation observations* reporting snow (map 2.).

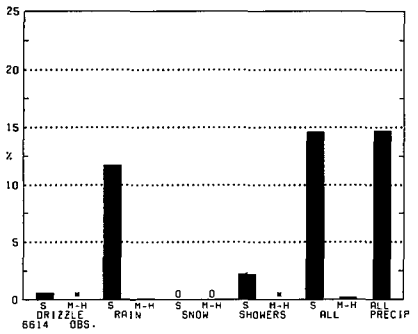
Cold Bay



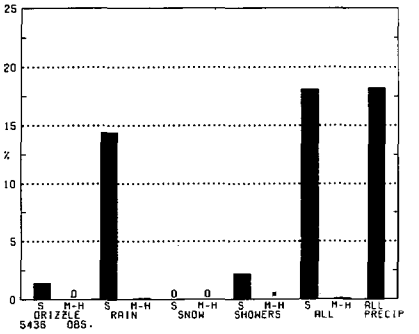
Kodiak



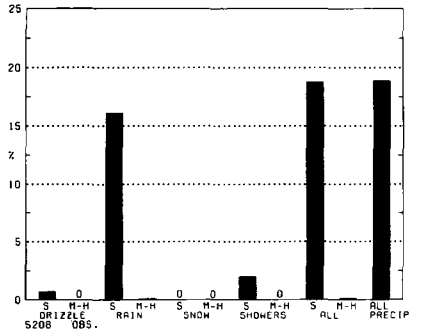
Homer



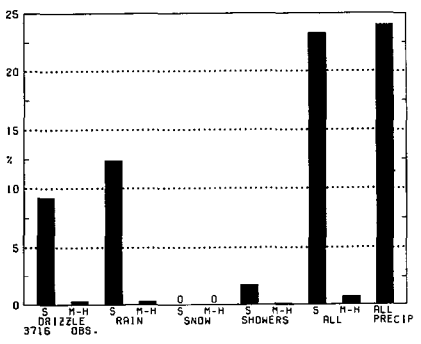
Kenai



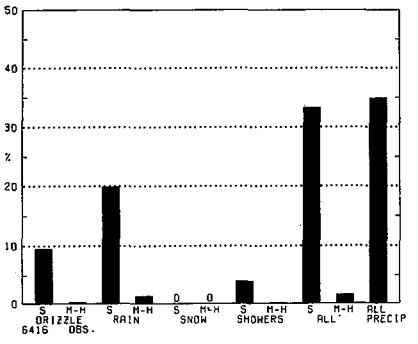
Anchorage



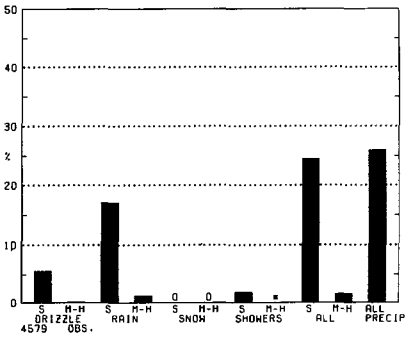
Middleton Island



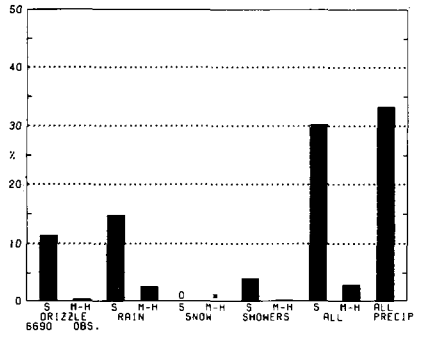
Cordova



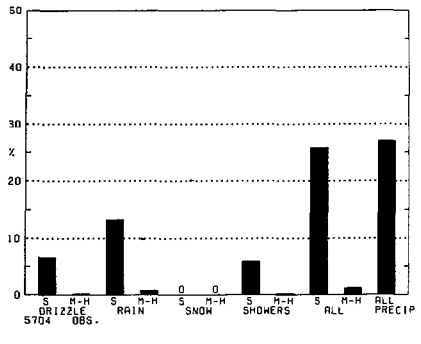
Yakataga



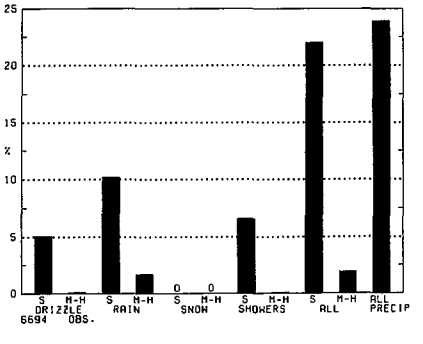
Yakutat



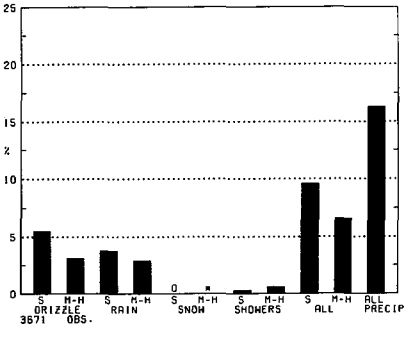
Sitka



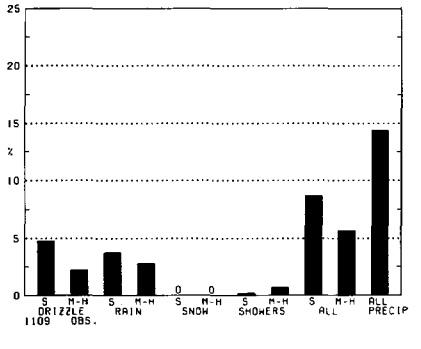
Annette

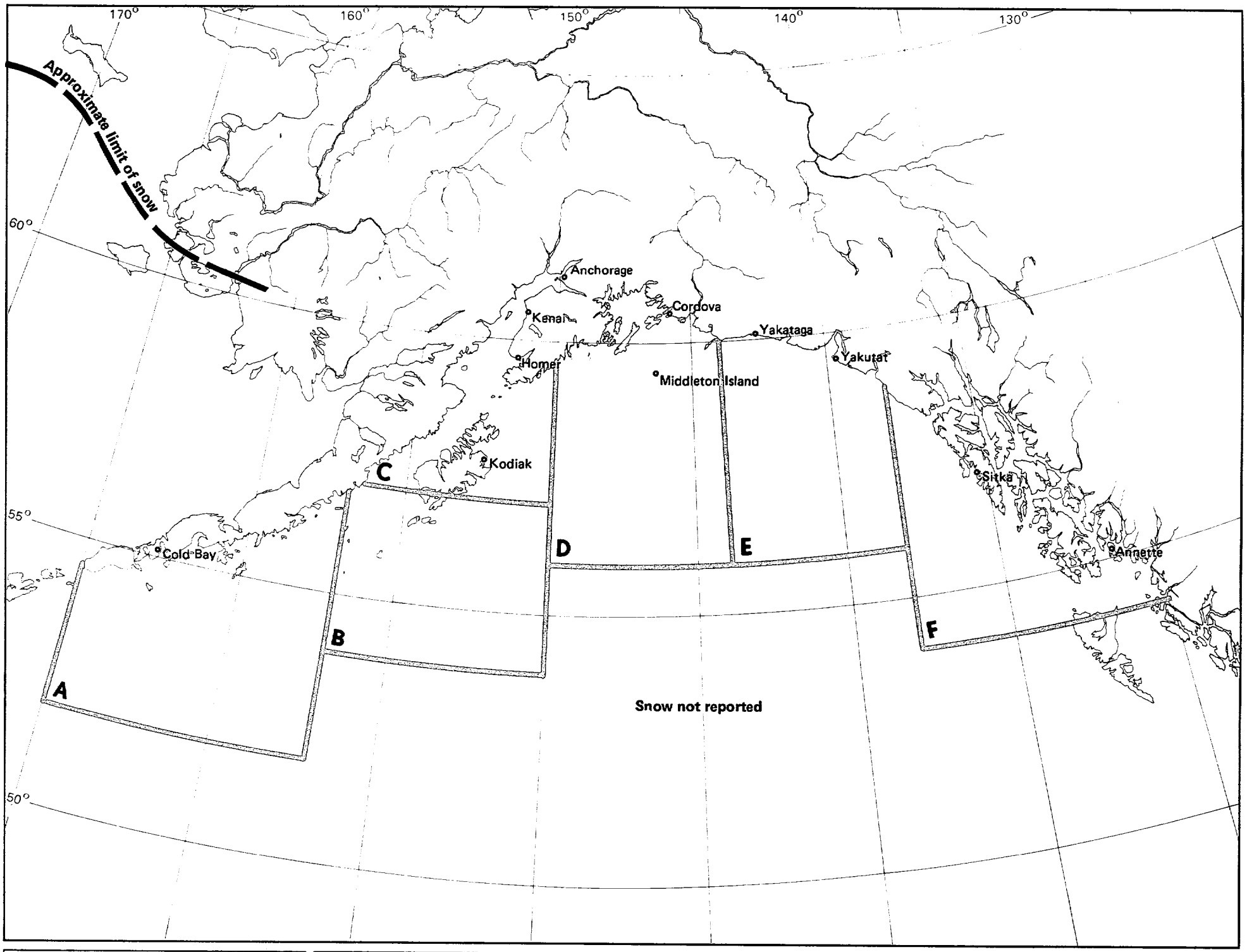


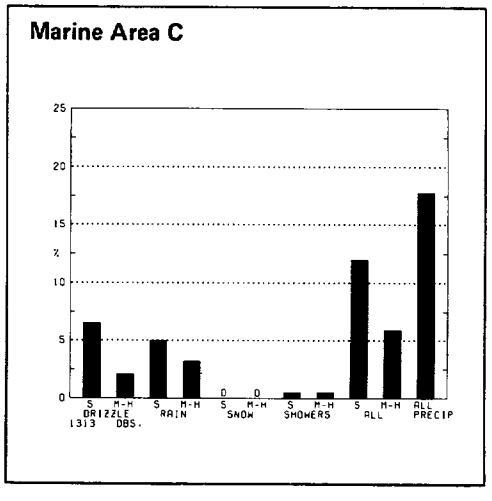
Marine Area A

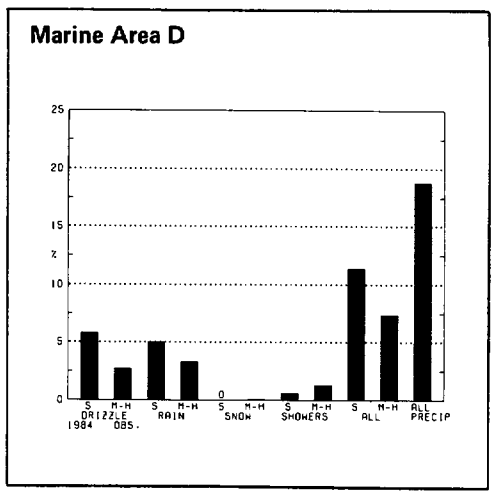


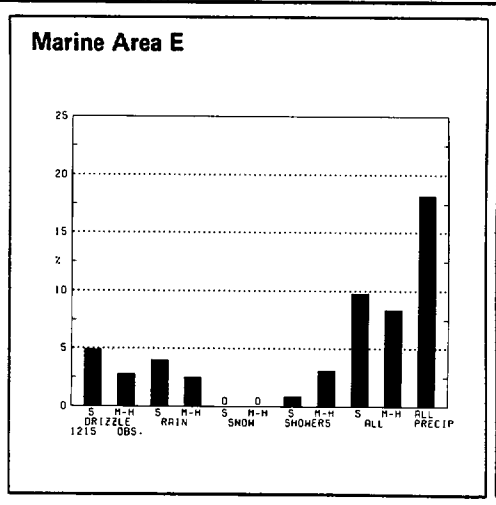
Marine Area B

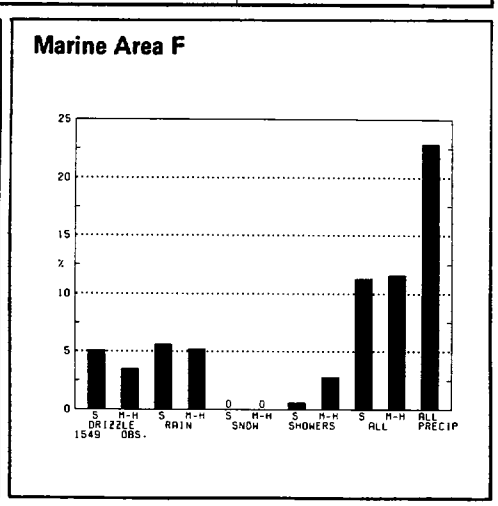



170°
160°
150°
140°
130°
60°
55°
50°
Approximate limit of snow
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Cold Bay
Annette
A
B
C
D
E
F
Snow not reported


Marine Area C
25
20
15
%
10
5
0
S M-H S M-H S M-H S M-H S M-H ALL
DRIZZLE RAIN SNOW SHOWERS ALL PRECIP
1313 OBS.

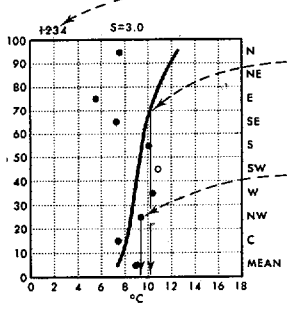

Marine Area D
25
20
15
%
10
5
0
S M-H S M-H S M-H S M-H S M-H ALL
DRIZZLE RAIN SNOW SHOWERS ALL PRECIP
1984 OBS.


Marine Area E
25
20
15
%
10
5
0
S M-H S M-H S M-H S M-H S M-H ALL
DRIZZLE RAIN SNOW SHOWERS ALL PRECIP
1215 OBS.


Marine Area F
25
20
15
%
10
5
0
S M-H S M-H S M-H S M-H S M-H ALL
DRIZZLE RAIN SNOW SHOWERS ALL PRECIP
1549 OBS.

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S = Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

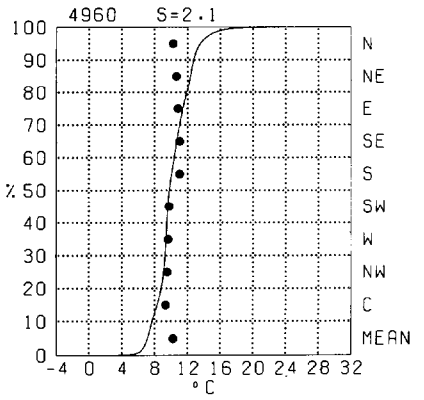
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

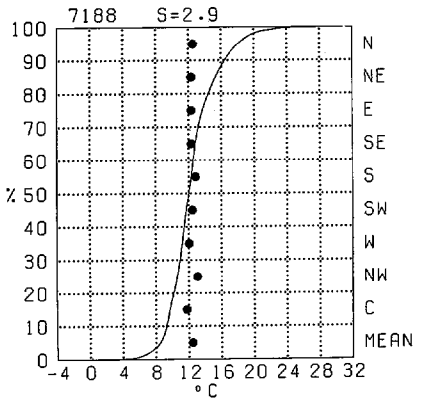
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

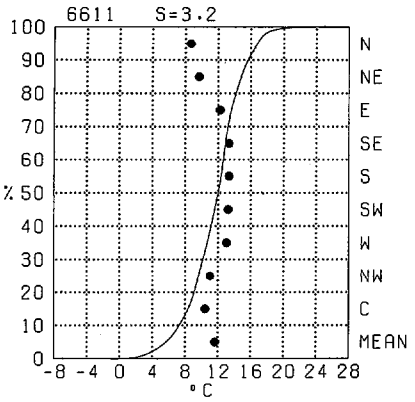
Cold Bay



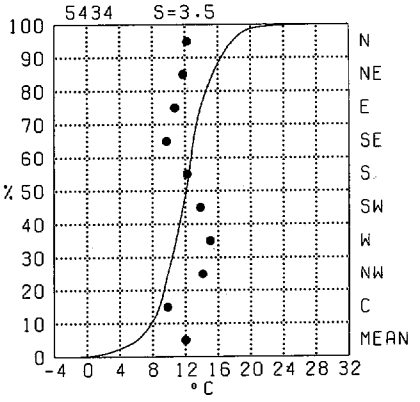
Kodiak



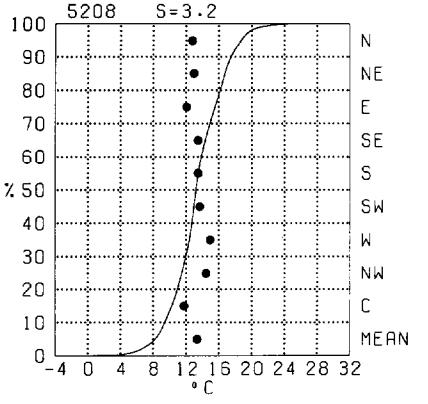
Homer



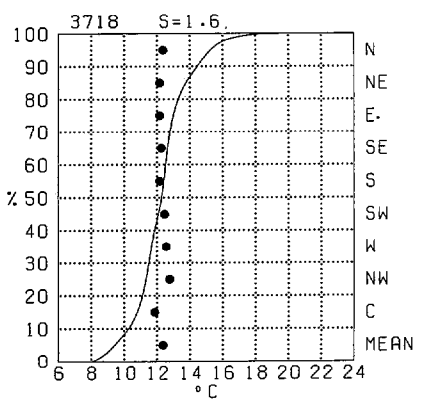
Kenai



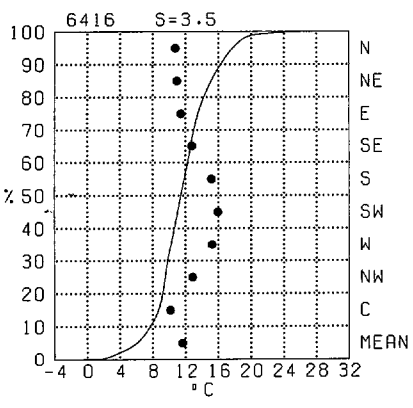
Anchorage



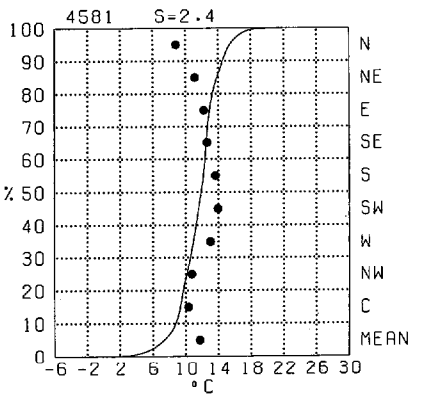
Middleton Island



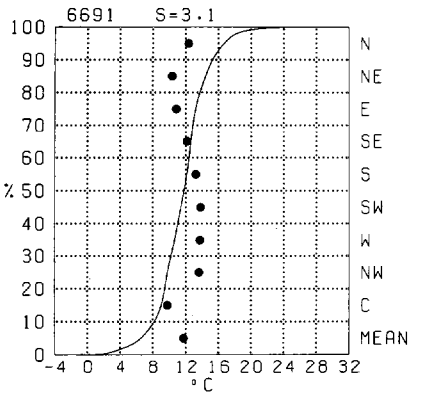
Cordova



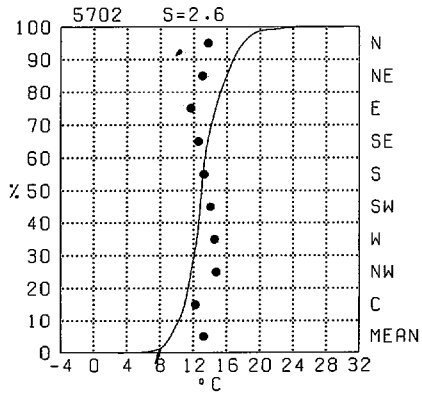
Yakataga



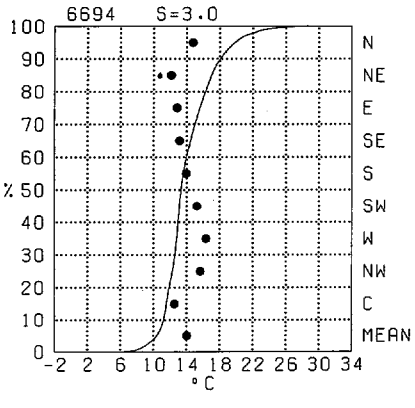
Yakutat



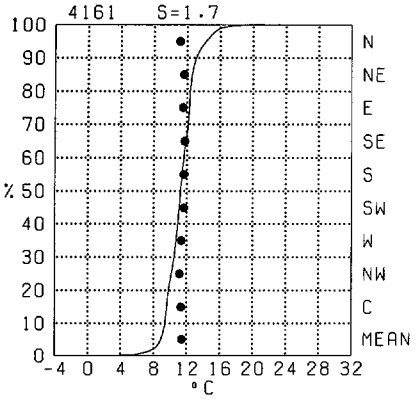
Sitka



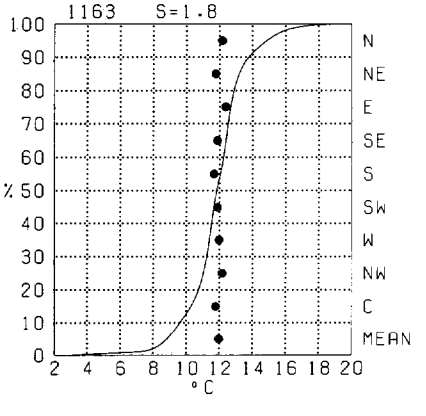
Annette

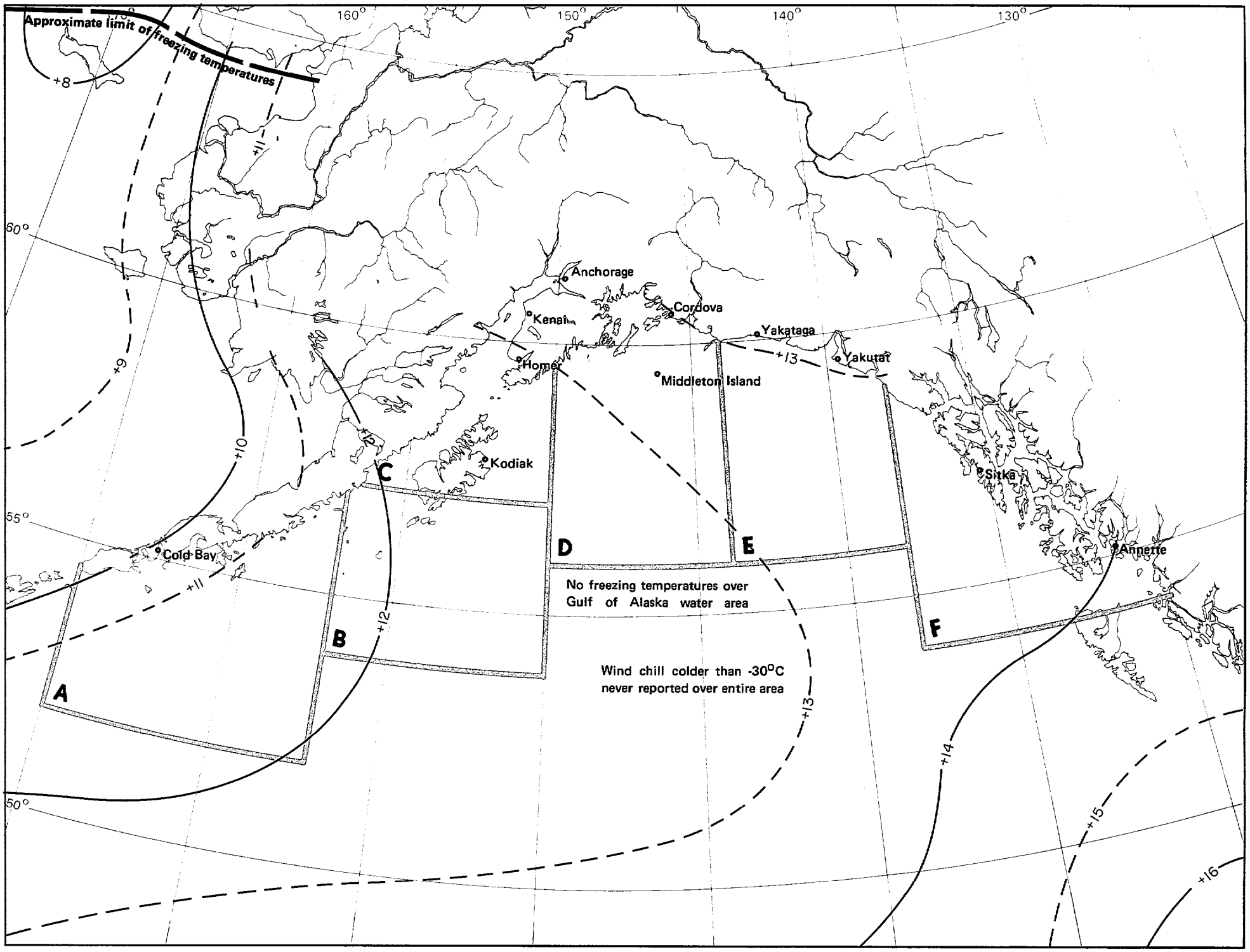


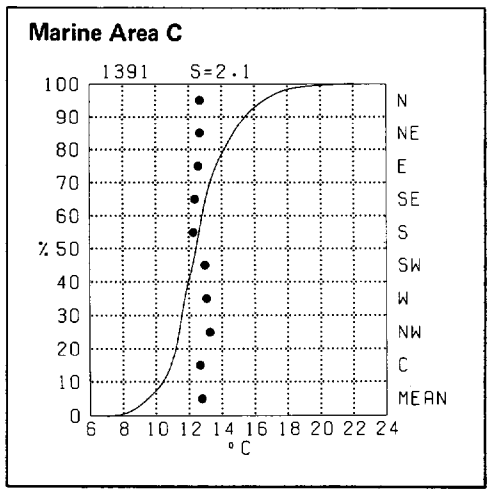
Marine Area A

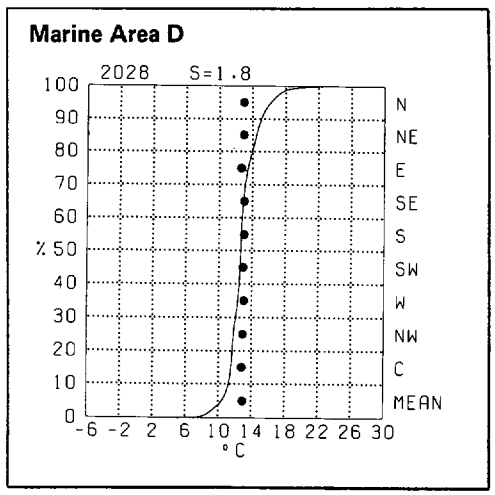


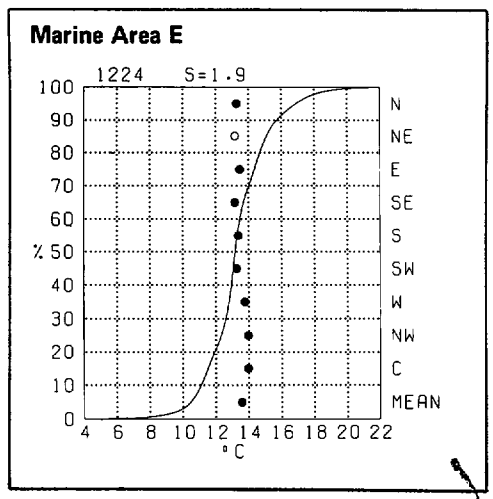
Marine Area B

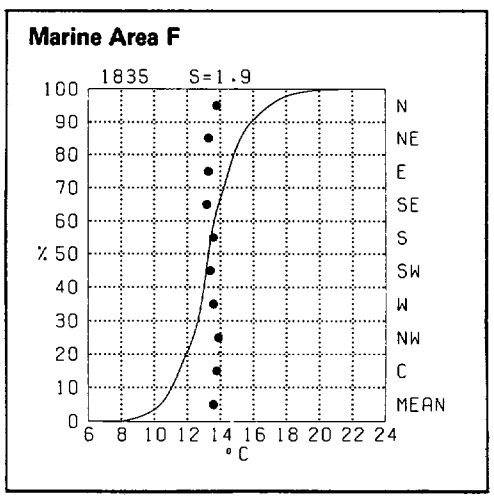








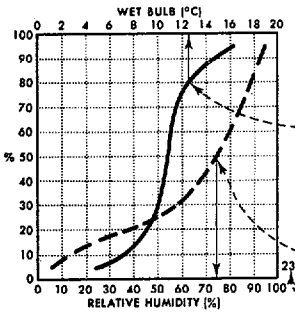




3 Air temperature mean and thresholds

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C. or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

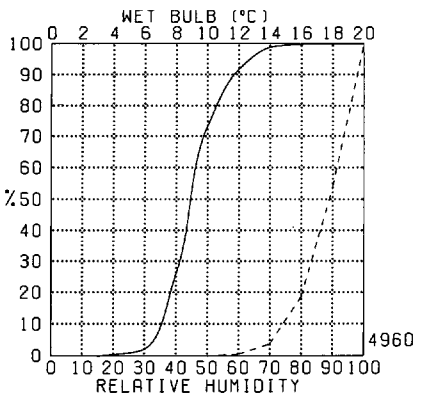
Number of observations.

Map - Mean dew point temperature

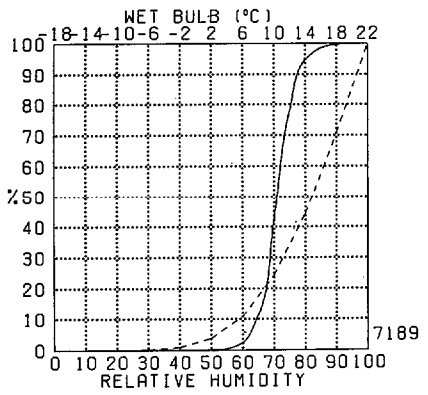
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

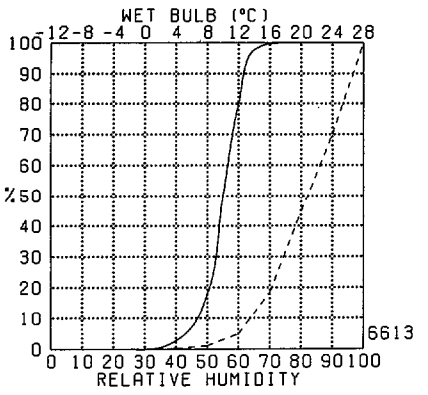
Cold Bay



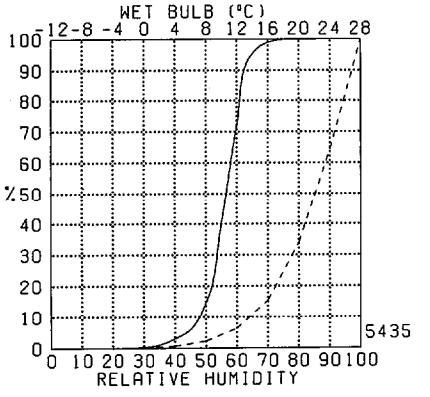
Kodiak



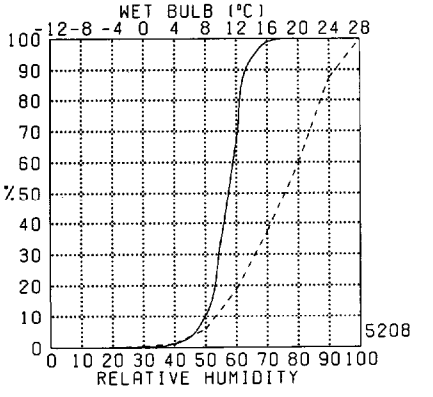
Homer



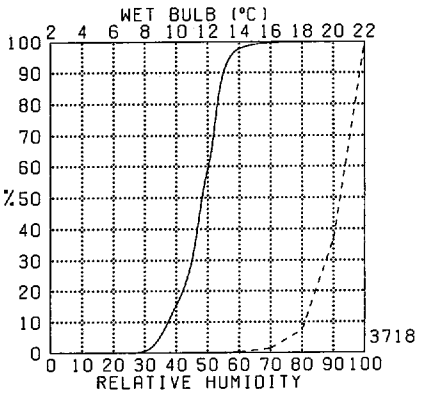
Kenai



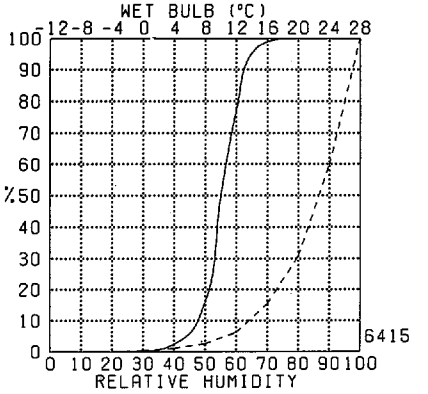
Anchorage



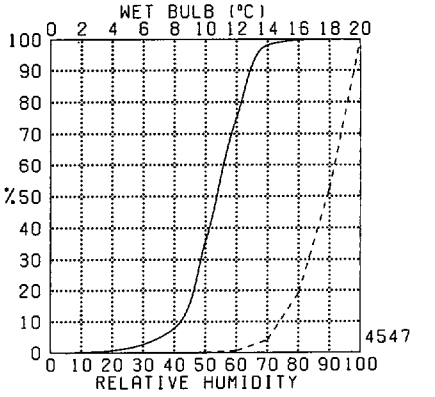
Middleton Island



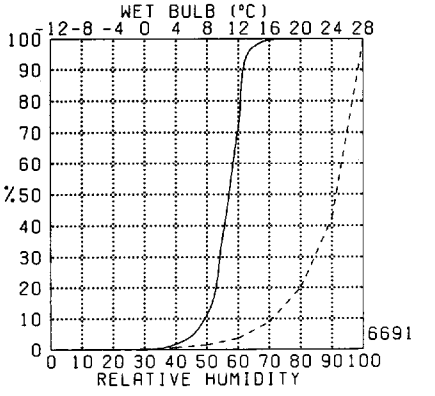
Cordova



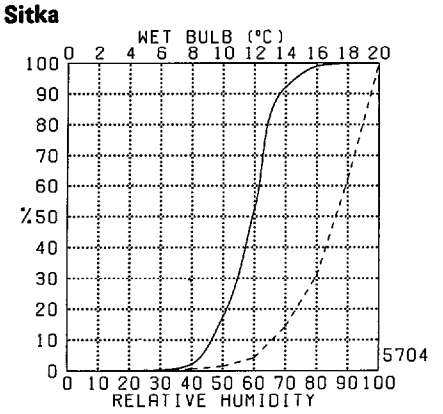
Yakataga



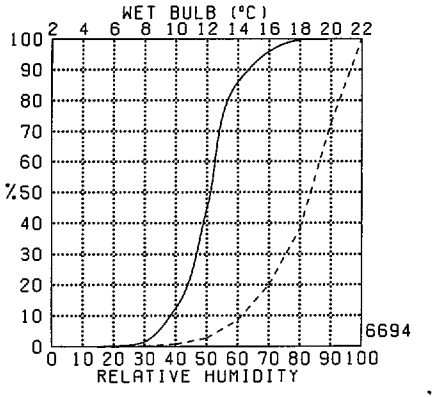
Yakutat



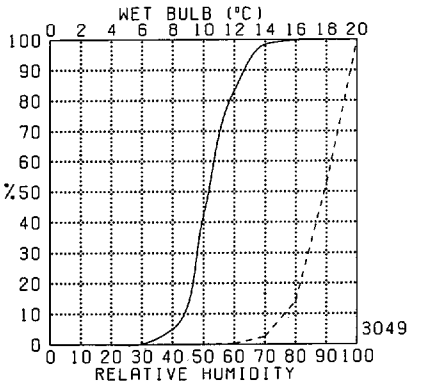
Sitka



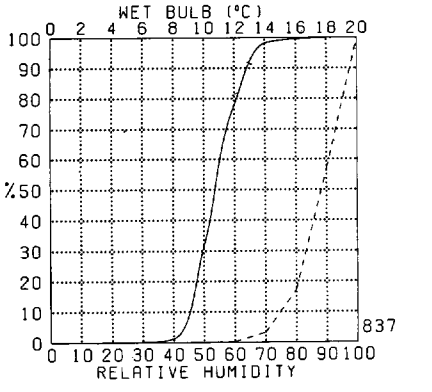
Annette

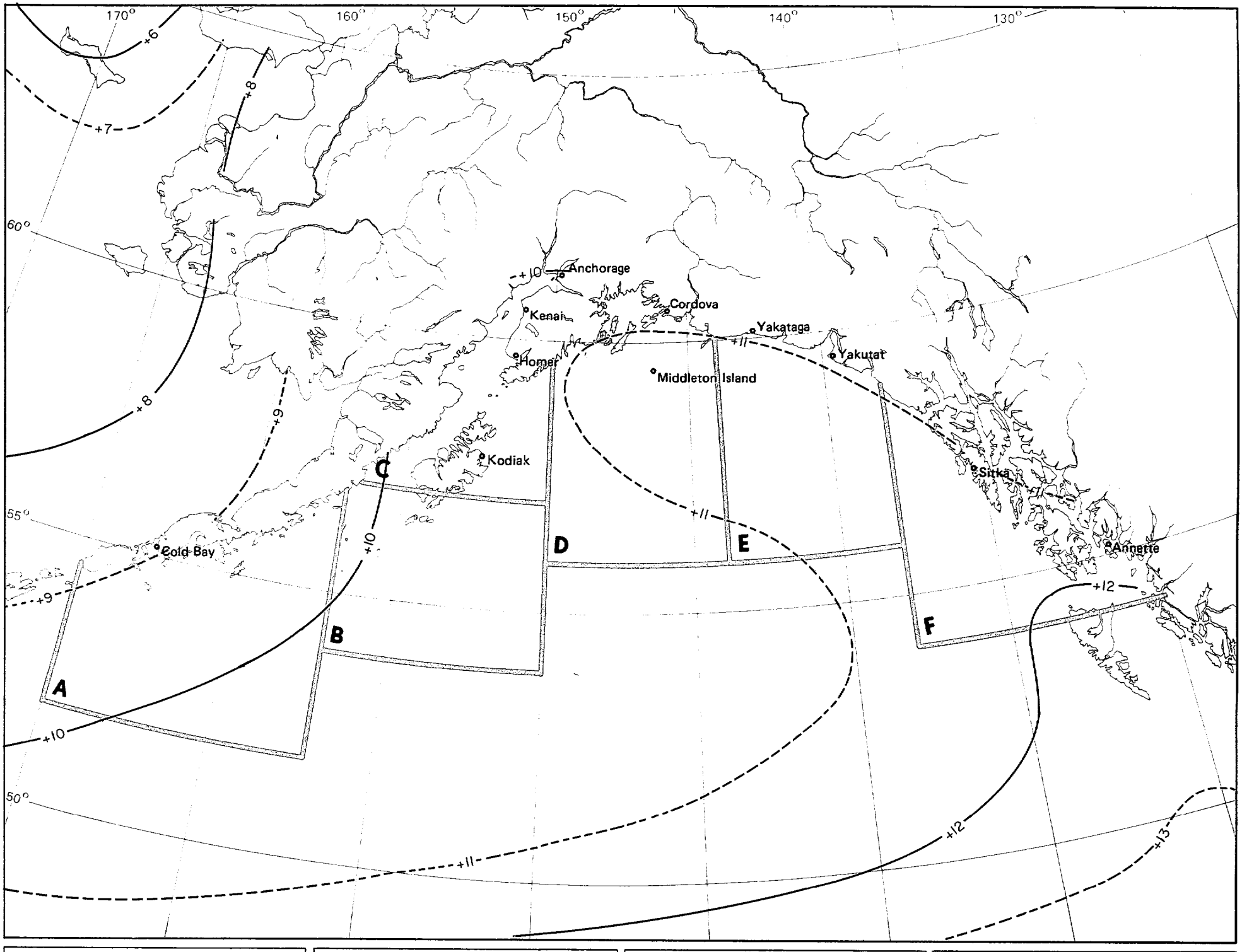


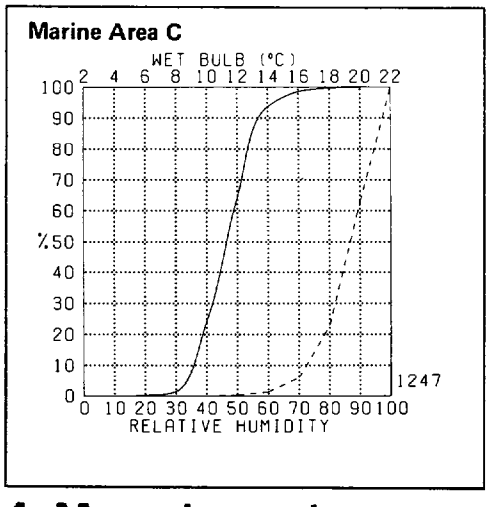
Marine Area A

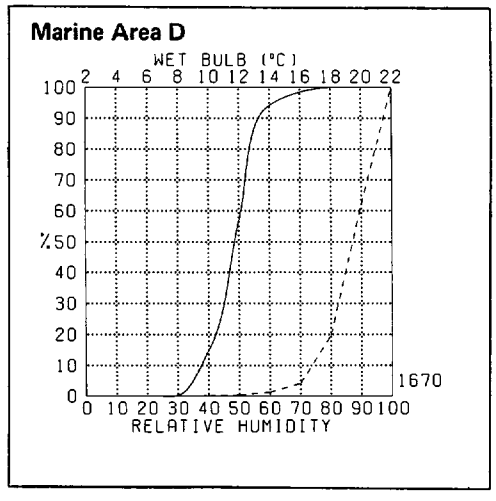


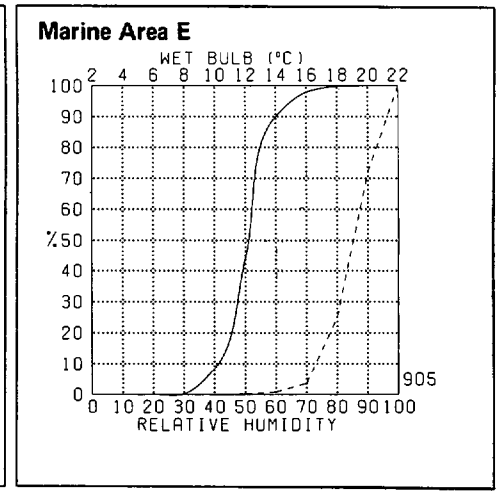
Marine Area B

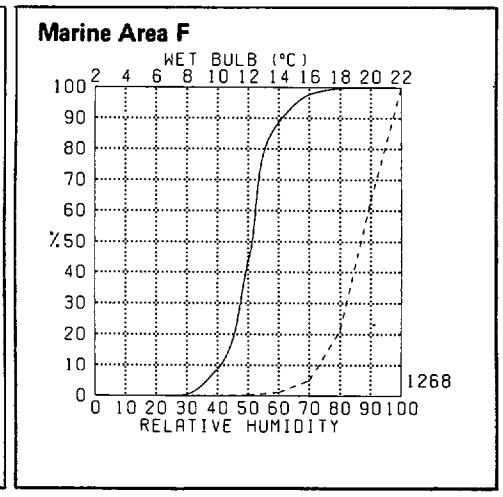








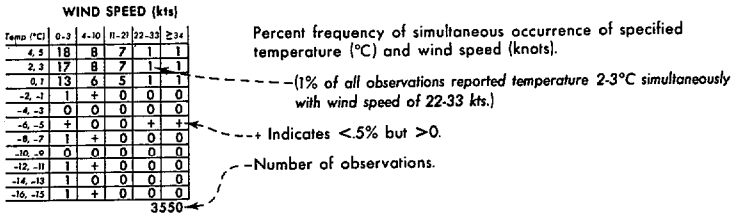




4 Mean dew point temperature

Legend

Air temperature/wind speed



Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	0	+	0	0
20.21	0	0	+	+	0
18.19	+	+	+	+	0
16.17	+	+	1	+	0
14.15	+	1	2	1	+
12.13	1	5	10	6	+
10.11	1	9	16	6	+
8.9	1	11	17	3	+
6.7	1	3	3	+	0
4.5	+	+	+	0	0
2.3	+	+	0	0	0

4960

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	+	0	0
24.25	0	+	+	0	0
22.23	+	+	+	+	0
20.21	+	1	+	+	0
18.19	1	2	1	+	0
16.17	2	5	2	+	0
14.15	4	7	2	+	0
12.13	11	17	5	+	0
10.11	8	13	4	+	0
8.9	4	5	1	+	0
≤7	1	1	+	0	0

7188

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	+	+	0	0	0
20.21	+	+	+	0	0
18.19	+	1	+	0	0
16.17	1	6	2	0	0
14.15	3	10	3	0	0
12.13	9	18	3	0	0
10.11	8	10	1	0	0
8.9	7	5	+	0	0
6.7	4	3	0	0	0
4.5	1	1	0	0	0
≤3	1	1	0	0	0

6611

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	+	+	0	0	0
26.27	0	+	0	0	0
24.25	0	+	+	0	0
22.23	+	+	+	0	0
20.21	+	1	+	0	0
18.19	+	3	1	0	0
16.17	1	7	2	+	0
14.15	2	9	3	0	0
12.13	6	20	6	+	0
10.11	6	11	3	0	0
≤9	9	11	1	0	0

5434

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	0	+	0	0	0
24.25	0	+	0	0	0
22.23	+	1	+	0	0
20.21	+	2	+	0	0
18.19	1	5	1	+	0
16.17	3	10	3	+	0
14.15	5	11	3	+	0
12.13	10	18	3	+	0
10.11	6	7	1	0	0
8.9	3	3	+	0	0
≤7	2	1	+	0	0

5208

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	+	0	0	0
20.21	0	+	0	0	0
18.19	+	+	0	0	0
16.17	1	3	+	0	0
14.15	2	11	3	+	0
12.13	8	27	14	1	+
10.11	6	14	5	1	+
8.9	1	2	+	+	0
6.7	0	0	0	0	0
4.5	0	0	0	0	0
2.3	0	0	0	0	0

3718

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26.27	+	+	0	0	0
24.25	+	+	0	0	0
22.23	+	+	+	0	0
20.21	+	1	+	0	0
18.19	1	3	+	0	0
16.17	2	6	+	0	0
14.15	5	6	+	0	0
12.13	12	12	1	0	0
10.11	14	10	1	0	0
8.9	11	4	+	0	0
≤7	9	+	0	0	0

6416

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	+	+	0	0	0
20.21	+	+	0	0	0
18.19	+	+	+	0	0
16.17	1	3	1	0	0
14.15	3	8	4	+	0
12.13	11	17	11	+	0
10.11	11	10	4	+	0
8.9	7	3	+	0	0
6.7	3	1	0	0	0
4.5	1	+	0	0	0
≤3	+	+	0	0	0

4581

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30.31	0	0	+	0	0
28.29	0	+	0	0	0
26.27	0	+	0	0	0
24.25	+	+	0	0	0
22.23	+	+	+	0	0
20.21	+	+	+	0	0
18.19	+	1	+	0	0
16.17	1	6	1	0	0
14.15	2	9	2	+	0
12.13	7	20	5	+	0
≤11	20	20	4	+	0

6691

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
28.29	0	+	+	0	0
26.27	+	+	0	0	0
24.25	+	+	+	0	0
22.23	+	+	+	+	0
20.21	+	+	+	0	0
18.19	1	3	1	+	0
16.17	3	7	3	+	0
14.15	7	11	2	+	0
12.13	17	19	3	+	0
10.11	8	7	1	0	0
≤9	3	2	+	0	0

5702

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
30.31	+	0	0	0	0
28.29	0	+	0	0	0
26.27	+	+	+	0	0
24.25	+	+	+	0	0
22.23	+	2	+	0	0
20.21	+	2	+	0	0
18.19	1	5	1	0	0
16.17	2	11	2	0	0
14.15	4	13	4	+	0
12.13	7	23	8	+	0
≤11	4	7	2	+	0

6694

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	+	0	0	0
20.21	0	+	+	0	0
18.19	+	+	+	0	0
16.17	+	1	1	+	+
14.15	1	3	5	1	+
12.13	1	11	20	6	+
10.11	2	11	20	7	1
8.9	1	2	3	1	+
6.7	+	+	+	+	+
4.5	+	+	+	+	0
2.3	0	+	0	0	0

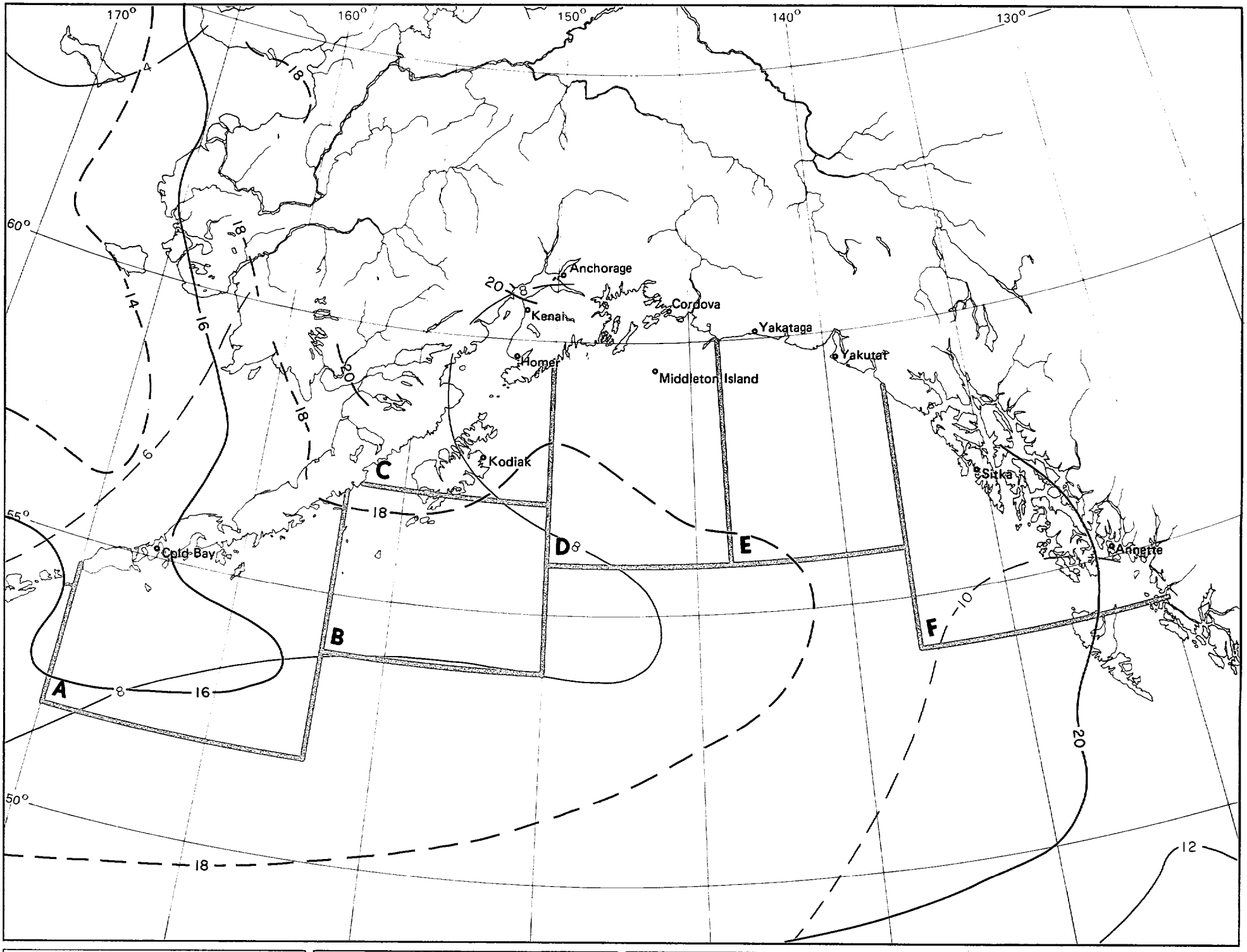
4161

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	+	+	+	0	0
16.17	+	1	1	0	0
14.15	1	6	4	2	+
12.13	2	15	23	7	+
10.11	1	9	17	5	1
8.9	+	1	2	+	0
6.7	+	+	+	+	0
4.5	+	0	+	+	0
2.3	0	+	0	0	0
0.1	0	0	0	0	0
-2.-1	0	0	0	0	0

1163



Marine Area C

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	+	0	0	0
20.21	0	+	+	0	0
18.19	1	1	1	+	0
16.17	2	4	2	+	0
14.15	4	8	5	1	+
12.13	7	17	14	4	1
10.11	4	8	9	3	1
8.9	1	1	1	+	0
6.7	+	+	0	+	0
4.5	0	0	0	0	0
2.3	0	0	0	0	0

1391

Marine Area D

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	+	+	0	0
20.21	+	+	+	+	0
18.19	+	+	1	+	0
16.17	1	3	2	+	+
14.15	3	10	10	2	+
12.13	5	20	20	4	1
10.11	2	5	7	2	+
8.9	+	+	+	+	0
6.7	+	+	+	0	0
4.5	0	0	0	0	0
2.3	0	0	0	0	0

2028

Marine Area E

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22.23	0	+	0	0	0
20.21	0	1	+	0	0
18.19	+	1	1	0	0
16.17	1	6	3	1	0
14.15	3	16	13	2	+
12.13	4	16	17	4	+
10.11	+	4	4	1	+
8.9	+	+	+	0	0
6.7	0	+	0	0	0
4.5	+	0	0	+	0
2.3	0	0	0	0	0

1224

Marine Area F

WIND SPEED (KTS)

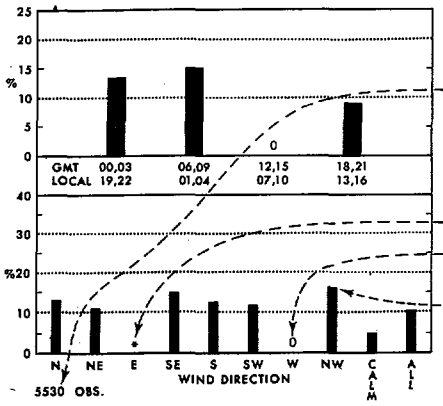
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	+	+	+	+	0
18.19	1	1	+	+	0
16.17	2	7	3	+	0
14.15	4	15	10	2	+
12.13	6	22	13	3	+
10.11	1	4	3	1	+
8.9	+	1	+	+	0
6.7	+	0	0	0	0
4.5	0	0	0	0	0
2.3	0	0	0	0	0
0.1	0	0	0	0	0

1835

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

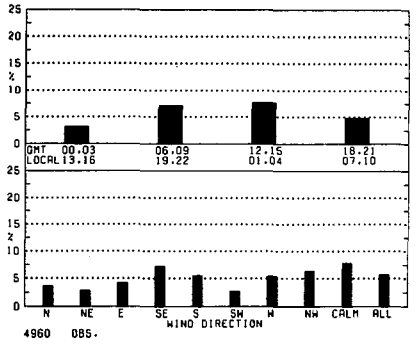
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

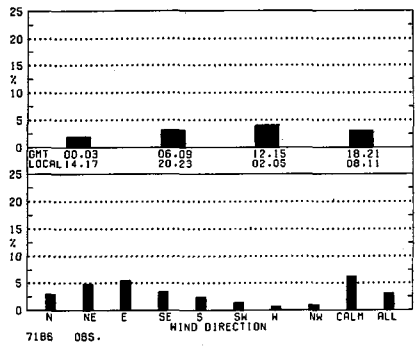
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

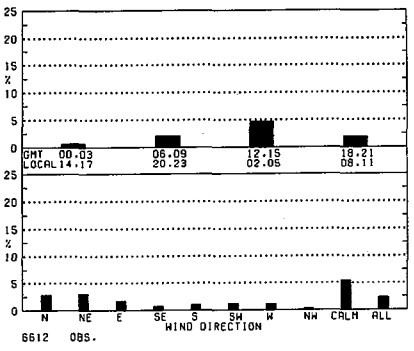
Cold Bay



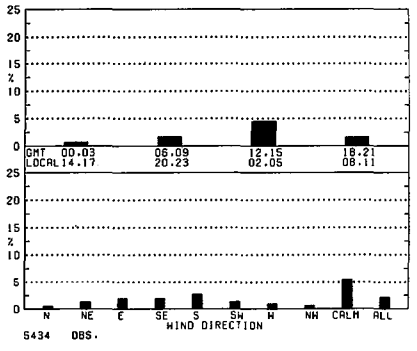
Kodiak



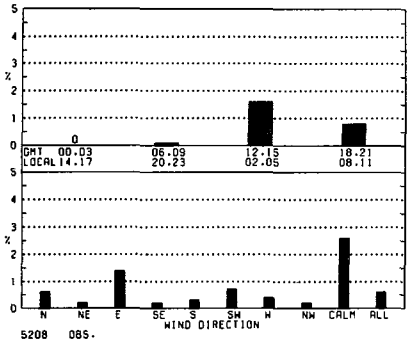
Homer



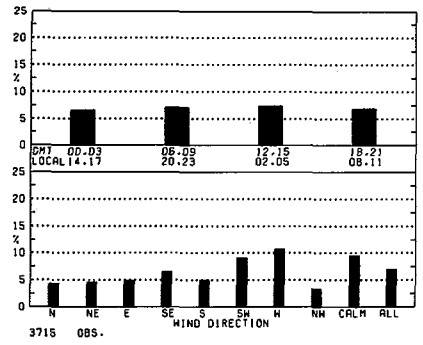
Kenai



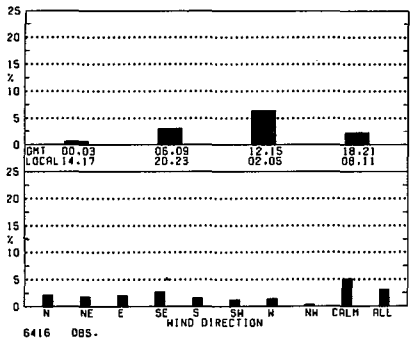
Anchorage



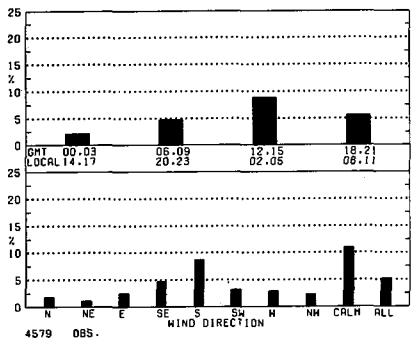
Middleton Island



Cordova



Yakataga



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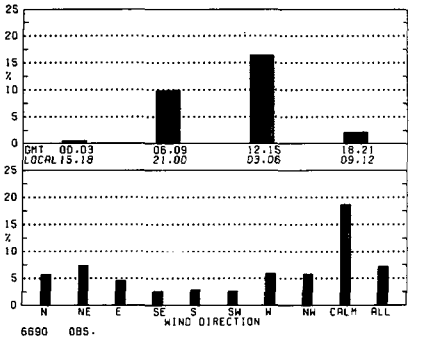
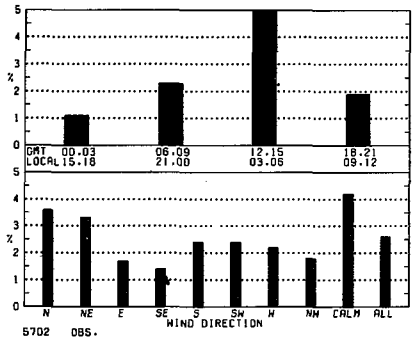
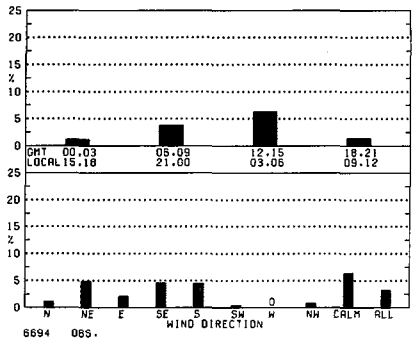


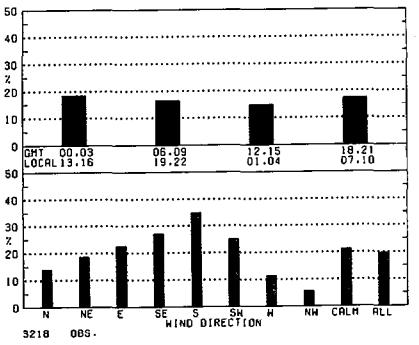
Sitka



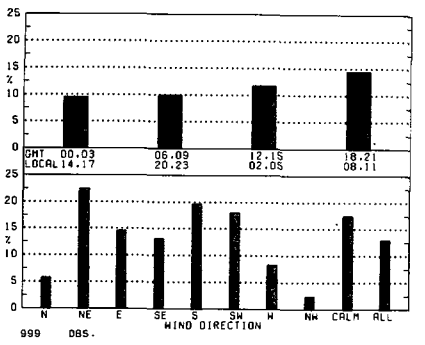
Annette

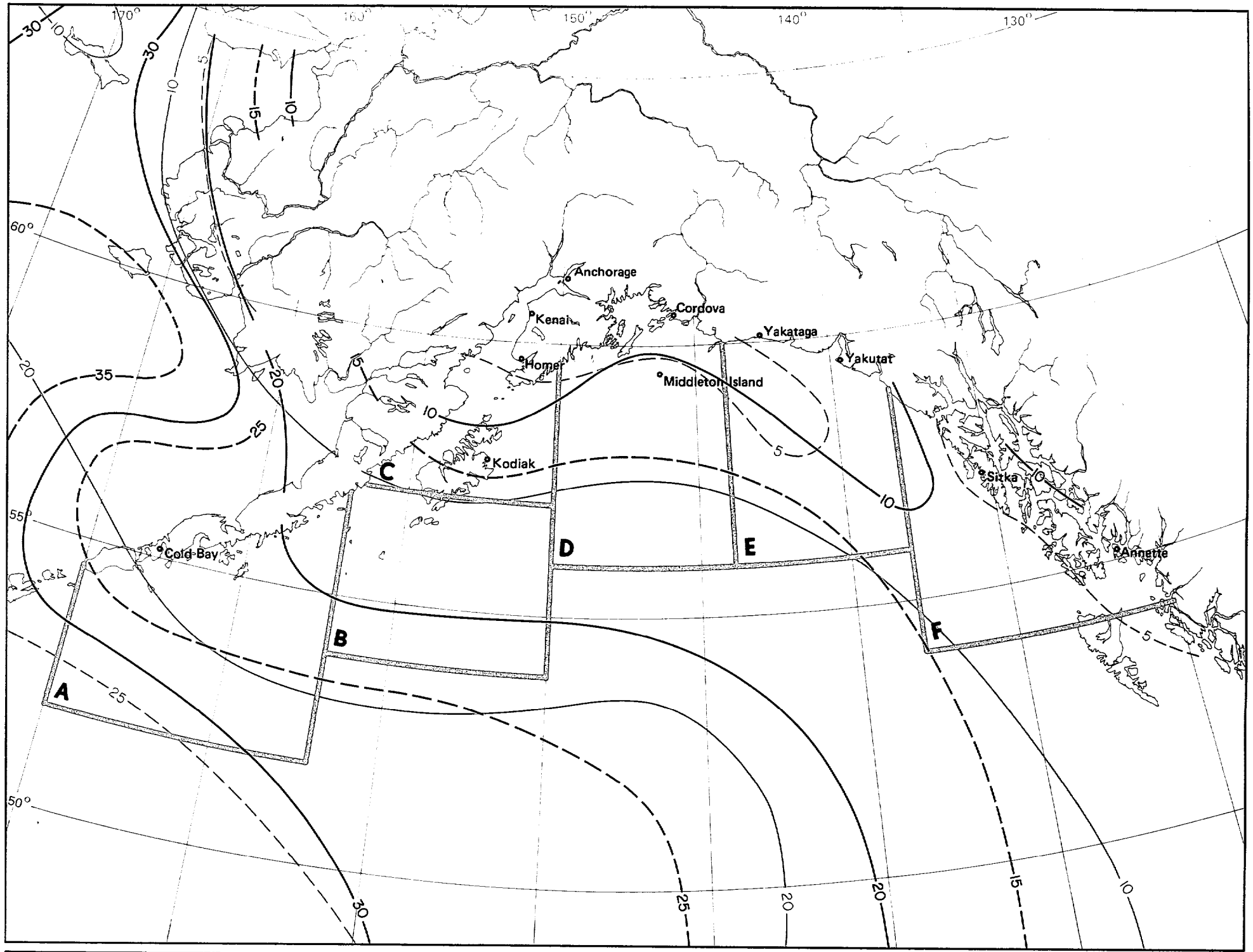


Marine Area A

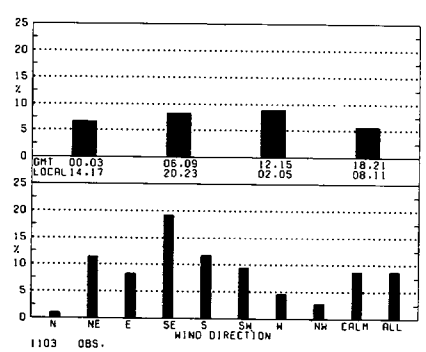


Marine Area B

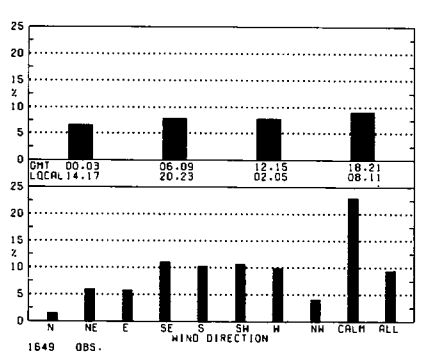




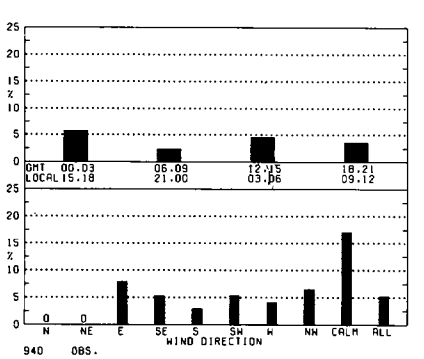
Marine Area C



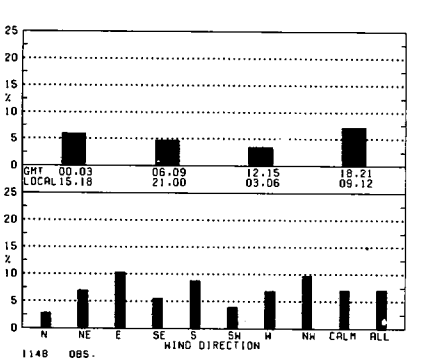
Marine Area D



Marine Area E

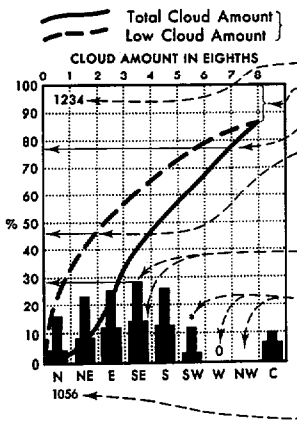


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

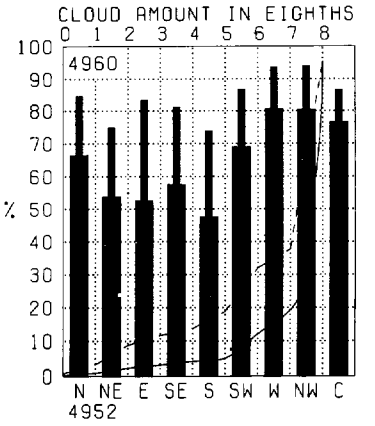
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

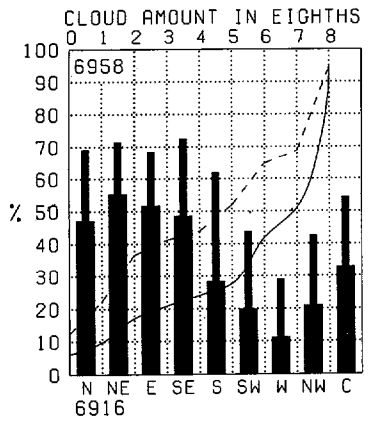
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

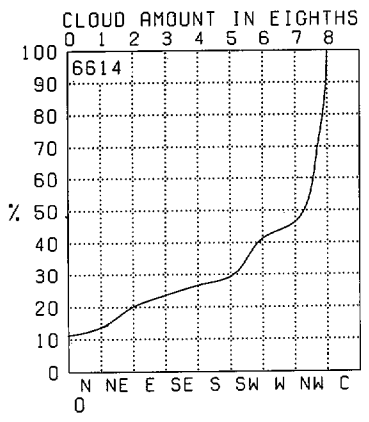
Cold Bay



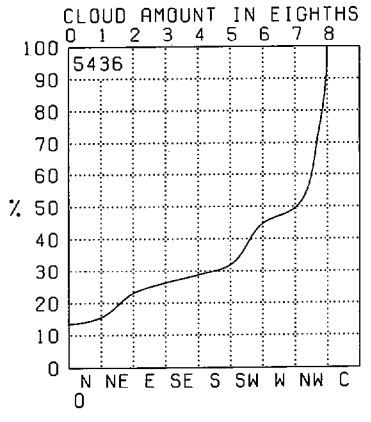
Kodiak



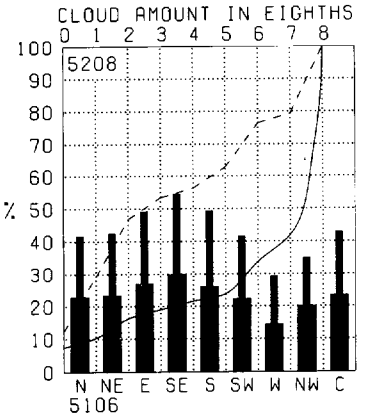
Homer



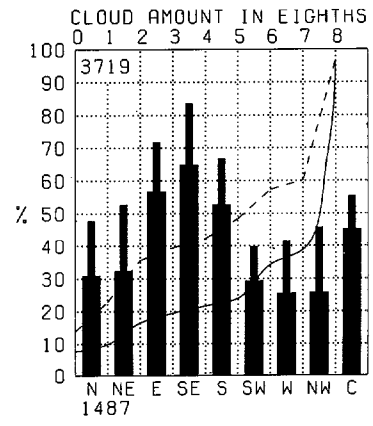
Kenai



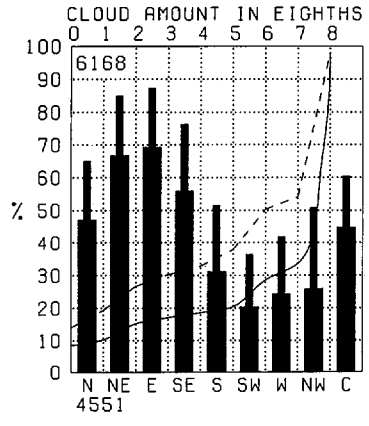
Anchorage



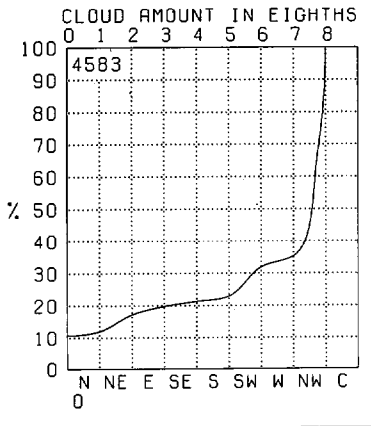
Middleton Island



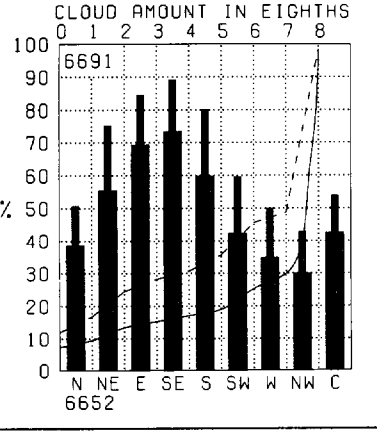
Cordova



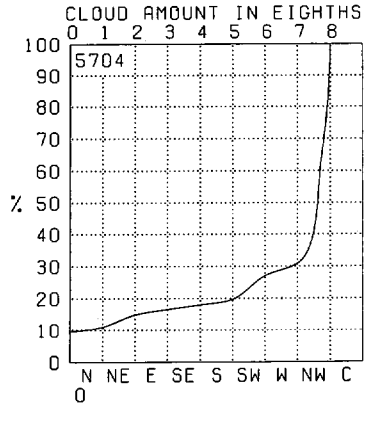
Yakataga



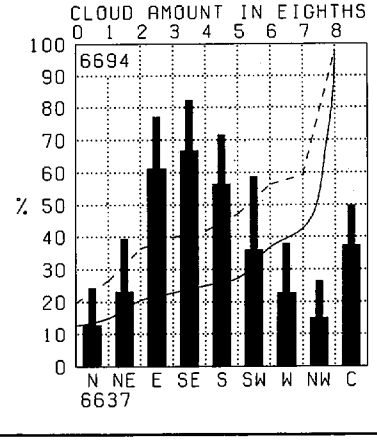
Yakutat



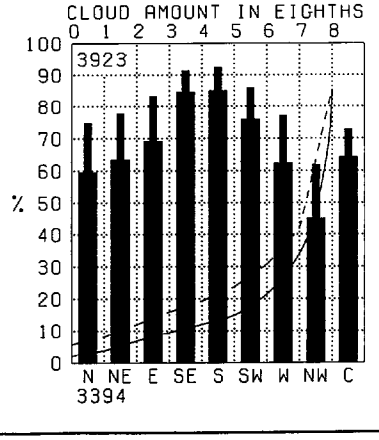
Sitka



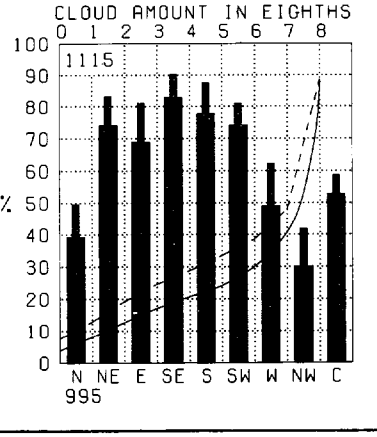
Annette

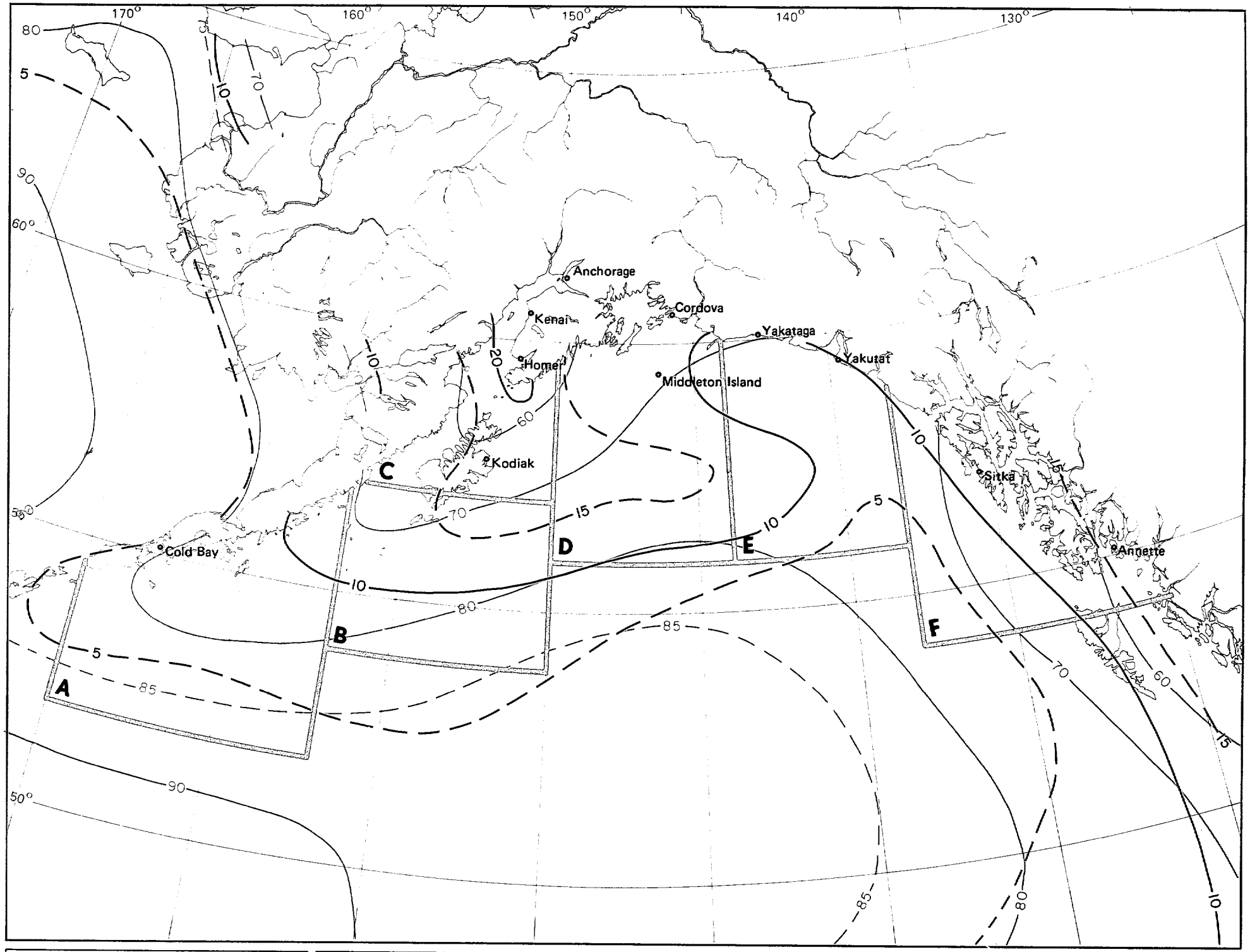


Marine Area A

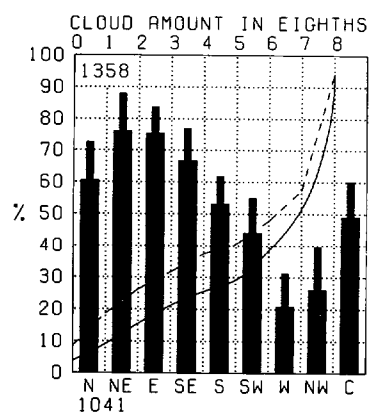


Marine Area B

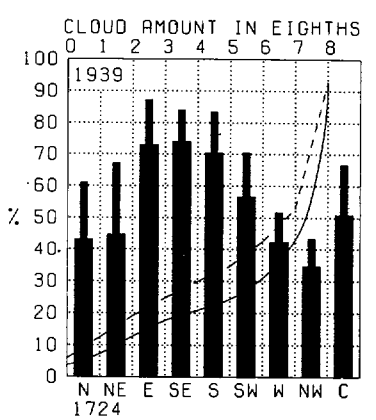




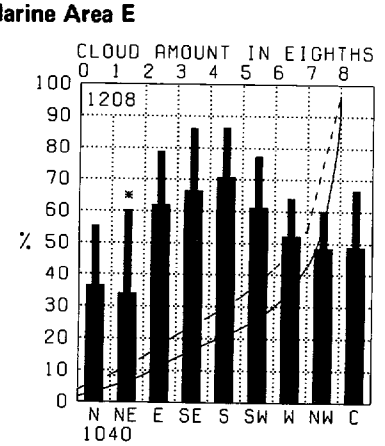
Marine Area C



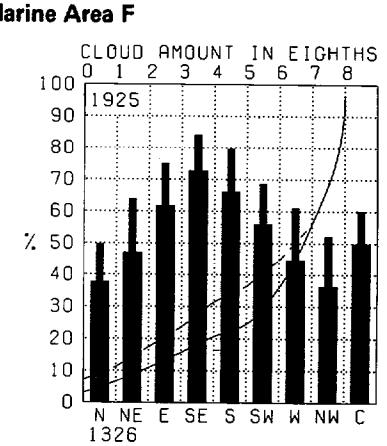
Marine Area D



Marine Area E



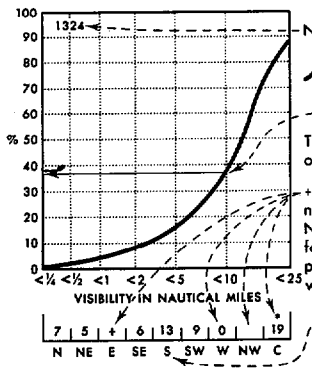
Marine Area F



7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

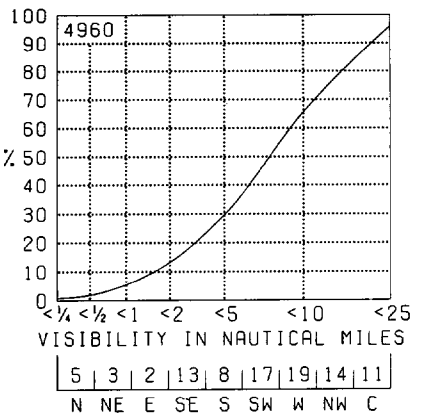
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

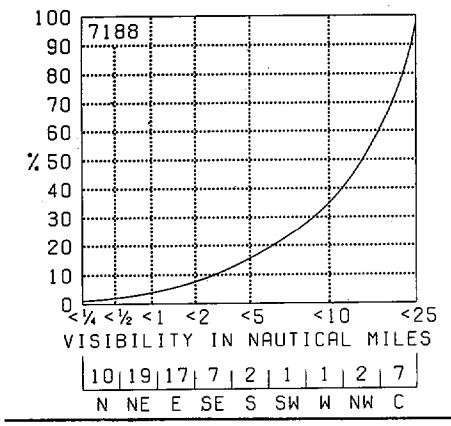
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

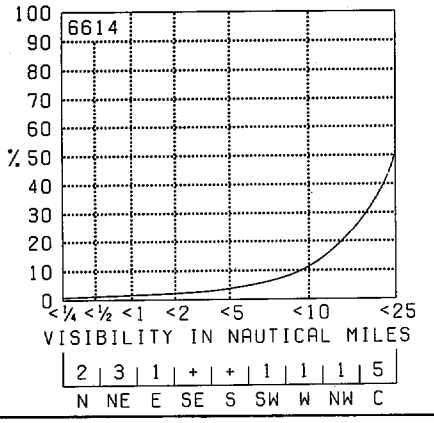
Cold Bay



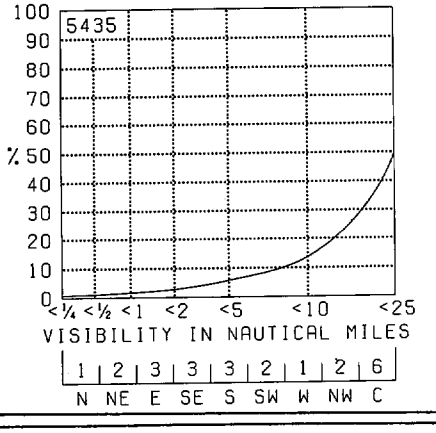
Kodiak



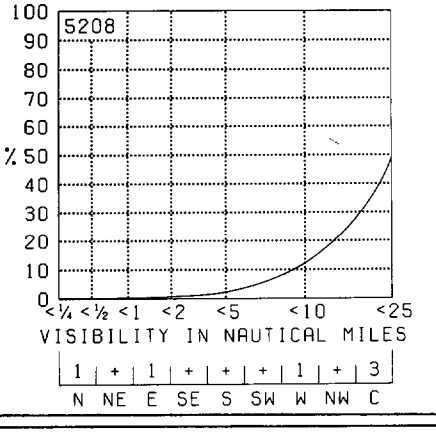
Homer



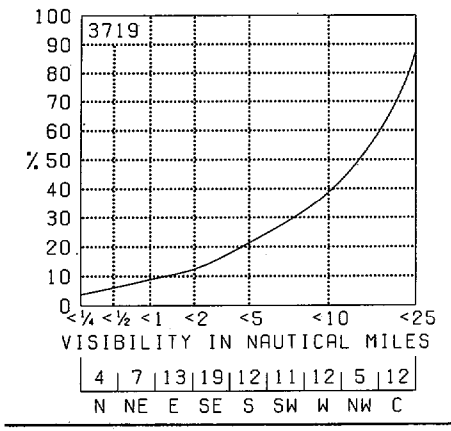
Kenai



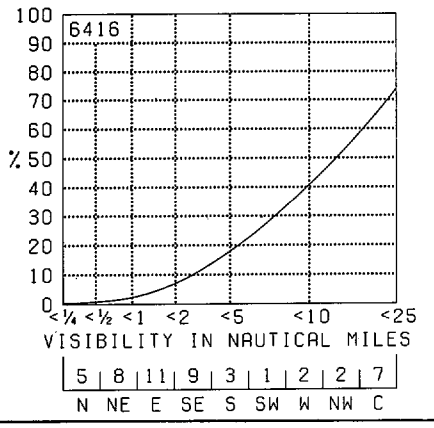
Anchorage



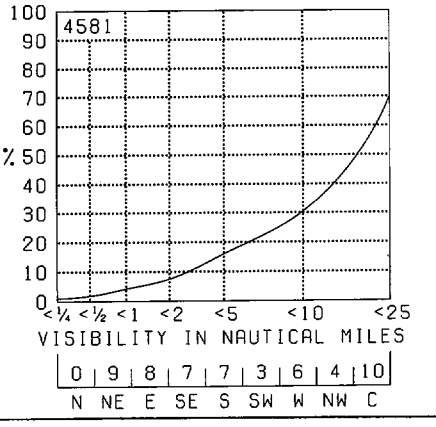
Middleton Island



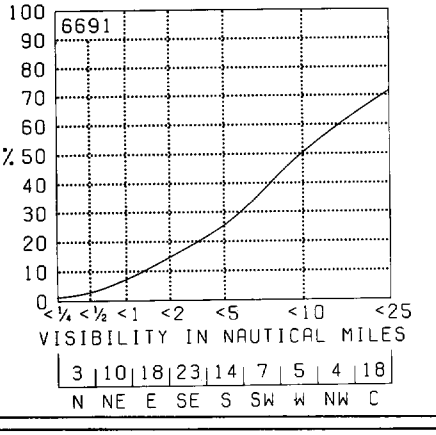
Cordova



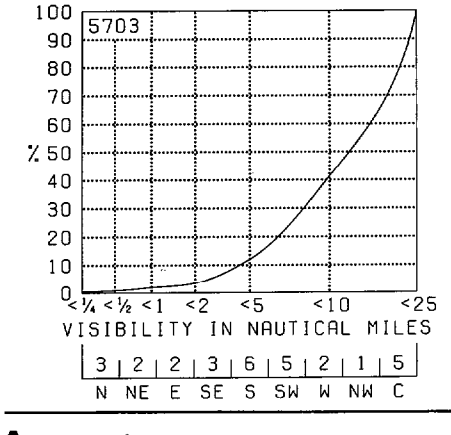
Yakataga



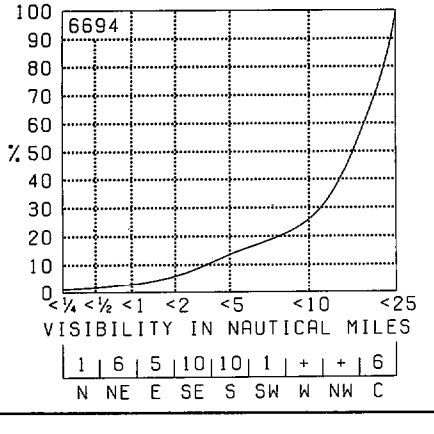
Yakutat



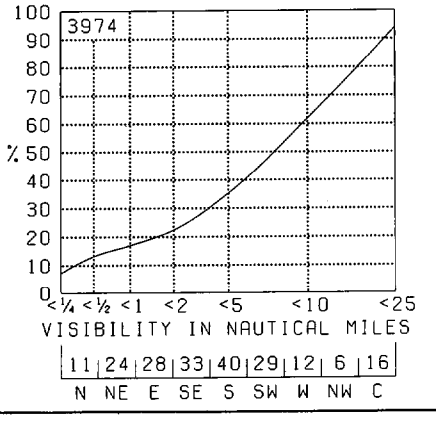
Sitka



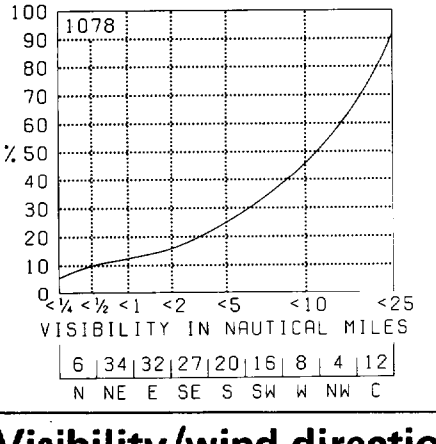
Annette

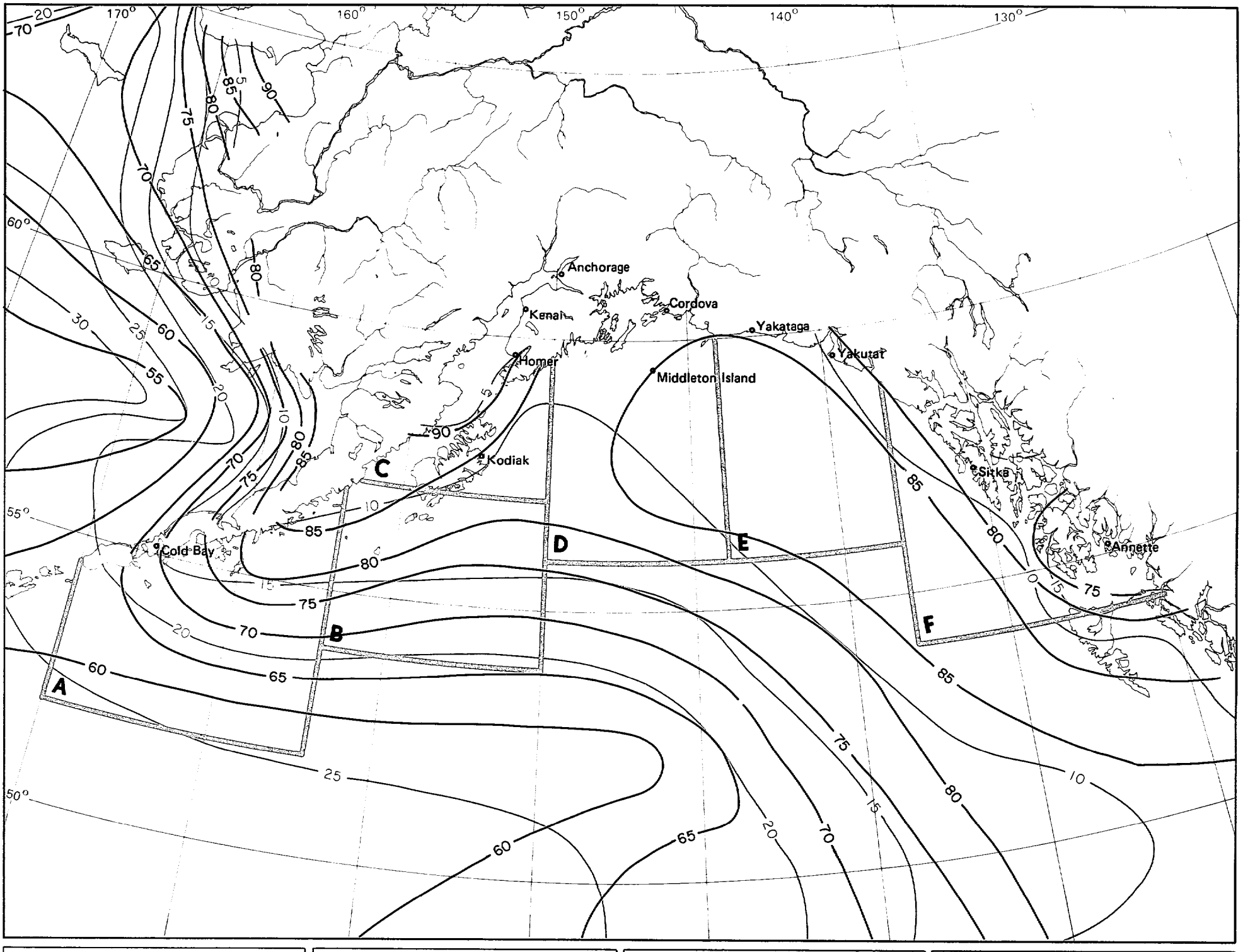


Marine Area A

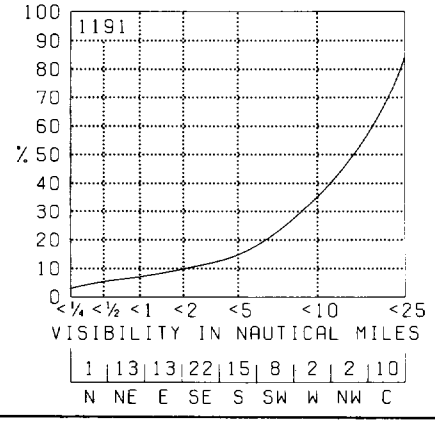


Marine Area B

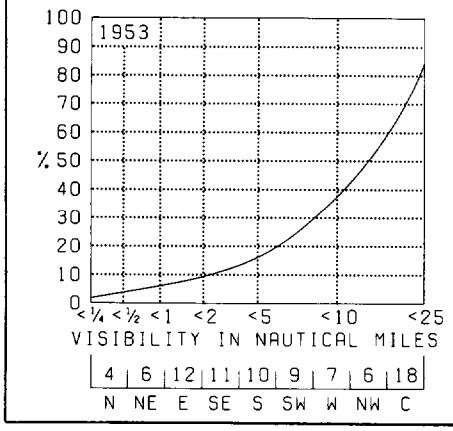




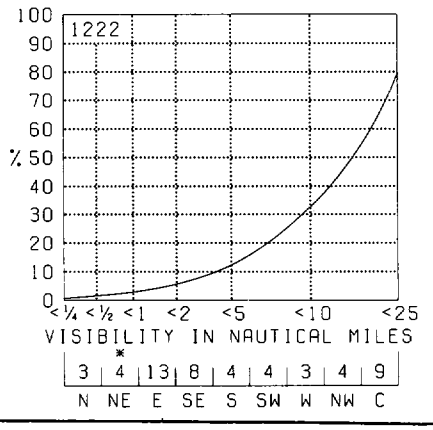
Marine Area C



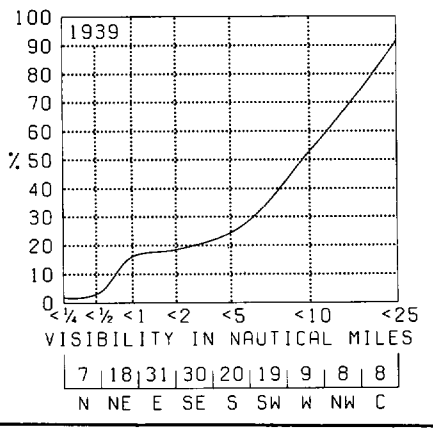
Marine Area D



Marine Area E



Marine Area F



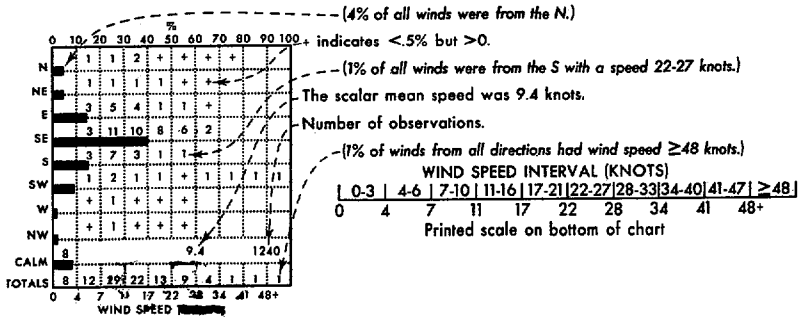
8 Visibility thresholds

August

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



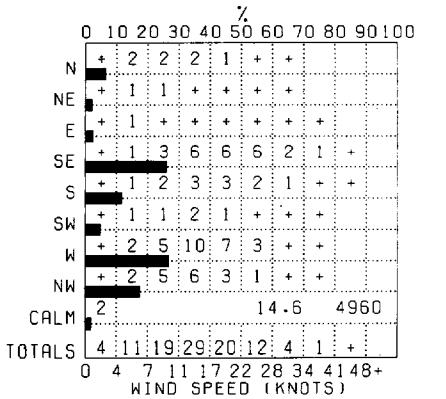
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

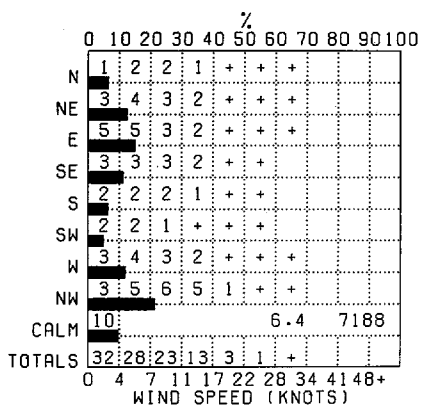
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

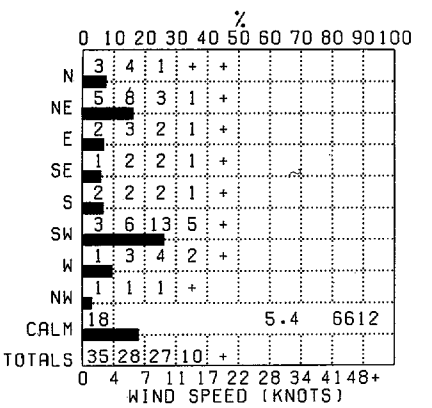
Cold Bay



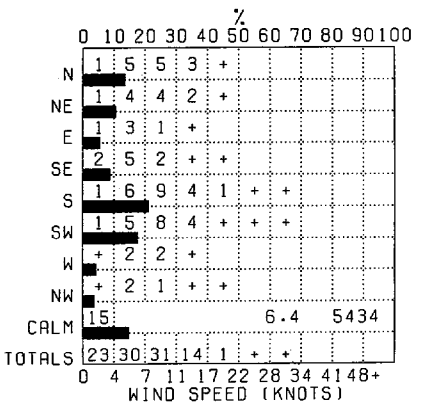
Kodiak



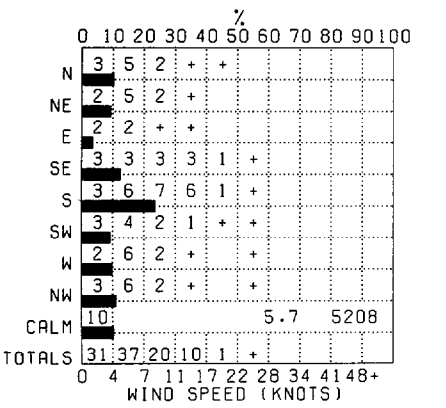
Homer



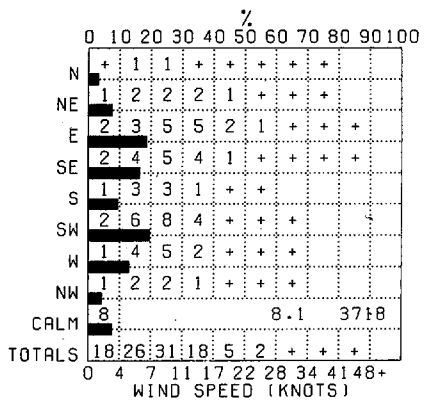
Kenai



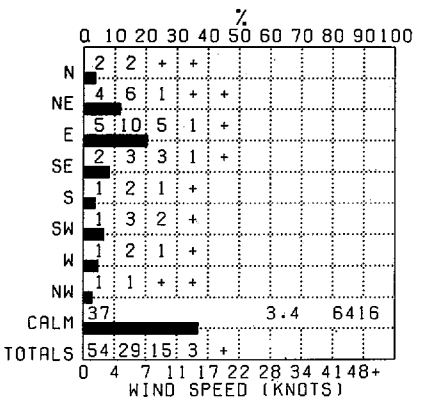
Anchorage



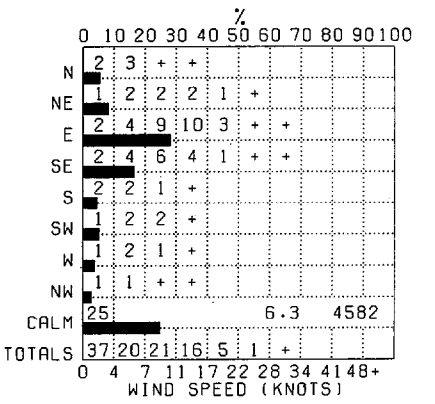
Middleton Island



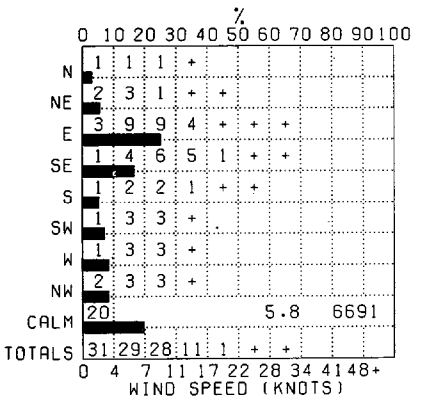
Cordova



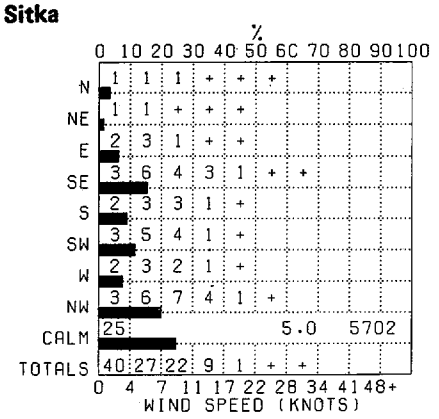
Yakataga



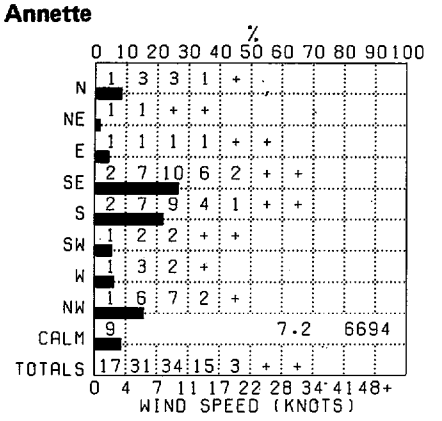
Yakutat



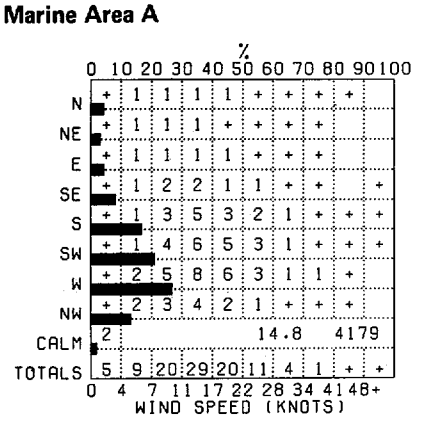
Sitka



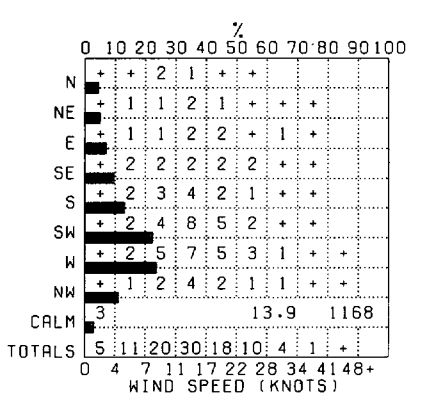
Annette

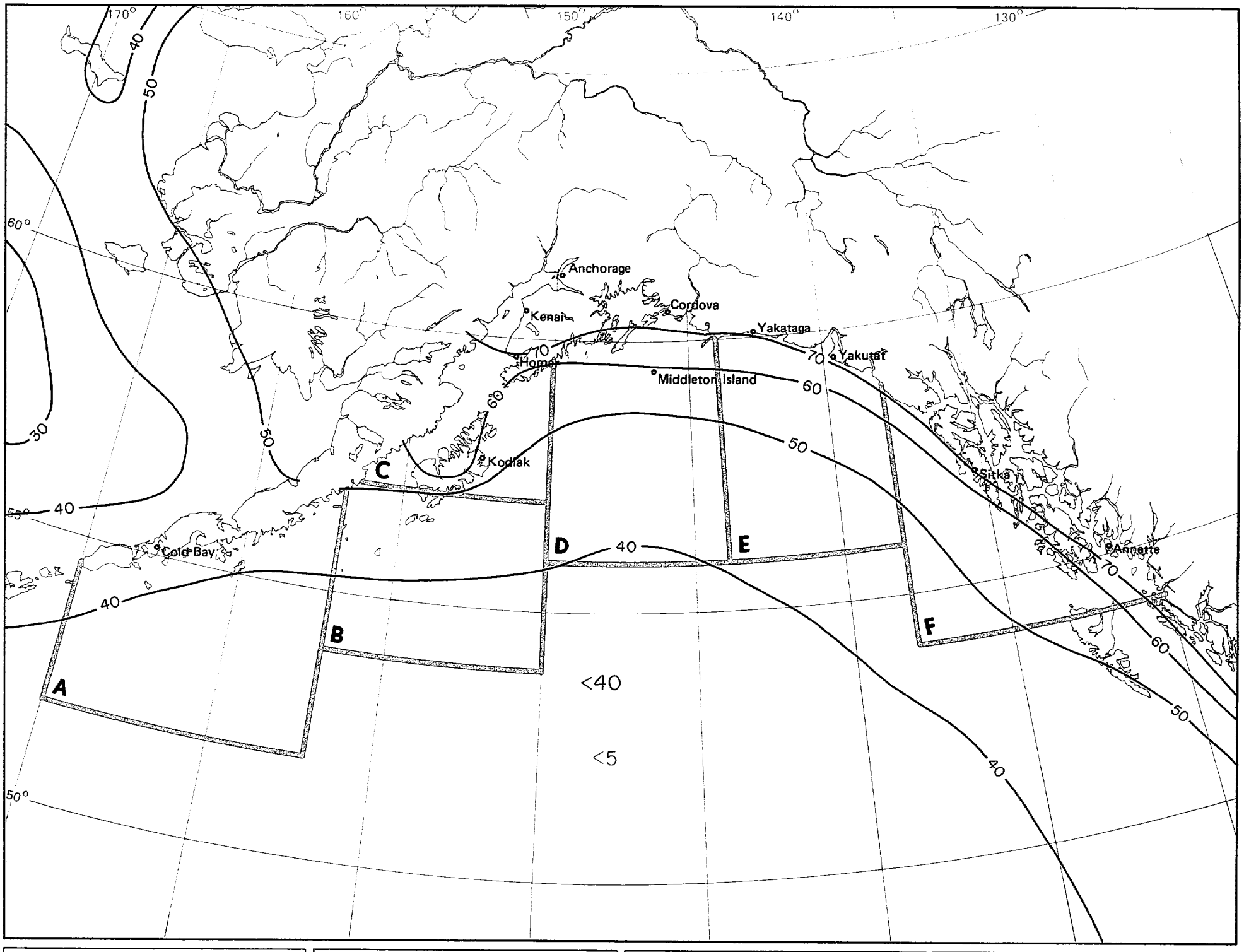


Marine Area A

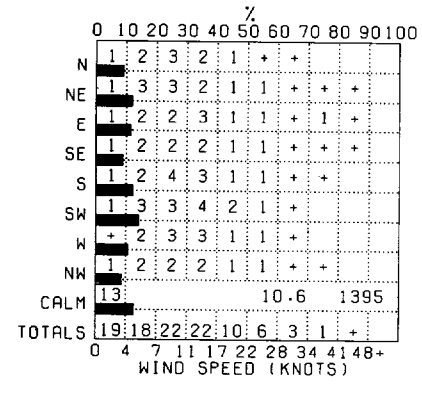


Marine Area B

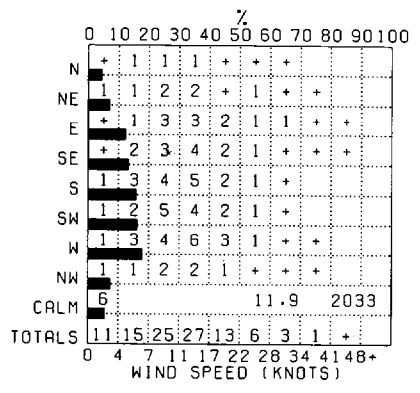




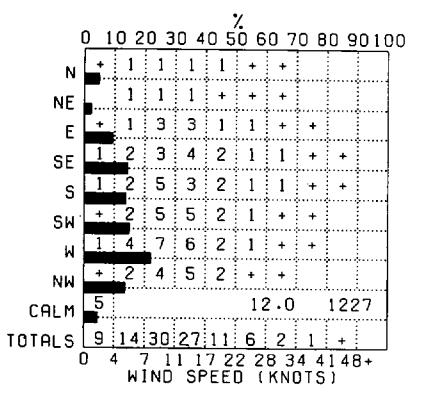
Marine Area C



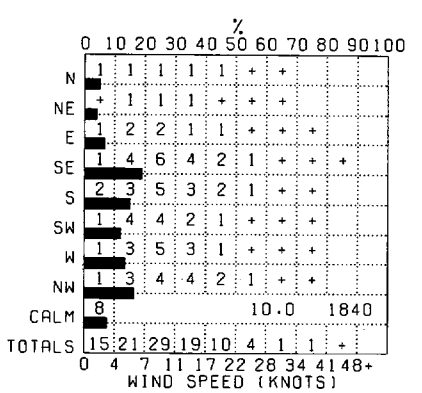
Marine Area D



Marine Area E



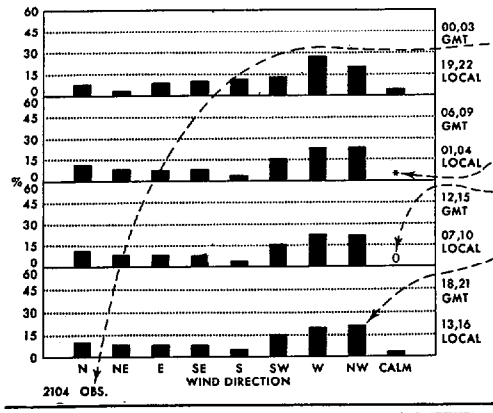
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

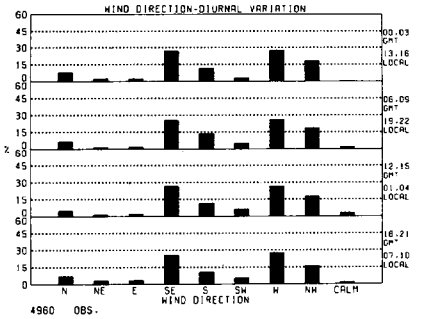
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

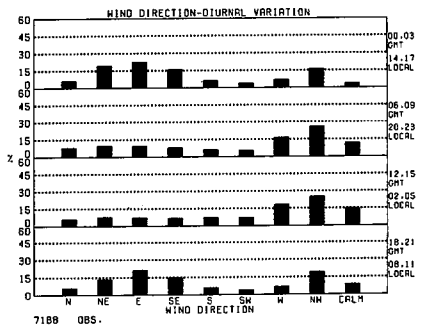
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

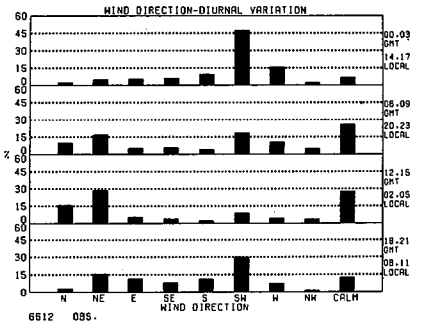
Cold Bay



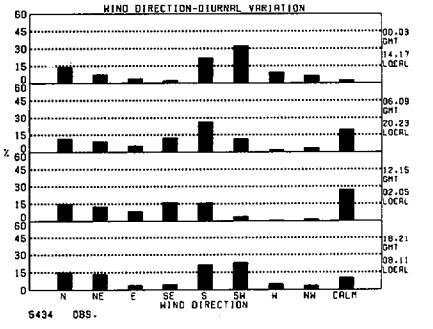
Kodiak



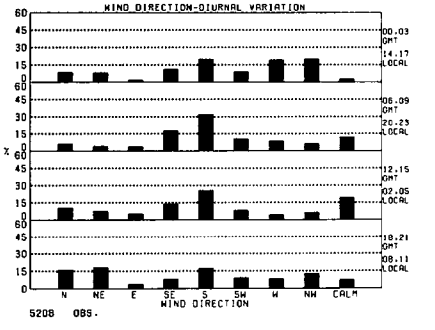
Homer



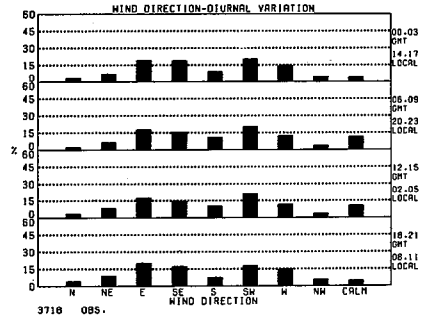
Kenai



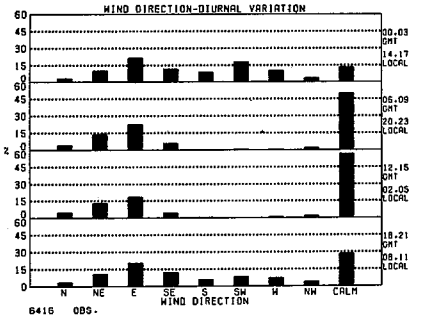
Anchorage



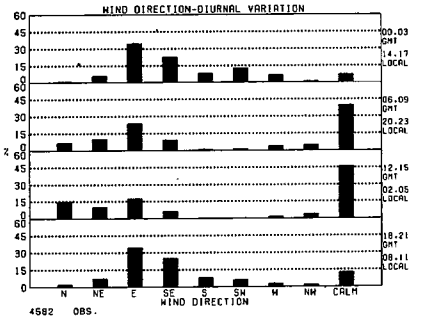
Middleton Island



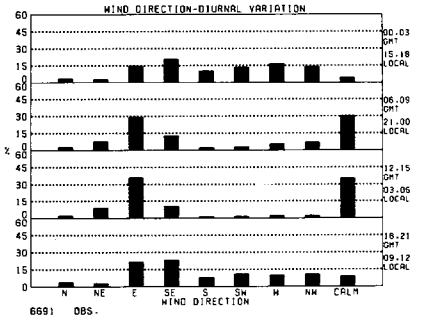
Cordova



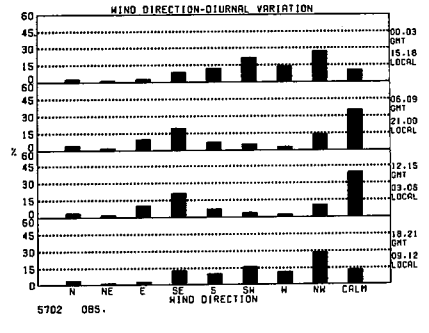
Yakataga



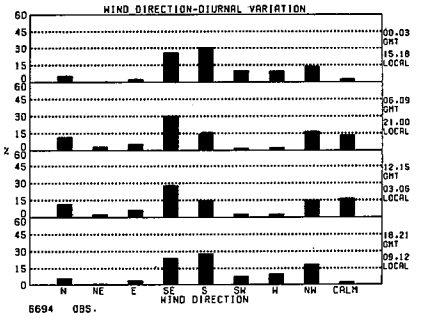
Yakutat



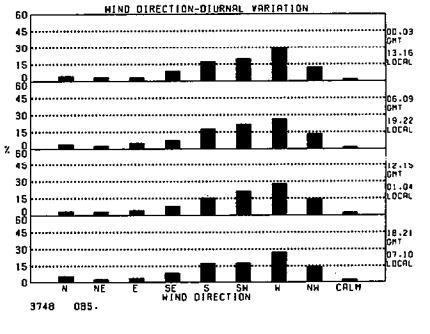
Sitka



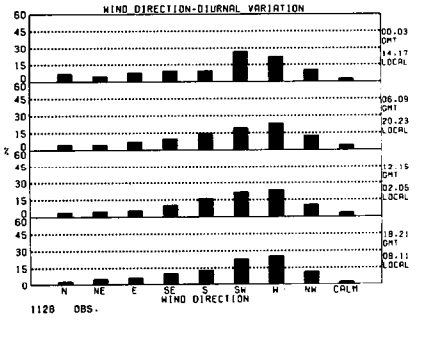
Annette

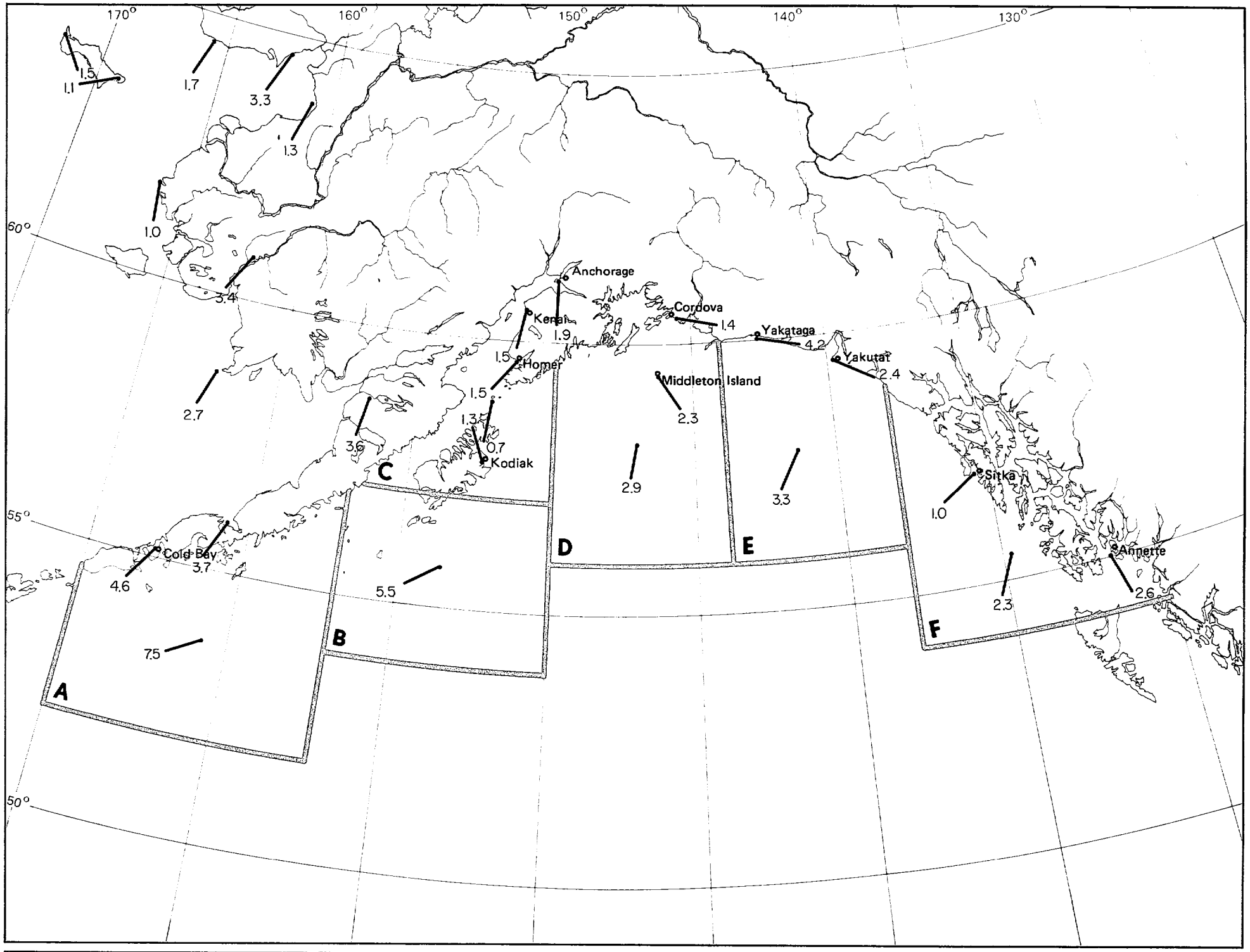


Marine Area A

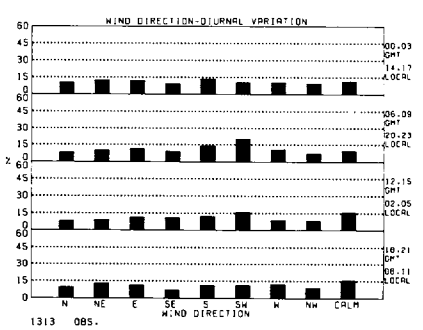


Marine Area B

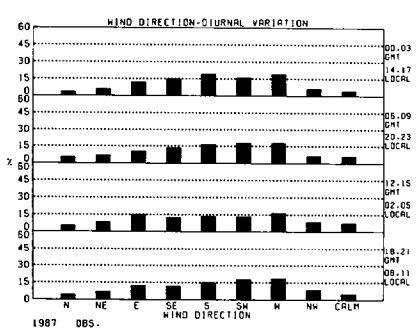




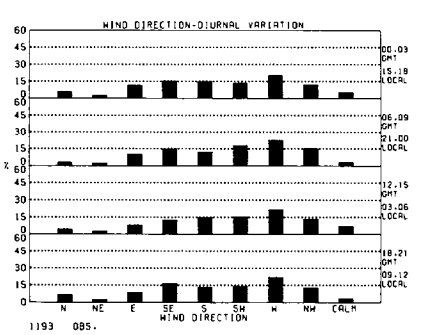
Marine Area C



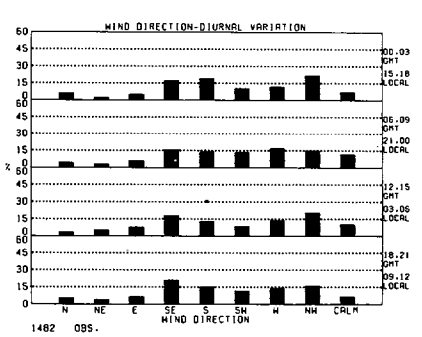
Marine Area D



Marine Area E



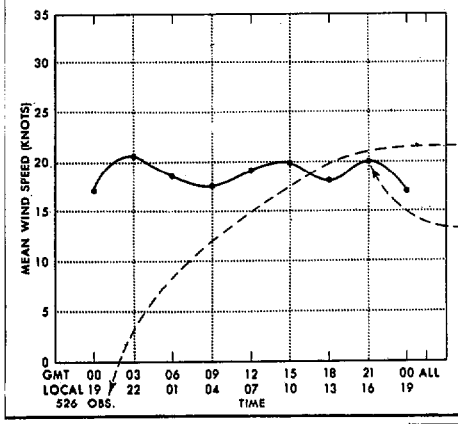
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

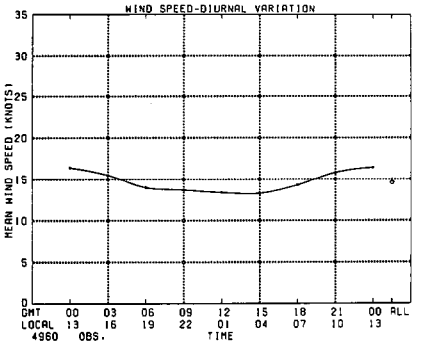
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

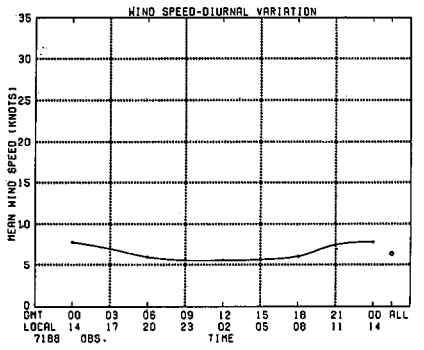
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

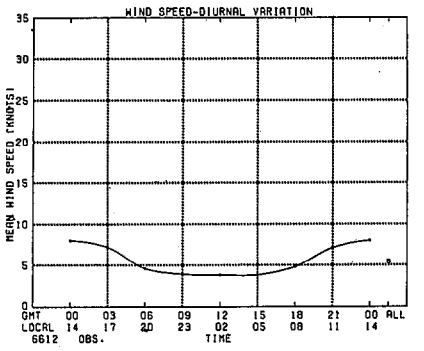
Cold Bay



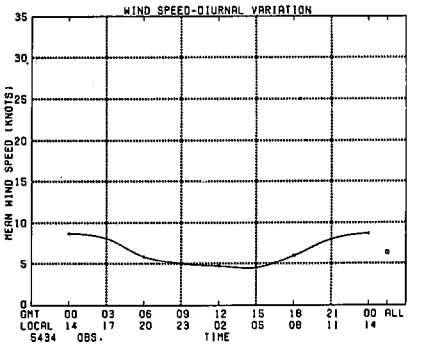
Kodiak



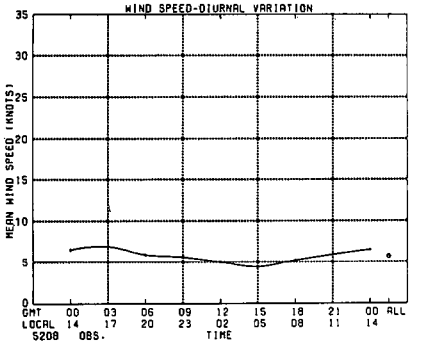
Homer



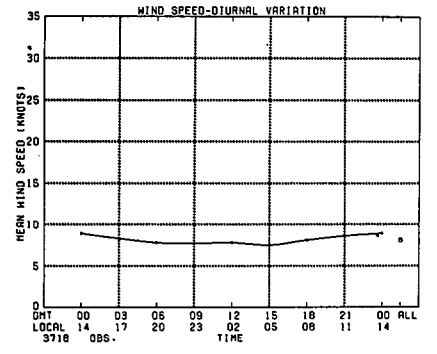
Kenai



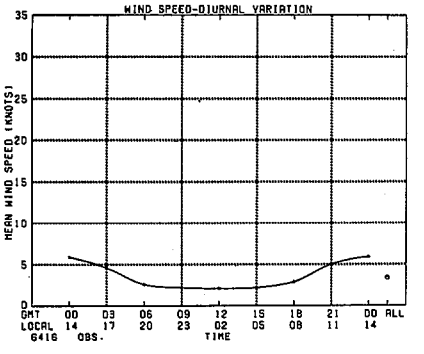
Anchorage



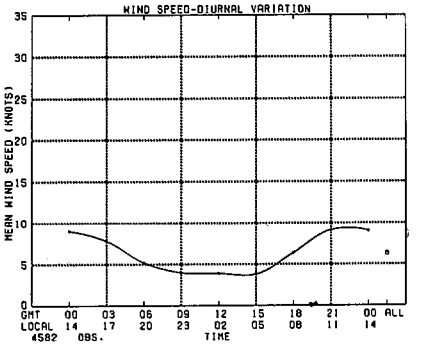
Middleton Island



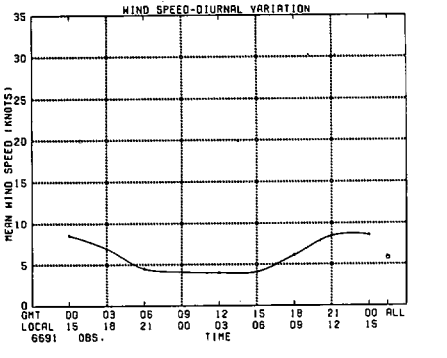
Cordova



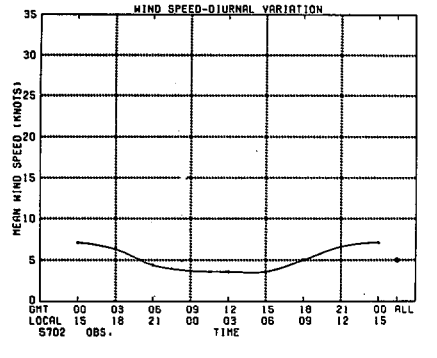
Yakataga



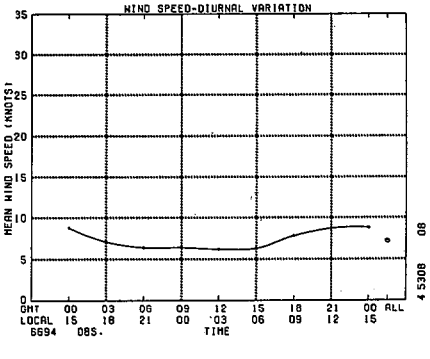
Yakutat



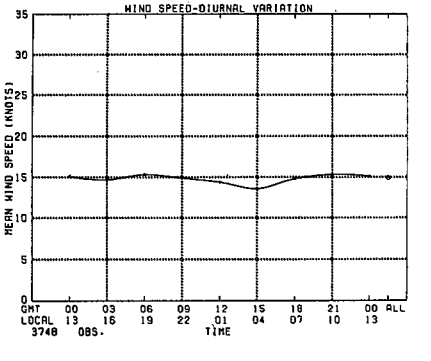
Sitka



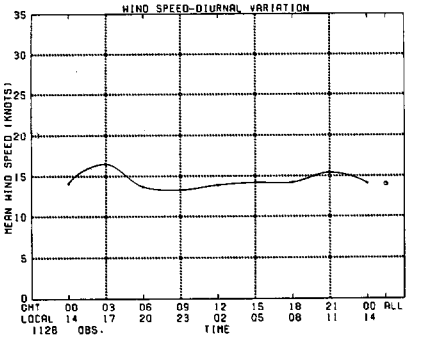
Annette

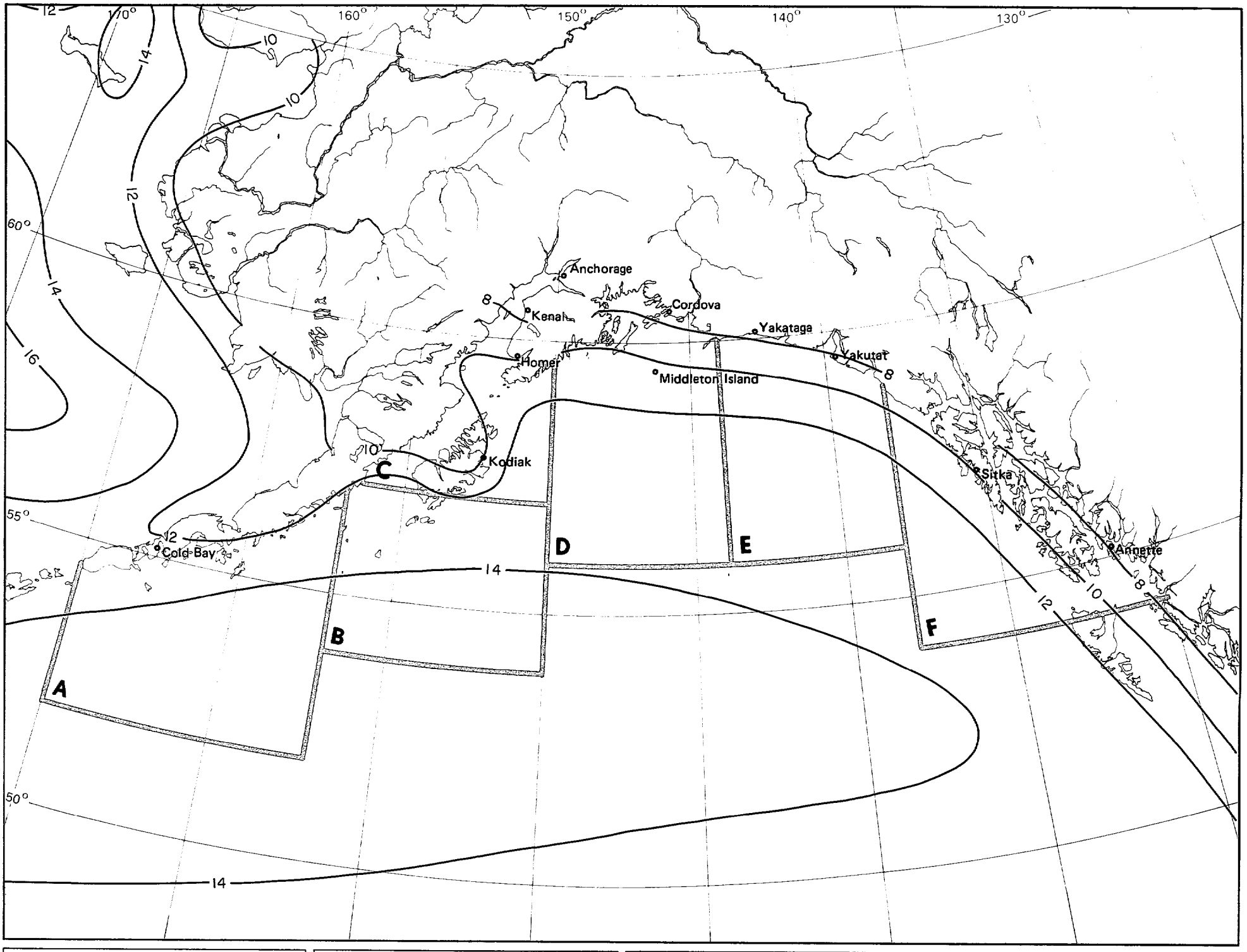


Marine Area A

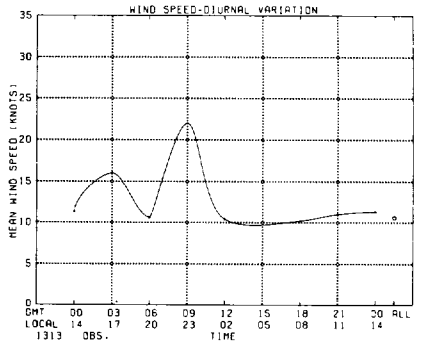


Marine Area B

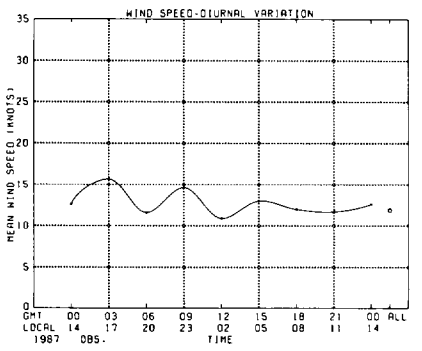




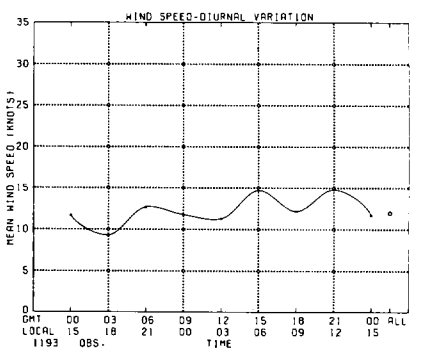
Marine Area C



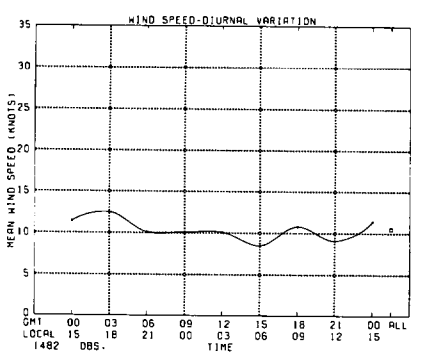
Marine Area D



Marine Area E



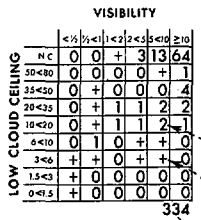
Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility



Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	3	10
50<80	0	0	0	0	+	1
35<50	0	+	+	+	1	1
20<35	0	0	+	+	3	7
10<20	+	+	+	1	9	10
6<10	+	+	1	5	12	5
3<6	+	1	4	8	8	1
1.5<3	+	+	1	1	+	+
0<1.5	2	2	1	+	+	0

4952

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	5	41
50<80	0	0	0	+	+	2
35<50	0	0	0	+	1	4
20<35	+	+	+	+	3	10
10<20	+	+	+	1	4	4
6<10	+	+	+	2	3	2
3<6	+	+	1	3	3	1
1.5<3	+	+	+	1	+	+
0<1.5	2	1	1	1	+	0

6916

Homer

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	1	60
50<80	0	0	0	0	1	6
35<50	0	0	0	+	2	14
20<35	0	0	0	0	2	7
10<20	0	0	0	0	0	3
6<10	0	0	0	0	+	0
3<6	0	0	0	0	+	1
1.5<3	0	0	0	0	0	0
0<1.5	+	+	0	0	0	0

297

Kenai

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	+	0	1	76
50<80	0	0	0	0	+	8
35<50	0	0	0	+	0	2
20<35	0	0	0	0	1	+
10<20	0	0	+	2	1	1
6<10	0	0	1	1	1	0
3<6	0	0	0	2	+	0
1.5<3	0	0	0	0	0	0
0<1.5	1	+	+	0	0	0

248

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	2	58
50<80	+	+	0	+	1	10
35<50	0	0	0	+	1	6
20<35	0	0	0	+	1	6
10<20	0	0	0	+	2	4
6<10	0	0	+	+	1	1
3<6	+	+	+	+	1	1
1.5<3	0	0	0	+	+	+
0<1.5	+	+	+	+	+	+

5106

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	+	+	+	2	43
50<80	0	0	0	0	+	2
35<50	0	0	0	+	+	3
20<35	0	+	0	+	1	5
10<20	+	0	+	1	5	13
6<10	+	+	1	3	4	2
3<6	+	1	1	2	1	1
1.5<3	0	0	+	+	+	0
0<1.5	4	2	1	1	+	0

1487

Cordova

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	33
50<80	0	0	0	0	+	2
35<50	0	0	0	+	1	4
20<35	0	0	+	1	5	13
10<20	0	+	1	4	9	7
6<10	0	1	1	2	3	1
3<6	+	+	1	1	1	+
1.5<3	+	0	+	+	+	0
0<1.5	1	1	1	+	+	0

4551

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	51
50<80	0	0	0	0	+	9
35<50	0	0	0	0	1	8
20<35	0	0	0	+	1	10
10<20	0	0	1	3	4	3
6<10	+	1	0	+	+	1
3<6	0	0	0	0	0	+
1.5<3	0	0	0	0	0	+
0<1.5	1	1	0	0	0	0

487

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	2	1	1	1	3	25
50<80	+	+	+	+	+	3
35<50	0	+	0	+	1	2
20<35	0	+	+	+	2	5
10<20	+	+	1	2	7	10
6<10	+	+	1	3	6	4
3<6	+	2	4	4	4	1
1.5<3	+	+	1	1	+	+
0<1.5	1	+	+	+	+	+

6652

Sitka

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	0	1	11	52
50<80	0	0	0	0	1	3
35<50	0	0	0	0	4	6
20<35	0	0	0	0	5	1
10<20	0	0	0	1	2	+
6<10	0	0	+	0	+	0
3<6	0	0	1	+	+	0
1.5<3	0	0	0	0	0	0
0<1.5	0	1	5	+	0	0

208

Annette

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	42
50<80	0	0	+	+	+	3
35<50	0	+	0	0	+	4
20<35	0	+	+	+	1	9
10<20	+	+	+	1	3	10
6<10	+	+	1	2	4	4
3<6	+	+	1	4	3	2
1.5<3	+	+	+	1	+	+
0<1.5	1	1	+	+	+	+

5637

Marine Area A

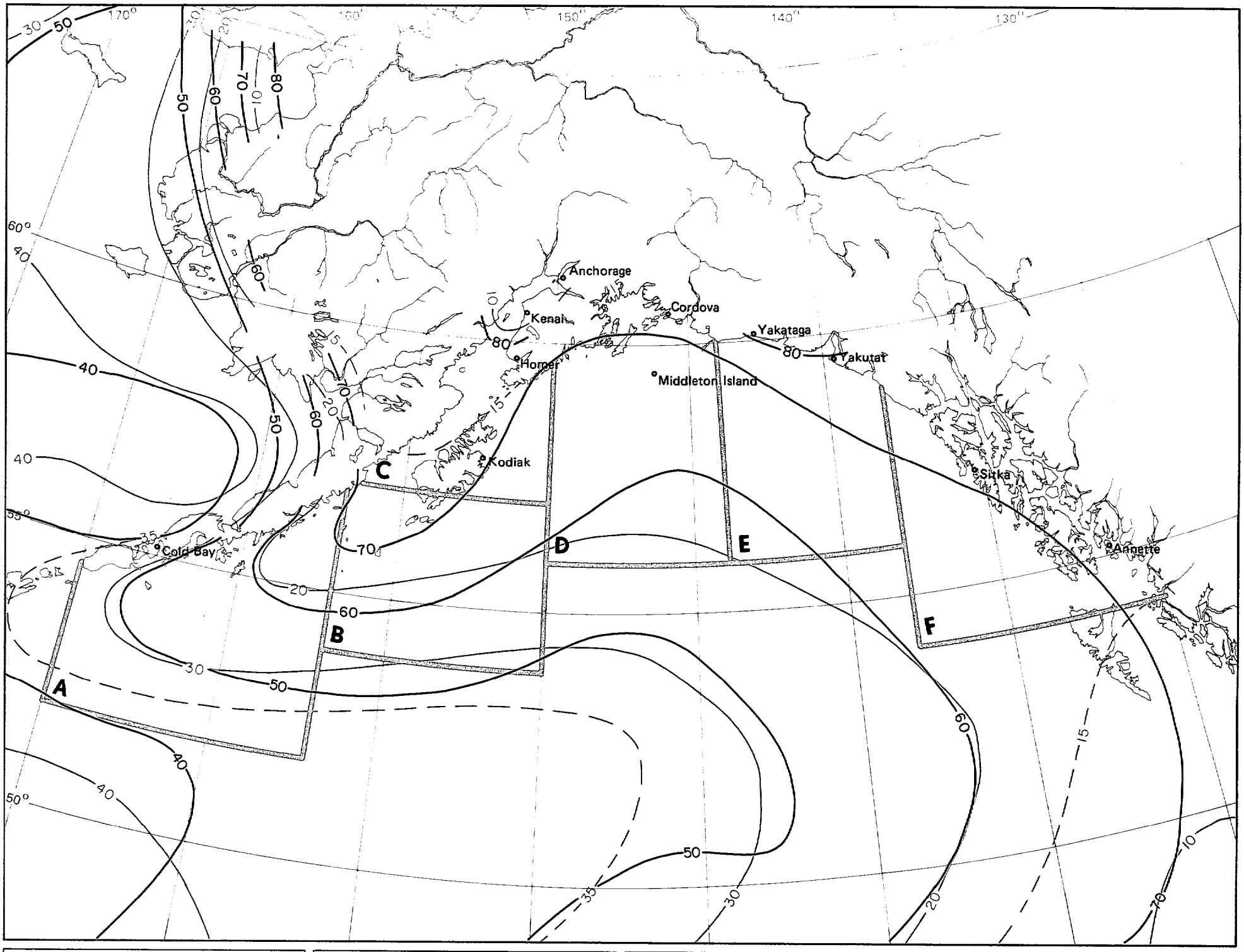
LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	+	0	+	+	3	14
50<80	0	0	0	0	+	1
35<50	+	+	+	+	1	2
20<35	+	+	+	1	4	6
10<20	+	+	1	4	8	10
6<10	+	+	1	3	6	7
3<6	+	+	+	2	2	2
1.5<3	+	+	+	1	+	+
0<1.5	12	2	2	2	1	+

3033

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<1/2	1/2<1	1<2	2<5	5<10	≥10
NC	0	0	+	+	3	27
50<80	0	0	0	0	0	1
35<50	0	0	0	+	1	2
20<35	0	+	0	1	4	8
10<20	+	+	1	3	5	10
6<10	+	+	0	2	4	6
3<6	1	+	+	1	1	1
1.5<3	0	0	+	+	+	1
0<1.5	9	2	1	1	1	0

917



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	3	35
50<80	0	0	0	0	+	2
35<50	0	0	0	0	1	4
20<35	0	0	+	+	3	7
10<20	+	0	0	+	4	10
6<10	+	+	+	1	5	7
3<6	+	0	+	1	2	1
1.5<3	+	+	+	1	1	1
0<1.5	5	1	1	1	+	+

979

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	28
50<80	0	0	0	0	0	1
35<50	0	0	+	+	+	3
20<35	+	0	+	1	2	9
10<20	+	+	1	1	5	12
6<10	0	+	+	1	5	11
3<6	0	+	1	1	3	2
1.5<3	+	+	+	+	1	+
0<1.5	4	2	1	2	1	+

1616

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	1	25
50<80	0	0	0	0	+	1
35<50	0	0	0	+	+	4
20<35	0	+	+	0	4	10
10<20	+	0	1	1	6	17
6<10	0	0	+	1	5	11
3<6	0	0	+	1	1	3
1.5<3	0	0	+	1	1	1
0<1.5	2	1	+	1	1	+

959

Marine Area F

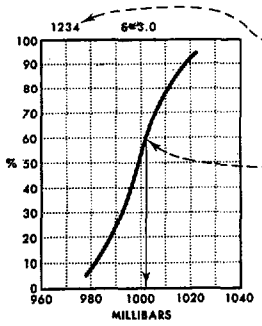
LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	+	3	27
50<80	0	0	0	0	1	1
35<50	0	0	0	+	1	5
20<35	0	1	+	1	3	7
10<20	+	3	+	1	4	12
6<10	1	3	+	1	4	9
3<6	+	0	+	1	2	1
1.5<3	+	+	0	+	+	+
0<1.5	2	1	1	1	+	+

1173

12 Low cloud ceiling and visibility thresholds

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

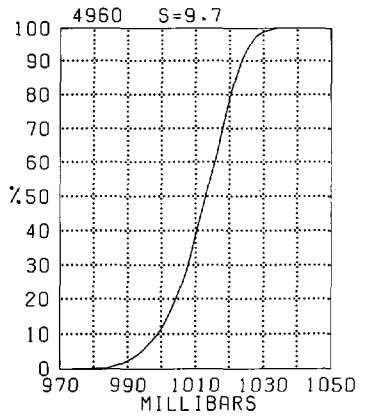
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

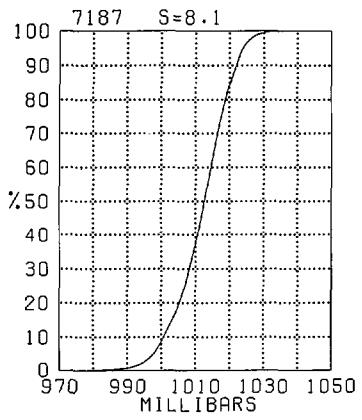
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

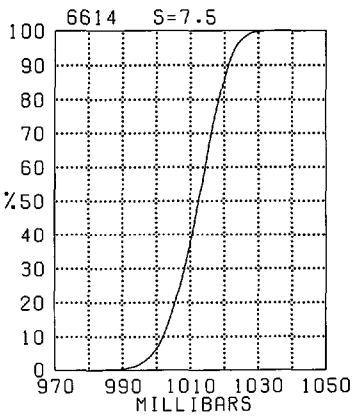
Cold Bay



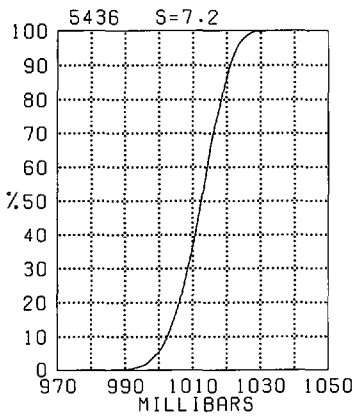
Kodiak



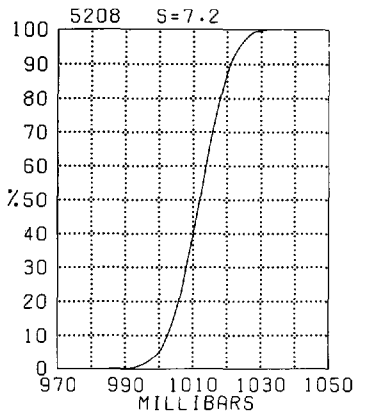
Homer



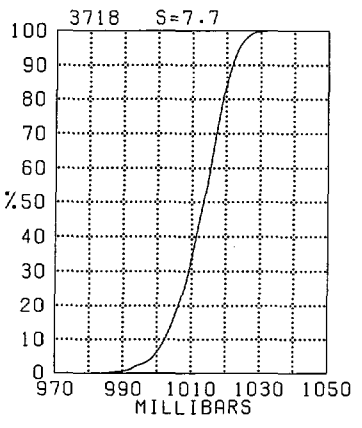
Kenai



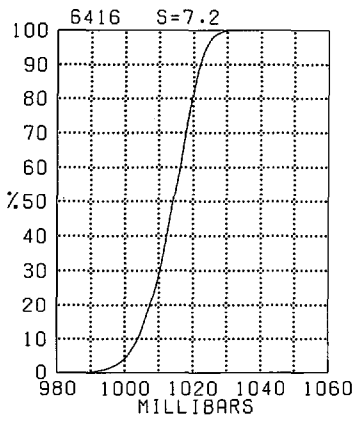
Anchorage



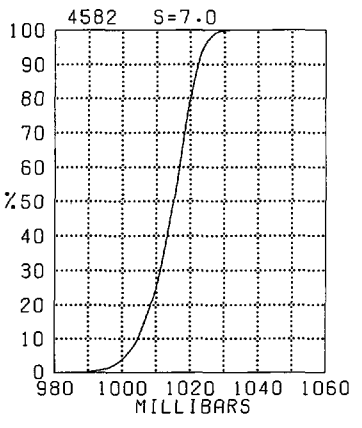
Middleton Island



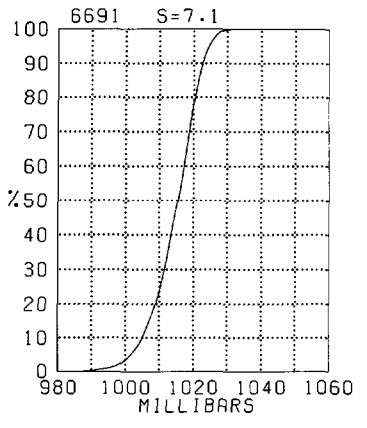
Cordova



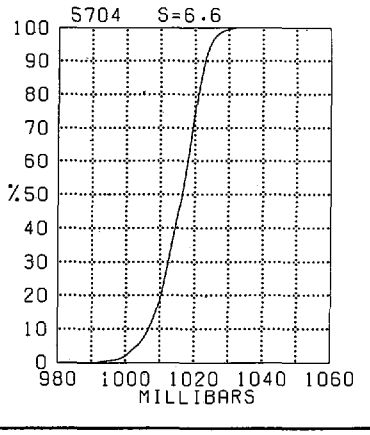
Yakataga



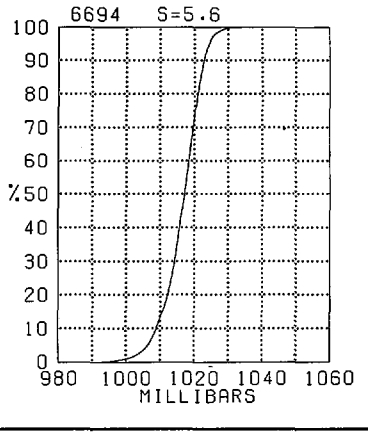
Yakutat



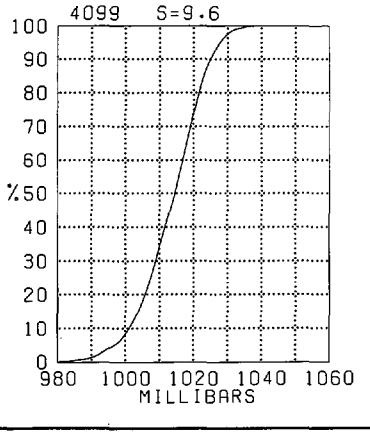
Sitka



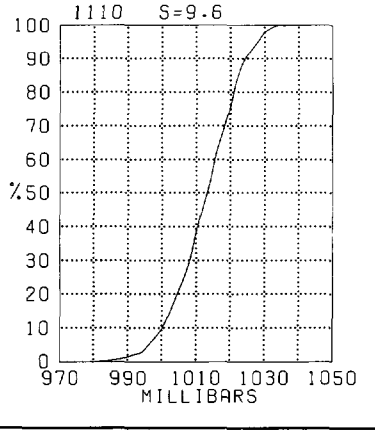
Annette

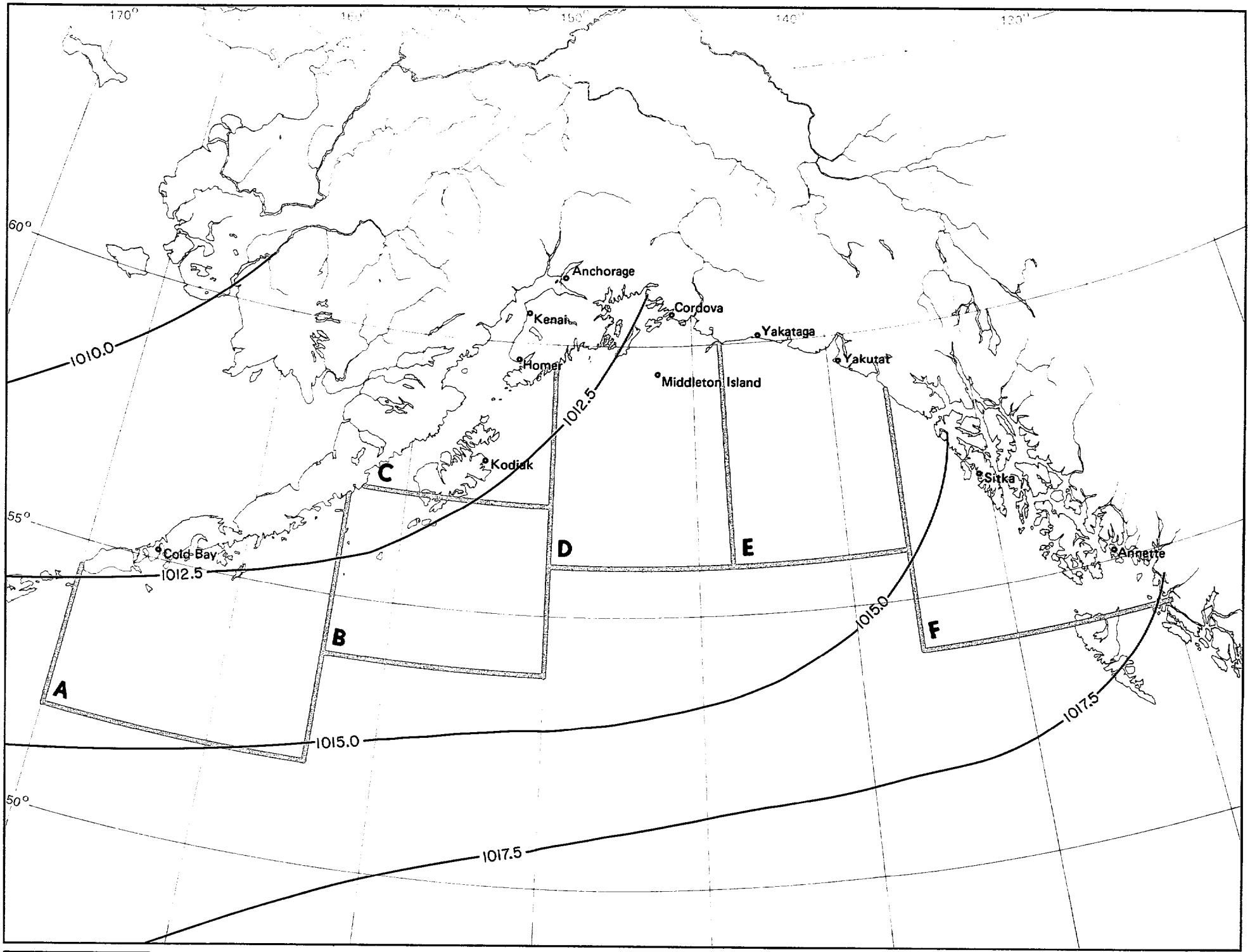


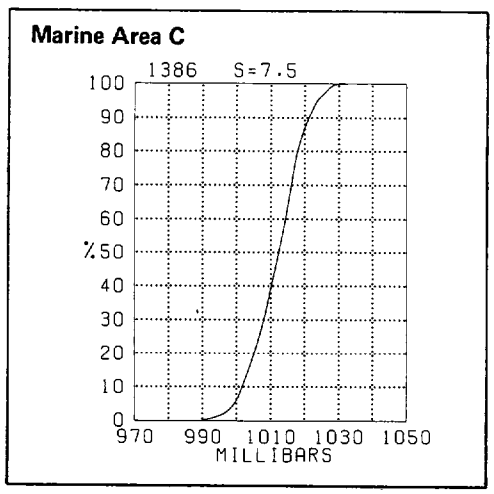
Marine Area A

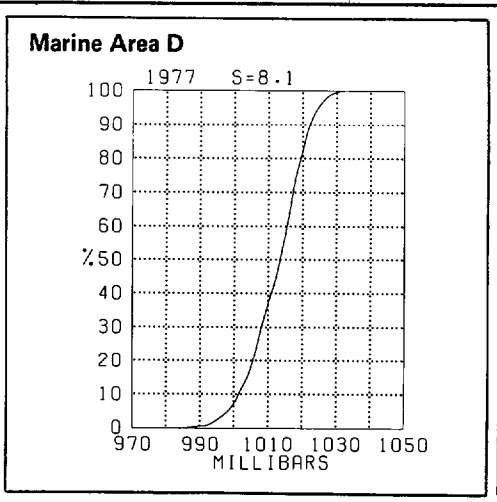


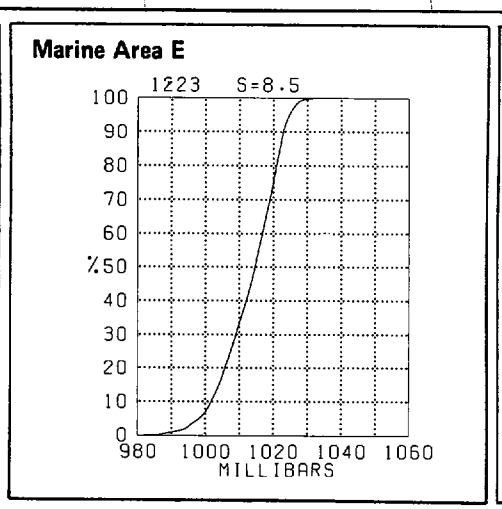
Marine Area B

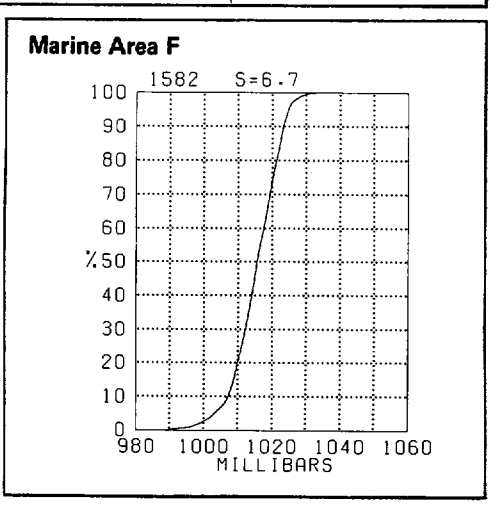










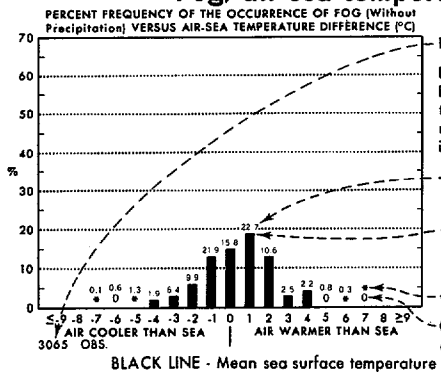


13 Mean sea level pressure

August

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

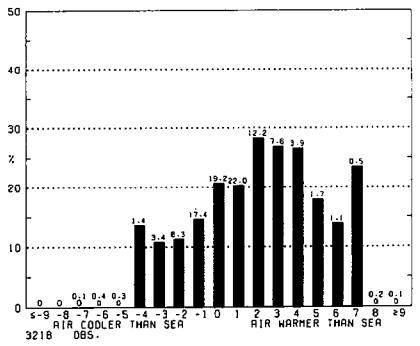
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

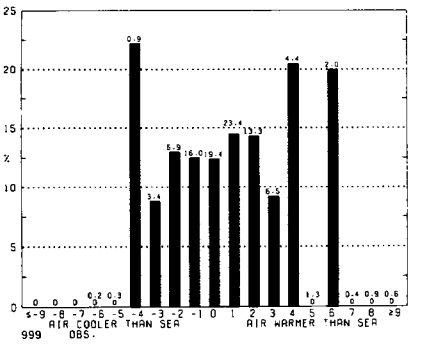
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

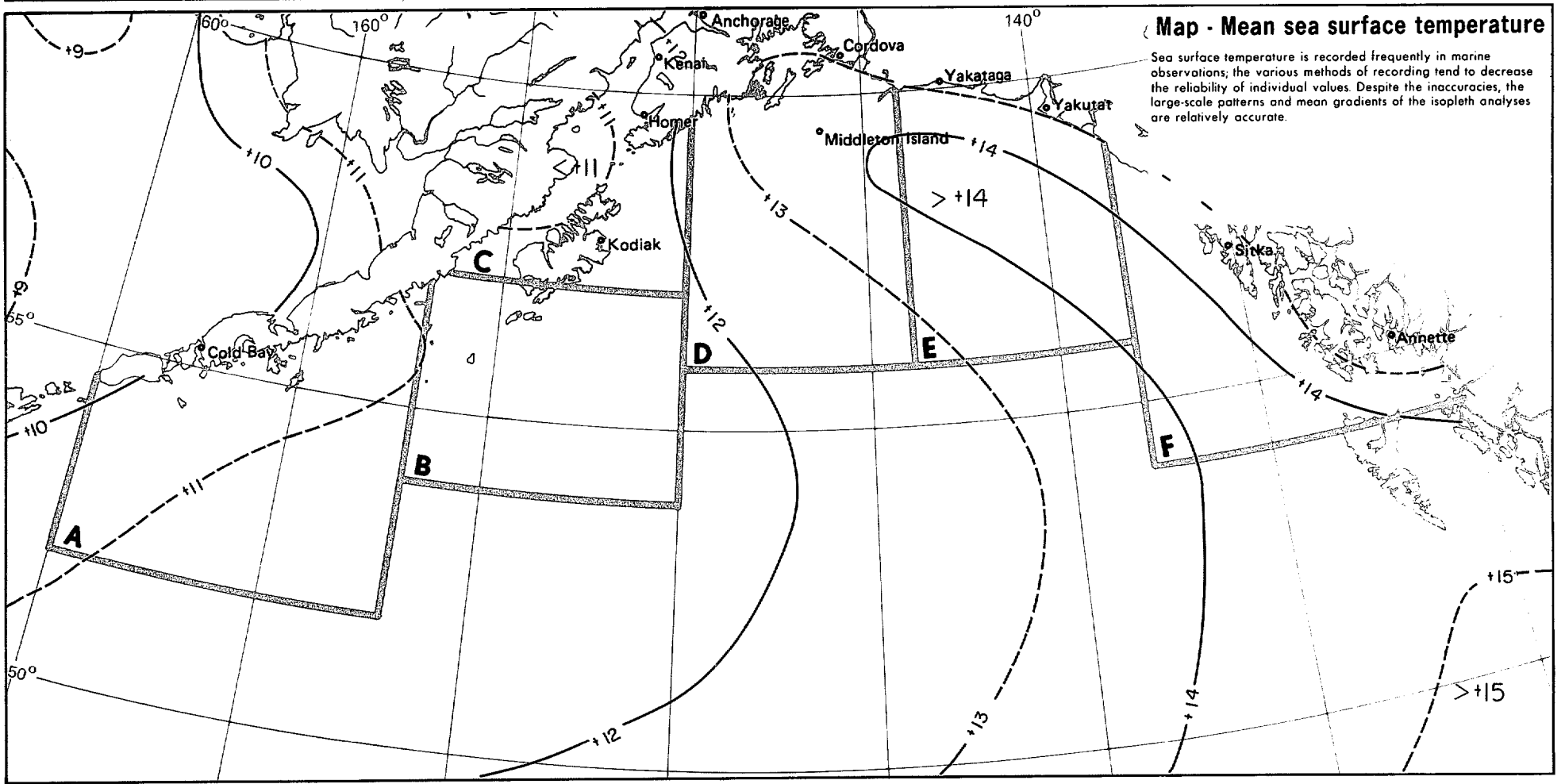


Marine Area B

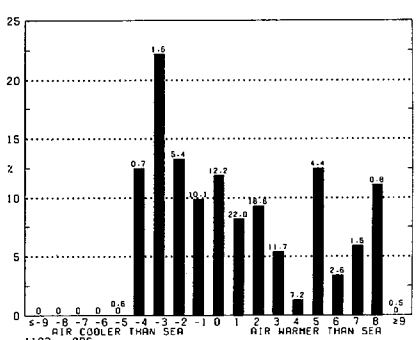


Map - Mean sea surface temperature

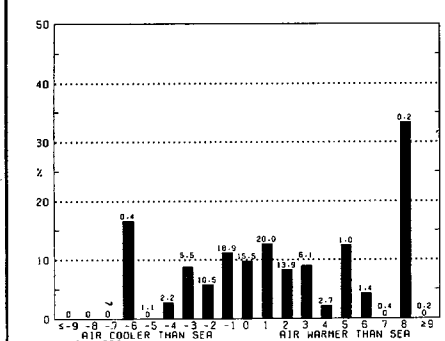
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



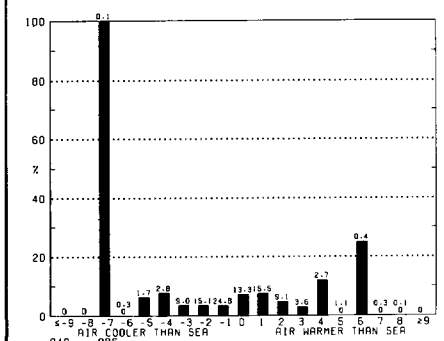
Marine Area C



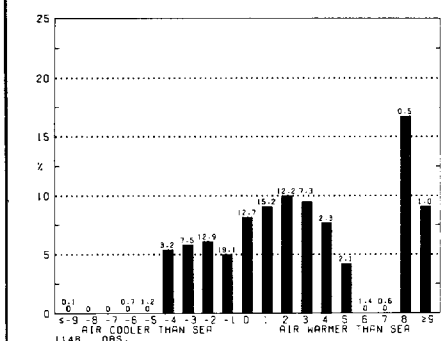
Marine Area D



Marine Area E

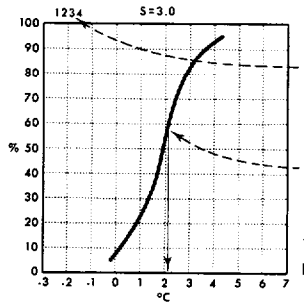


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

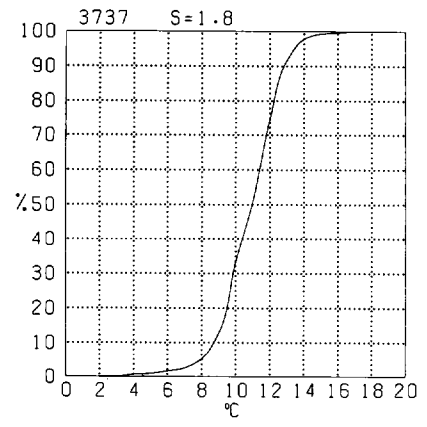
(60% of *all observed sea surface temperatures were* ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

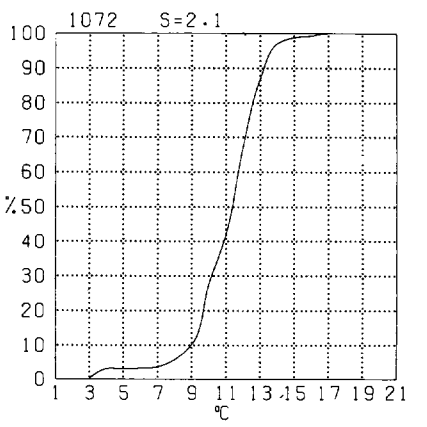
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

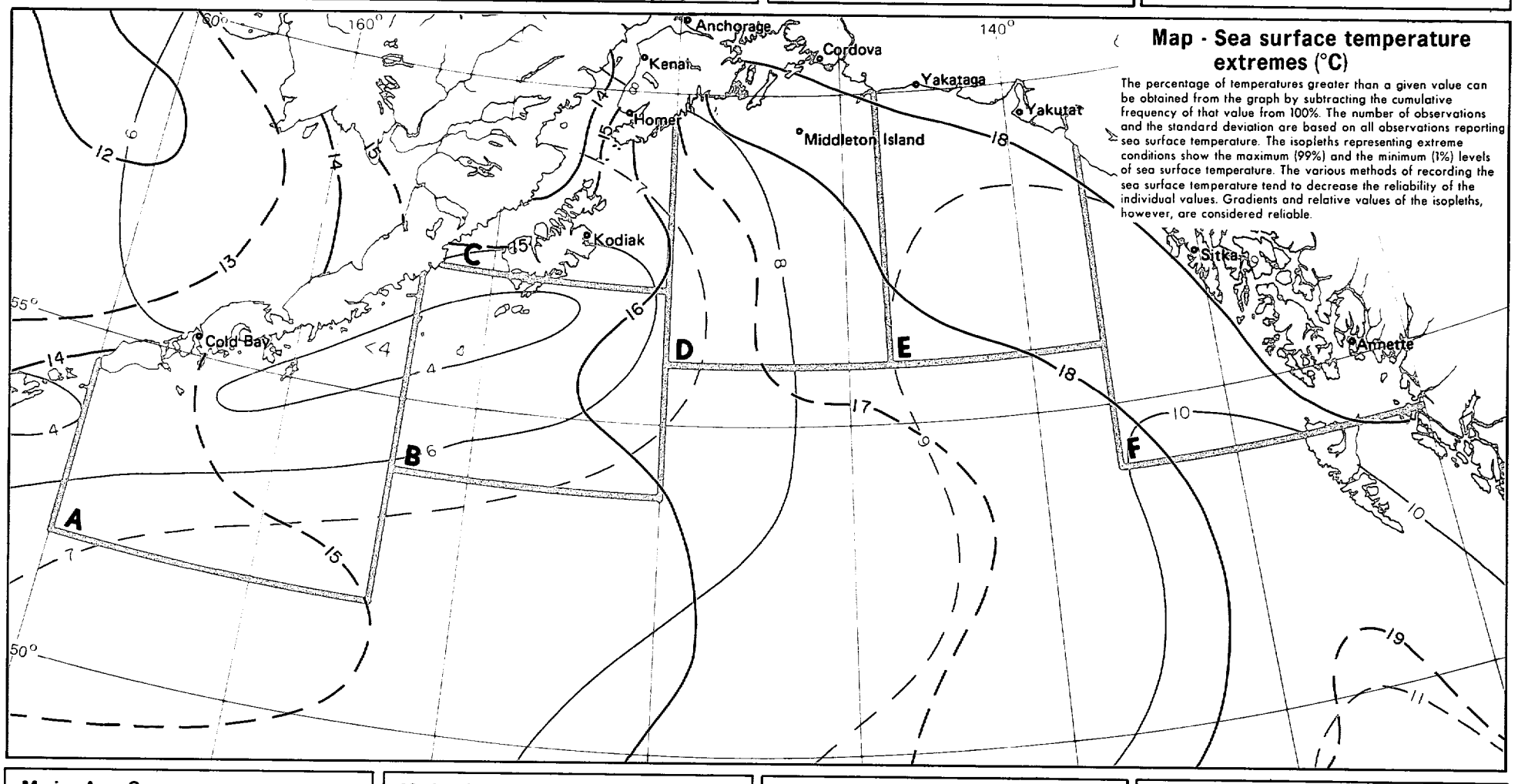
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

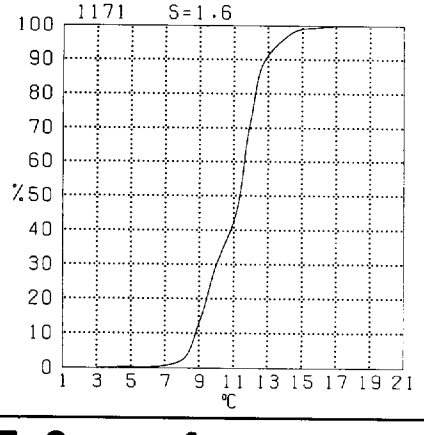




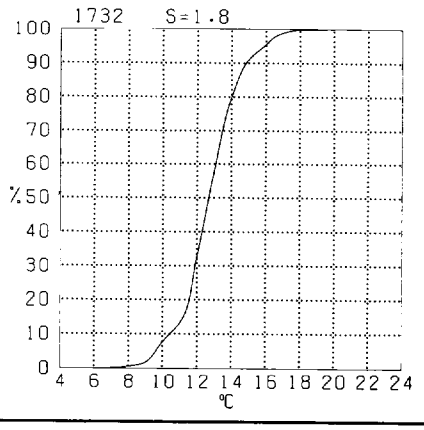
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

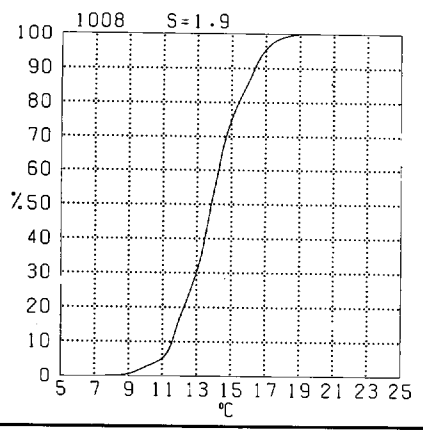
Marine Area C



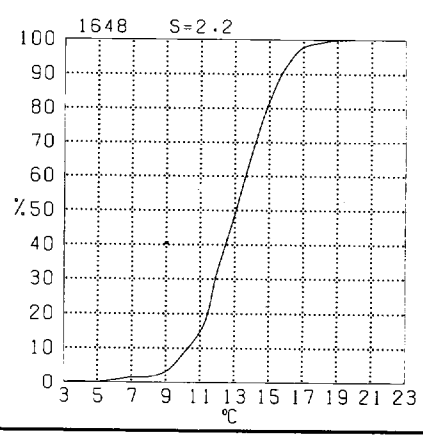
Marine Area D



Marine Area E



Marine Area F

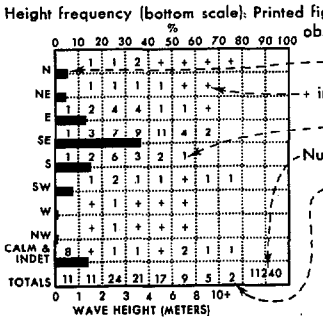


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



---(5% of all waves were from the N.)

+ indicates <.5% but >0.

---(1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

---(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL

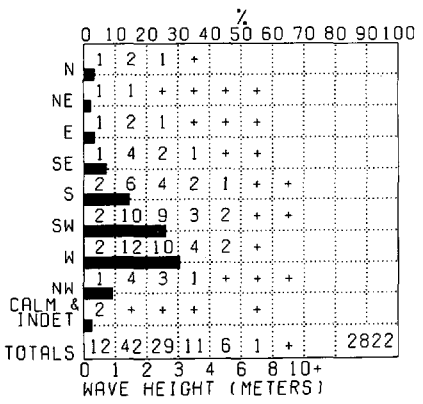
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10
	0	1	2	3	4	6	8	10+

Printed scale on bottom of chart

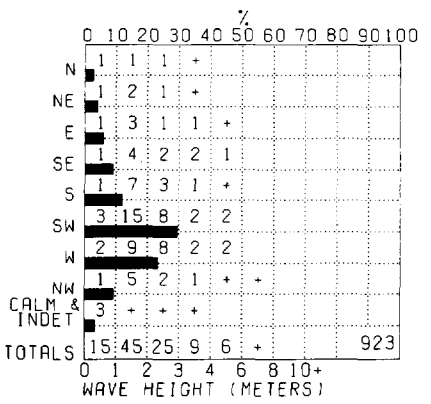
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

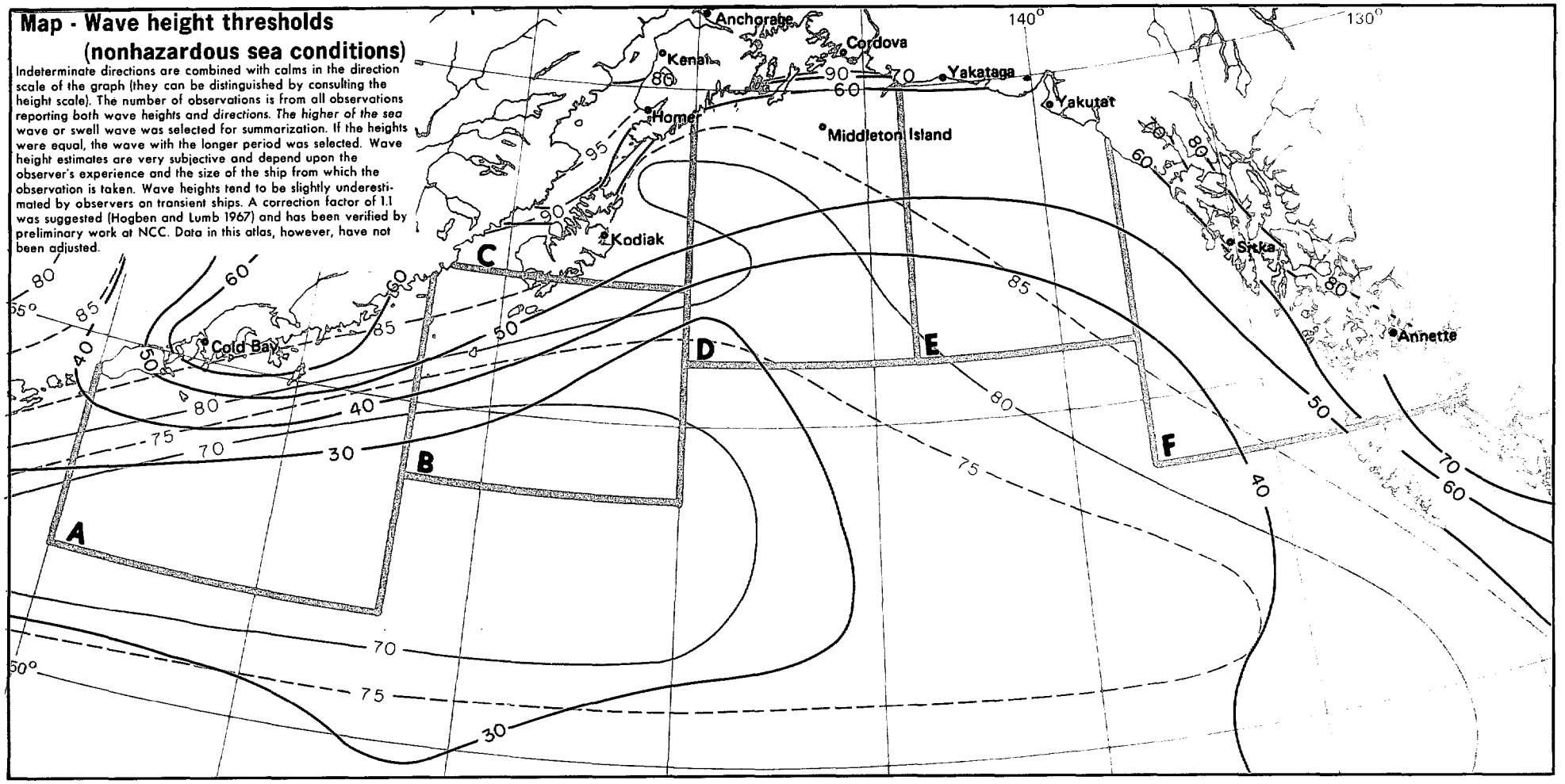


Marine Area B

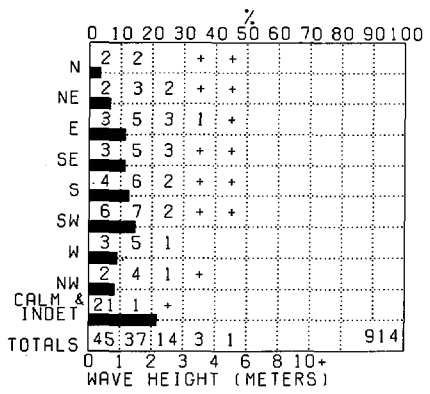


Map - Wave height thresholds (nonhazardous sea conditions)

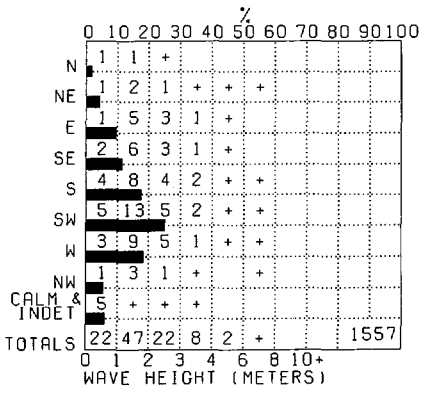
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



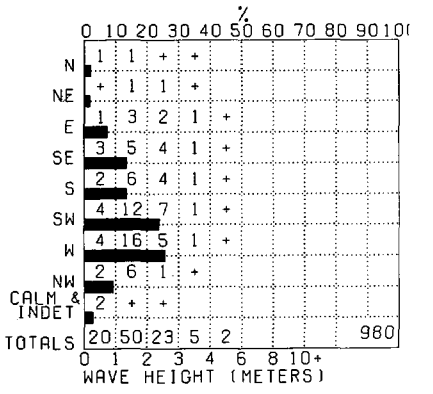
Marine Area C



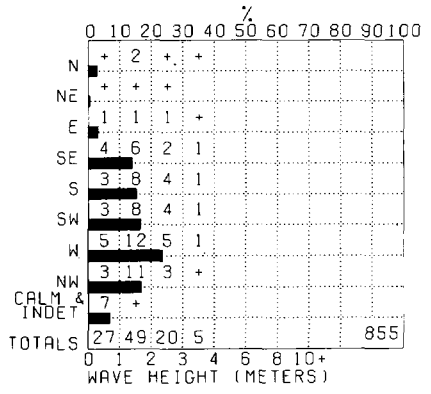
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS.)	<6	6-7	8-9	10-11	12-13	>13	IND.
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	2	+	+	0	0	3
1-1.5	20	13	5	1	1	+	2
2-2.5	6	11	8	2	+	+	1
3-3.5	1	4	3	1	+	+	+
4-5.5	+	2	2	1	+	+	+
6-7.5	0	+	+	+	+	+	0
8-9.5	0	0	+	0	0	+	0
≥10	0	0	0	0	0	0	0

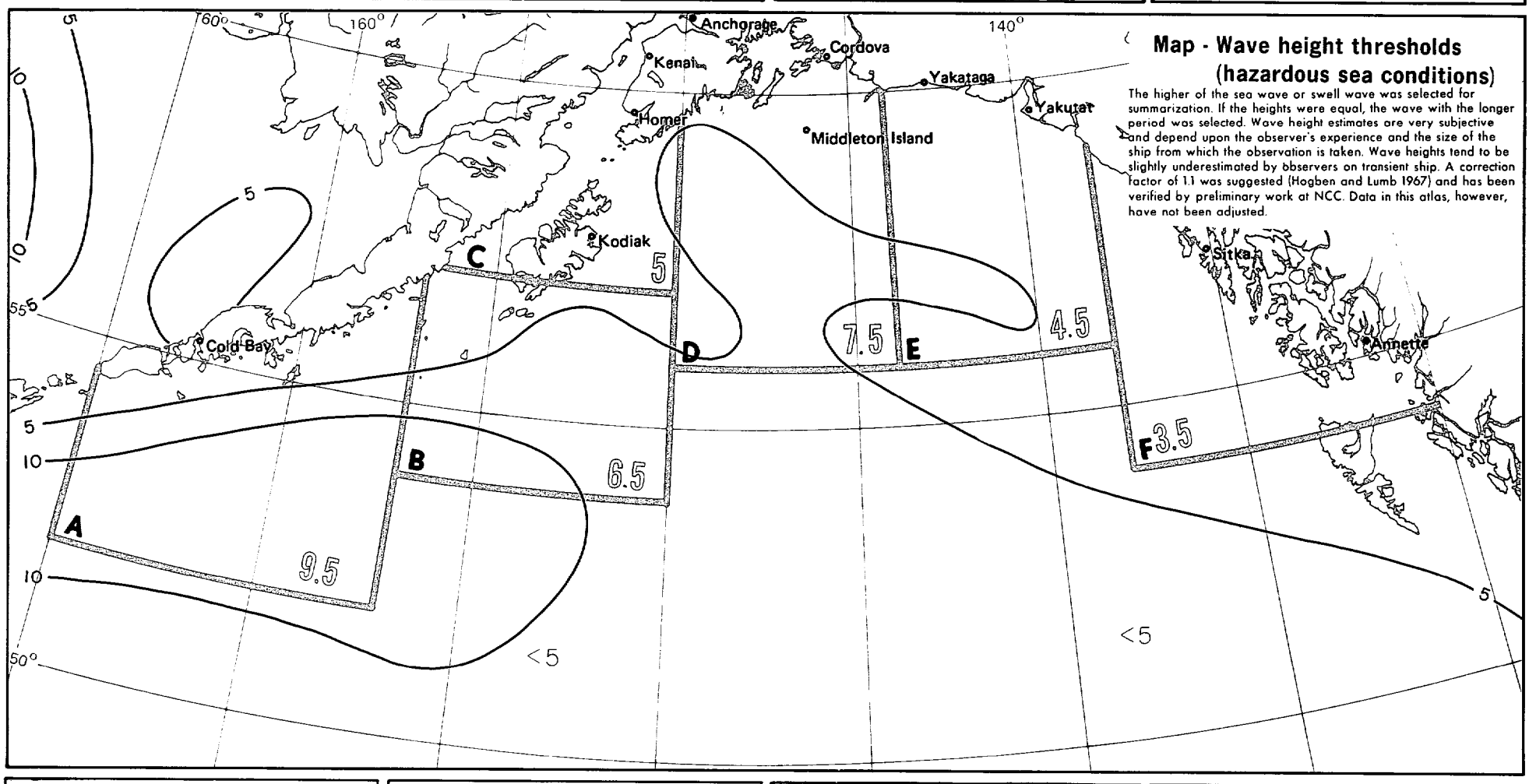
2870

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	2	+	+	0	0	5
1-1.5	21	15	4	1	+	+	3
2-2.5	6	11	4	2	1	+	1
3-3.5	2	4	2	1	1	+	+
4-5.5	1	2	1	+	+	+	0
6-7.5	0	+	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

940



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by bbservers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	27	2	1	+	0	0	20
1-1.5	23	7	2	+	+	+	1
2-2.5	5	4	2	1	+	+	+
3-3.5	1	1	+	+	+	+	+
4-5.5	+	+	+	+	0	+	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1011

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	2	+	+	0	0	6
1-1.5	23	14	4	1	2	+	1
2-2.5	5	9	4	1	1	1	+
3-3.5	2	3	1	1	1	+	+
4-5.5	+	1	+	+	+	+	0
6-7.5	0	0	+	+	0	+	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1618

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	15	3	1	1	0	0	3
1-1.5	24	14	6	1	1	+	1
2-2.5	4	11	4	1	1	1	1
3-3.5	1	2	1	+	+	+	+
4-5.5	+	+	1	0	0	+	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

1009

Marine Area F

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	2	1	+	0	0	8
1-1.5	22	13	5	1	1	+	2
2-2.5	5	6	3	2	1	1	1
3-3.5	1	2	1	+	1	+	0
4-5.5	0	0	0	0	0	0	0
6-7.5	0	0	0	0	0	0	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

927

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)

Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

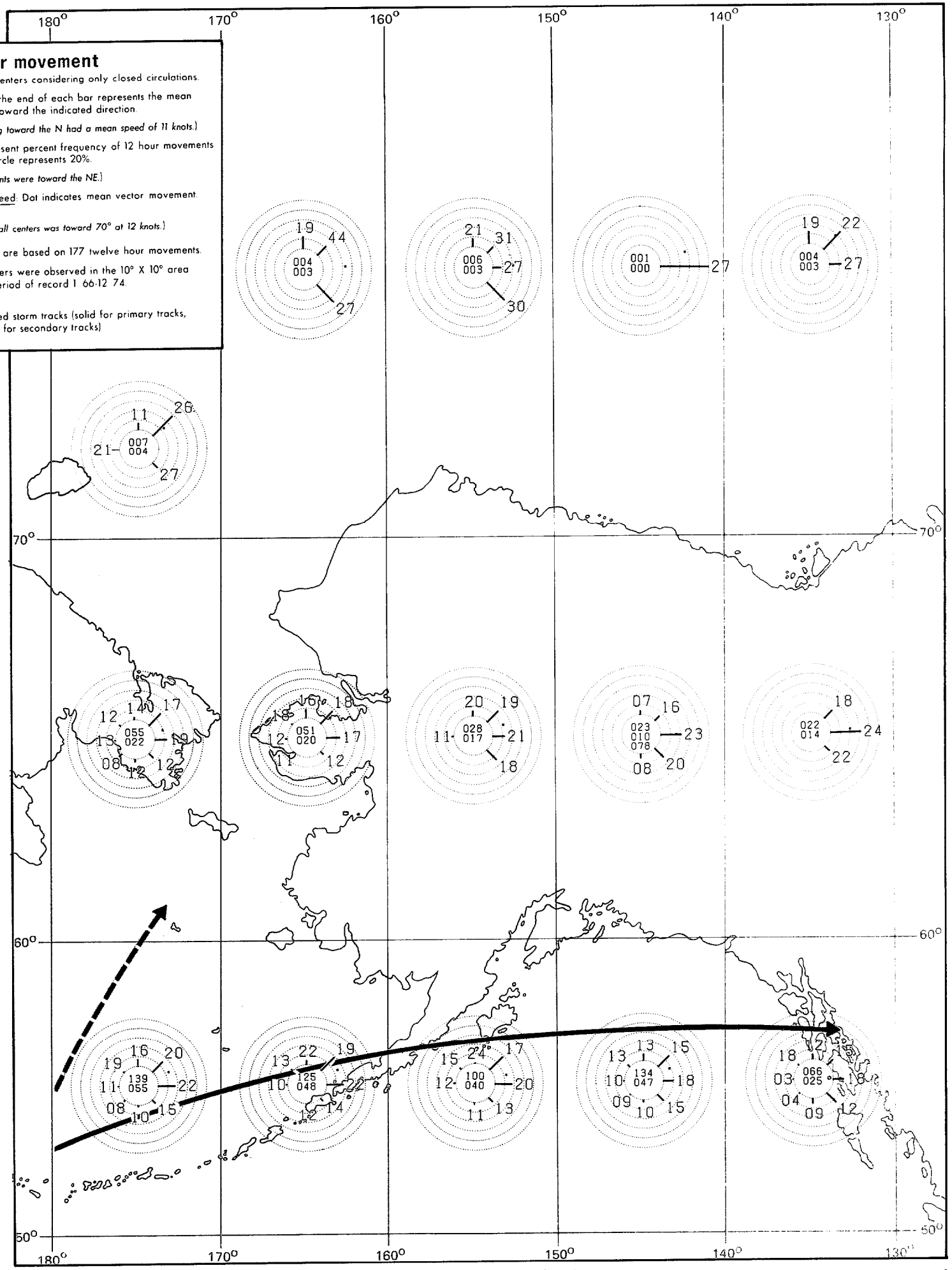
(frequency) 100% 80% 60% 40% 20%

(vector mean speed knots) 50 40 30 20 10

177 — Statistics for this rose are based on 177 twelve hour movements.

83 — 83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1 66-12 74.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)

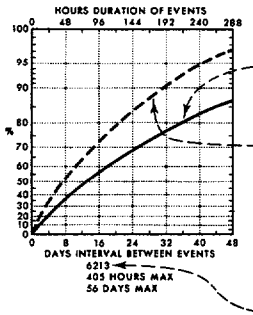


18 Low pressure center movement

Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

——(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

– – –(88% of the events were followed by another event in 28 days or less.)

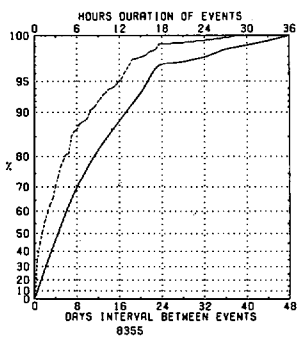
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

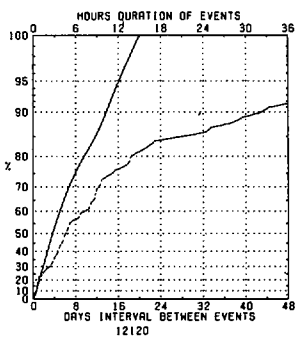
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

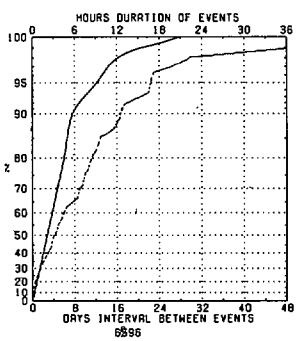
Kodiak



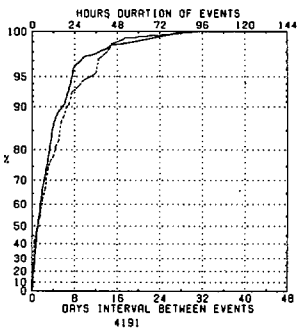
Homer



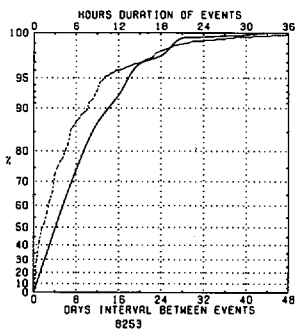
Kenai



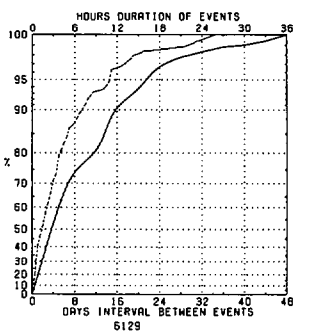
Middleton Island



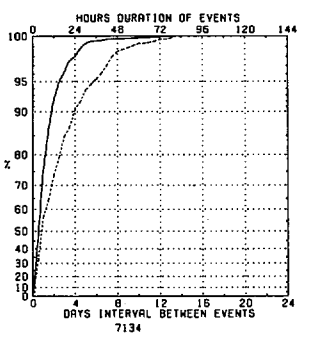
Cordova



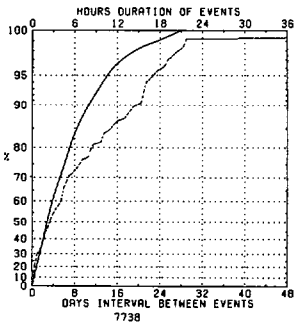
Yakataga



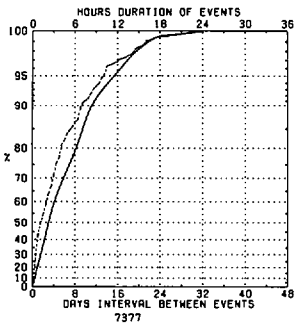
Yakutat



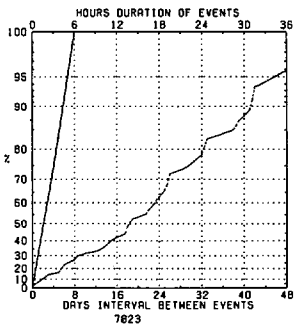
Sitka



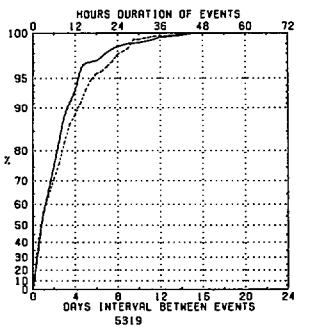
Annette



Anchorage



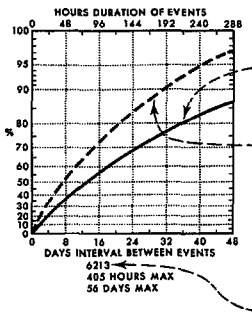
Cold Bay



Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

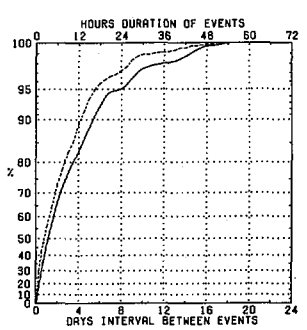
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

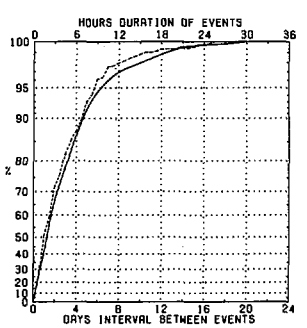
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

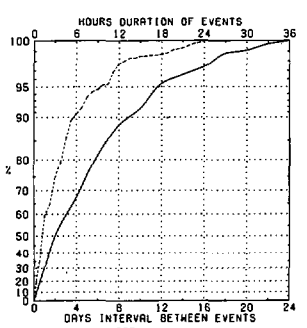
Kodiak



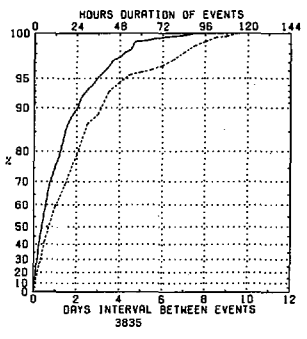
Homer



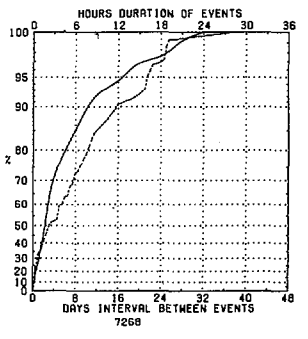
Kenai



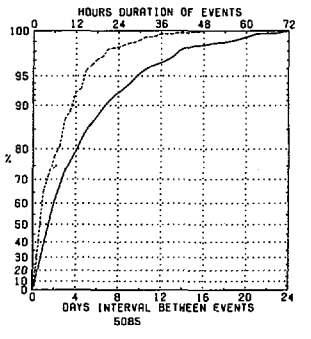
Middleton Island



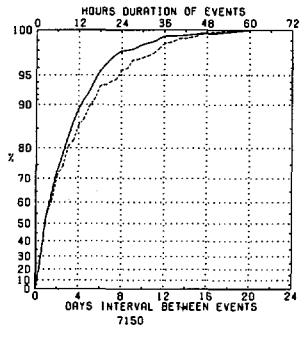
Cordova



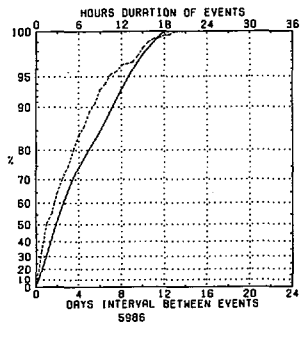
Yakataga



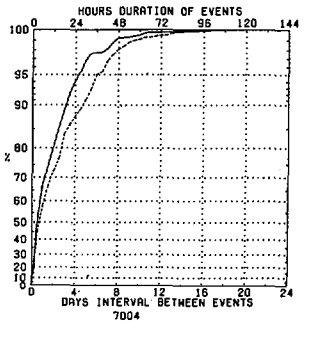
Yakutat



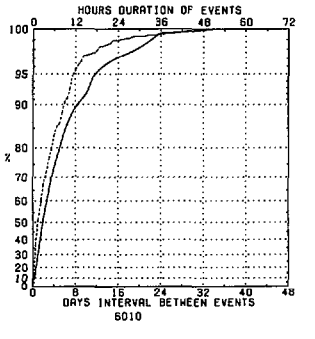
Sitka



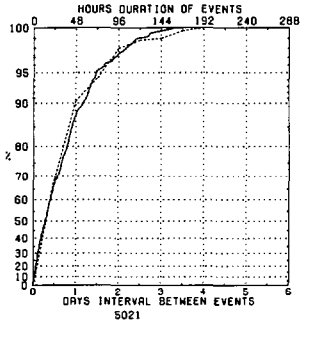
Annette



Anchorage

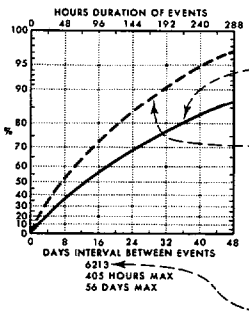


Cold Bay



Legend

Persistence of wind ≥20 kts.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

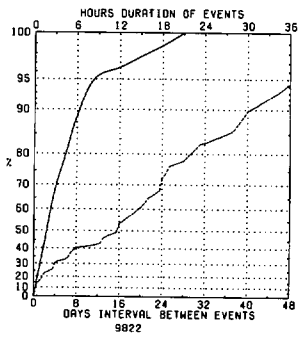
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

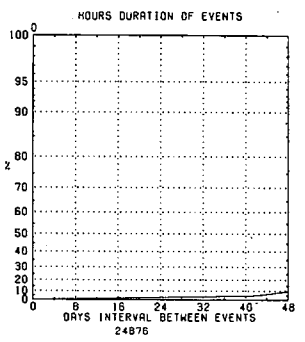
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

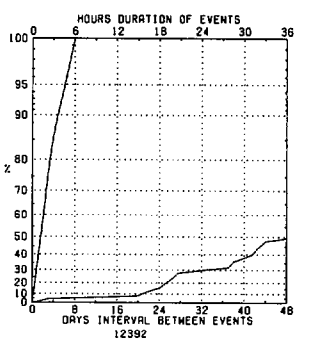
Kodiak



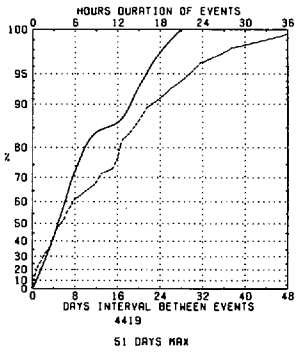
Homer



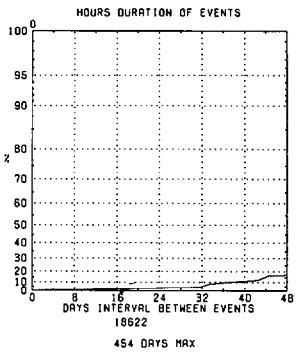
Kenai



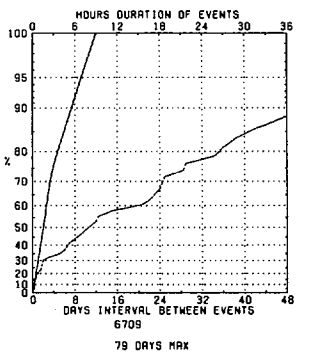
Middleton Island



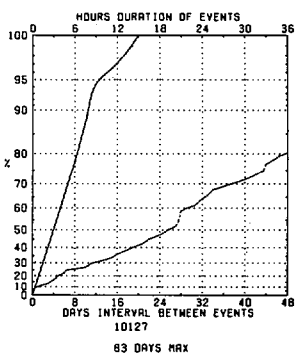
Cordova



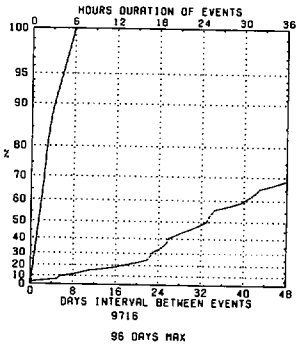
Yakataga



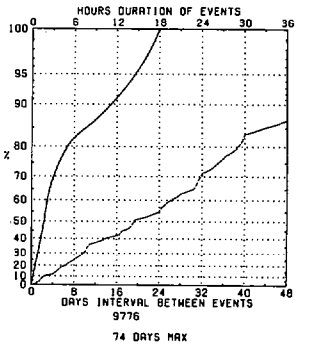
Yakutat



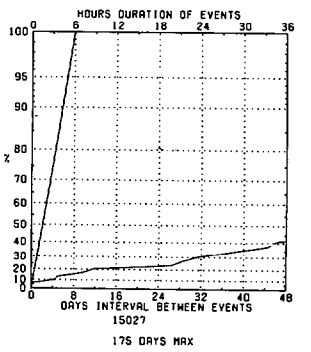
Sitka



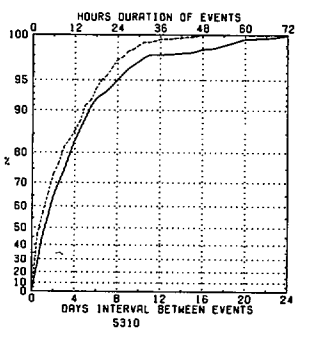
Annette



Anchorage



Cold Bay

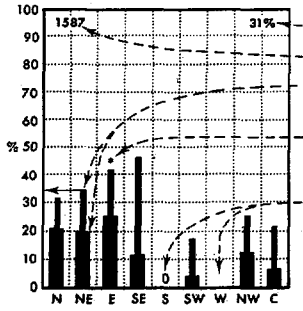


Legend

Precipitation/wind direction

% Pcpn. ▯ % Liquid / % Snow

Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.



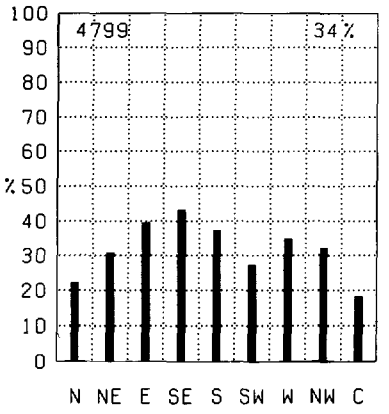
- Percentage of present weather observations reporting precipitation.
- Number of observations.
- *(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)*
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

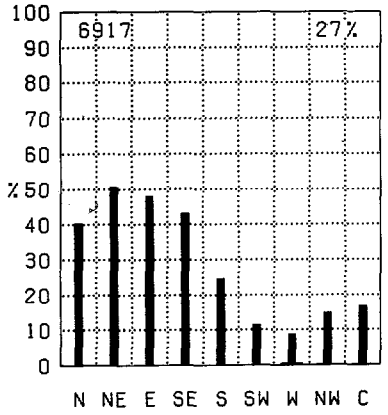
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

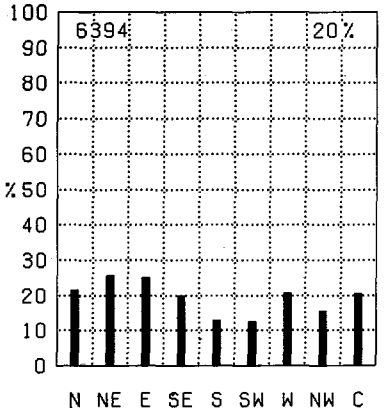
Cold Bay



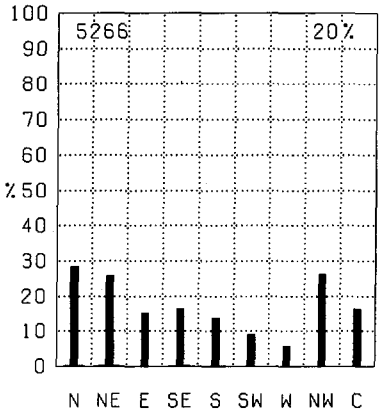
Kodiak



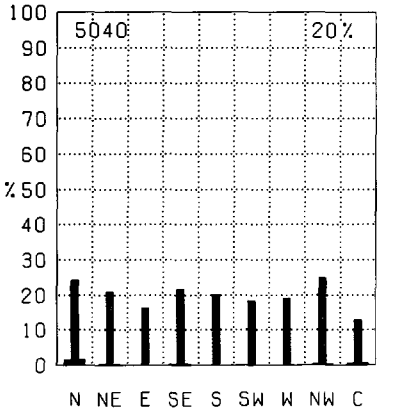
Homer



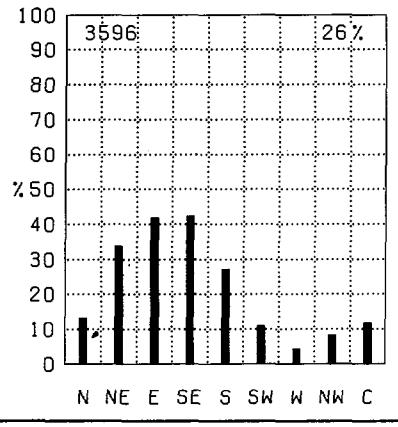
Kenai



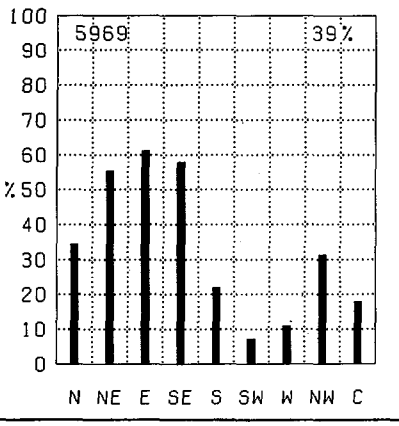
Anchorage



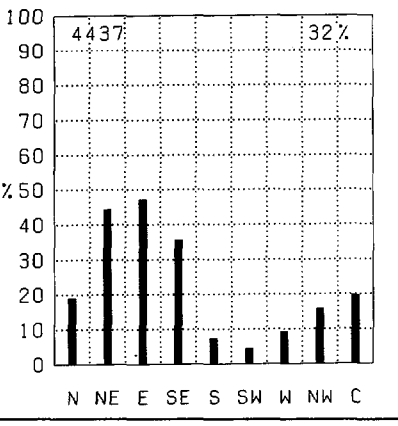
Middleton Island



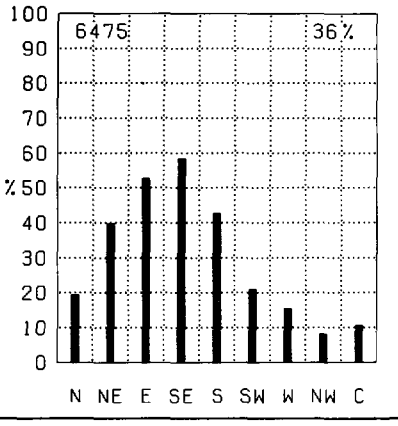
Cordova



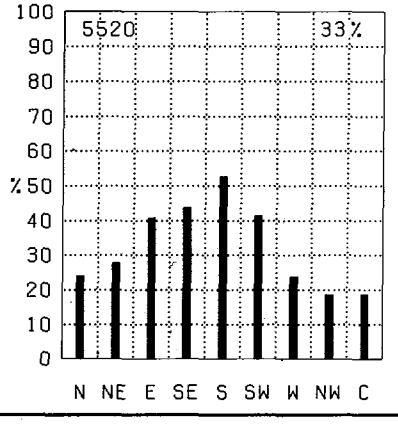
Yakataga



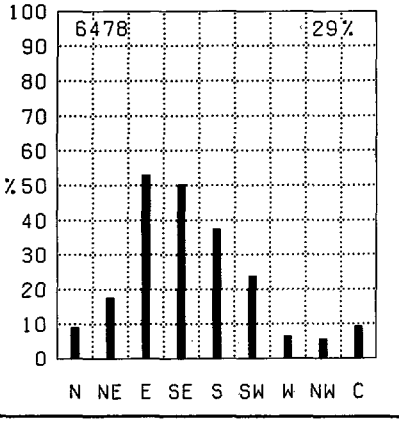
Yakutat



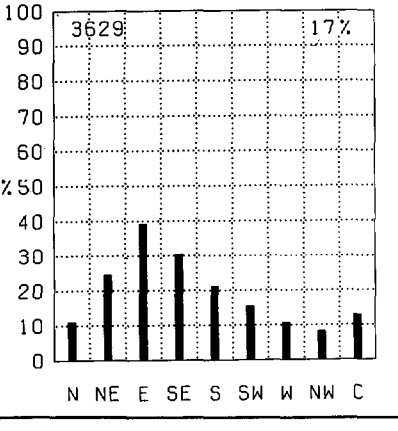
Sitka



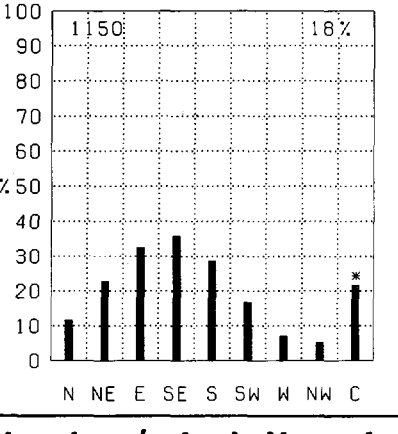
Annette

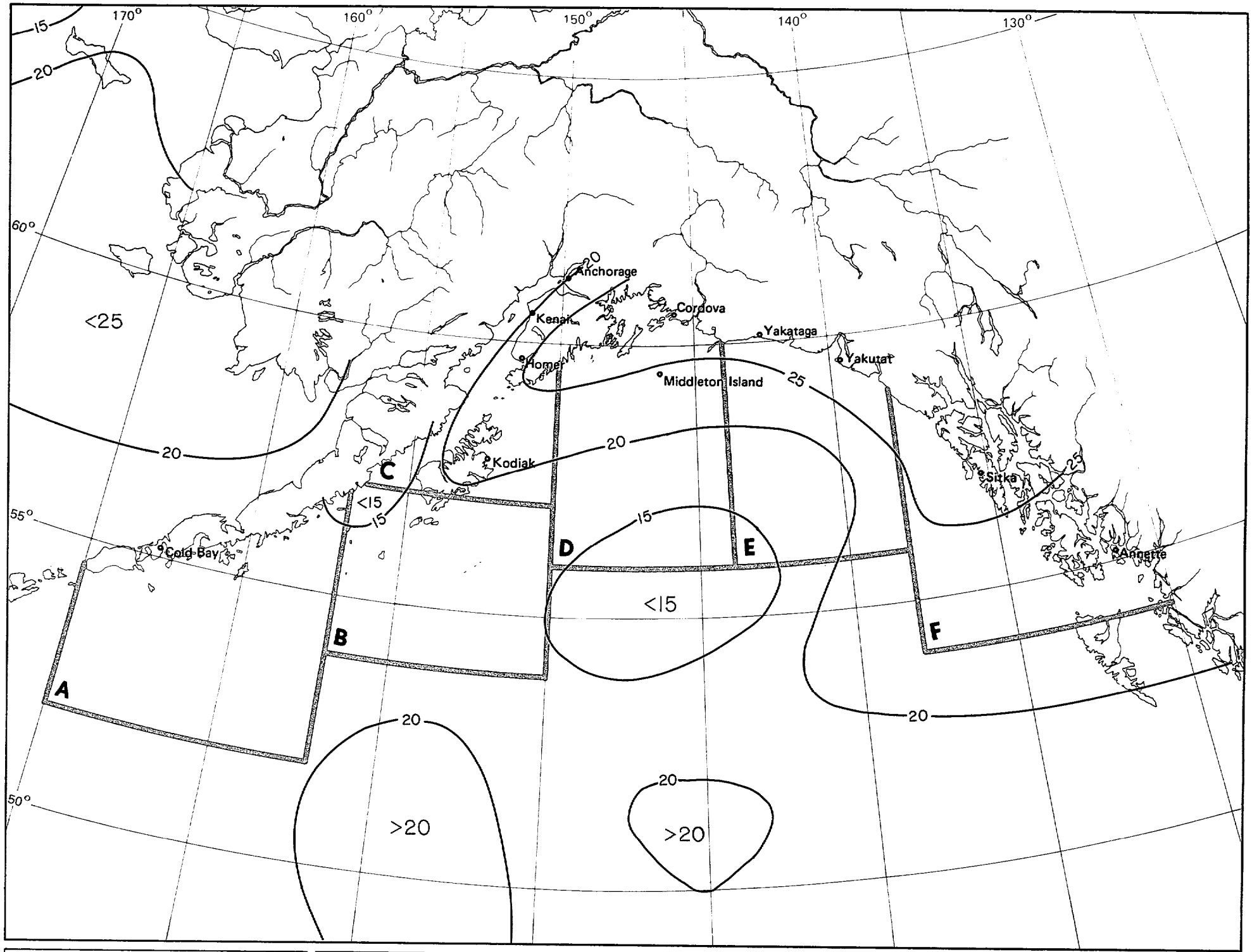


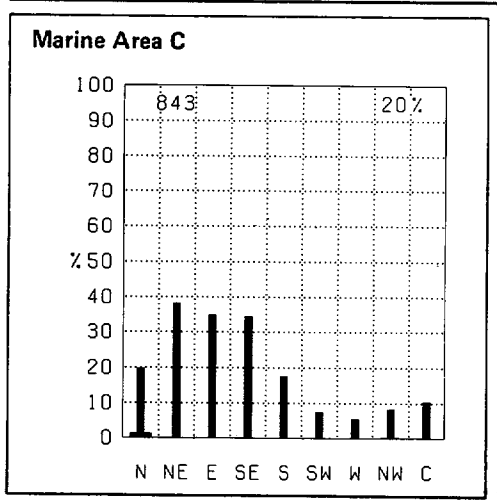
Marine Area A

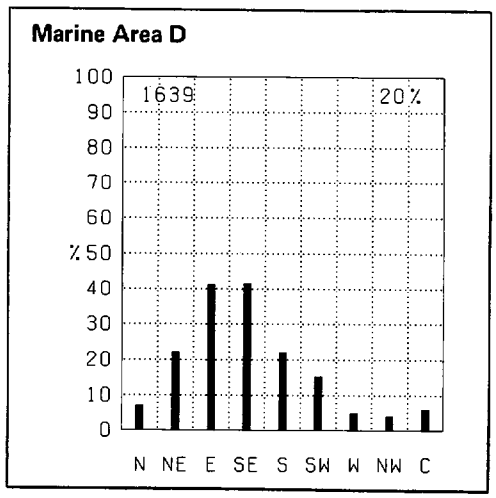


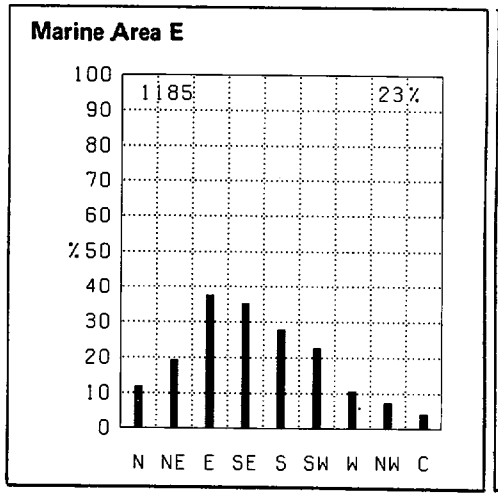
Marine Area B

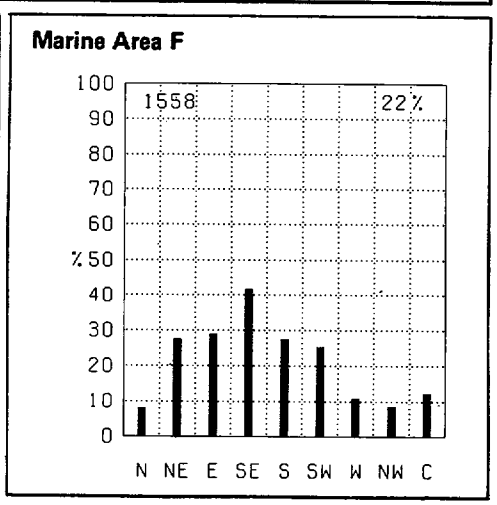



170°
160°
150°
140°
130°
60°
55°
50°
15
20
<25
20
25
20
15
<15
15
<15
20
>20
20
>20
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Cold Bay
Angoon
A
B
C
D
E
F


Marine Area C
843
20%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

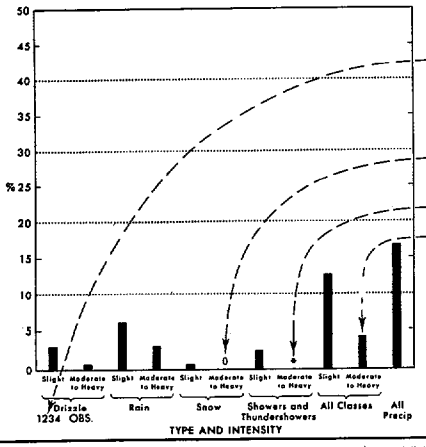

Marine Area D
1639
20%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
1185
23%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1558
22%
100
90
80
70
60
% 50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

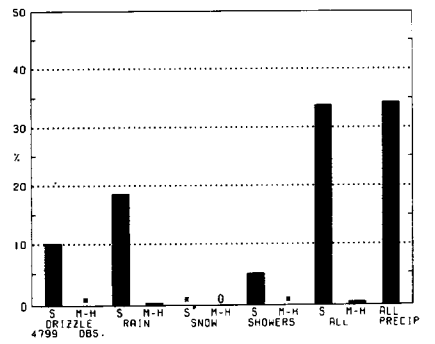
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

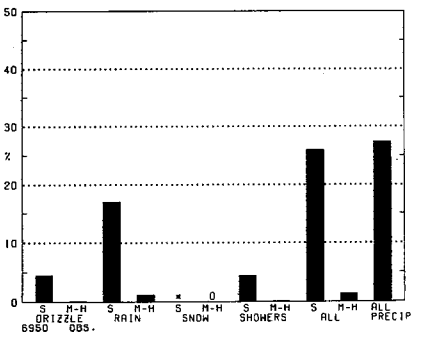
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

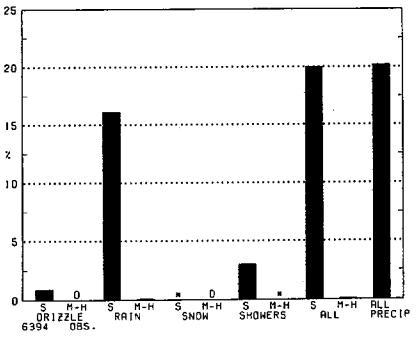
Cold Bay



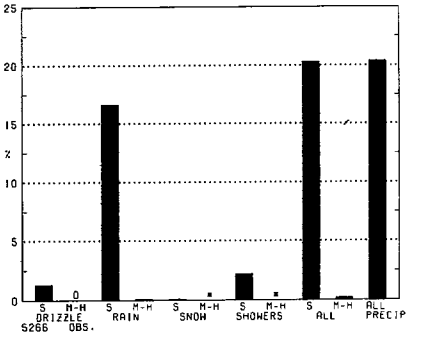
Kodiak



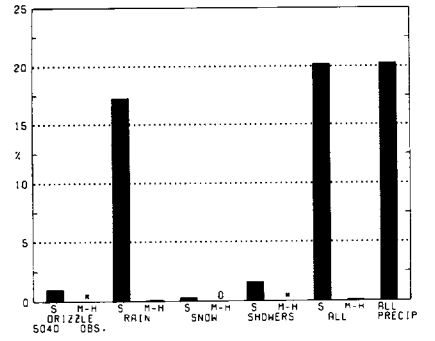
Homer



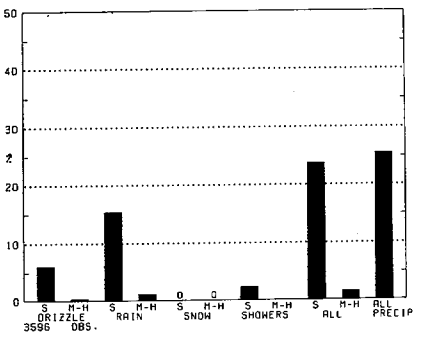
Kenai



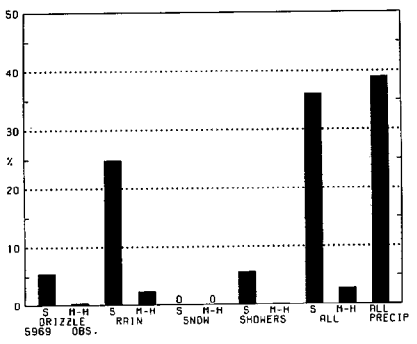
Anchorage



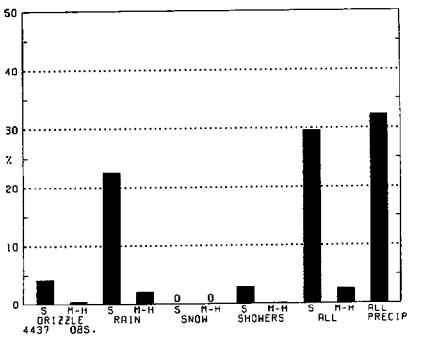
Middleton Island



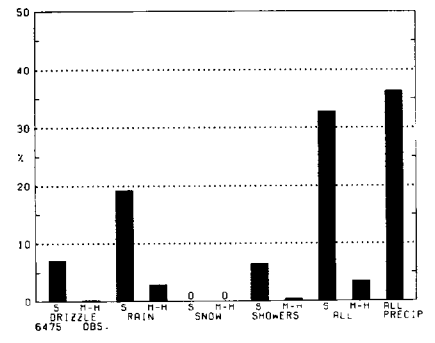
Cordova



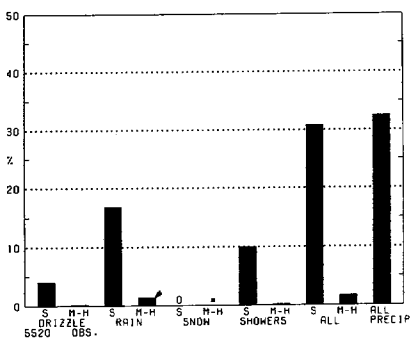
Yakataga



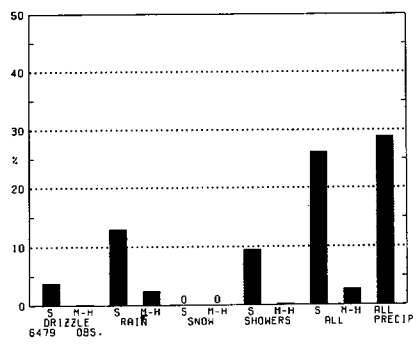
Yakutat



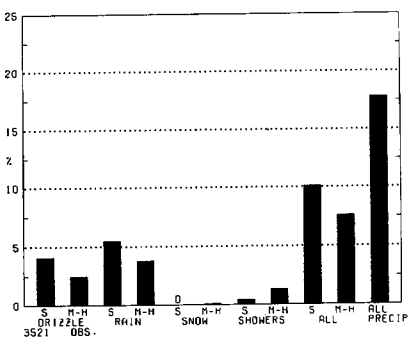
Sitka



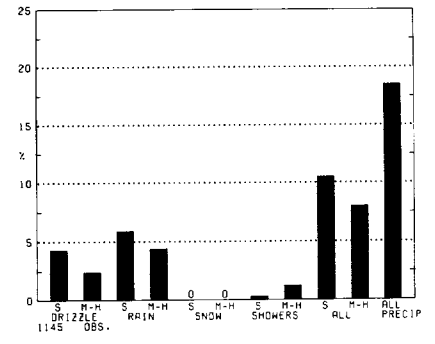
Annette

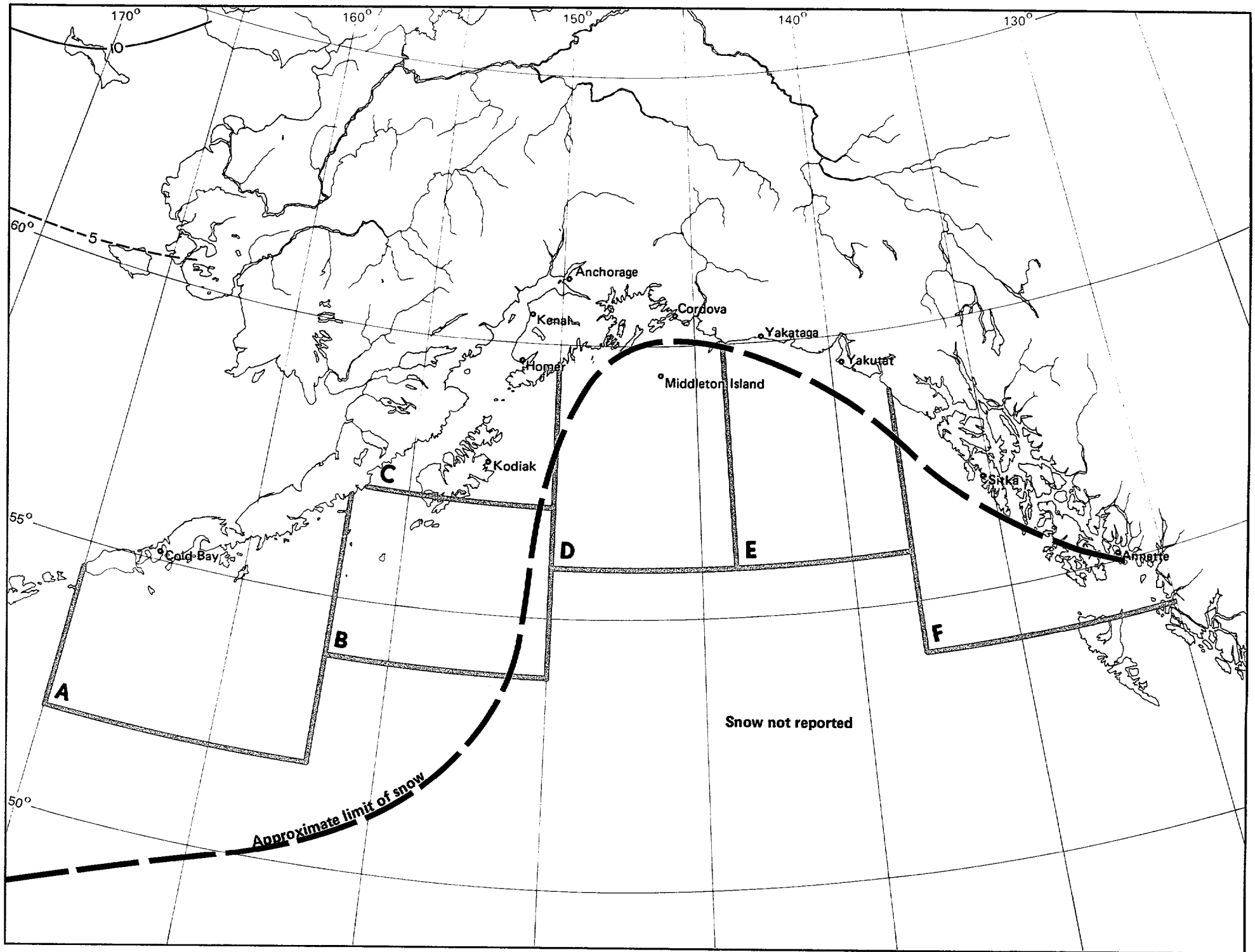


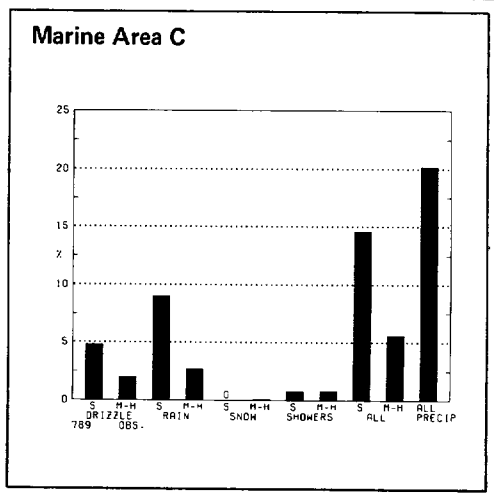
Marine Area A

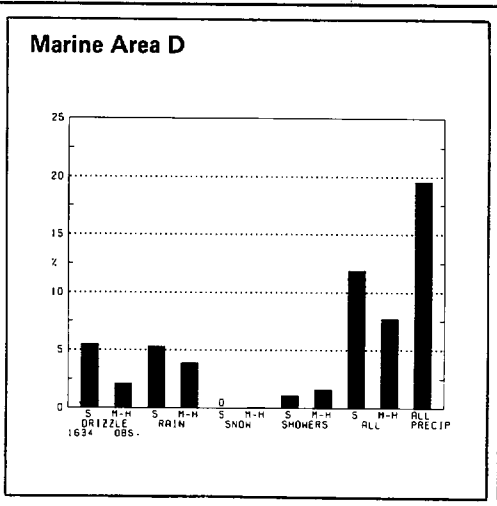


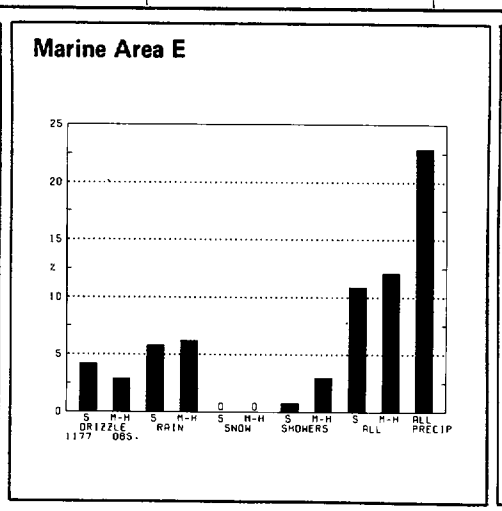
Marine Area B

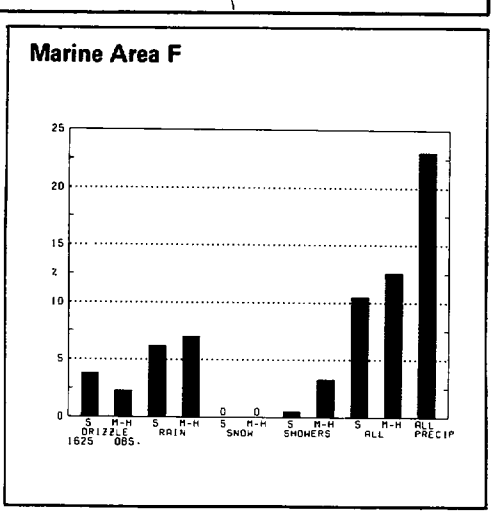



170°
160°
150°
140°
130°
60°
55°
50°
10
5
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
Snow not reported
Approximate limit of snow


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 789
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

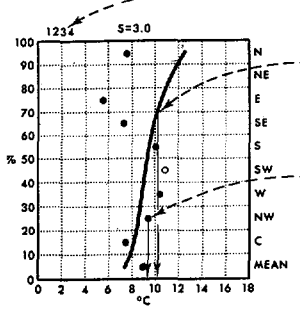

Marine Area D
25
20
15
%
10
5
0
S DRIZZLE 1634
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
25
20
15
%
10
5
0
S DRIZZLE 1177
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
25
20
15
%
10
5
0
S DRIZZLE 1625
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S = Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

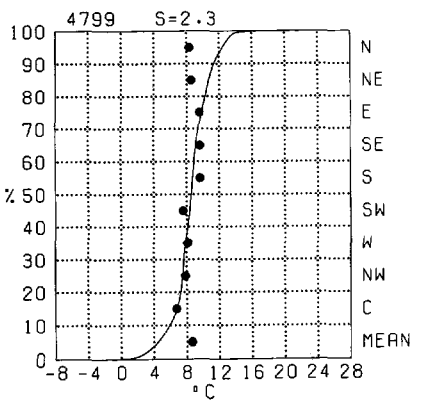
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

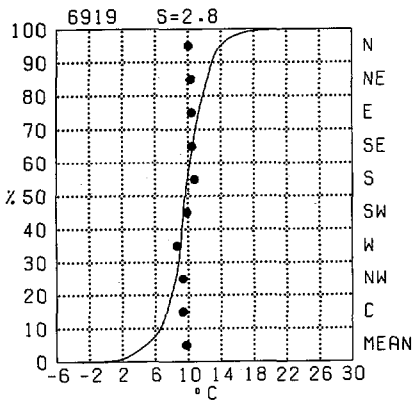
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale *patterns and mean gradients of the isopleth analyses are relatively accurate.*

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

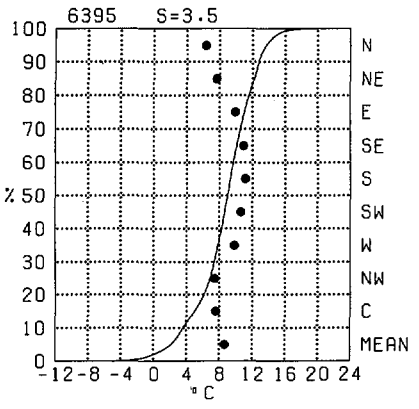
Cold Bay



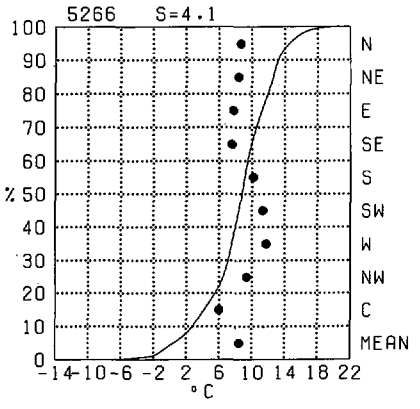
Kodiak



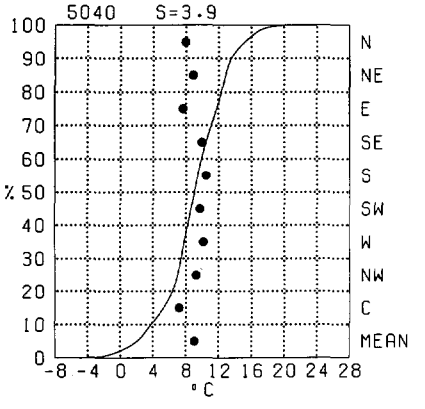
Homer



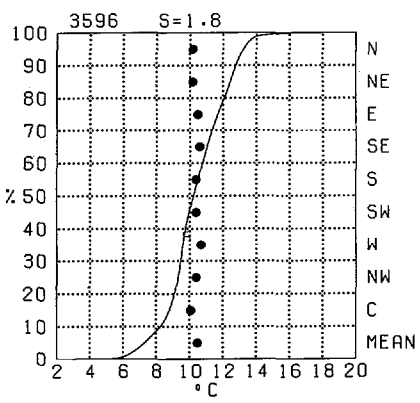
Kenai



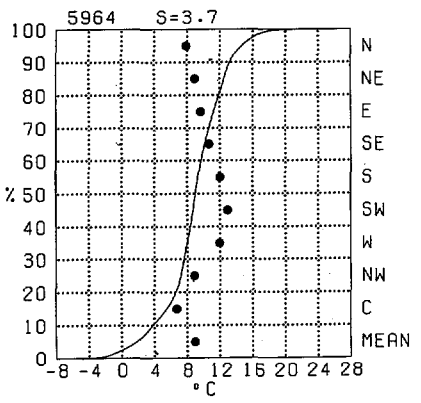
Anchorage



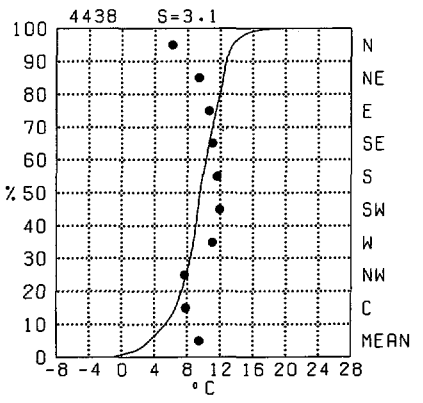
Middleton Island



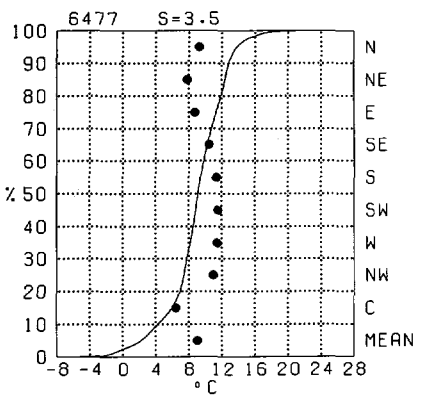
Cordova



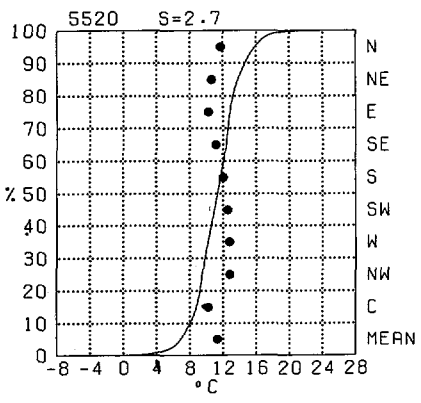
Yakataga



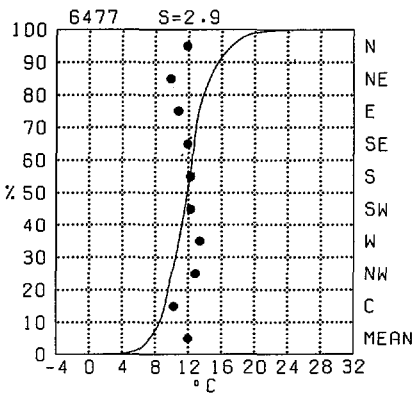
Yakutat



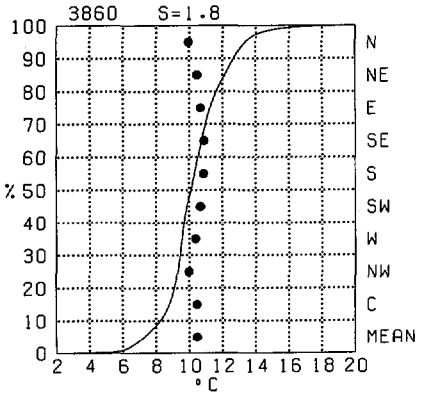
Sitka



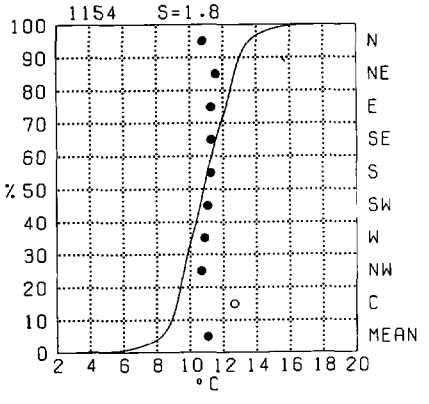
Annette

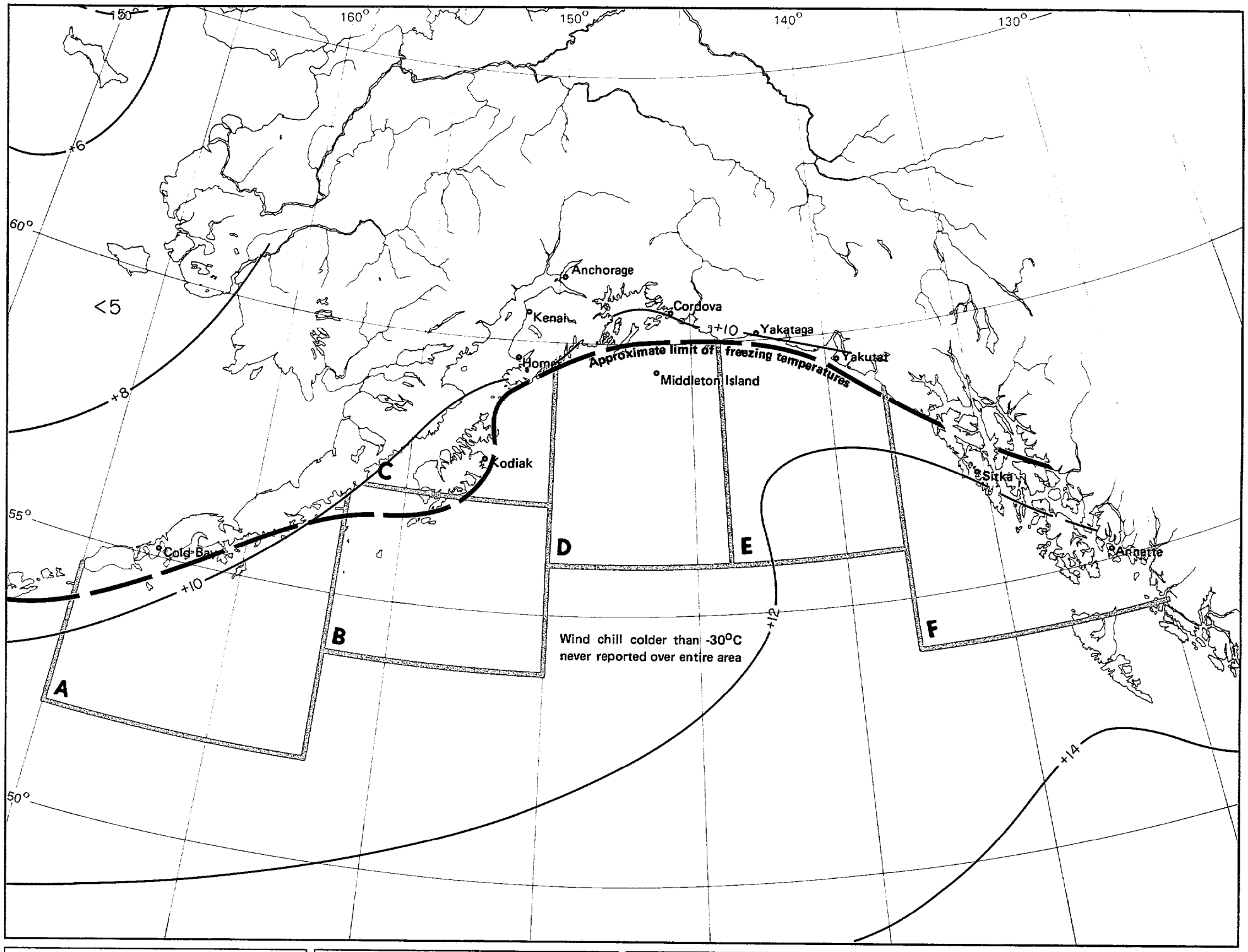


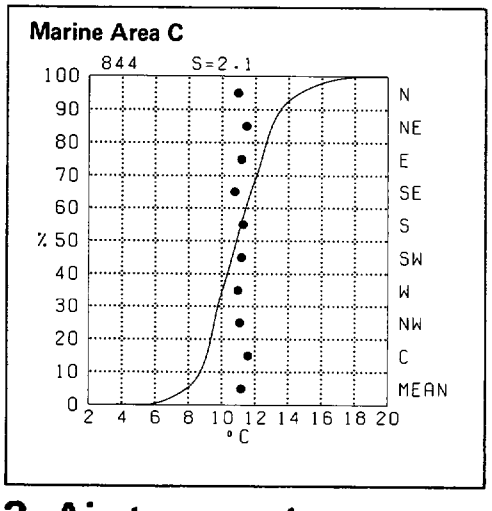
Marine Area A

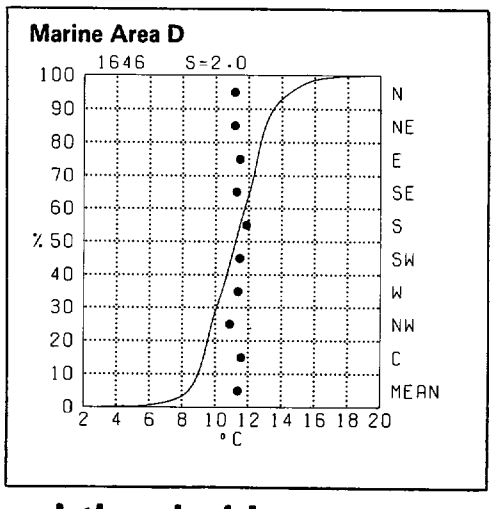


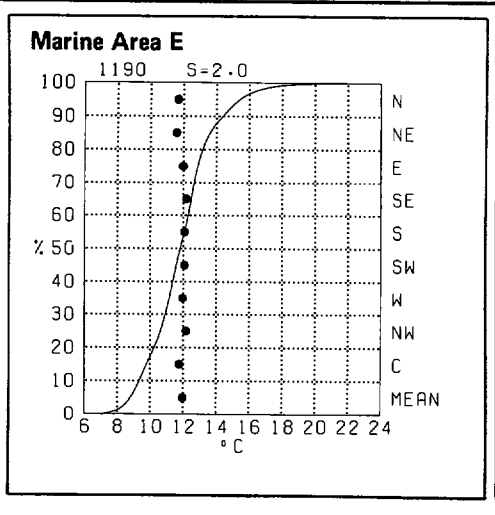
Marine Area B

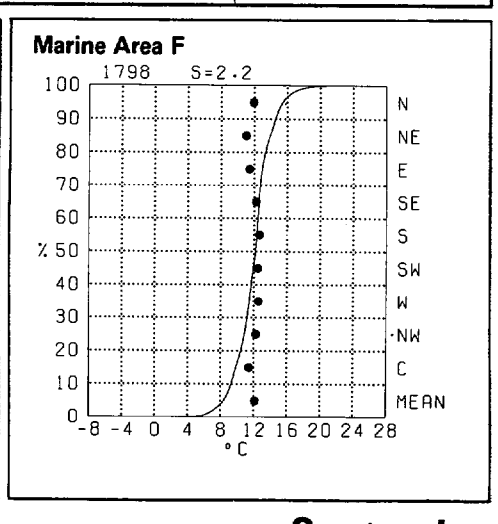










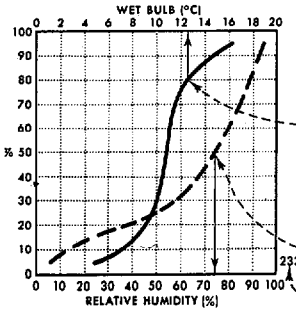


3 Air temperature mean and thresholds

September

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

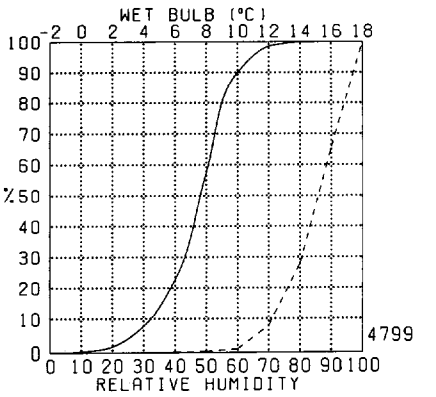
Number of observations.

Map - Mean dew point temperature

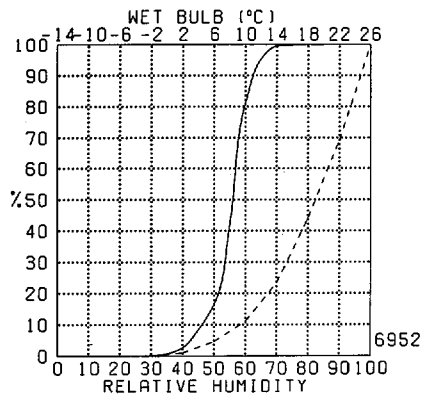
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

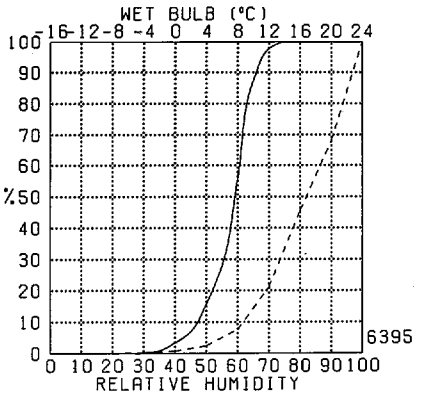
Cold Bay



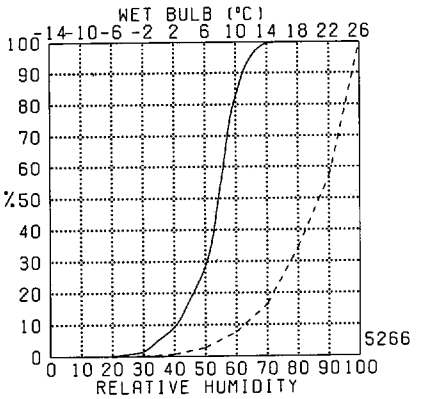
Kodiak



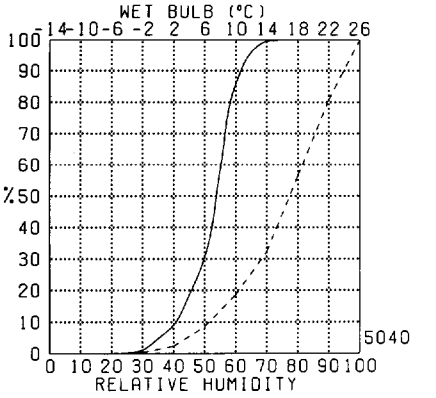
Homer



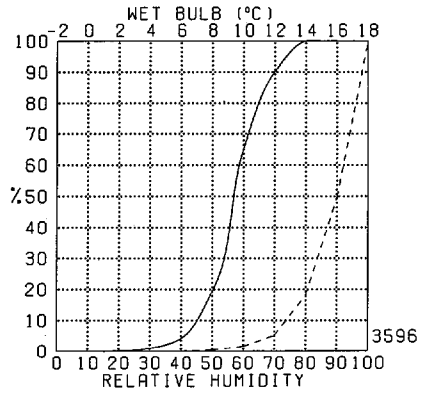
Kenai



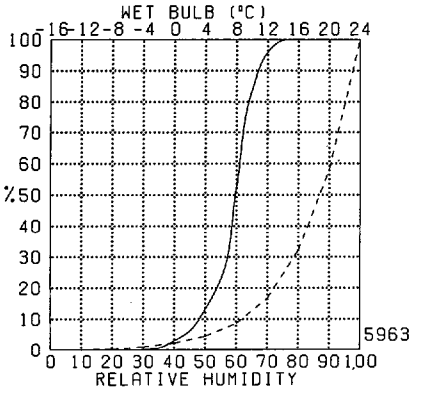
Anchorage



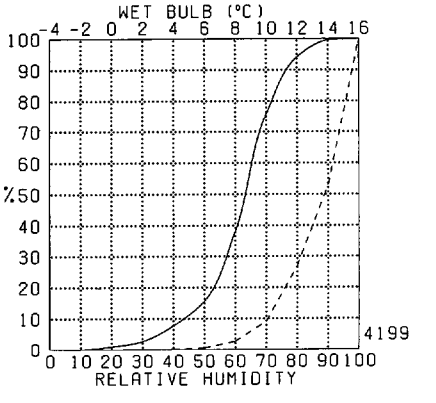
Middleton Island



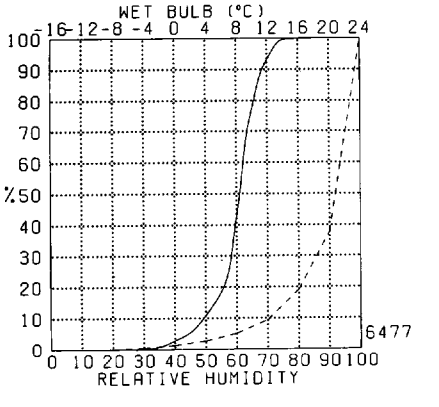
Cordova



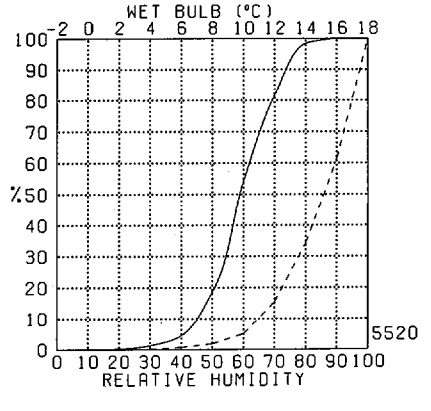
Yakataga



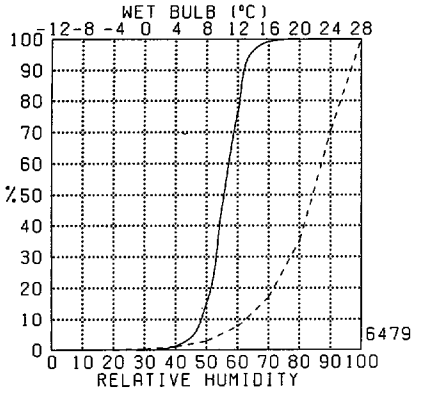
Yakutat



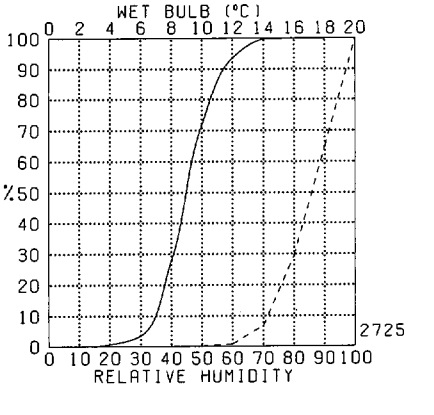
Sitka



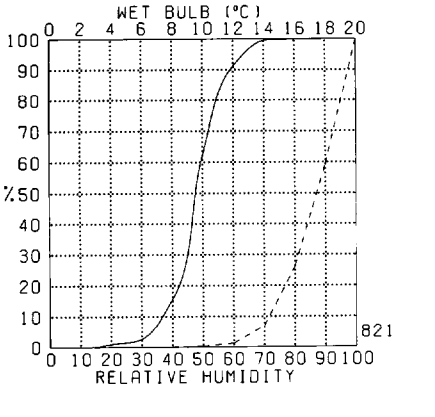
Annette

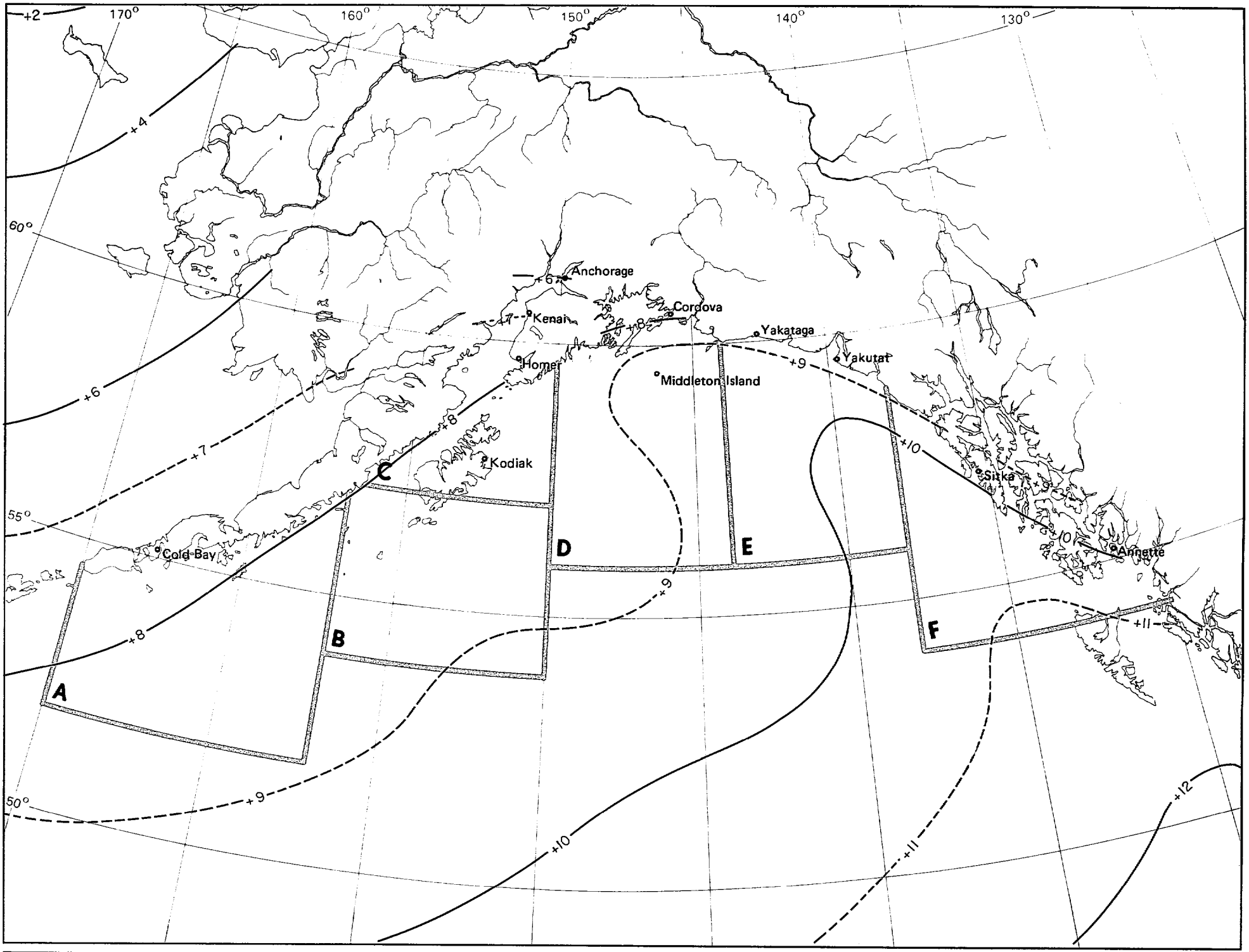


Marine Area A

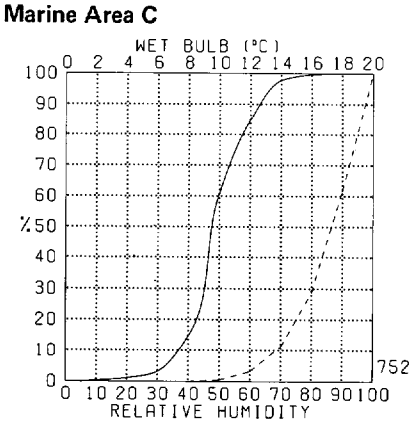


Marine Area B

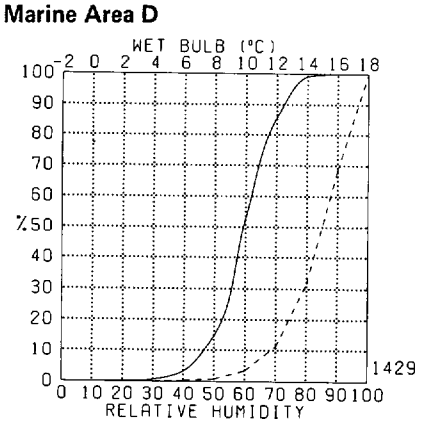




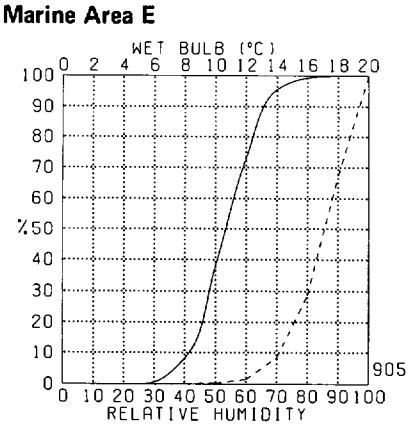
Marine Area C



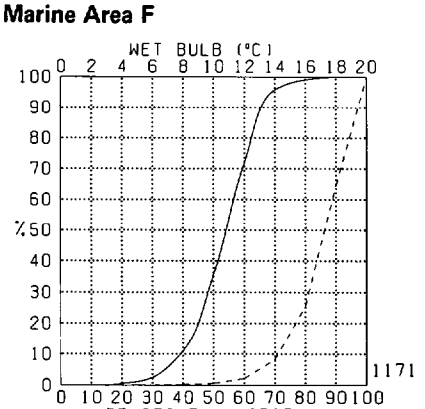
Marine Area D



Marine Area E



Marine Area F

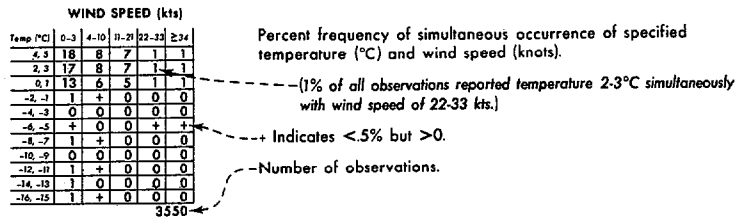


4 Mean dew point temperature

September

Legend

Air temperature/wind speed



Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20,21	0	0	0	+	0
18,19	0	0	+	0	0
16,17	0	0	+	+	0
14,15	+	+	1	+	0
12,13	+	2	5	2	+
10,11	+	6	12	4	+
8,9	1	11	20	6	1
6,7	1	8	10	2	+
4,5	1	2	2	+	0
2,3	+	1	+	0	0
≤1	+	+	+	0	0

4799

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
26,27	+	0	0	0	0
24,25	0	0	0	0	0
22,23	0	+	+	0	0
20,21	+	+	+	0	0
18,19	+	+	+	0	0
16,17	+	1	+	0	0
14,15	1	2	1	+	+
12,13	4	10	4	+	0
10,11	6	15	8	1	+
8,9	8	12	7	1	0
≤7	6	8	2	+	+

6919

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	+	+	0	0
16,17	+	1	+	+	0
14,15	1	3	1	+	0
12,13	3	10	3	0	0
10,11	6	12	3	+	0
8,9	10	12	3	+	0
6,7	7	7	1	+	0
4,5	4	3	+	0	0
2,3	3	3	+	0	0
0,1	1	1	0	0	0
≤-1	1	1	0	0	0

6395

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20,21	0	0	+	0	0
18,19	0	1	+	0	0
16,17	+	2	+	0	0
14,15	1	4	1	+	0
12,13	2	10	3	+	0
10,11	4	10	3	+	0
8,9	6	14	4	+	0
6,7	5	10	1	+	0
4,5	3	4	+	+	0
2,3	3	3	+	0	0
≤1	4	2	+	0	0

5266

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22,23	0	+	0	0	0
20,21	+	+	+	0	0
18,19	+	+	+	0	0
16,17	1	2	1	+	0
14,15	1	4	1	+	0
12,13	5	10	3	+	0
10,11	6	9	1	0	0
8,9	9	13	2	+	0
6,7	8	8	1	0	0
4,5	3	3	+	0	0
≤3	6	3	+	0	0

5040

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16,17	+	+	+	0	0
14,15	+	2	1	+	0
12,13	3	14	10	1	+
10,11	3	17	14	3	+
8,9	4	12	8	2	+
6,7	1	3	1	+	0
4,5	+	0	+	0	0
2,3	0	+	0	0	0
0,1	0	0	0	0	0
-2,-1	0	0	0	0	0
-4,-3	0	0	0	0	0

3596

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22,23	0	+	0	0	0
20,21	0	+	+	0	0
18,19	+	+	+	0	0
16,17	1	2	+	0	0
14,15	1	3	1	0	0
12,13	4	9	2	+	0
10,11	6	11	2	+	0
8,9	12	13	2	+	0
6,7	9	5	1	0	0
4,5	4	1	+	0	0
≤3	8	1	+	0	0

5964

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22,23	0	+	0	0	0
20,21	0	+	0	0	0
18,19	+	+	+	+	0
16,17	+	+	1	+	0
14,15	+	2	1	+	0
12,13	3	9	9	1	+
10,11	6	11	9	+	+
8,9	9	10	5	+	+
6,7	7	4	1	+	0
4,5	3	2	0	0	0
≤3	3	2	0	0	0

4438

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
24,25	0	+	+	0	0
22,23	0	0	0	0	0
20,21	+	+	+	0	0
18,19	+	+	+	0	0
16,17	+	1	+	0	0
14,15	1	3	1	+	0
12,13	3	10	4	1	+
10,11	5	12	5	1	+
8,9	7	14	5	+	+
6,7	5	8	1	+	+
≤5	9	3	+	0	0

6477

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
22,23	0	+	+	+	0
20,21	+	+	+	+	0
18,19	+	1	+	+	0
16,17	1	3	1	+	0
14,15	3	6	3	+	0
12,13	10	16	6	+	+
10,11	10	12	3	+	0
8,9	8	8	1	+	0
6,7	3	2	+	0	0
4,5	1	+	+	0	0
≤3	+	+	0	0	0

5520

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
24,25	0	+	0	0	0
22,23	+	+	+	0	0
20,21	+	1	+	0	0
18,19	+	2	1	0	0
16,17	1	4	2	+	0
14,15	1	8	3	+	0
12,13	4	19	9	1	+
10,11	4	14	6	1	0
8,9	4	7	2	+	0
6,7	2	2	+	0	0
≤5	+	+	+	0	0

6477

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	+	+	+	0
16,17	+	+	+	+	0
14,15	+	1	2	1	+
12,13	1	6	10	5	+
10,11	2	12	20	9	1
8,9	1	6	12	6	1
6,7	+	1	1	1	+
4,5	0	+	+	+	0
2,3	0	0	0	0	0
0,1	0	0	0	0	0
-2,-1	0	0	0	0	0

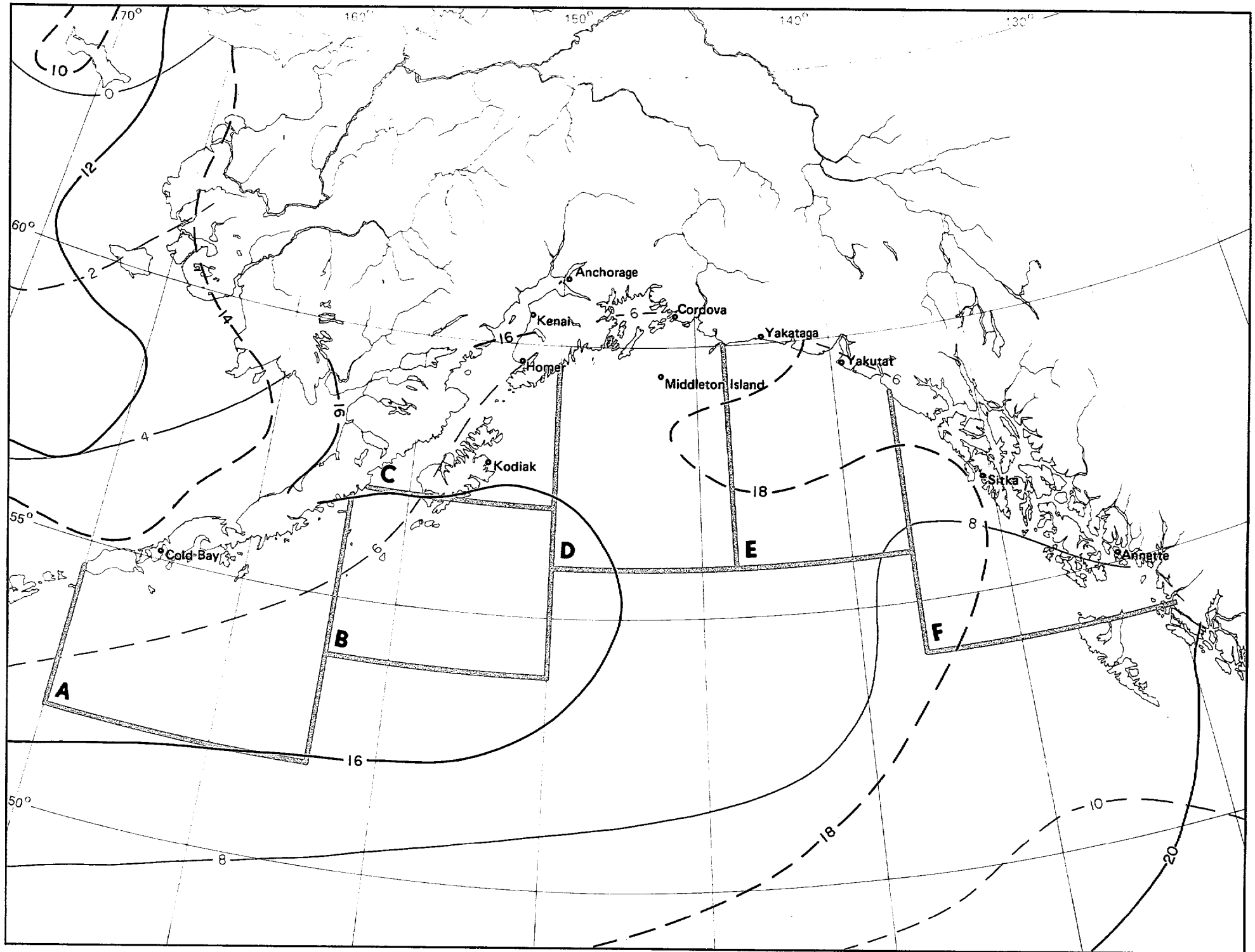
3861

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16,17	+	1	+	0	0
14,15	1	2	3	1	0
12,13	1	7	17	7	1
10,11	1	11	20	8	1
8,9	+	3	8	3	1
6,7	+	+	1	+	+
4,5	0	0	0	0	0
2,3	0	0	0	+	0
0,1	0	0	0	0	0
-2,-1	0	0	0	0	0
-4,-3	0	0	0	0	0

1155



Marine Area C

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
18,19	+	0	+	0	0
16,17	1	+	1	+	0
14,15	3	3	2	+	0
12,13	7	11	9	4	1
10,11	5	10	15	6	2
8,9	3	4	5	2	1
6,7	+	1	1	1	+
4,5	0	0	0	+	0
2,3	0	0	+	0	0
0,1	0	0	0	0	0
-2,-1	0	0	0	0	0

844

Marine Area D

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
18,19	+	+	+	+	0
16,17	+	1	1	+	0
14,15	1	3	4	1	+
12,13	2	10	17	7	1
10,11	2	11	15	7	2
8,9	1	3	5	2	1
6,7	+	+	+	+	0
4,5	0	0	+	0	0
2,3	0	+	0	+	0
0,1	0	0	0	0	0
-2,-1	0	0	0	0	0

1646

Marine Area E

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
20,21	+	+	+	0	0
18,19	+	+	+	+	+
16,17	1	2	2	1	0
14,15	+	4	5	2	+
12,13	3	14	15	7	2
10,11	3	11	13	5	1
8,9	1	2	2	1	+
6,7	+	+	+	+	+
4,5	0	0	0	0	0
2,3	0	0	0	0	0
0,1	0	0	0	0	0

1191

Marine Area F

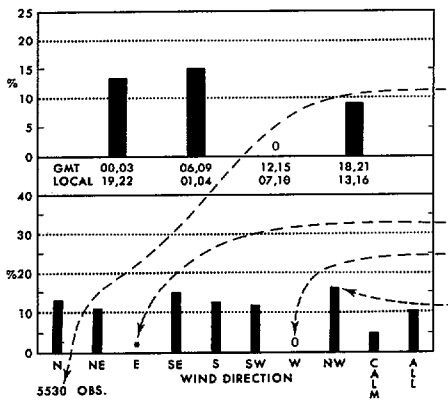
TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
20,21	+	+	+	0	0
18,19	+	+	+	0	0
16,17	1	2	1	+	0
14,15	2	8	7	2	1
12,13	5	15	15	4	1
10,11	4	9	9	2	1
8,9	2	3	1	+	+
6,7	1	1	+	+	+
4,5	+	+	+	0	0
2,3	0	0	0	0	0
0,1	0	0	0	0	0

1798

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

• indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

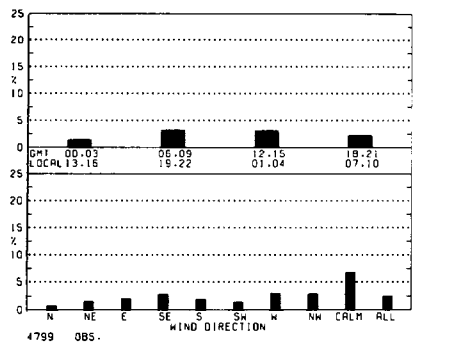
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

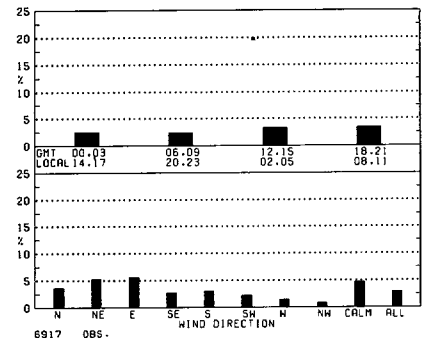
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

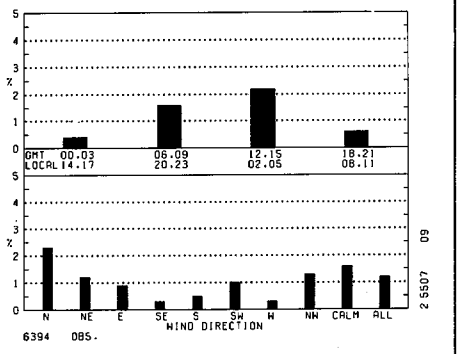
Cold Bay



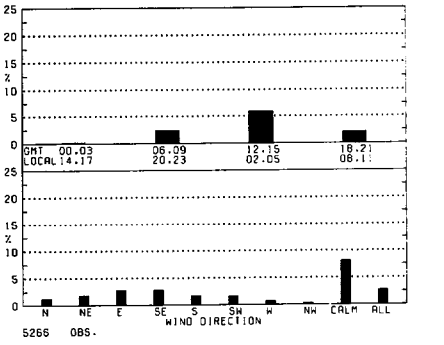
Kodiak



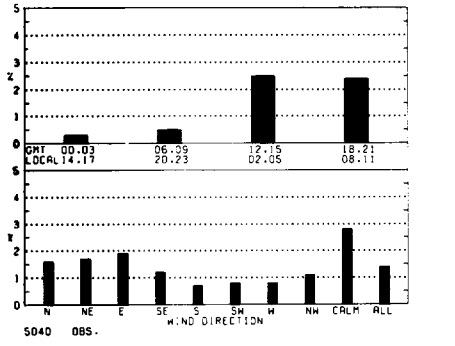
Homer



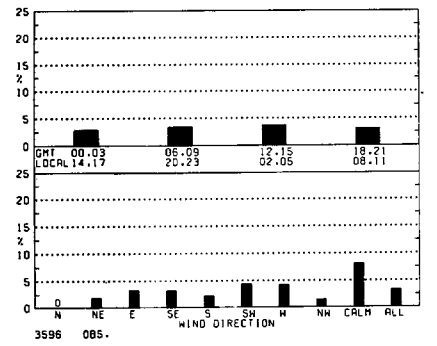
Kenai



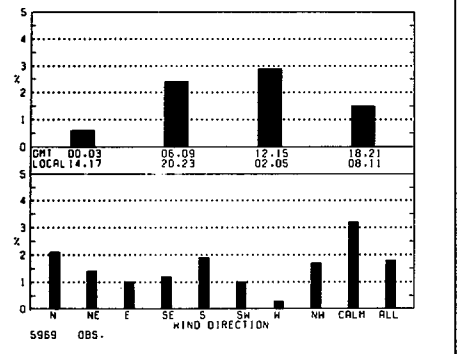
Anchorage



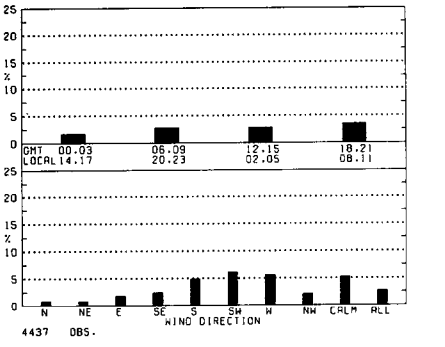
Middleton Island



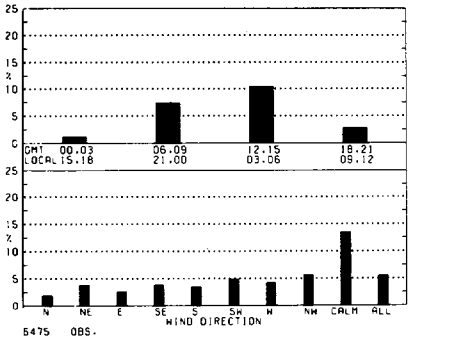
Cordova



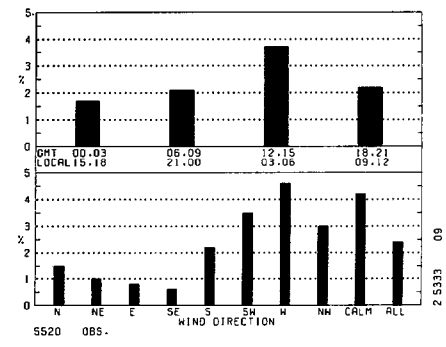
Yakataga



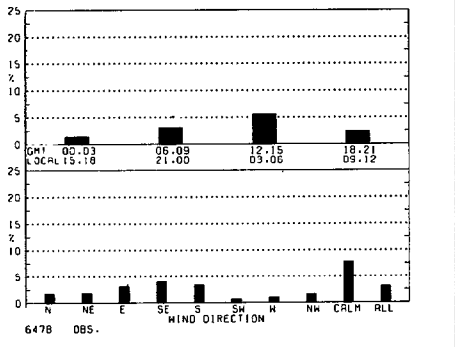
Yakutat



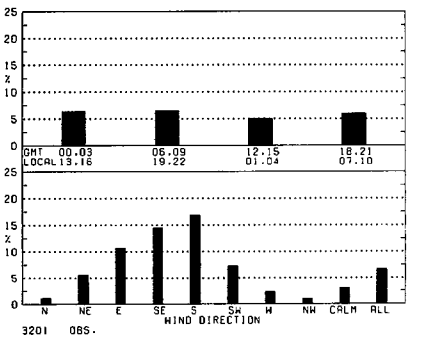
Sitka



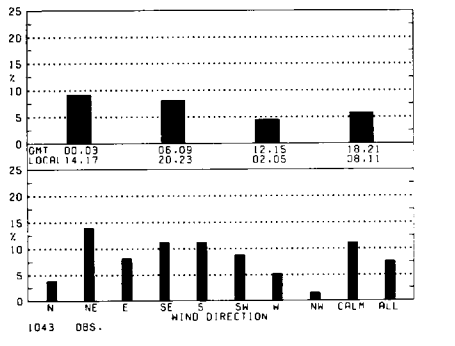
Annette

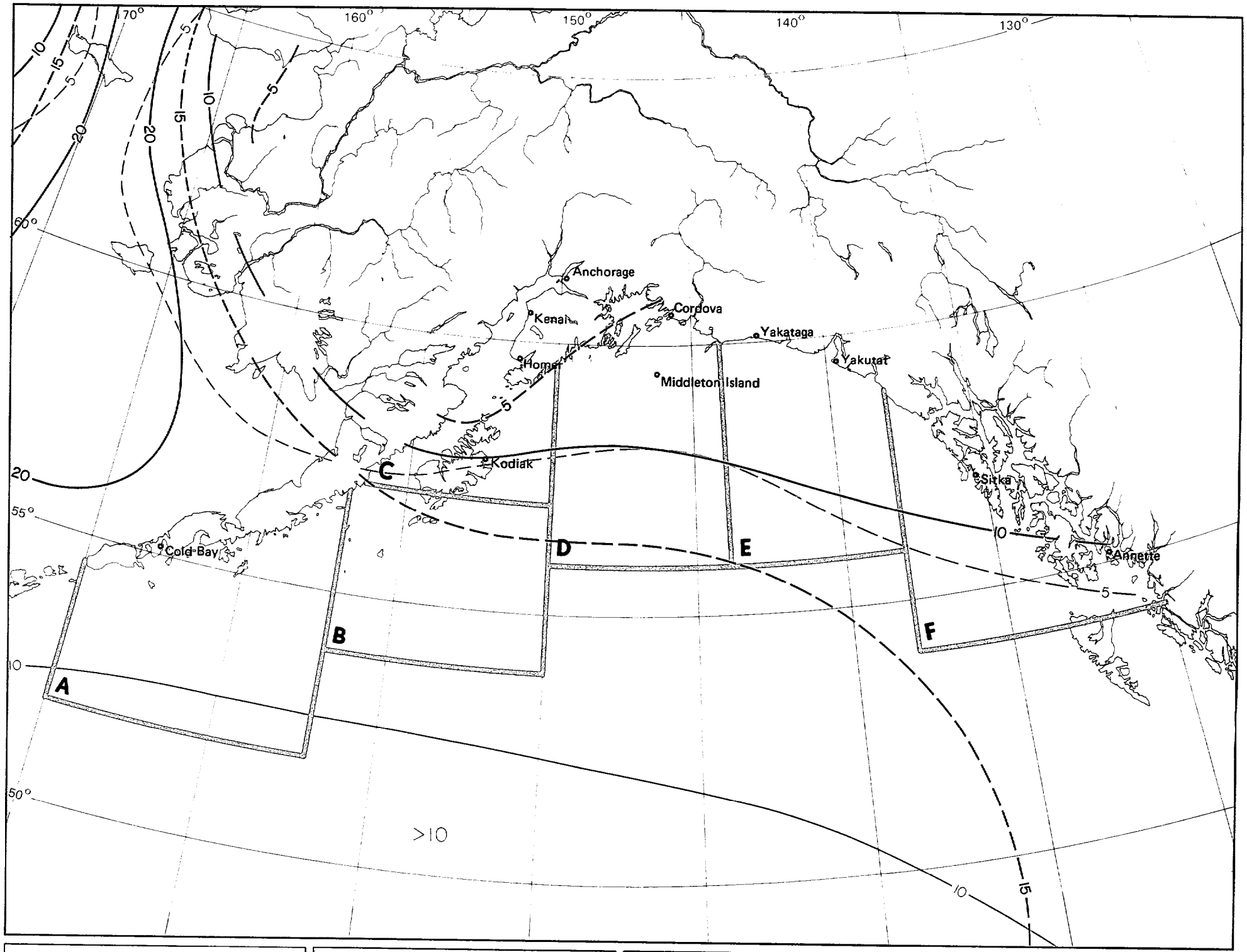


Marine Area A

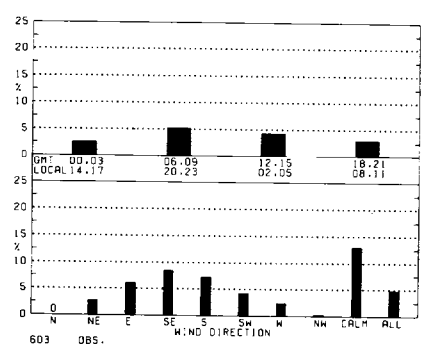


Marine Area B

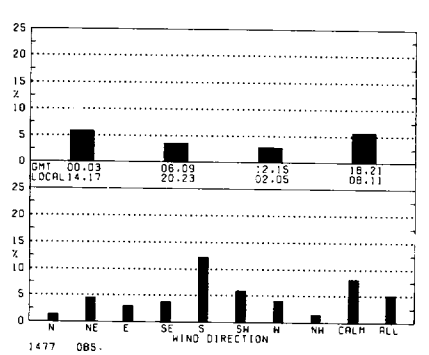




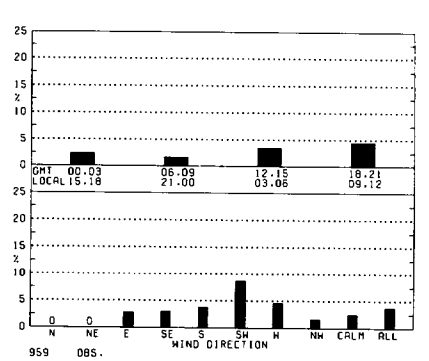
Marine Area C



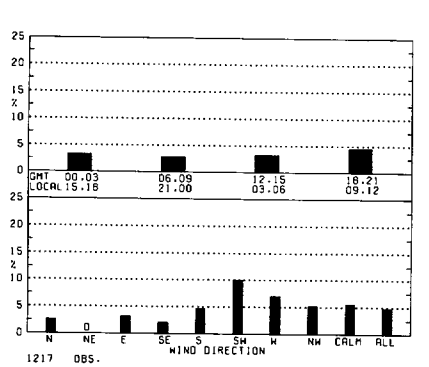
Marine Area D



Marine Area E

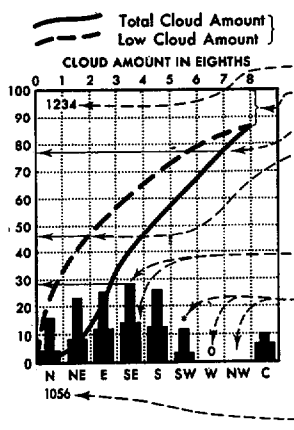


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

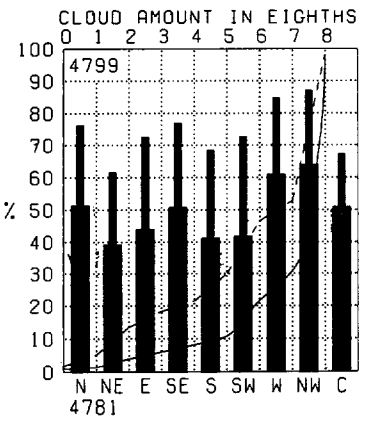
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

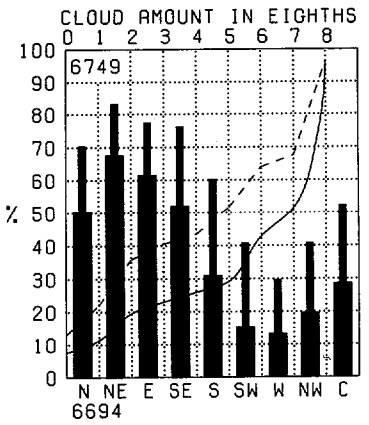
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

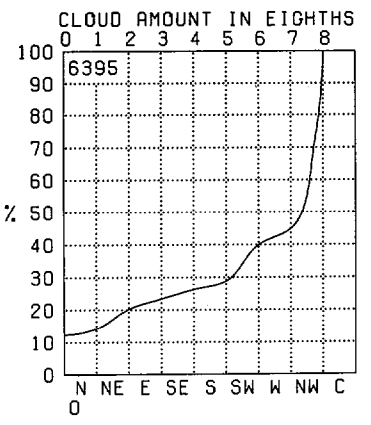
Cold Bay



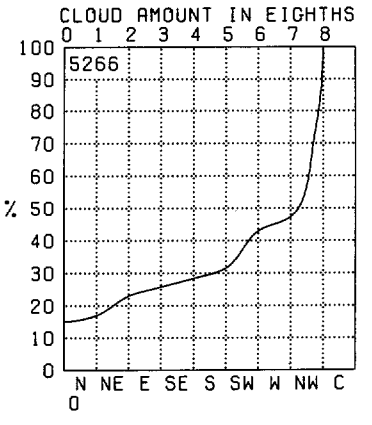
Kodiak



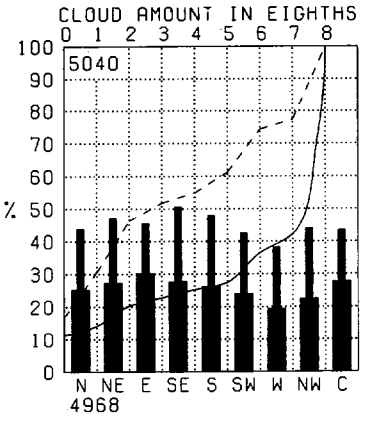
Homer



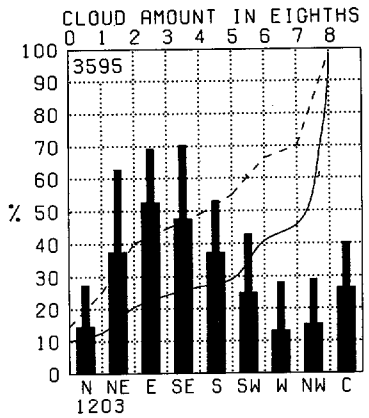
Kenai



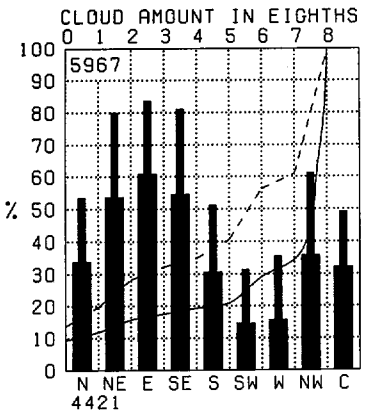
Anchorage



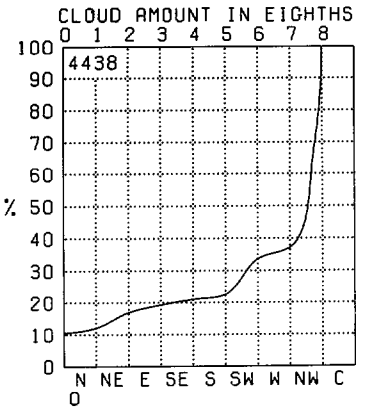
Middleton Island



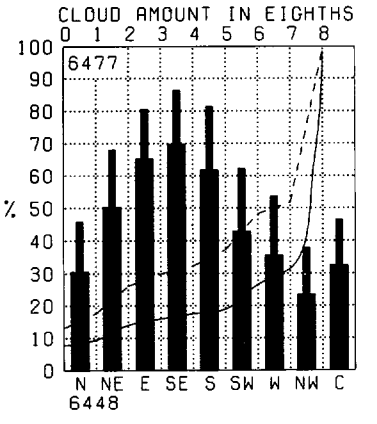
Cordova



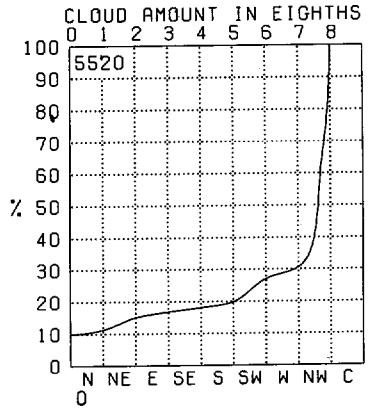
Yakataga



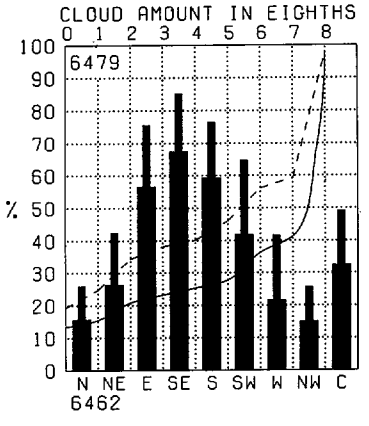
Yakutat



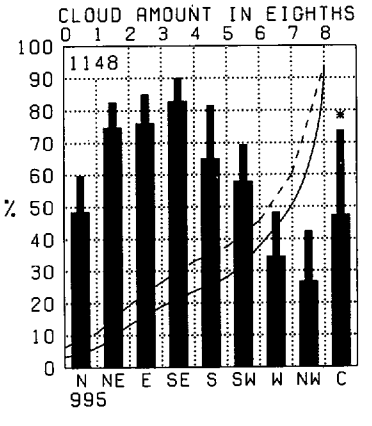
Sitka



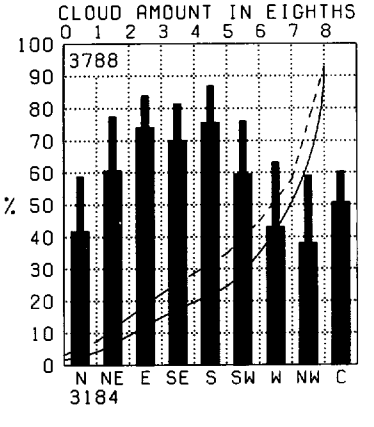
Annette

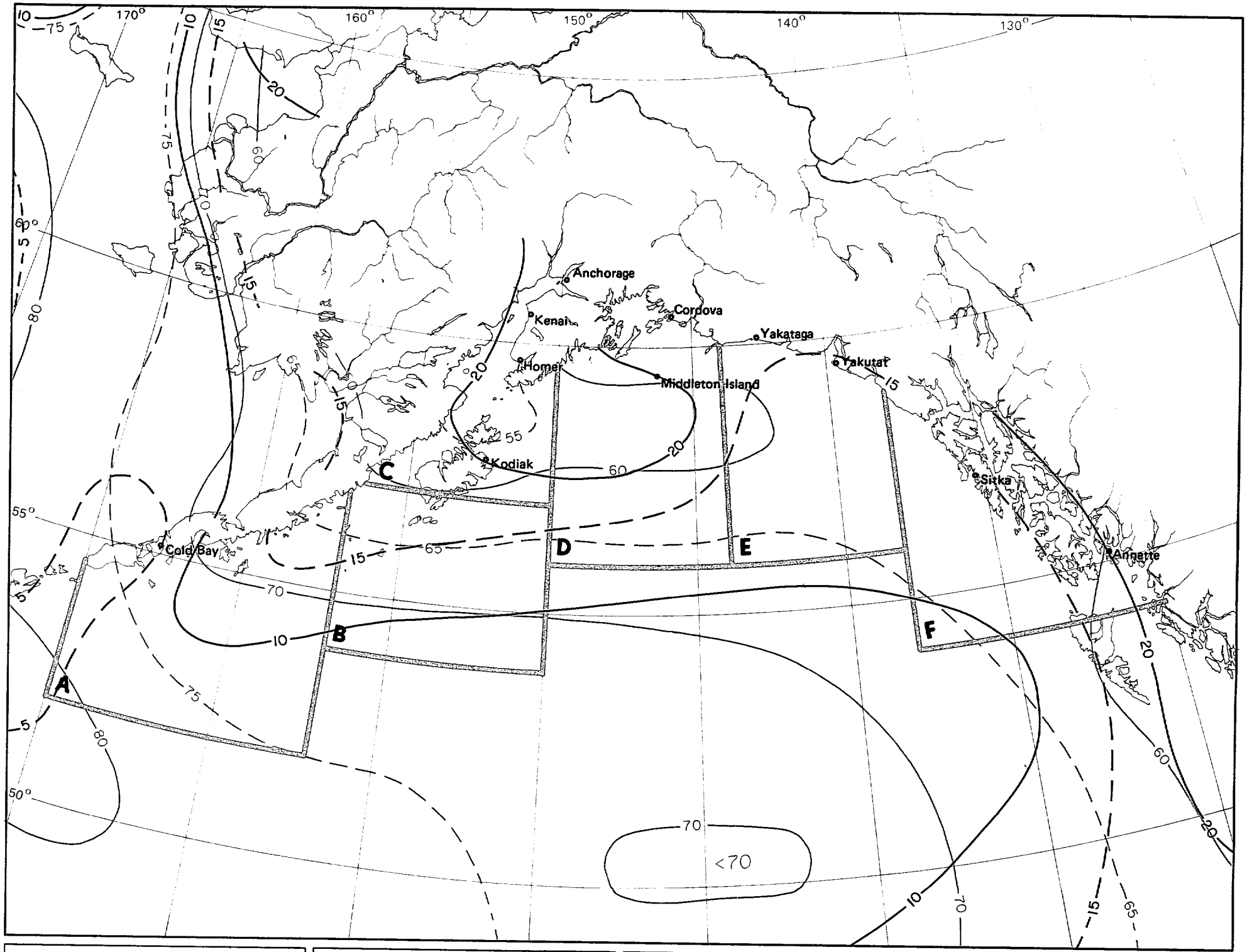


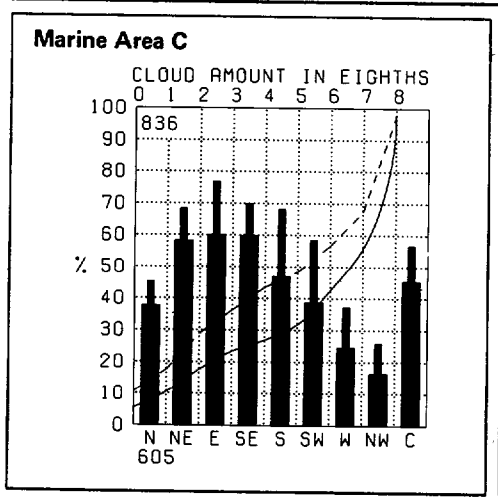
Marine Area A

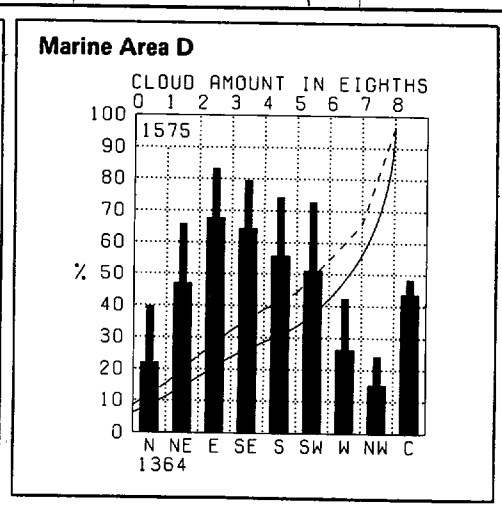


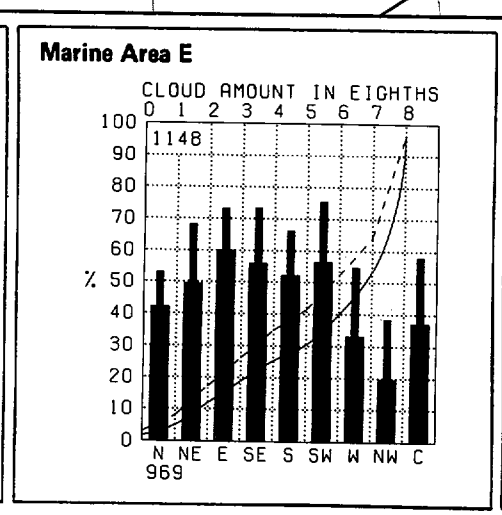
Marine Area B

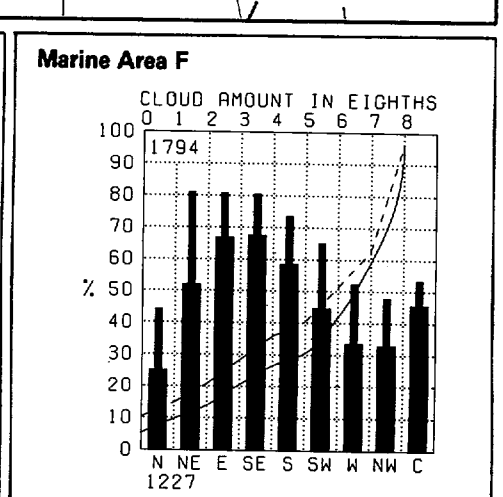








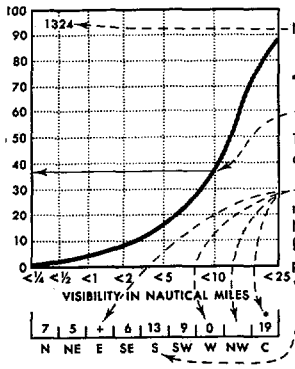




7 Cloud amount thresholds

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates *percent frequency of* occurrence of visibility <2 nautical miles versus wind direction.

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 *observations of visibility and* wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

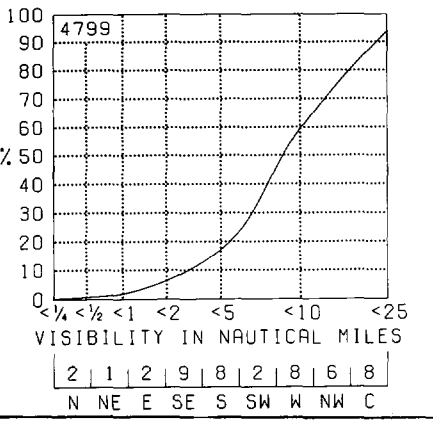
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 *nautical miles*

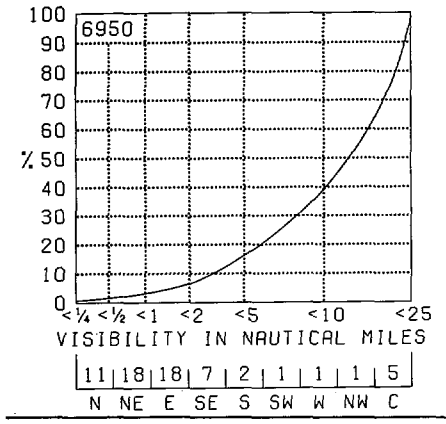
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, *however, tends to minimize* serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from *the bridges of most ships.*

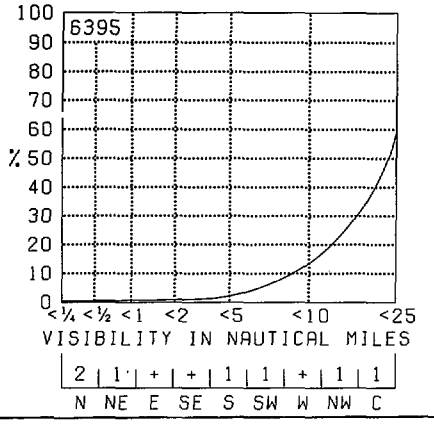
Cold Bay



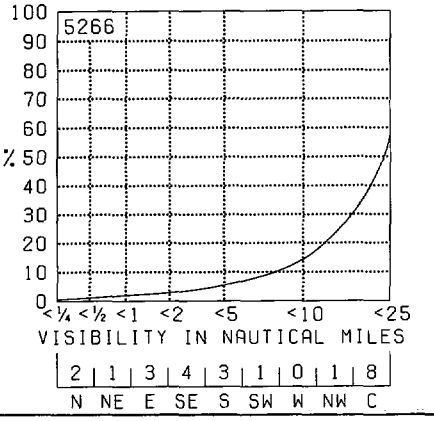
Kodiak



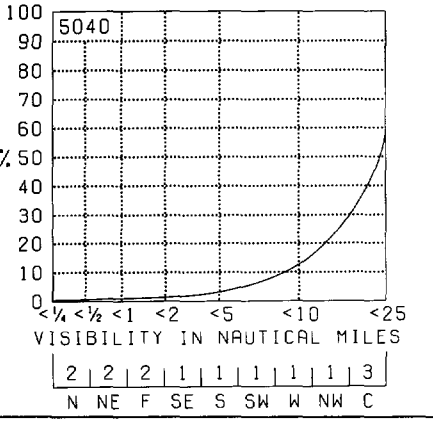
Homer



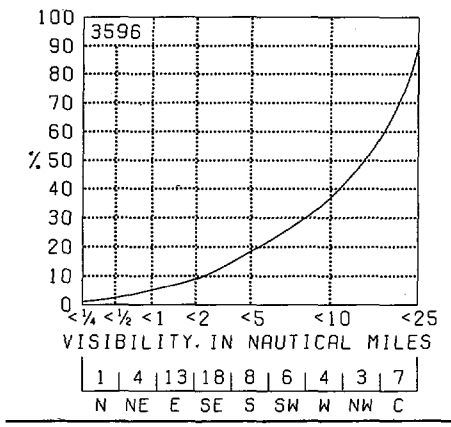
Kenai



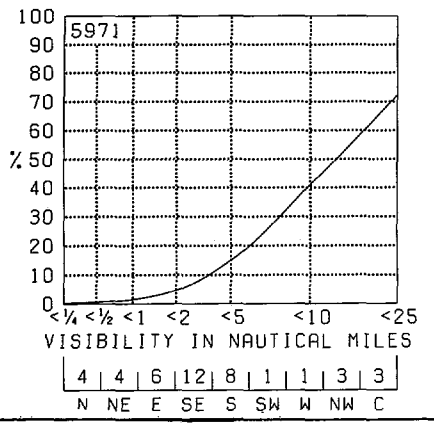
Anchorage



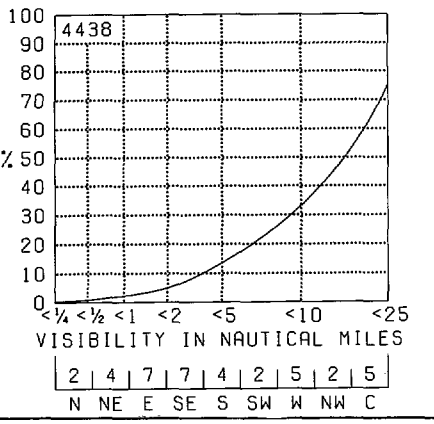
Middleton Island



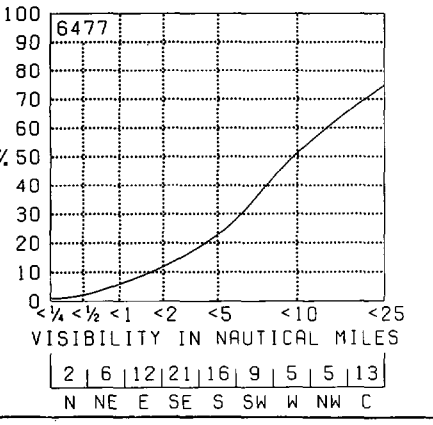
Cordova



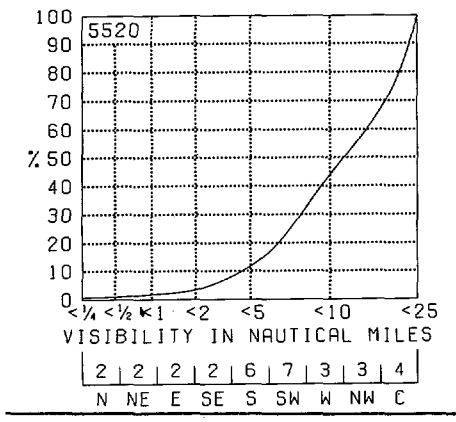
Yakataga



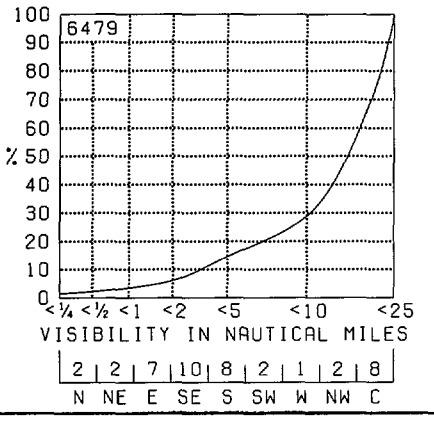
Yakutat



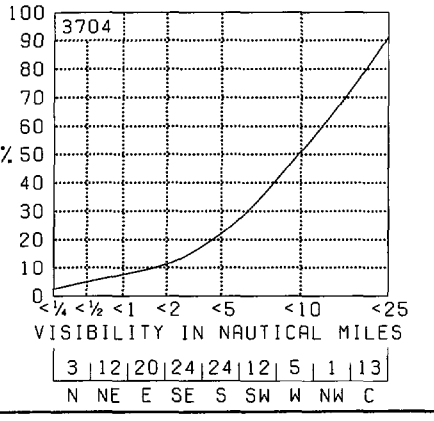
Sitka



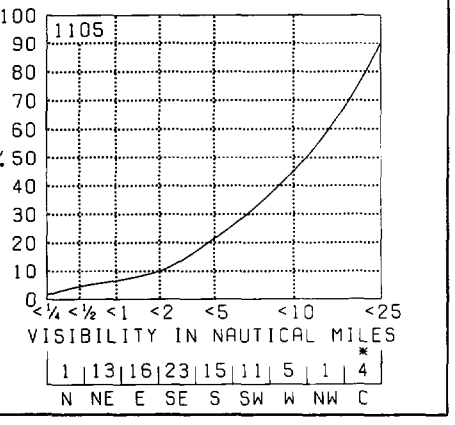
Annette

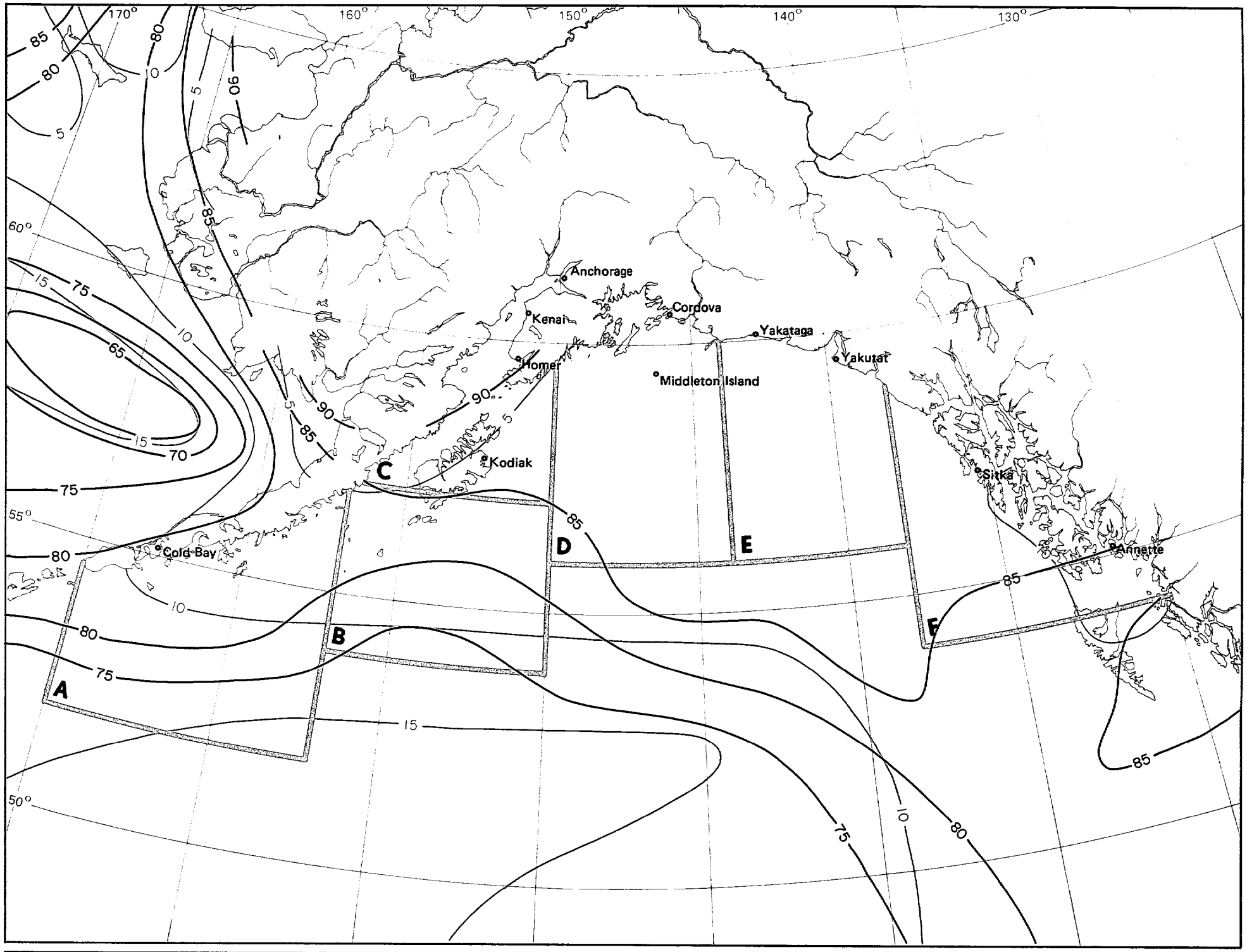


Marine Area A

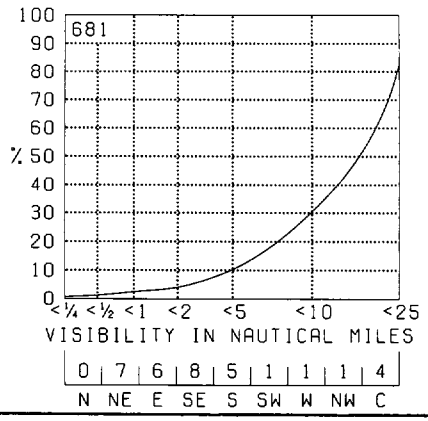


Marine Area B

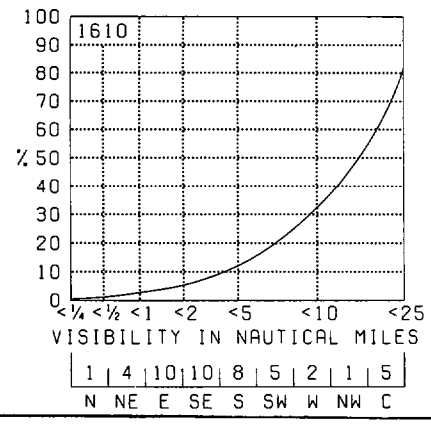




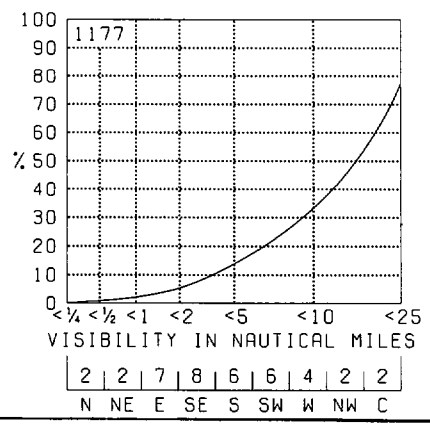
Marine Area C



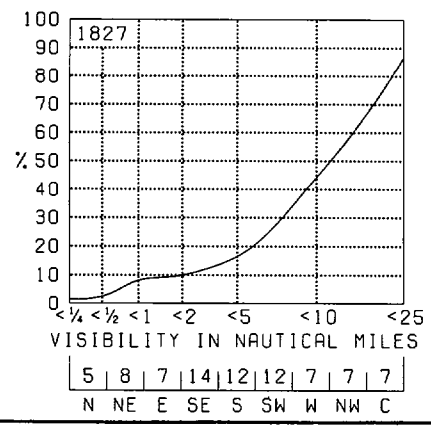
Marine Area D



Marine Area E



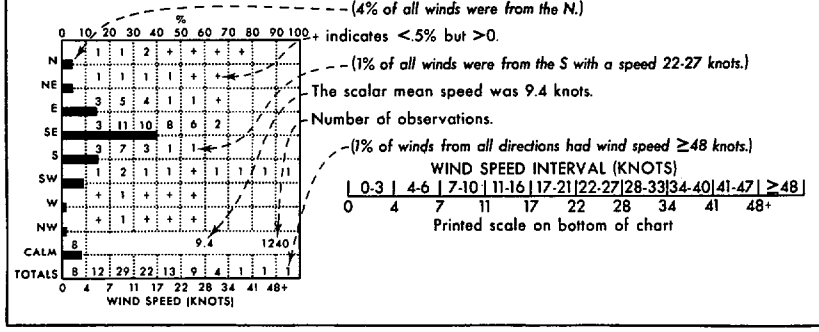
Marine Area F



Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



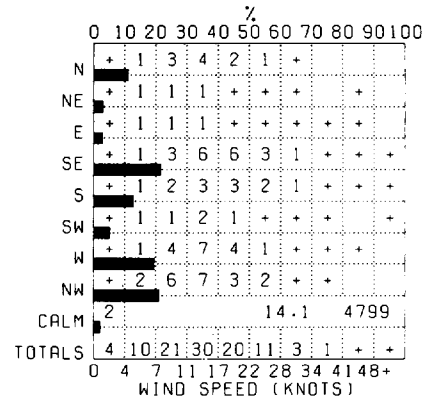
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

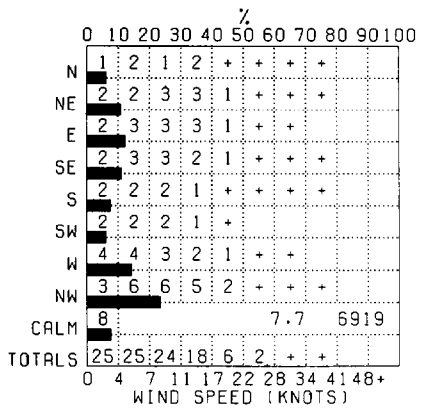
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

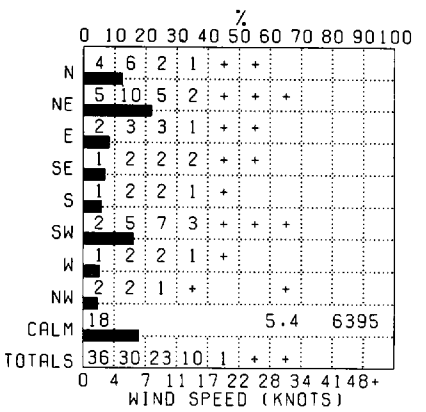
Cold Bay



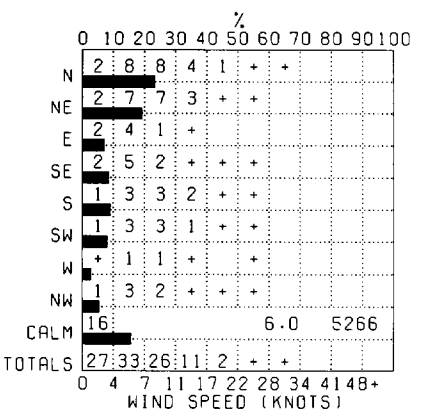
Kodiak



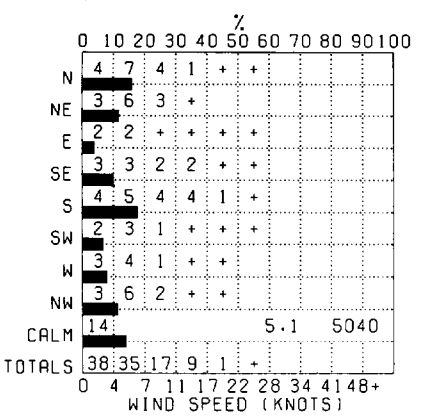
Homer



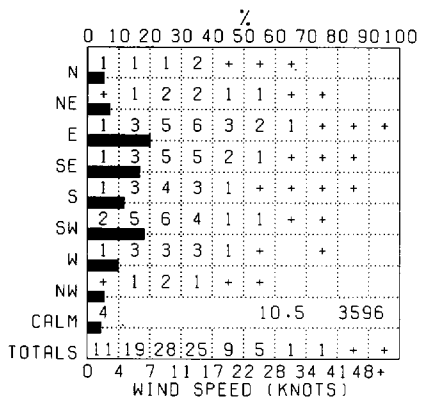
Kenai



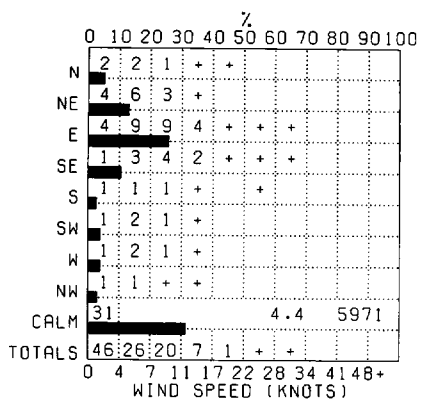
Anchorage



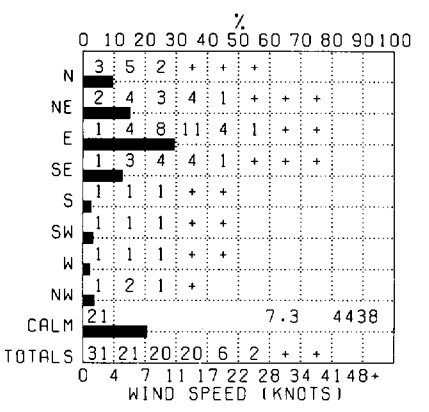
Middleton Island



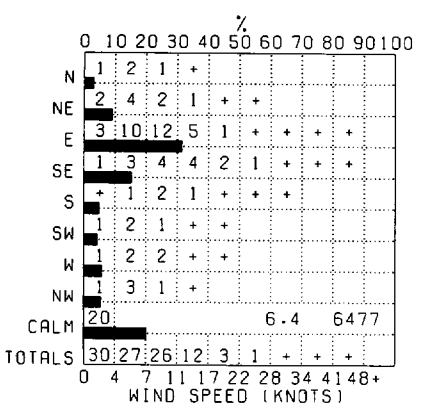
Cordova



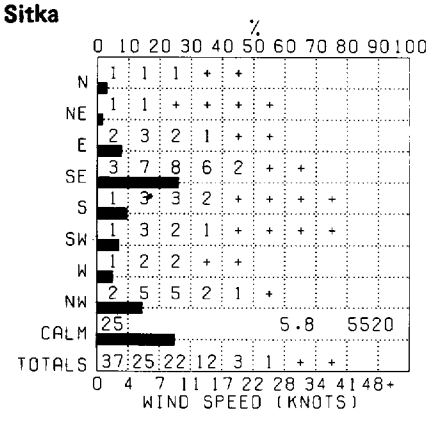
Yakataga



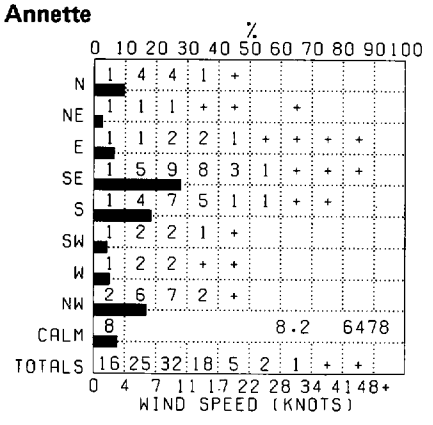
Yakutat



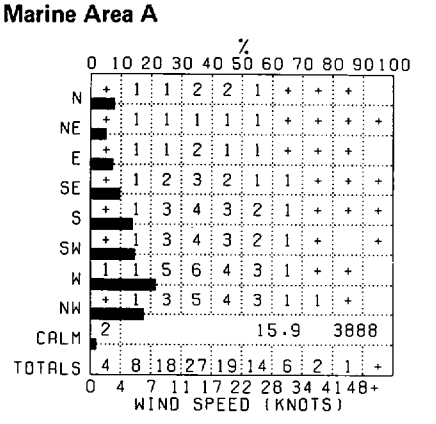
Sitka



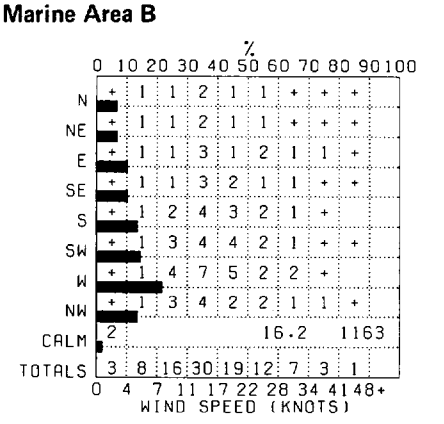
Annette

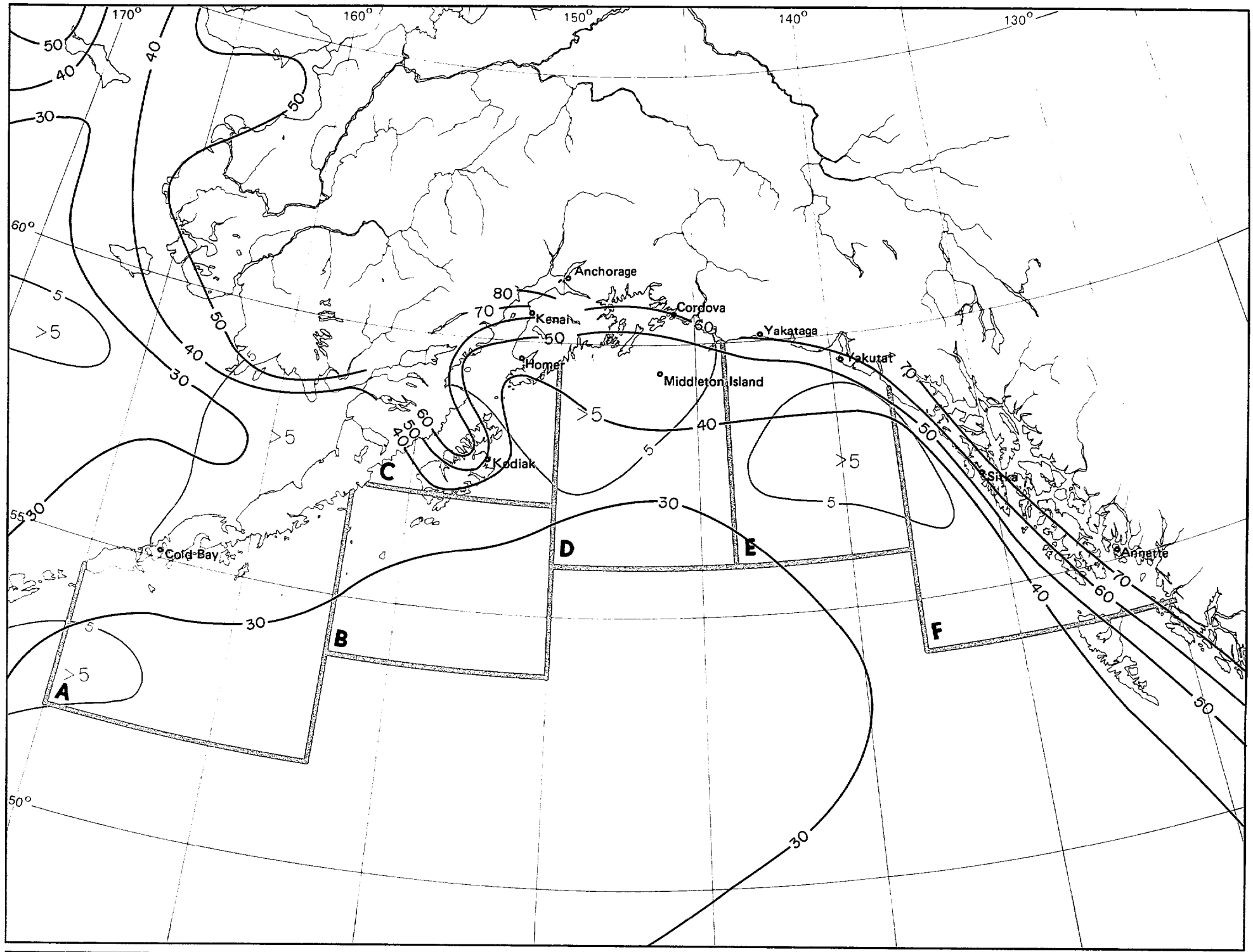


Marine Area A

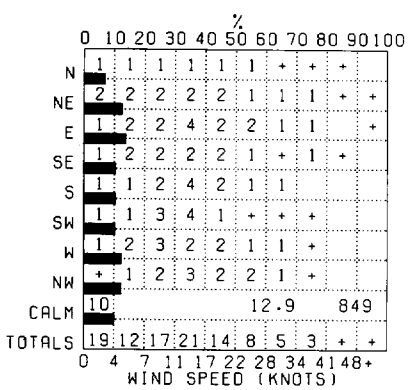


Marine Area B

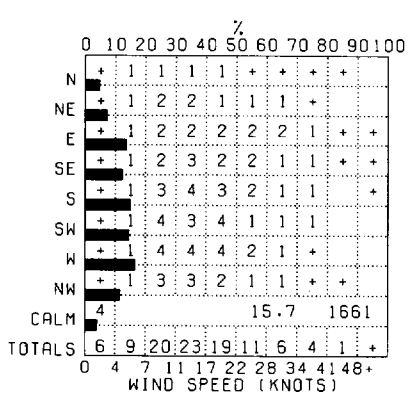




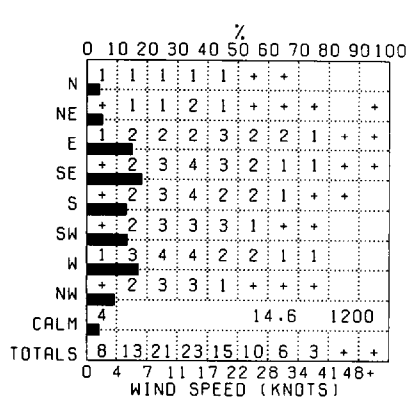
Marine Area C



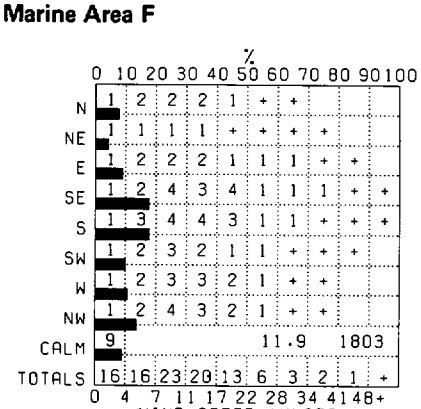
Marine Area D



Marine Area E



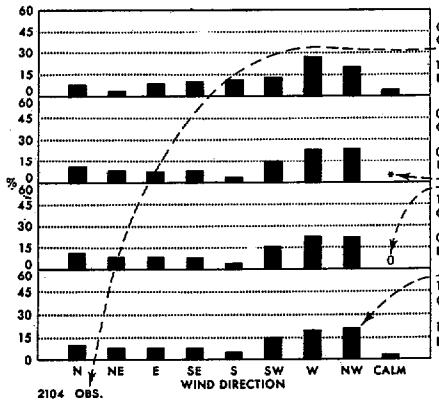
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

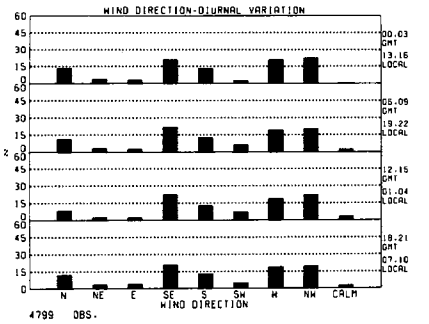
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

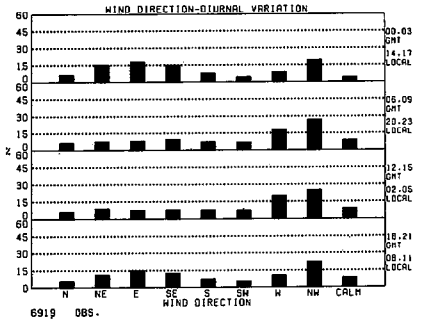
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

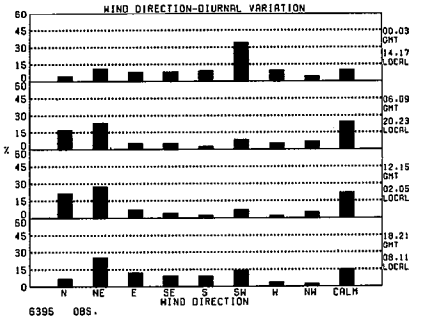
Cold Bay



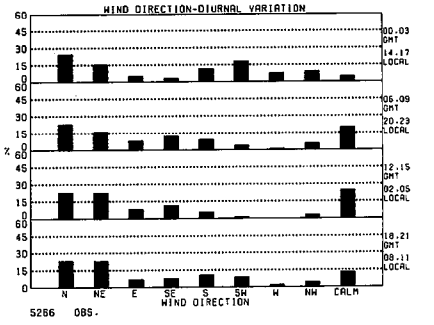
Kodiak



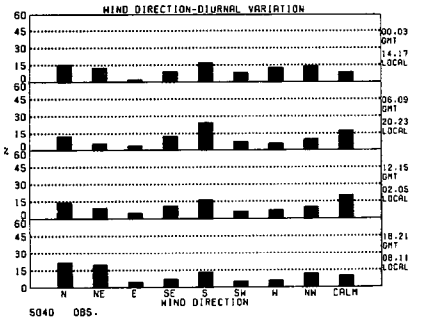
Homer



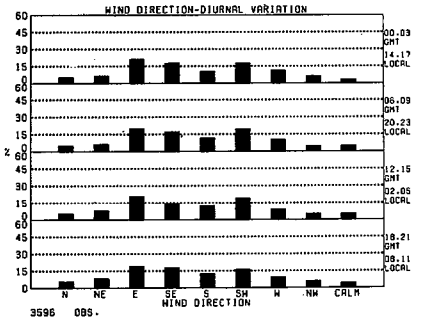
Kenai



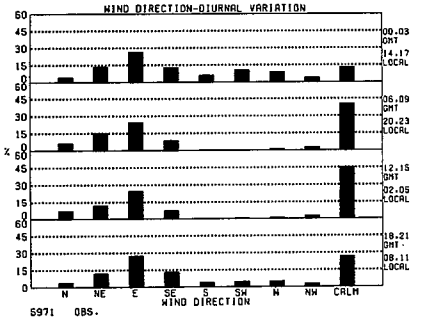
Anchorage



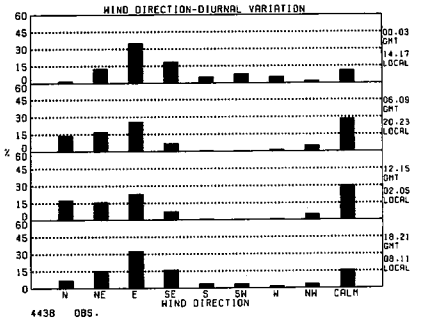
Middleton Island



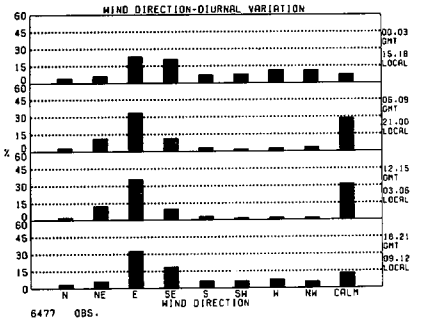
Cordova



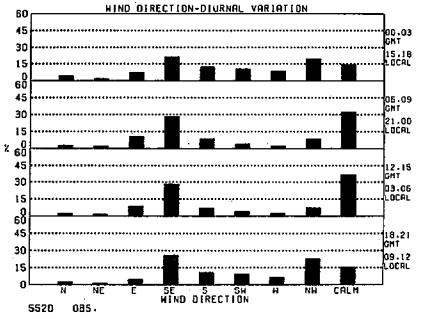
Yakataga



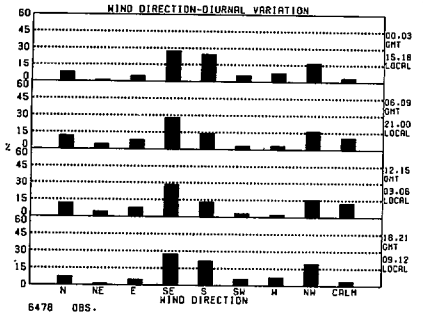
Yakutat



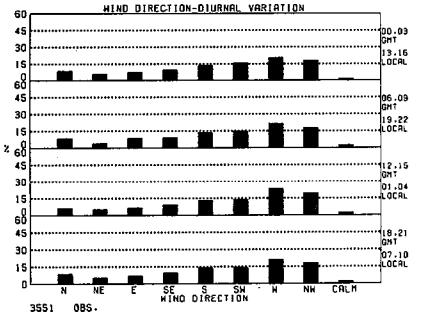
Sitka



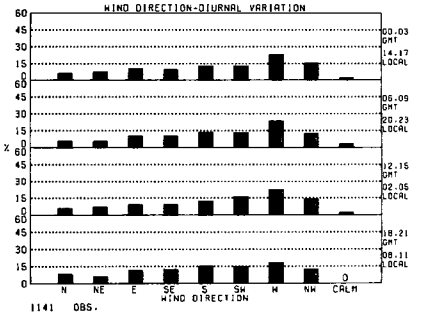
Annette

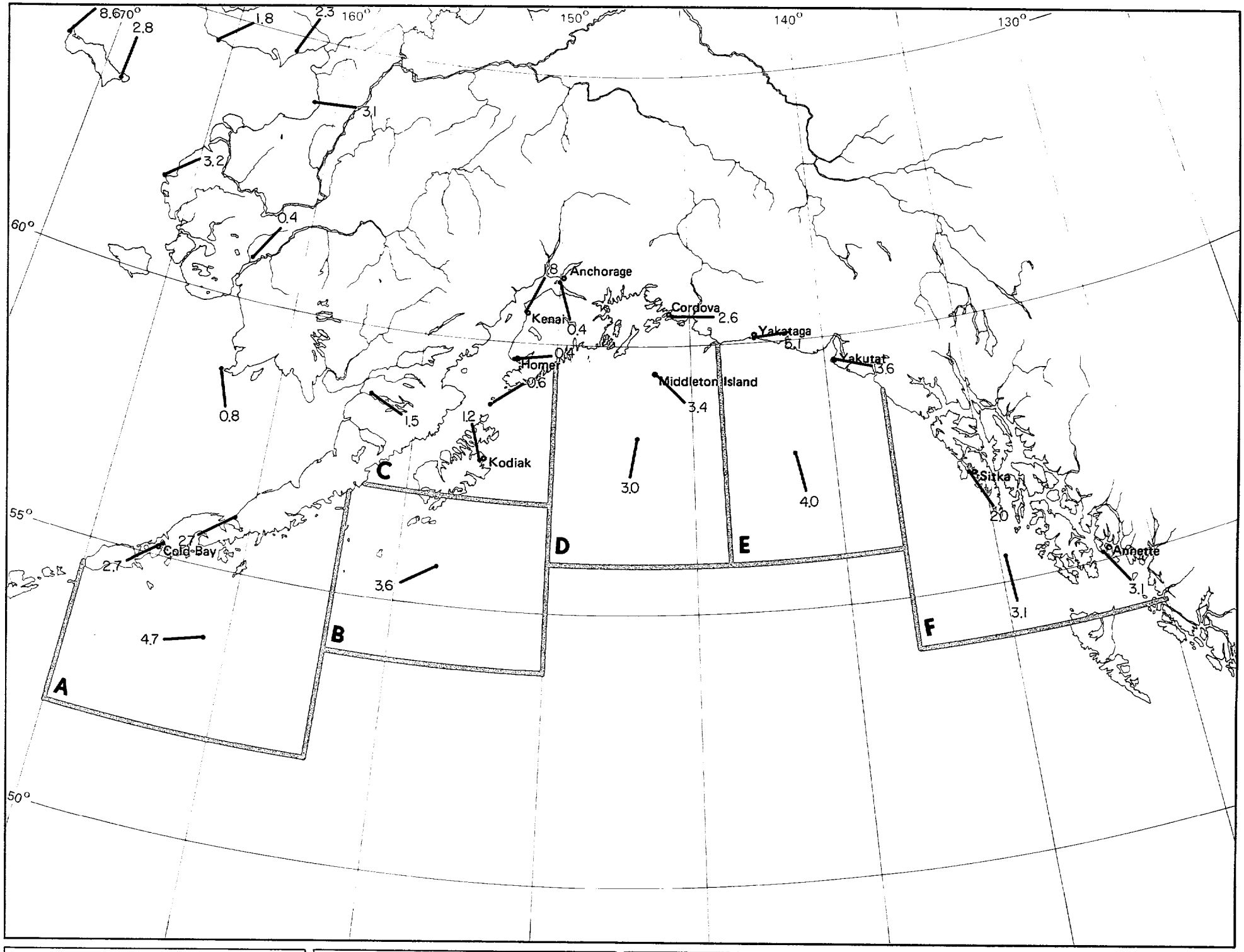


Marine Area A

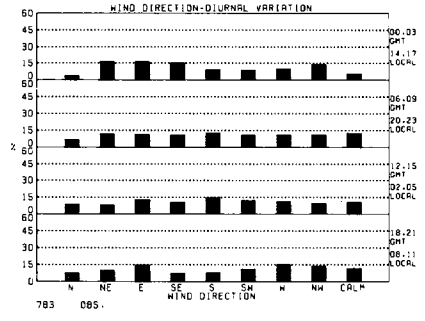


Marine Area B

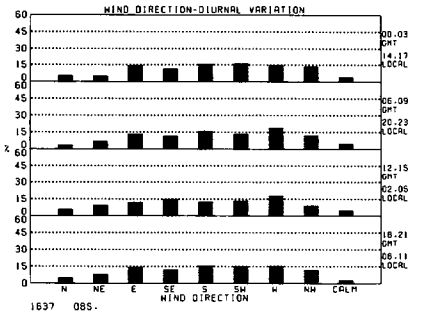




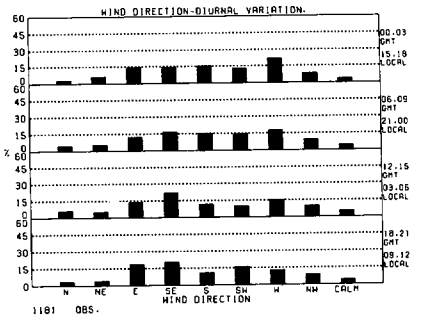
Marine Area C



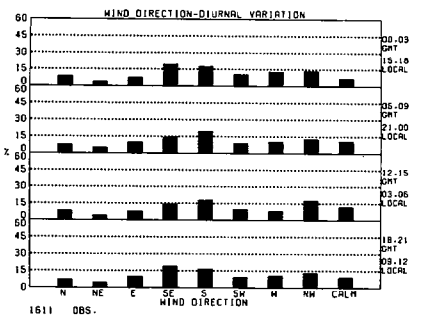
Marine Area D



Marine Area E



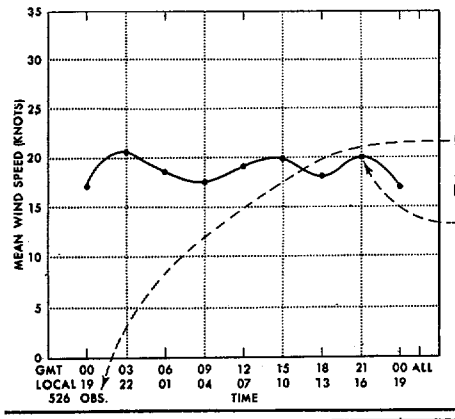
Marine Area F



10 Vector mean wind

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

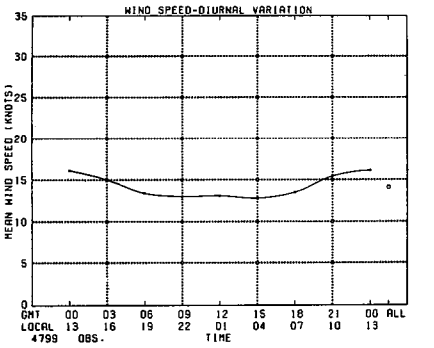
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

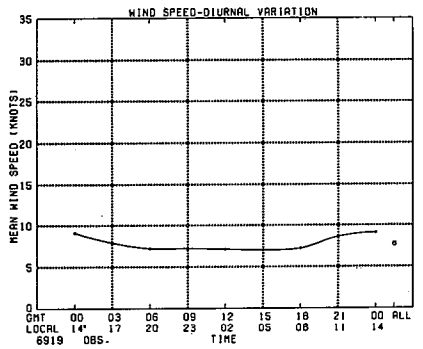
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

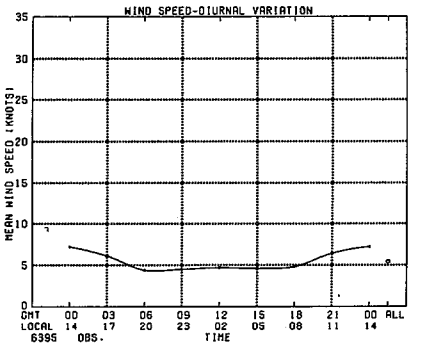
Cold Bay



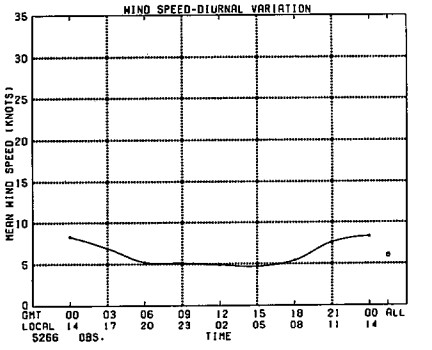
Kodiak



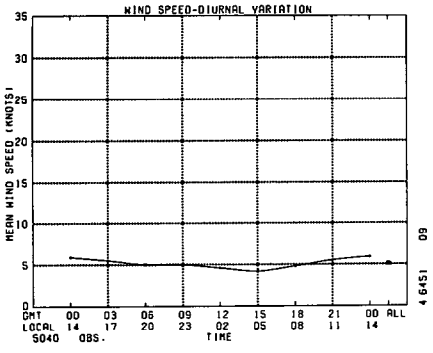
Homer



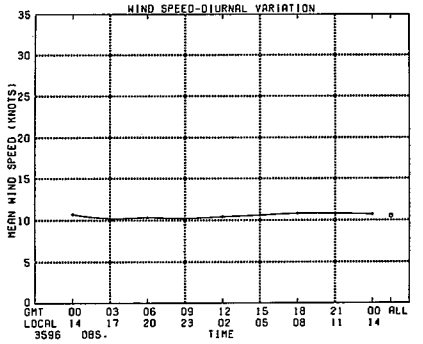
Kenai



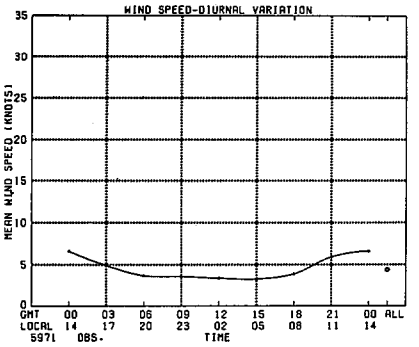
Anchorage



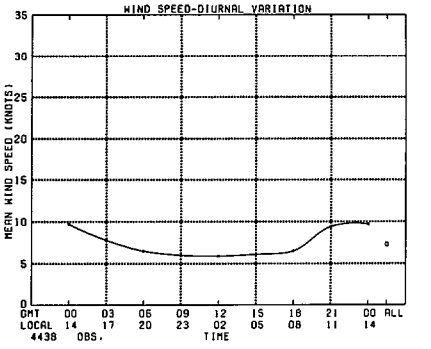
Middleton Island



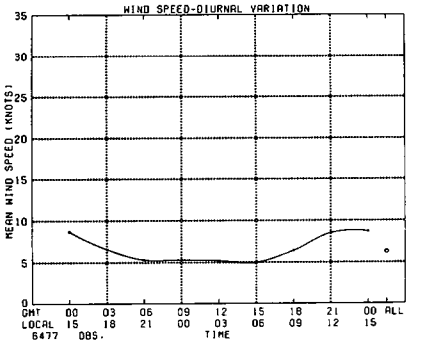
Cordova



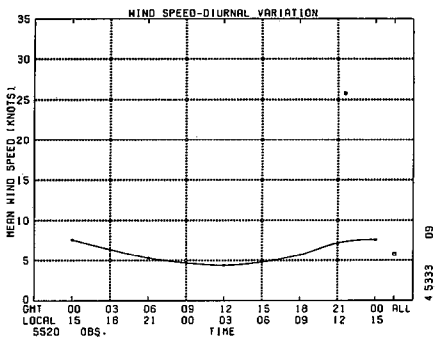
Yakataga



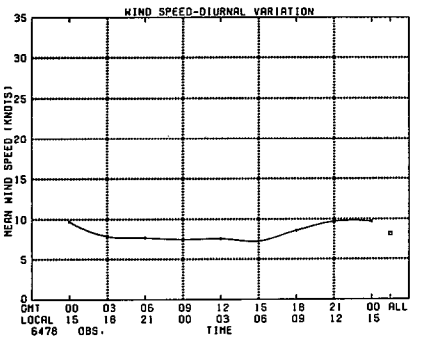
Yakutat



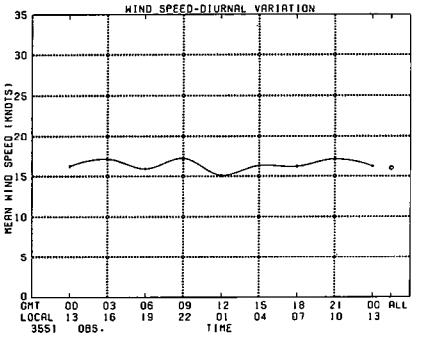
Sitka



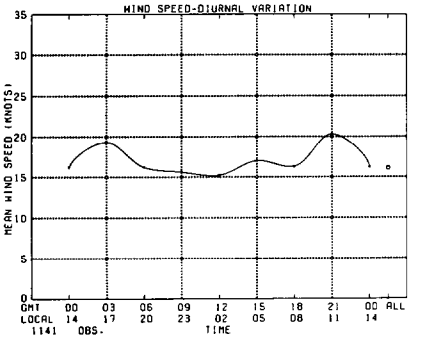
Annette

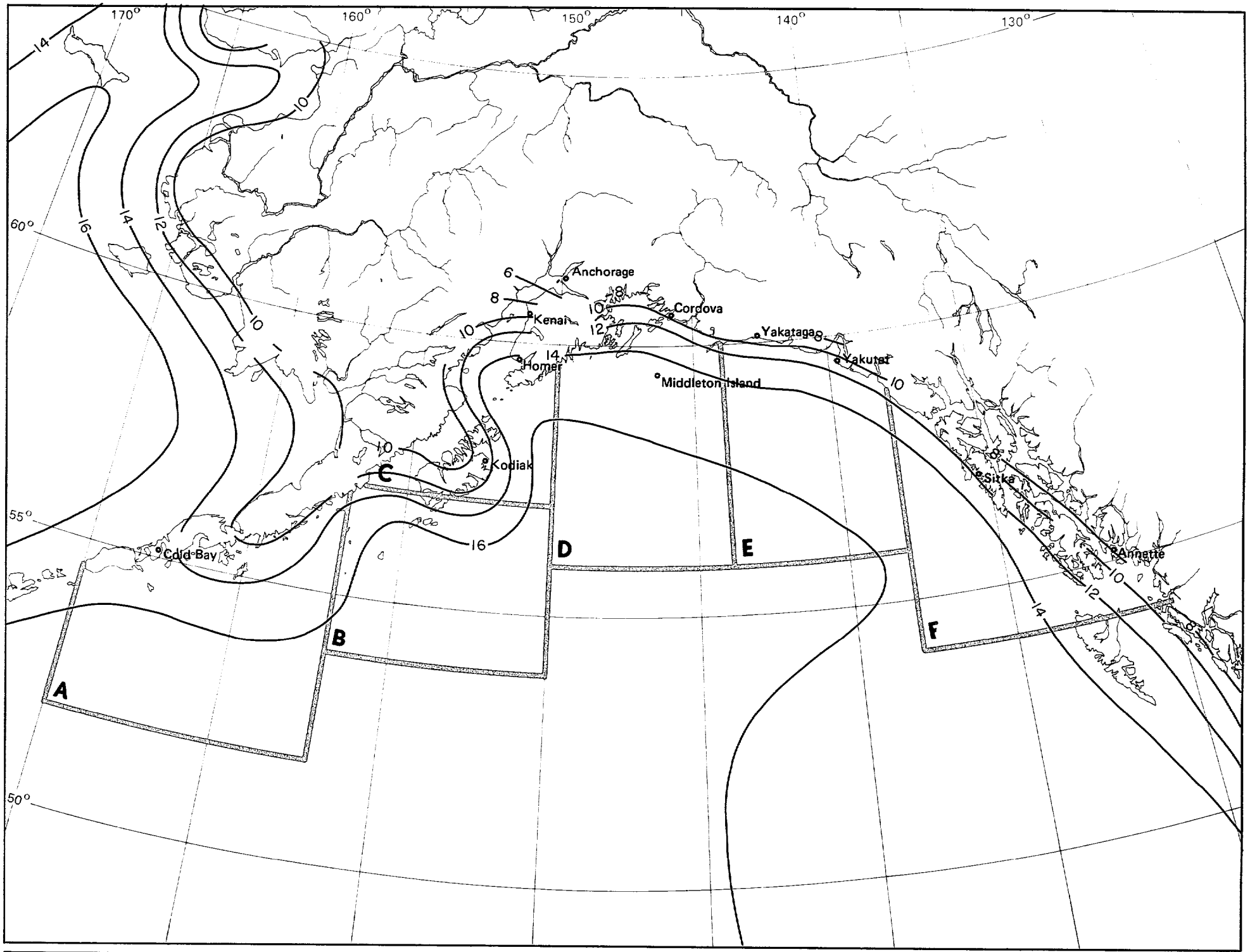


Marine Area A

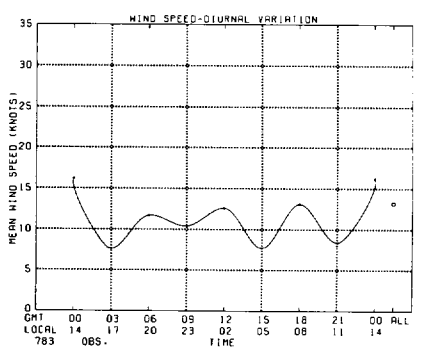


Marine Area B

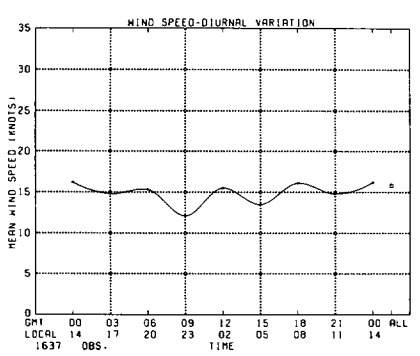




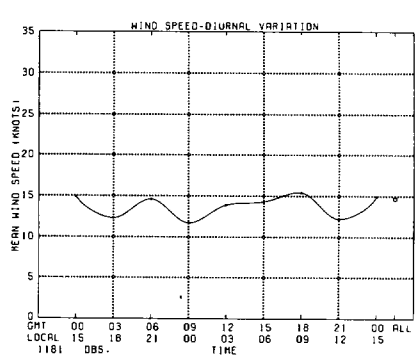
Marine Area C



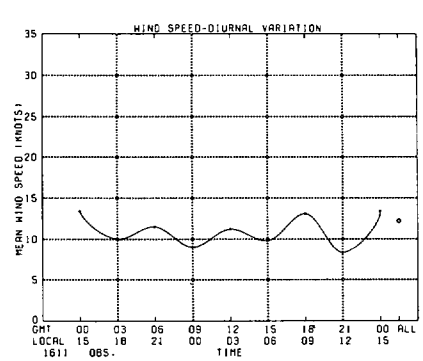
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

(2% of *all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.*)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	6	15
50<80	0	0	0	0	+	1
35<50	0	0	0	+	2	2
20<35	0	0	+	+	7	10
10<20	0	0	+	1	12	9
6<10	0	+	1	4	10	3
3<6	+	1	2	4	4	1
1.5<3	+	+	+	+	+	+
0<1.5	1	1	1	+	+	+

4781

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	5	40
50<80	0	0	0	+	+	2
35<50	0	+	0	+	1	3
20<35	+	+	+	+	5	10
10<20	+	+	+	2	6	4
6<10	0	+	+	2	3	1
3<6	+	+	1	4	2	+
1.5<3	+	+	+	1	+	0
0<1.5	1	1	1	1	+	0

6694

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	+	+	0	0	47
50<80	0	0	0	0	+	10
35<50	0	0	0	0	+	21
20<35	0	0	0	0	1	12
10<20	0	0	0	+	2	2
6<10	0	0	0	0	1	0
3<6	0	0	0	+	1	0
1.5<3	0	0	0	0	0	0
0<1.5	0	0	0	0	0	0

286

Kenai

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	0	+	1	4	52
50<80	0	0	0	0	1	13
35<50	0	0	0	0	1	9
20<35	0	+	0	0	4	5
10<20	0	0	0	2	3	3
6<10	0	0	0	+	0	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	1	0	0	0	0	0

240

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	57
50<80	+	+	+	0	1	12
35<50	+	0	0	+	1	6
20<35	0	0	+	+	1	6
10<20	0	+	+	+	1	3
6<10	0	+	+	+	2	2
3<6	+	+	+	1	2	2
1.5<3	+	+	+	+	+	+
0<1.5	+	+	+	+	+	+

4968

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	6	44
50<80	0	0	+	0	+	1
35<50	0	0	0	0	1	1
20<35	0	0	0	+	3	5
10<20	0	+	+	2	7	9
6<10	0	+	1	4	5	3
3<6	0	1	1	1	+	0
1.5<3	0	0	0	0	0	0
0<1.5	2	1	1	+	0	0

1203

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	34
50<80	+	0	0	0	+	3
35<50	0	0	+	+	2	7
20<35	0	0	+	2	11	13
10<20	+	+	1	5	7	4
6<10	+	+	1	2	1	+
3<6	0	+	+	1	+	+
1.5<3	0	0	0	0	+	0
0<1.5	+	+	1	+	0	+

4421

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	+	48
50<80	0	0	0	0	+	5
35<50	0	0	0	0	4	10
20<35	0	0	0	2	7	12
10<20	0	0	1	2	5	0
6<10	0	0	0	0	1	0
3<6	0	0	0	+	0	+
1.5<3	0	0	0	0	0	+
0<1.5	0	0	0	0	0	0

241

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	1	1	1	5	27
50<80	+	+	0	+	1	3
35<50	+	0	+	+	1	3
20<35	+	+	+	1	4	7
10<20	+	+	1	3	10	6
6<10	+	+	1	3	5	2
3<6	+	2	3	3	3	1
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	+

6448

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	3	33
50<80	0	0	0	0	1	8
35<50	0	0	0	+	7	9
20<35	0	0	1	4	11	7
10<20	0	0	1	4	3	+
6<10	0	0	+	1	1	0
3<6	0	0	+	1	0	0
1.5<3	0	0	0	0	0	0
0<1.5	0	1	1	1	0	0

234

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	40
50<80	0	0	0	+	+	3
35<50	0	+	+	+	+	4
20<35	0	0	0	+	2	10
10<20	+	+	+	2	5	10
6<10	+	+	1	2	3	3
3<6	+	+	1	3	3	1
1.5<3	+	+	+	+	+	+
0<1.5	2	+	+	+	+	0

6462

Marine Area A

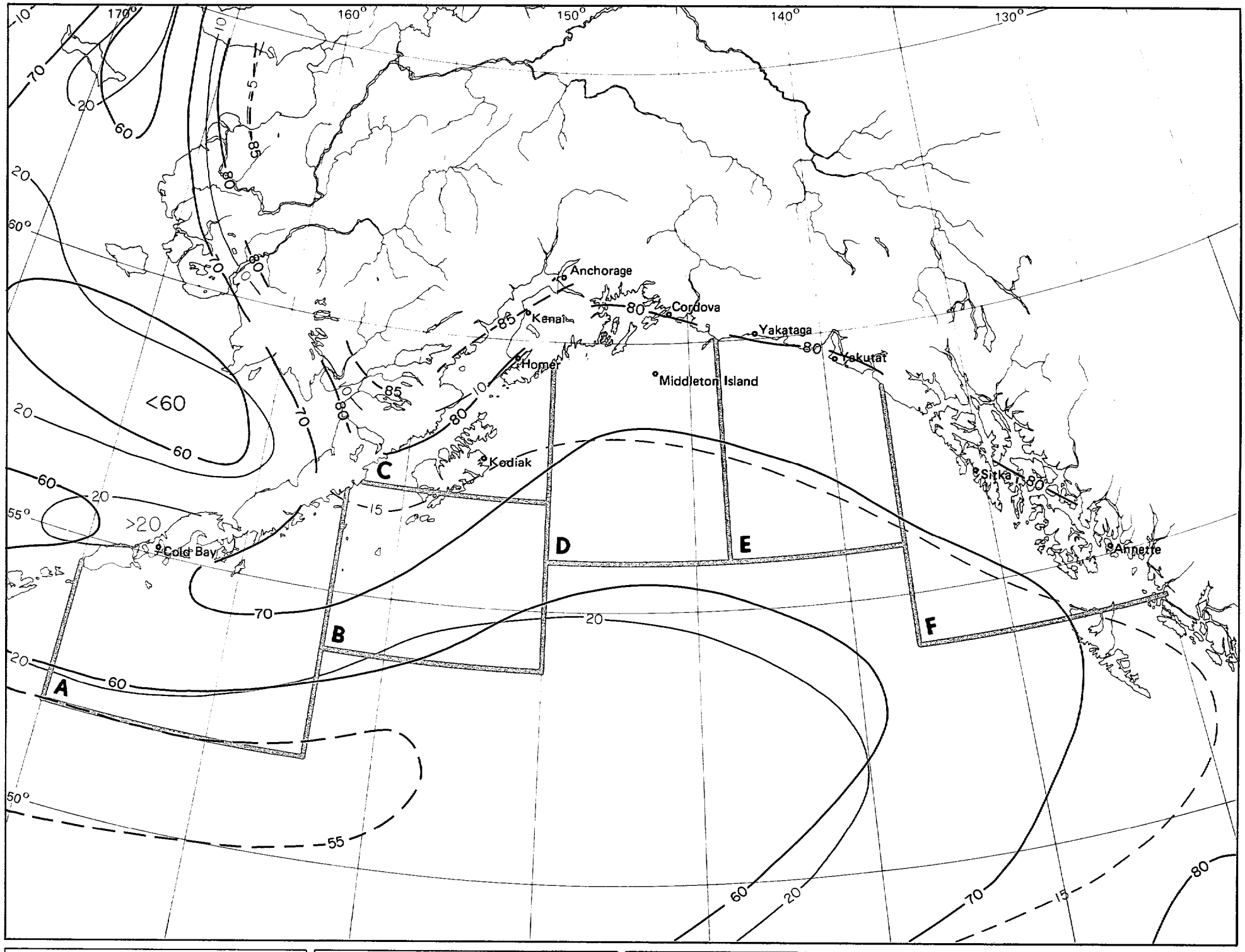
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	1	5	23
50<80	0	0	0	0	+	1
35<50	0	0	0	+	1	2
20<35	+	+	0	1	5	7
10<20	+	+	1	3	9	11
6<10	+	+	1	3	5	6
3<6	+	+	1	2	2	1
1.5<3	+	+	+	1	+	+
0<1.5	4	1	1	1	+	+

3000

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	+	5	29
50<80	0	0	+	0	+	2
35<50	0	0	0	0	1	3
20<35	0	0	0	+	3	8
10<20	+	+	+	2	6	9
6<10	+	+	1	4	5	6
3<6	+	+	1	2	1	1
1.5<3	0	0	+	1	+	0
0<1.5	4	1	1	1	1	0

932



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	+	3	42
50<80	0	0	0	0	+	3
35<50	0	0	0	+	2	3
20<35	0	0	0	+	1	8
10<20	0	+	0	+	5	9
6<10	0	+	+	1	5	6
3<6	0	0	+	2	1	2
1.5<3	0	+	+	0	1	+
0<1.5	1	+	+	1	1	+

585

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	3	36
50<80	0	0	+	0	+	1
35<50	0	0	0	+	+	2
20<35	+	+	0	0	2	6
10<20	0	+	+	1	5	14
6<10	+	+	1	1	5	9
3<6	+	0	+	1	2	2
1.5<3	+	0	0	1	+	1
0<1.5	1	1	1	1	1	+

1300

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	2	33
50<80	0	0	0	0	+	1
35<50	0	0	+	0	0	4
20<35	0	0	+	0	3	7
10<20	0	+	1	2	7	17
6<10	+	0	+	2	3	6
3<6	+	+	1	1	2	2
1.5<3	0	0	+	1	+	1
0<1.5	+	1	1	+	1	1

912

Marine Area F

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	3	34
50<80	0	0	0	+	+	1
35<50	0	0	0	+	+	3
20<35	0	0	+	+	3	9
10<20	+	+	+	2	5	11
6<10	+	0	0	2	4	8
3<6	0	0	+	1	2	2
1.5<3	0	+	+	1	+	1
0<1.5	3	1	1	1	1	+

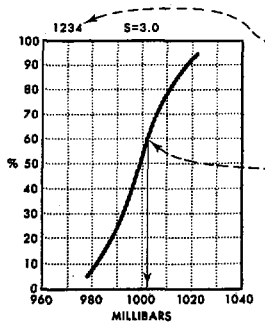
1159

12 Low cloud ceiling and visibility thresholds

September

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

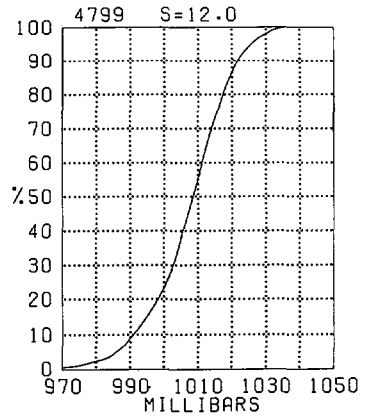
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

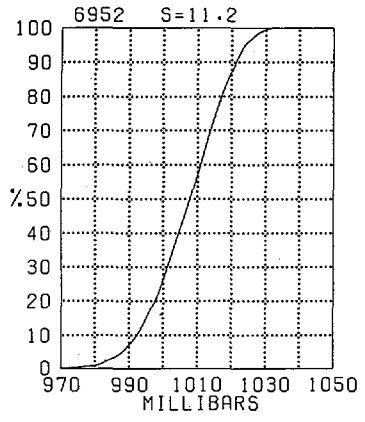
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

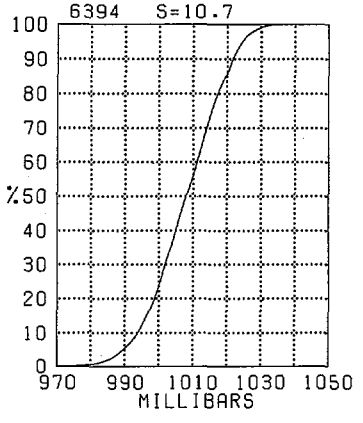
Cold Bay



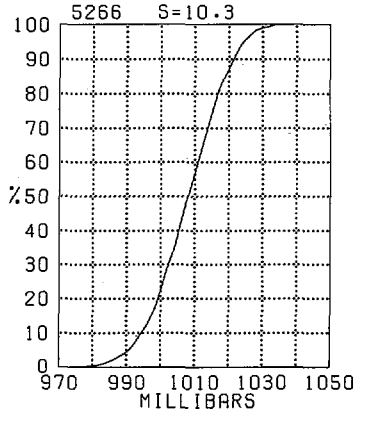
Kodiak



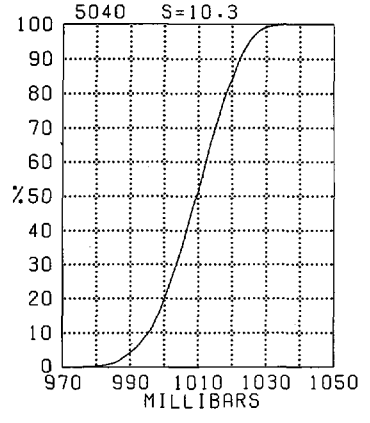
Homer



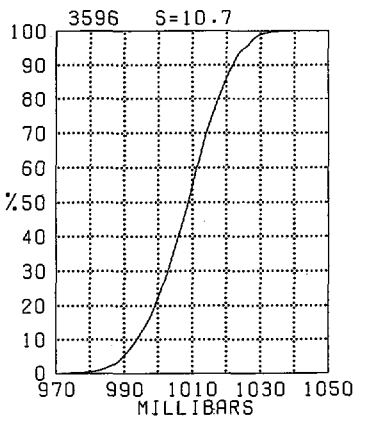
Kenai



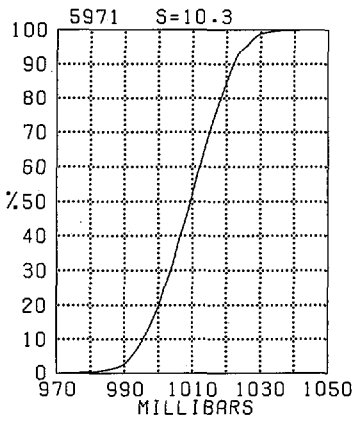
Anchorage



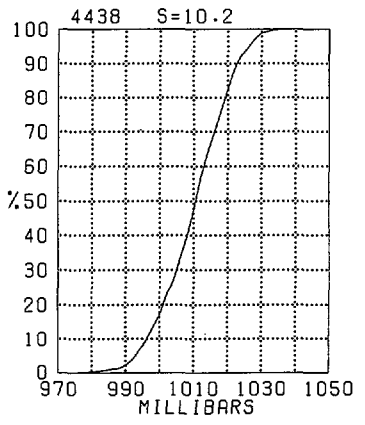
Middleton Island



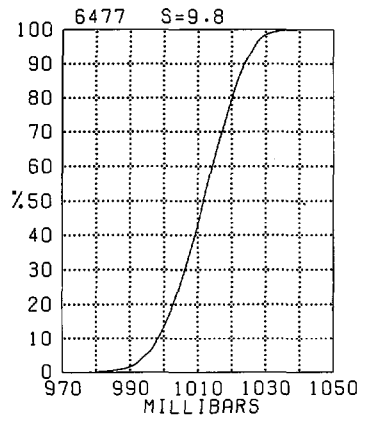
Cordova



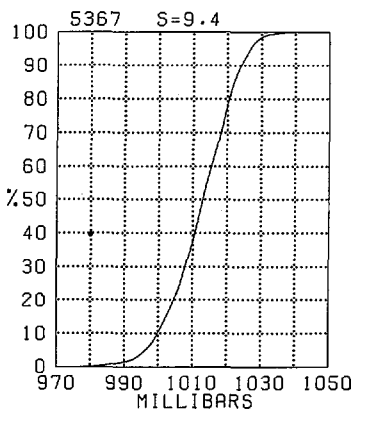
Yakataga



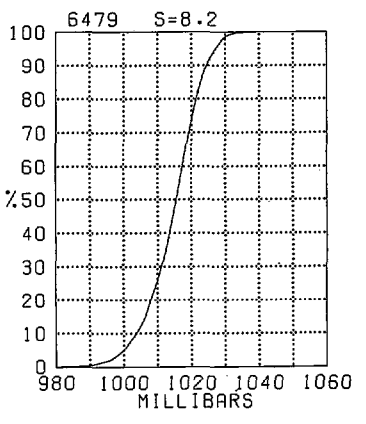
Yakutat



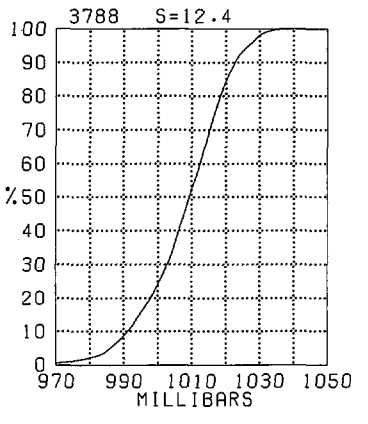
Sitka



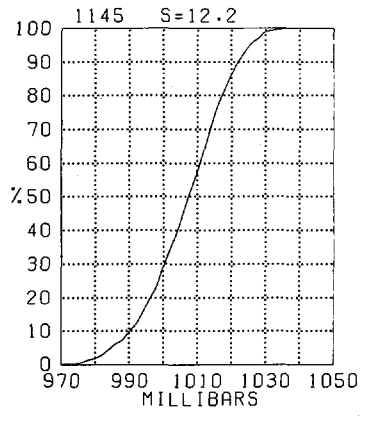
Annette

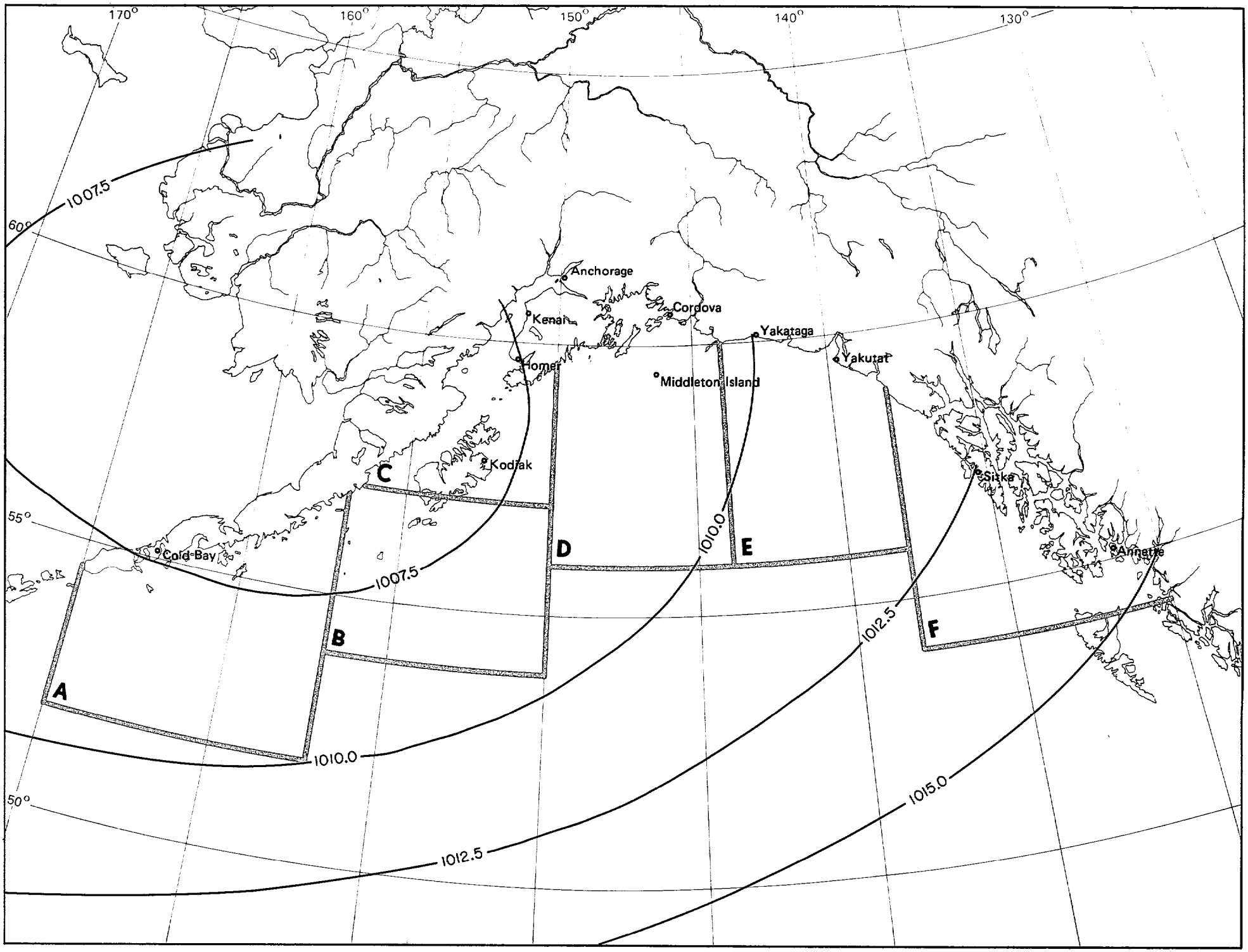


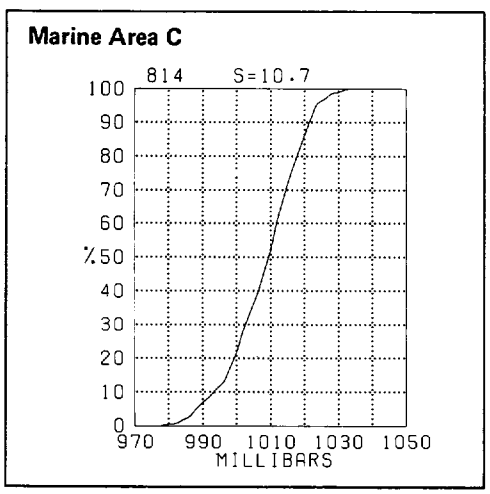
Marine Area A

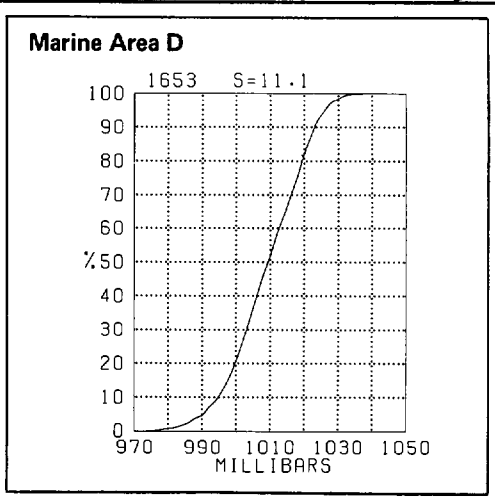


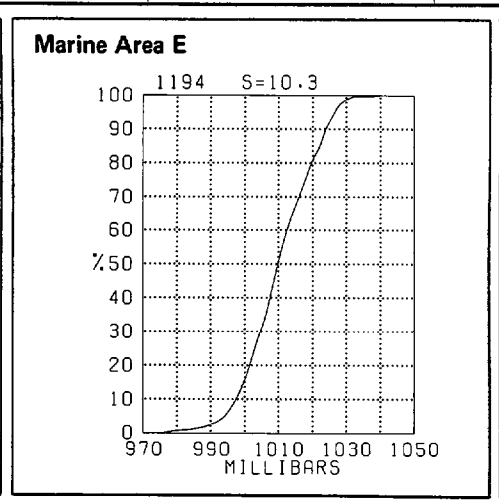
Marine Area B

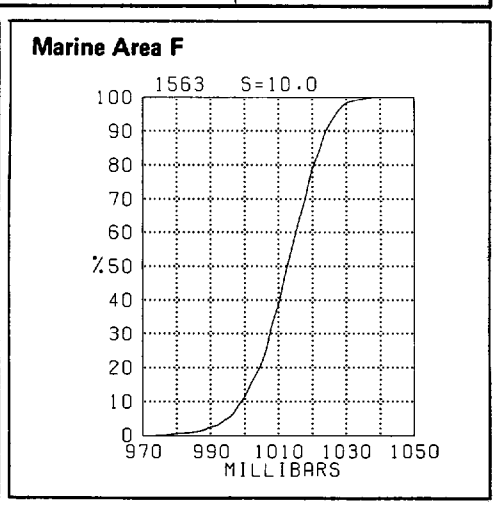










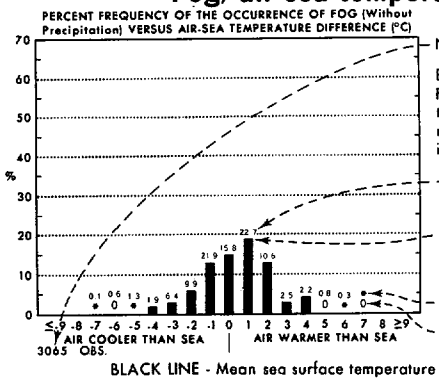


13 Mean sea level pressure

September

Legend

Fog/air-sea temperature difference



BLACK LINE - Mean sea surface temperature (°C)

Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

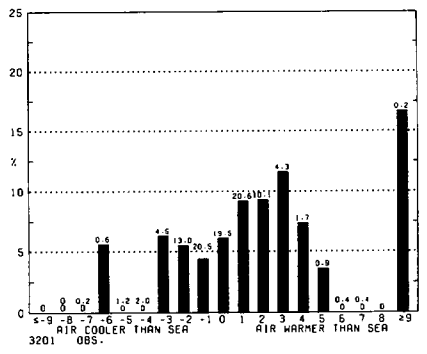
— — (22.7% of all observations had Air-Sea temperature difference of +1 °C.)

— — (19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

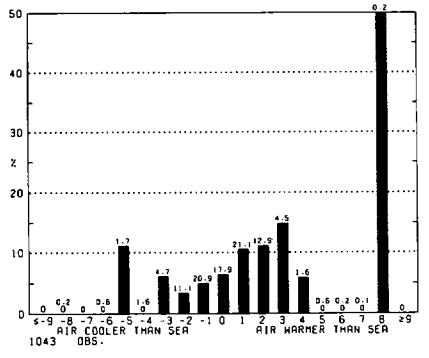
• indicates <.05% but >0.

0 indicates no fog with the Air-Sea temperature difference category.

Marine Area A

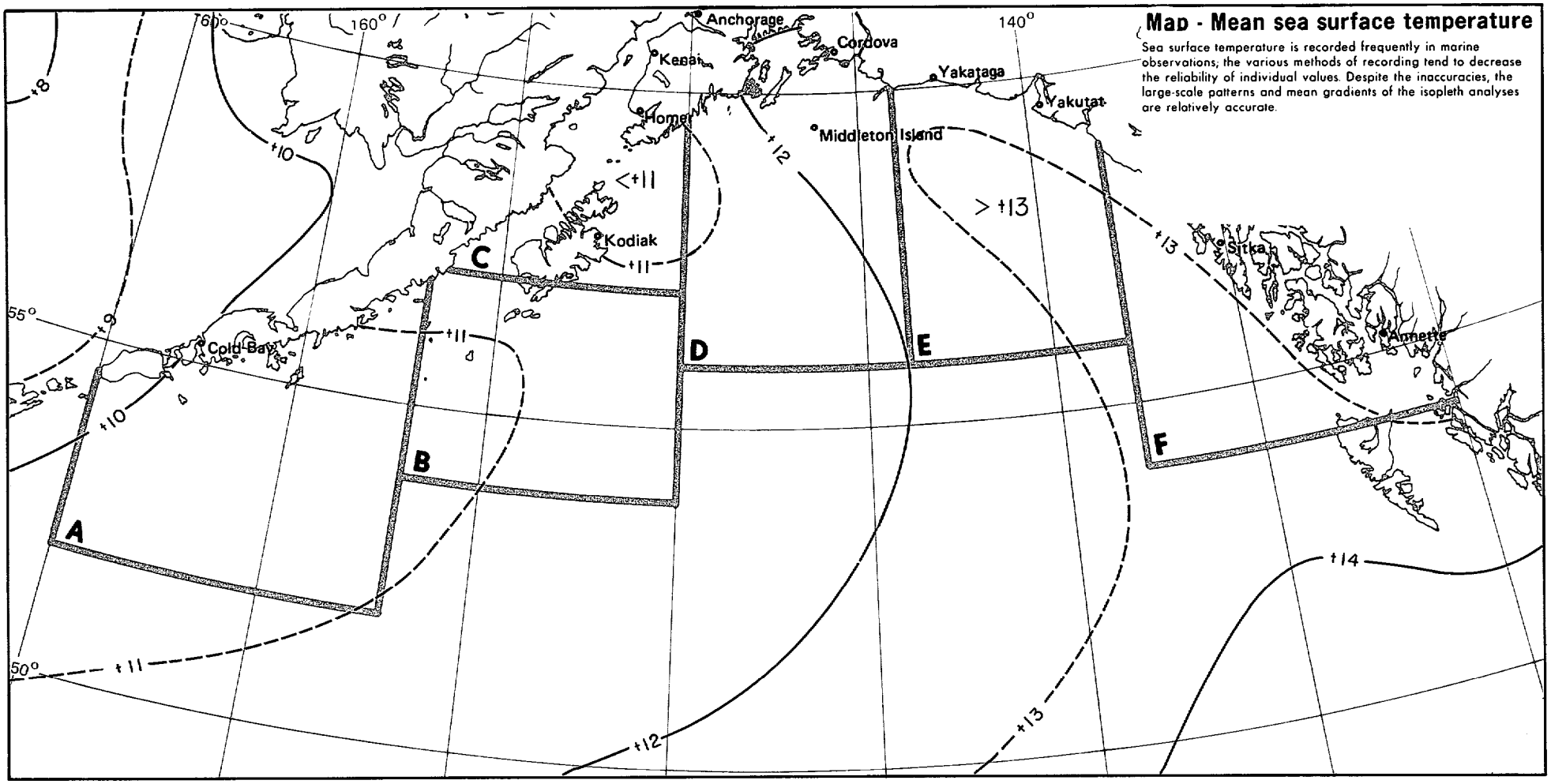


Marine Area B

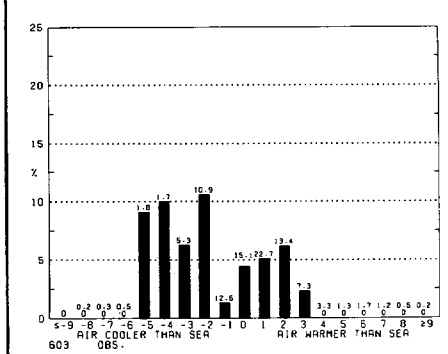


Map - Mean sea surface temperature

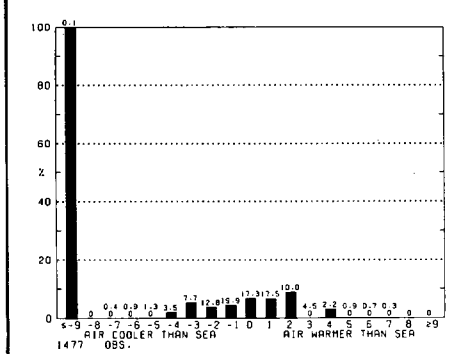
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



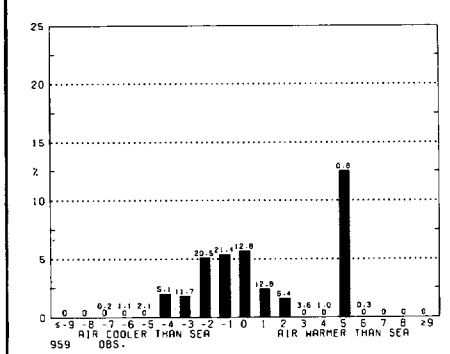
Marine Area C



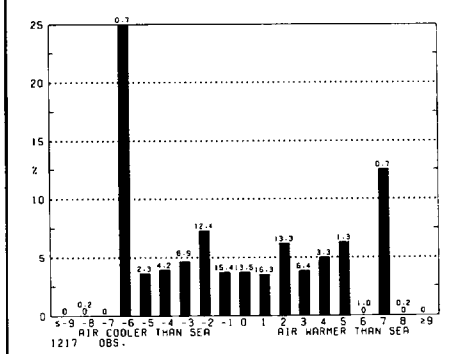
Marine Area D



Marine Area E

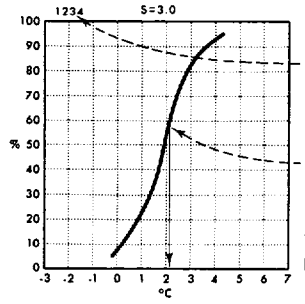


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

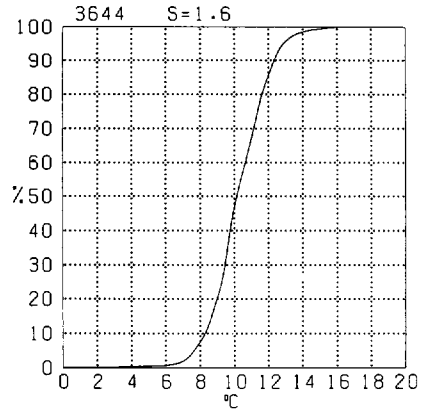
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

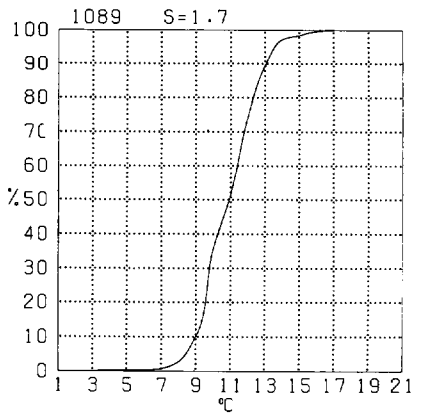
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

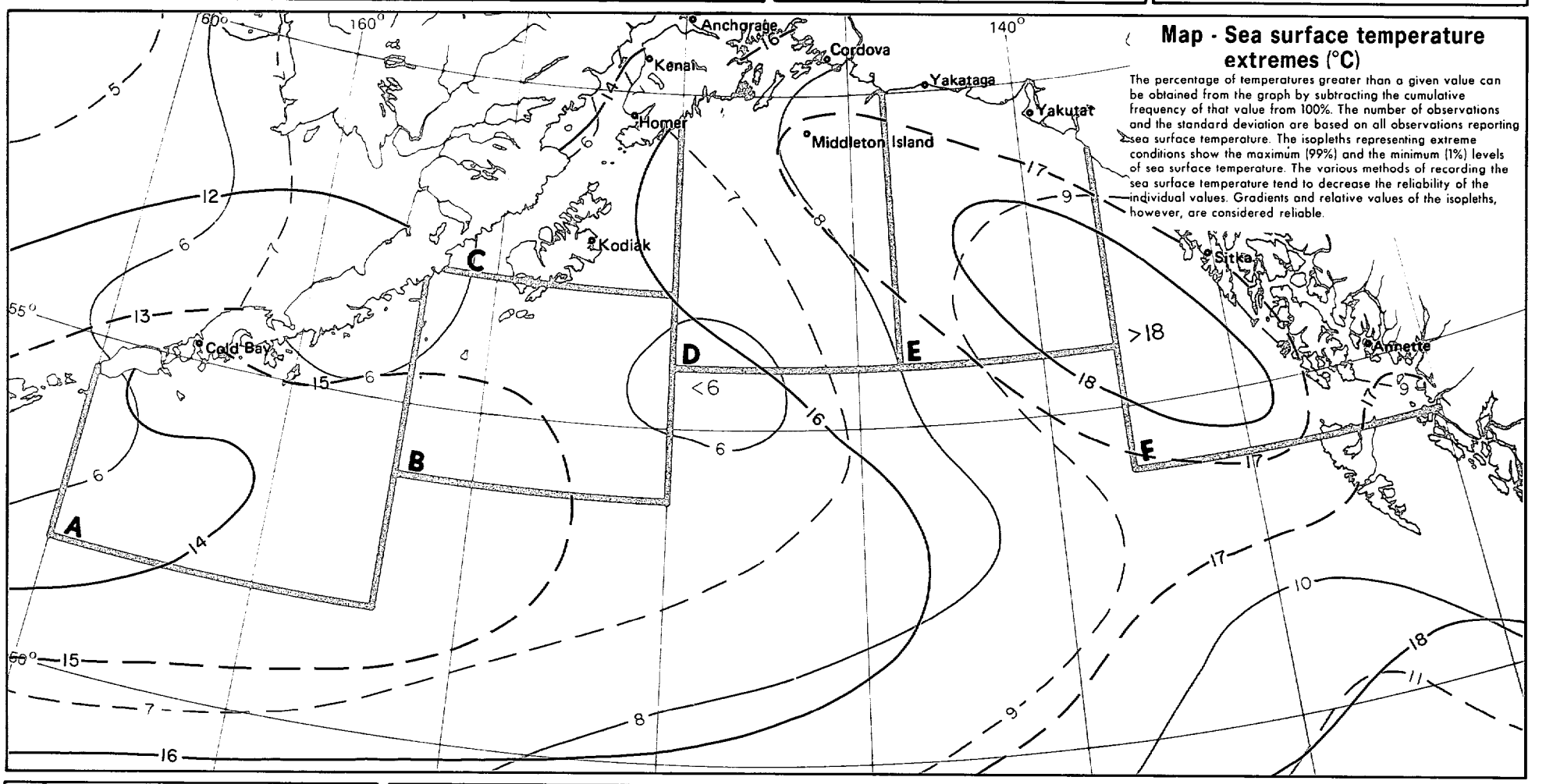
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

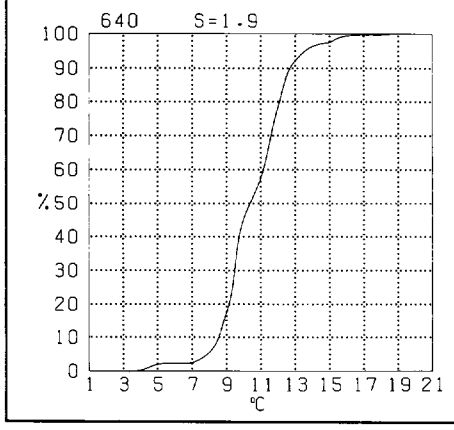




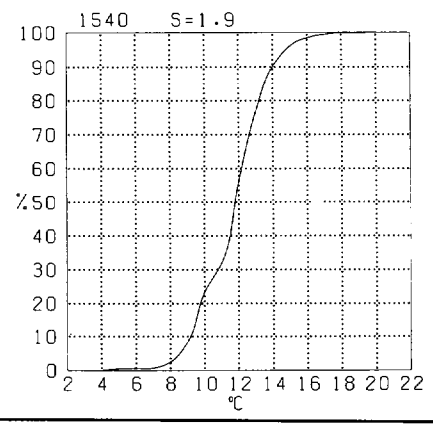
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

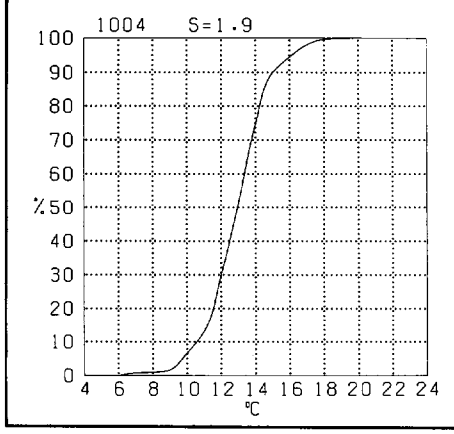
Marine Area C



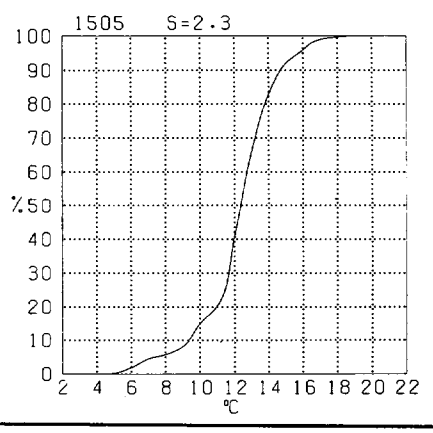
Marine Area D



Marine Area E



Marine Area F

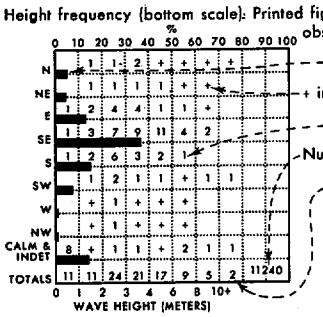


Wave height/direction

Legend

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



– – – (5% of all waves were from the N.)

\+ indicates <.5% but >0.

– – – (1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

– – (2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

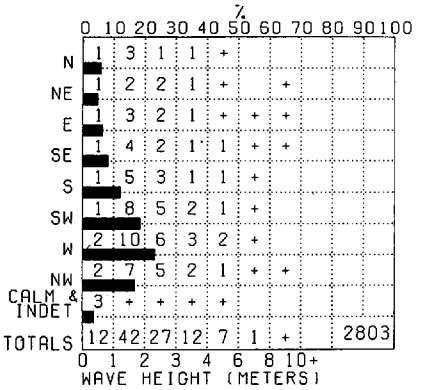
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

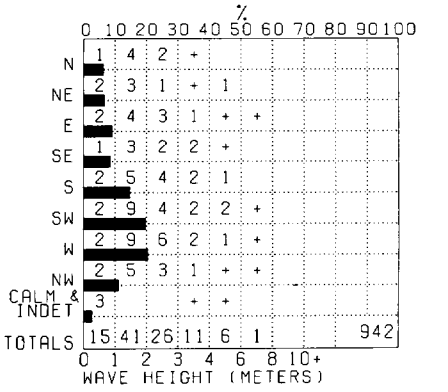
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

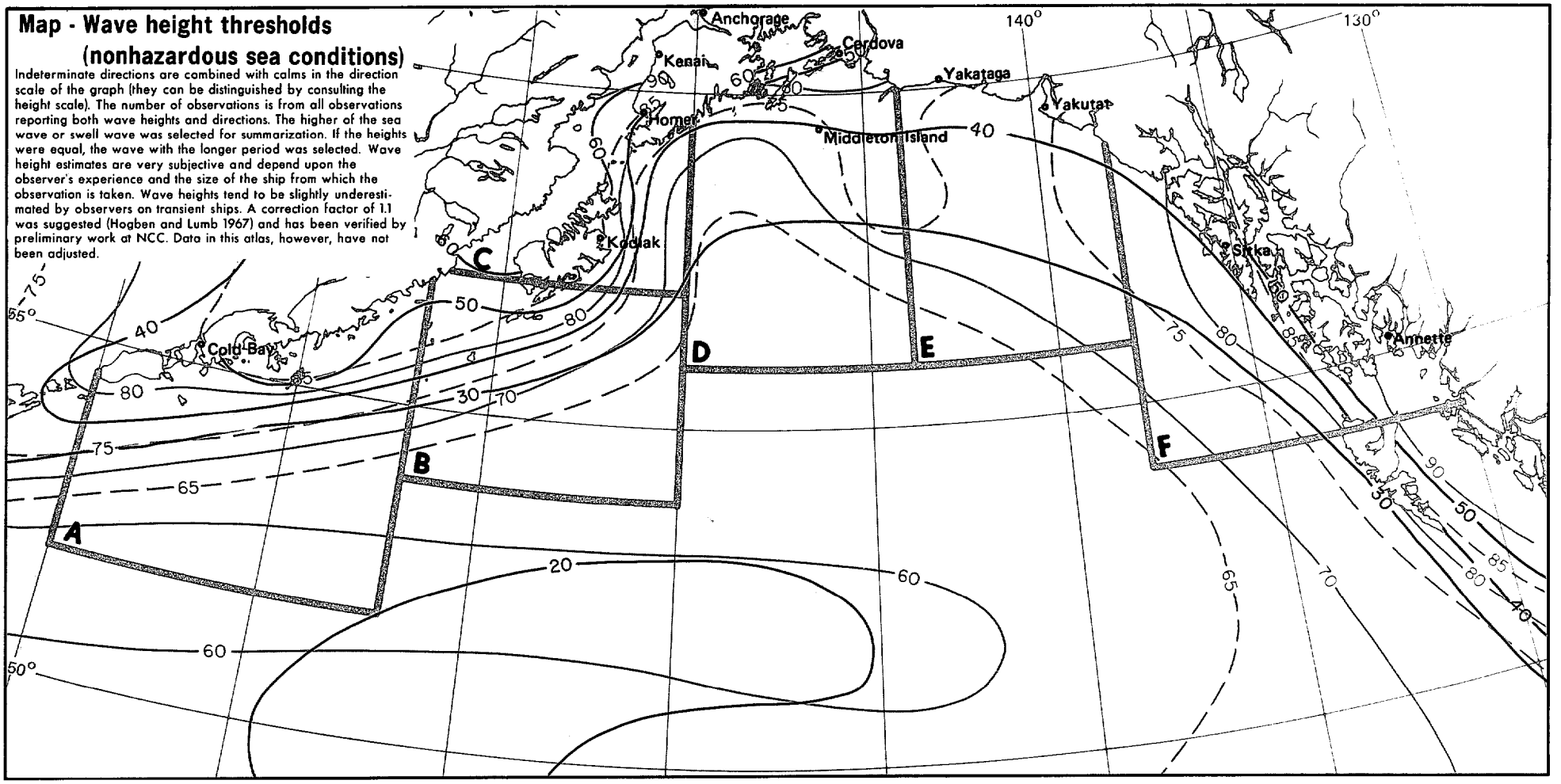


Marine Area B

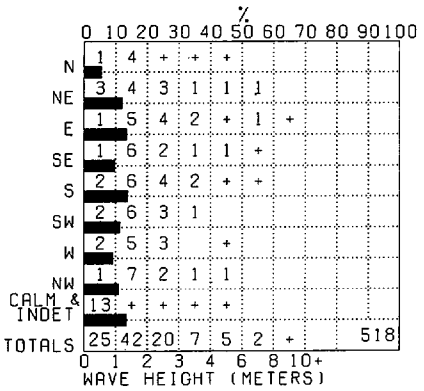


Map - Wave height thresholds (nonhazardous sea conditions)

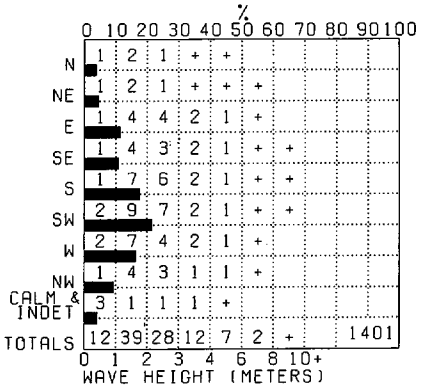
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



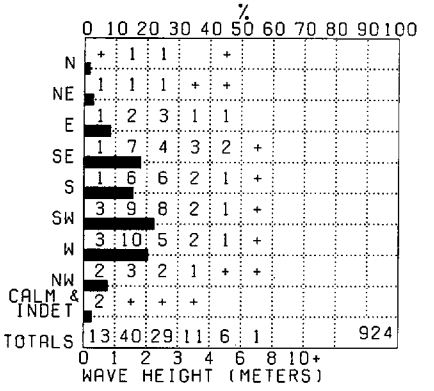
Marine Area C



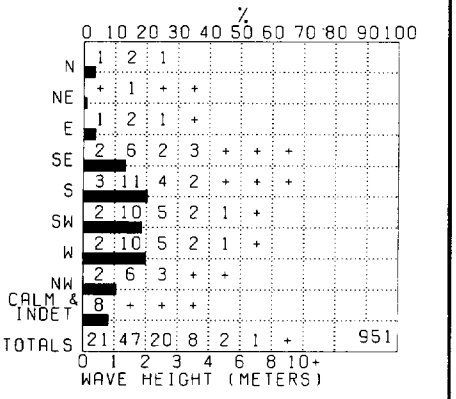
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
.5-1	22	16	6	2	1	+	+
1-1.5	3	6	4	3	1	+	+
1.5-2	+	1	1	1	1	+	+
2-2.5	+	+	+	+	+	+	0
2.5-3	0	+	+	0	0	+	0
3-3.5	0	0	0	+	0	0	0
≥3.5	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	1	+	+	0	0	3
1-1.5	20	14	4	1	1	+	1
2-2.5	6	11	6	2	+	+	1
3-3.5	2	4	3	2	+	+	+
4-5.5	+	2	2	1	1	+	+
6-7.5	0	+	+	+	+	+	0
8-9.5	0	0	+	+	+	0	0
≥10	0	0	0	0	0	0	0

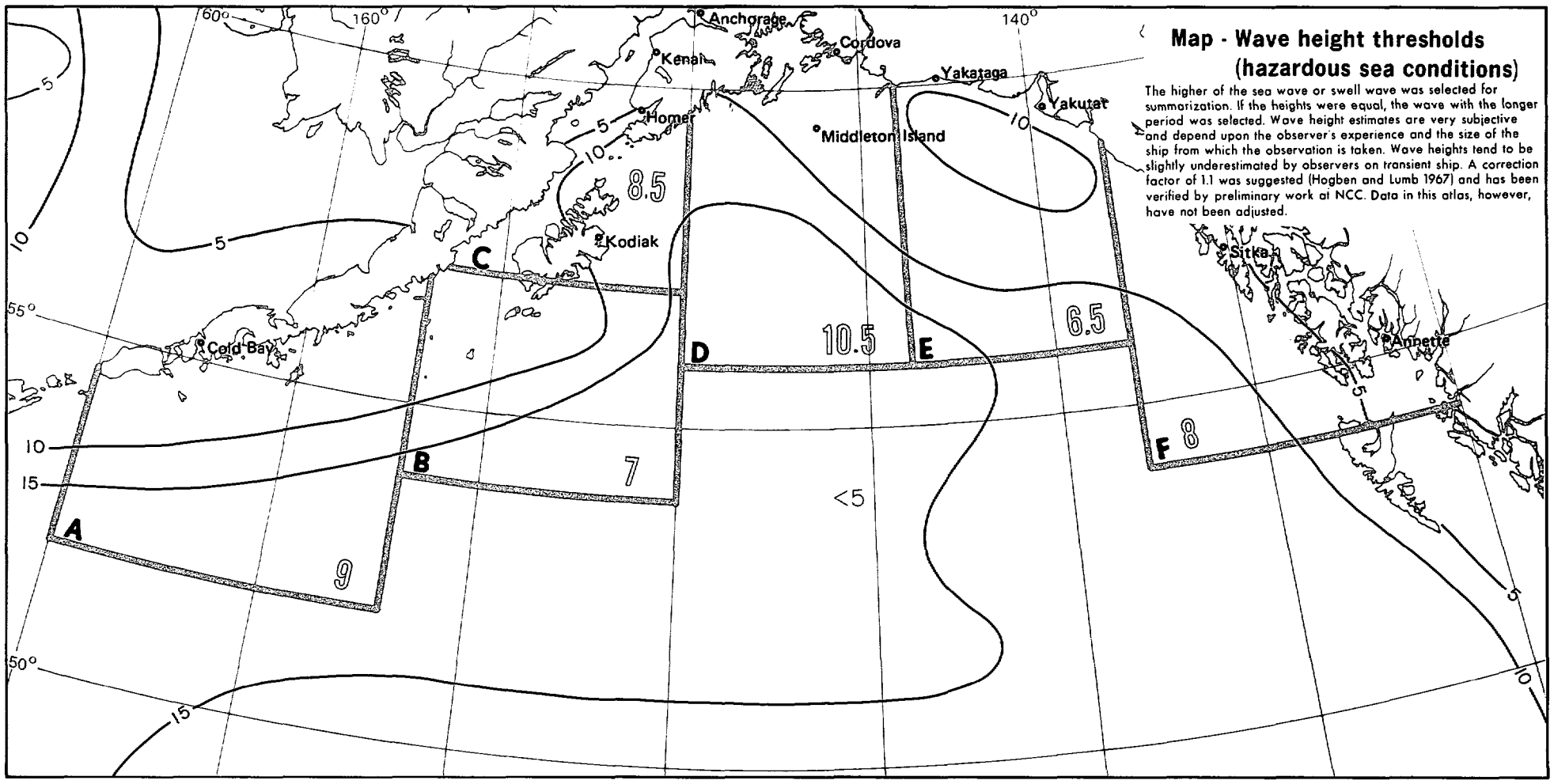
2873

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	10	1	1	+	0	0	4
1-1.5	21	12	3	1	1	+	3
2-2.5	7	9	5	2	1	1	1
3-3.5	1	4	2	2	1	+	+
4-5.5	+	1	2	+	1	+	+
6-7.5	0	+	+	0	+	+	0
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

962



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	1	0	+	0	0	12
1-1.5	27	8	1	1	1	+	1
2-2.5	6	7	4	1	+	+	1
3-3.5	1	2	1	1	+	0	1
4-5.5	1	2	1	1	+	+	+
6-7.5	0	0	1	0	0	1	0
8-9.5	0	0	+	0	0	0	0
≥10	0	0	0	0	0	0	0

553

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	9	1	+	+	0	0	4
1-1.5	20	10	3	2	1	+	1
2-2.5	7	10	5	2	1	1	1
3-3.5	2	4	3	1	1	+	1
4-5.5	1	2	2	1	+	+	0
6-7.5	0	+	1	+	+	+	0
8-9.5	0	0	+	0	0	+	0
≥10	0	0	0	0	0	0	0

1441

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	10	1	1	+	0	0	3
1-1.5	17	13	4	2	1	+	1
2-2.5	7	10	7	3	1	1	+
3-3.5	2	3	2	2	+	1	1
4-5.5	1	2	1	1	1	+	+
6-7.5	0	+	0	0	+	+	+
8-9.5	0	0	0	0	0	0	0
≥10	0	0	0	0	0	0	0

949

Marine Area F

PERIOD (SECONDS)

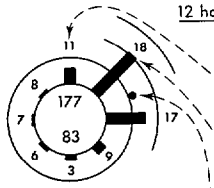
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	16	1	+	+	0	0	9
1-1.5	20	15	5	1	2	+	1
2-2.5	4	5	5	2	1	1	+
3-3.5	1	2	2	1	1	+	+
4-5.5	+	1	+	+	+	+	0
6-7.5	0	+	+	+	+	+	0
8-9.5	0	+	+	0	0	0	0
≥10	0	0	0	0	0	0	0

1029

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.



Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

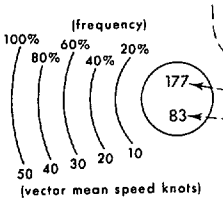
(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)

Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

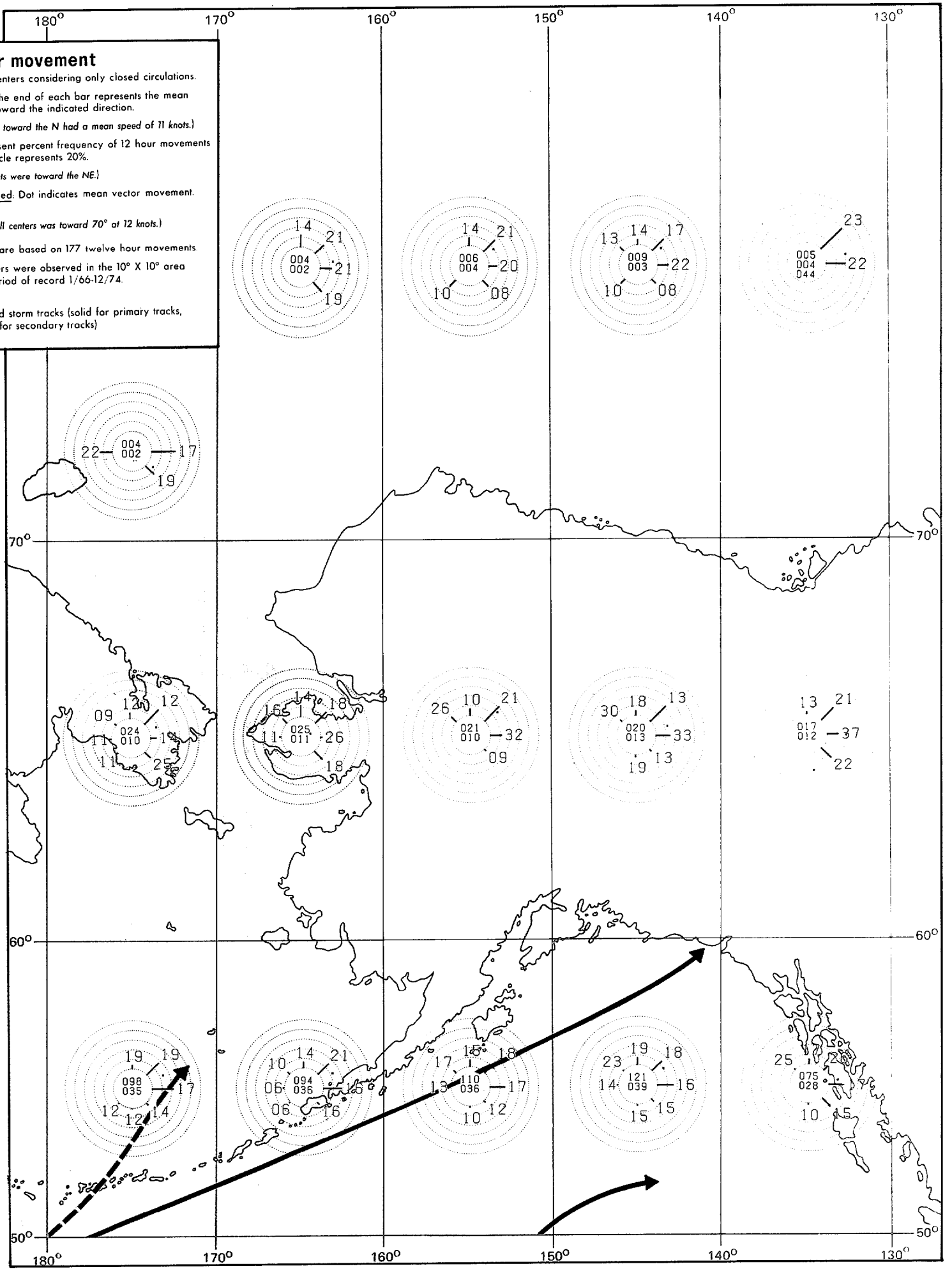
(Mean vector movement of all centers was toward 70° at 12 knots.)



177 — Statistics for this rose are based on 177 twelve hour movements.

83 — 83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1/66-12/74.

BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)

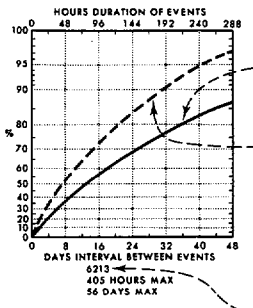


18 Low pressure center movement

Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

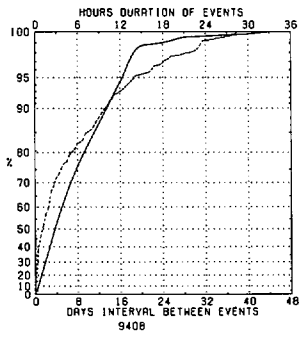
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

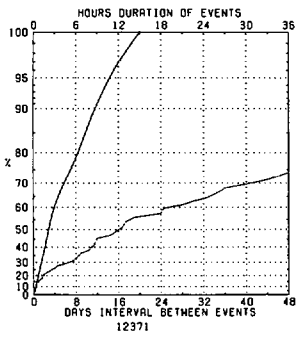
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

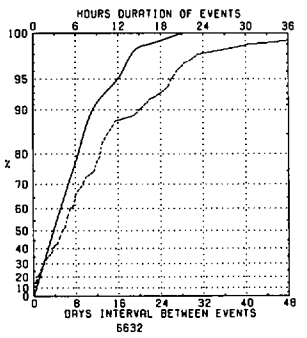
Kodiak



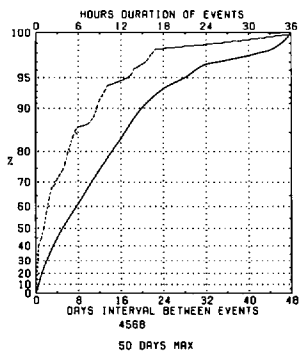
Homer



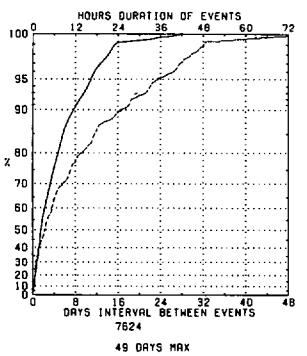
Kenai



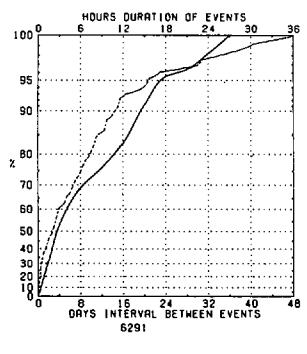
Middleton Island



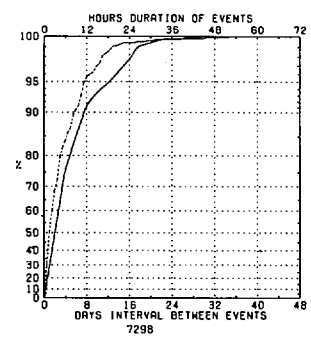
Cordova



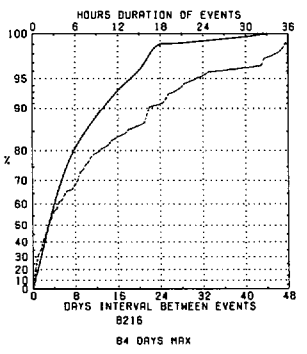
Yakataga



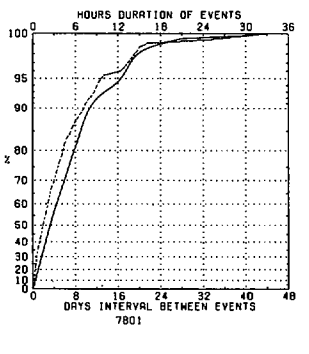
Yakutat



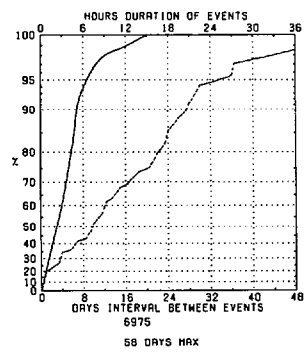
Sitka



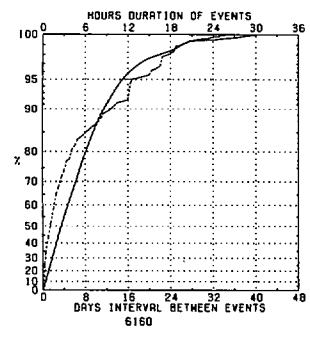
Annette



Anchorage



Cold Bay

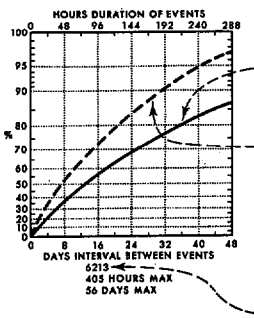


19 Persistence of visibility < 2 n. mi.

Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

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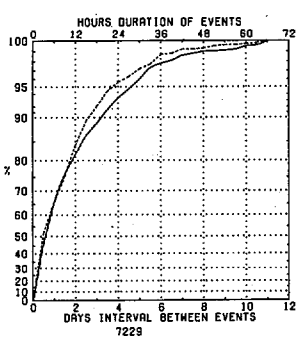
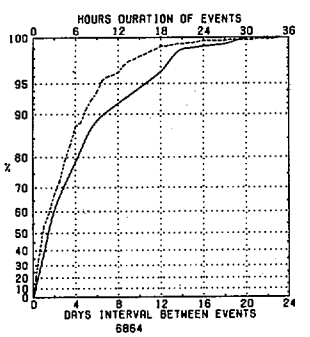
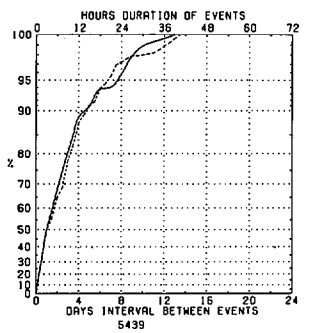
Kodiak



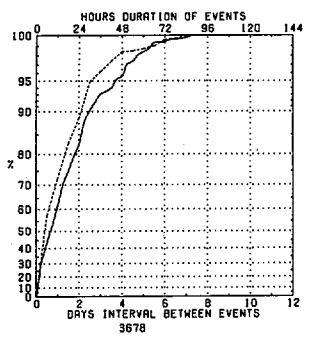
Homer



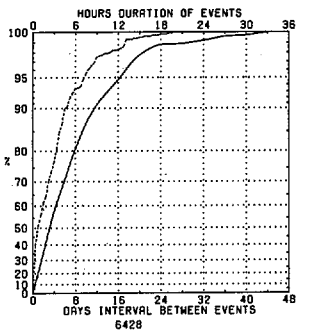
Kenai



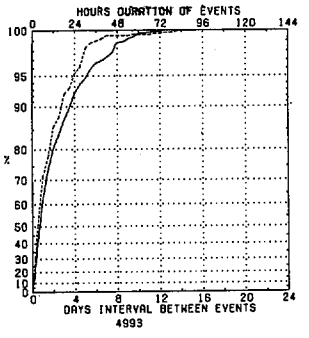
Middleton Island



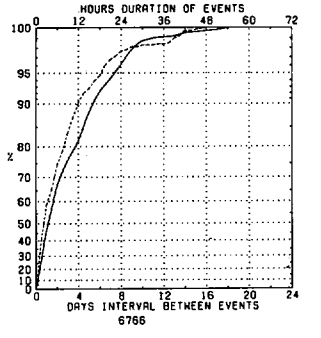
Cordova



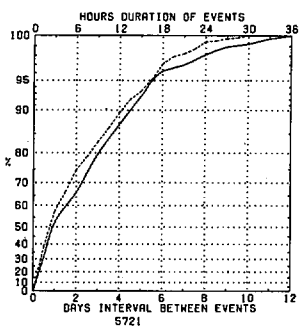
Yakataga



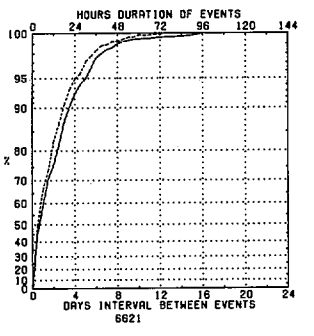
Yakutat



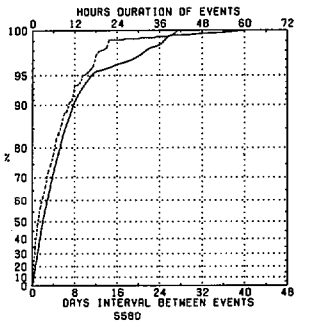
Sitka



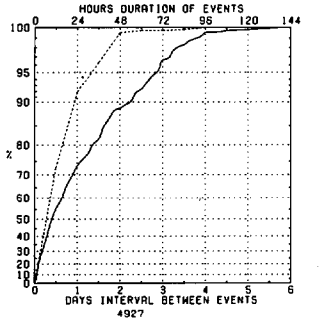
Annette



Anchorage



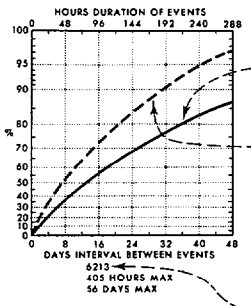
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



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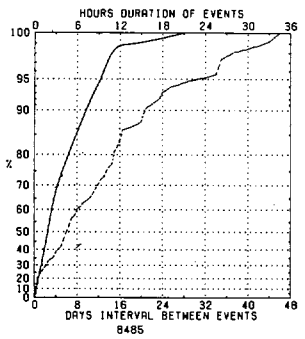
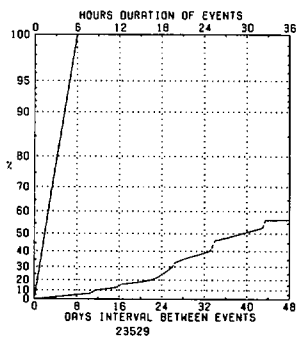
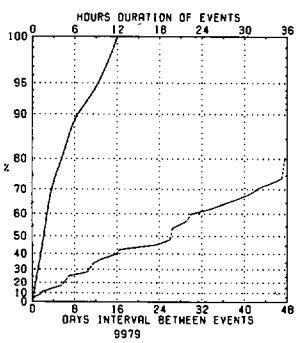
Kodiak



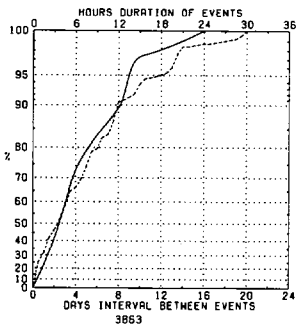
Homer



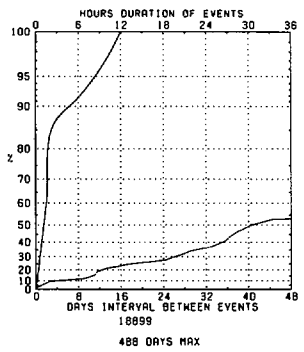
Kenai



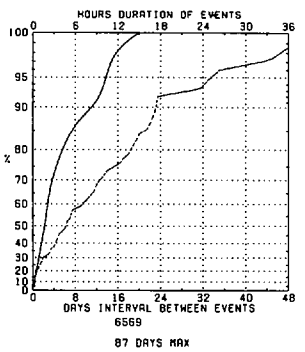
Middleton Island



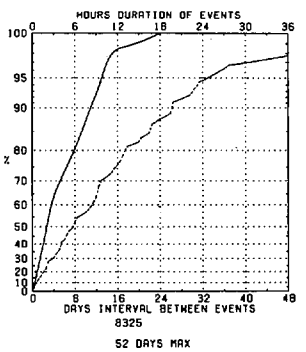
Cordova



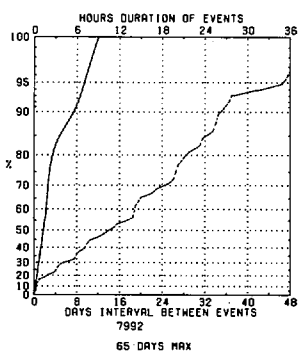
Yakataga



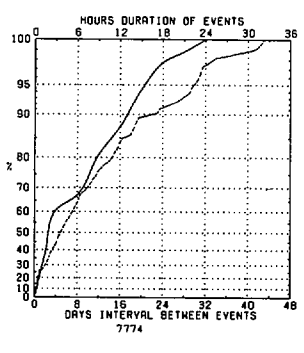
Yakutat



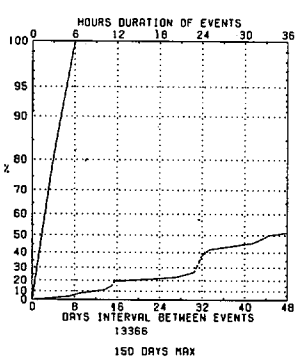
Sitka



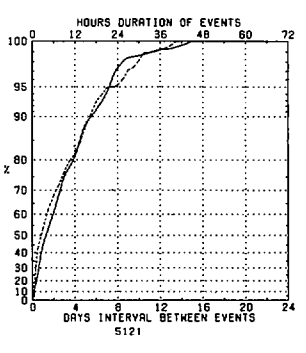
Annette



Anchorage



Cold Bay

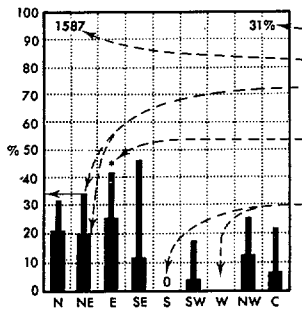


Legend

Precipitation/wind direction

% Pcpn. { % Liquid / % Snow

Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.



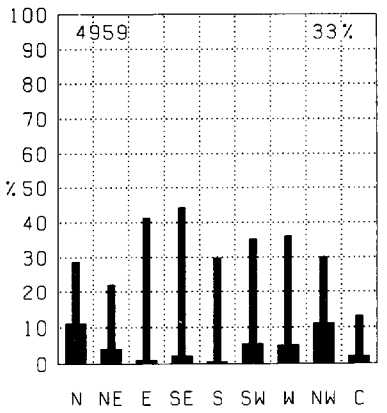
- Percentage of present weather observations reporting precipitation.
- Number of observations.
- *(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)*
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

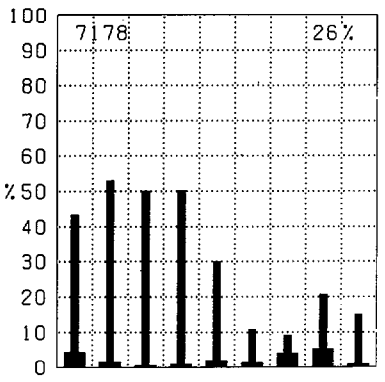
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

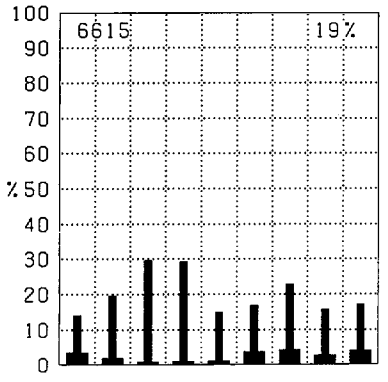
Cold Bay



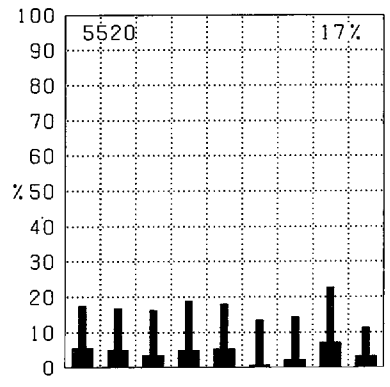
Kodiak



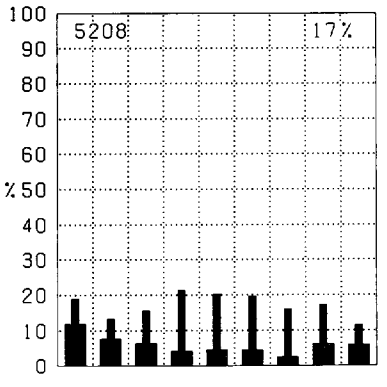
Homer



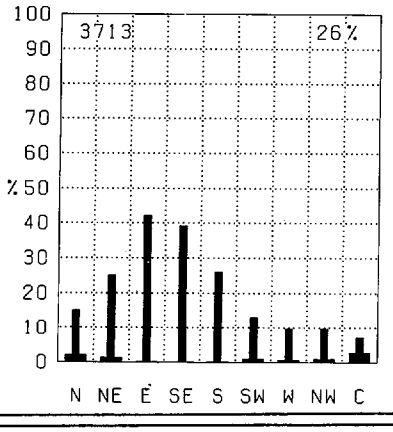
Kenai



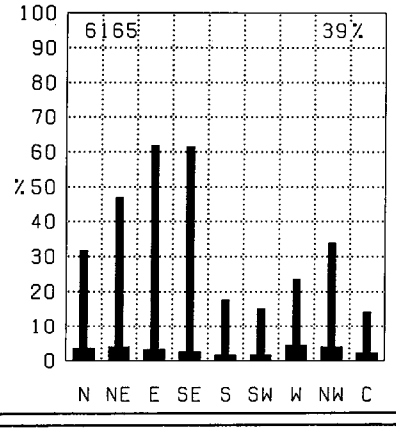
Anchorage



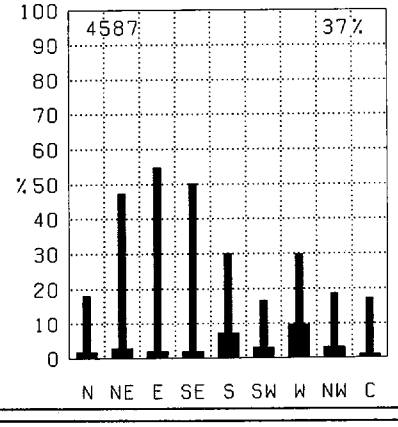
Middleton Island



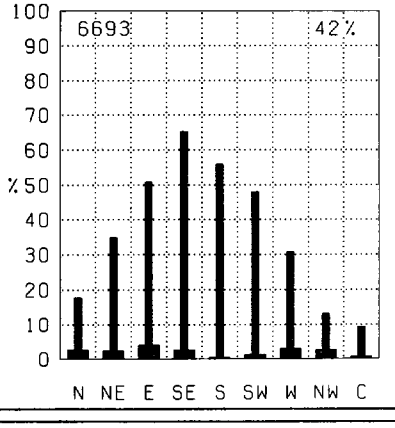
Cordova



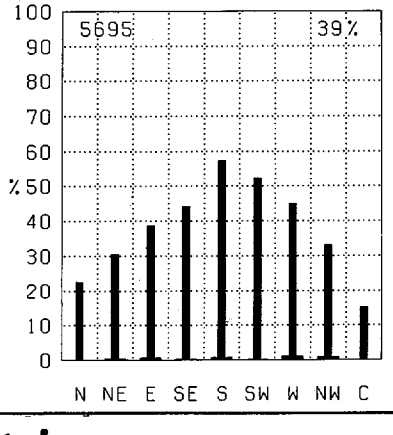
Yakataga



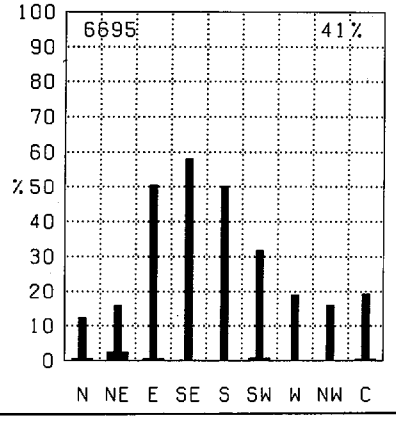
Yakutat



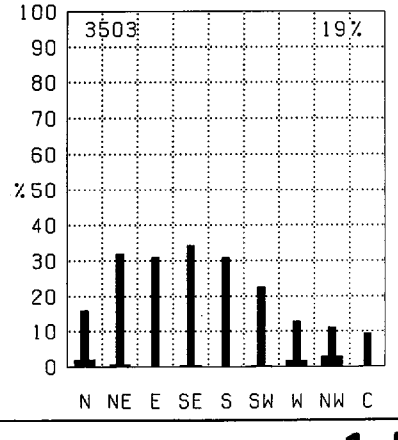
Sitka



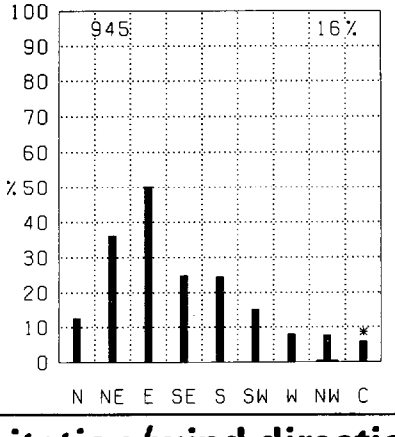
Annette

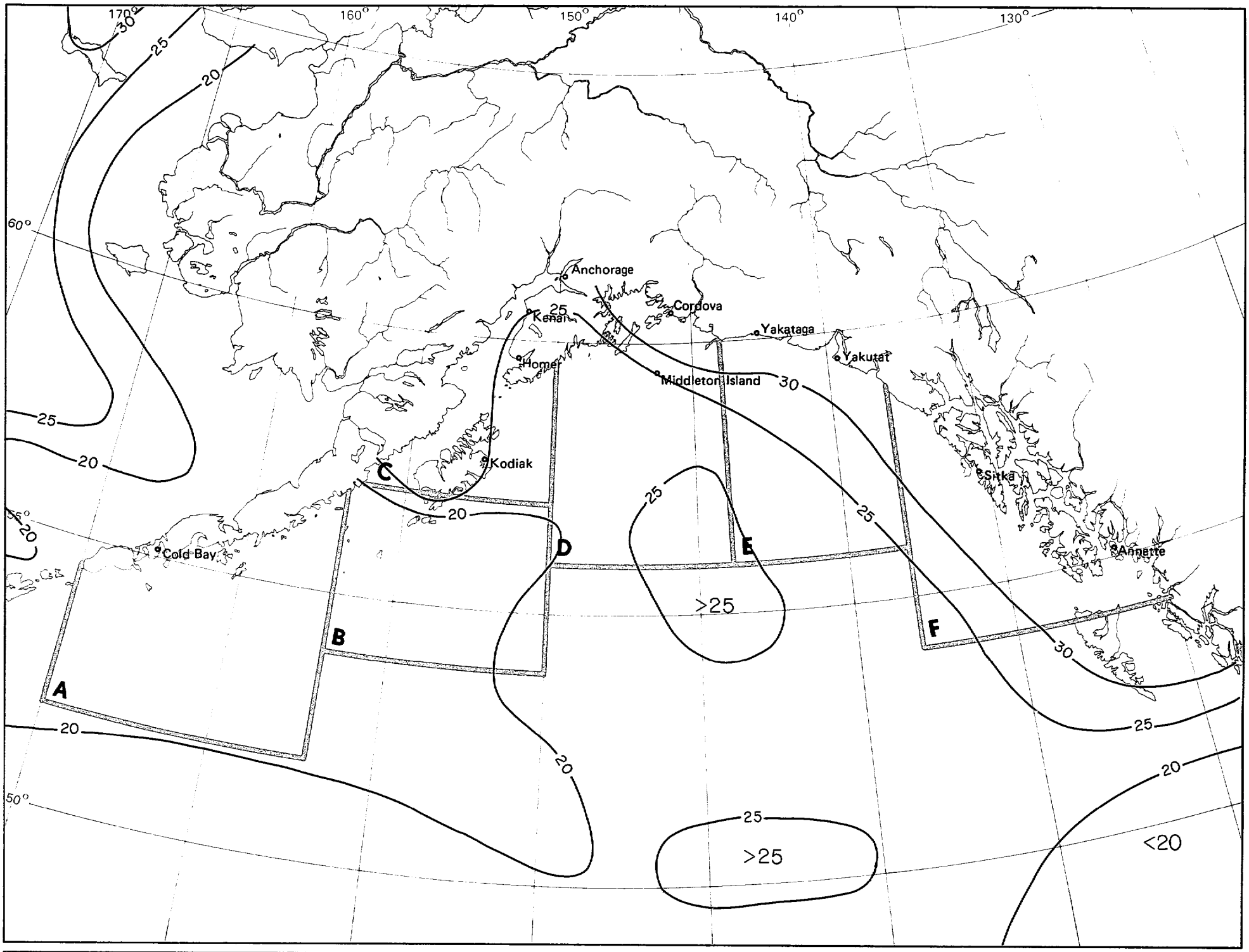


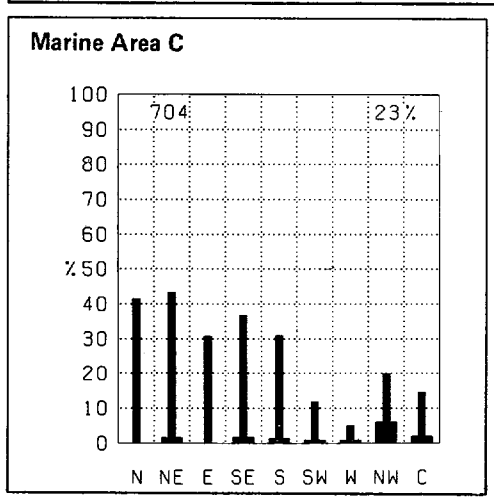
Marine Area A

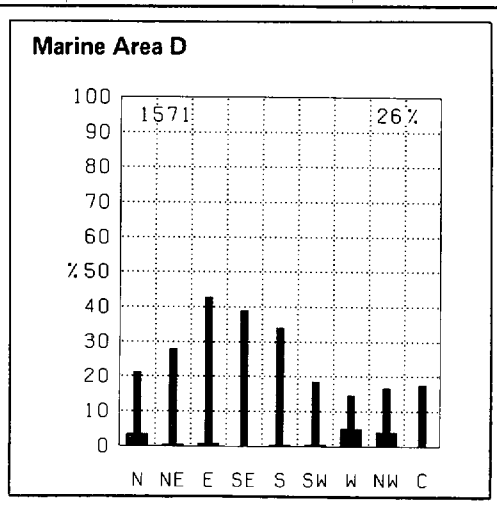


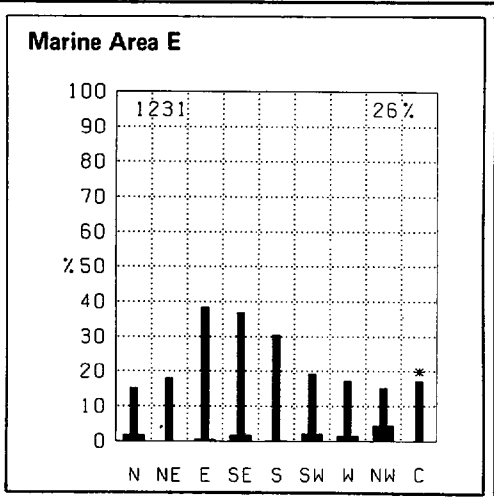
Marine Area B

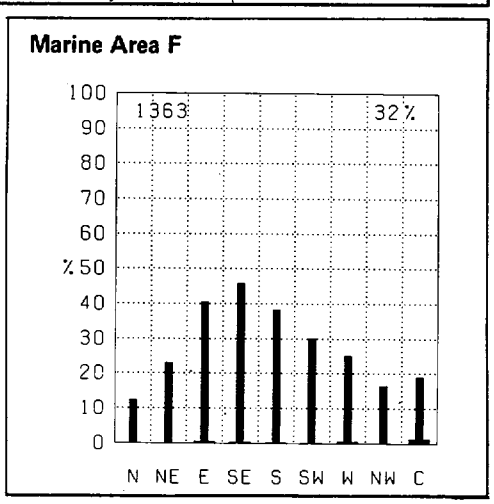



170°
160°
150°
140°
130°
60°
50°
30
25
20
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
>25
<20


Marine Area C
704
23%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

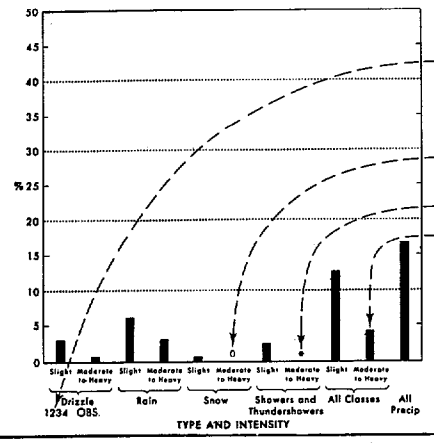

Marine Area D
1571
26%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
1231
26%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1363
32%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

• indicates <.05% but >0.

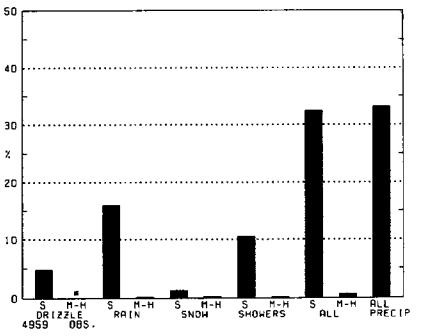
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

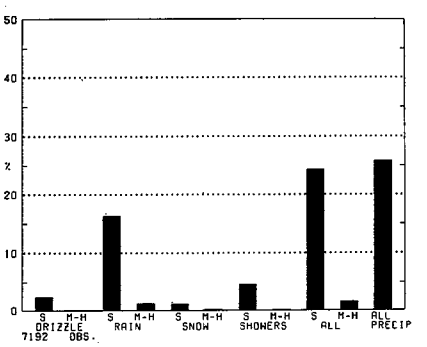
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

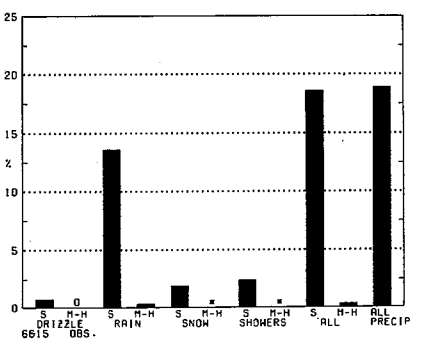
Cold Bay



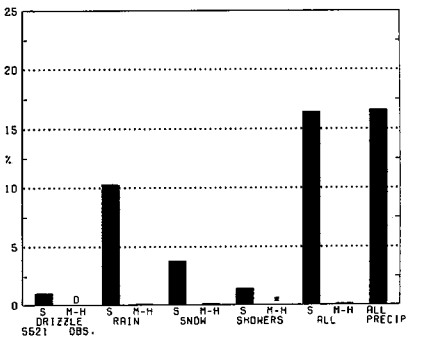
Kodiak



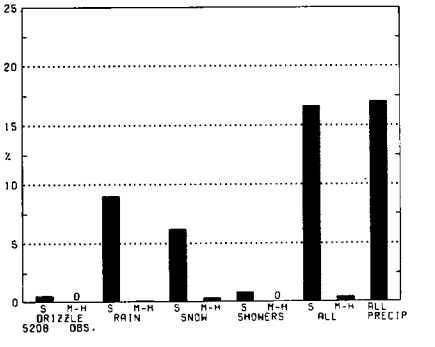
Homer



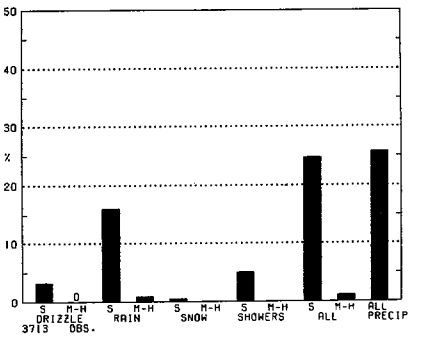
Kenai



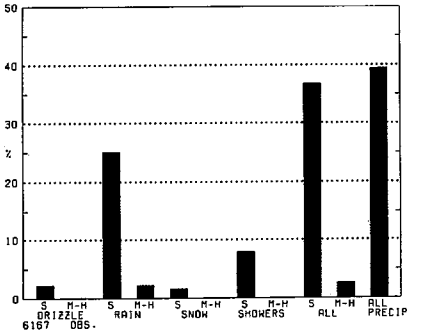
Anchorage



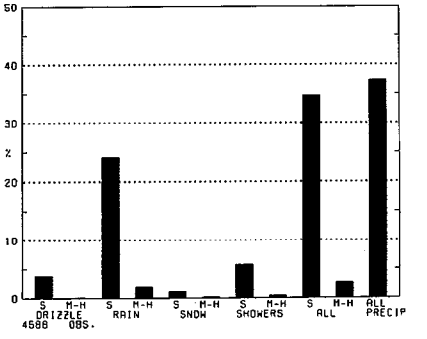
Middleton Island



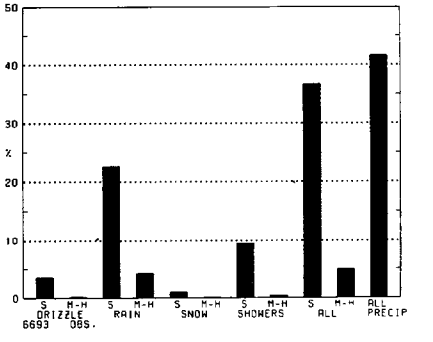
Cordova



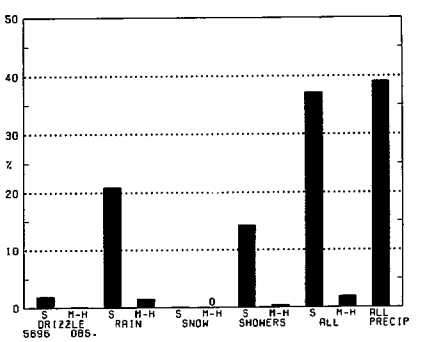
Yakataga



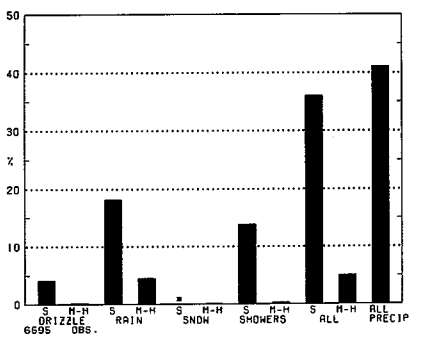
Yakutat



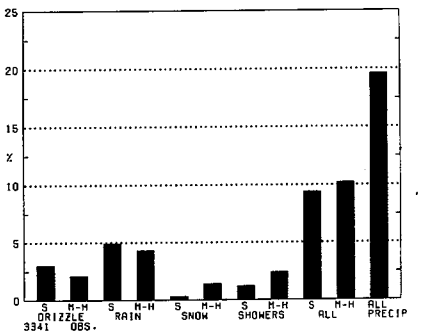
Sitka



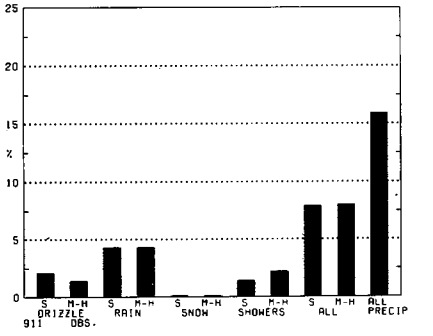
Annette

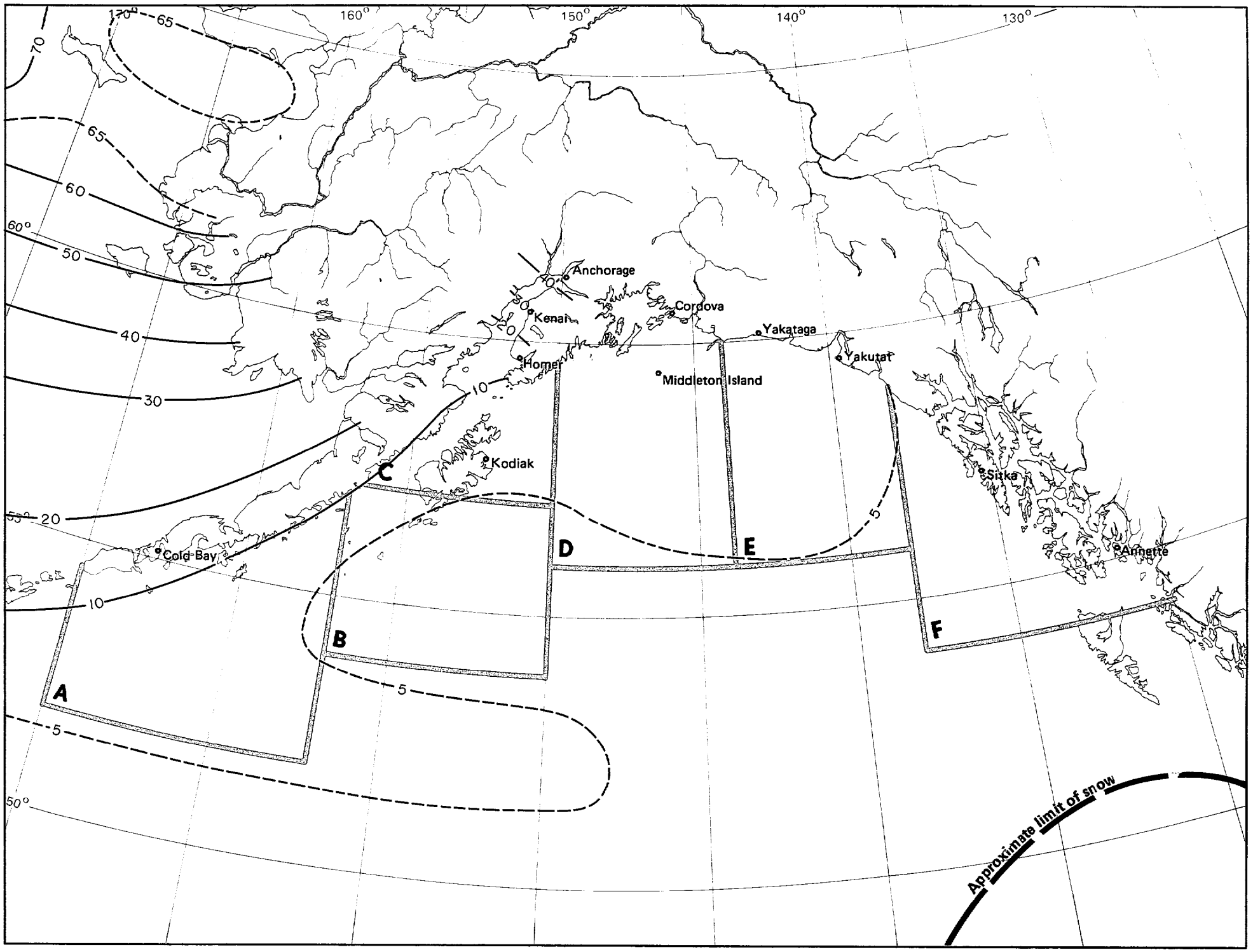


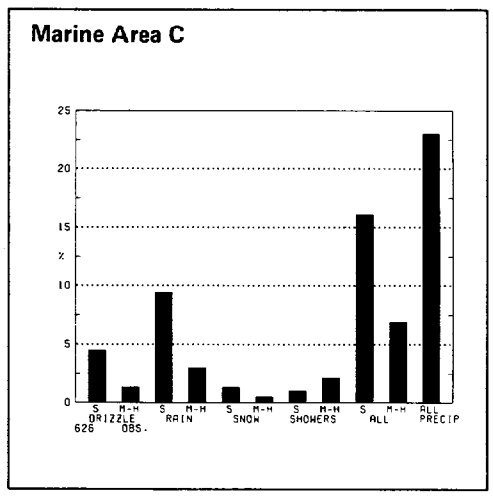
Marine Area A

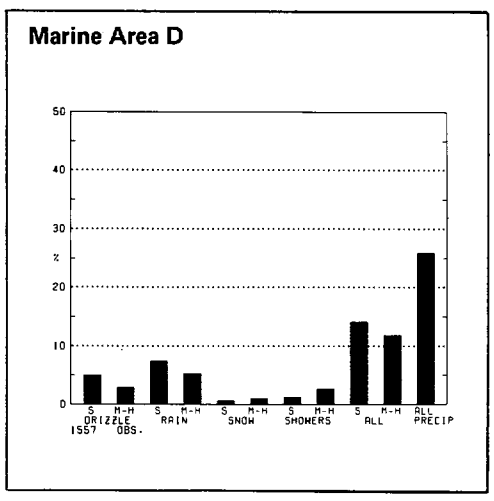


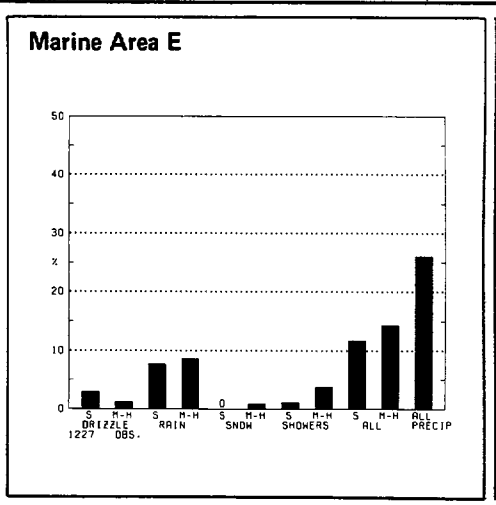
Marine Area B

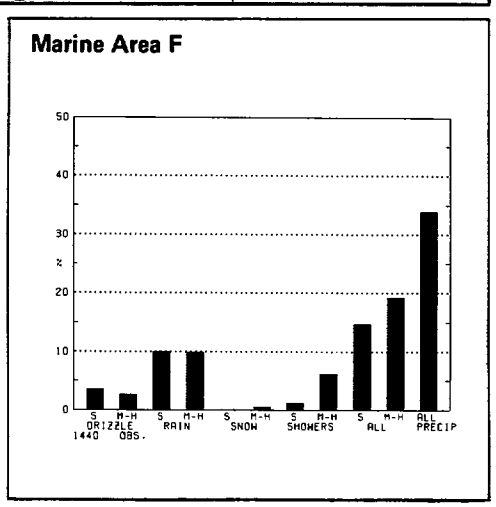



170°
160°
150°
140°
130°
70
65
60
60°
50
40
30
20
55°
10
5
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F
50°
Approximate limit of snow


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 626
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

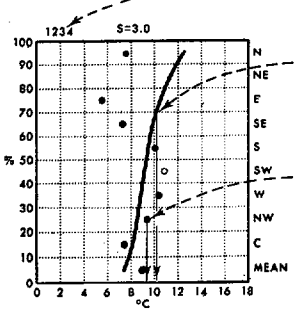

Marine Area D
50
40
30
%
20
10
0
S DRIZZLE 1557
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
50
40
30
%
20
10
0
S DRIZZLE 1227
M-H OBS.
S RAIN
M-H
S SNOW
0
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
50
40
30
%
20
10
0
S DRIZZLE 1440
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S = Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

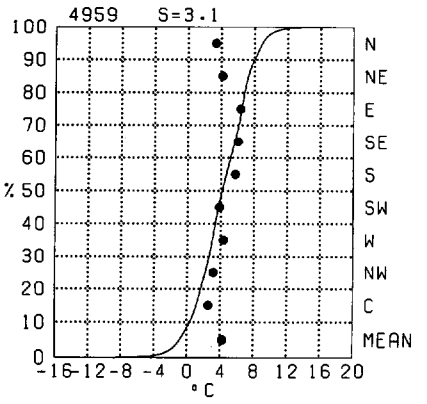
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

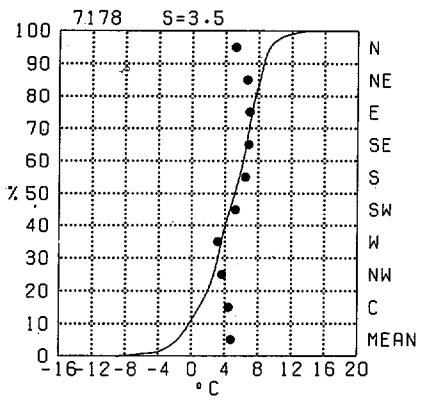
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

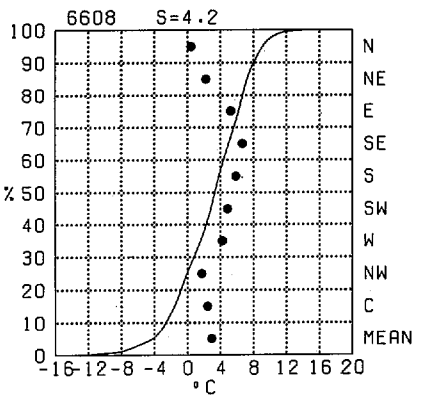
Cold Bay



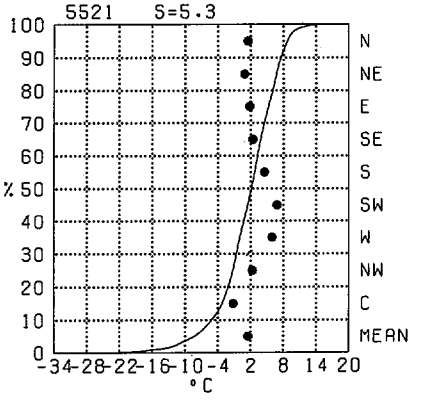
Kodiak



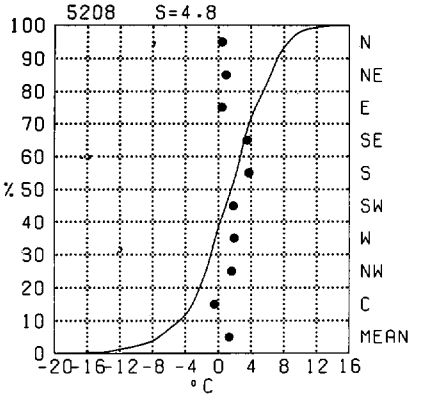
Homer



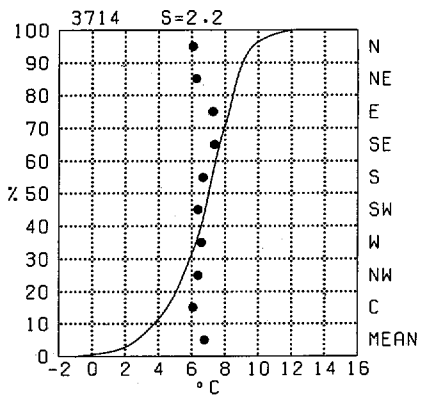
Kenai



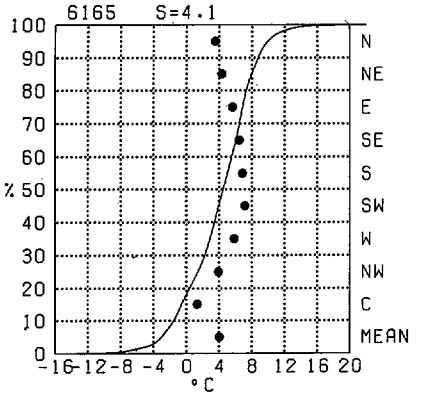
Anchorage



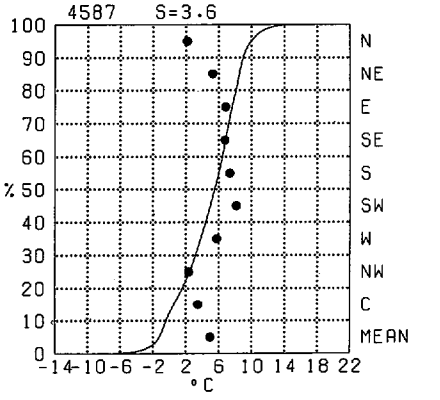
Middleton Island



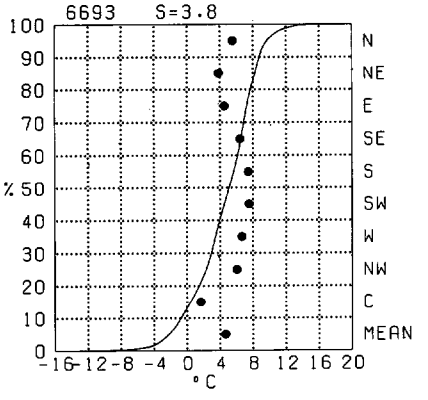
Cordova



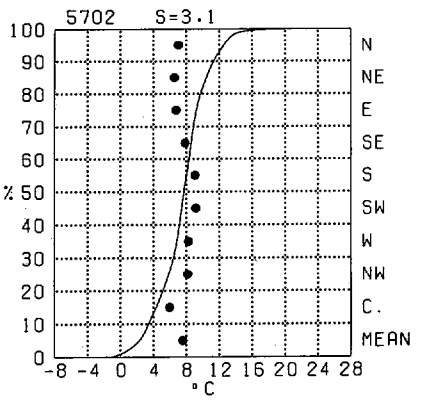
Yakataga



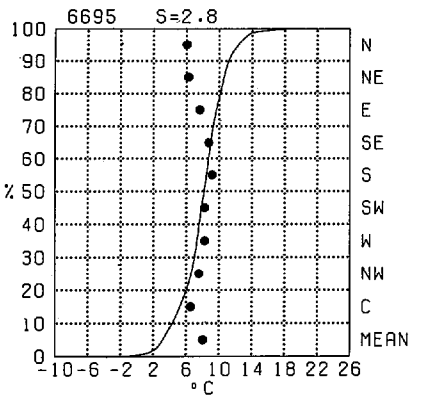
Yakutat



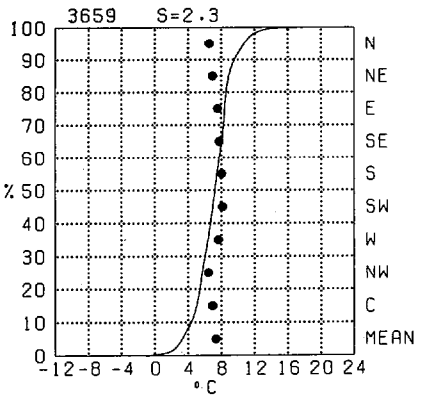
Sitka



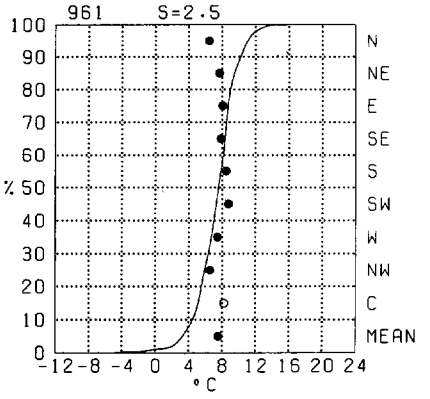
Annette

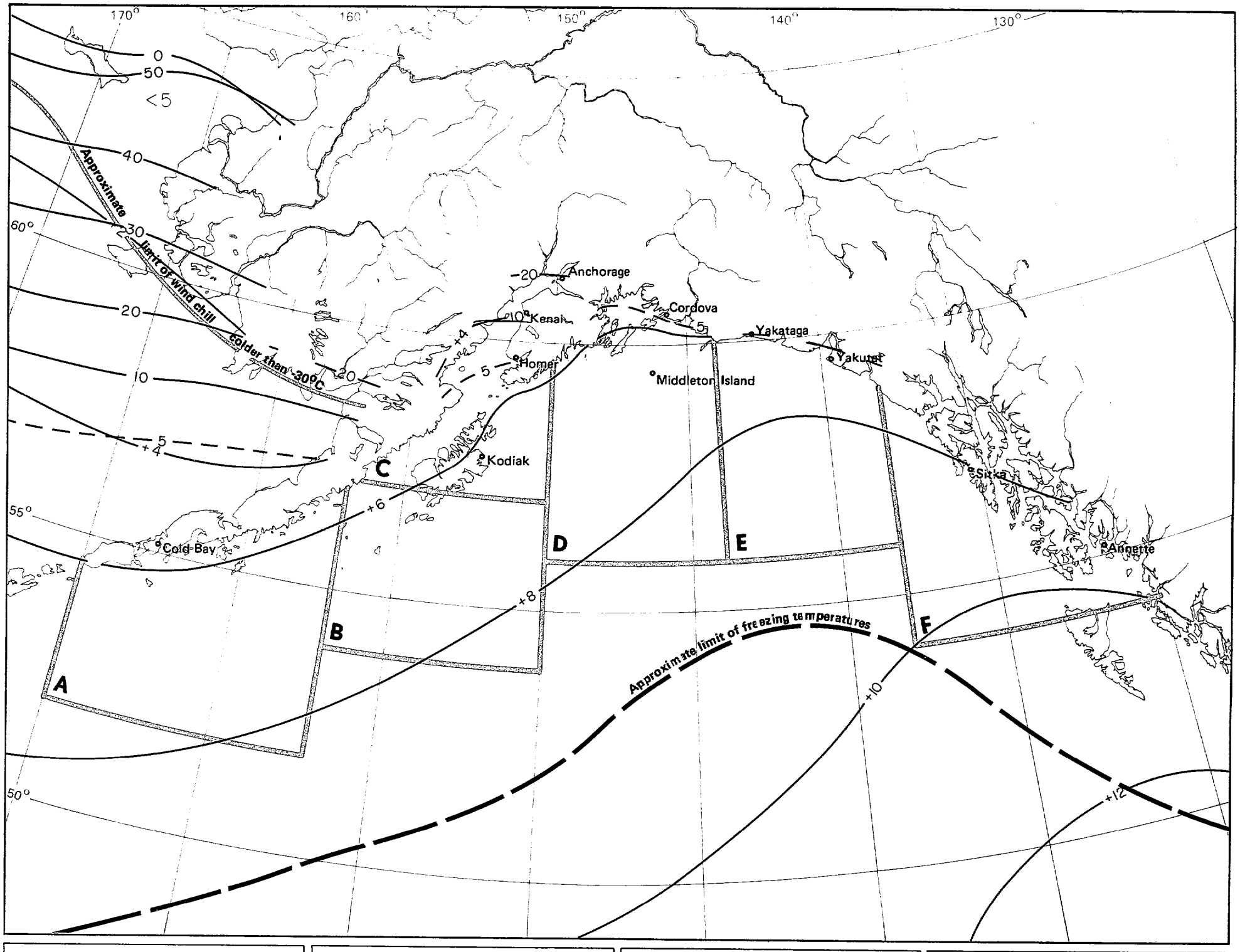


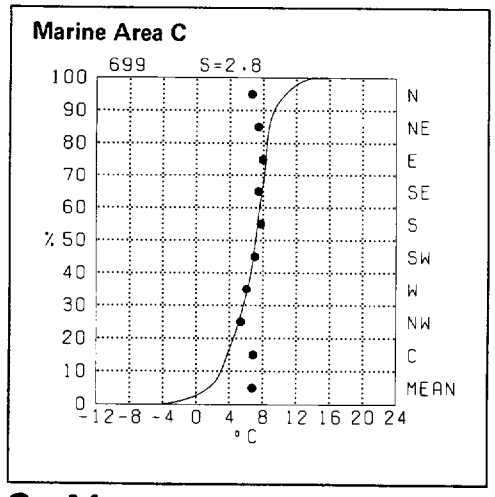
Marine Area A

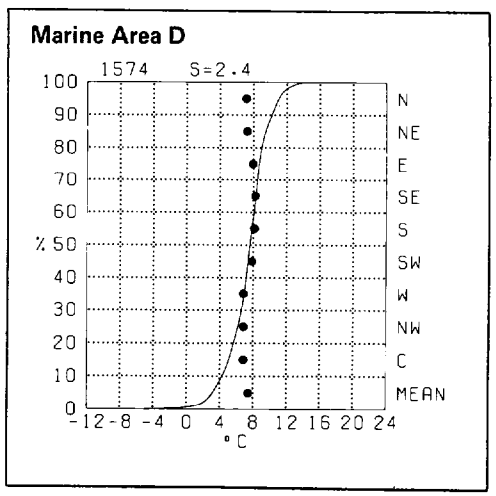


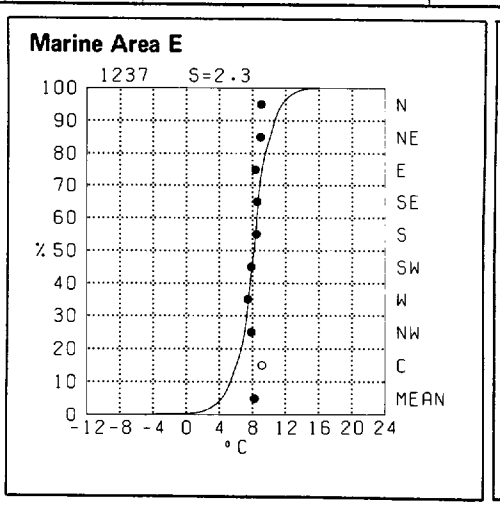
Marine Area B

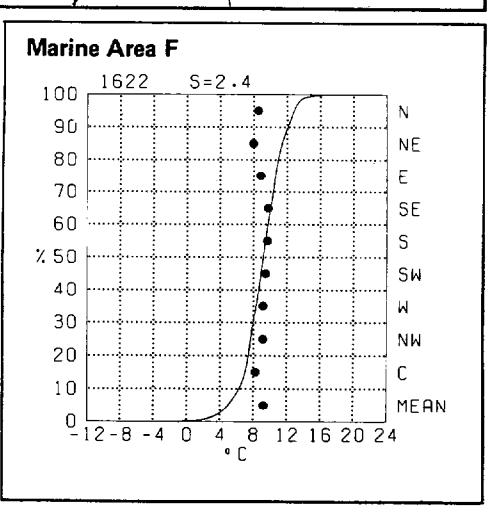










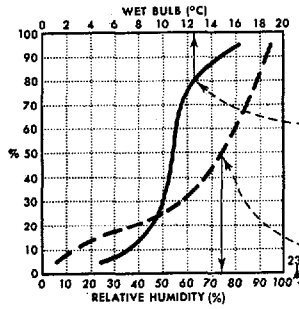


3 Air temperature mean and thresholds

October

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (tap scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

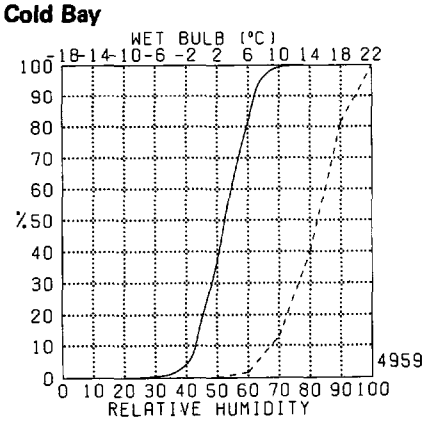
Number of observations.

Map - Mean dew point temperature

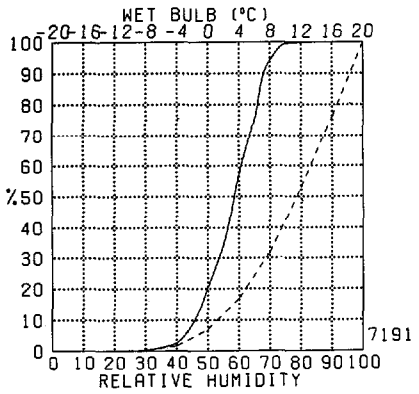
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

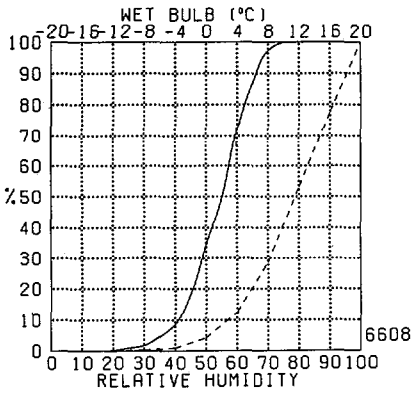
Cold Bay



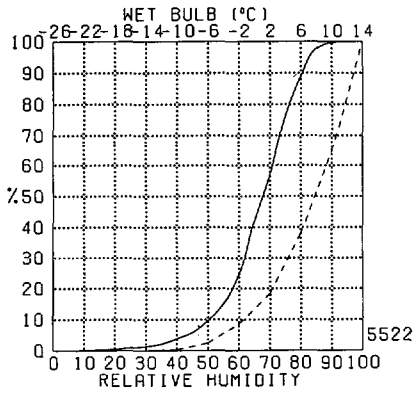
Kodiak



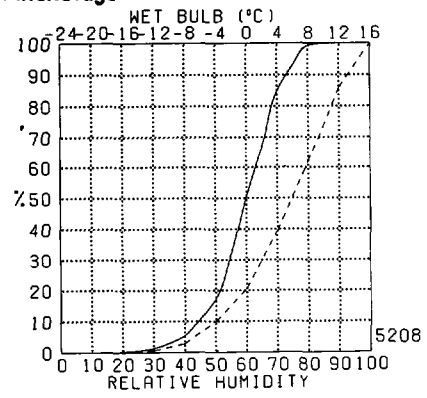
Homer



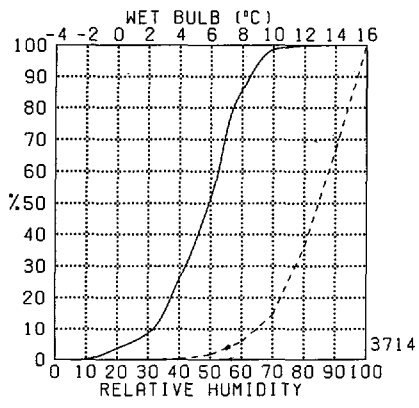
Kenai



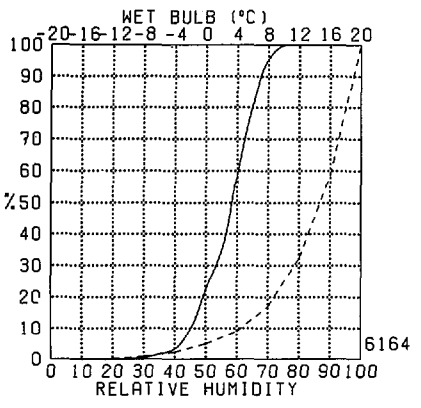
Anchorage



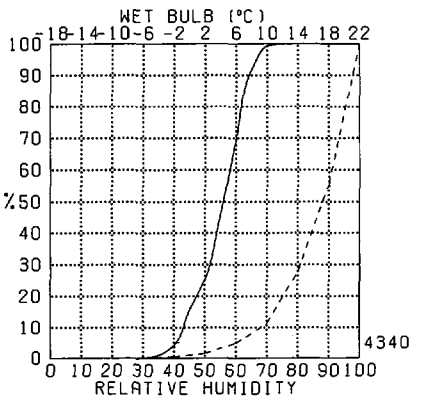
Middleton Island



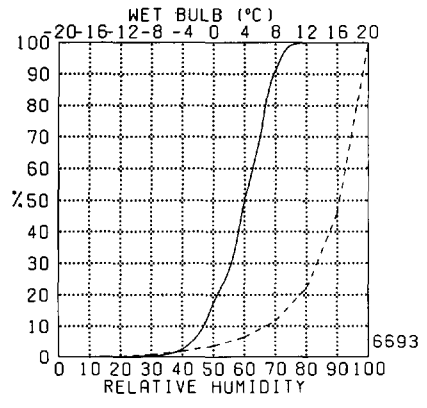
Cordova



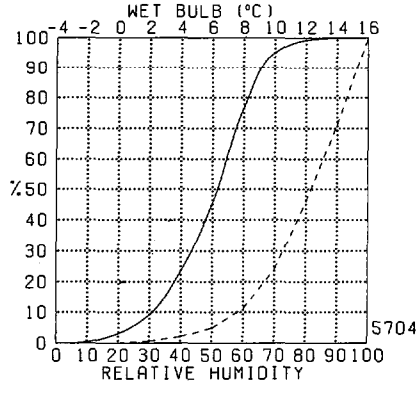
Yakataga



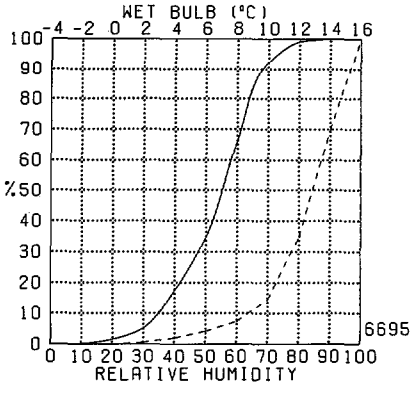
Yakutat



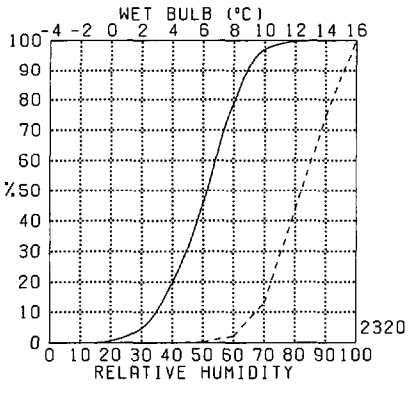
Sitka



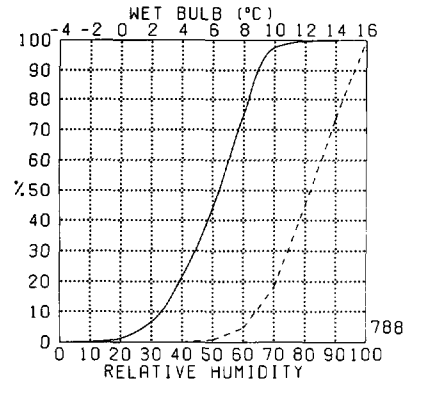
Annette

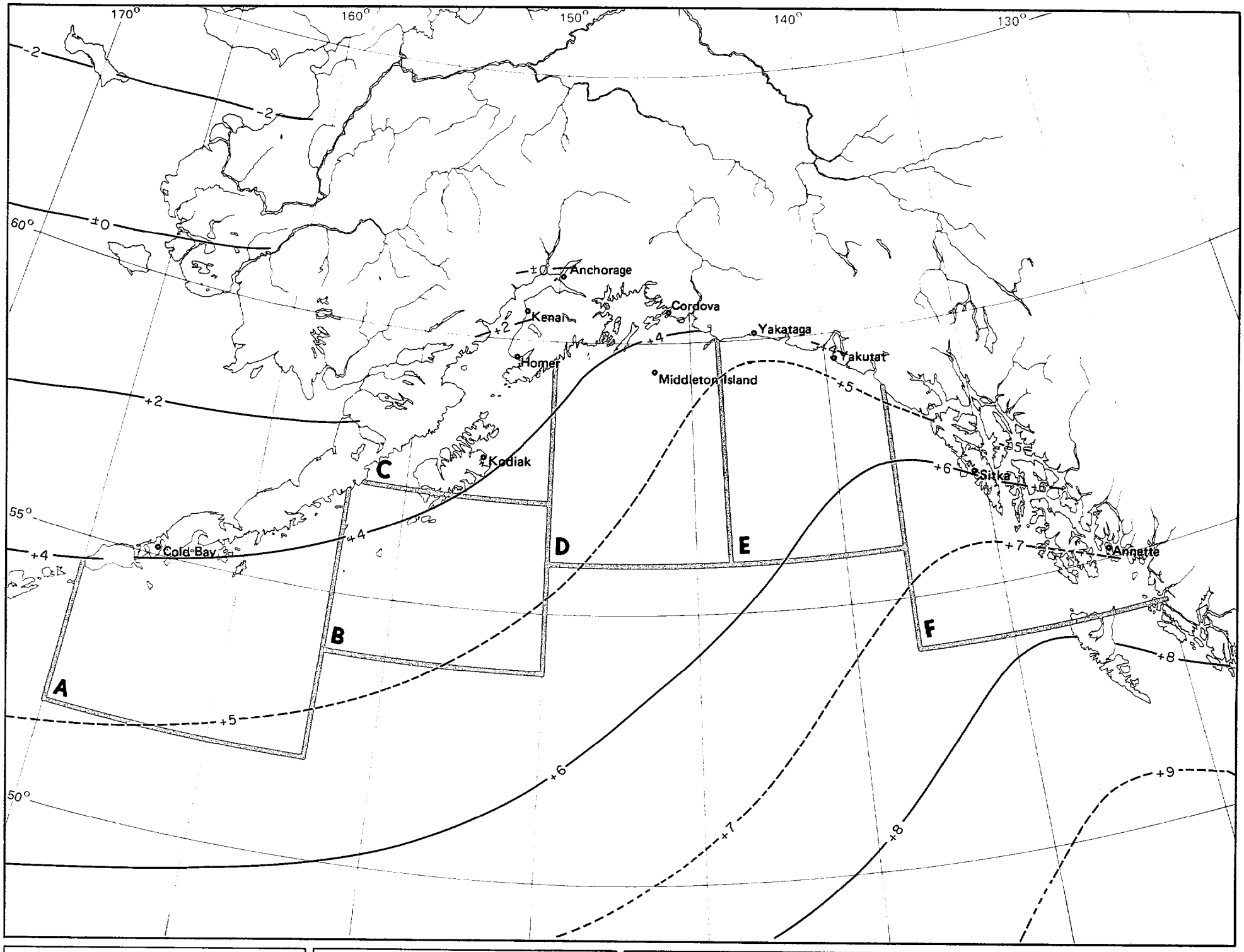


Marine Area A

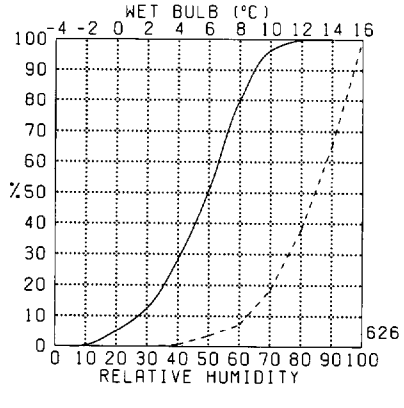


Marine Area B

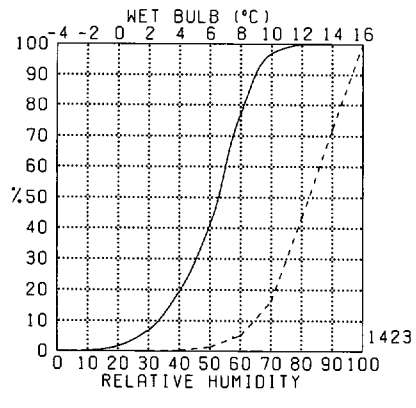




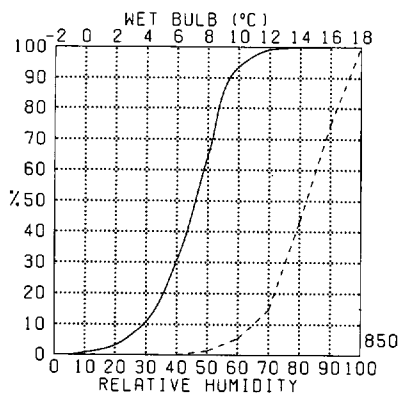
Marine Area C



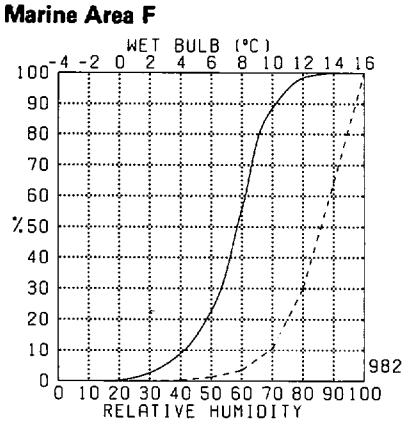
Marine Area D



Marine Area E



Marine Area F

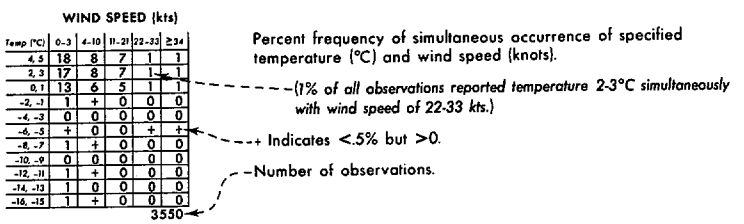


4 Mean dew point temperature

October

Legend

Air temperature/wind speed



Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value),

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	0	+	0	+
14.15	0	+	0	+	0
12.13	0	+	+	+	+
10.11	+	1	1	1	+
8.9	+	2	5	3	+
6.7	1	6	13	5	+
4.5	1	5	9	3	+
2.3	1	8	12	4	+
0.1	1	4	4	2	0
-2.-1	+	2	1	1	+
≤-3	+	1	1	+	0

4959

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	+	+	0	0
14.15	+	+	+	+	0
12.13	+	1	+	+	0
10.11	1	2	1	+	0
8.9	3	8	6	1	+
6.7	6	11	8	2	+
4.5	4	7	5	1	+
2.3	4	7	5	1	+
0.1	2	3	2	+	+
-2.-1	2	3	1	+	+
≤-3	1	2	1	+	+

7178

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18.19	+	0	0	0	0
16.17	0	0	0	0	0
14.15	0	+	+	0	0
12.13	+	+	+	+	0
10.11	1	1	1	+	0
8.9	2	5	2	+	0
6.7	5	10	4	+	0
4.5	5	8	3	+	0
2.3	7	9	2	+	0
0.1	5	6	1	+	0
≤-1	8	13	1	+	0

6608

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	+	0	0	0
14.15	0	+	+	0	0
12.13	+	1	+	0	0
10.11	+	1	1	0	0
8.9	1	4	2	+	0
6.7	2	8	4	+	0
4.5	2	8	3	+	0
2.3	4	10	4	+	0
0.1	4	8	2	+	0
-2.-1	3	6	1	+	0
≤-3	8	10	1	0	0

5521

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	+	+	+	0
12.13	+	+	+	+	0
10.11	+	1	1	+	0
8.9	1	3	2	+	0
6.7	3	7	2	+	0
4.5	3	8	1	+	0
2.3	6	12	1	+	0
0.1	6	8	1	+	0
-2.-1	5	8	1	+	0
-4.-3	4	5	1	0	0
≤-5	5	4	1	0	0

5208

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	+	0	0	0
12.13	+	+	+	+	+
10.11	+	2	3	1	+
8.9	2	10	14	4	1
6.7	3	14	16	5	1
4.5	2	7	4	1	+
2.3	1	3	3	1	+
0.1	+	+	1	+	0
-2.-1	+	+	+	+	0
-4.-3	0	0	0	0	0
-6.-5	0	0	0	0	0

3714

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	+	0	0	0	0
18.19	+	+	0	0	0
16.17	+	+	+	+	0
14.15	+	+	+	+	0
12.13	+	1	1	+	0
10.11	1	2	1	+	0
8.9	3	6	3	+	0
6.7	6	12	4	+	0
4.5	6	9	2	+	+
2.3	8	7	1	+	0
≤1	19	5	+	0	0

6165

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	0	+	+	0	0
12.13	+	1	1	+	0
10.11	1	2	3	1	+
8.9	3	6	8	1	+
6.7	5	10	10	1	+
4.5	5	8	4	+	0
2.3	5	7	1	+	0
0.1	4	5	+	+	0
-2.-1	4	4	+	0	0
-4.-3	+	1	0	0	0
≤-5	+	+	0	0	0

4587

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	+	0	0	0
14.15	+	+	+	0	0
12.13	+	1	+	0	0
10.11	1	2	2	1	+
8.9	2	7	5	1	+
6.7	4	14	6	1	+
4.5	3	10	4	+	+
2.3	5	9	2	+	+
0.1	4	5	+	0	0
-2.-1	4	2	+	0	0
≤-3	3	1	0	0	0

6693

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	0	+	0	0
18.19	0	0	+	0	0
16.17	+	+	+	+	0
14.15	+	+	1	+	+
12.13	1	3	3	+	0
10.11	3	7	5	1	+
8.9	5	13	8	1	+
6.7	6	13	6	1	+
4.5	4	5	1	+	0
2.3	4	4	1	+	0
≤1	2	1	+	0	0

5702

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
20.21	0	+	0	0	0
18.19	0	+	+	0	0
16.17	+	+	+	+	0
14.15	+	+	+	+	+
12.13	1	3	3	1	+
10.11	1	8	9	2	+
8.9	3	14	11	3	+
6.7	3	13	6	2	+
4.5	2	5	2	+	+
2.3	1	3	1	+	0
≤1	+	1	+	0	0

6695

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	+	+	0
14.15	+	+	+	+	0
12.13	+	+	1	1	+
10.11	+	3	5	3	1
8.9	1	7	14	10	2
6.7	1	5	13	10	4
4.5	1	3	5	4	2
2.3	+	1	1	1	1
0.1	0	+	+	+	+
-2.-1	0	0	0	0	+
-4.-3	0	0	0	0	0

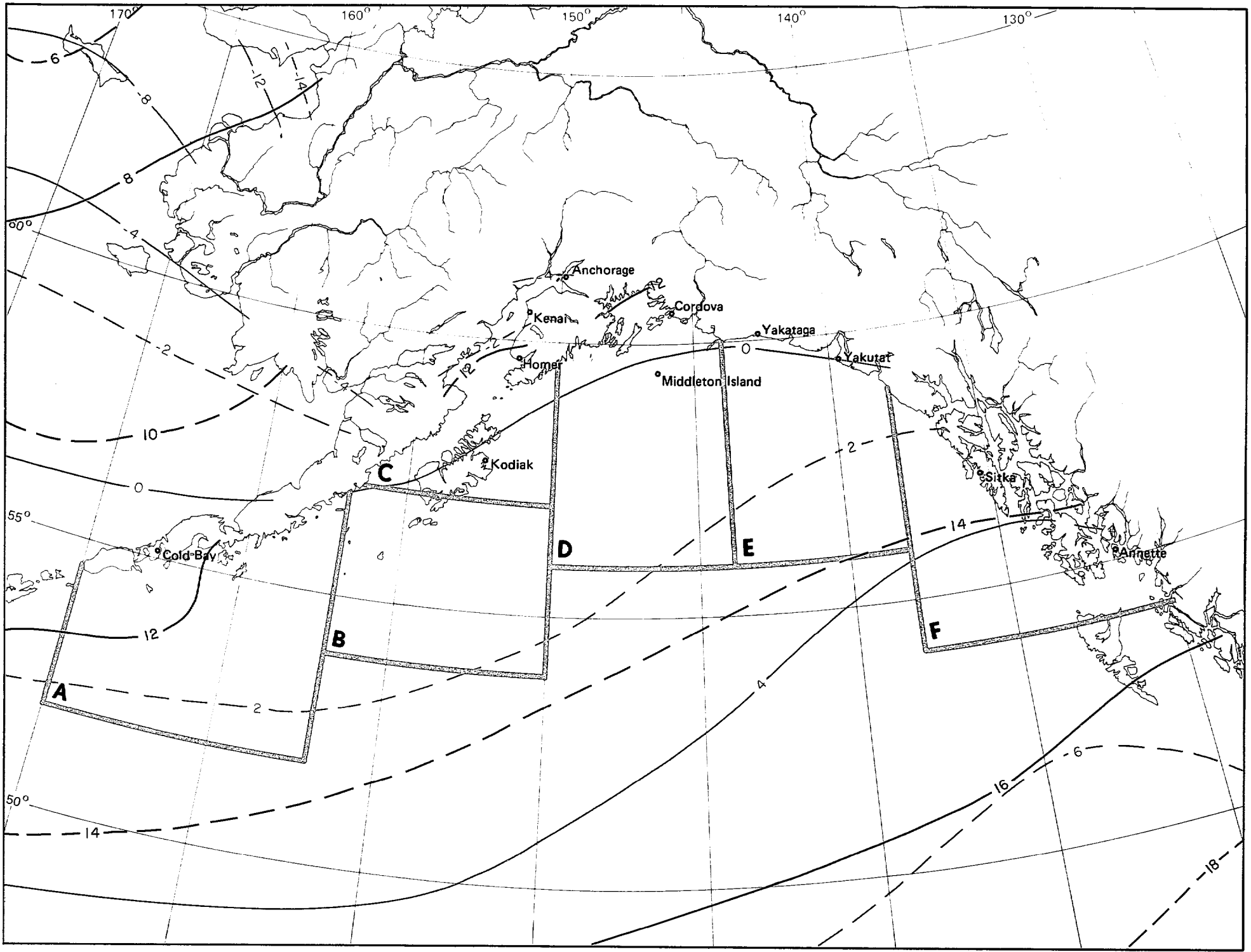
3659

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	0	+	0	0
12.13	0	1	1	1	+
10.11	1	4	9	5	1
8.9	1	7	13	8	3
6.7	1	6	11	7	4
4.5	+	1	3	3	2
2.3	+	+	2	1	1
0.1	0	+	+	+	+
-2.-1	0	0	0	0	+
-4.-3	0	0	0	0	0
-6.-5	0	0	+	+	0

962



Marine Area C

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	0	0	0	0
12.13	1	2	1	+	0
10.11	1	3	7	1	+
8.9	3	9	10	5	1
6.7	4	10	11	4	3
4.5	2	4	4	2	1
2.3	1	2	2	2	1
0.1	0	1	+	+	+
-2.-1	0	+	+	+	1
-4.-3	0	+	0	+	+
-6.-5	0	0	0	0	+

699

Marine Area D

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14.15	+	+	+	0	0
12.13	+	1	1	1	0
10.11	1	3	7	4	2
8.9	1	9	15	7	3
6.7	2	6	10	7	4
4.5	1	2	4	2	2
2.3	+	1	2	2	1
0.1	0	+	+	+	0
-2.-1	0	0	0	0	0
-4.-3	0	0	+	+	0
-6.-5	0	0	0	0	0

1574

Marine Area E

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	+	+	0	0	0
14.15	0	+	+	0	+
12.13	+	1	2	1	1
10.11	2	5	8	5	2
8.9	1	8	15	9	5
6.7	1	6	10	5	3
4.5	0	2	3	1	1
2.3	+	+	1	+	+
0.1	0	0	+	+	0
-2.-1	0	0	+	0	0
-4.-3	0	0	+	+	0

1237

Marine Area F

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16.17	0	0	+	+	0
14.15	+	1	1	+	0
12.13	1	5	6	3	1
10.11	2	10	13	6	2
8.9	2	9	10	5	2
6.7	2	6	5	2	1
4.5	1	1	1	1	+
2.3	+	1	+	+	0
0.1	0	+	0	+	0
-2.-1	0	0	0	0	0
-4.-3	0	0	0	0	0

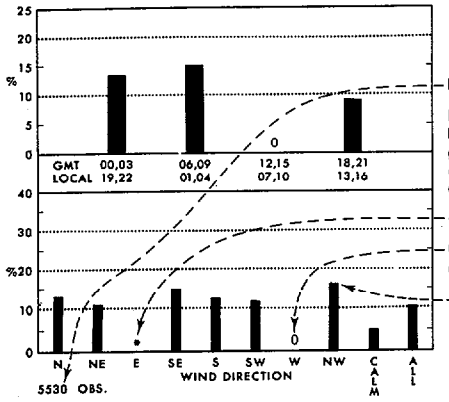
1622

5 Air temperature extremes (°C)

October

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

• indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

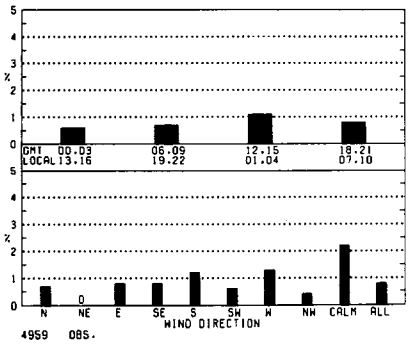
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

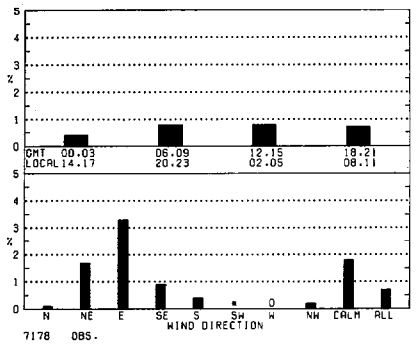
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

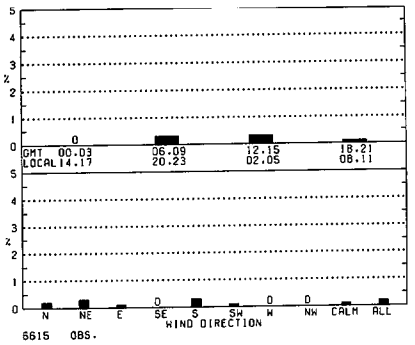
Cold Bay



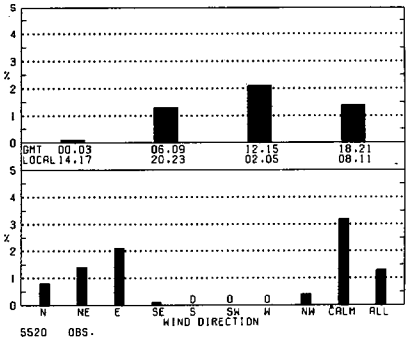
Kodiak



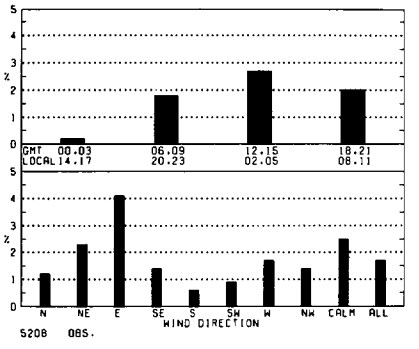
Homer



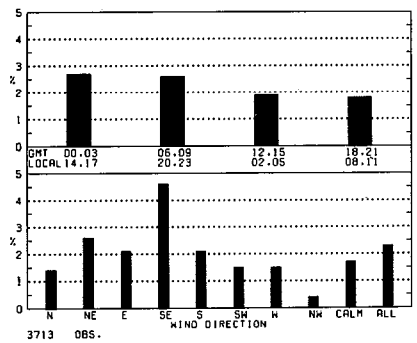
Kenai



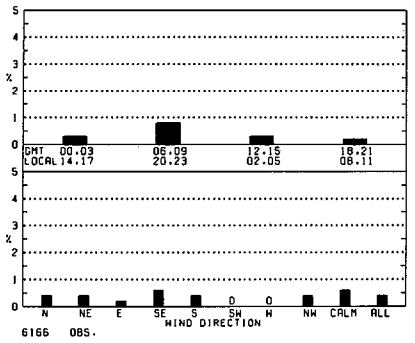
Anchorage



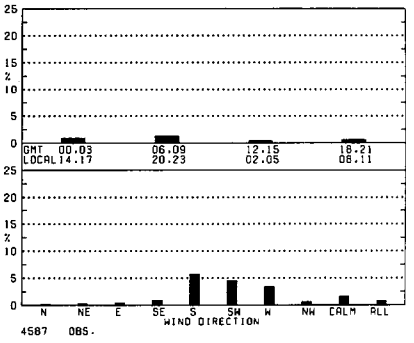
Middleton Island



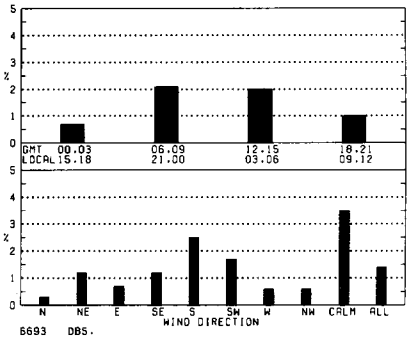
Cordova



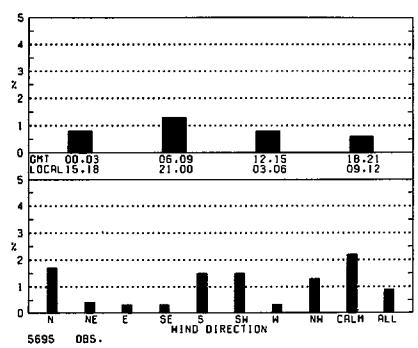
Yakataga



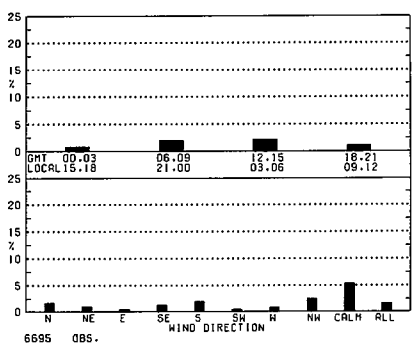
Yakutat



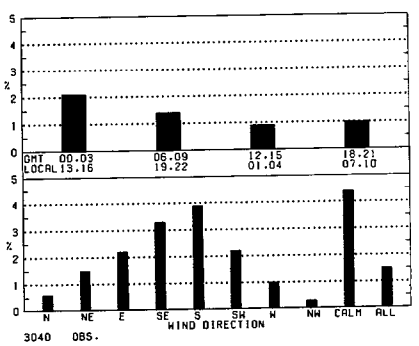
Sitka



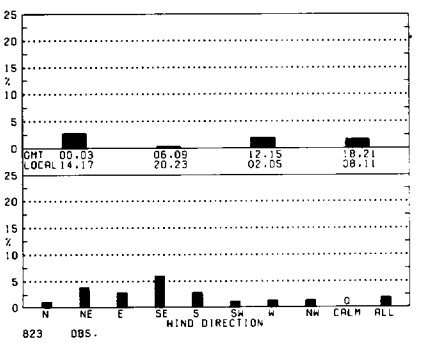
Annette

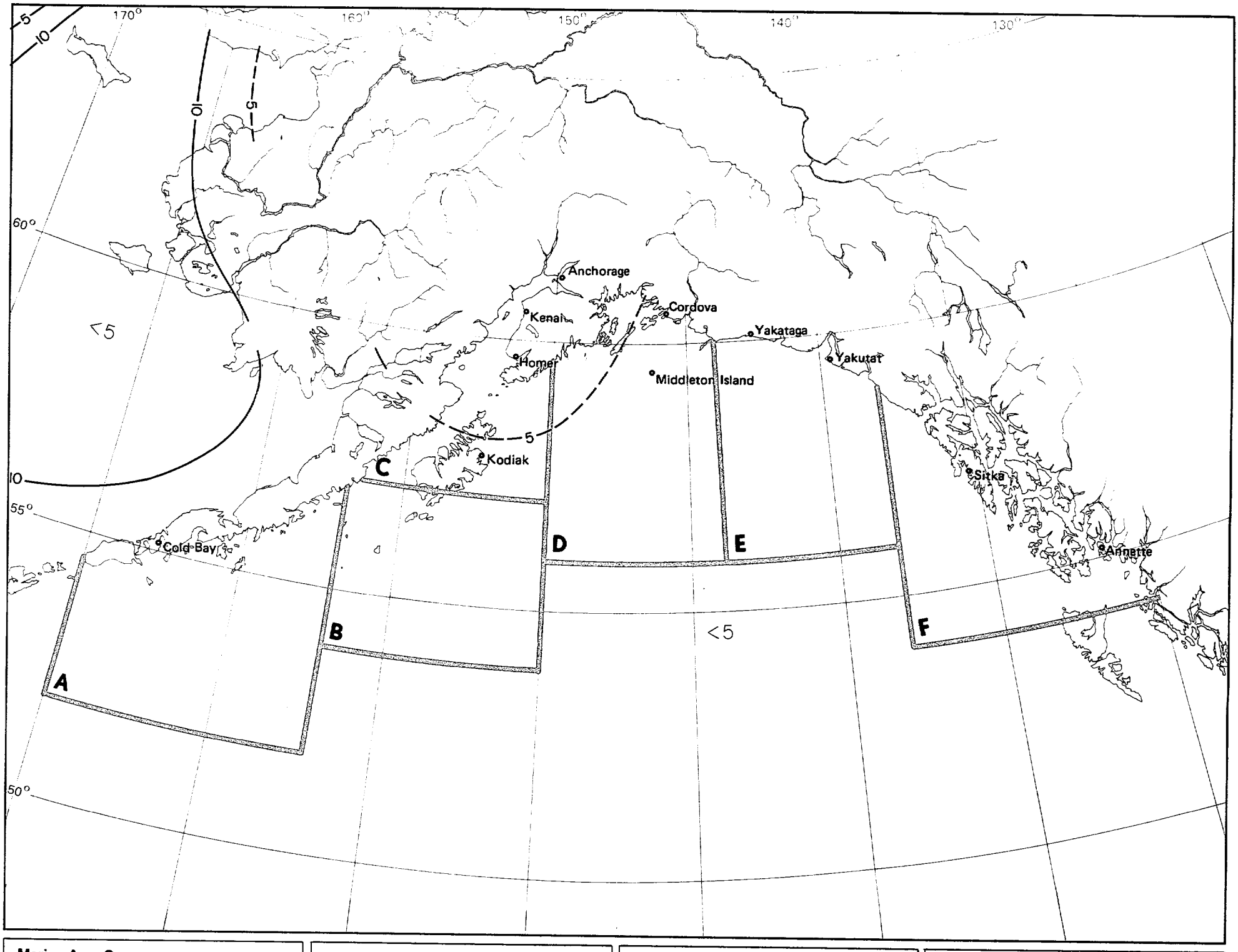


Marine Area A

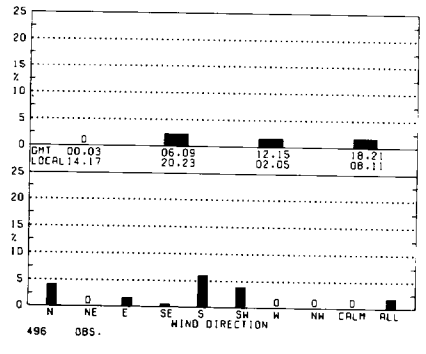


Marine Area B

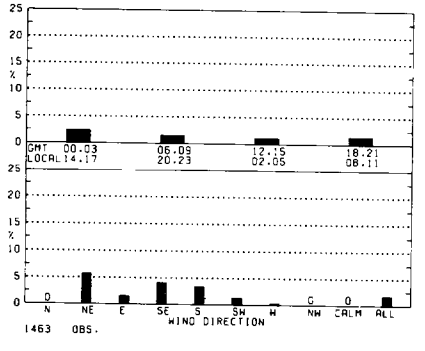




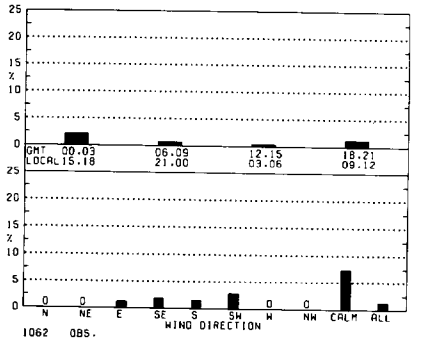
Marine Area C



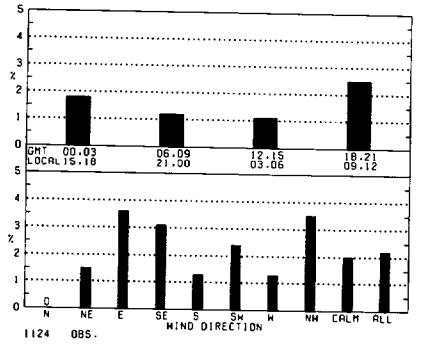
Marine Area D



Marine Area E

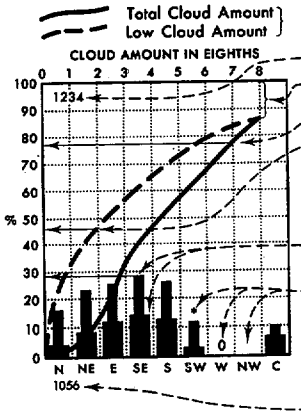


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

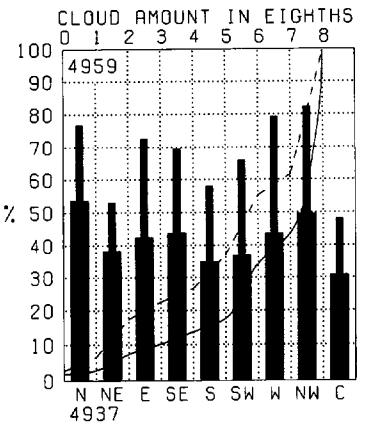
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

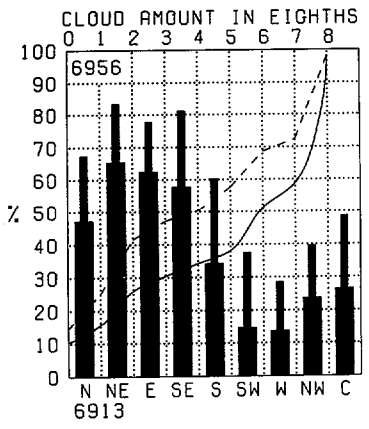
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

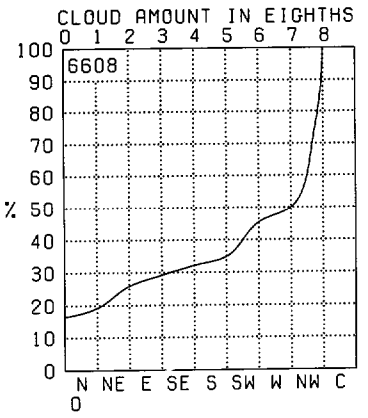
Cold Bay



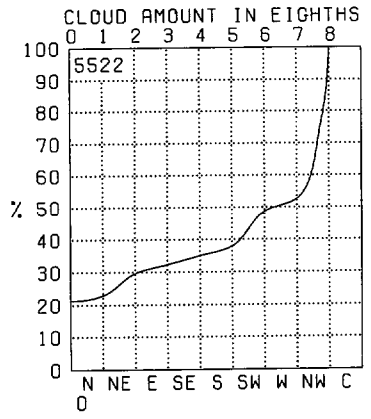
Kodiak



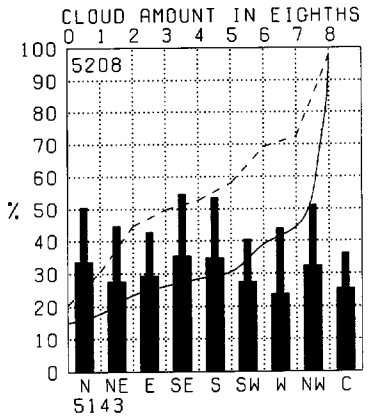
Homer



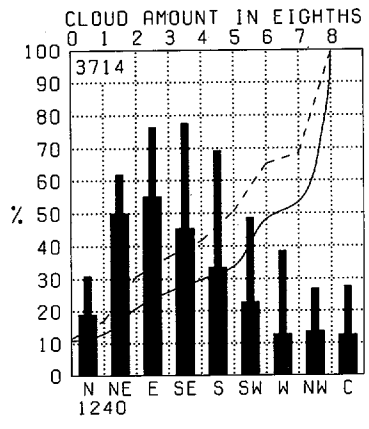
Kenai



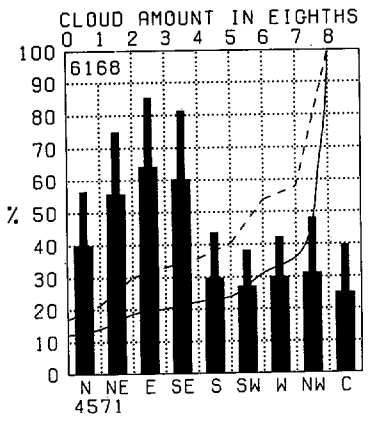
Anchorage



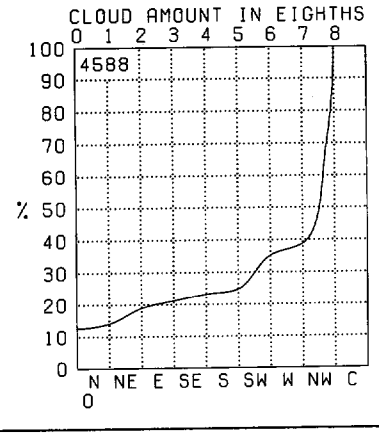
Middleton Island



Cordova



Yakataga



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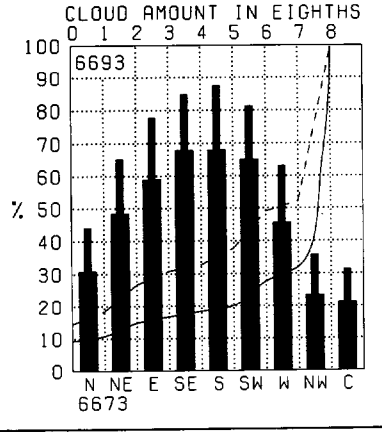
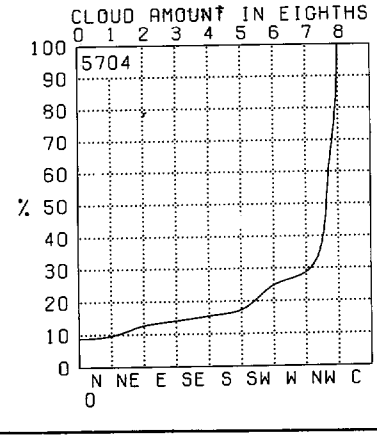
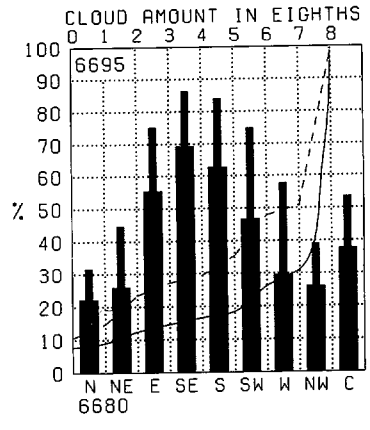


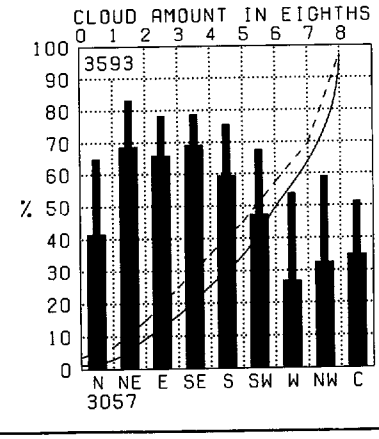
Sitka



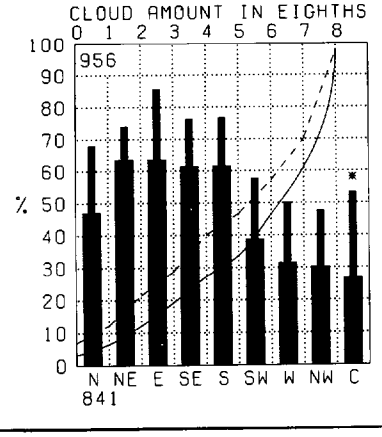
Annette

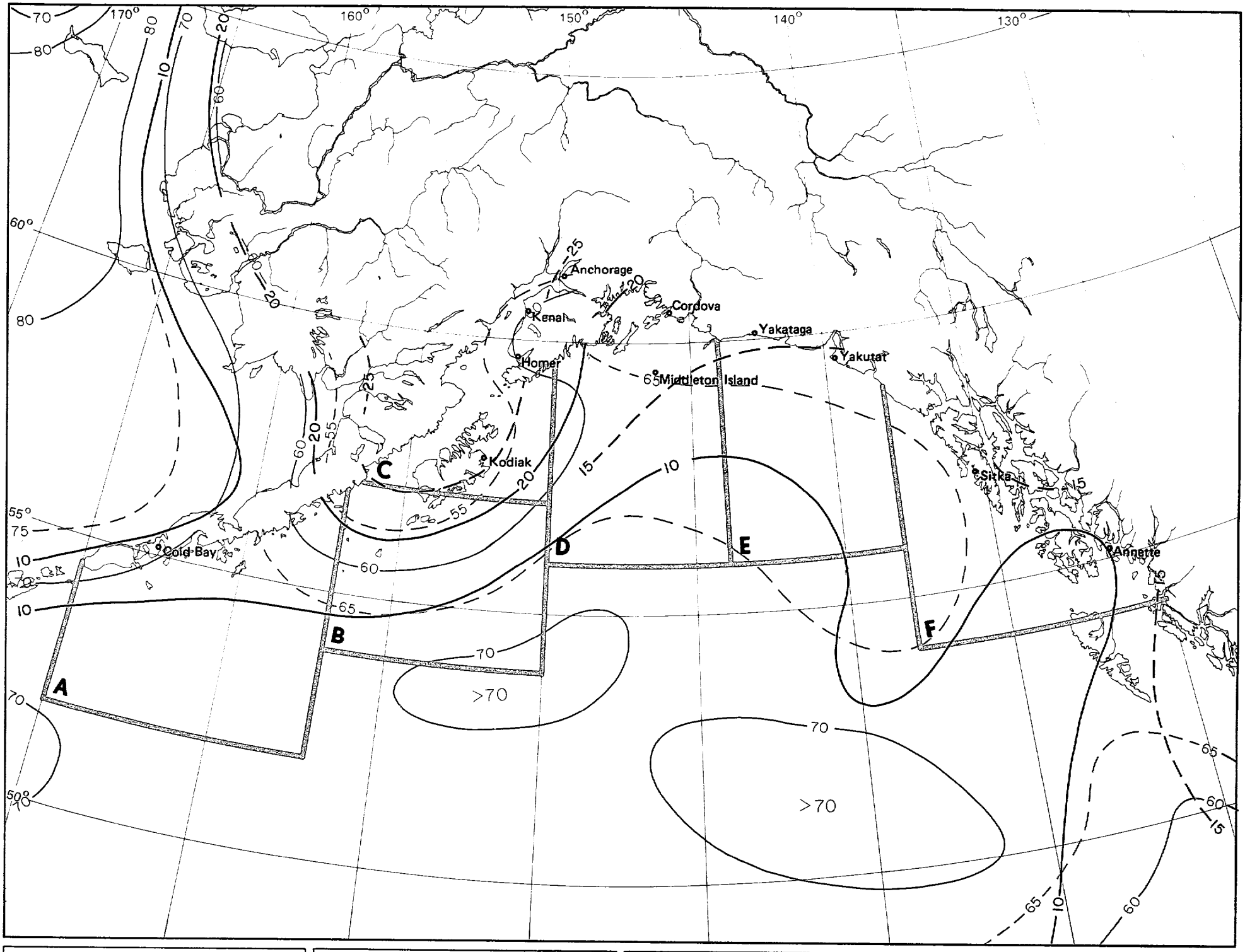


Marine Area A

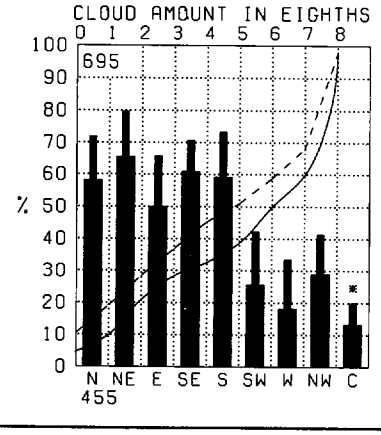


Marine Area B

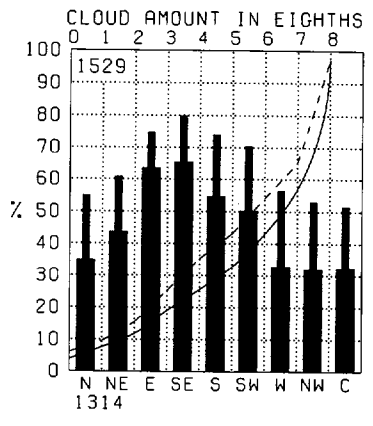




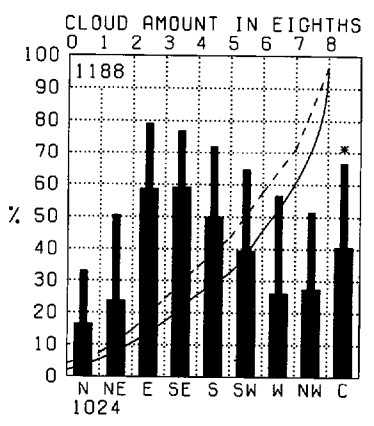
Marine Area C



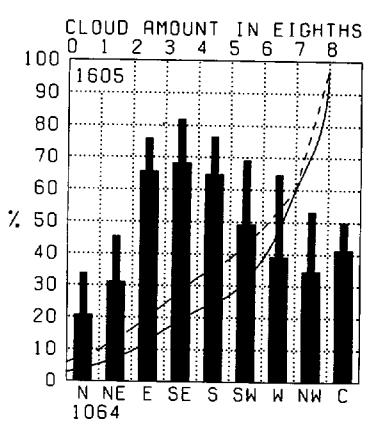
Marine Area D



Marine Area E



Marine Area F

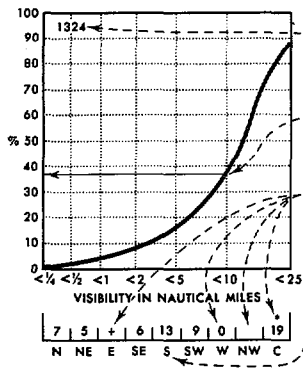


7 Cloud amount thresholds

October

Legend

Visibility/wind direction



Number of observations.

Cumulative percent frequency of visibilities less than the visibility intersected by the curve.

(37% of all visibilities reported were <10 nautical miles.)

The table below the graph indicates percent frequency of occurrence of visibility <2 *nautical miles versus wind direction.*

+ indicates <.5% but >0. 0 indicates that no visibilities <2 nautical miles were observed with winds from a direction or calm. No percentage is given if less than 10 observations were available for visibility and wind direction. An asterisk indicates that the percentage was based on 10-30 observations of visibility and wind direction.

(13% of all S winds were accompanied by visibilities <2 nautical miles.)

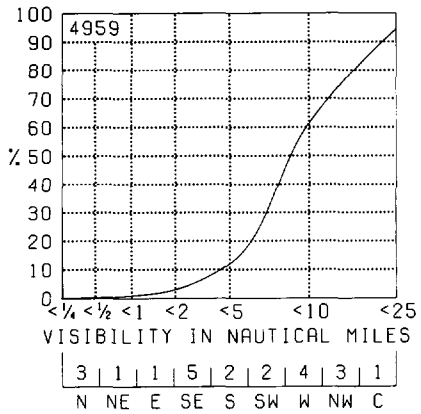
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

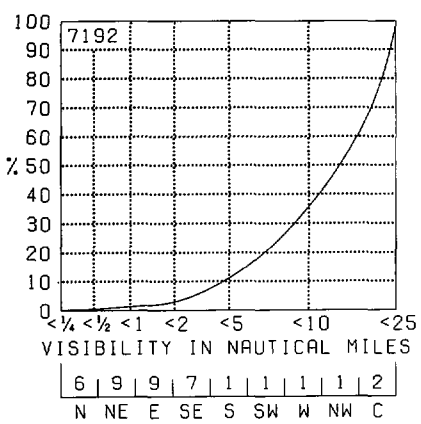
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

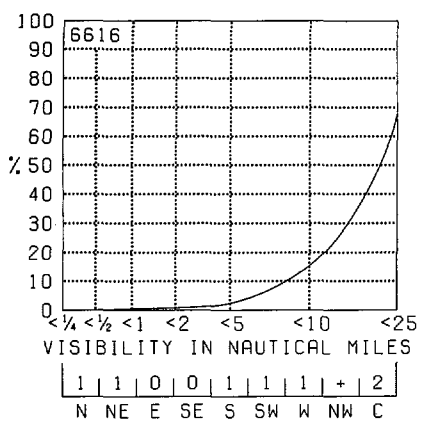
Cold Bay



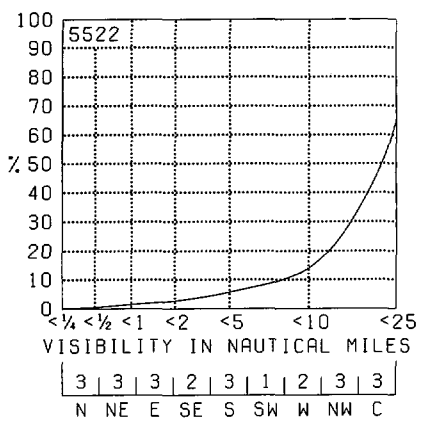
Kodiak



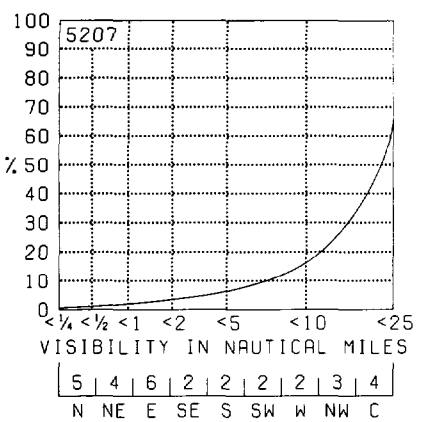
Homer



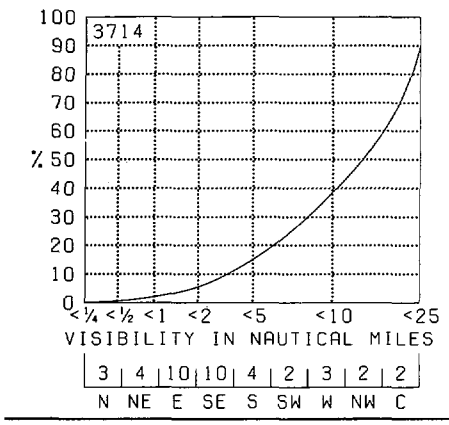
Kenai



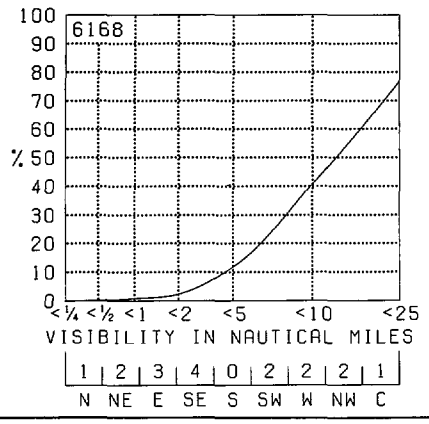
Anchorage



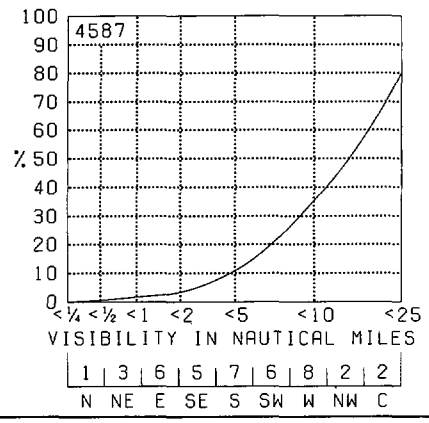
Middleton Island



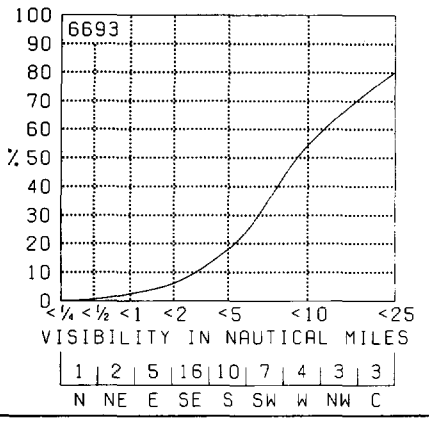
Cordova



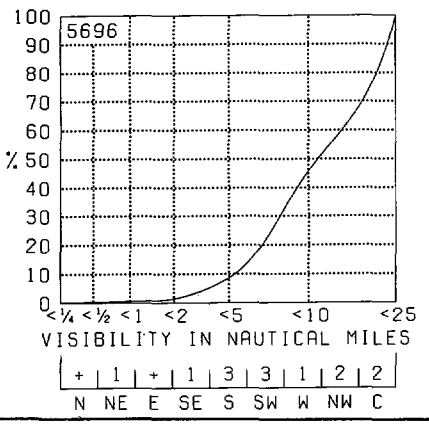
Yakataga



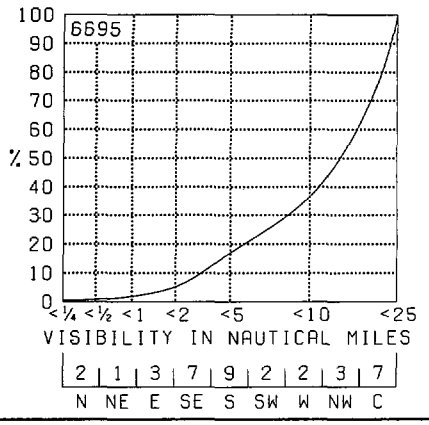
Yakutat



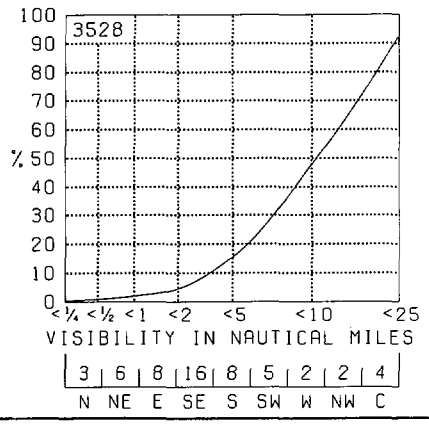
Sitka



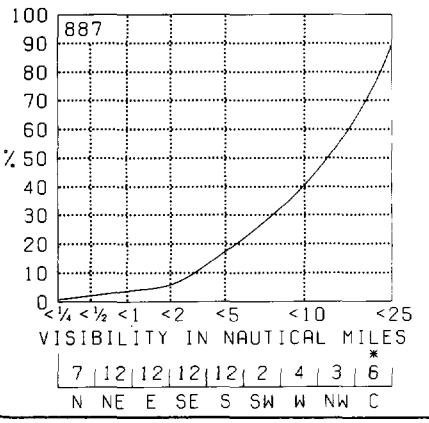
Annette

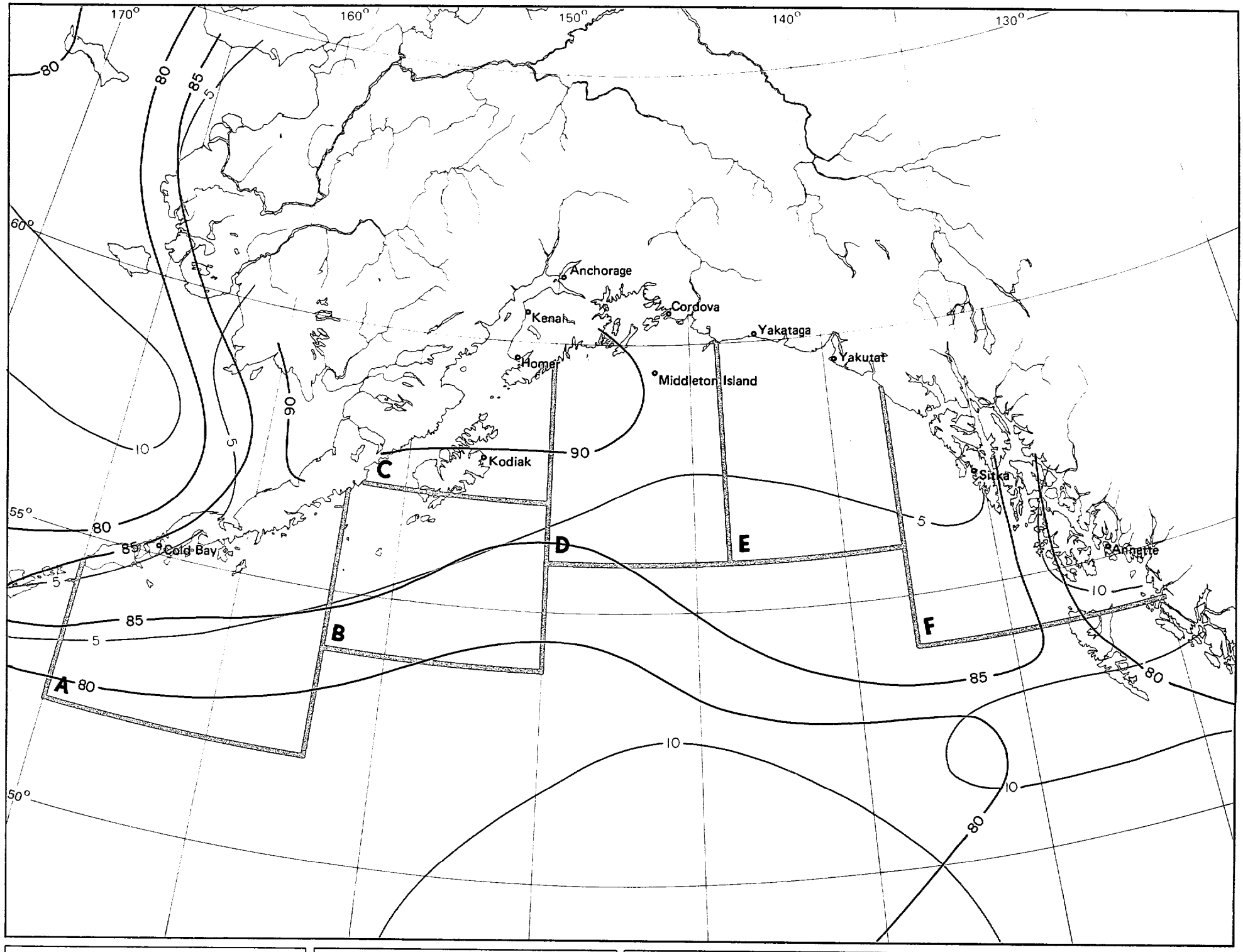


Marine Area A

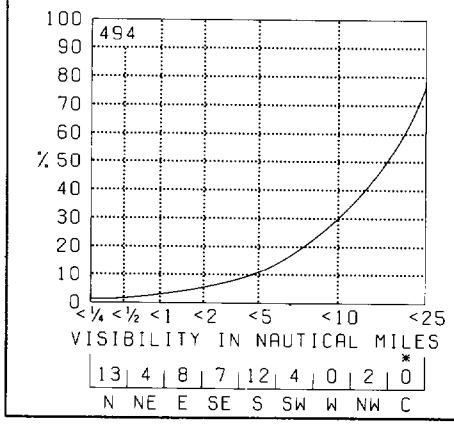


Marine Area B

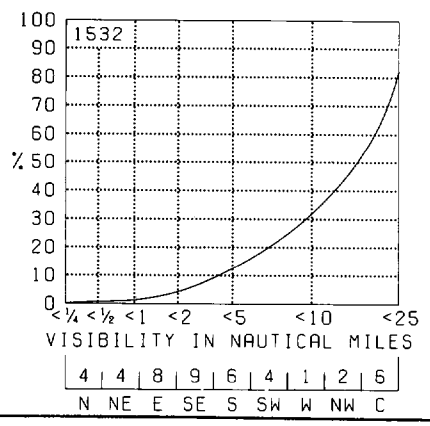




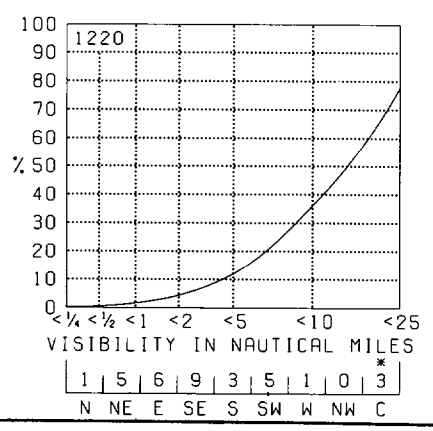
Marine Area C



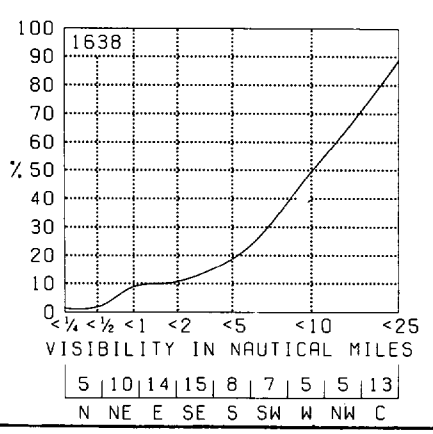
Marine Area D



Marine Area E



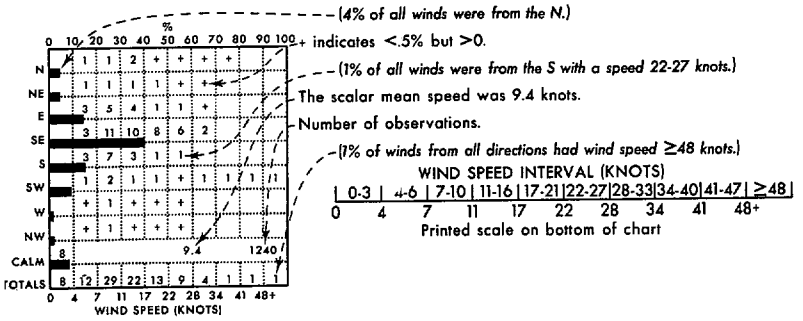
Marine Area F



Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



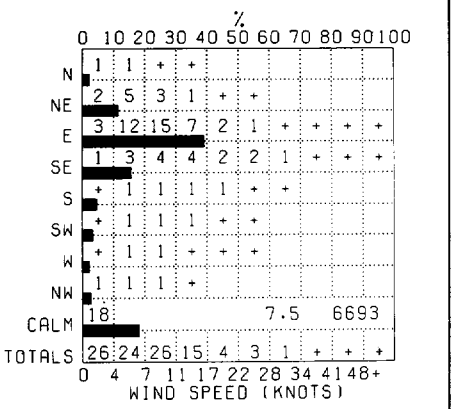
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

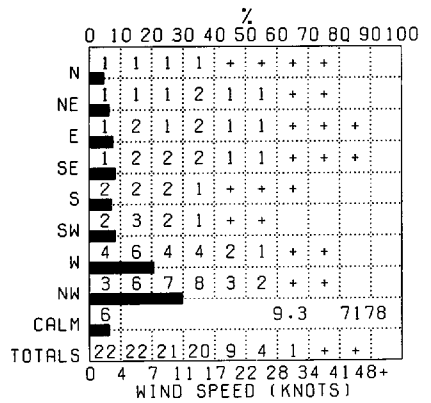
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

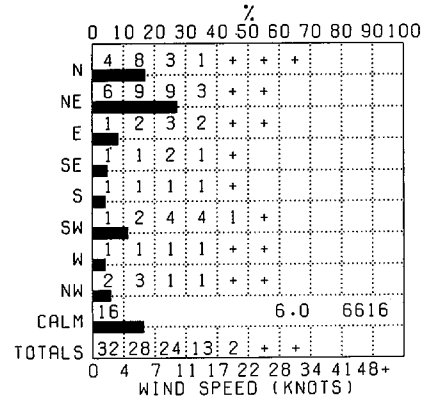
Cold Bay



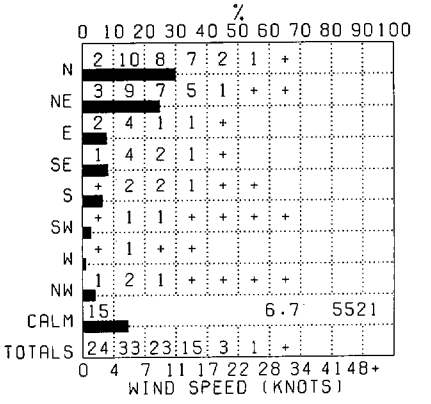
Kodiak



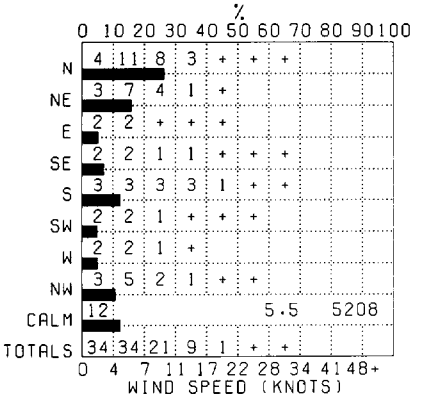
Homer



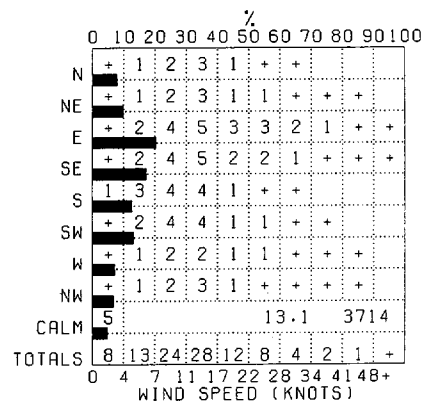
Kenai



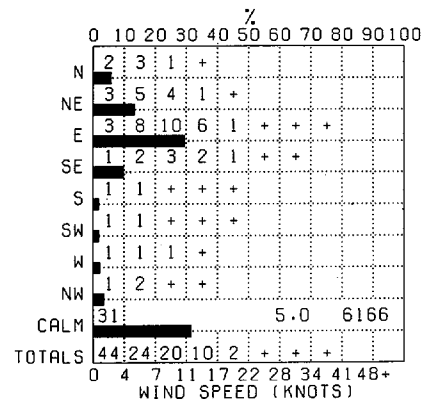
Anchorage



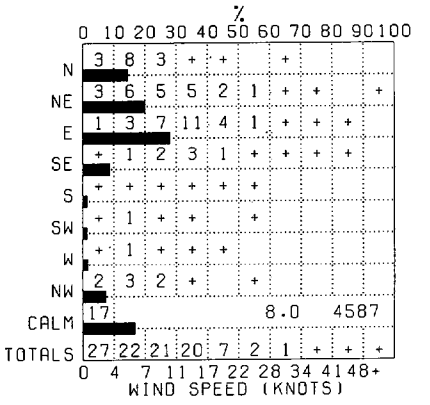
Middleton Island



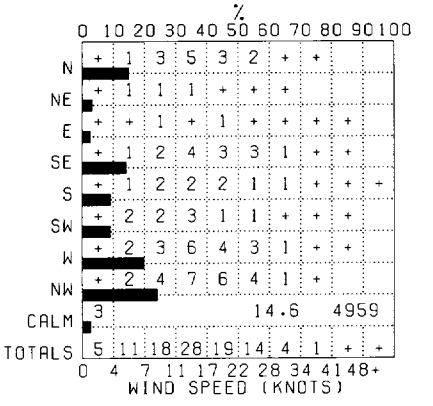
Cordova



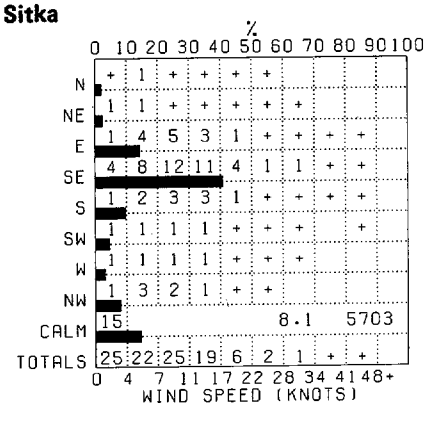
Yakataga



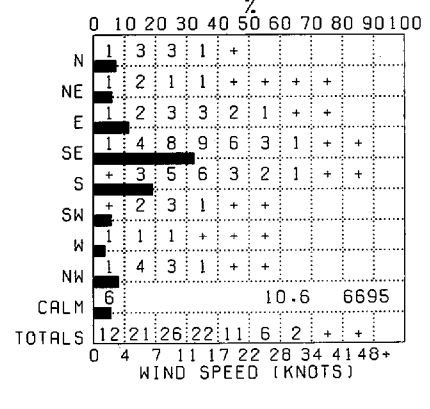
Yakutat



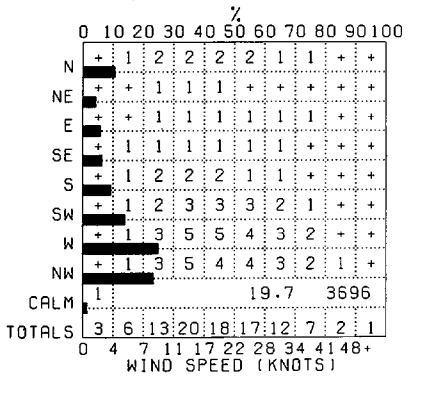
Sitka



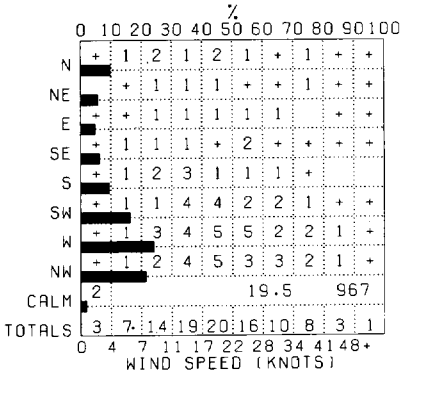
Annette

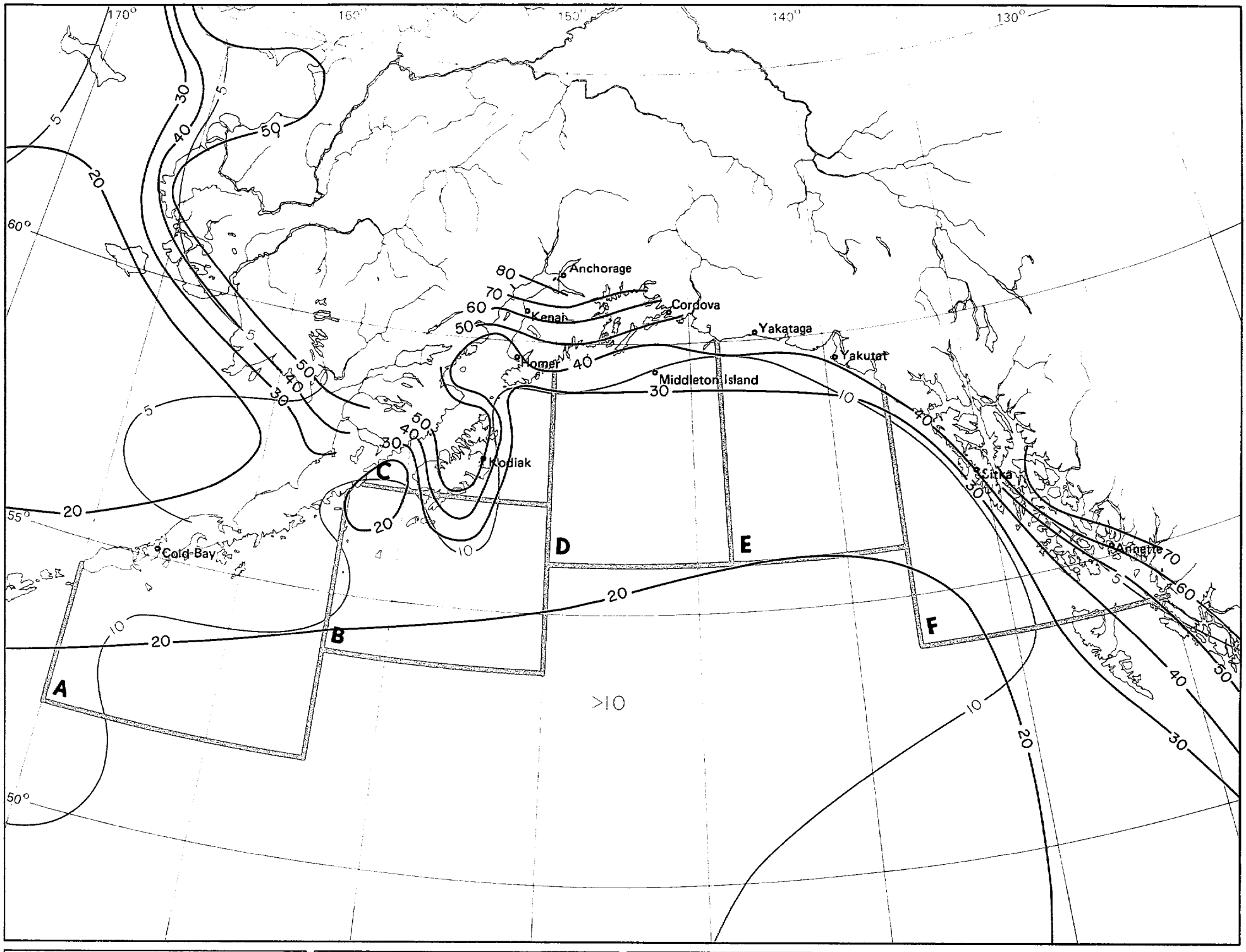


Marine Area A

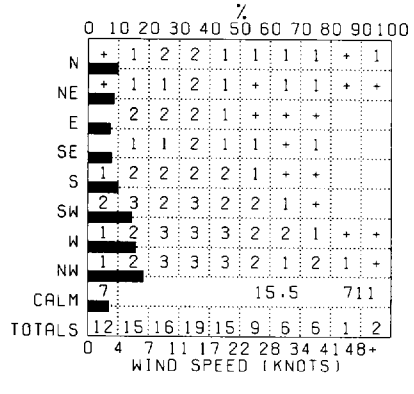


Marine Area B

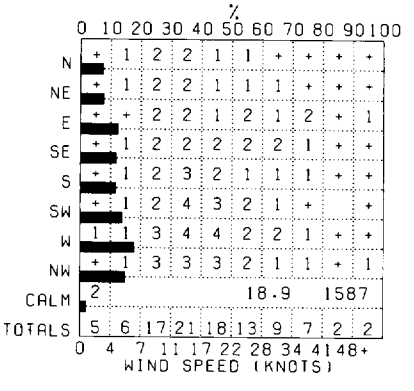




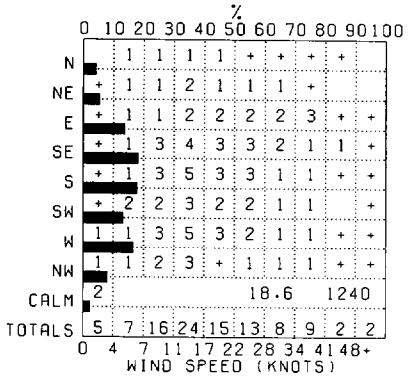
Marine Area C



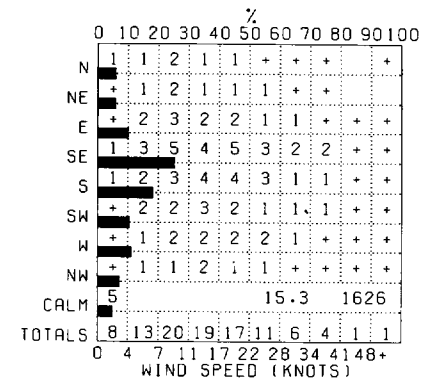
Marine Area D



Marine Area E



Marine Area F

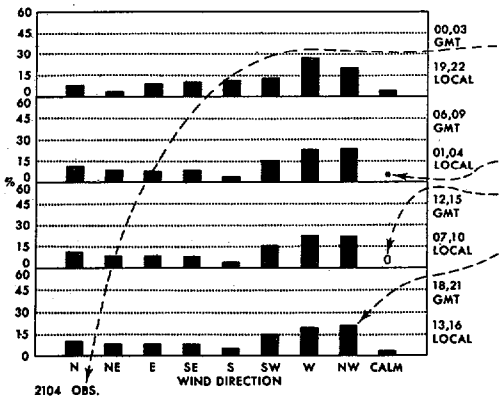


9 Wind speed thresholds

October

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

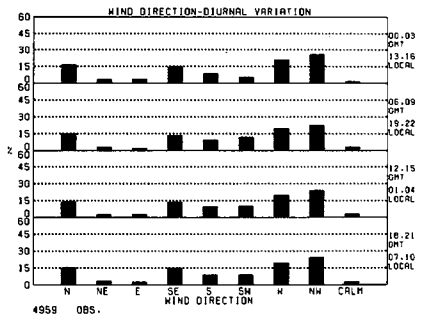
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

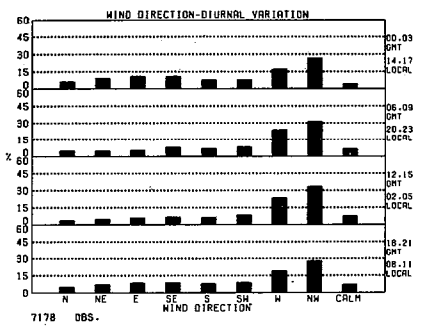
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

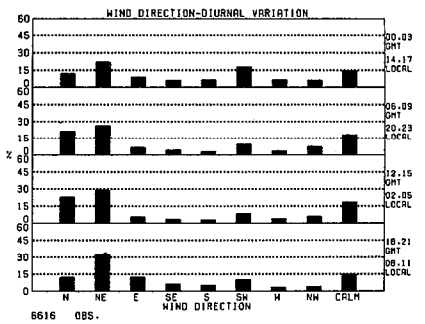
Cold Bay



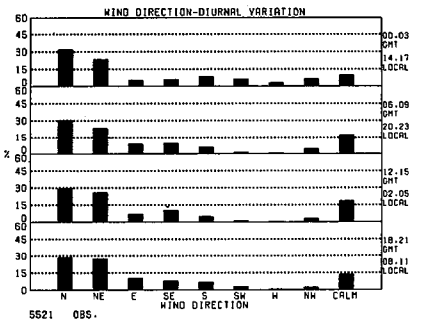
Kodiak



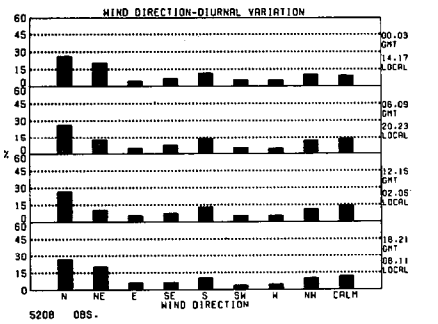
Homer



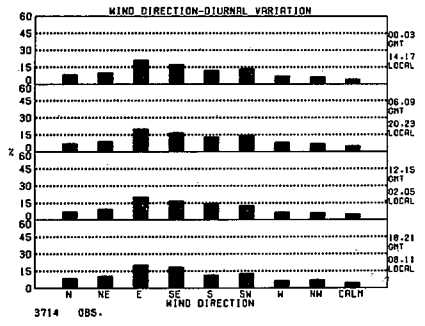
Kenai



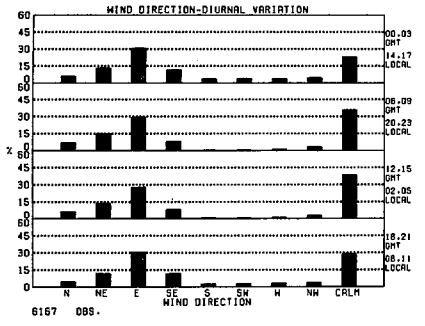
Anchorage



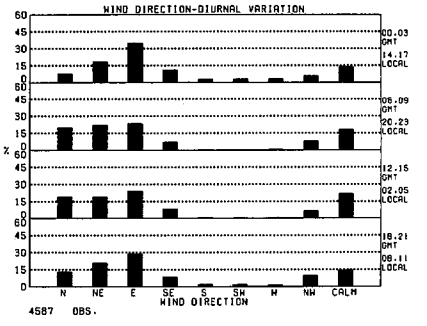
Middleton Island



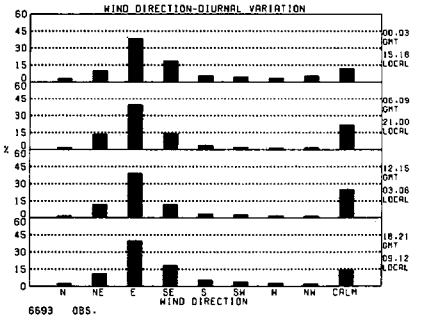
Cordova



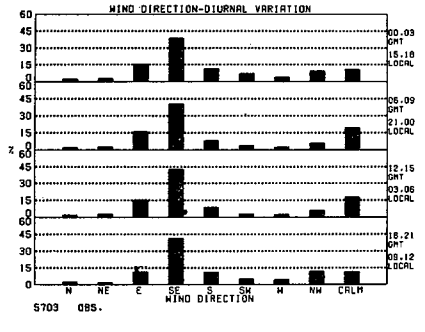
Yakataga



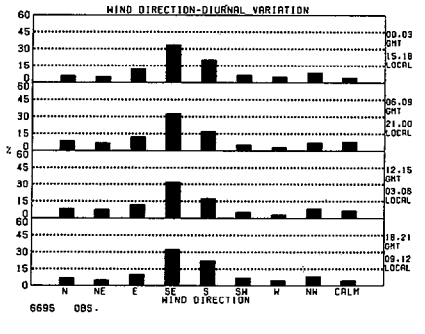
Yakutat



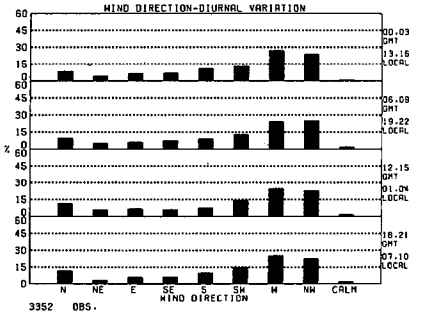
Sitka



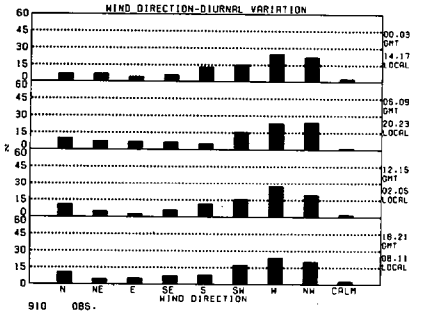
Annette

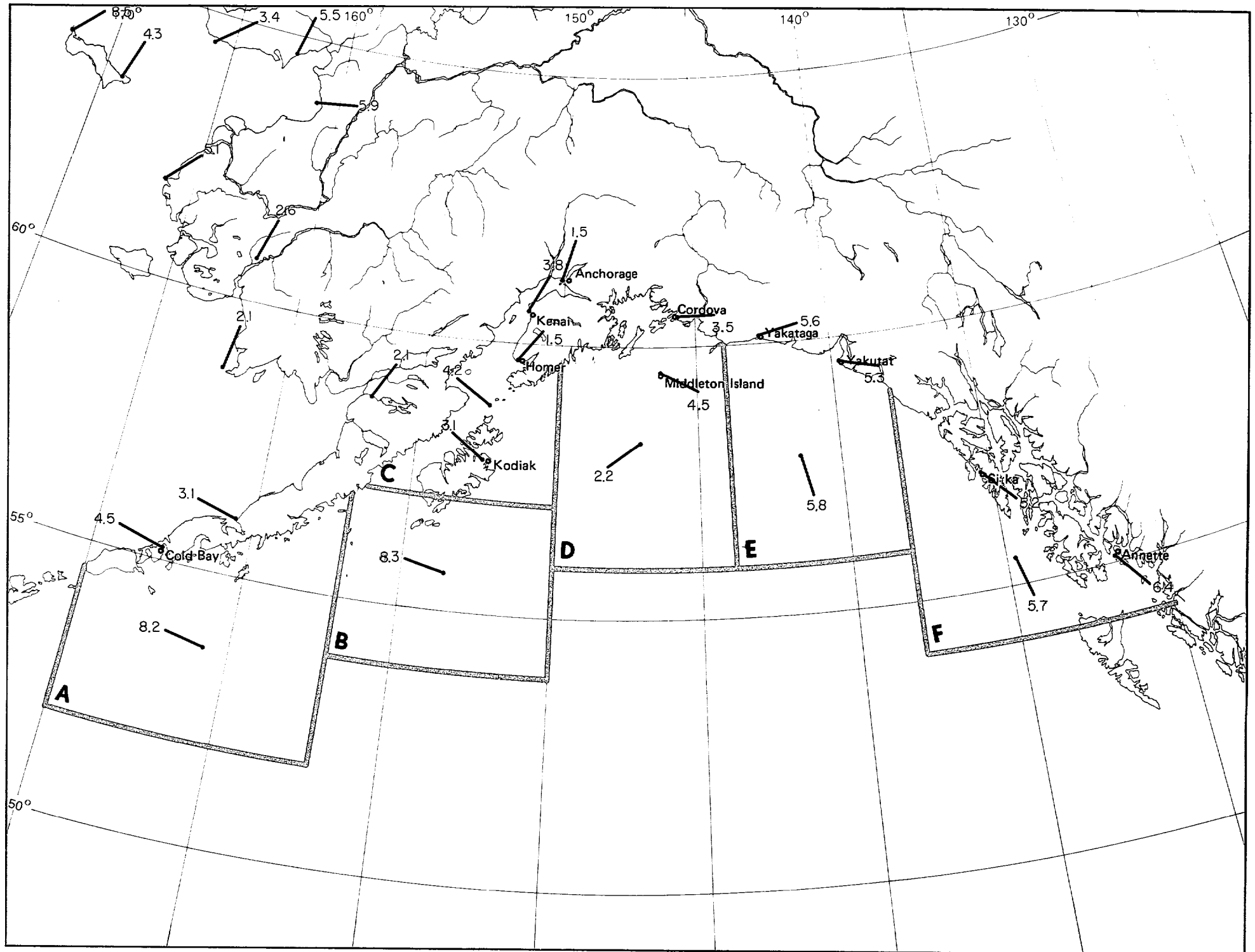


Marine Area A

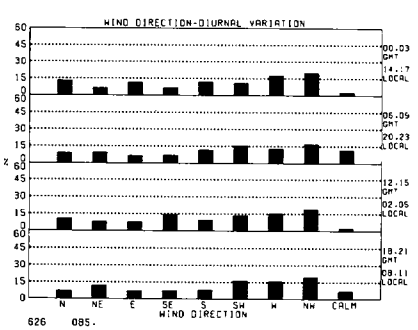


Marine Area B

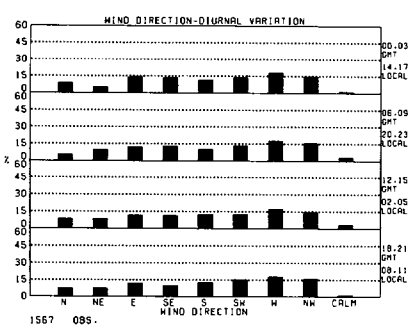




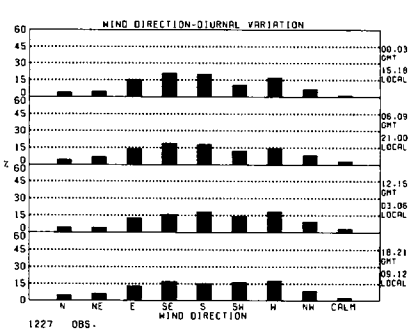
Marine Area C



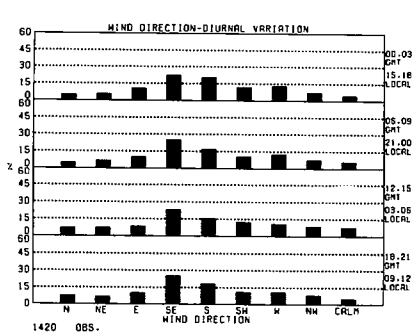
Marine Area D



Marine Area E



Marine Area F

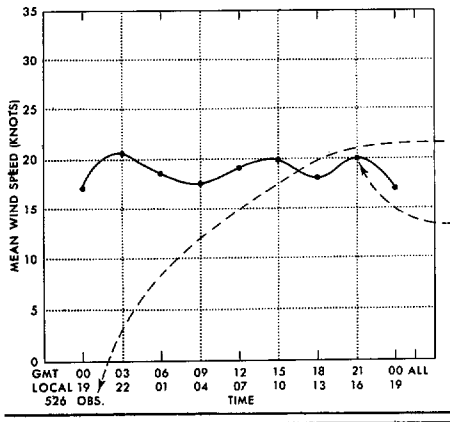


10 Vector mean wind

October

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

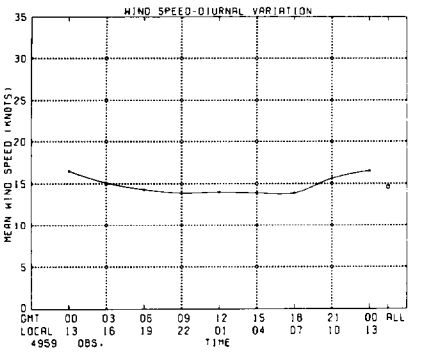
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

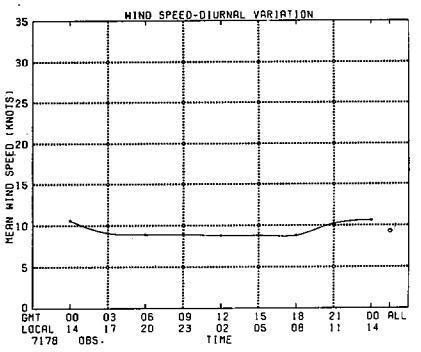
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

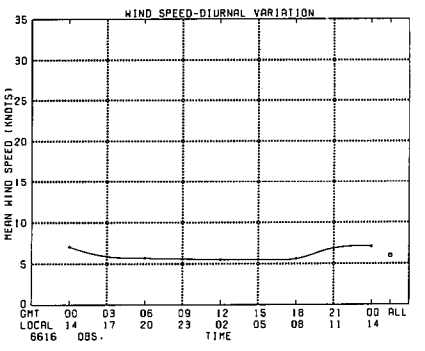
Cold Bay



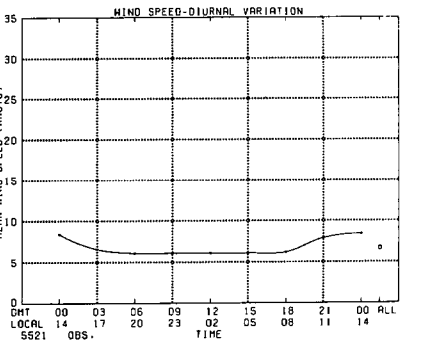
Kodiak



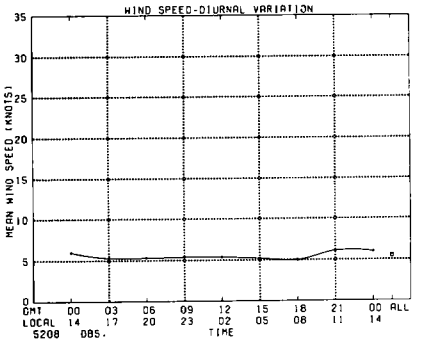
Homer



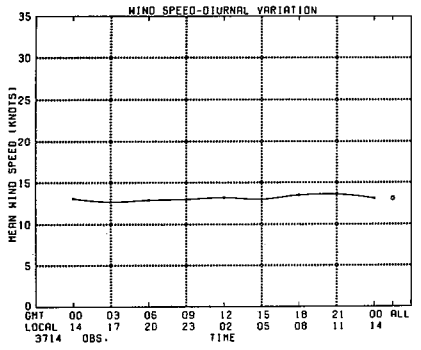
Kenai



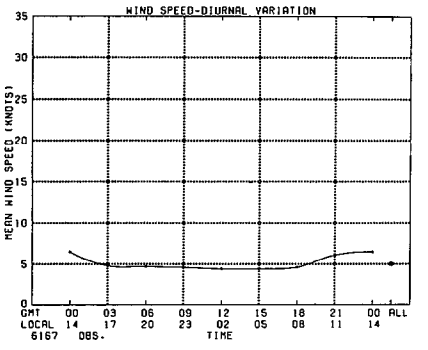
Anchorage



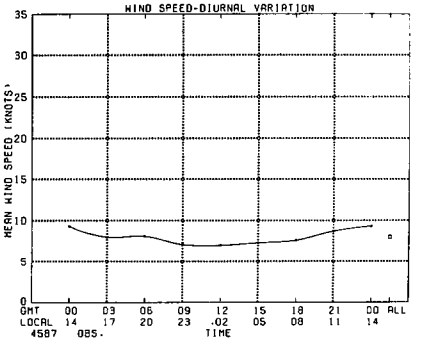
Middleton Island



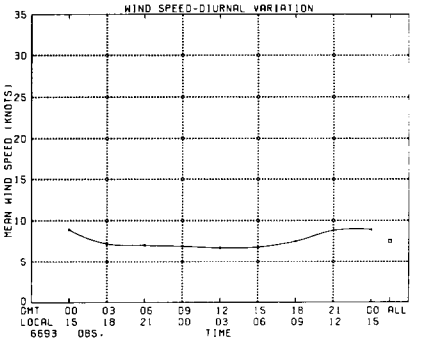
Cordova



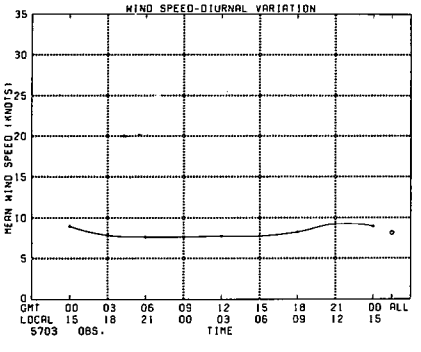
Yakataga



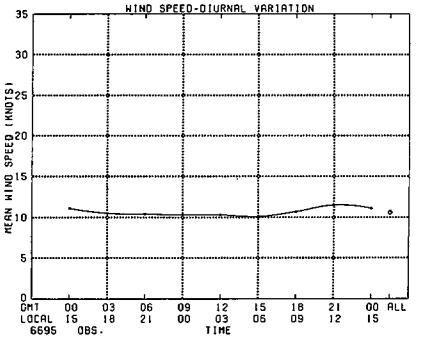
Yakutat



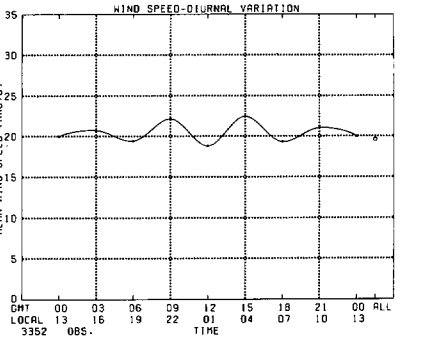
Sitka



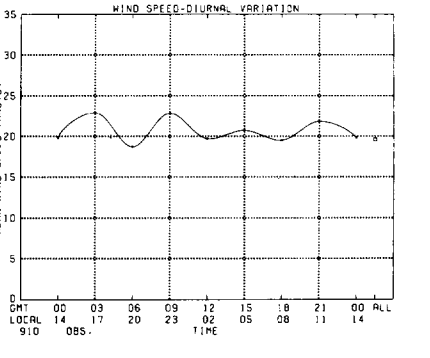
Annette

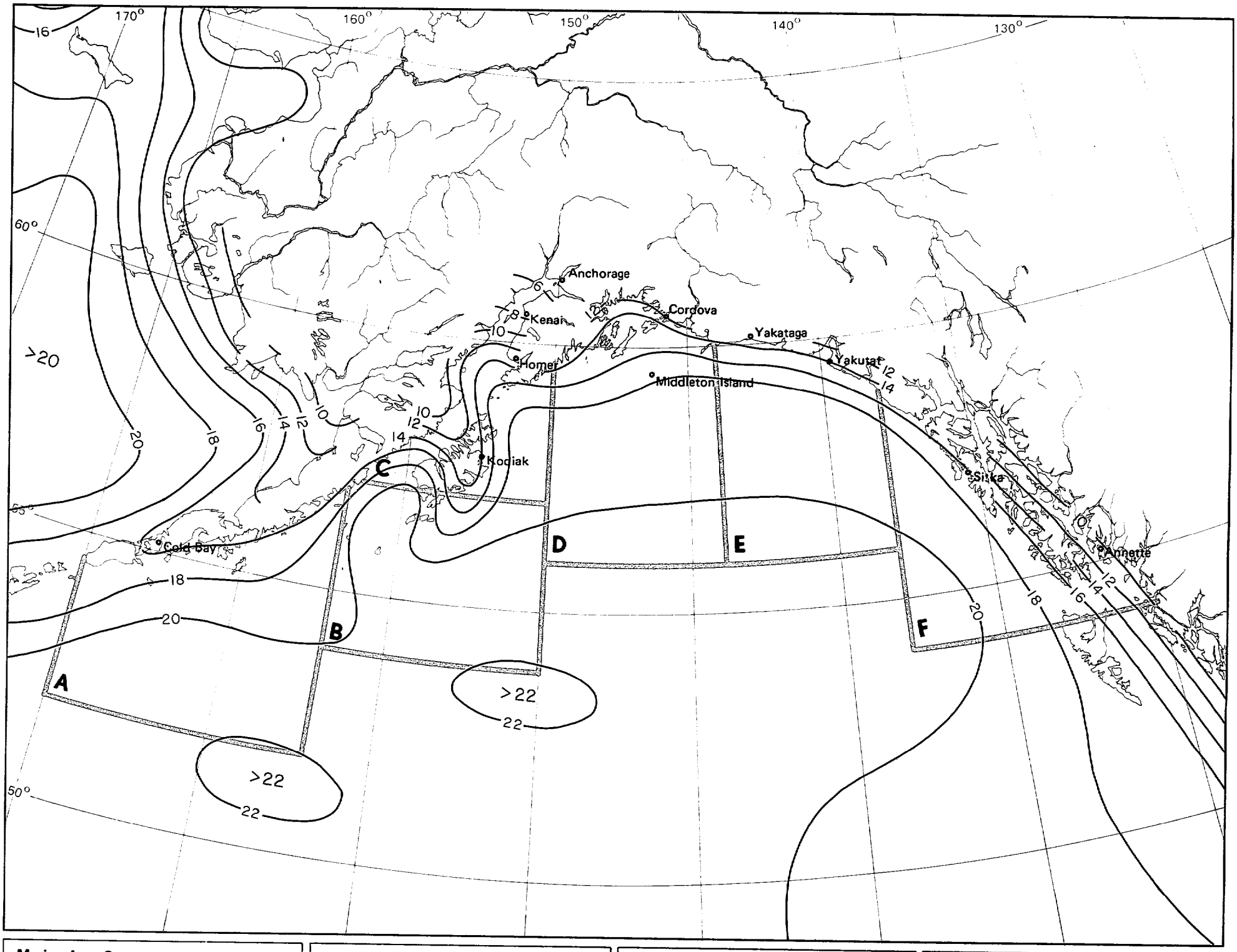


Marine Area A

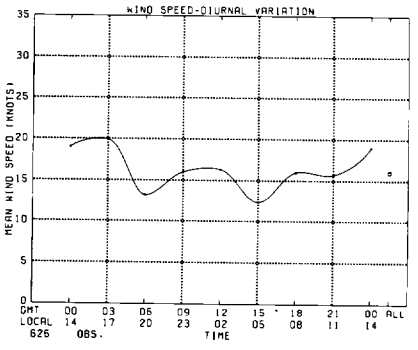


Marine Area B

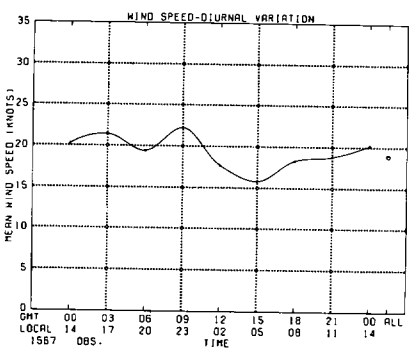




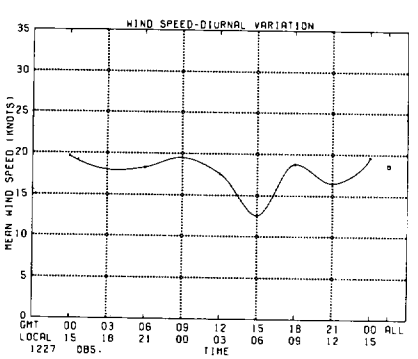
Marine Area C



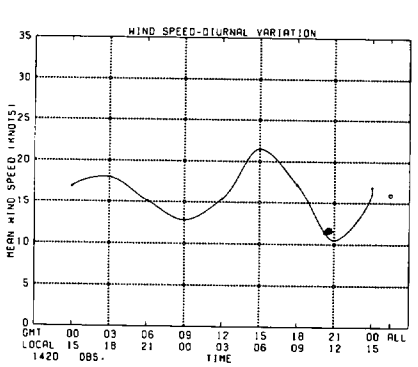
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
N C	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

(2% of *all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.*)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	10	17
50<80	0	0	0	+	1	1
35<50	0	0	+	+	3	3
20<35	+	+	+	1	13	10
10<20	+	+	+	3	15	7
6<10	0	+	+	3	6	1
3<6	0	+	1	2	2	+
1.5<3	+	+	+	+	+	0
0<1.5	+	+	+	+	+	0

4937

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	0	+	7	45
50<80	0	+	0	0	1	2
35<50	0	0	0	+	1	4
20<35	+	+	+	1	6	11
10<20	+	+	+	3	7	3
6<10	0	+	+	2	2	1
3<6	0	+	+	2	1	+
1.5<3	+	+	+	+	+	0
0<1.5	+	+	+	+	+	0

6913

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	+	36
50<80	0	0	0	0	1	11
35<50	0	0	0	0	2	20
20<35	0	0	0	+	8	15
10<20	0	0	0	+	2	2
6<10	0	0	0	0	+	0
3<6	0	0	0	+	0	0
1.5<3	0	0	0	0	0	0
0<1.5	0	0	0	0	0	0

297

Kenai

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	2	39
50<80	0	0	0	0	0	16
35<50	0	0	0	0	1	11
20<35	0	0	0	+	4	11
10<20	+	0	0	+	4	3
6<10	0	0	0	+	3	1
3<6	0	+	0	+	1	0
1.5<3	0	0	0	0	0	0
0<1.5	0	0	+	0	0	0

248

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	55
50<80	0	0	0	0	+	10
35<50	0	0	+	0	+	6
20<35	0	0	+	+	1	6
10<20	+	+	+	+	2	4
6<10	+	+	+	1	2	2
3<6	+	+	+	1	2	1
1.5<3	0	+	+	+	+	+
0<1.5	1	1	1	+	+	+

5142

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	8	34
50<80	0	0	0	0	0	+
35<50	0	0	+	0	1	1
20<35	0	0	+	1	4	8
10<20	0	+	1	4	11	10
6<10	+	1	2	5	4	1
3<6	+	1	+	1	+	0
1.5<3	0	0	0	0	0	0
0<1.5	1	+	+	+	+	0

1240

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	2	36
50<80	0	0	0	+	+	3
35<50	0	0	0	+	1	7
20<35	0	+	0	2	12	13
10<20	0	+	1	5	10	3
6<10	0	+	+	1	1	+
3<6	0	+	+	+	+	+
1.5<3	0	0	0	0	+	0
0<1.5	+	+	+	1	+	+

4571

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	1	2	2	18
50<80	0	0	0	0	1	1
35<50	0	0	0	+	5	11
20<35	0	1	+	7	17	17
10<20	0	1	1	2	9	1
6<10	0	0	0	0	2	0
3<6	0	1	1	0	0	0
1.5<3	0	0	0	0	+	0
0<1.5	0	0	+	0	0	0

247

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	6	28
50<80	0	0	+	+	1	2
35<50	+	+	0	+	1	3
20<35	0	+	+	1	7	6
10<20	+	+	1	4	15	6
6<10	0	+	1	3	5	1
3<6	+	1	1	2	2	1
1.5<3	+	+	+	+	+	+
0<1.5	+	+	+	+	+	0

6673

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½'	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	1	13
50<80	0	0	0	0	2	5
35<50	0	0	0	0	10	15
20<35	0	0	0	6	24	10
10<20	0	0	0	2	7	2
6<10	0	0	0	0	1	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	0	+	1	+	0	0

247

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	29
50<80	0	0	0	0	+	2
35<50	0	0	0	+	+	4
20<35	0	0	+	+	3	13
10<20	+	+	+	4	9	12
6<10	+	+	1	3	3	2
3<6	+	+	1	3	2	1
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	0

6680

Marine Area A

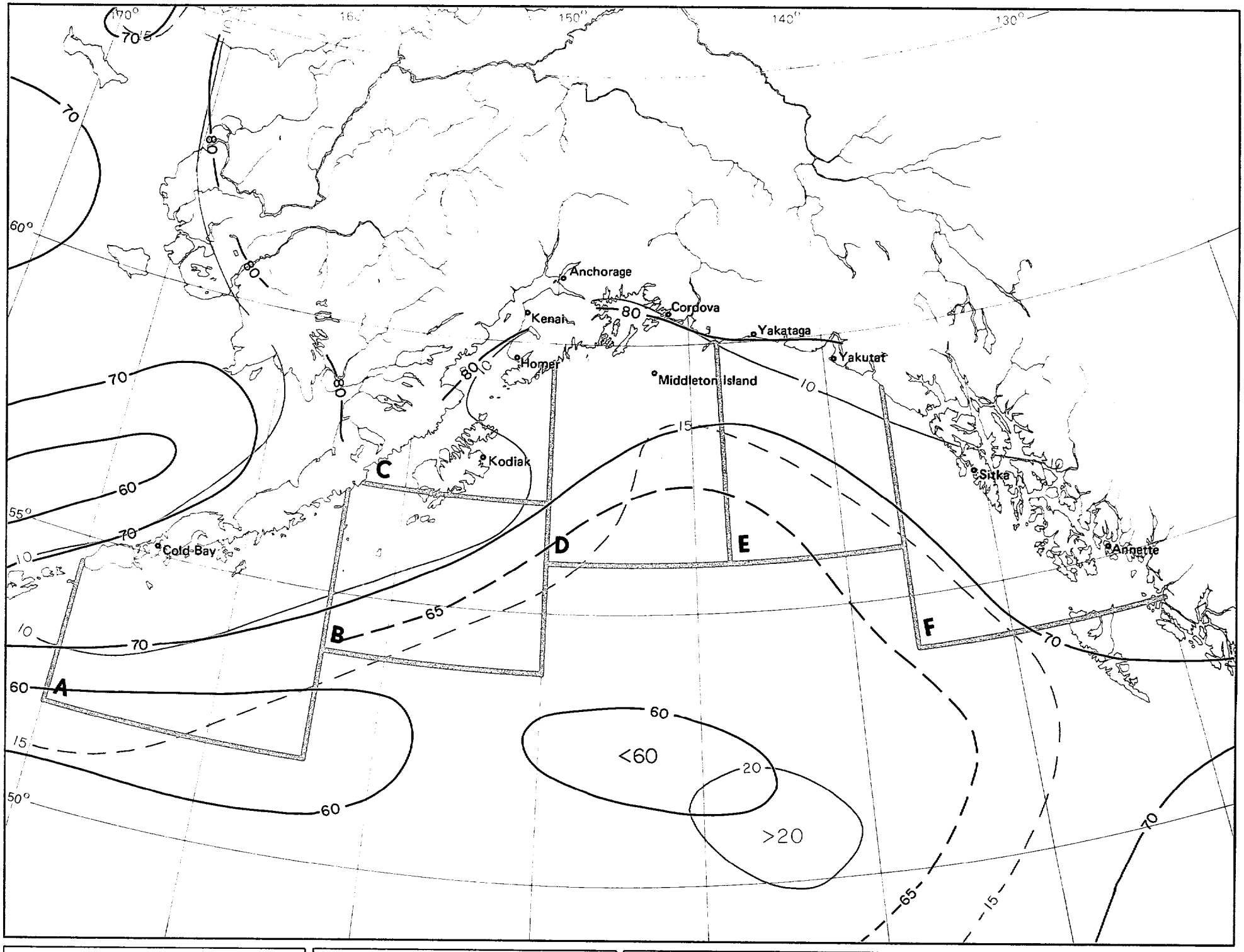
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	8	26
50<80	0	0	0	0	+	+
35<50	0	0	0	+	1	2
20<35	0	0	+	1	5	7
10<20	+	+	+	3	9	13
6<10	+	+	1	3	6	4
3<6	+	0	+	1	2	1
1.5<3	0	+	+	+	+	+
0<1.5	1	+	1	1	1	+

2876

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	6	33
50<80	0	0	0	0	+	1
35<50	0	0	0	1	1	1
20<35	0	0	0	2	4	5
10<20	1	+	1	3	5	14
6<10	+	+	1	3	5	5
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	0	1
0<1.5	1	+	1	1	+	+

778



Marine Area C

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	0	3	41
50<80	0	0	0	0	0	2
35<50	0	0	0	0	+	2
20<35	0	0	0	0	2	6
10<20	0	0	+	1	4	12
6<10	0	0	+	1	6	7
3<6	0	+	0	2	2	1
1.5<3	0	0	+	+	+	1
0<1.5	2	1	1	+	1	0

417

Marine Area D

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	2	34
50<80	0	0	0	0	+	+
35<50	+	0	0	0	+	2
20<35	+	+	0	1	1	6
10<20	0	+	1	2	5	15
6<10	0	+	1	1	6	11
3<6	+	0	+	1	2	2
1.5<3	0	0	+	1	+	+
0<1.5	+	+	1	1	+	+

1282

Marine Area E

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	+	2	32
50<80	0	0	0	0	0	1
35<50	0	0	0	+	1	3
20<35	0	+	+	1	4	10
10<20	0	0	1	2	7	12
6<10	0	+	+	2	5	8
3<6	0	+	+	1	2	1
1.5<3	0	+	+	+	+	+
0<1.5	1	1	1	1	1	+

957

Marine Area F

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	3	31
50<80	0	0	0	0	0	1
35<50	0	0	0	0	+	2
20<35	0	0	+	1	2	8
10<20	+	+	+	1	5	12
6<10	0	+	+	4	7	8
3<6	+	0	+	1	2	2
1.5<3	0	0	+	+	1	+
0<1.5	1	1	1	1	1	+

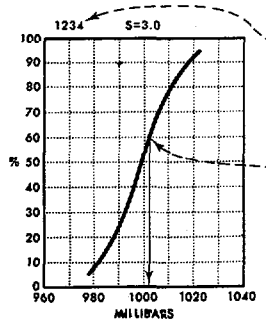
1011

12 Low cloud ceiling and visibility thresholds

October

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S = Standard deviation of pressure (mbs).

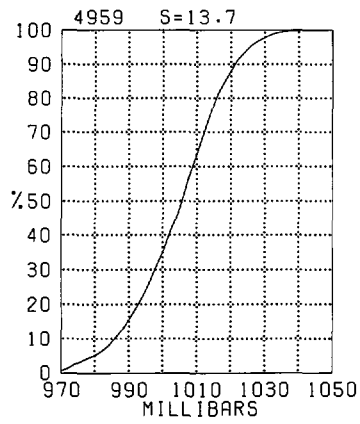
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

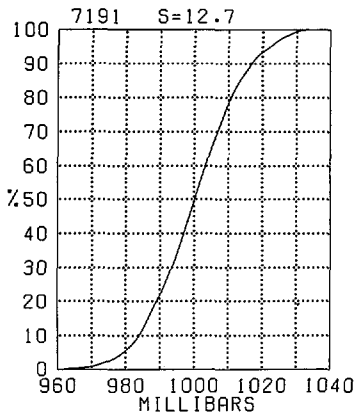
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

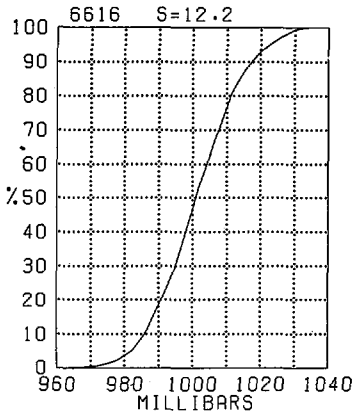
Cold Bay



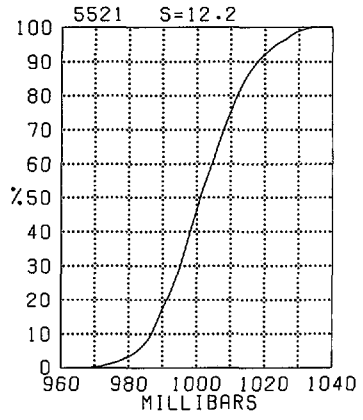
Kodiak



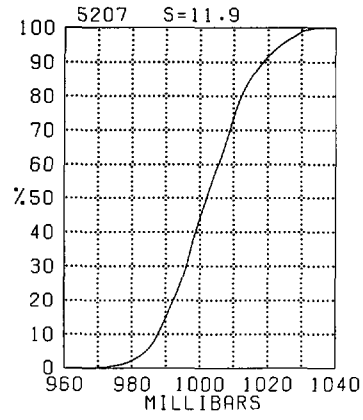
Homer



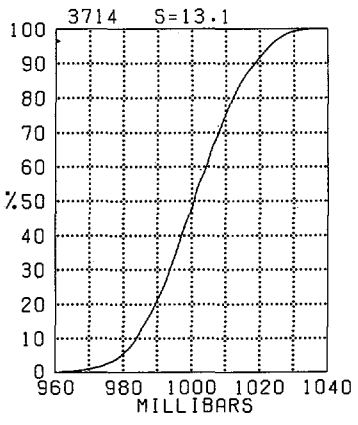
Kenai



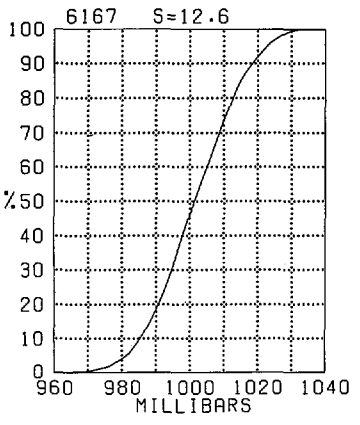
Anchorage



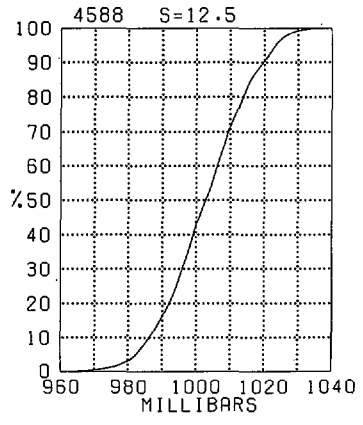
Middleton Island



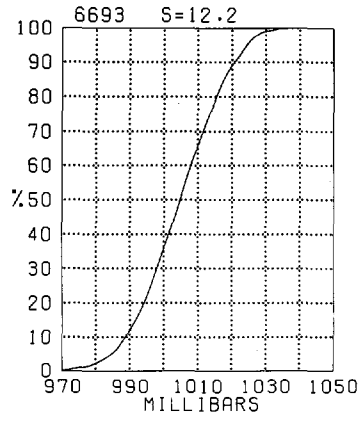
Cordova



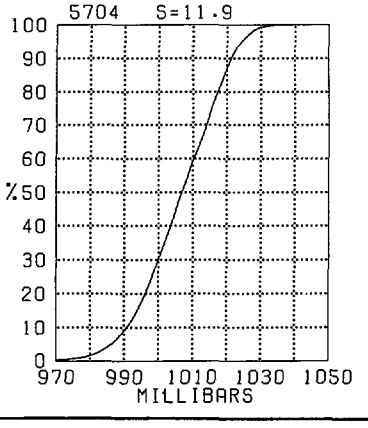
Yakataga



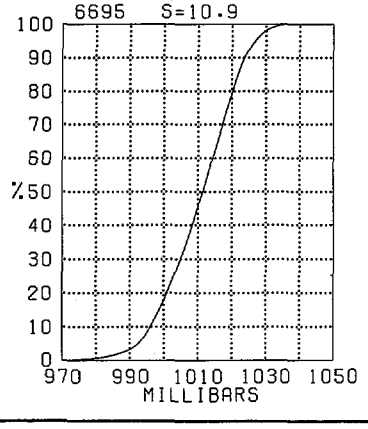
Yakutat



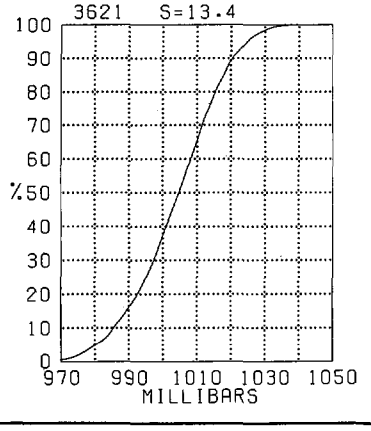
Sitka



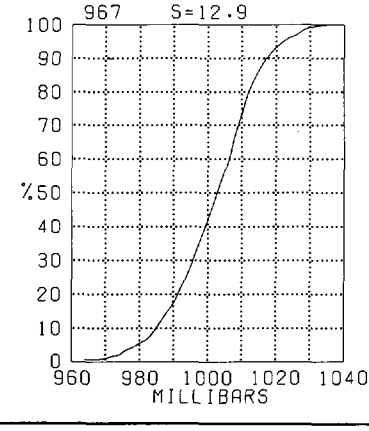
Annette

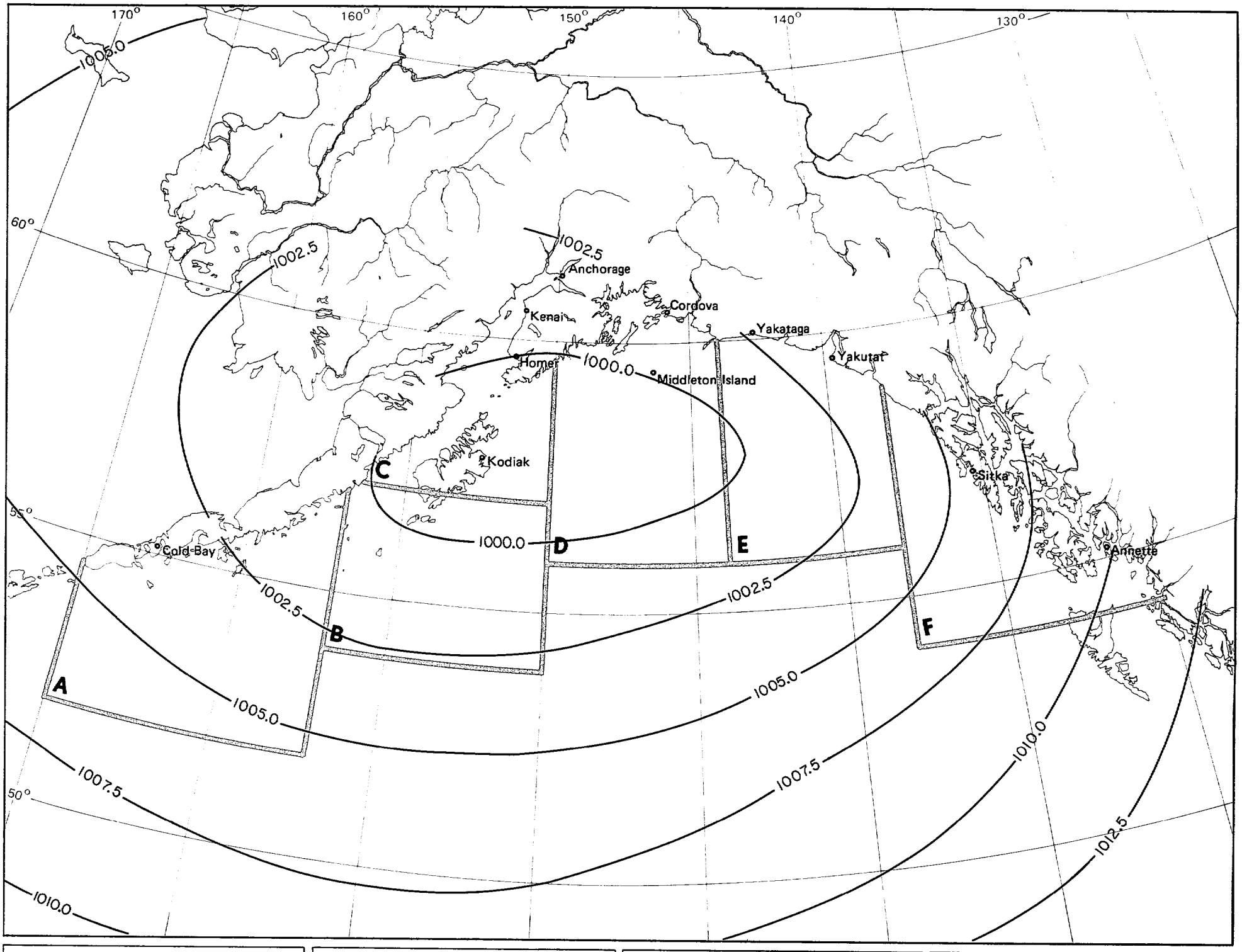


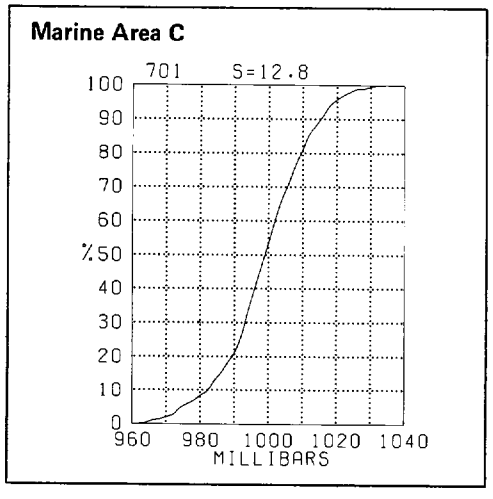
Marine Area A

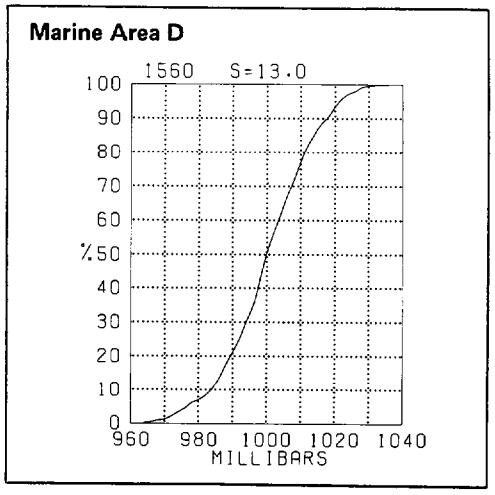


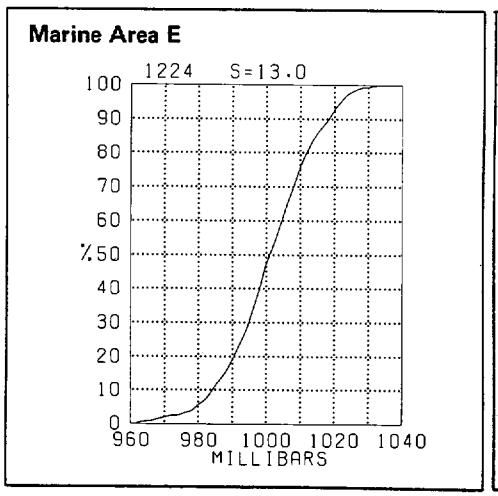
Marine Area B

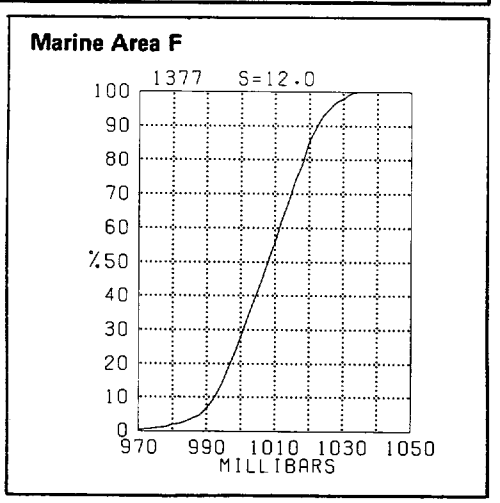










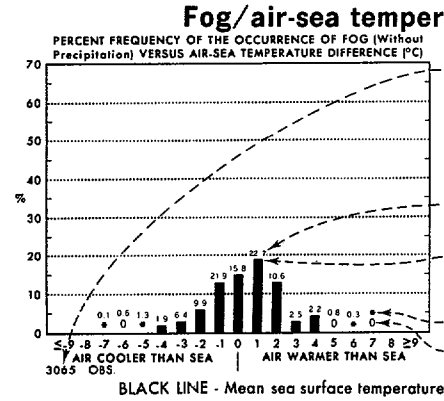


13 Mean sea level pressure

October

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

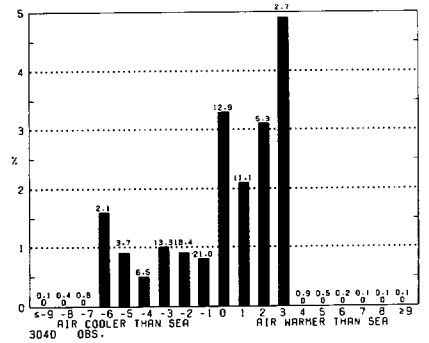
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

* indicates <.05% but >0.

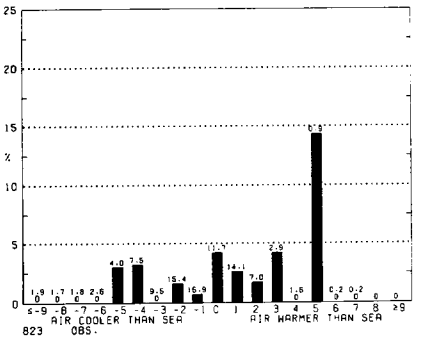
0 indicates no fog with the Air-Sea temperature difference category.

BLACK LINE - Mean sea surface temperature (°C)

Marine Area A

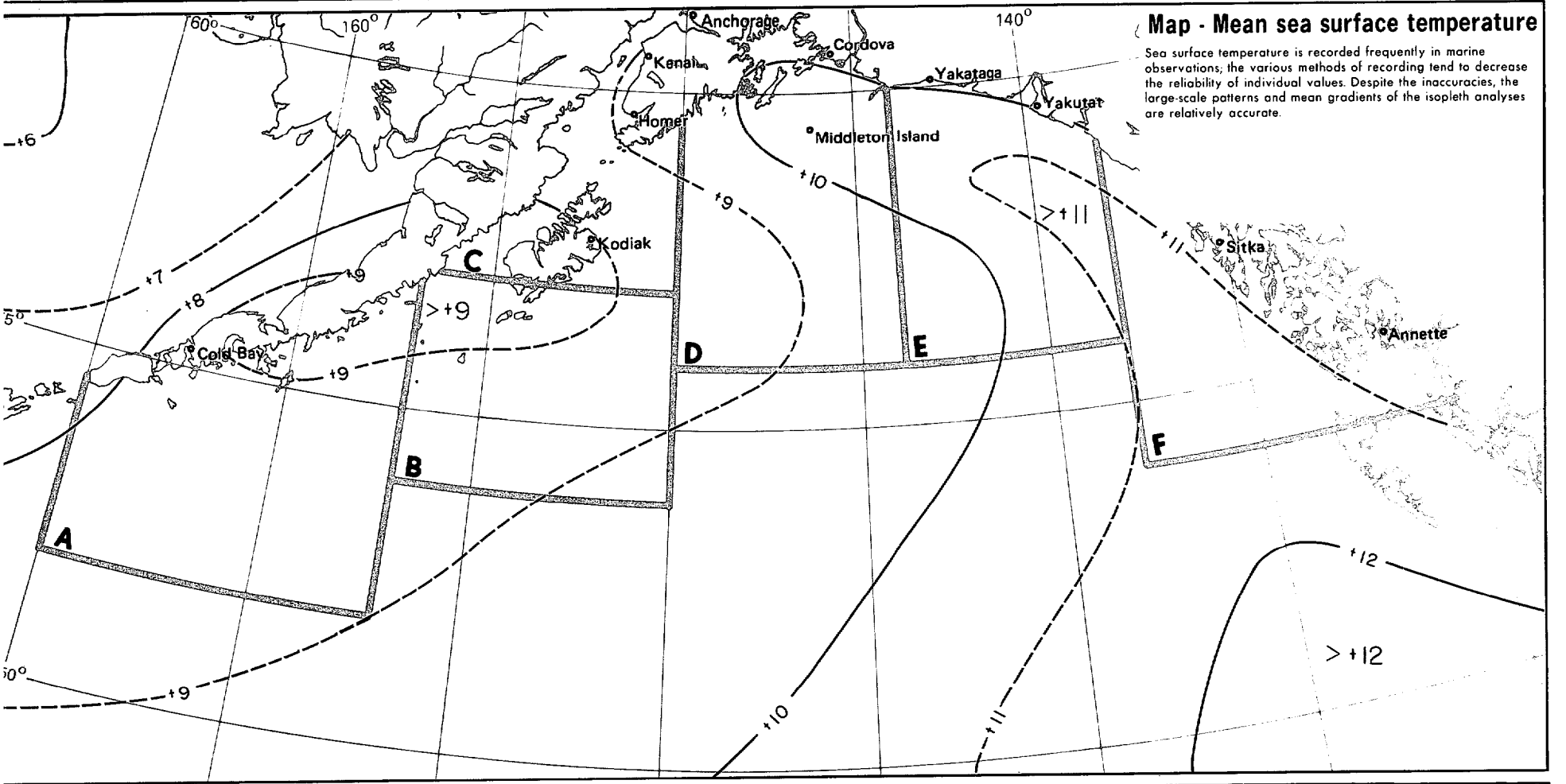


Marine Area B

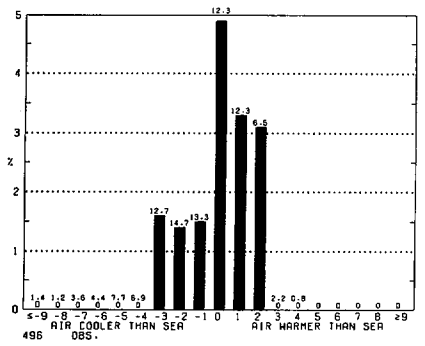


Map - Mean sea surface temperature

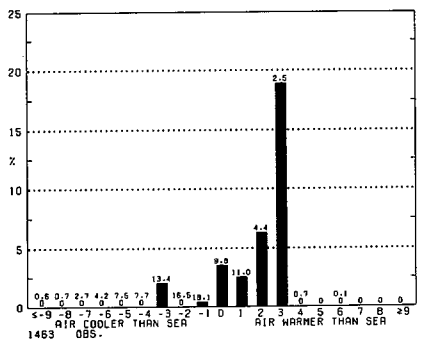
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



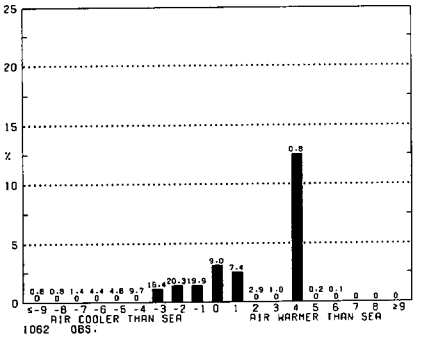
Marine Area C



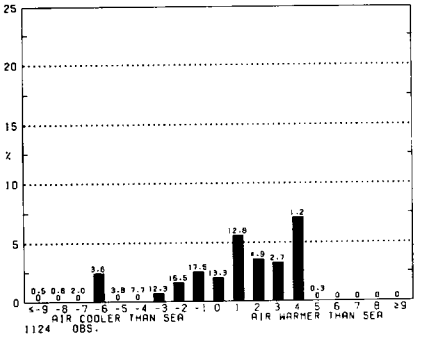
Marine Area D



Marine Area E

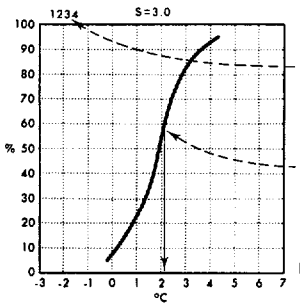


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

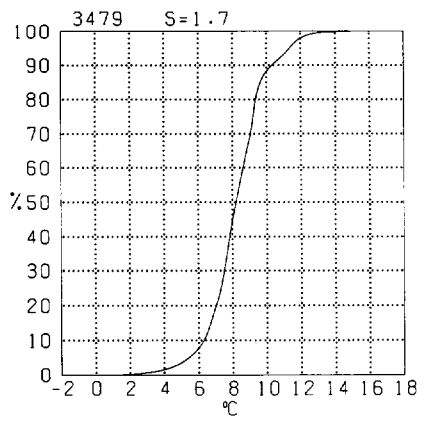
(60% of *all observed sea surface temperatures were* ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

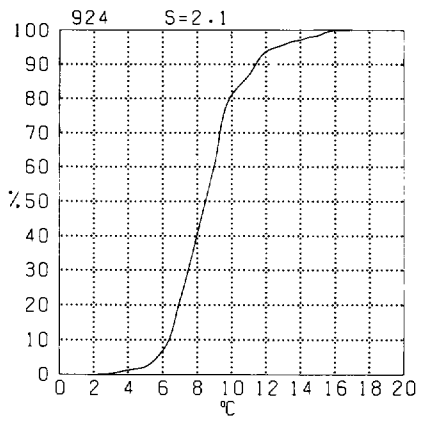
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

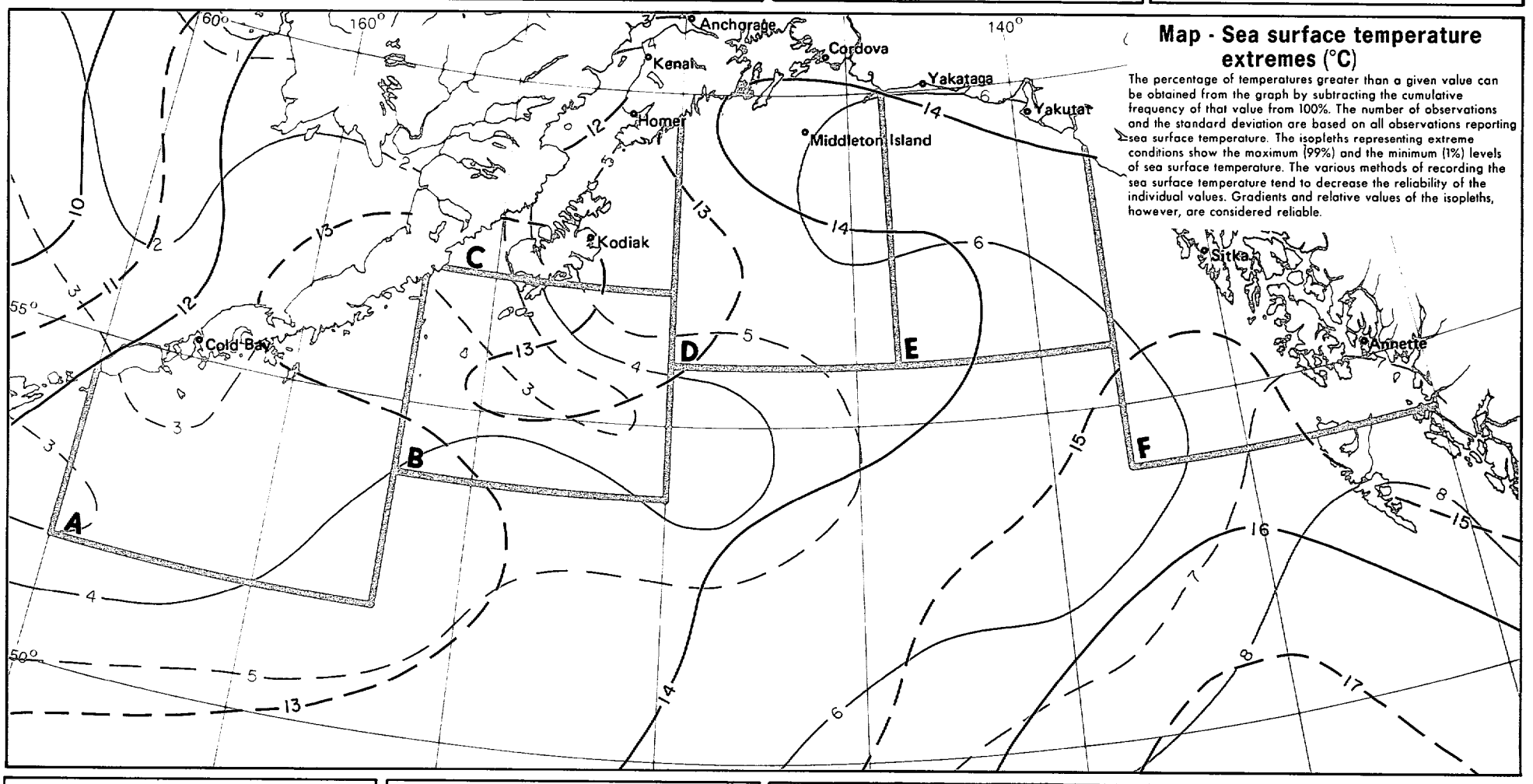
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

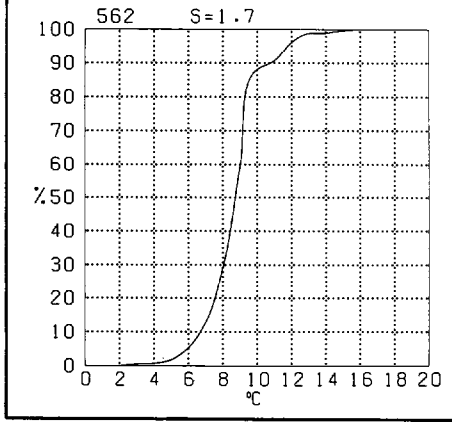




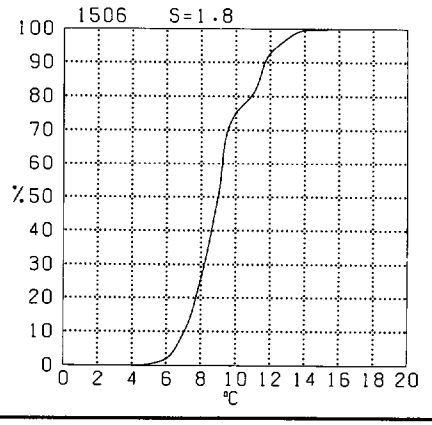
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

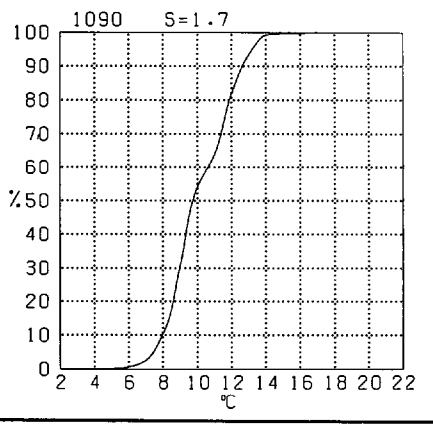
Marine Area C



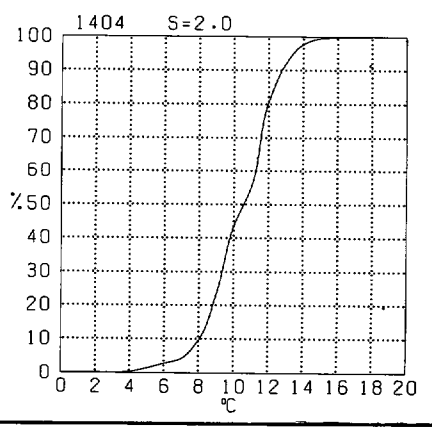
Marine Area D



Marine Area E



Marine Area F

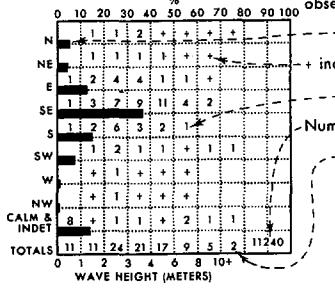


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



– – –(5% of *all waves were from the* N.)

\+ indicates <.5% but >0.

– – –(1% of *all waves were from the S with heights from 6-7.5 meters.*)

Number of observations.

–(2% of *the waves from all directions had heights* ≥10 meters.)

WAVE HEIGHT INTERVAL

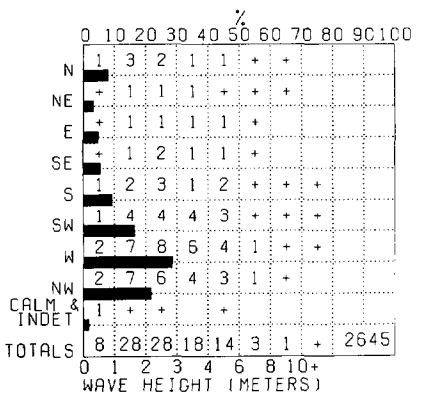
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10
	0	1	2	3	4	6	8	10+

Printed scale on bottom of chart

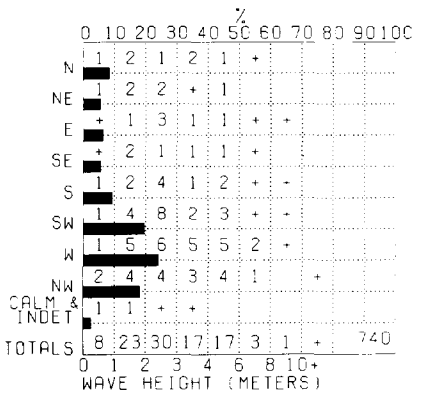
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

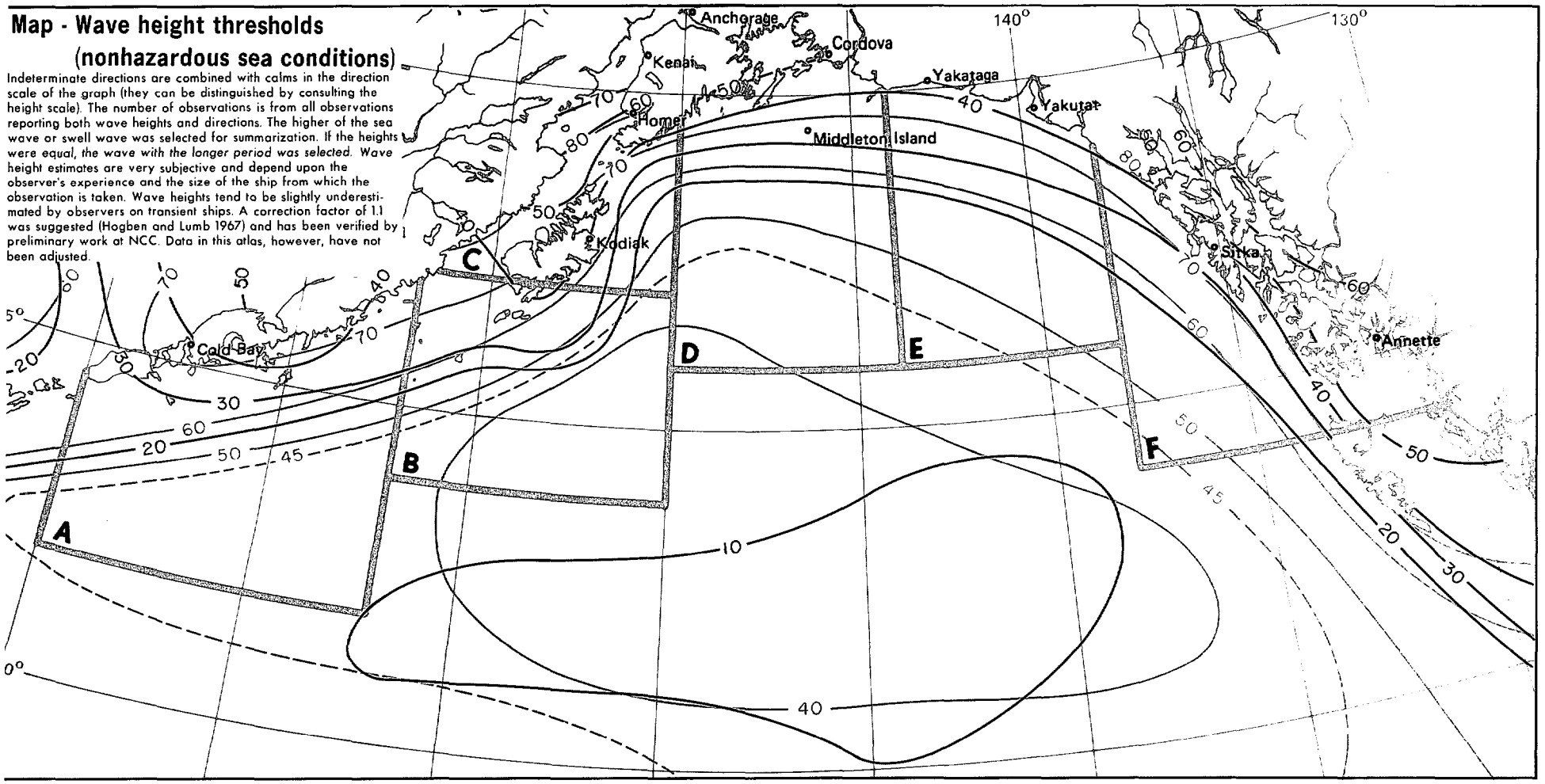


Marine Area B

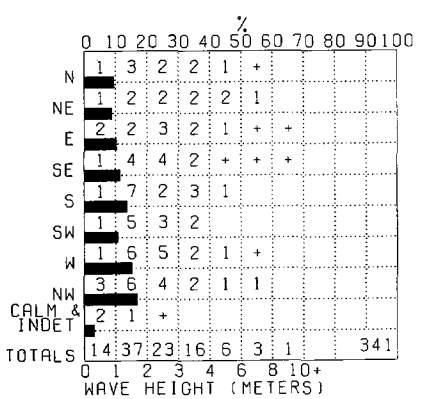


Map - Wave height thresholds (nonhazardous sea conditions)

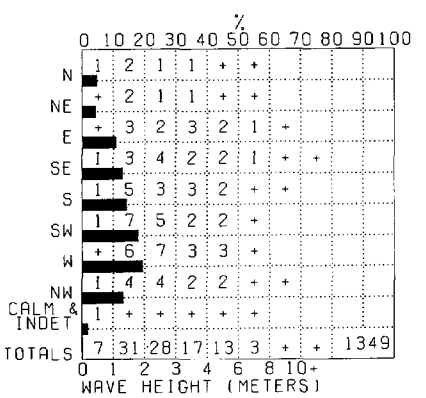
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, *the wave with the longer period was selected.* Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



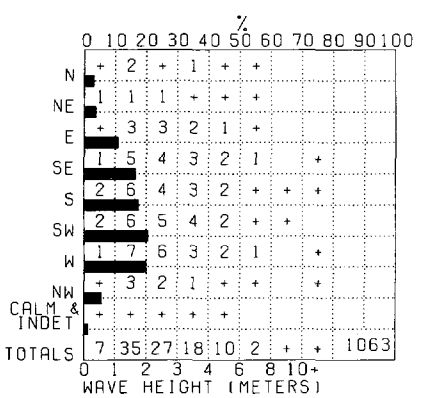
Marine Area C



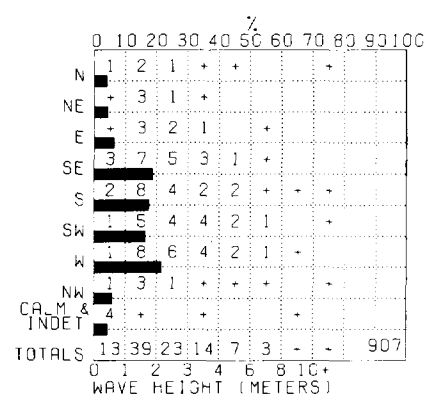
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	+	+	0	0	2
1-1.5	15	8	2	1	+	+	1
2-2.5	7	11	6	2	+	+	1
3-3.5	2	6	7	2	1	+	1
4-5.5	1	4	4	2	1	1	1
6-7.5	0	1	1	+	+	+	0
8-9.5	0	+	+	+	+	+	0
≥10	0	+	+	0	0	+	0

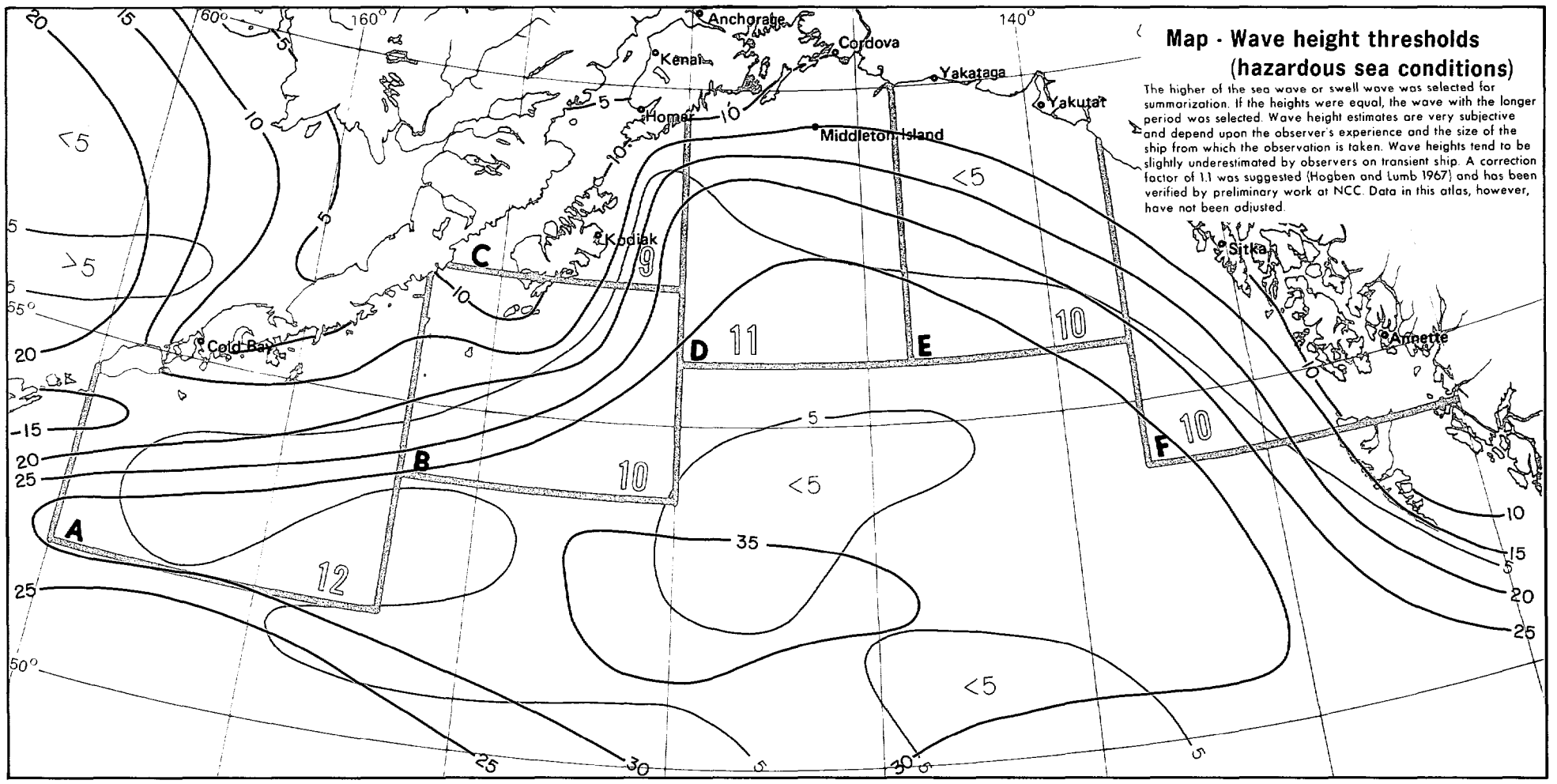
2702

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	0	0	0	2
1-1.5	11	6	2	1	1	+	1
2-2.5	8	13	5	3	+	+	1
3-3.5	1	7	5	2	1	1	+
4-5.5	1	5	7	3	1	1	1
6-7.5	0	2	1	+	+	+	0
8-9.5	0	0	+	0	+	+	+
≥10	0	+	0	0	0	0	0

744



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	10	1	1	+	0	0	3
1-1.5	20	10	4	1	1	+	1
2-2.5	8	9	4	1	1	+	+
3-3.5	5	6	3	1	0	+	0
4-5.5	1	1	3	+	1	0	0
6-7.5	0	1	+	+	1	1	0
8-9.5	0	0	0	+	0	+	0
≥10	0	0	0	0	0	0	0

347

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	+	0	0	1
1-1.5	16	9	4	1	1	+	+
2-2.5	7	10	6	2	1	1	+
3-3.5	3	6	4	2	1	1	+
4-5.5	1	5	3	2	1	1	+
6-7.5	0	1	1	1	1	+	+
8-9.5	0	0	0	0	+	+	0
≥10	0	0	+	0	0	+	0

1377

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	+	1	+	0	0	1
1-1.5	13	11	6	1	1	+	3
2-2.5	6	9	6	3	1	1	1
3-3.5	1	7	5	2	2	1	1
4-5.5	+	2	2	3	1	1	1
6-7.5	0	+	1	+	+	+	+
8-9.5	0	0	0	0	0	+	0
≥10	0	0	+	+	0	+	0

1073

Marine Area F

PERIOD (SECONDS)

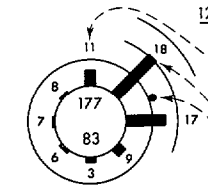
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	11	1	+	0	0	0	4
1-1.5	18	10	3	1	2	+	3
2-2.5	6	7	6	2	+	1	1
3-3.5	1	4	4	2	1	1	1
4-5.5	1	2	2	1	1	+	+
6-7.5	0	1	1	+	+	+	+
8-9.5	0	0	+	0	0	+	+
≥10	0	0	0	+	0	+	0

941

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

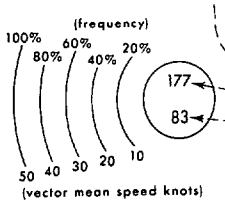


Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)



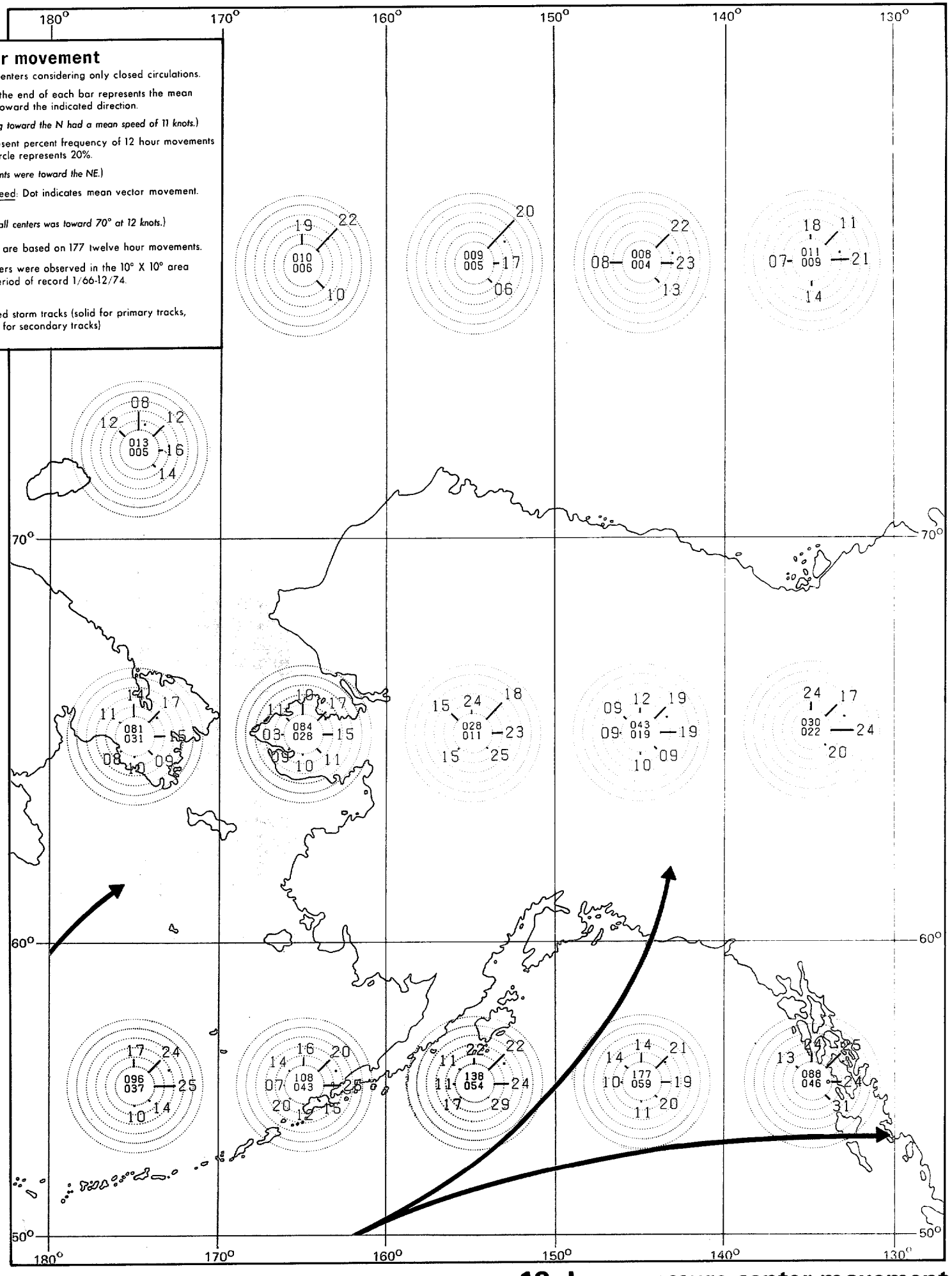
Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

Statistics for this rose are based on 177 twelve hour movements.

83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1/66-12/74.

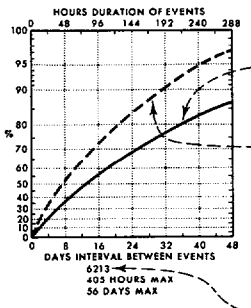
BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)



Legend

Persistence of visibility <2 n. mi.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

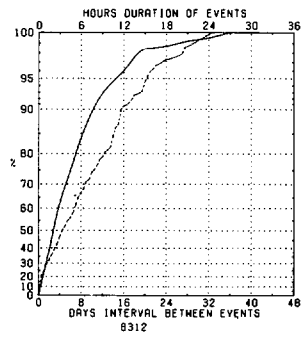
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

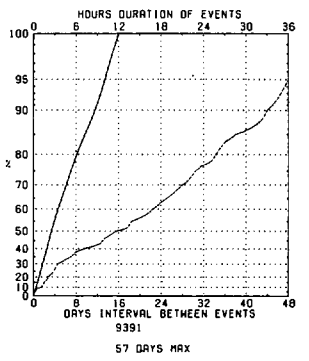
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

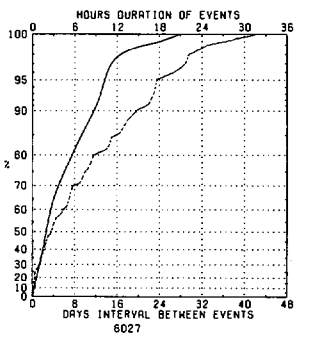
Kodiak



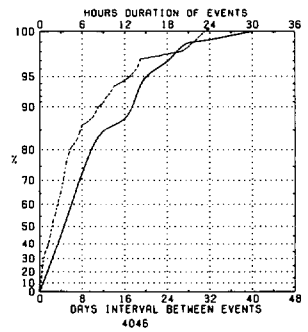
Homer



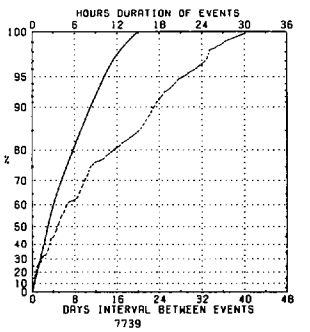
Kenai



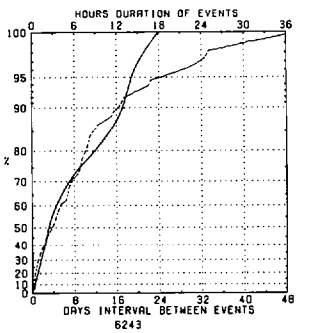
Middleton Island



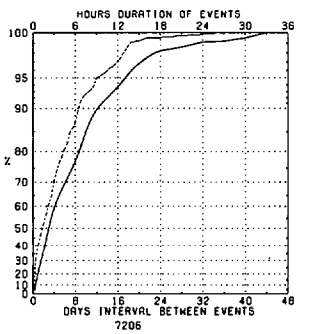
Cordova



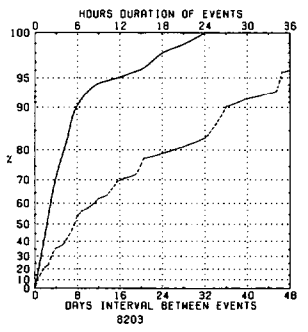
Yakataga



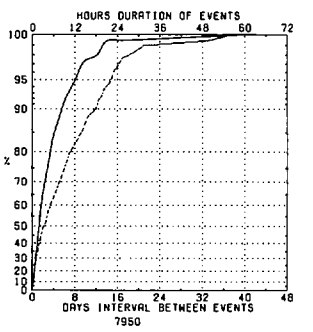
Yakutat



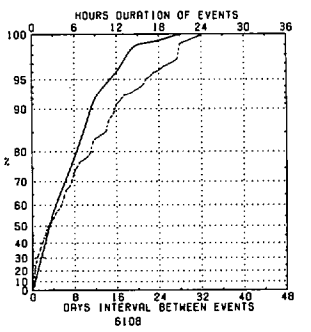
Sitka



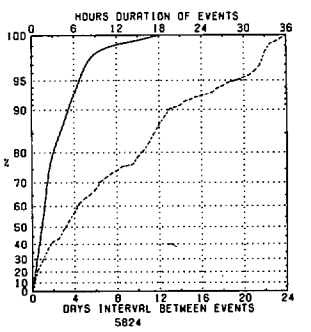
Annette



Anchorage



Cold Bay



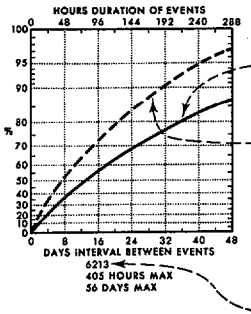
19 Persistence of visibility < 2 n. mi.

October

Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

---(80% of *the events had a duration ≤216 hours.*)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

---(88% of *the events were followed by another event in 28 days or less.*)

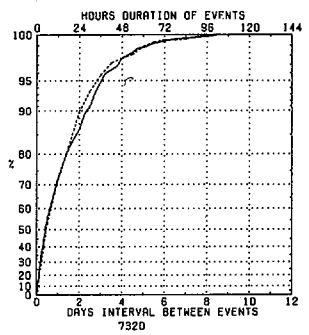
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

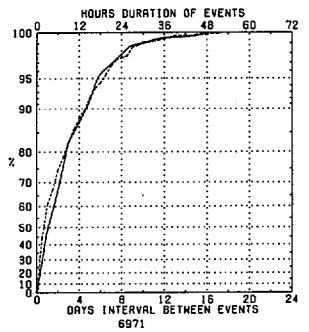
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

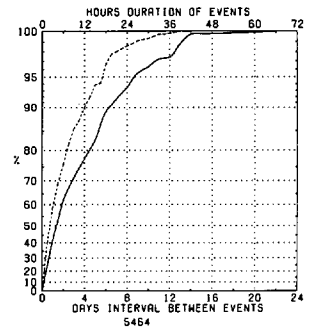
Kodiak



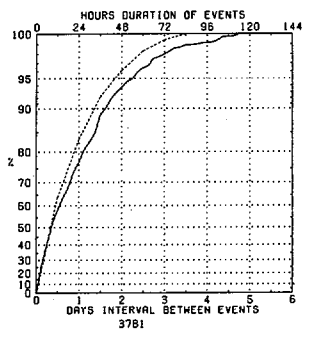
Homer



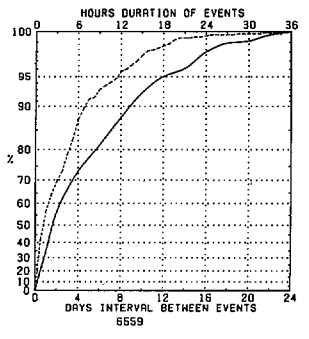
Kenai



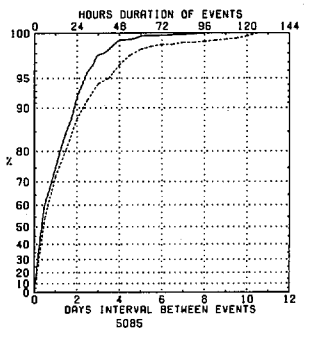
Middleton Island



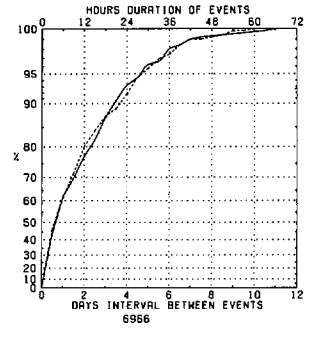
Cordova



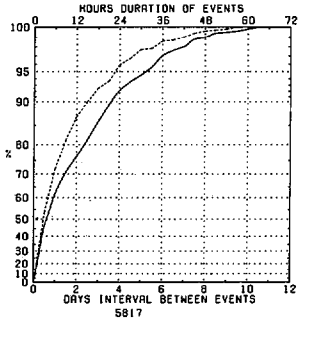
Yakataga



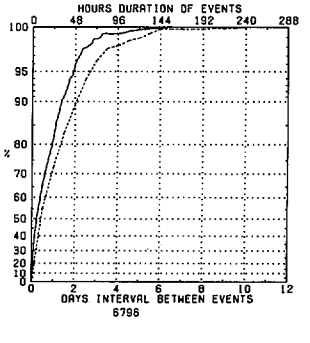
Yakutat



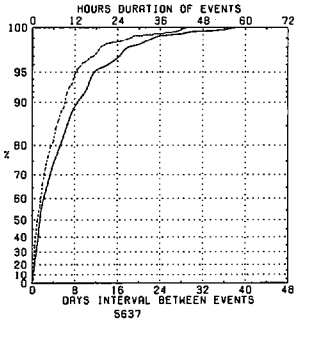
Sitka



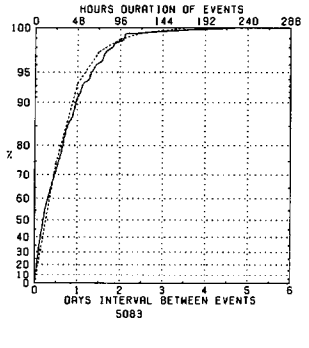
Annette



Anchorage



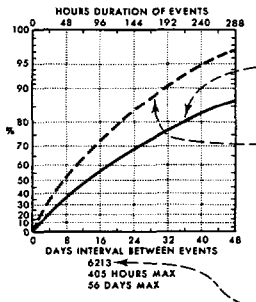
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

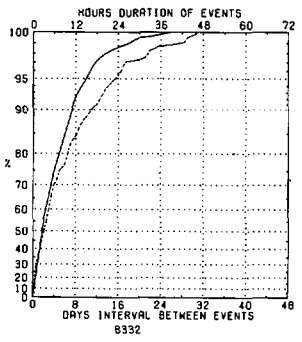
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

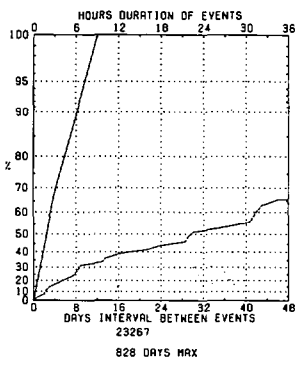
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

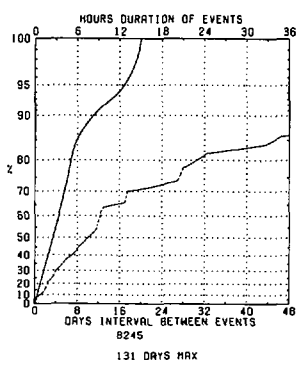
Kodiak



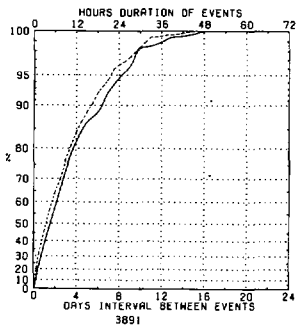
Homer



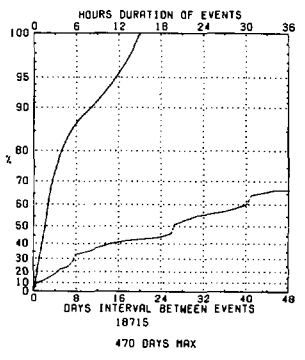
Kenai



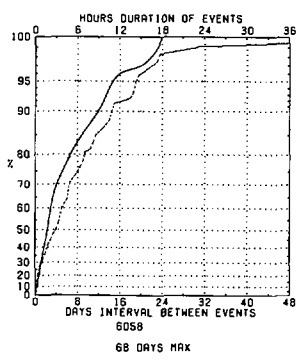
Middleton Island



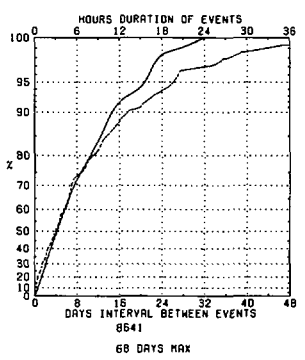
Cordova



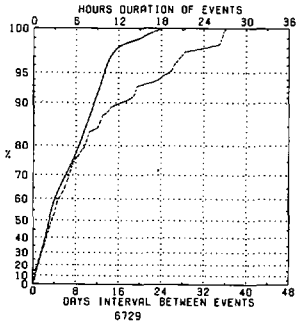
Yakataga



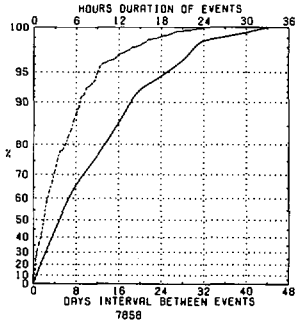
Yakutat



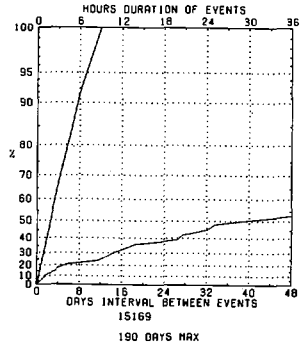
Sitka



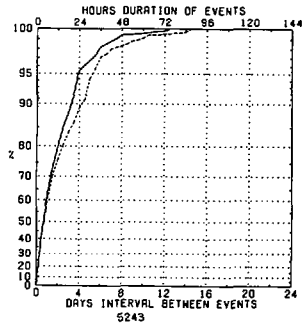
Annette



Anchorage

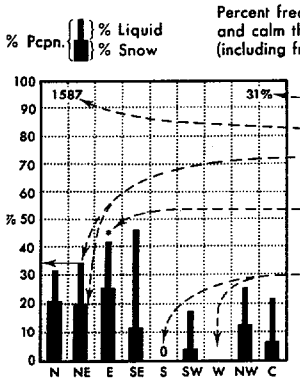


Cold Bay



Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.

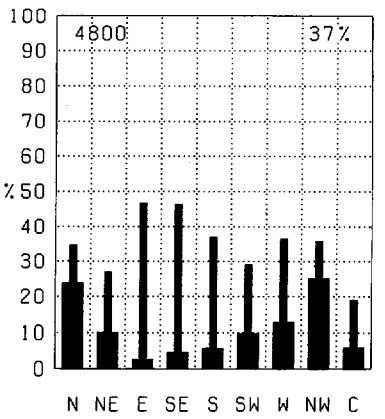
- Percentage of present weather observations reporting precipitation.
- Number of observations.
- *(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)*
- An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.
- 0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

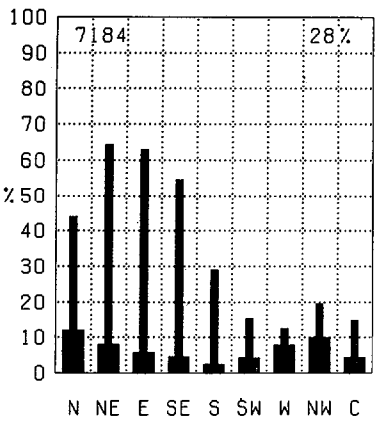
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

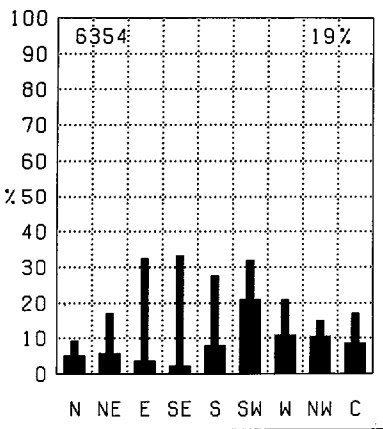
Cold Bay



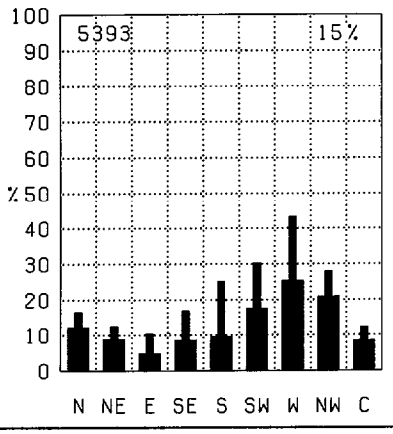
Kodiak



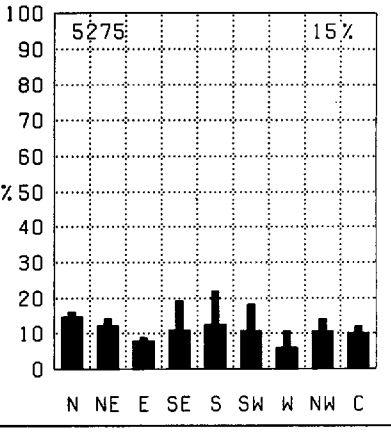
Homer



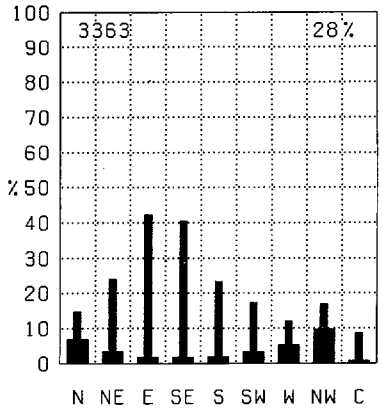
Kenai



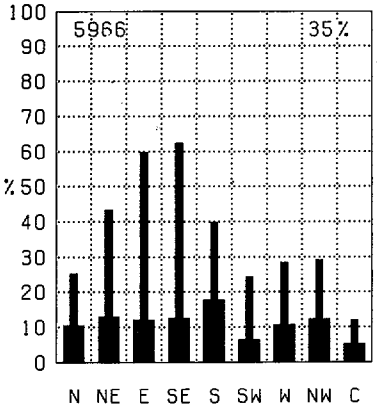
Anchorage



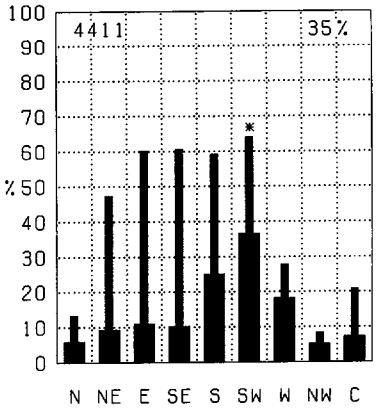
Middleton Island



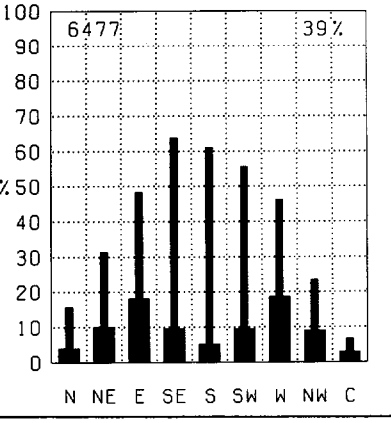
Cordova



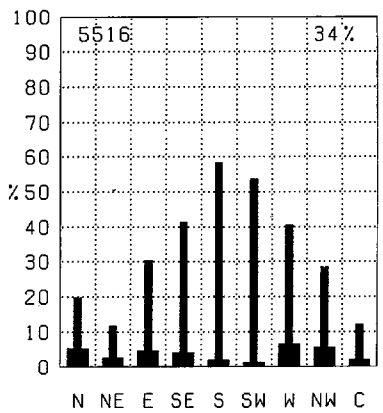
Yakataga



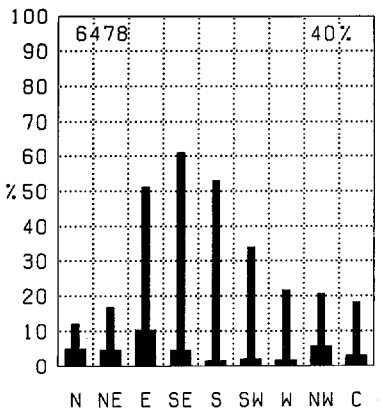
Yakutat



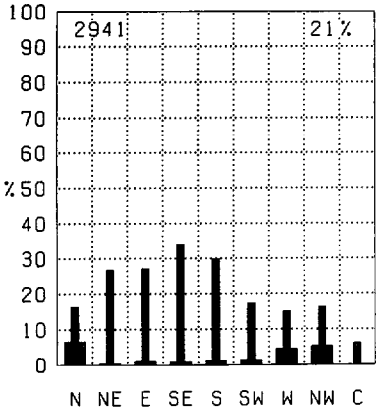
Sitka



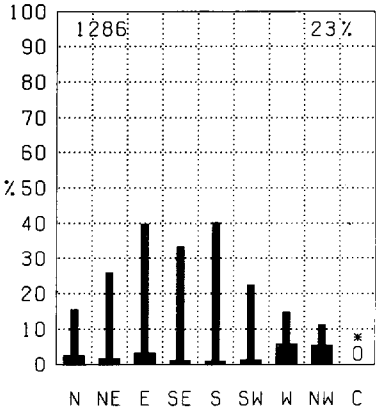
Annette

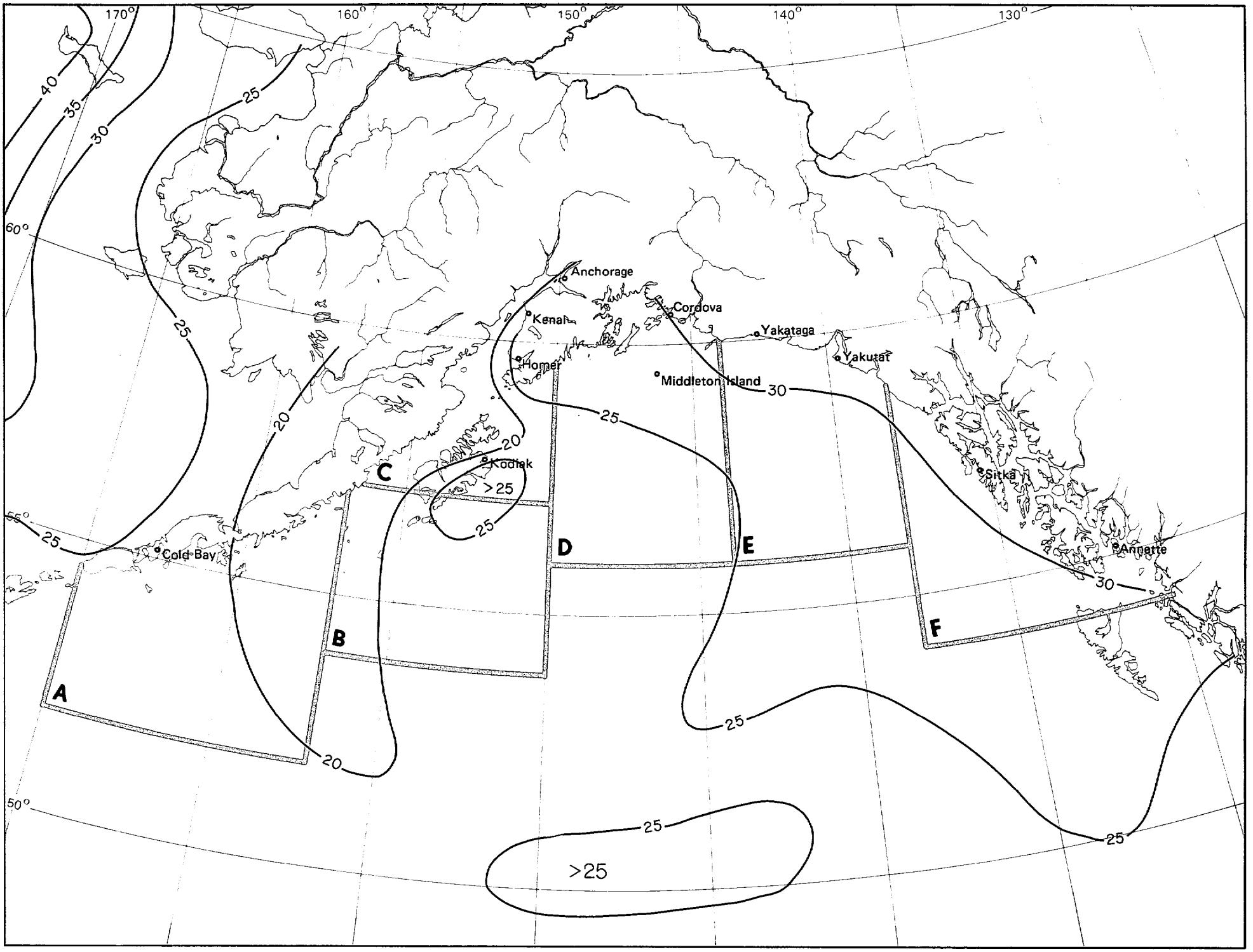


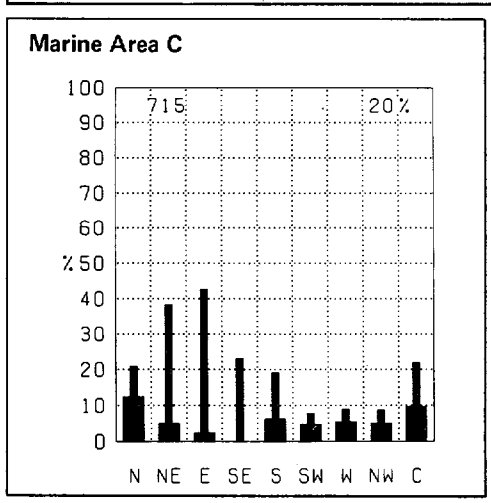
Marine Area A

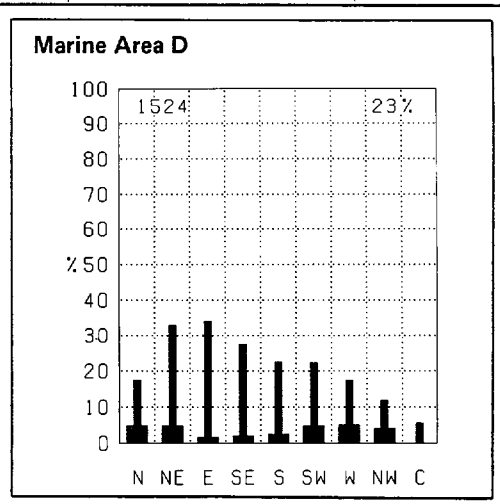


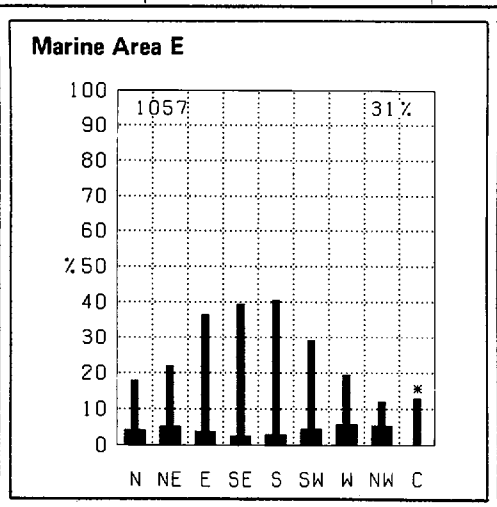
Marine Area B

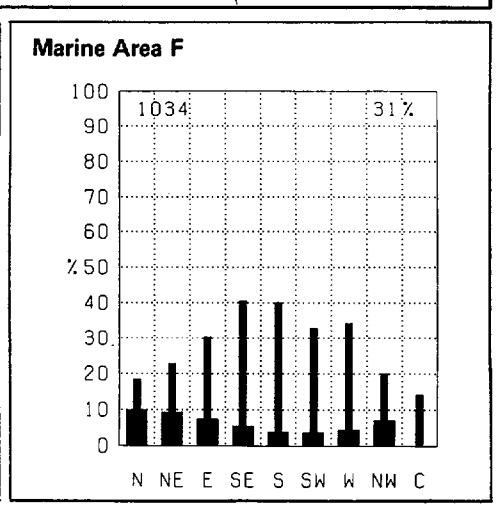



170°
160°
150°
140°
130°
60°
55°
50°
40
35
30
25
20
>25
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Annette
Cold Bay
A
B
C
D
E
F


Marine Area C
715
20%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

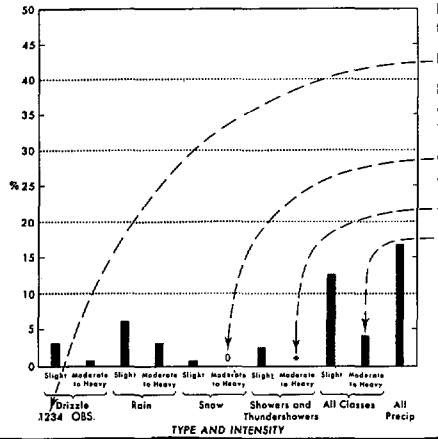

Marine Area D
1524
23%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
1057
31%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1034
31%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

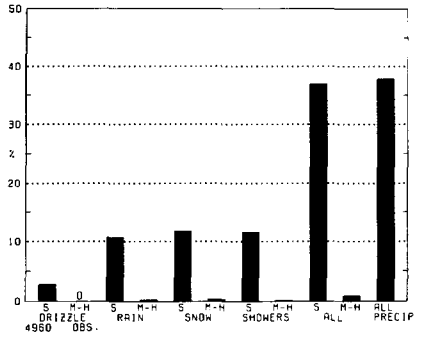
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

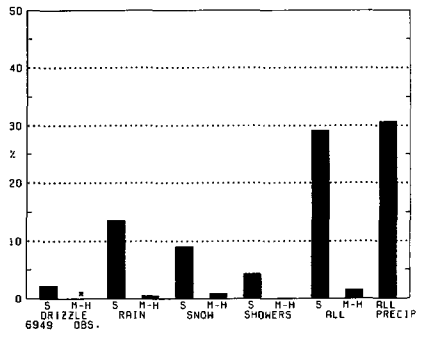
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

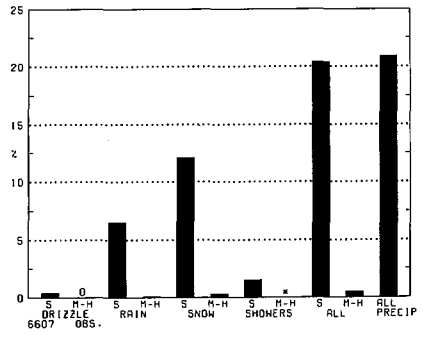
Cold Bay



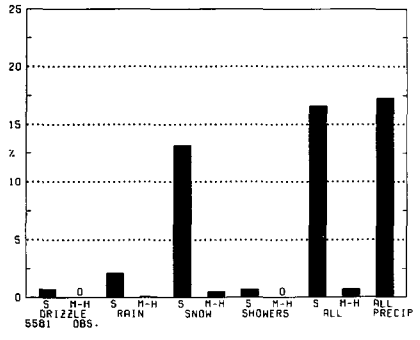
Kodiak



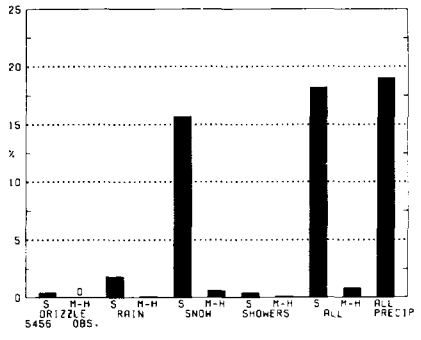
Homer



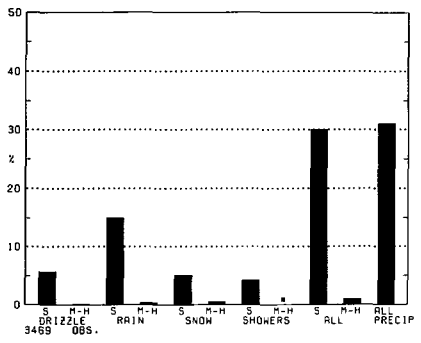
Kenai



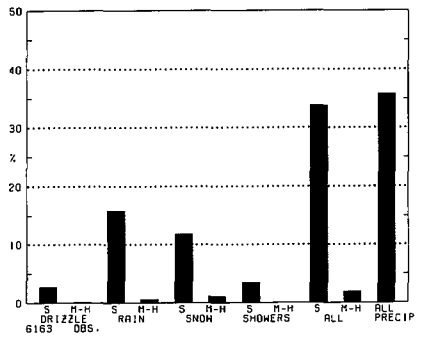
Anchorage



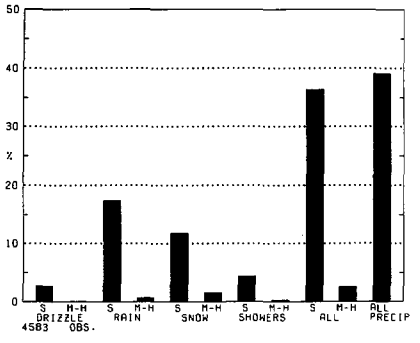
Middleton Island



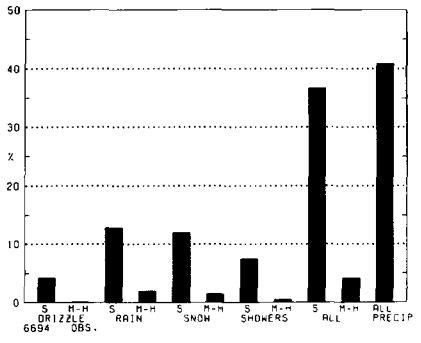
Cordova



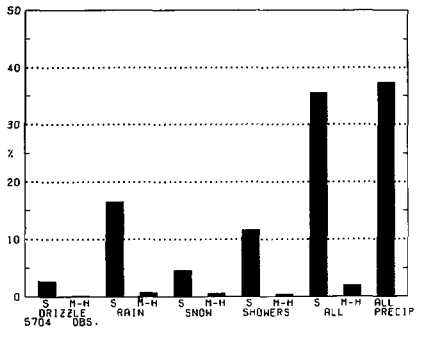
Yakataga



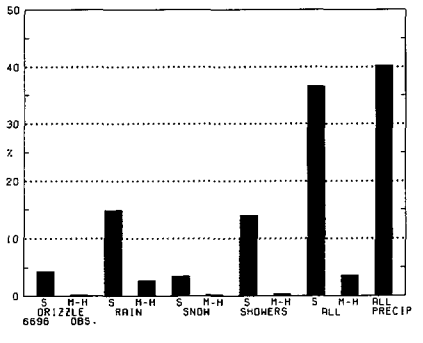
Yakutat



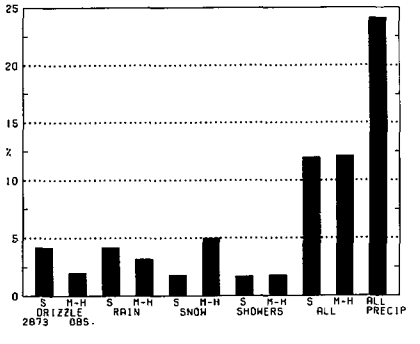
Sitka



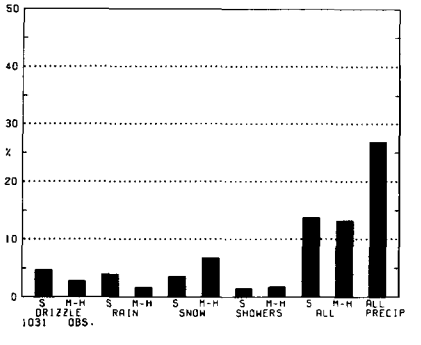
Annette

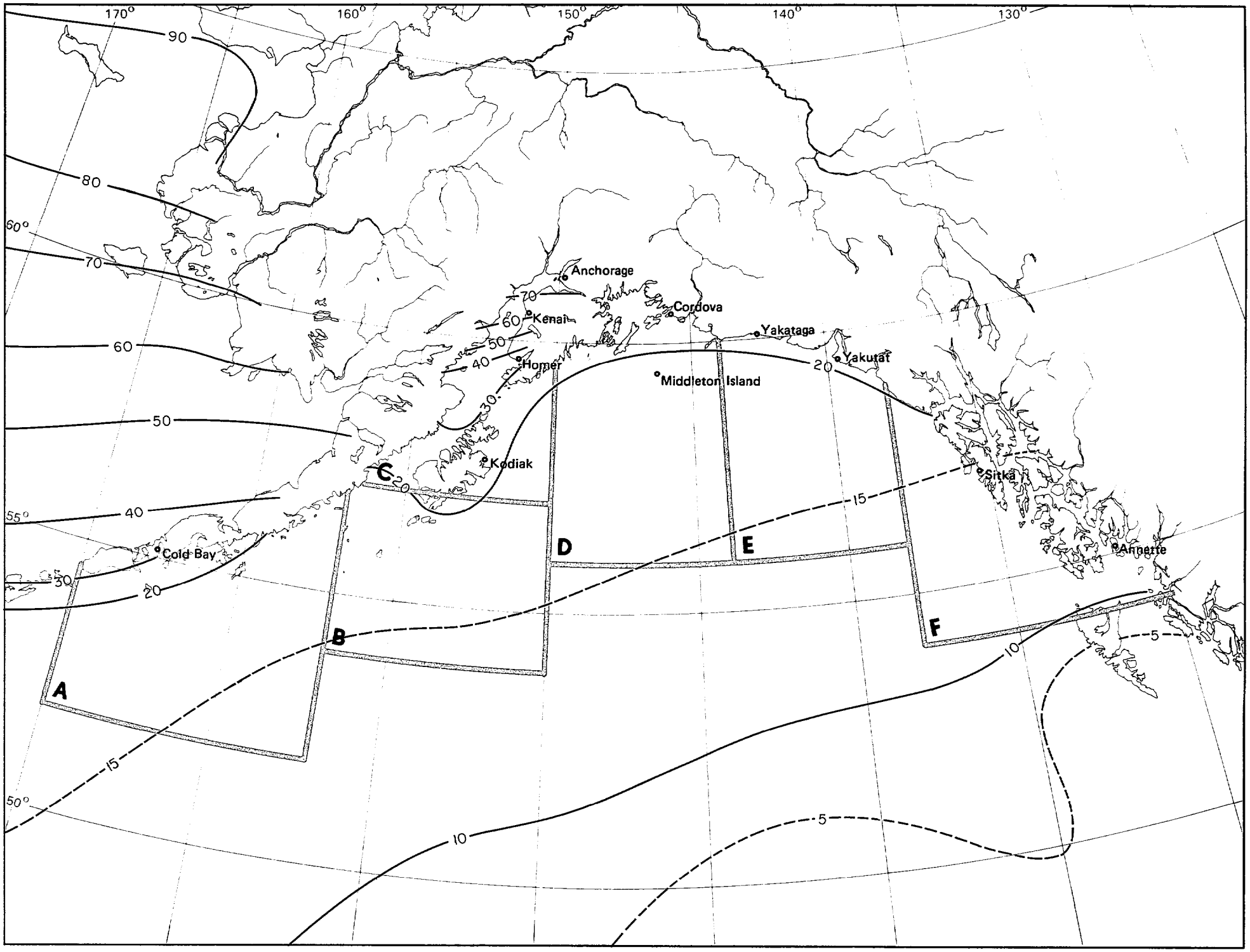


Marine Area A



Marine Area B




170°
160°
150°
140°
130°
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Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Cold Bay
Sitka
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A
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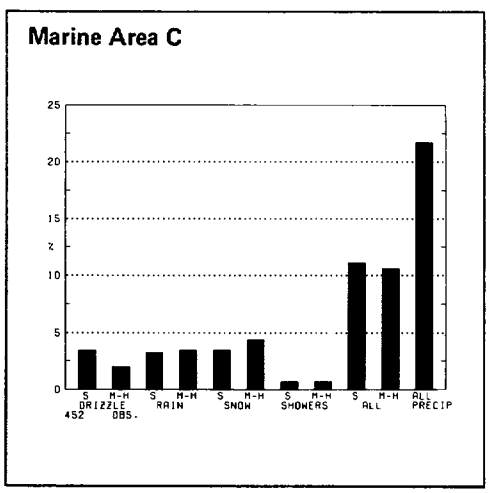
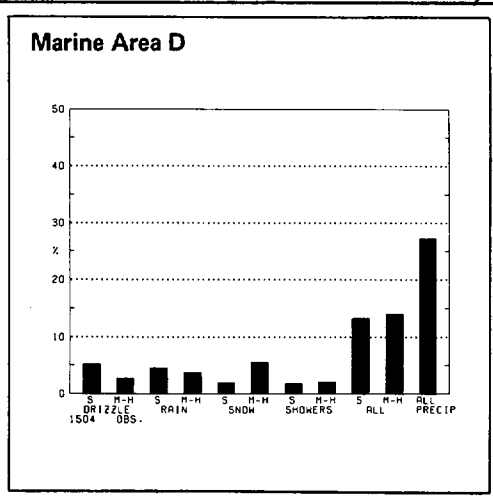
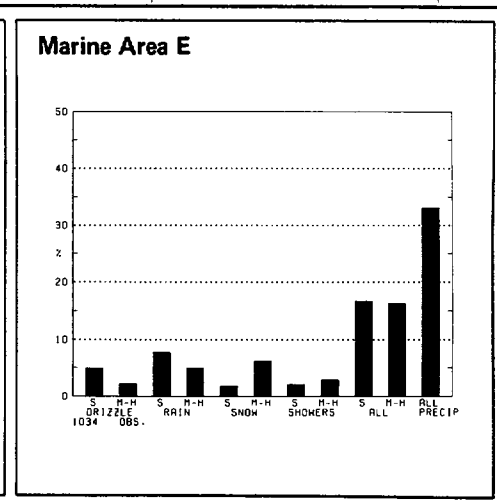
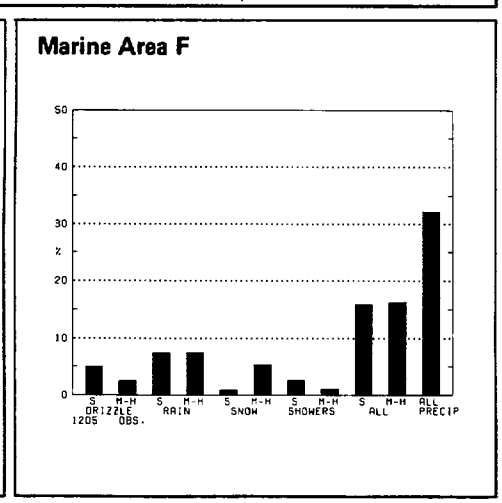
E
F


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP
452 OBS.

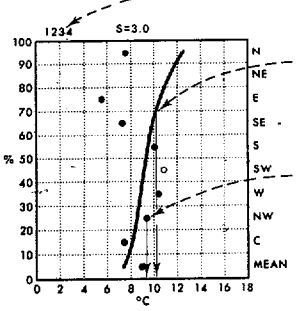

Marine Area D
50
40
30
%
20
10
0
S DRIZZLE
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP
1504 OBS.


Marine Area E
50
40
30
%
20
10
0
S DRIZZLE
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP
1034 OBS.


Marine Area F
50
40
30
%
20
10
0
S DRIZZLE
M-H
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP
1205 OBS.

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations. for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

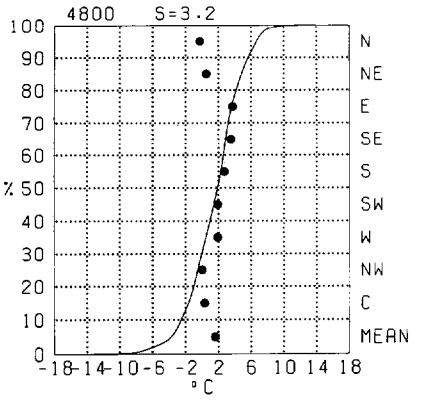
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

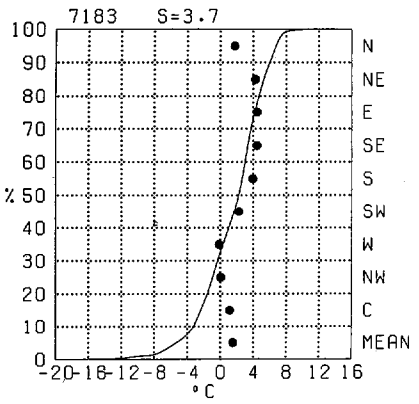
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

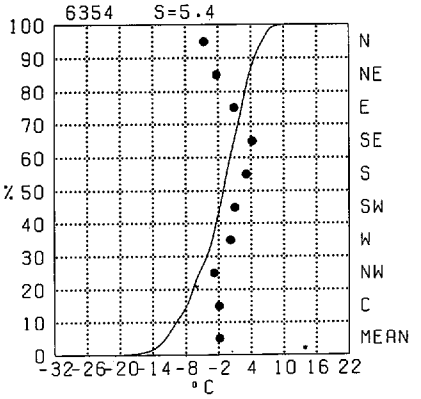
Cold Bay



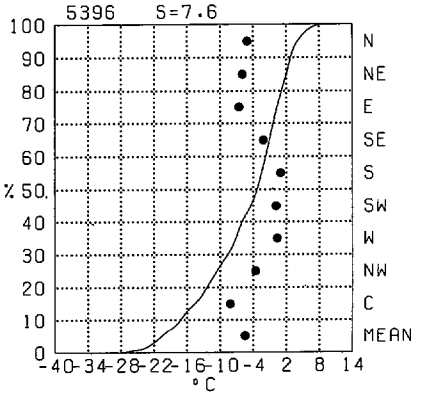
Kodiak



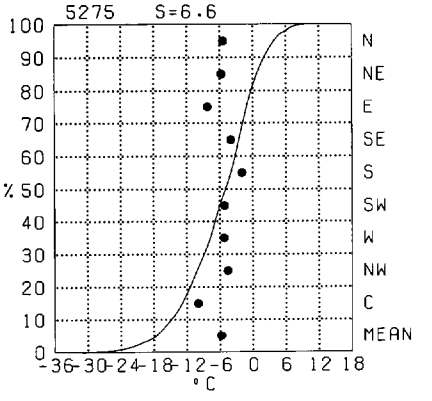
Homer



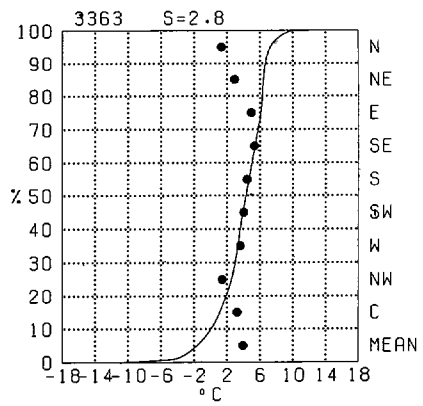
Kenai



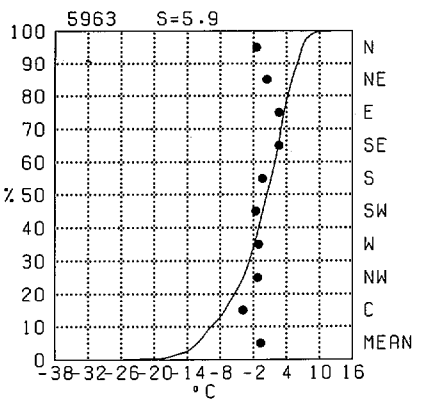
Anchorage



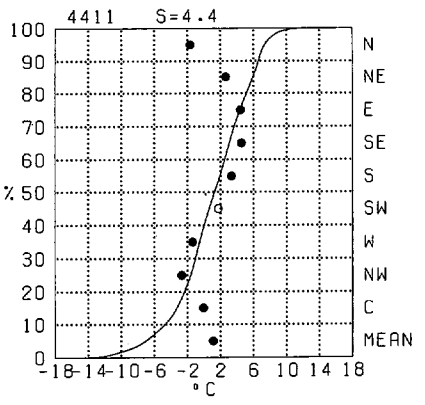
Middleton Island



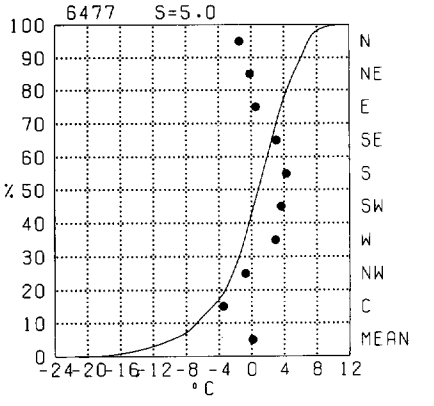
Cordova



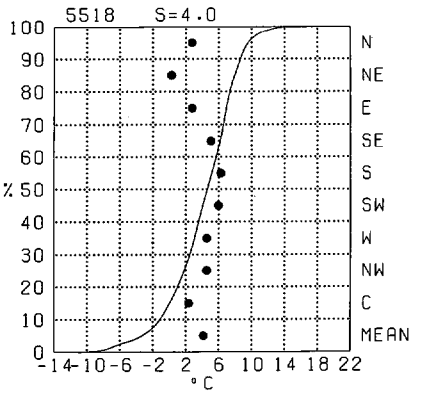
Yakataga



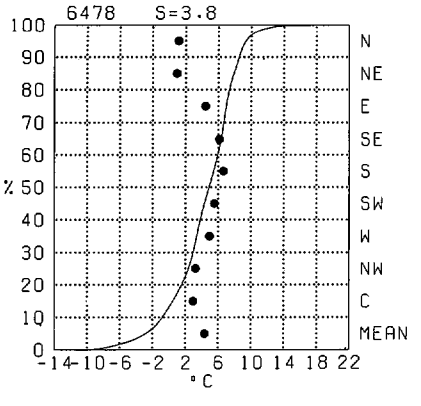
Yakutat



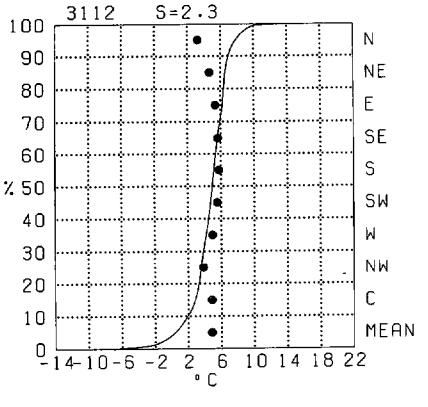
Sitka



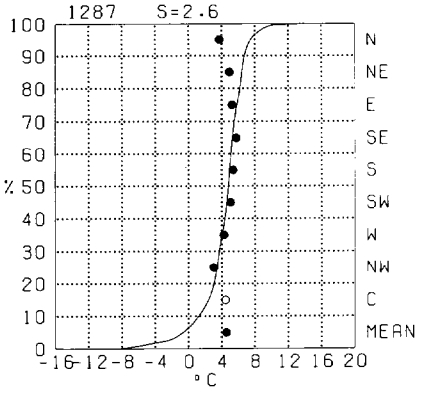
Annette

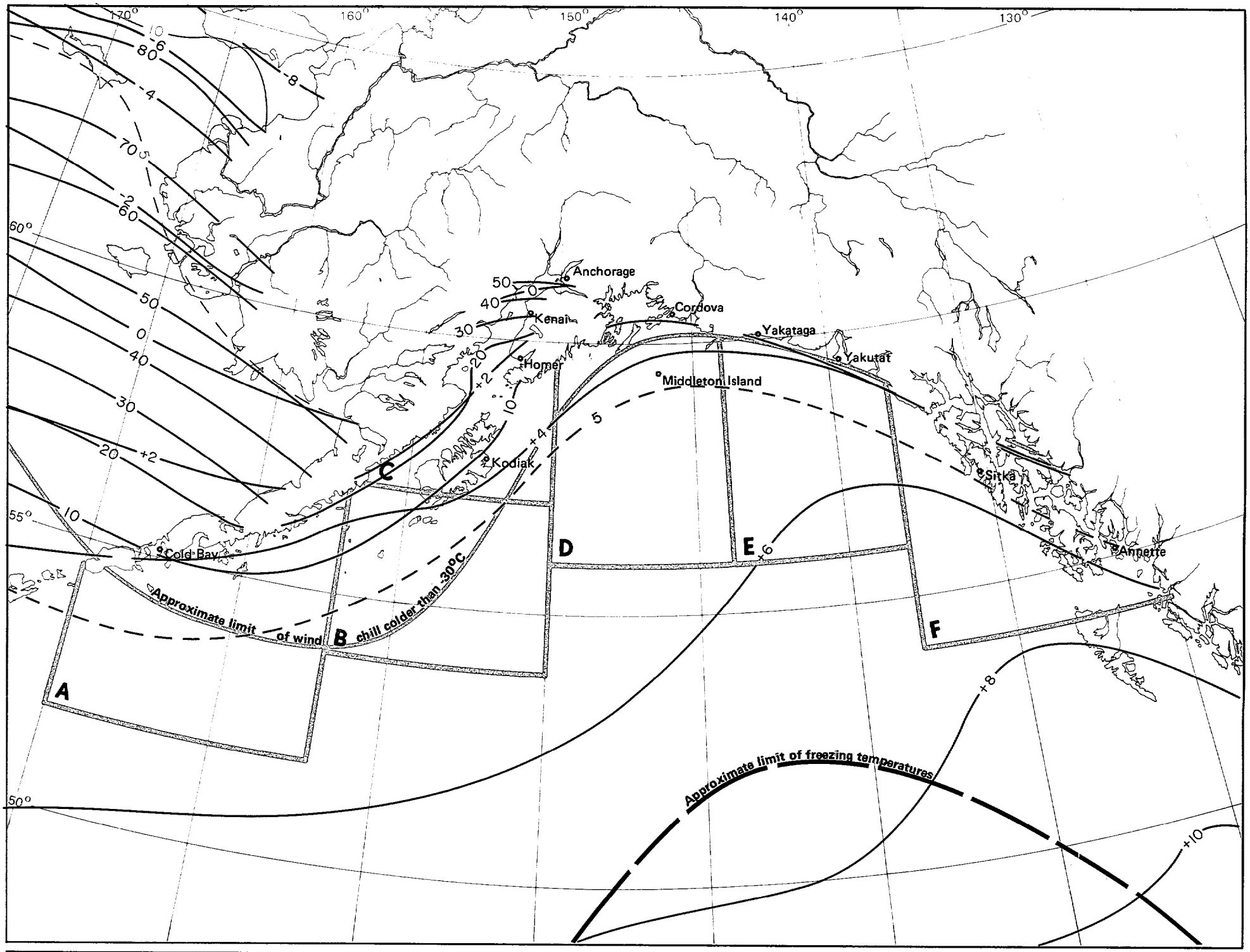


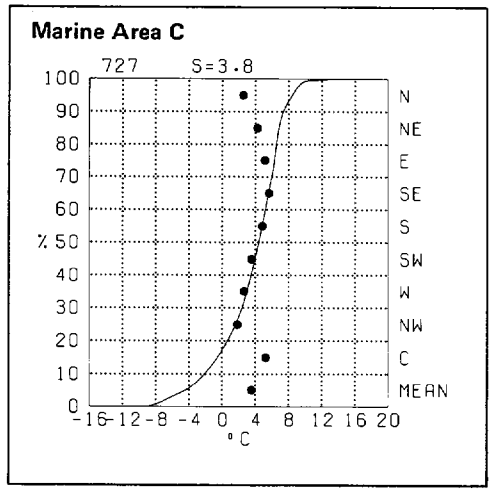
Marine Area A

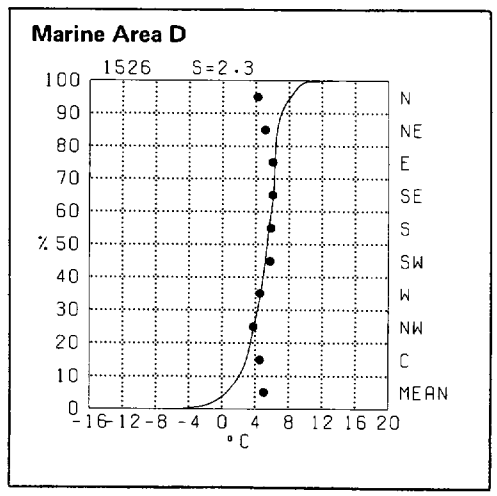


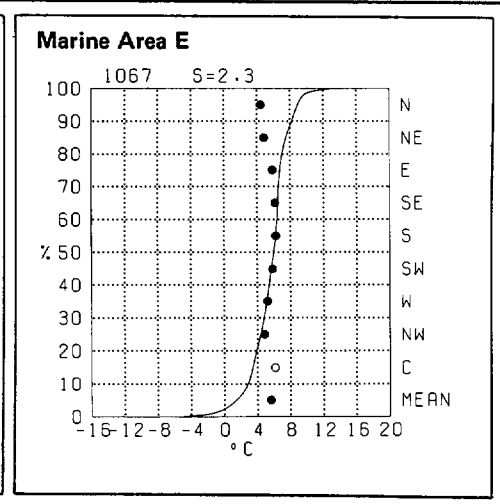
Marine Area B

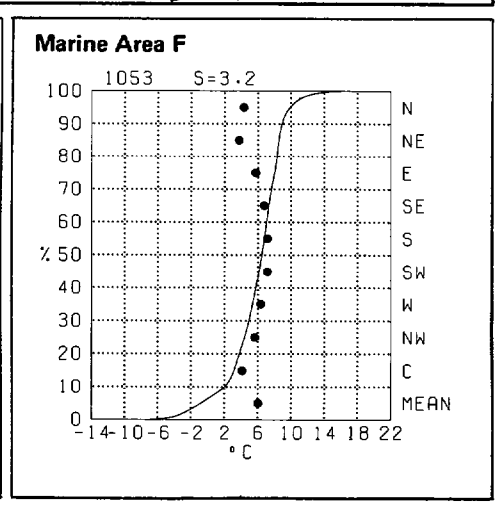










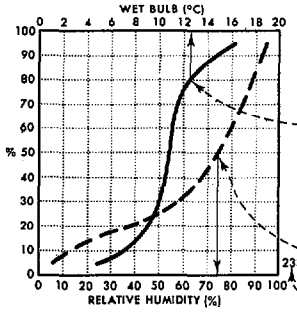


3 Air temperature mean and thresholds

November

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

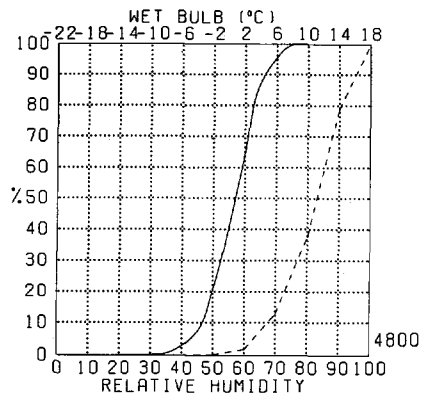
Number of observations.

Map - Mean dew point temperature

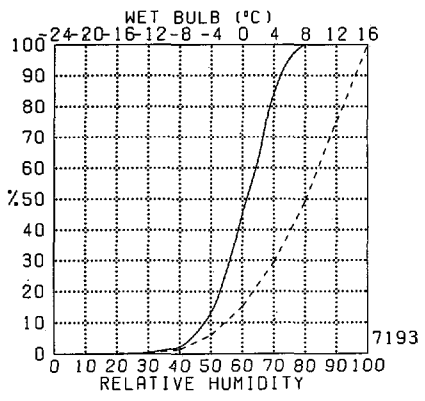
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

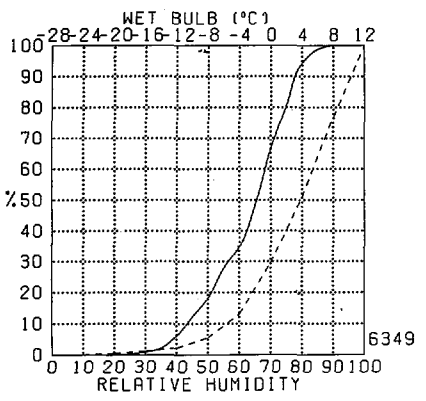
Cold Bay



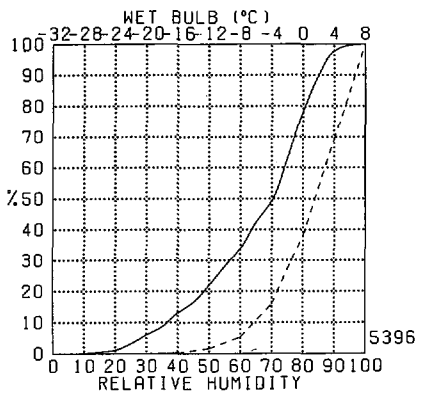
Kodiak



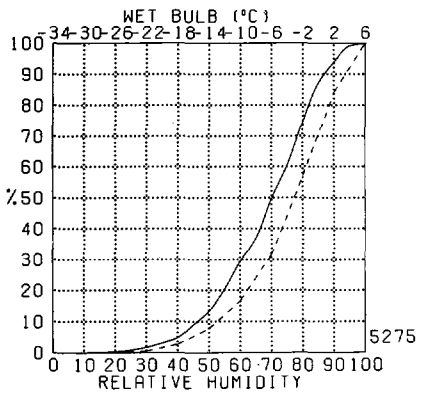
Homer



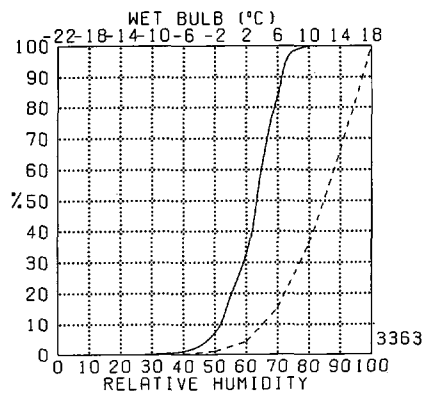
Kenai



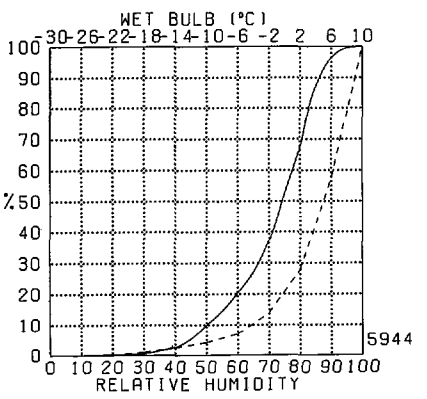
Anchorage



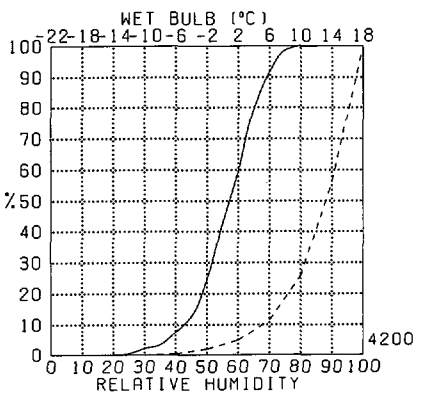
Middleton Island



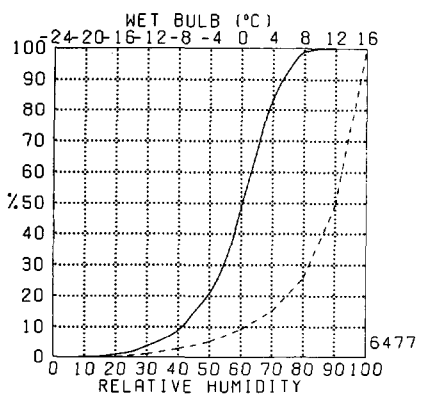
Cordova



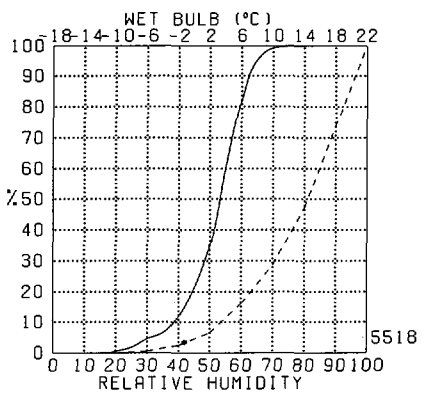
Yakataga



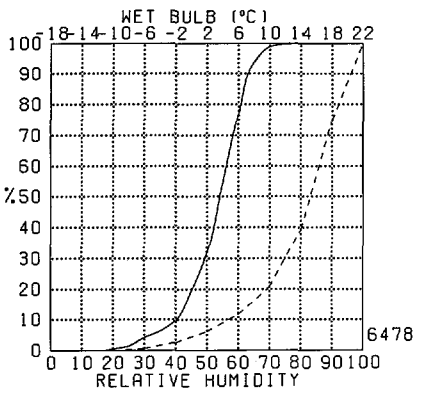
Yakutat



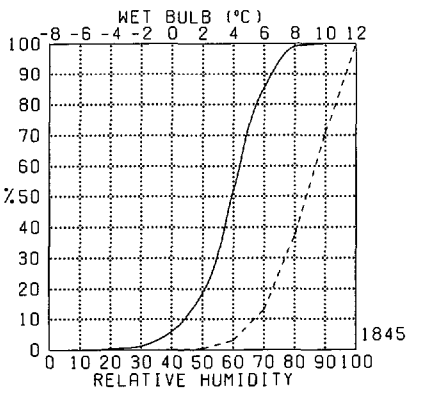
Sitka



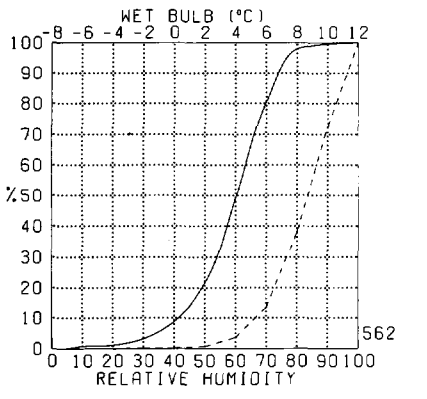
Annette

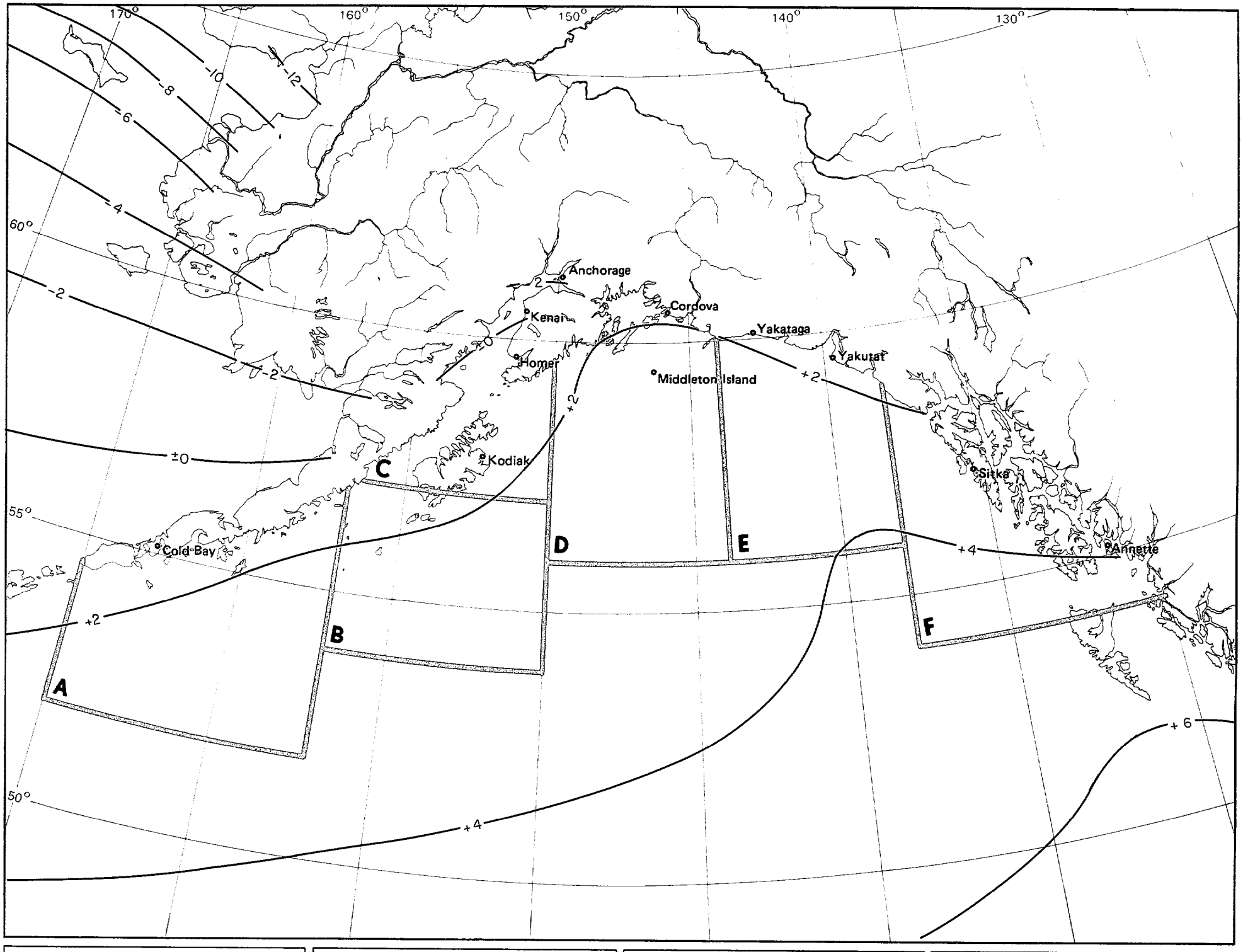


Marine Area A

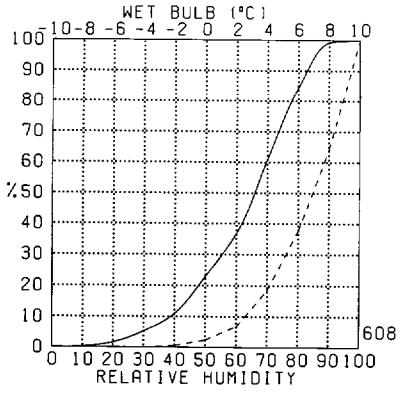


Marine Area B

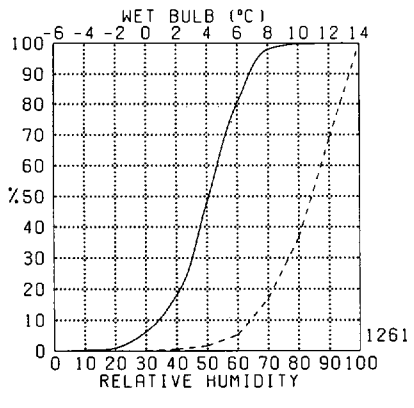




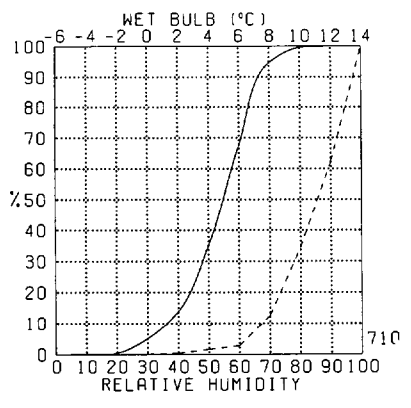
Marine Area C



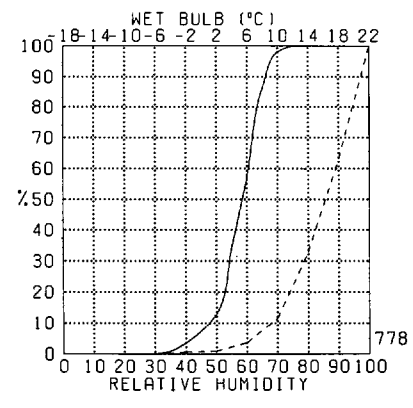
Marine Area D



Marine Area E



Marine Area F



4 Mean dew point temperature

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4, 5	18	8	7	1	1
2, 3	17	8	7	1	1
0, 1	13	6	5	1	1
-2, -1	1	+	0	0	0
-4, -3	0	0	0	0	0
-6, -5	+	0	0	+	+
-8, -7	1	+	0	0	0
-10, -9	0	0	0	0	0
-12, -11	1	+	0	0	0
-14, -13	1	0	0	0	0
-16, -15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

(1% of all observations reported temperature 2-3°C simultaneously with wind speed of 22-33 kts.)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	+	0	+	+	0
8,9	+	+	1	+	+
6,7	+	1	5	3	1
4,5	1	4	7	4	1
2,3	1	10	13	5	1
0,1	1	7	8	3	+
-2,-1	1	5	5	3	+
-4,-3	+	2	3	2	+
-6,-5	+	1	1	+	+
≤-7	+	1	+	+	0

4800

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	0	0
10,11	0	+	+	+	0
8,9	+	1	+	+	0
6,7	2	5	6	2	+
4,5	3	7	7	1	+
2,3	6	9	8	2	+
0,1	4	5	4	1	+
-2,-1	3	5	4	1	+
-4,-3	2	3	2	1	+
-6,-5	+	1	1	+	+
≤-7	1	1	1	+	+

7183

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	+	0	0	0
16,17	0	0	0	0	0
14,15	0	0	0	0	0
12,13	0	0	0	0	0
10,11	0	+	+	0	0
8,9	+	1	+	+	0
6,7	1	3	3	+	0
4,5	1	4	3	+	0
2,3	5	8	3	+	0
0,1	6	7	2	+	0
≤-1	18	32	4	+	0

6354

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	+	+	0	0
8,9	+	+	+	0	0
6,7	+	1	1	0	0
4,5	1	3	2	+	+
2,3	1	6	4	+	0
0,1	2	6	4	+	0
-2,-1	3	7	4	+	0
-4,-3	2	6	2	+	0
-6,-5	2	3	1	+	0
-8,-7	2	4	1	+	+
≤-9	11	18	1	+	0

5396

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	0	0	+	0	0
8,9	0	+	+	+	0
6,7	+	1	1	+	0
4,5	+	2	1	+	0
2,3	2	4	1	0	0
0,1	3	5	1	+	0
-2,-1	4	8	1	0	0
-4,-3	4	9	1	0	0
-6,-5	3	6	1	0	0
≤-7	22	18	2	+	0

5275

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	0	+	0
10,11	0	+	+	+	0
8,9	+	1	3	1	1
6,7	1	8	15	6	1
4,5	2	9	12	3	1
2,3	2	8	8	2	1
0,1	1	3	3	1	+
-2,-1	+	2	1	1	+
-4,-3	+	+	1	1	0
-6,-5	+	0	+	+	0
≤-7	0	0	+	+	0

3363

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	+	+	+	0	0
8,9	+	1	1	+	0
6,7	1	5	3	+	0
4,5	3	7	3	+	0
2,3	6	9	2	+	0
0,1	7	5	1	0	0
-2,-1	8	4	+	0	0
-4,-3	7	2	+	0	0
-6,-5	4	1	+	0	0
≤-7	14	3	+	0	0

5963

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
14,15	0	0	+	0	0
12,13	0	0	+	+	0
10,11	0	+	+	+	+
8,9	+	1	3	1	+
6,7	1	4	8	1	+
4,5	2	5	6	1	0
2,3	5	8	4	+	+
0,1	6	8	1	+	0
-2,-1	6	8	1	+	0
-4,-3	3	6	+	0	0
≤-5	4	6	+	0	0

4411

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	+	0	0	0	0
10,11	+	+	+	+	+
8,9	+	1	1	1	+
6,7	1	4	4	1	+
4,5	2	6	4	+	+
2,3	3	12	4	+	+
0,1	4	11	2	+	0
-2,-1	5	7	1	+	0
-4,-3	4	4	1	+	0
-6,-5	2	2	+	0	0
≤-7	7	3	1	+	0

6477

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	0	+	0	0
16,17	0	0	+	0	0
14,15	0	+	+	+	0
12,13	+	+	1	+	0
10,11	+	1	2	+	0
8,9	2	4	6	1	+
6,7	3	10	9	1	+
4,5	4	9	4	+	+
2,3	6	9	2	+	+
0,1	4	5	1	+	+
≤-1	5	6	2	+	0

5518

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
18,19	0	+	+	0	0
16,17	0	+	+	+	0
14,15	+	0	+	+	0
12,13	+	+	1	+	+
10,11	+	1	2	1	+
8,9	1	4	8	2	+
6,7	2	11	11	3	+
4,5	2	8	6	1	+
2,3	3	9	5	1	+
0,1	2	4	1	+	0
≤-1	1	6	3	+	0

6478

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	0	+
10,11	0	+	1	+	+
8,9	+	1	4	2	1
6,7	1	6	14	11	3
4,5	1	6	13	9	3
2,3	+	3	7	4	2
0,1	0	1	1	2	1
-2,-1	+	+	1	+	+
-4,-3	0	+	+	+	+
-6,-5	0	+	+	+	0
-8,-7	0	+	0	0	+

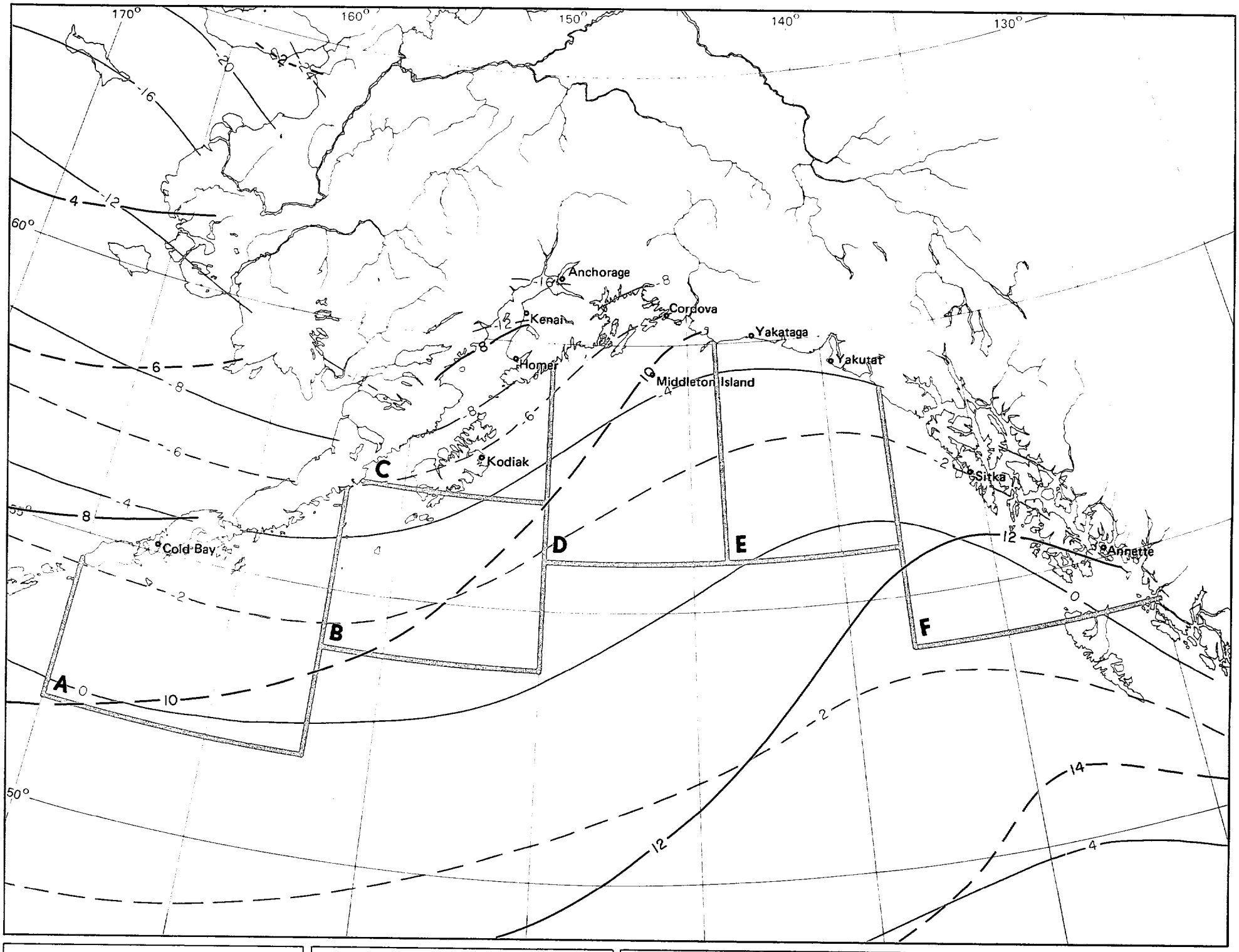
3112

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	+	+	+	+	+
8,9	0	1	3	1	1
6,7	1	5	15	9	3
4,5	1	6	17	9	3
2,3	+	2	6	5	1
0,1	+	+	2	2	1
-2,-1	0	+	1	1	1
-4,-3	0	+	+	+	+
-6,-5	0	0	+	+	+
≤-7	0	+	+	+	+

1287



Marine Area C

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12.13	+	+	+	0	0
10.11	+	+	+	+	+
8.9	2	2	4	1	+
6.7	4	5	11	7	4
4.5	2	5	8	3	2
2.3	1	4	4	3	2
0.1	1	3	3	2	1
-2.-1	1	2	2	1	+
-4.-3	+	1	2	1	0
-6.-5	0	1	1	+	+
≤-7	+	1	1	+	+

727

Marine Area D

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12.13	0	+	+	+	+
10.11	+	+	+	+	0
8.9	+	2	4	3	1
6.7	1	10	16	10	4
4.5	1	7	10	5	3
2.3	1	3	4	3	2
0.1	+	1	1	1	2
-2.-1	+	+	+	+	+
-4.-3	0	+	+	0	0
-6.-5	0	0	+	+	0
-8.-7	0	0	0	0	0

1526

Marine Area E

TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
12.13	0	+	+	+	0
10.11	0	+	1	+	+
8.9	1	5	7	3	1
6.7	1	10	17	10	5
4.5	1	6	7	3	2
2.3	+	3	5	3	1
0.1	0	1	1	1	+
-2.-1	0	+	+	+	+
-4.-3	0	0	+	+	0
-6.-5	0	0	0	0	+
-8.-7	0	0	0	0	0

1067

Marine Area F

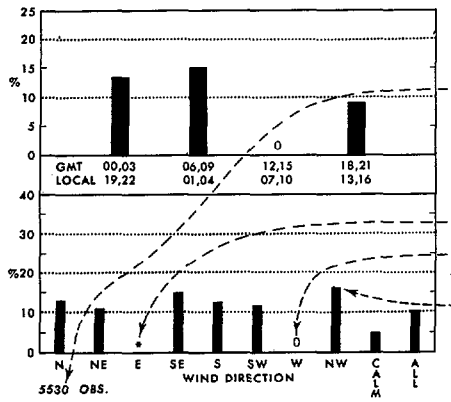
TEMP (°C)	WIND SPEED (KTS) 0-3	4-10	11-21	22-33	≥ 34
14.15	0	+	0	+	0
12.13	+	+	1	1	+
10.11	+	1	3	2	1
8.9	2	6	11	6	2
6.7	2	8	12	7	2
4.5	1	4	7	2	1
2.3	1	3	3	2	1
0.1	+	1	1	1	+
-2.-1	+	1	1	+	0
-4.-3	+	+	+	+	+
-6.-5	+	+	+	+	+

1053

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction *category*.

* indicates <.05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

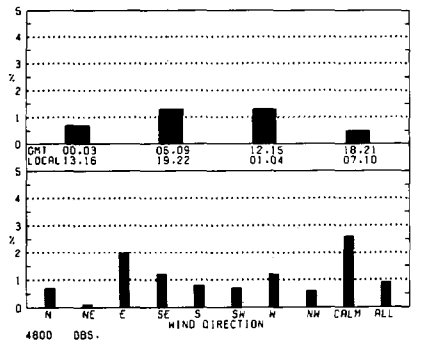
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

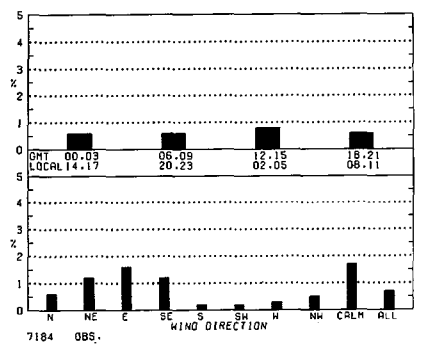
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

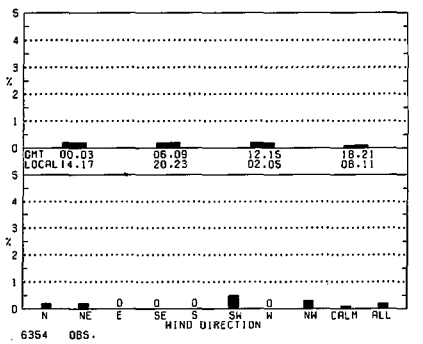
Cold Bay



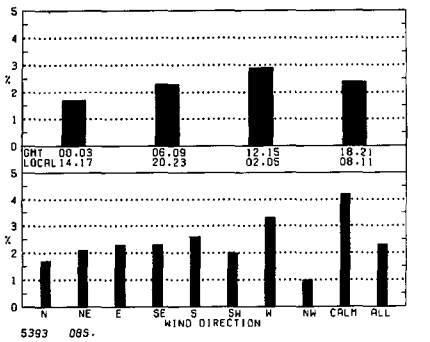
Kodiak



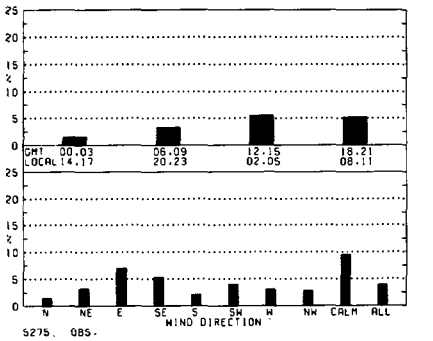
Homer



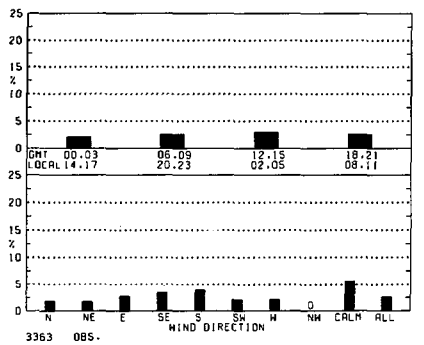
Kenai



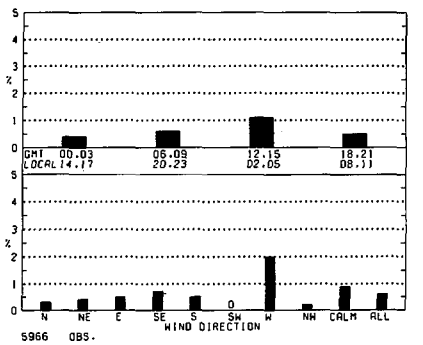
Anchorage



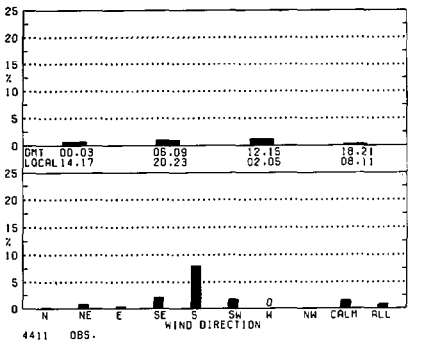
Middleton Island



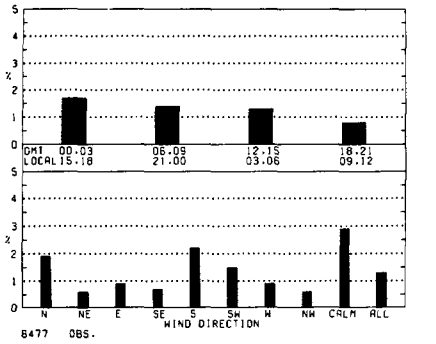
Cordova



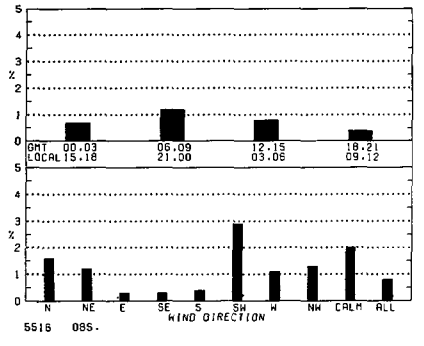
Yakataga



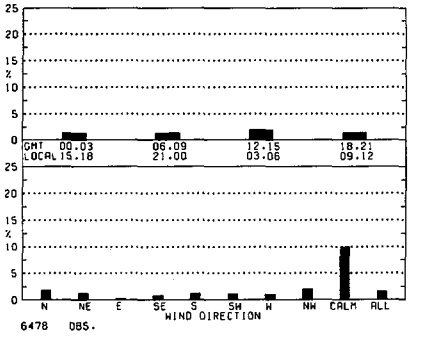
Yakutat



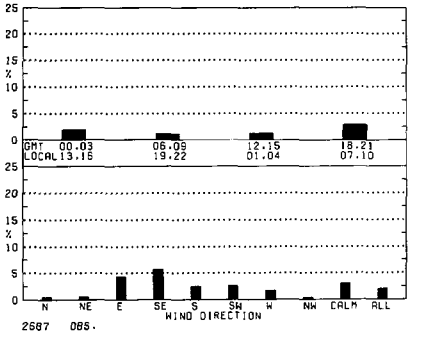
Sitka



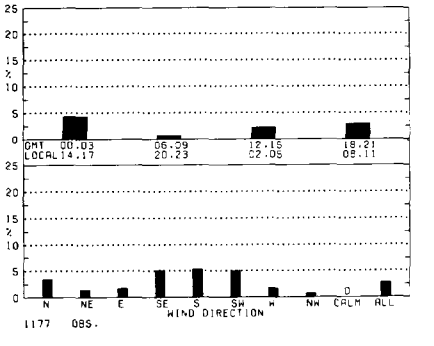
Annette

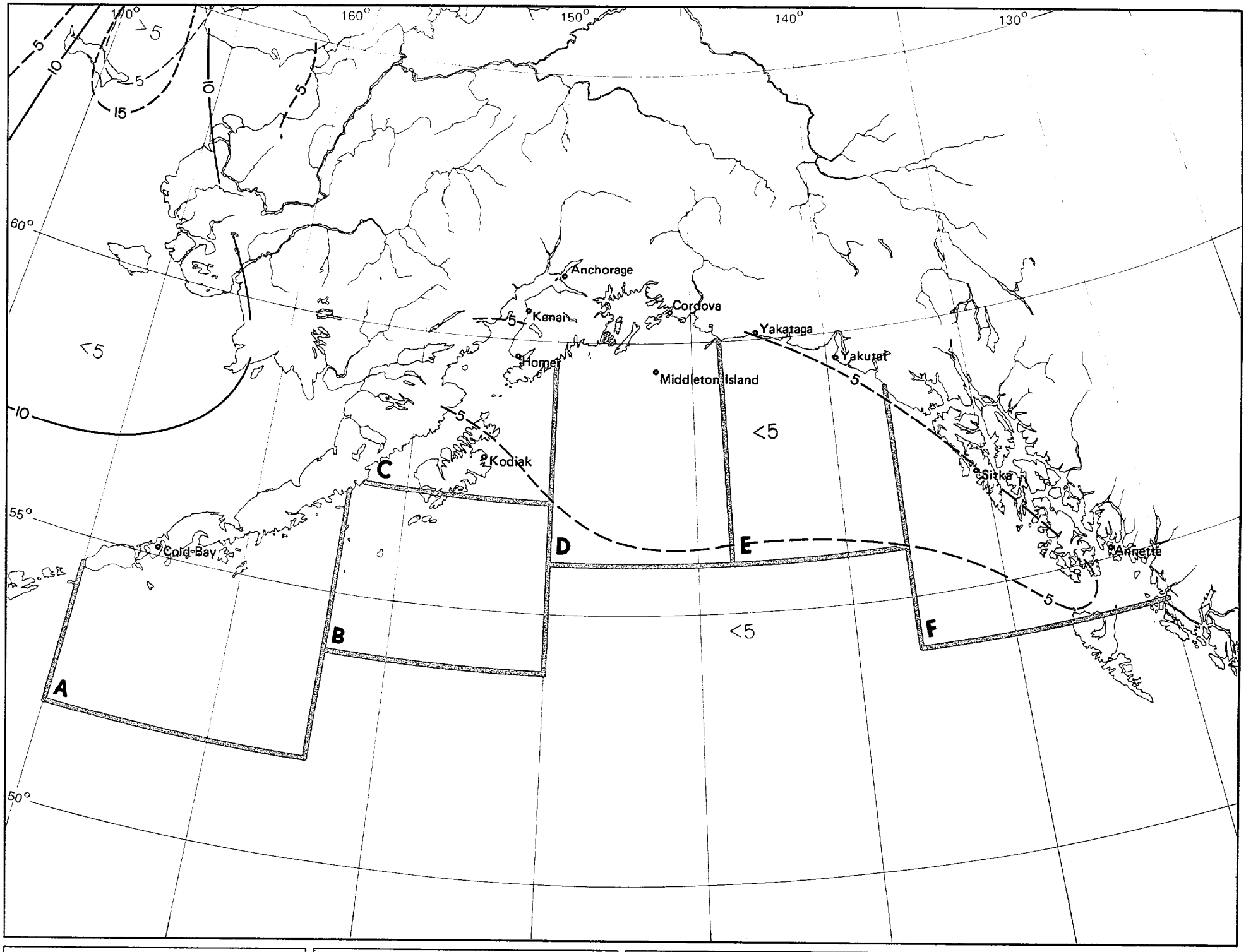


Marine Area A

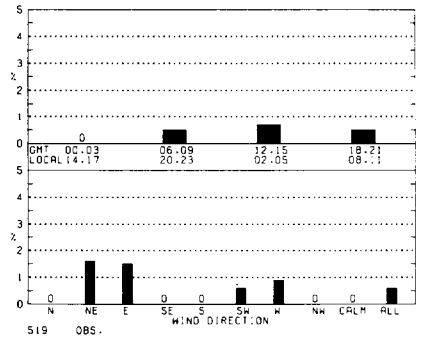


Marine Area B

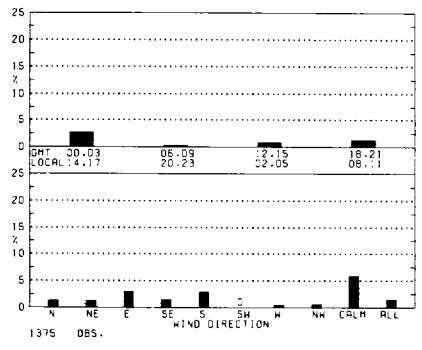




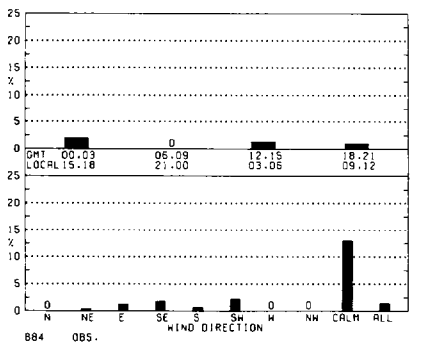
Marine Area C



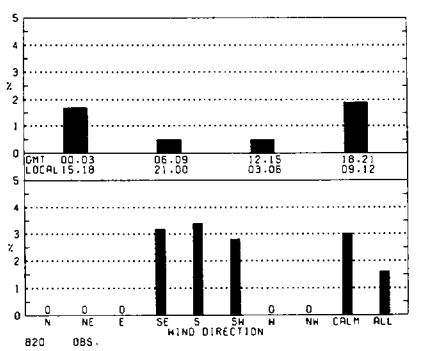
Marine Area D



Marine Area E

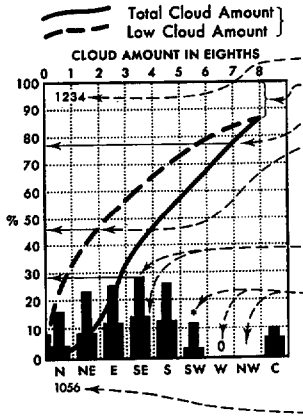


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases ≤8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

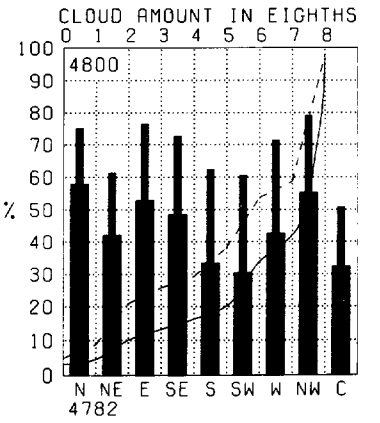
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

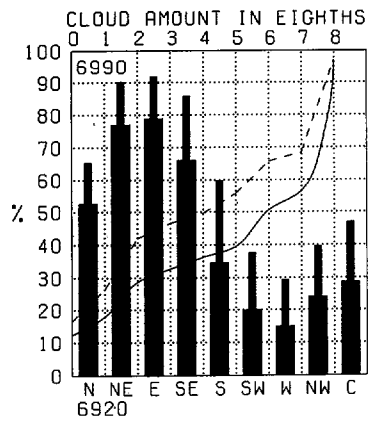
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

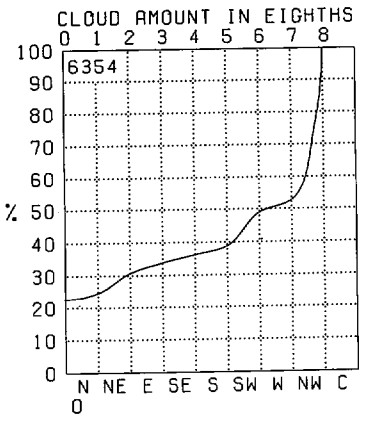
Cold Bay



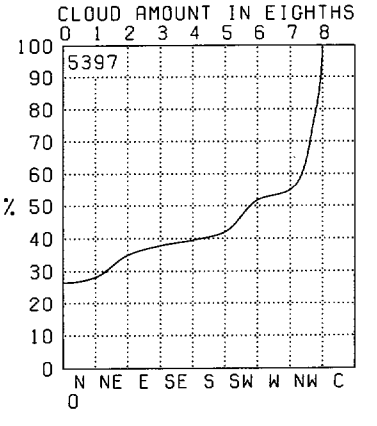
Kodiak



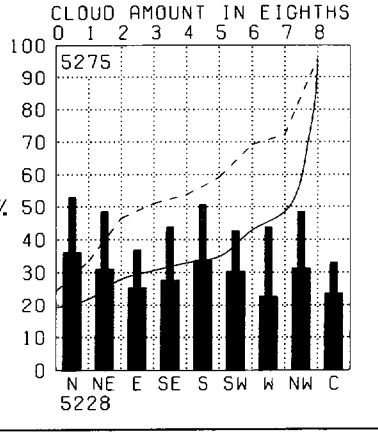
Homer



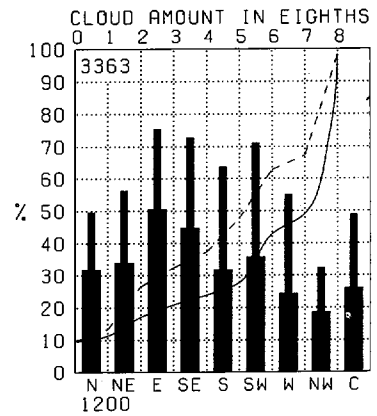
Kenai



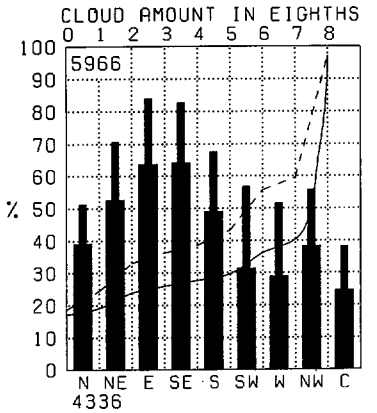
Anchorage



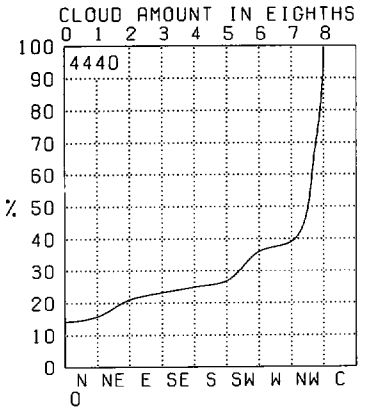
Middleton Island



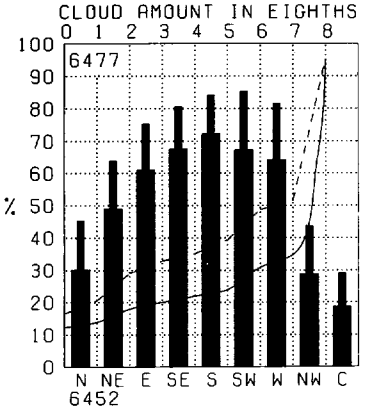
Cordova



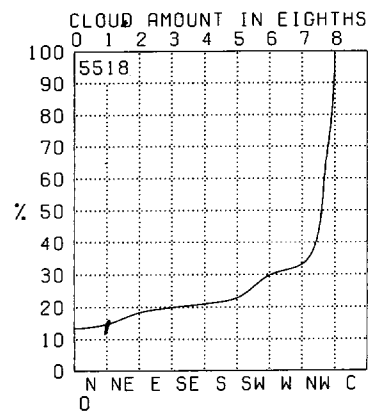
Yakataga



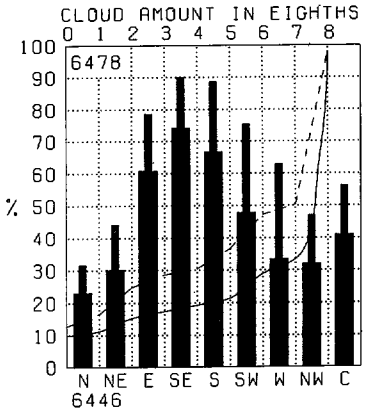
Yakutat



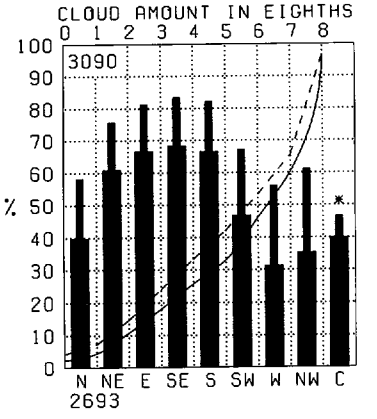
Sitka



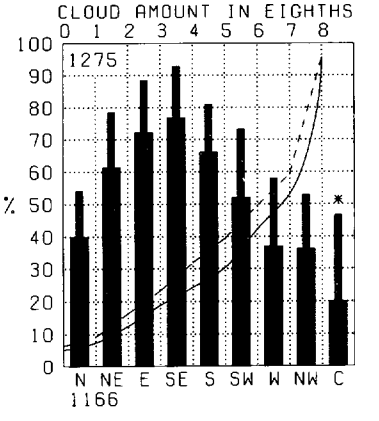
Annette

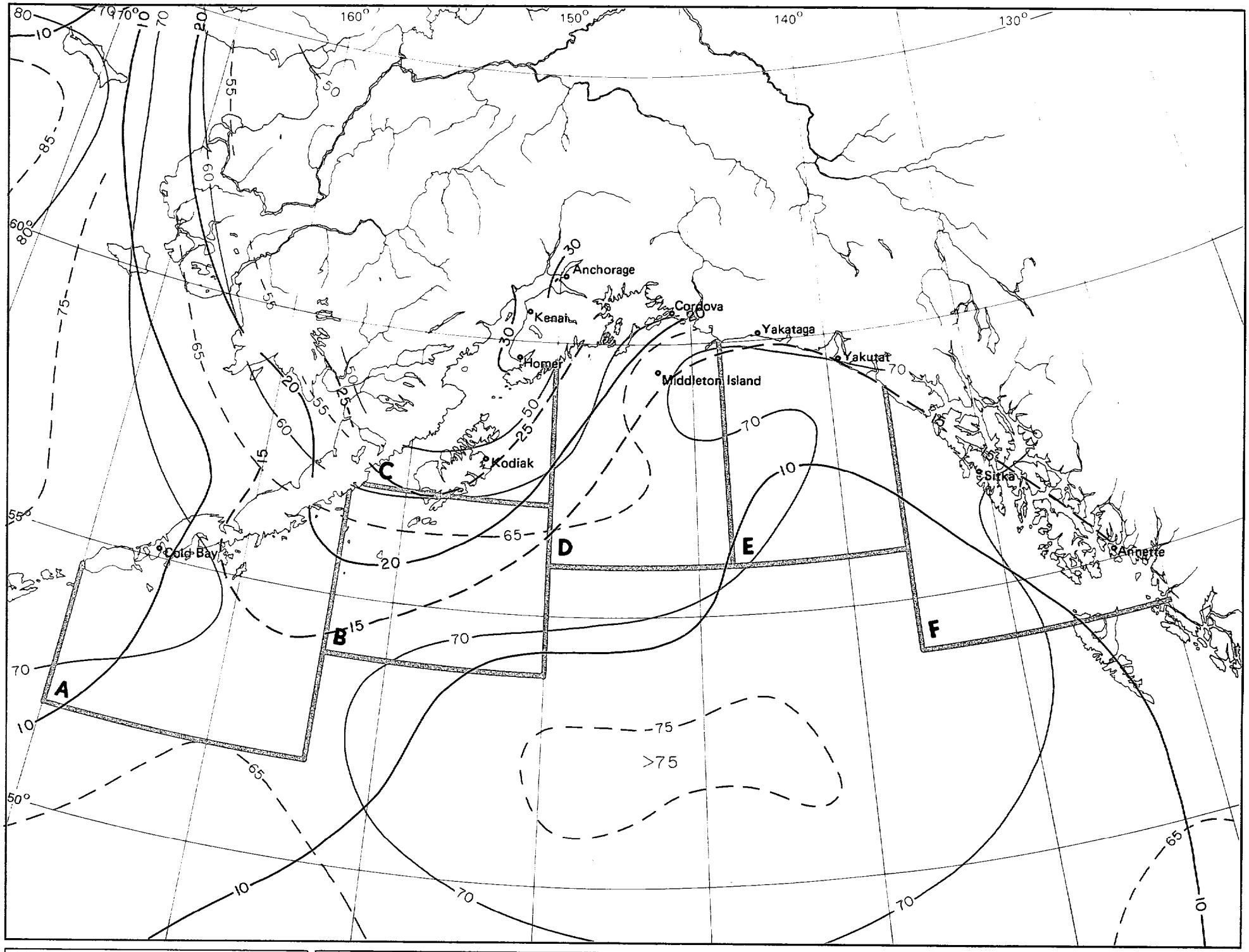


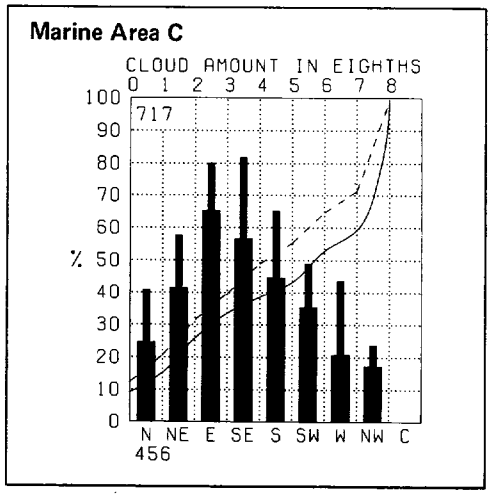
Marine Area A

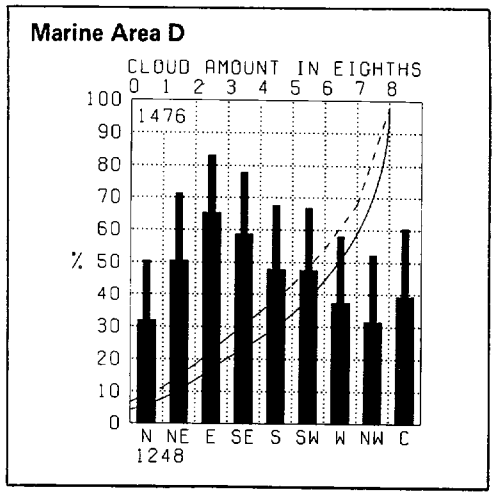


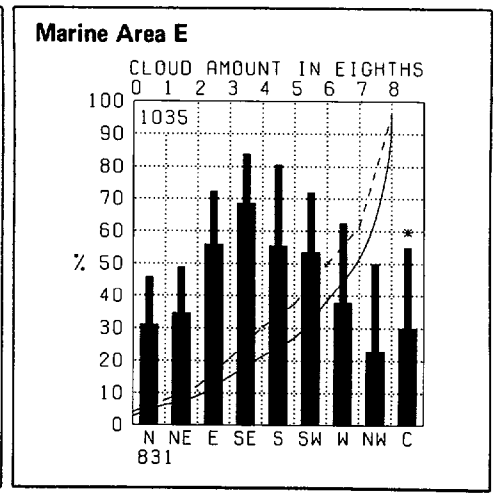
Marine Area B

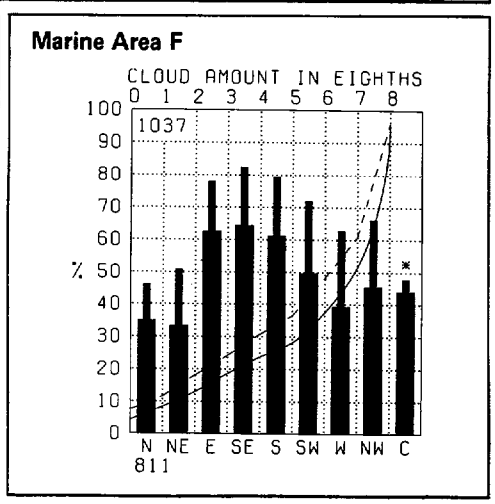








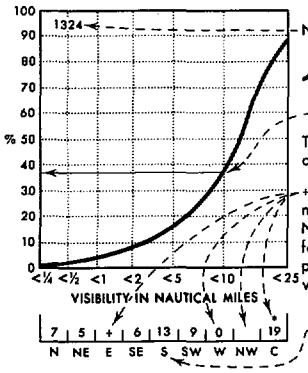




7 Cloud amount thresholds

Legend

Visibility/wind direction



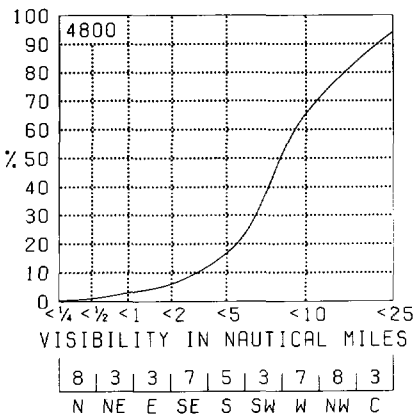
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

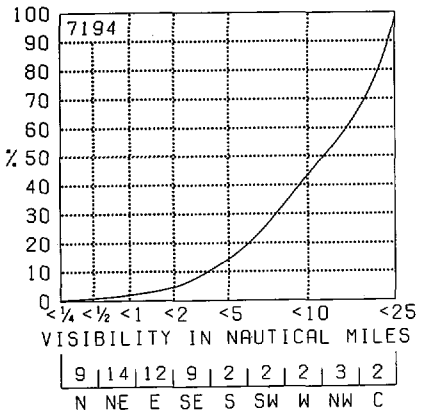
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

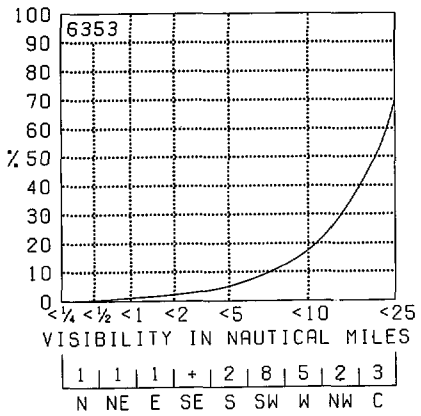
Cold Bay



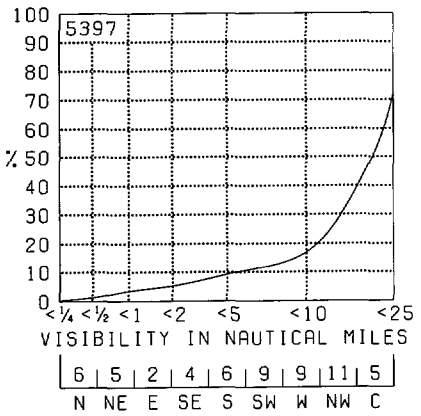
Kodiak



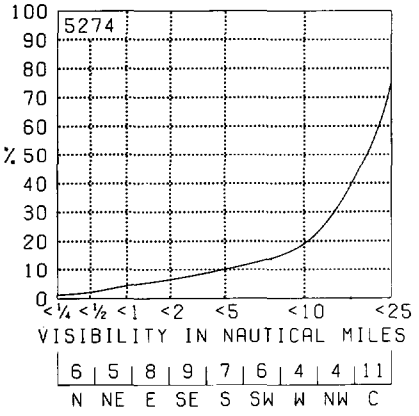
Homer



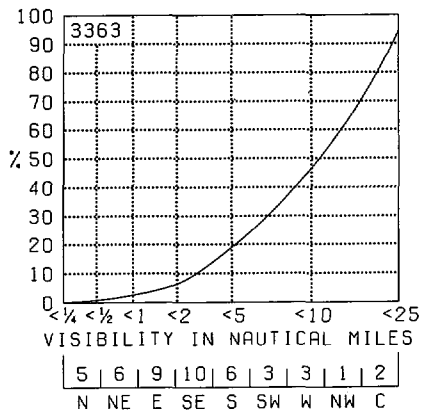
Kenai



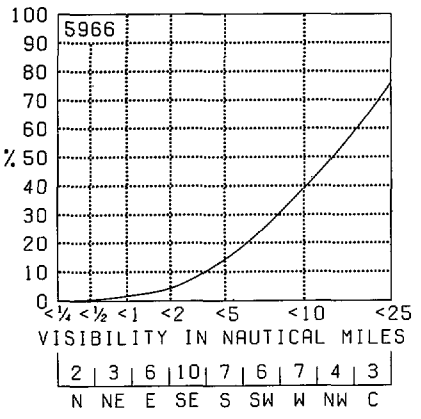
Anchorage



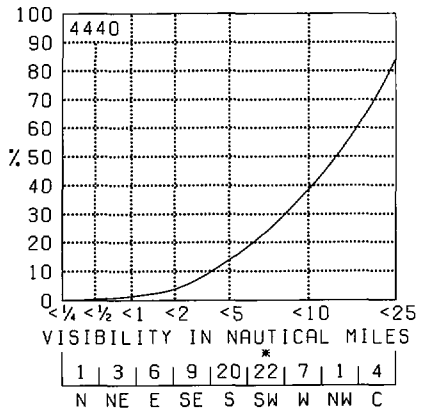
Middleton Island



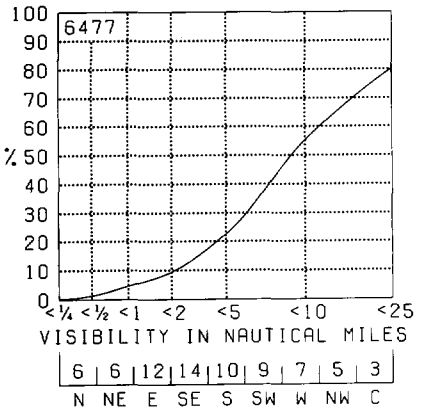
Cordova



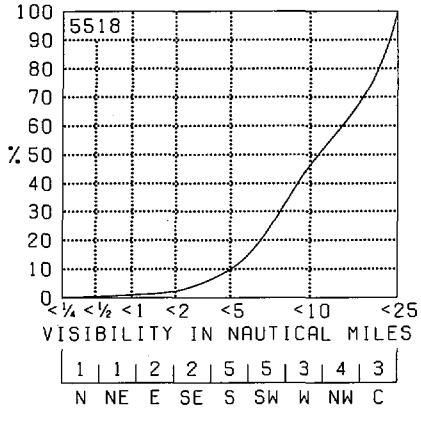
Yakataga



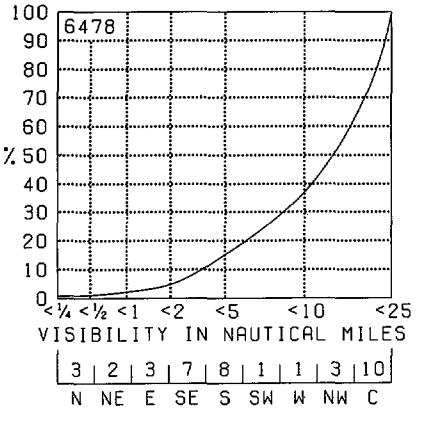
Yakutat



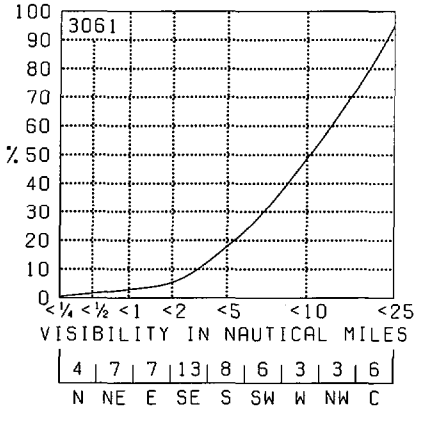
Sitka



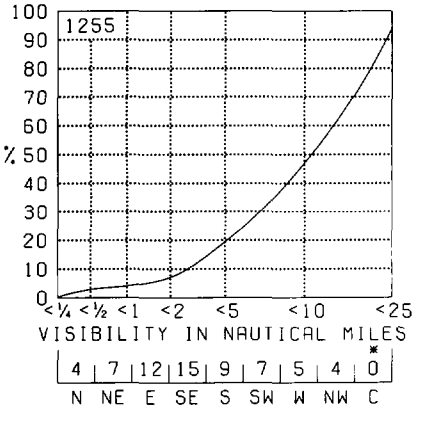
Annette

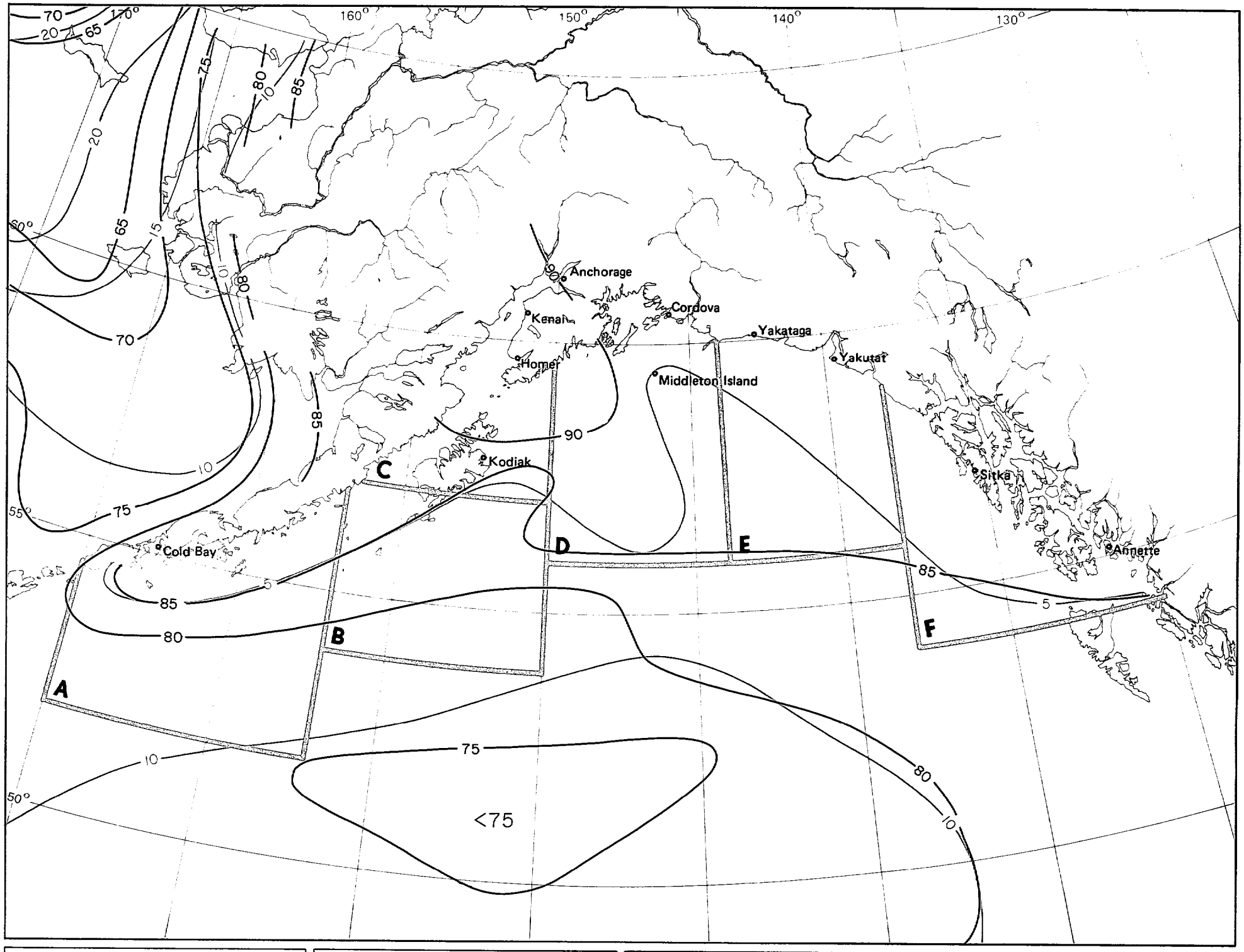


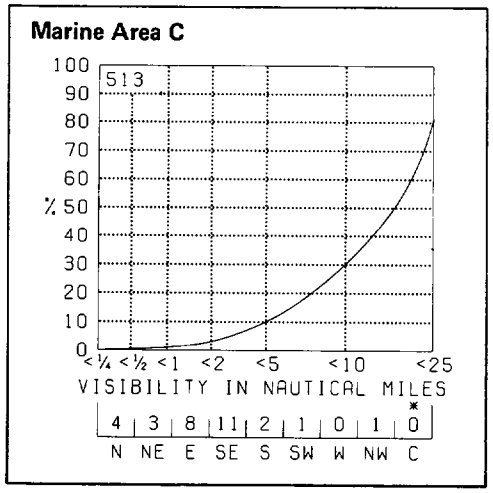
Marine Area A

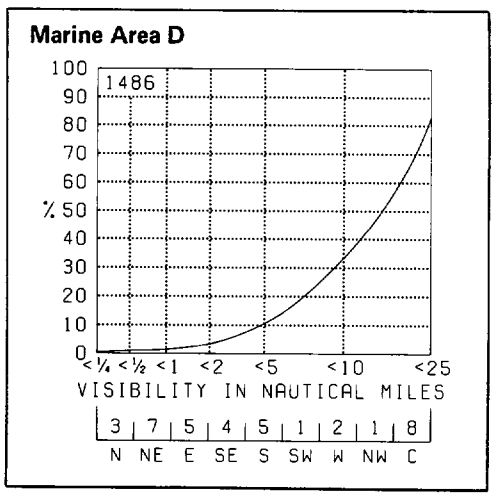


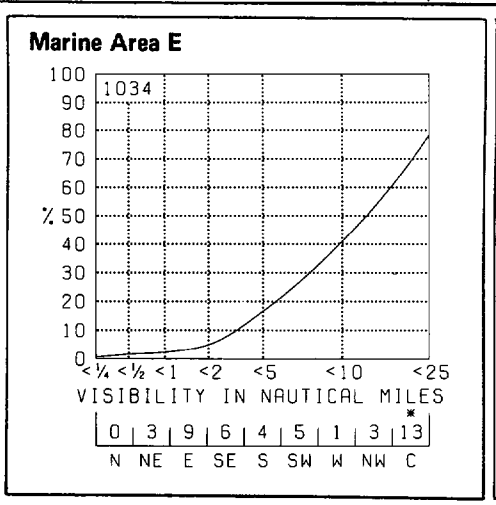
Marine Area B

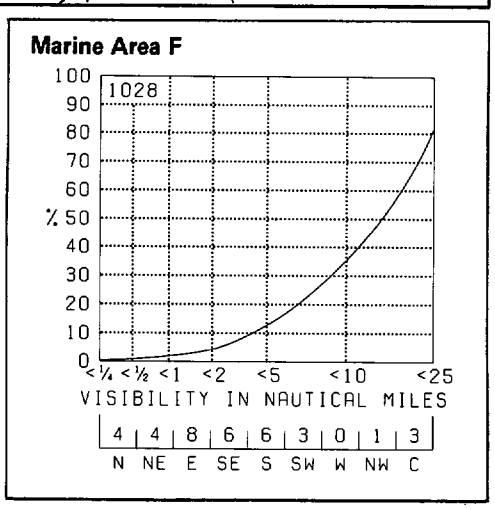












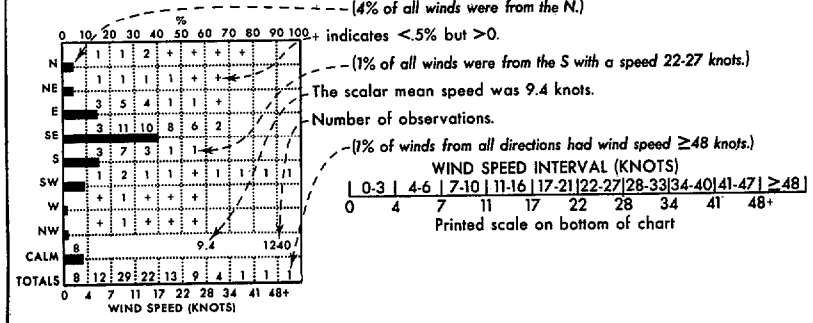
8 Visibility thresholds

November

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



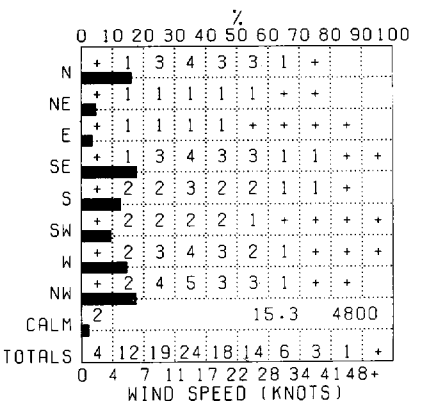
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

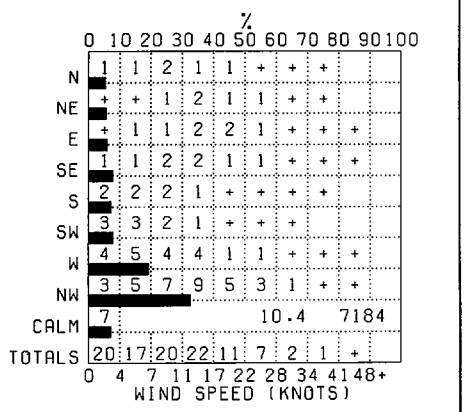
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

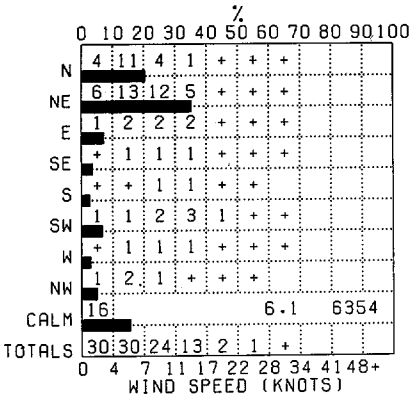
Cold Bay



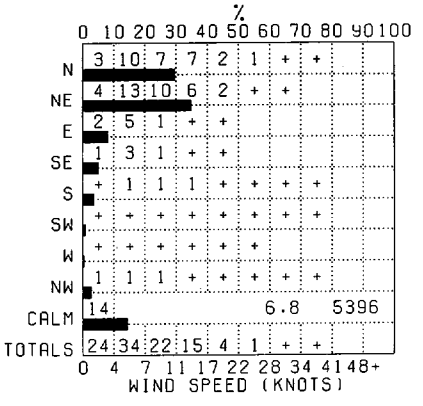
Kodiak



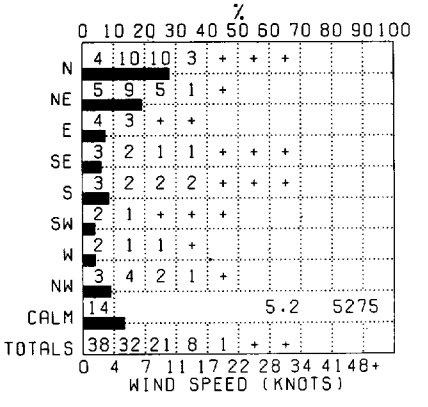
Homer



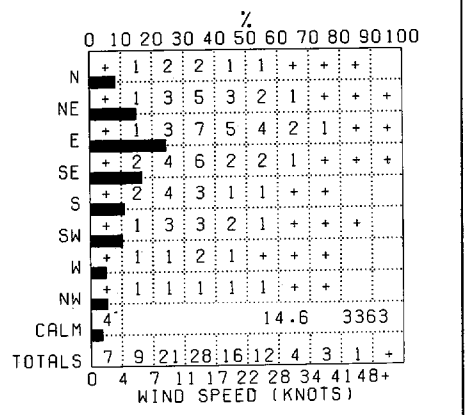
Kenai



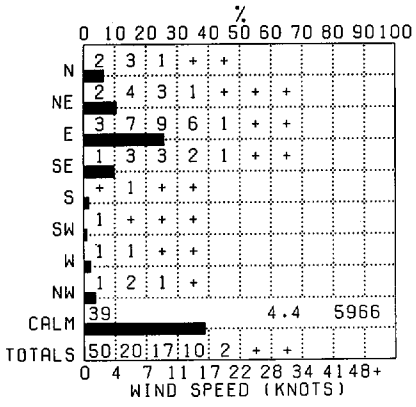
Anchorage



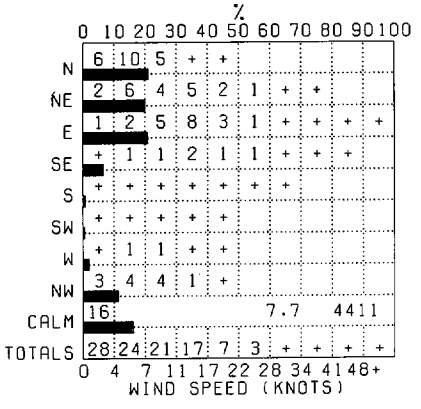
Middleton Island



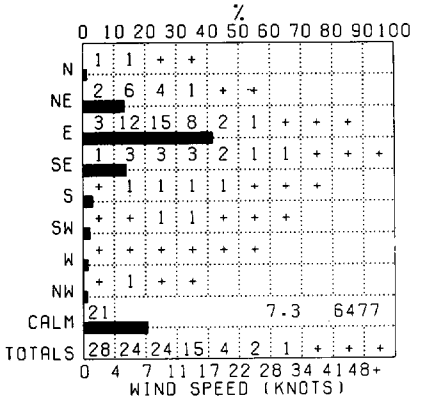
Cordova



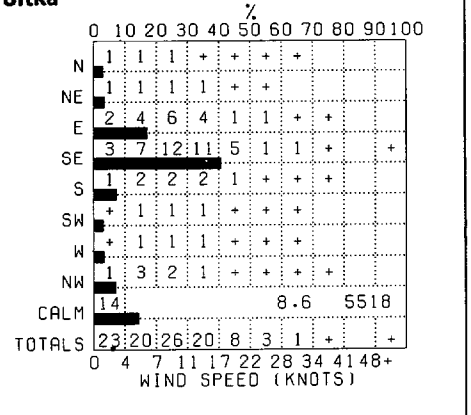
Yakataga



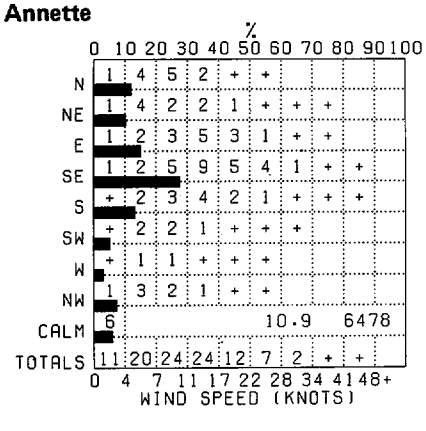
Yakutat



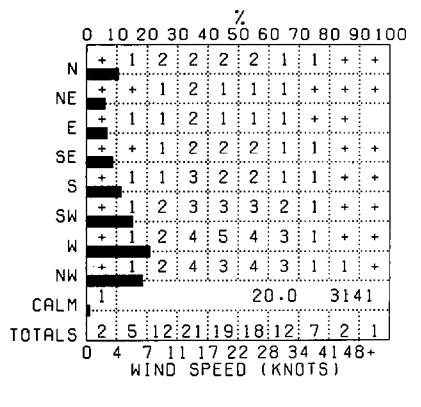
Sitka



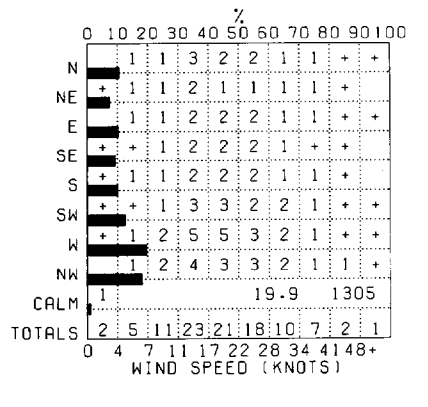
Annette

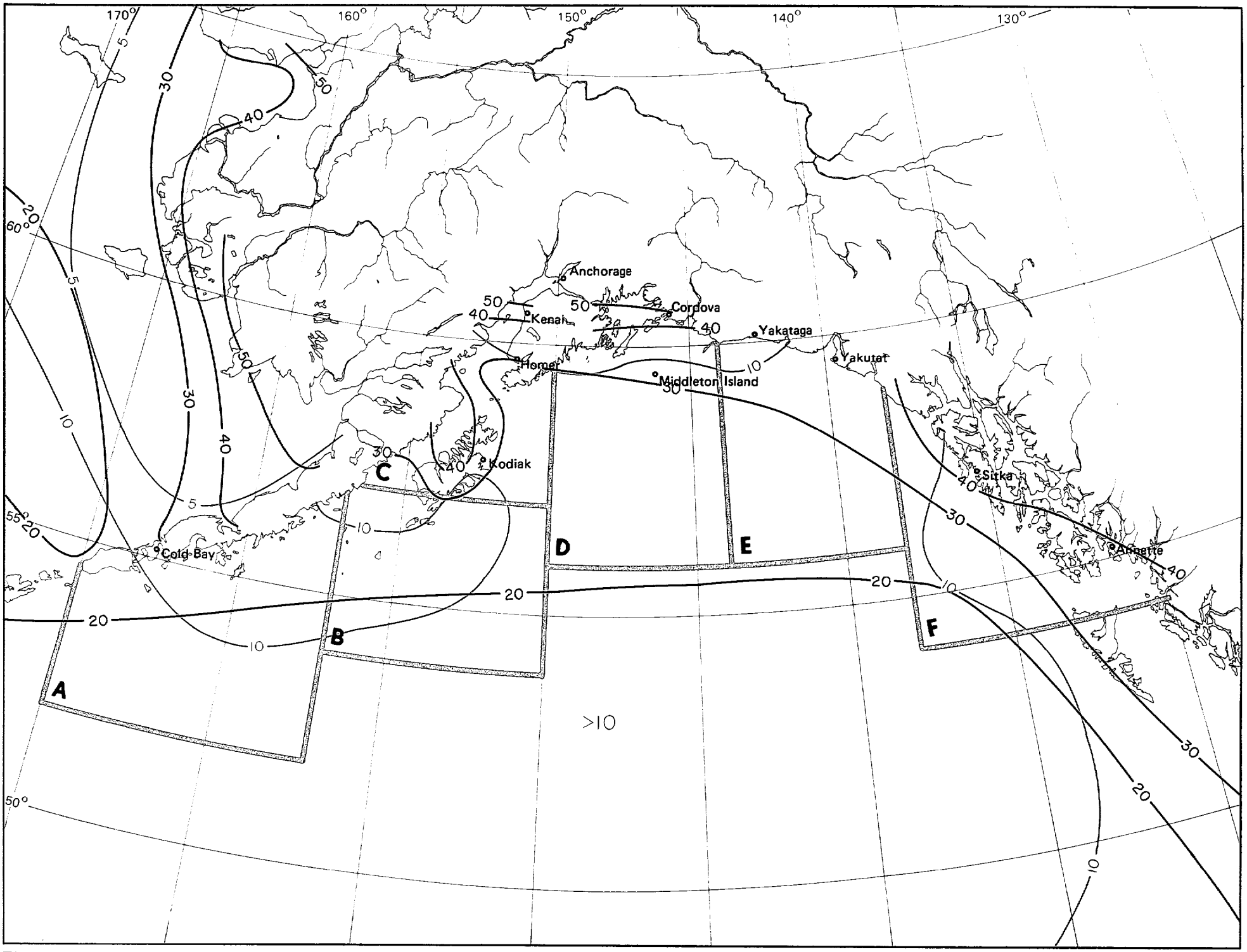


Marine Area A

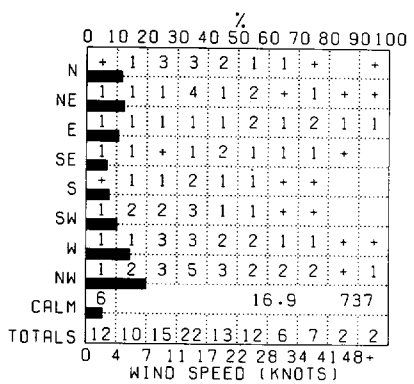


Marine Area B

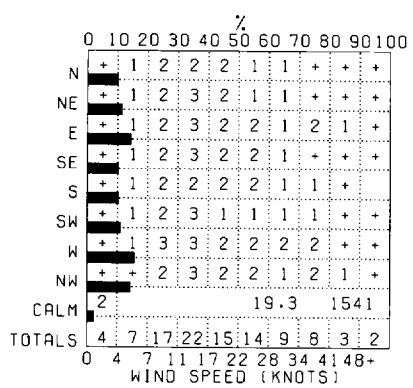




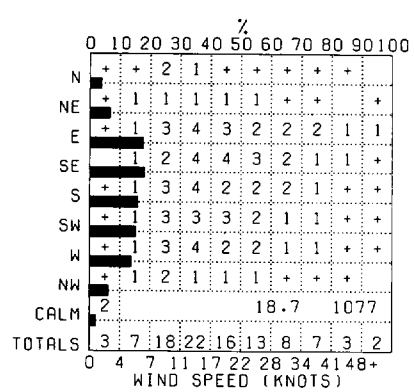
Marine Area C



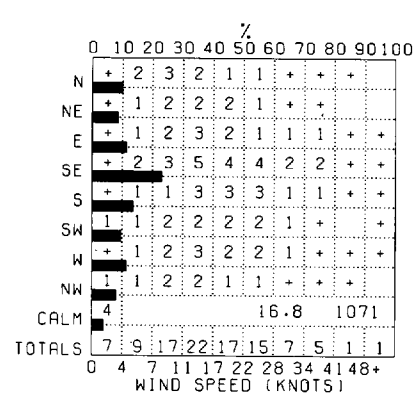
Marine Area D



Marine Area E



Marine Area F

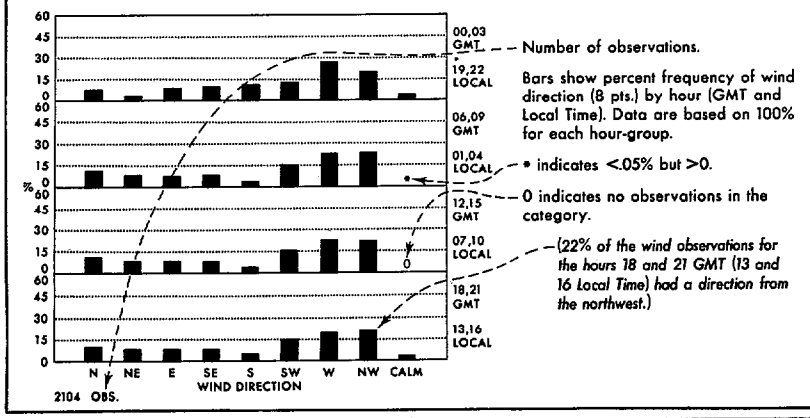


9 Wind speed thresholds

November

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

• indicates <.05% but >0.

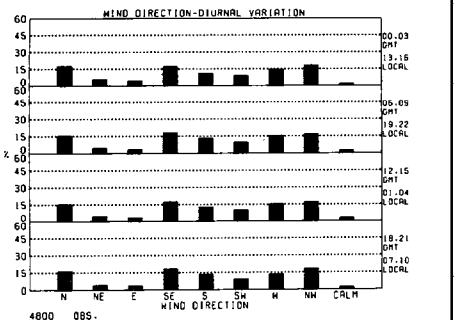
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

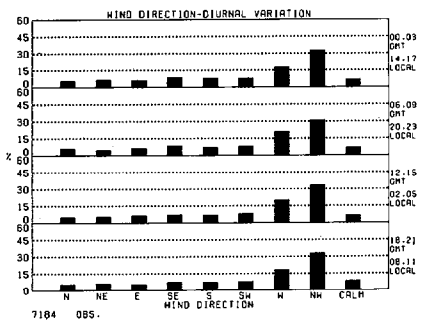
Map - Vector mean wind

10.2 Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)

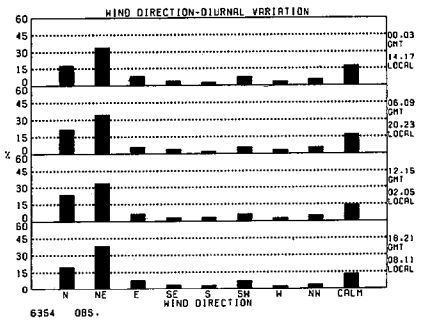
Cold Bay



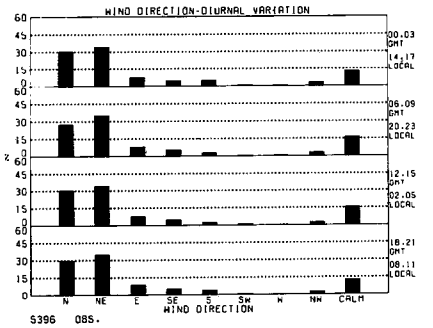
Kodiak



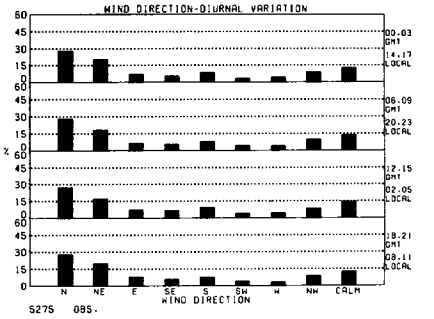
Homer



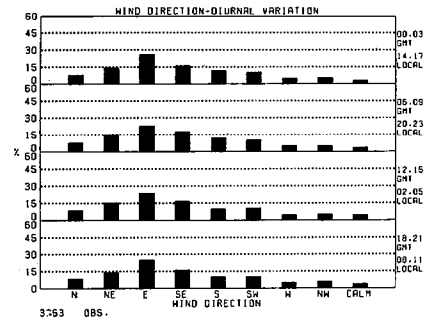
Kenai



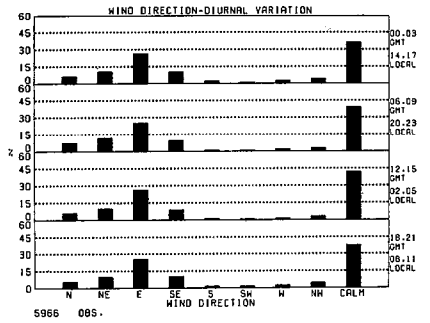
Anchorage



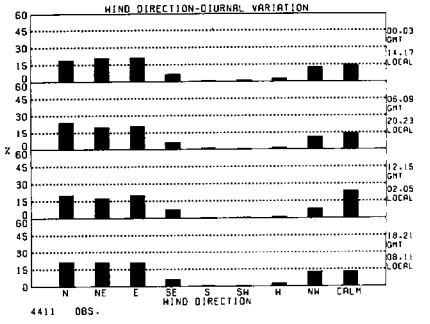
Middleton Island



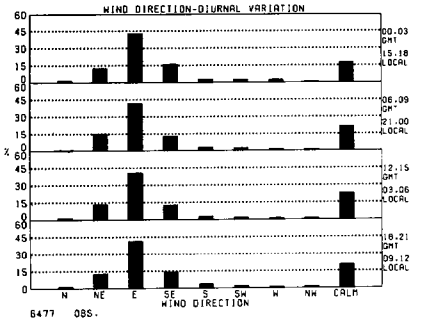
Cordova



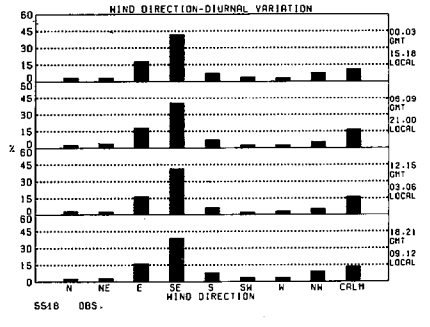
Yakataga



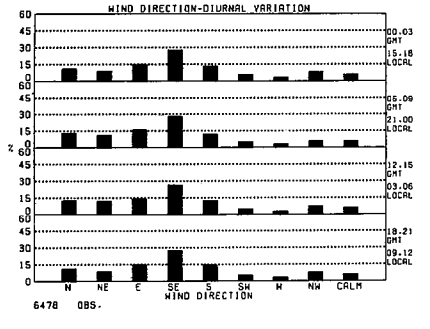
Yakutat



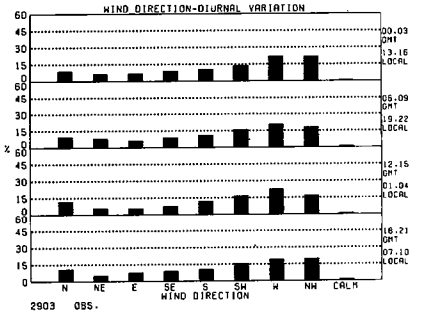
Sitka



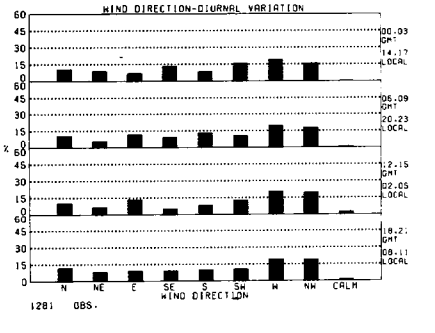
Annette

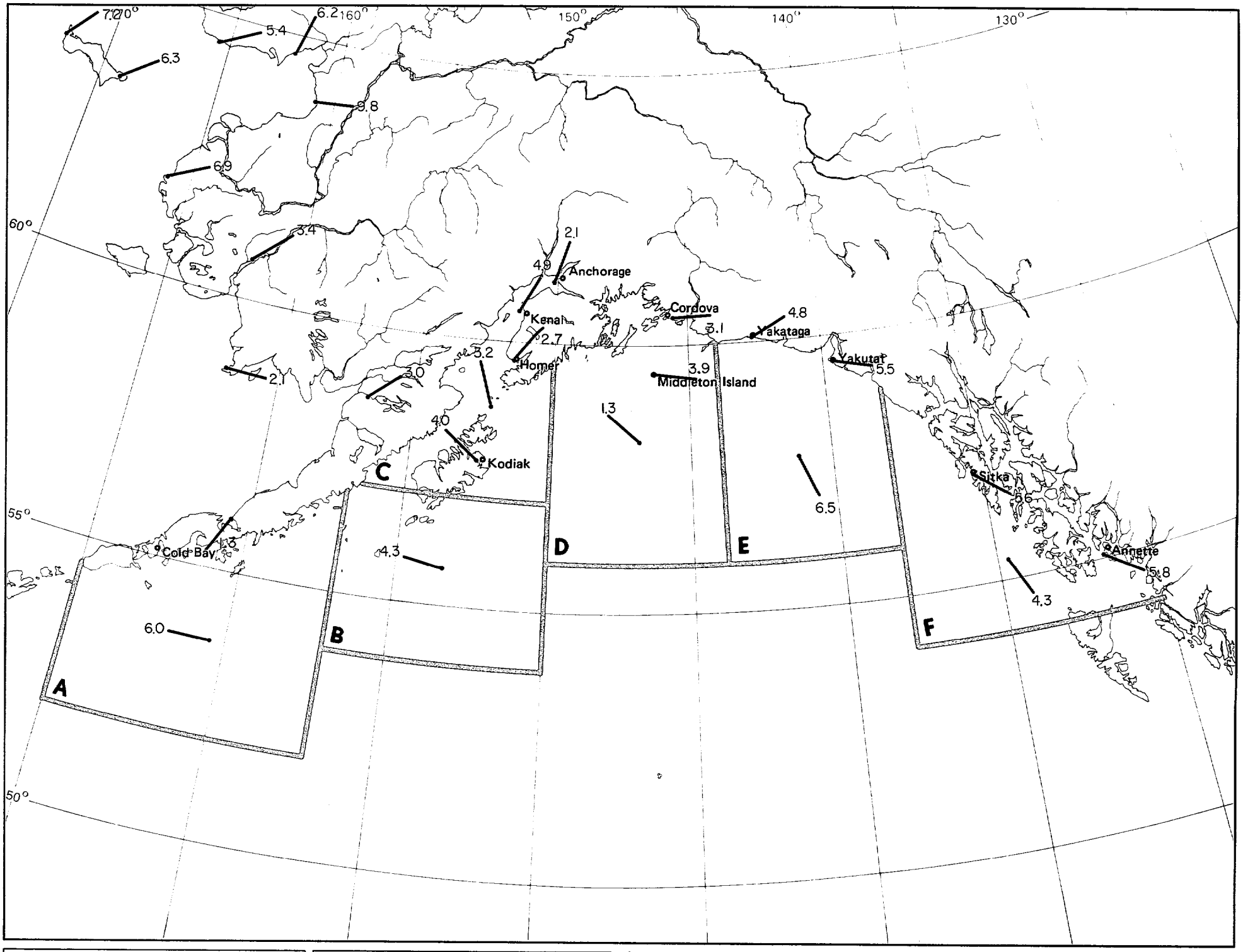


Marine Area A

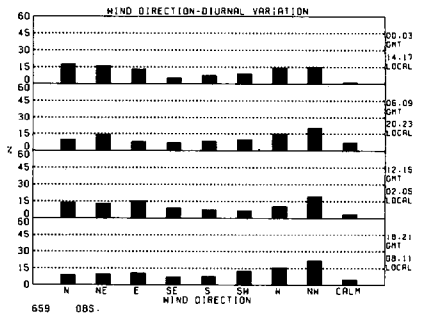


Marine Area B

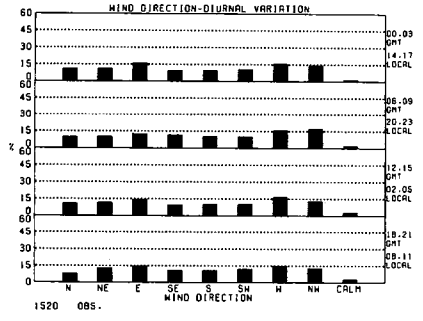




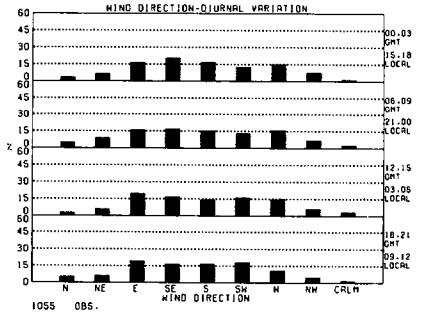
Marine Area C



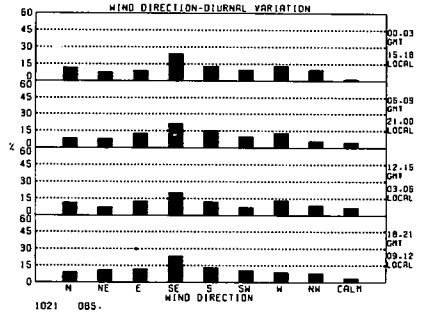
Marine Area D



Marine Area E

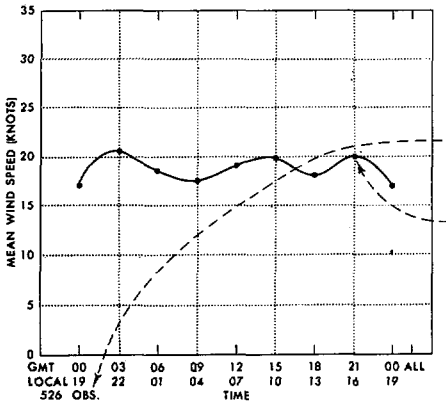


Marine Area F



Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

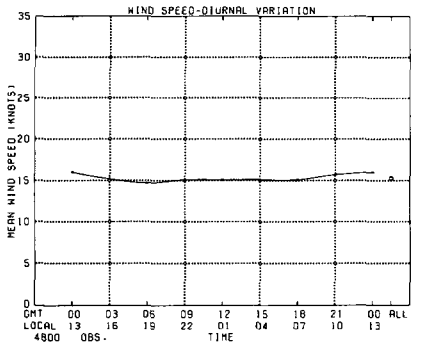
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

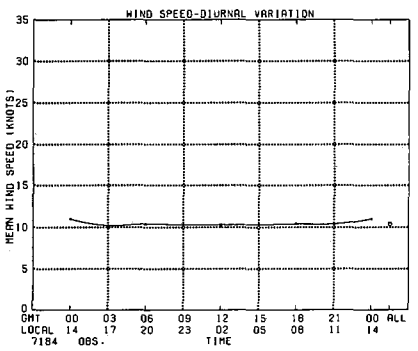
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

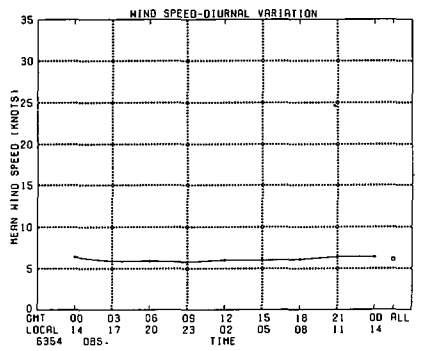
Cold Bay



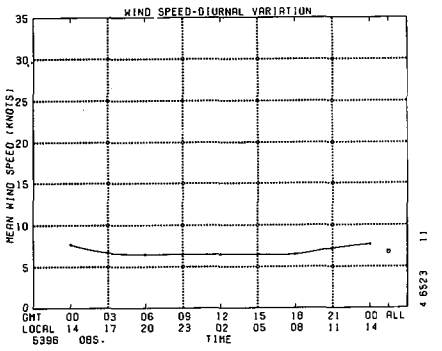
Kodiak



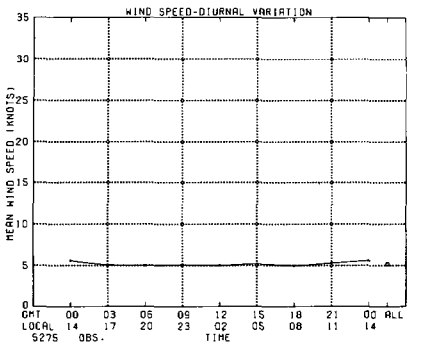
Homer



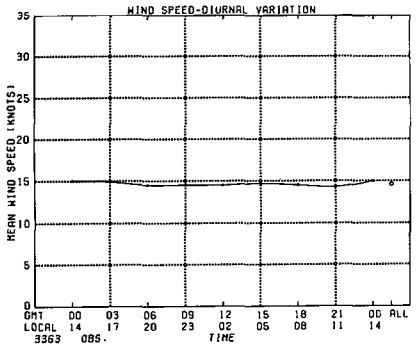
Kenai



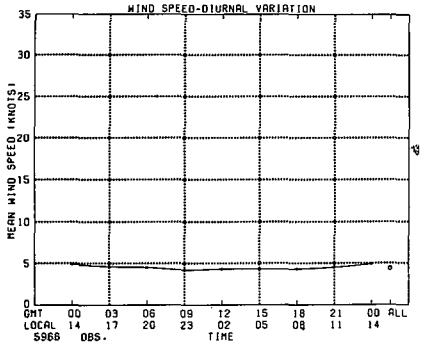
Anchorage



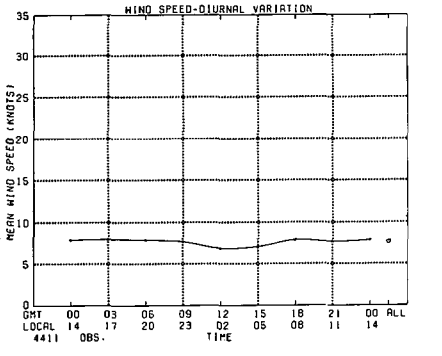
Middleton Island



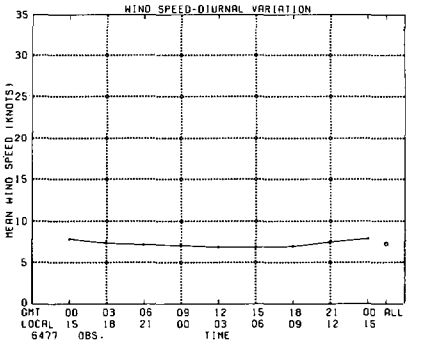
Cordova



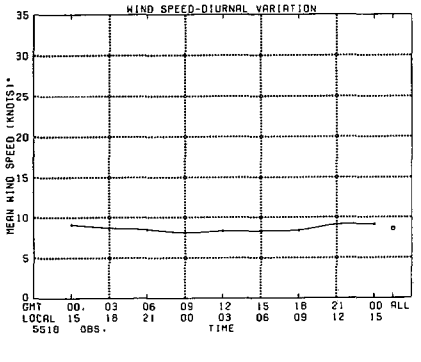
Yakataga



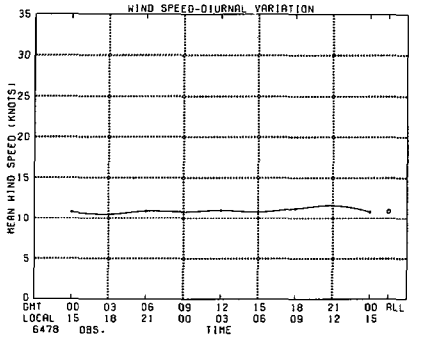
Yakutat



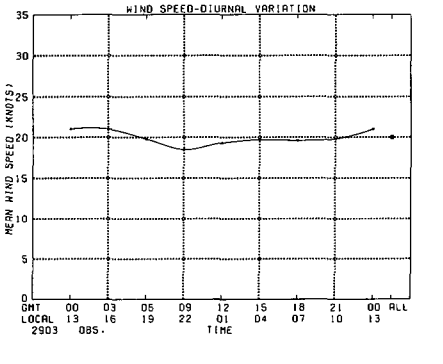
Sitka



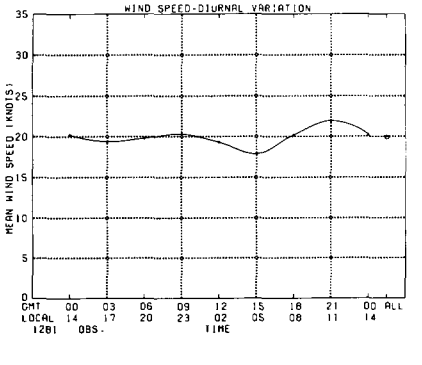
Annette

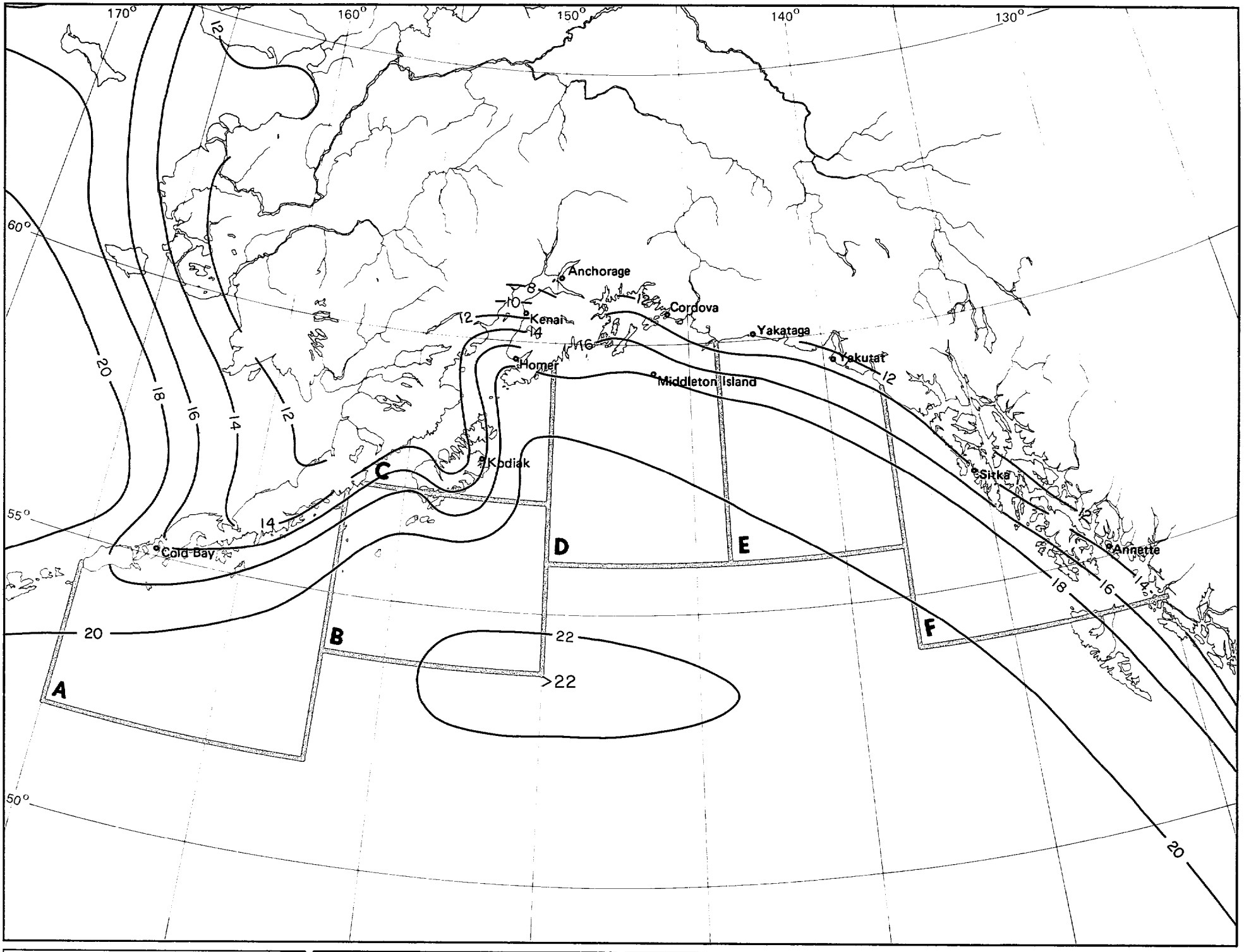


Marine Area A

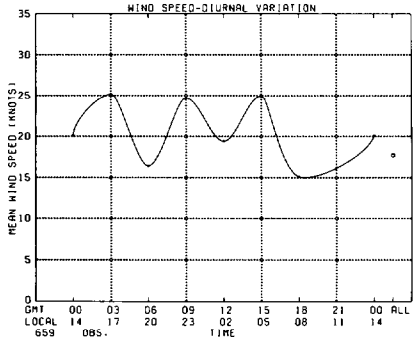


Marine Area B

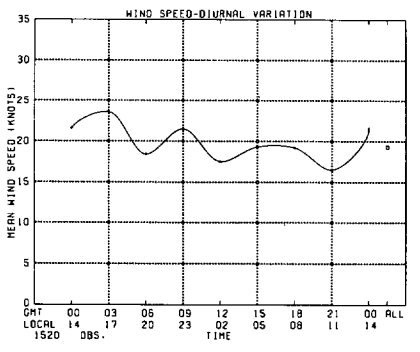




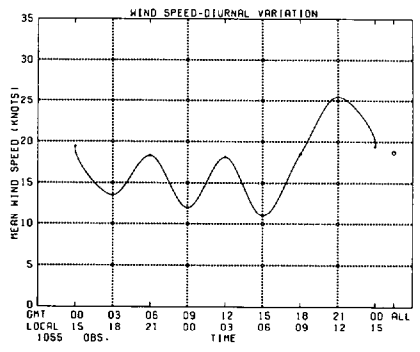
Marine Area C



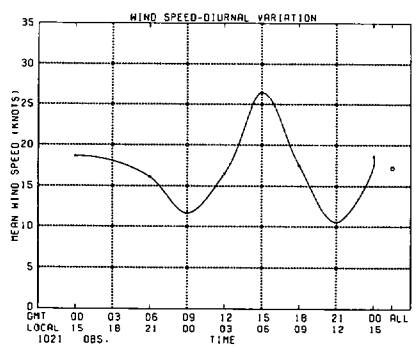
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

Legend

Low cloud ceiling/visibility

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5"

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

LOW CLOUD CEILING \ VISIBILITY	<½	½-<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	11	18
50<80	0	0	0	0	+	1
35<50	+	+	+	+	3	2
20<35	+	+	+	2	14	8
10<20	+	+	+	3	13	5
6<10	+	+	1	3	5	1
3<6	+	+	1	2	2	+
1.5<3	0	+	+	+	0	0
0<1.5	1	1	1	+	+	0

4782

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	10	41
50<80	0	0	0	+	1	1
35<50	0	0	0	+	1	3
20<35	0	+	+	1	7	8
10<20	0	+	1	3	7	2
6<10	+	+	+	2	2	+
3<6	+	+	+	2	1	+
1.5<3	0	+	+	0	+	+
0<1.5	1	1	1	1	+	0

6919

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	1	60
50<80	0	0	0	0	0	5
35<50	0	0	0	0	1	8
20<35	0	0	0	1	4	4
10<20	0	1	0	3	1	5
6<10	0	0	0	1	0	1
3<6	0	+	+	0	+	1
1.5<3	0	0	0	0	0	0
0<1.5	1	0	+	1	0	0

312

Kenai

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	3	66
50<80	0	0	0	0	0	4
35<50	0	0	0	0	3	3
20<35	+	0	+	1	4	5
10<20	0	0	0	1	2	3
6<10	0	+	0	0	+	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	2	1	1	+	0	0

240

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NG	1	+	+	1	2	55
50<80	0	0	+	+	+	9
35<50	0	0	+	+	+	5
20<35	0	+	+	+	1	6
10<20	+	+	+	1	1	4
6<10	+	+	+	+	1	1
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	+	+
0<1.5	1	1	1	1	+	0

5227

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	12	25
50<80	0	0	0	0	1	1
35<50	0	0	0	0	1	1
20<35	0	+	+	+	6	8
10<20	0	0	+	3	13	7
6<10	0	+	2	5	4	2
3<6	+	+	+	1	+	+
1.5<3	0	0	0	0	0	0
0<1.5	+	2	2	1	0	0

1200

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	38
50<80	0	0	0	+	+	4
35<50	0	0	0	+	1	7
20<35	0	+	+	1	10	10
10<20	0	+	1	5	9	3
6<10	0	+	+	1	1	+
3<6	0	+	+	+	+	+
1.5<3	0	+	0	0	0	+
0<1.5	+	1	1	1	+	0

4336

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	+	34
50<80	0	0	+	0	+	6
35<50	0	0	0	1	2	9
20<35	0	0	0	6	6	6
10<20	0	0	3	7	4	3
6<10	0	+	0	0	0	0
3<6	0	0	0	0	+	0
1.5<3	0	0	0	0	0	0
0<1.5	2	3	3	3	1	+

235

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	7	29
50<80	0	0	+	0	1	3
35<50	0	0	0	+	1	3
20<35	0	+	+	1	6	6
10<20	0	+	1	5	13	4
6<10	+	+	1	4	4	1
3<6	+	+	1	2	2	+
1.5<3	0	+	+	+	+	+
0<1.5	1	2	1	+	+	0

6452

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	6	21
50<80	0	0	0	0	1	2
35<50	0	0	0	0	9	3
20<35	0	0	0	9	18	3
10<20	0	0	4	10	4	+
6<10	0	+	1	2	1	0
3<6	0	0	0	+	+	0
1.5<3	0	0	0	0	0	0
0<1.5	1	0	1	3	+	0

240

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	1	30
50<80	0	0	0	0	+	2
35<50	0	+	0	+	1	4
20<35	0	+	+	+	4	13
10<20	0	+	+	4	12	12
6<10	+	+	1	3	3	1
3<6	+	+	1	2	1	+
1.5<3	0	+	+	+	+	+
0<1.5	1	+	+	1	+	0

6446

Marine Area A

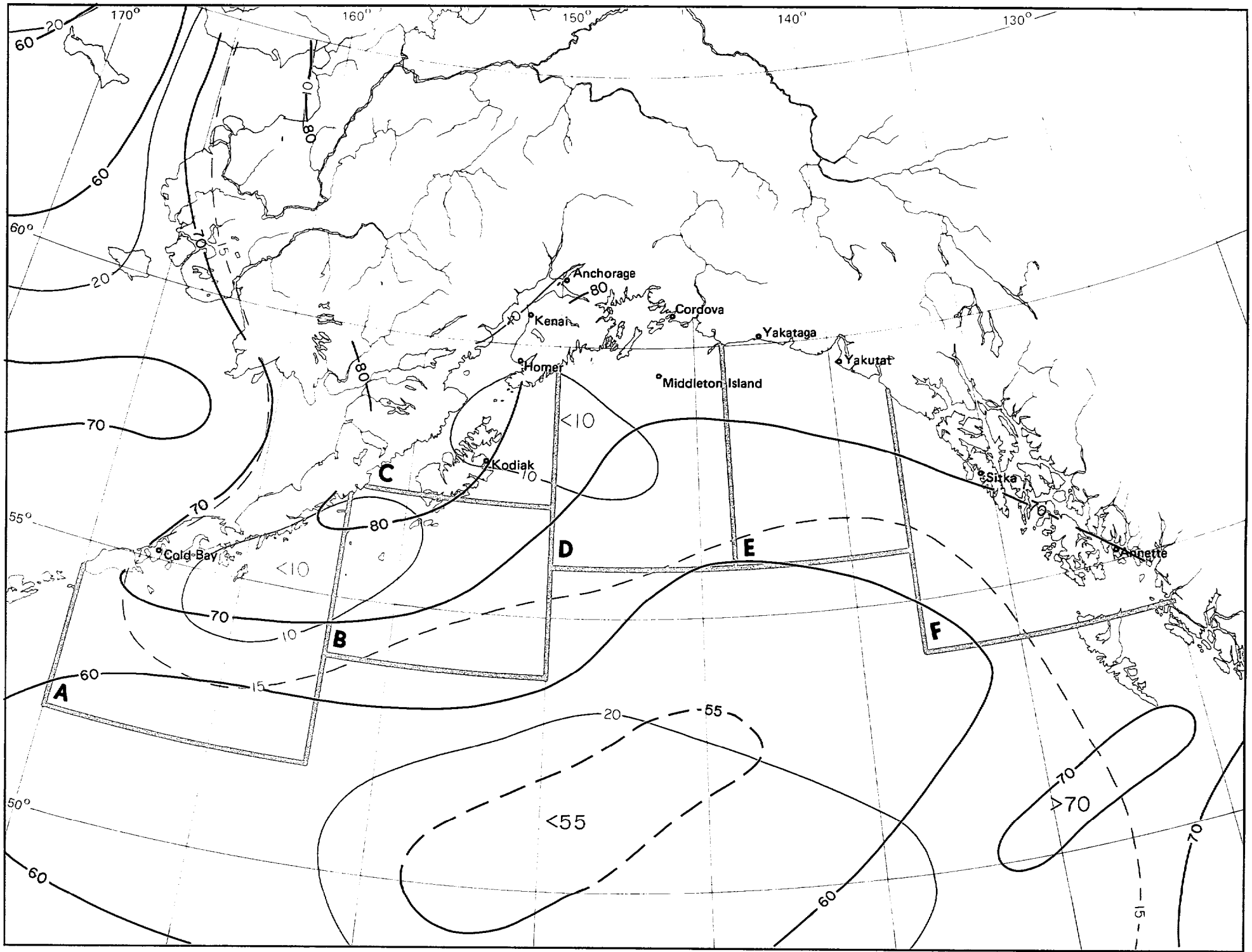
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	7	26
50<80	0	0	0	+	+	1
35<50	0	+	+	+	1	3
20<35	0	+	+	1	5	8
10<20	+	+	+	3	8	12
6<10	+	+	1	3	6	4
3<6	0	+	+	2	2	1
1.5<3	+	+	+	+	+	+
0<1.5	1	+	1	1	+	+

2507

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	4	27
50<80	0	0	0	+	0	1
35<50	0	0	+	1	2	4
20<35	+	+	1	3	9	9
10<20	+	+	1	2	6	10
6<10	1	+	+	2	4	4
3<6	0	+	+	1	1	+
1.5<3	0	0	0	+	+	+
0<1.5	2	1	1	1	1	0

1103



Marine Area C

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	6	45
50<80	0	0	0	0	+	1
35<50	0	0	0	0	+	1
20<35	0	0	0	+	4	5
10<20	+	0	1	+	4	14
6<10	0	0	+	1	2	8
3<6	0	+	+	1	1	1
1.5<3	0	0	0	+	+	+
0<1.5	0	+	1	1	+	0

419

Marine Area D

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	4	31
50<80	0	0	0	0	+	1
35<50	0	0	0	+	+	2
20<35	+	0	+	1	3	6
10<20	+	0	1	2	5	16
6<10	+	+	+	1	5	12
3<6	0	0	+	1	2	2
1.5<3	0	0	+	1	1	+
0<1.5	1	+	1	1	1	+

1189

Marine Area E

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	0	3	28
50<80	0	0	0	0	+	1
35<50	0	0	0	0	+	3
20<35	+	0	0	2	5	6
10<20	0	0	1	5	7	15
6<10	+	0	0	2	5	6
3<6	+	+	+	1	2	1
1.5<3	+	0	+	+	1	+
0<1.5	1	1	1	1	1	+

776

Marine Area F

LOW CLOUD CEILING	VISIBILITY					
	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	2	29
50<80	0	0	+	0	0	1
35<50	0	0	0	0	+	2
20<35	+	0	0	+	2	7
10<20	+	+	+	1	4	16
6<10	+	0	+	3	6	9
3<6	0	0	0	1	2	2
1.5<3	0	0	+	+	+	1
0<1.5	+	1	1	1	1	1

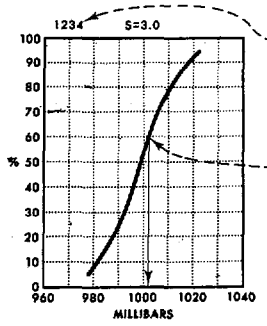
776

12 Low cloud ceiling and visibility thresholds

November

Legend

Sea level pressure



Number of observations.

Cumulative percent frequency of sea level pressures equal to or less than the pressure intersected by the curve.

S=Standard deviation of pressure (mbs).

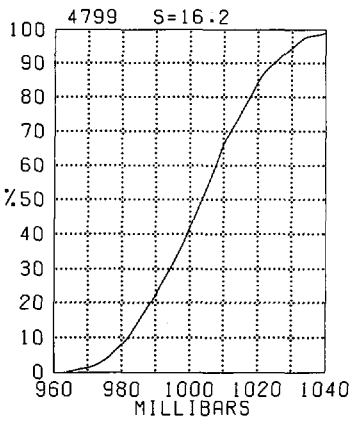
(60% of all observed sea level pressures were ≤1002 millibars.)

Map - Mean sea level pressure

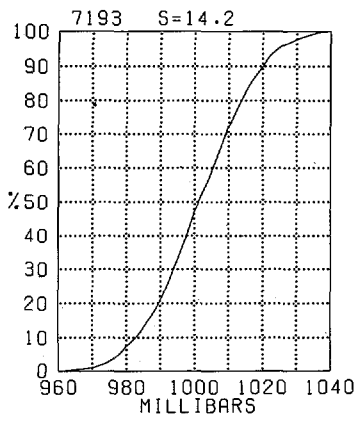
BLACK LINE - Mean sea level pressure (millibars)

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

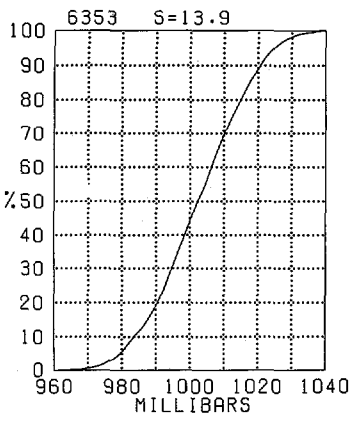
Cold Bay



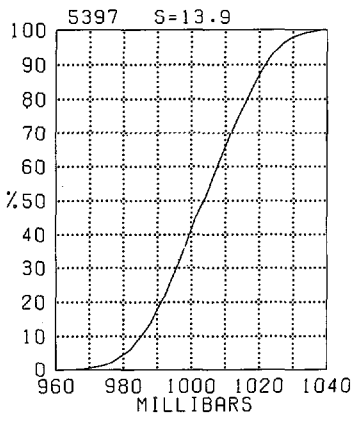
Kodiak



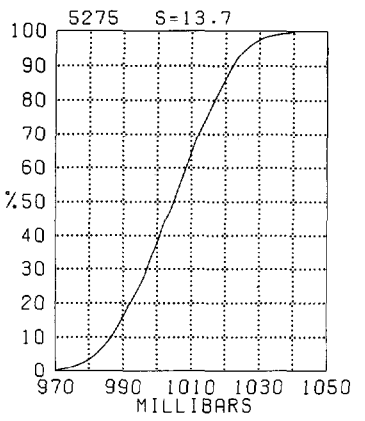
Homer



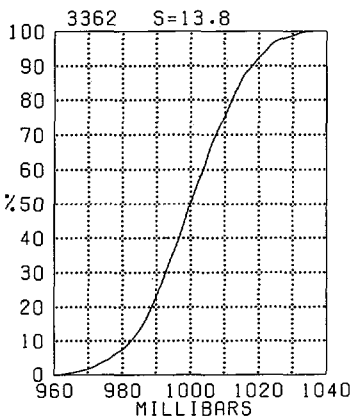
Kenai



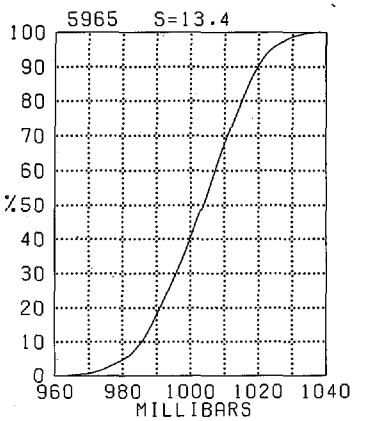
Anchorage



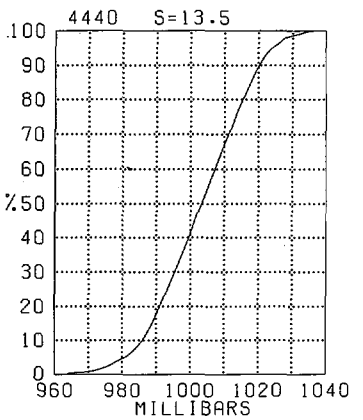
Middleton Island



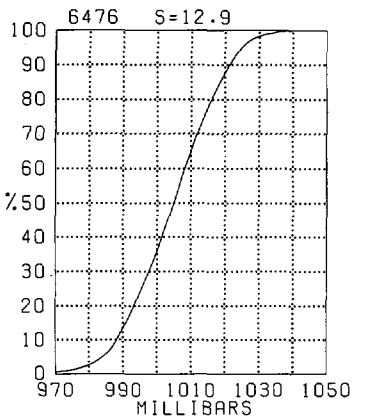
Cordova



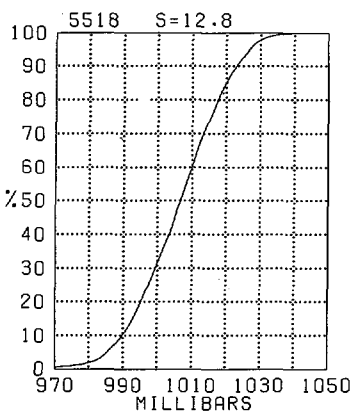
Yakataga



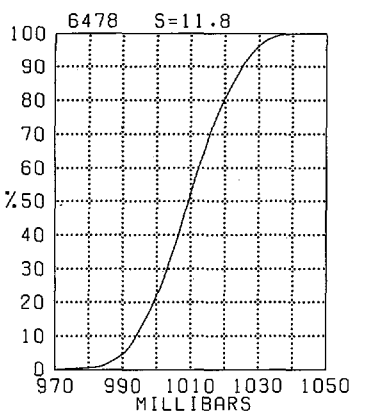
Yakutat



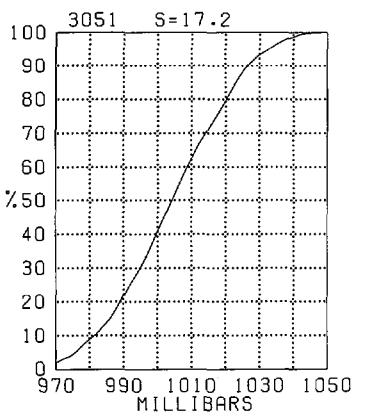
Sitka



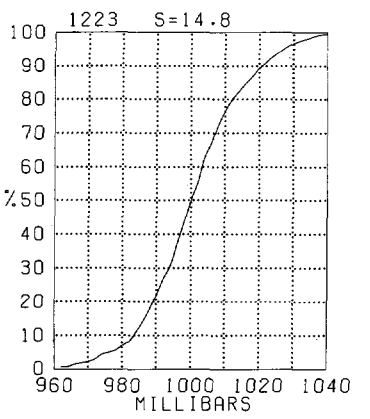
Annette

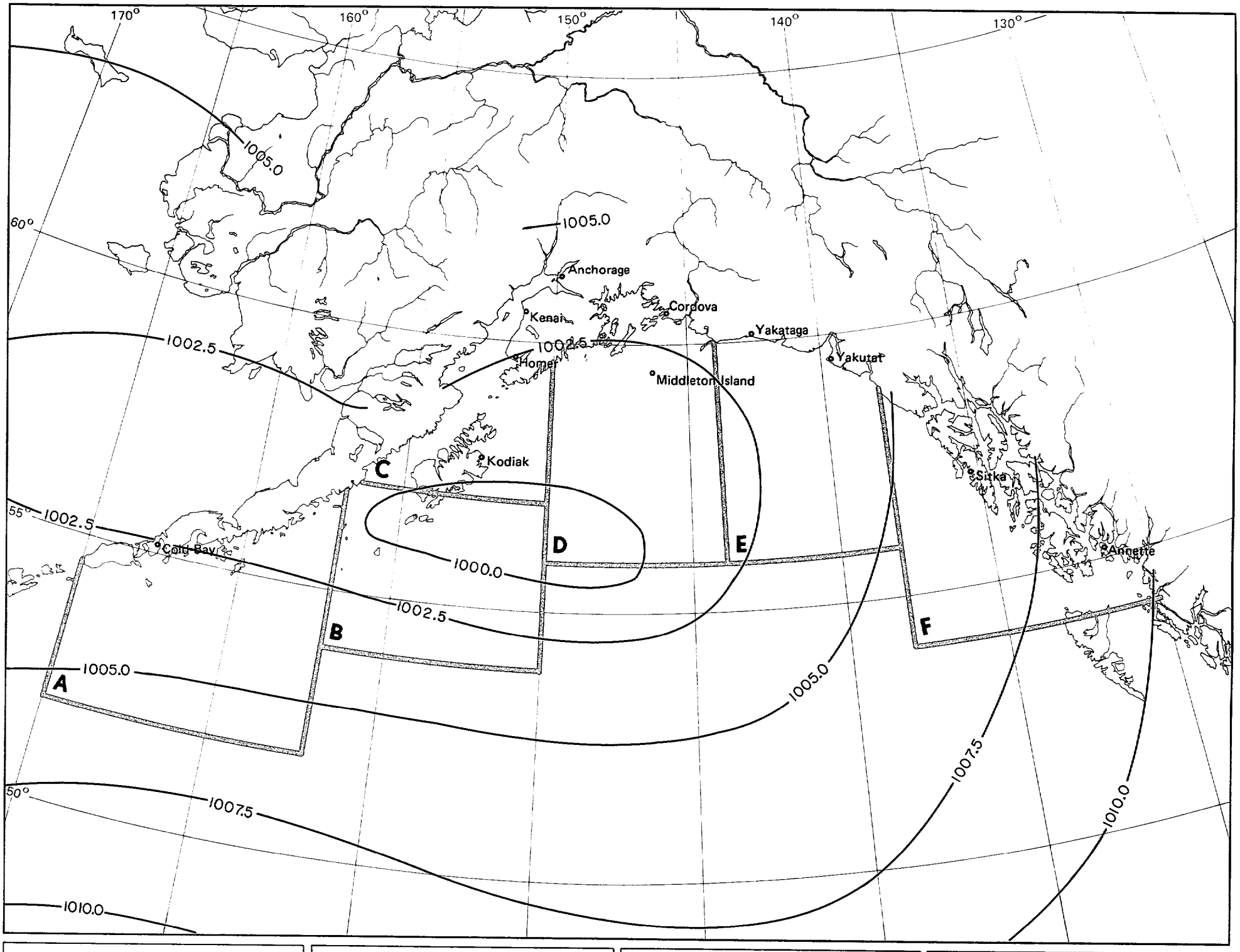


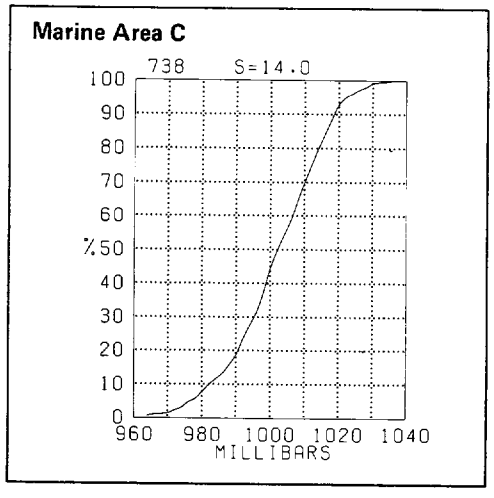
Marine Area A

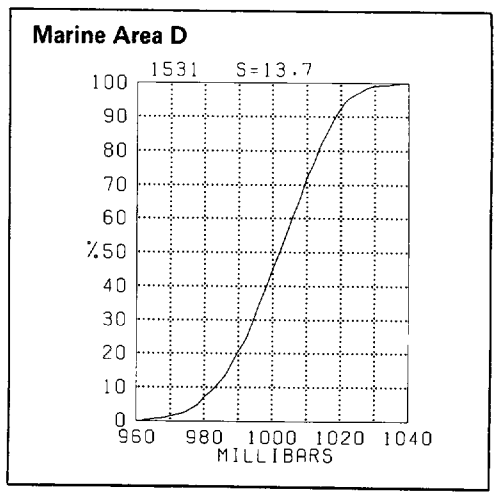


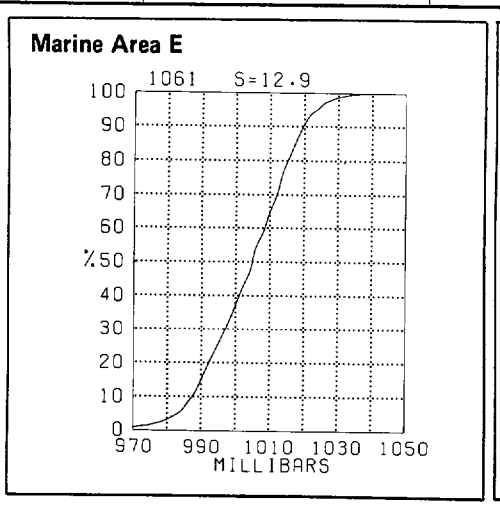
Marine Area B

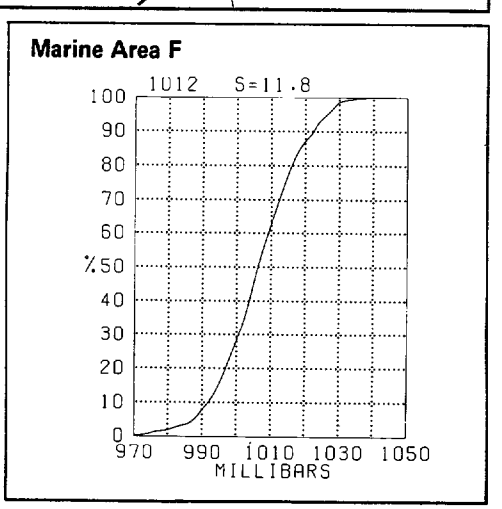










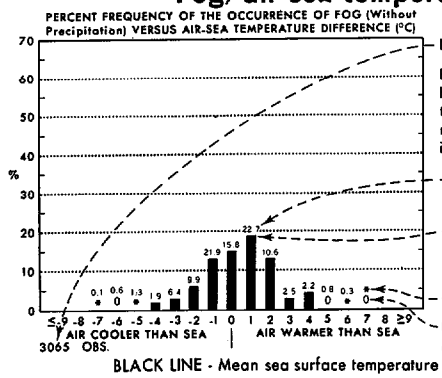


13 Mean sea level pressure

November

Legend

Fog/air-sea temperature difference



Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

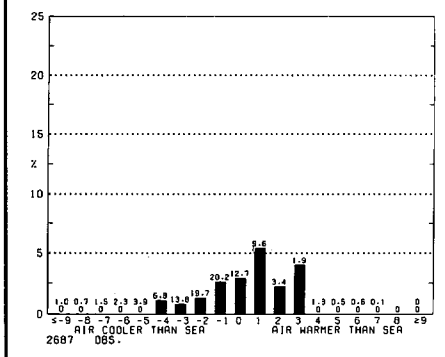
(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

• indicates <.05% but >0.

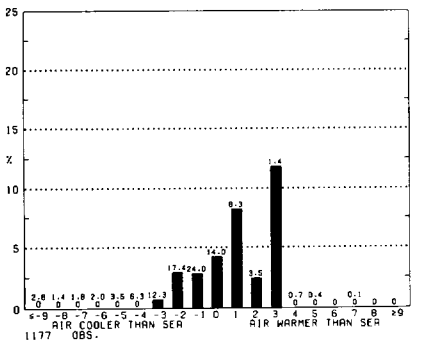
0 indicates no fog with the Air-Sea temperature difference category.

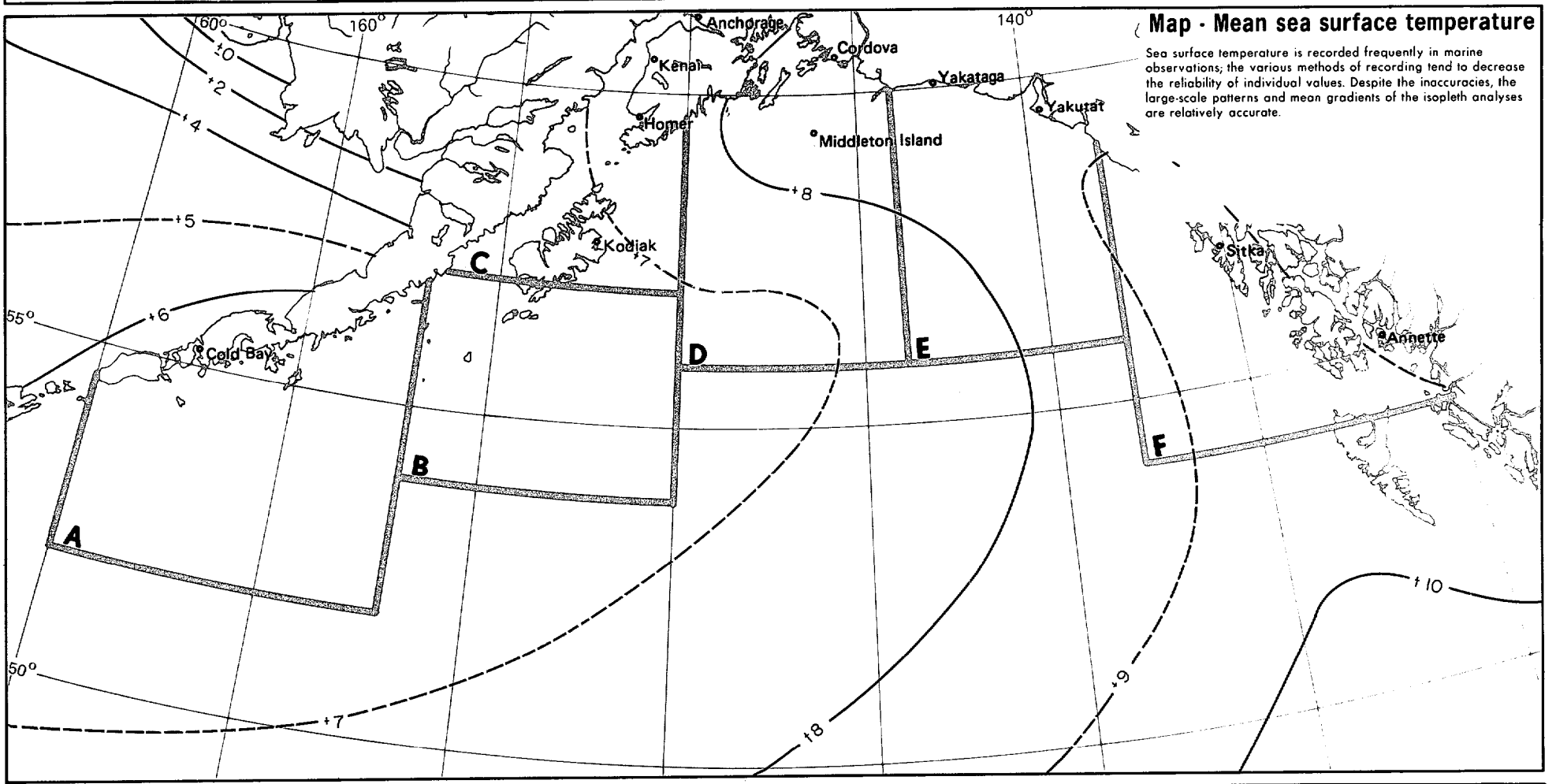
BLACK LINE - Mean sea surface temperature (°C)

Marine Area A



Marine Area B

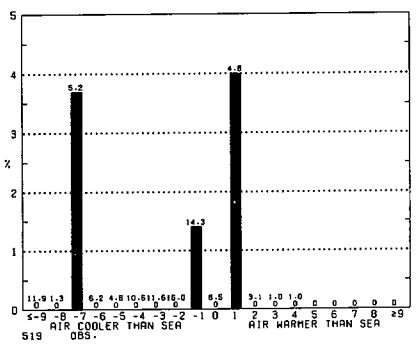




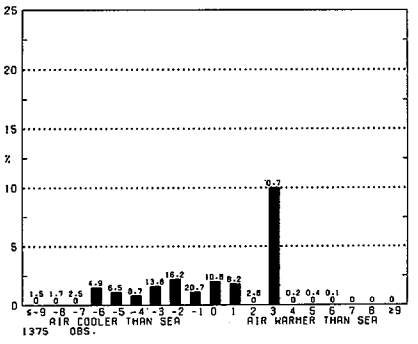
Map - Mean sea surface temperature

Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

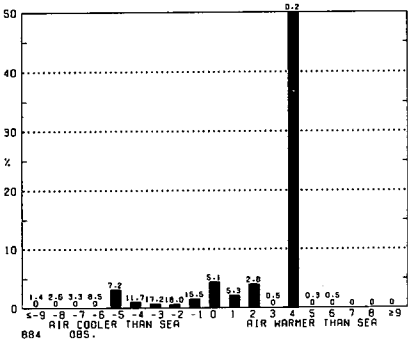
Marine Area C



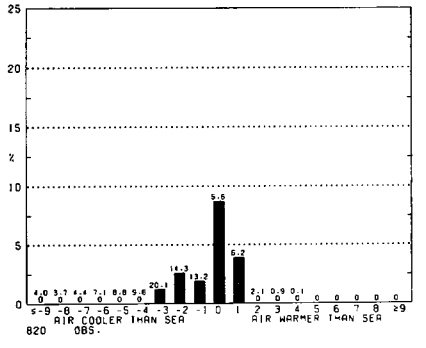
Marine Area D



Marine Area E

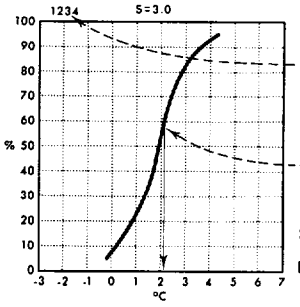


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

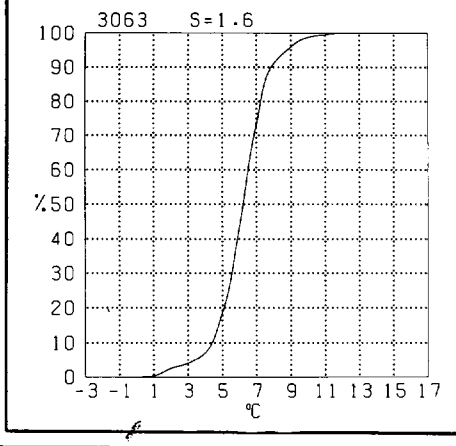
(60% of all observed sea surface temperatures were ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

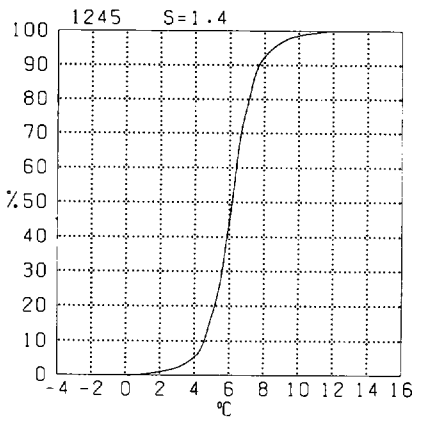
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

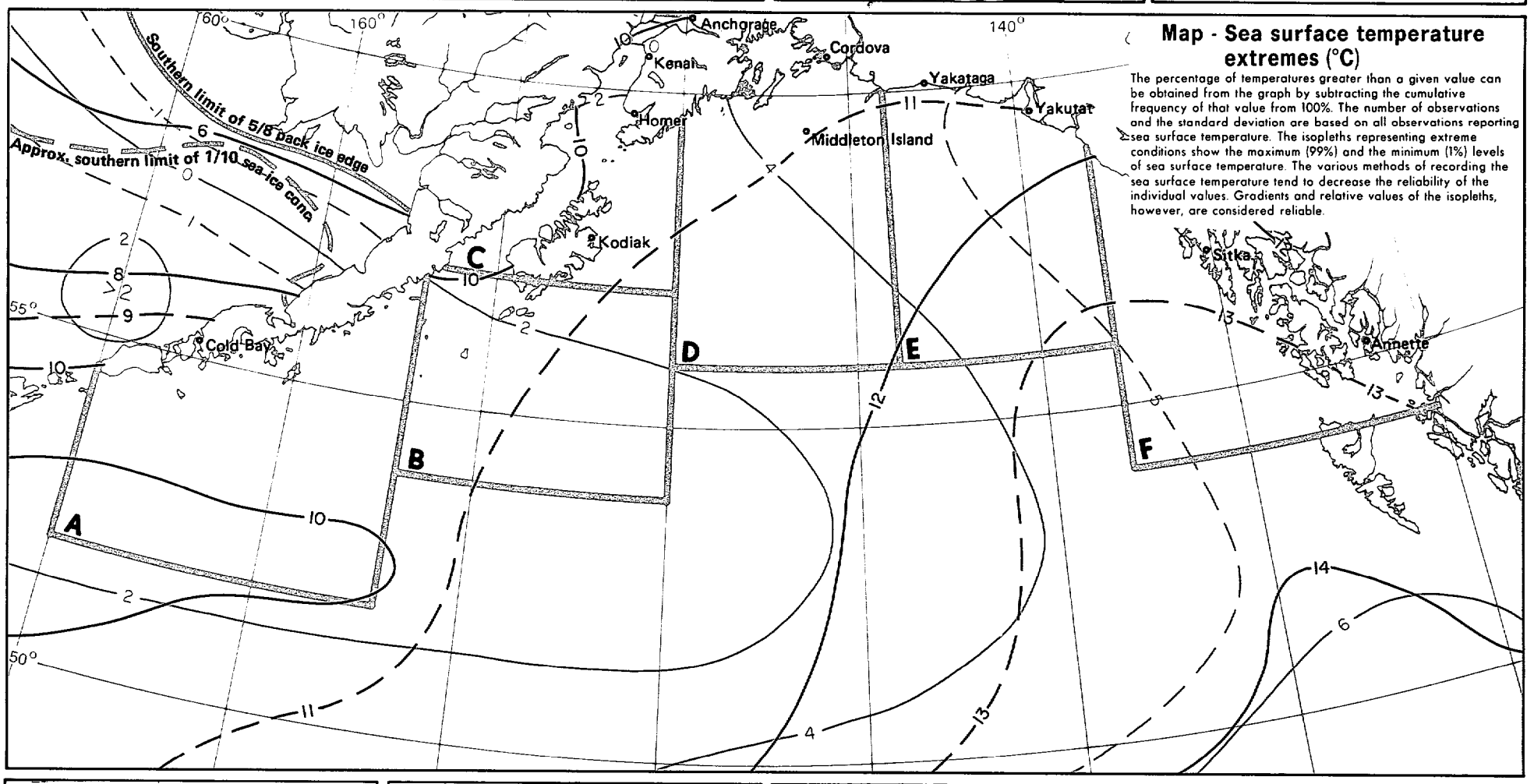
BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A



Marine Area B

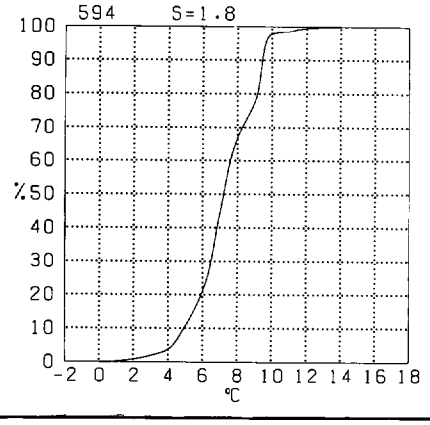




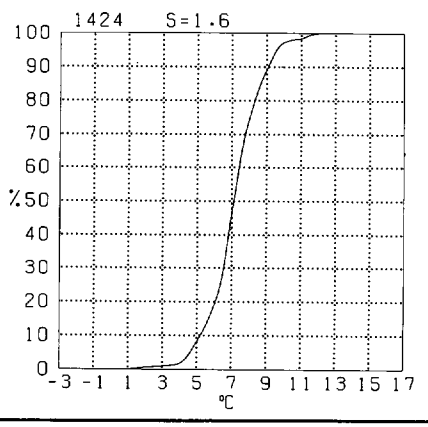
Map - Sea surface temperature extremes (°C)

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.

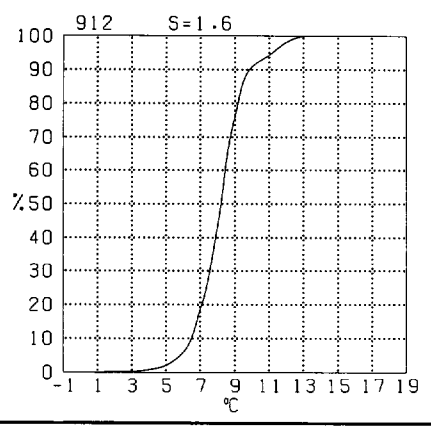
Marine Area C



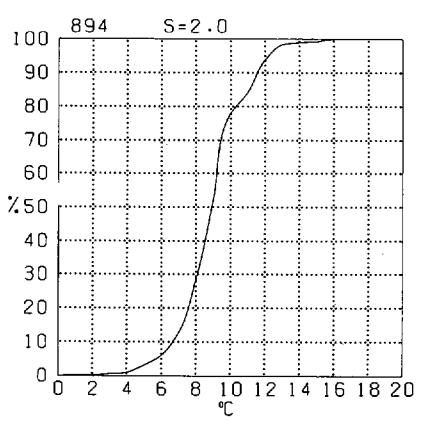
Marine Area D



Marine Area E



Marine Area F

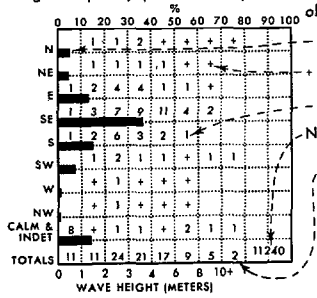


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



– – – (5% of all waves were from the N.)

\+ indicates <.5% but >0.

– – – (1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

– (2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL								
Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

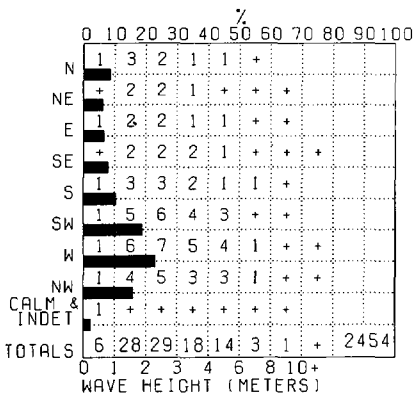
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

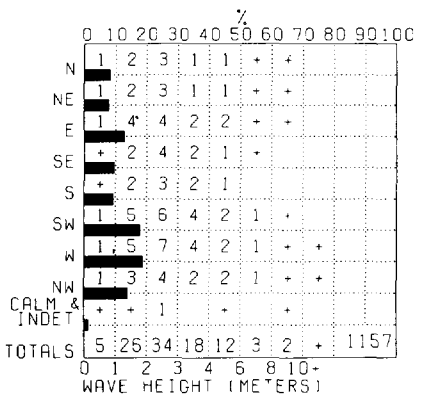
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

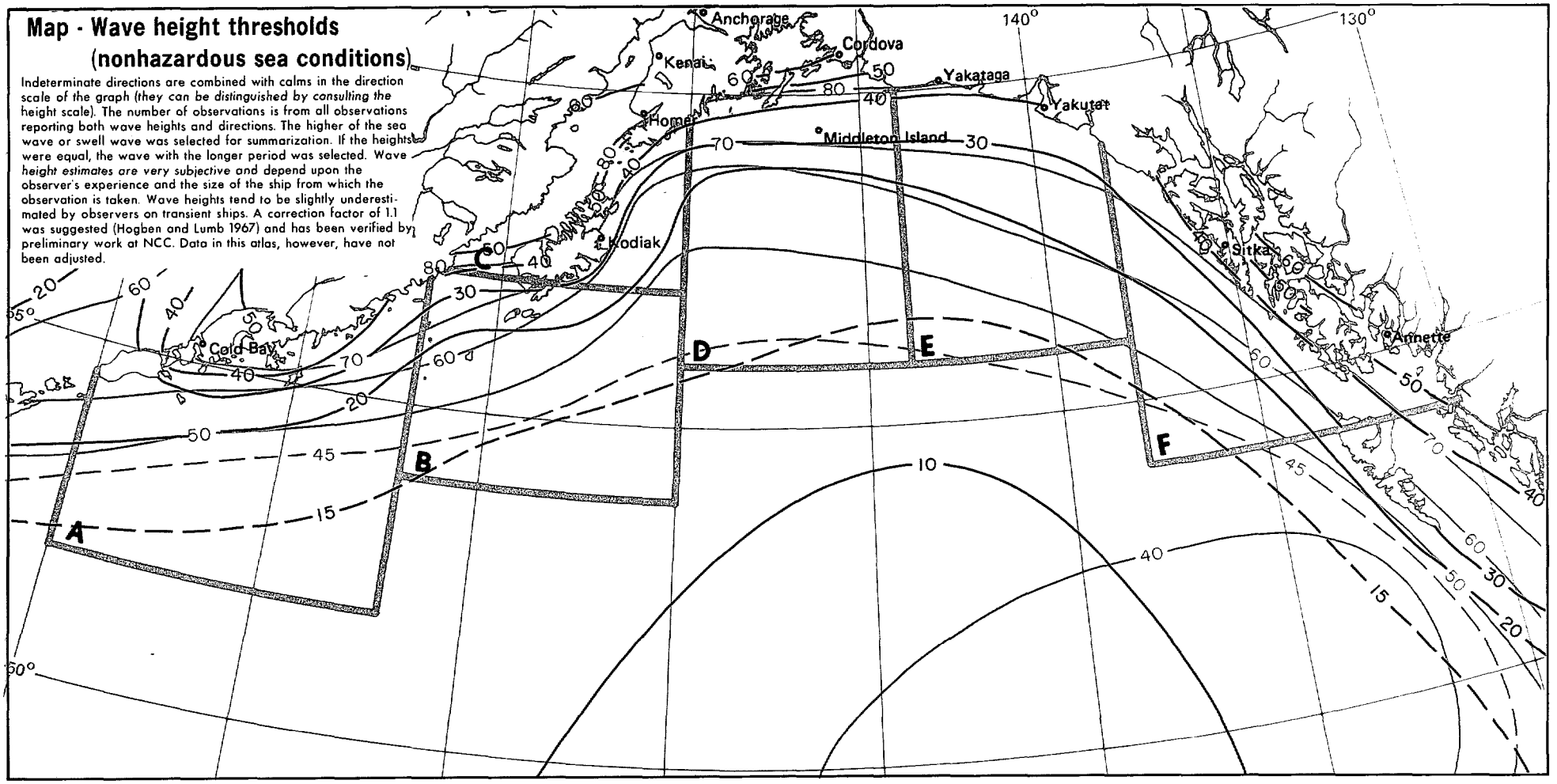


Marine Area B

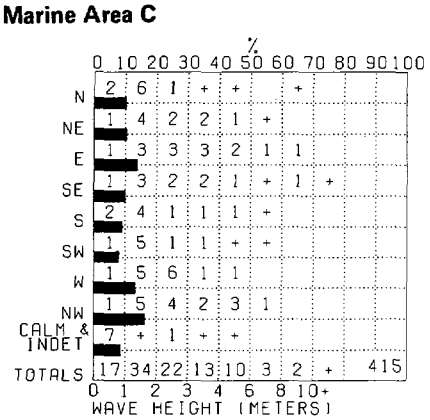


Map - Wave height thresholds (nonhazardous sea conditions)

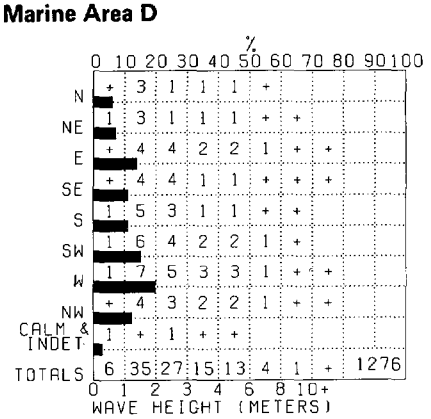
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



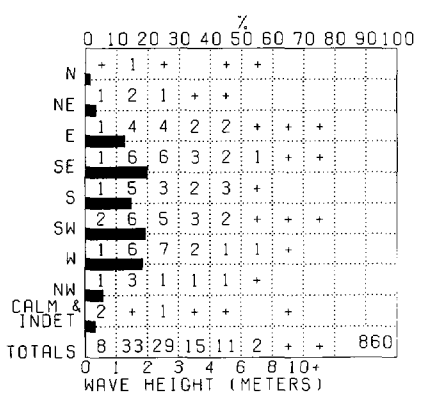
Marine Area C



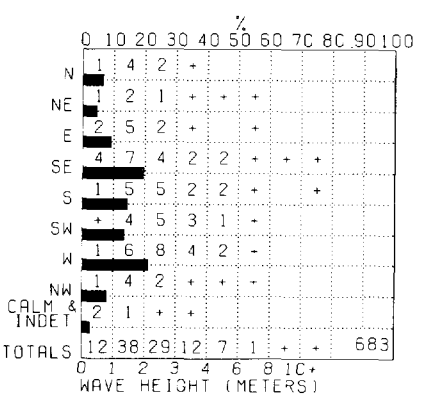
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT MTRS	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0
							4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

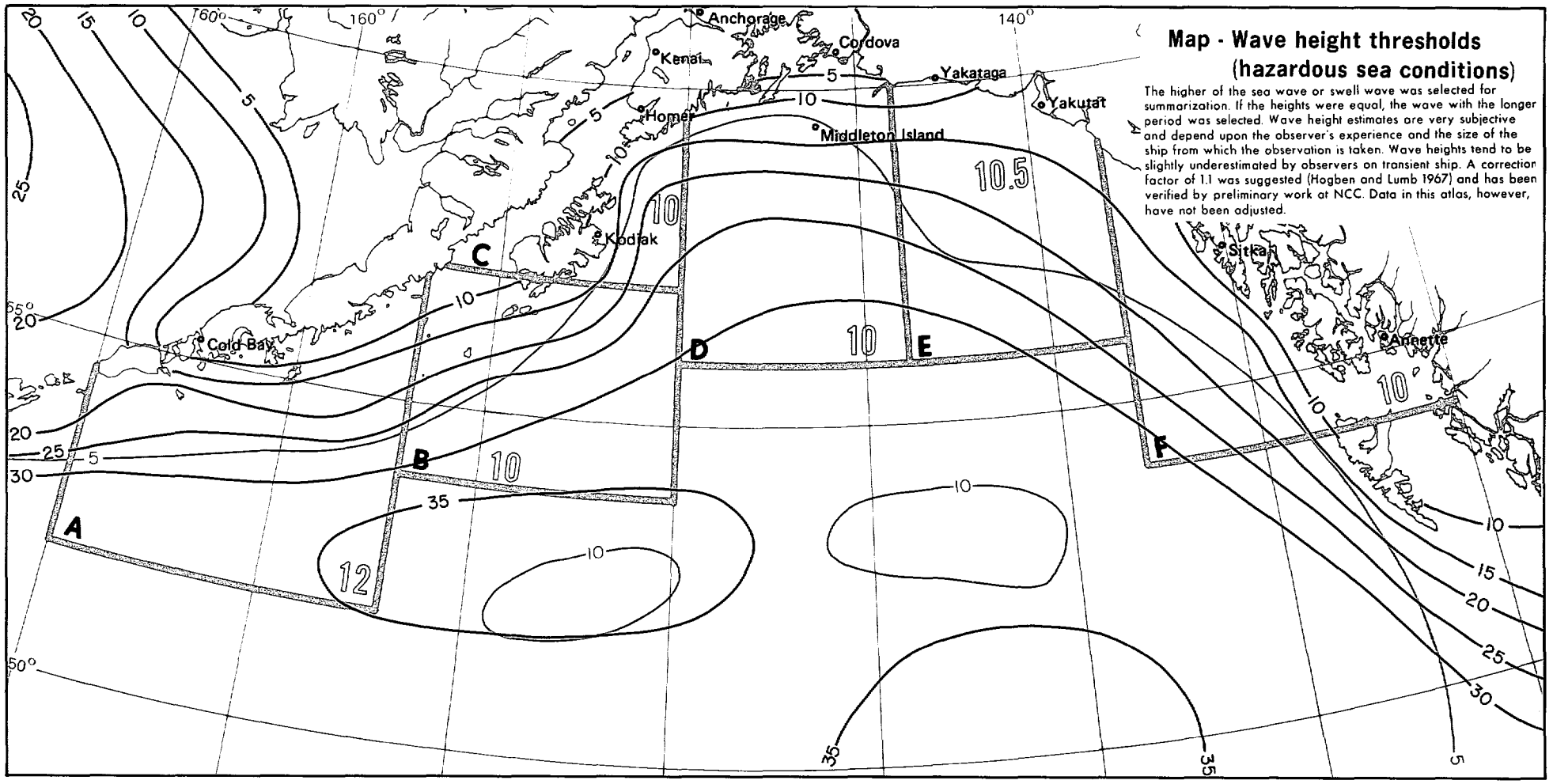
PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	+	+	+	0	0	1
1-1.5	12	9	2	1	+	+	3
2-2.5	6	10	7	2	1	+	2
3-3.5	1	7	5	2	1	1	1
4-5.5	1	3	5	2	1	1	1
6-7.5	0	+	+	1	+	1	+
8-9.5	0	0	+	+	+	+	+
≥10	0	0	+	0	+	+	0
							2490

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	1	+	+	0	0	1
1-1.5	12	7	3	+	1	0	2
2-2.5	7	14	8	2	1	+	2
3-3.5	2	7	5	2	+	+	1
4-5.5	1	3	3	2	1	+	2
6-7.5	0	1	1	+	1	+	+
8-9.5	+	0	+	+	1	+	+
≥10	0	0	+	+	0	0	0
							1170



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	10	1	0	+	0	0	8
1-1.5	18	8	3	1	+	0	3
2-2.5	7	7	5	1	+	+	1
3-3.5	3	4	3	+	+	+	1
4-5.5	1	3	3	1	1	+	1
6-7.5	0	+	1	+	+	0	1
8-9.5	0	+	+	+	0	1	0
≥10	0	0	0	+	0	0	0
							427

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	+	+	0	0	0	2
1-1.5	17	9	4	1	1	+	2
2-2.5	6	9	6	2	1	+	2
3-3.5	2	4	4	2	1	+	1
4-5.5	1	4	3	2	1	+	1
6-7.5	0	1	1	1	+	1	1
8-9.5	0	+	+	+	0	+	0
≥10	0	0	+	0	0	+	+
							1296

Marine Area E

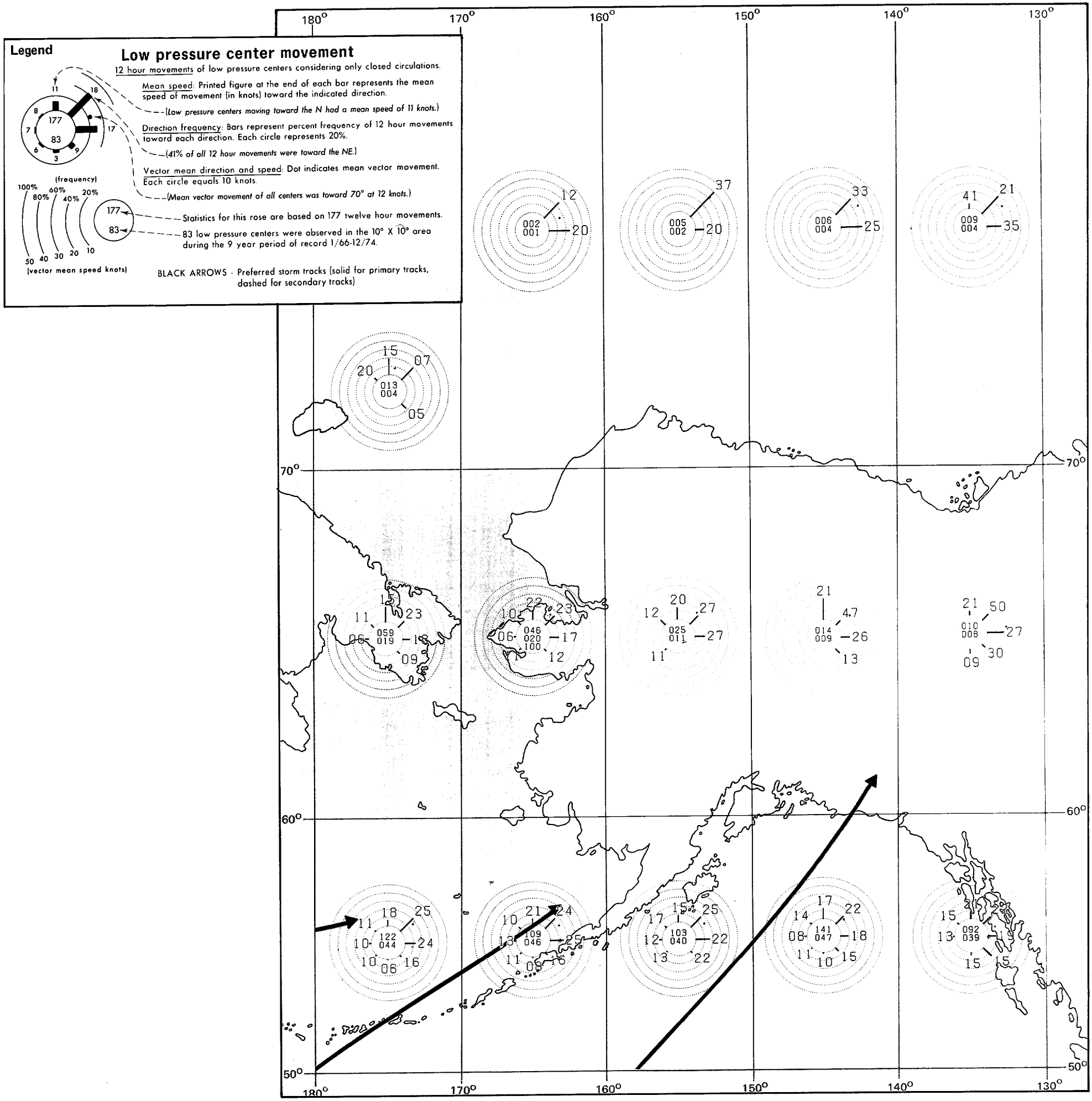
PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	6	1	+	+	0	0	2
1-1.5	17	9	4	1	1	1	1
2-2.5	5	11	7	3	1	1	1
3-3.5	2	4	4	3	1	1	+
4-5.5	1	2	3	2	1	1	+
6-7.5	0	+	+	1	+	1	0
8-9.5	0	0	0	+	0	0	+
≥10	0	0	+	0	0	0	+
							870

Marine Area F

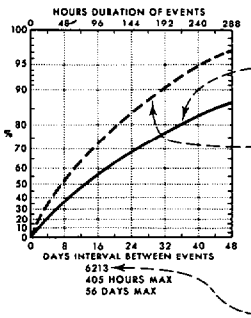
PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	11	1	0	+	0	0	3
1-1.5	20	10	5	+	1	0	1
2-2.5	5	10	7	4	1	2	+
3-3.5	1	3	4	1	1	+	1
4-5.5	+	1	2	2	1	+	0
6-7.5	0	+	+	+	+	+	0
8-9.5	0	0	0	0	+	0	0
≥10	0	0	+	0	0	0	+
							699


Legend
Low pressure center movement
12 hour movements of low pressure centers considering only closed circulations.
Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.
(Low pressure centers moving toward the N had a mean speed of 11 knots.)
Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.
(41% of all 12 hour movements were toward the NE.)
Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.
(Mean vector movement of all centers was toward 70° at 12 knots.)
(frequency)
100% 80% 60% 40% 20%
50 40 30 20 10
(vector mean speed knots)
177
83
Statistics for this rose are based on 177 twelve hour movements.
83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1/66-12/74.
BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)
180°
170°
160°
150°
140°
130°
70°
60°
50°

Legend

Persistence of visibility <2 n. mi.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

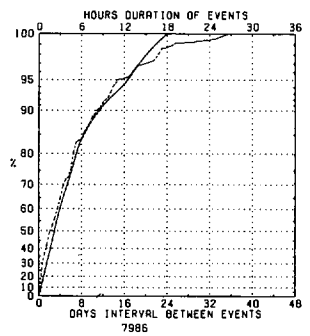
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

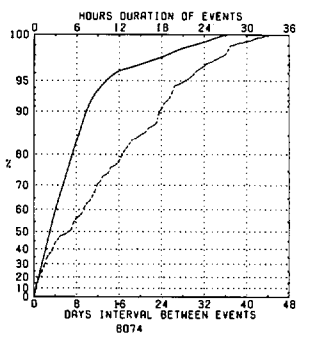
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

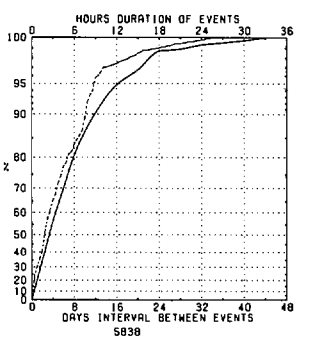
Kodiak



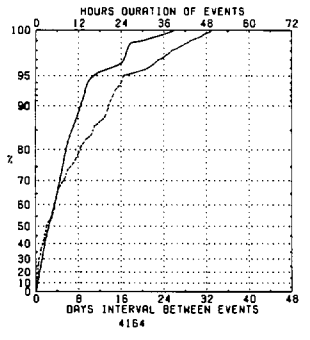
Homer



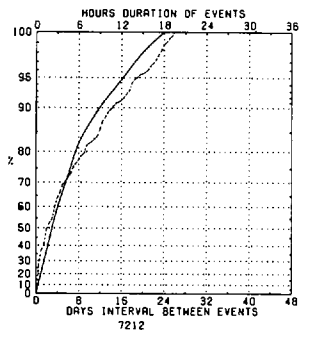
Kenai



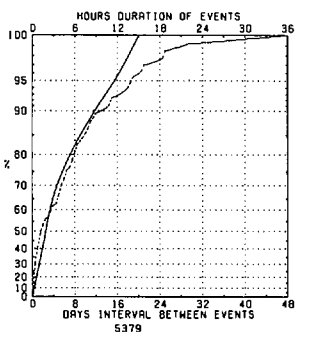
Middleton Island



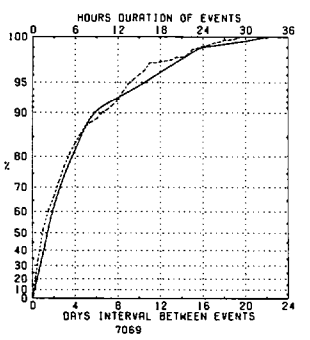
Cordova



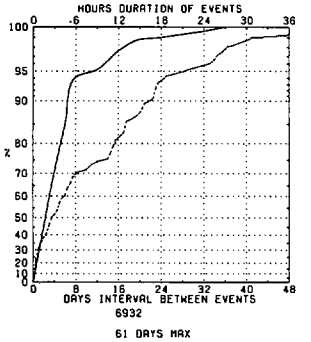
Yakataga



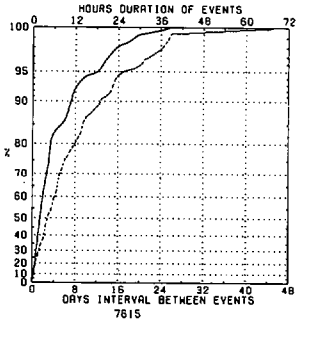
Yakutat



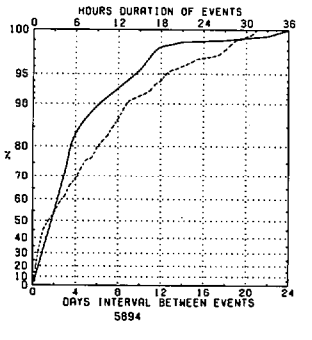
Sitka



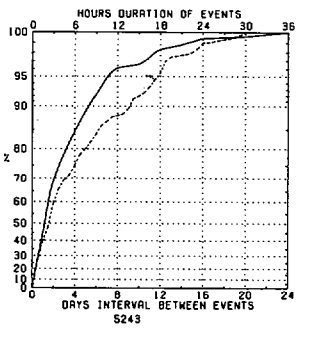
Annette



Anchorage



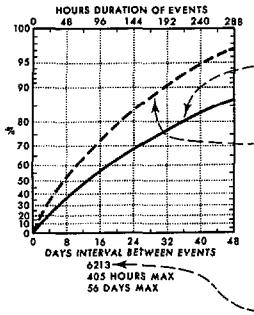
Cold Bay



Legend

Persistence of wind ≥10 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

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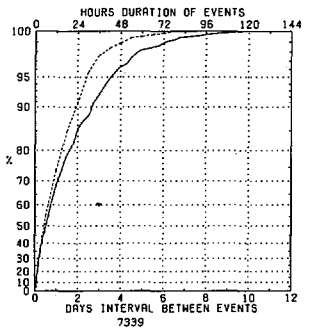
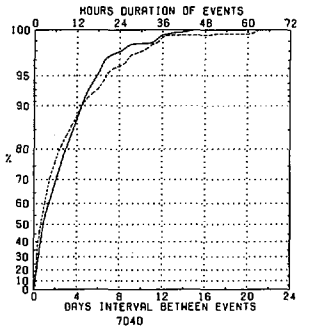
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

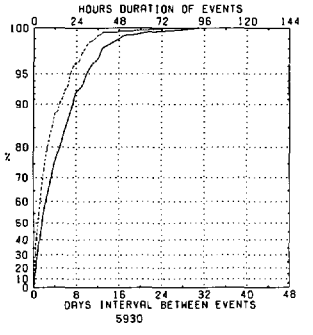
Kodiak



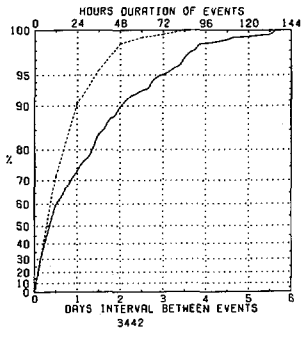
Homer



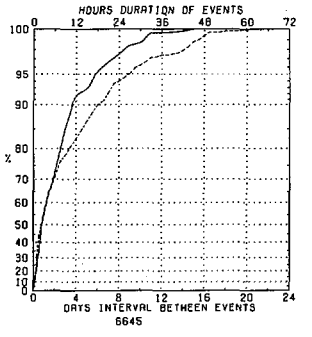
Kenai



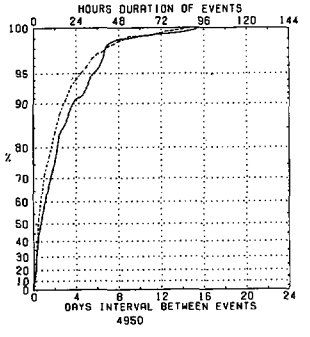
Middleton Island



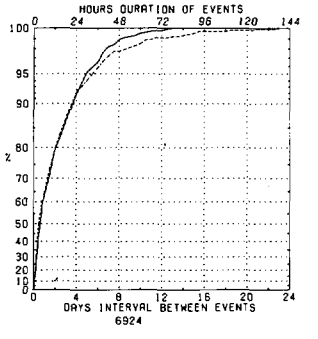
Cordova



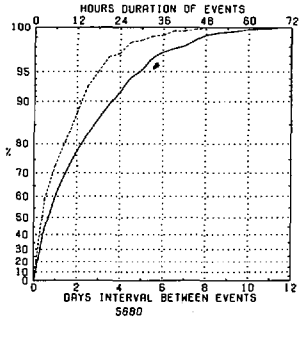
Yakataga



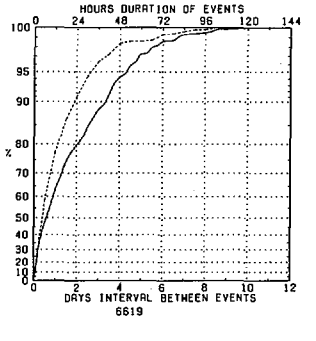
Yakutat



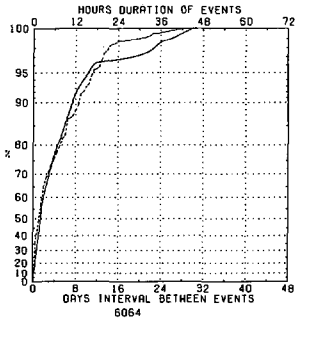
Sitka



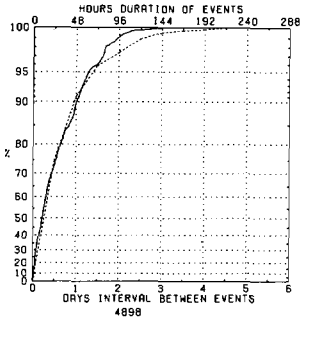
Annette



Anchorage



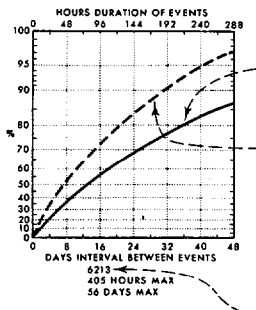
Cold Bay



Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



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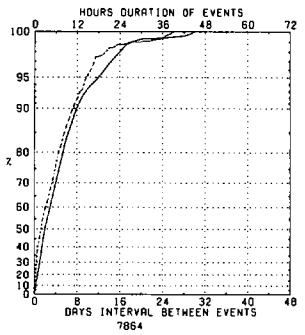
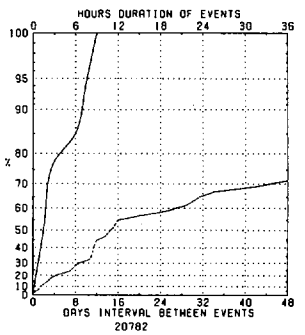
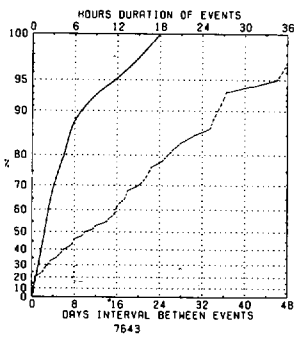
Kodiak



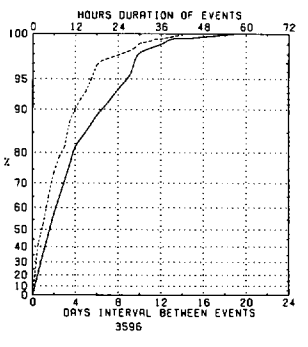
Homer



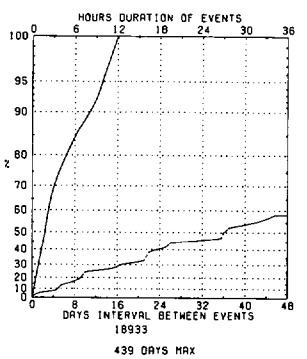
Kenai



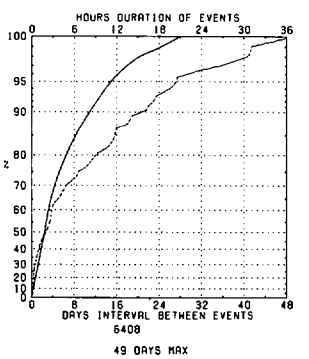
Middleton Island



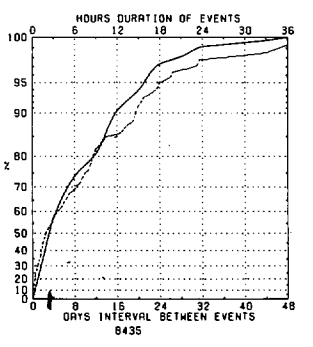
Cordova



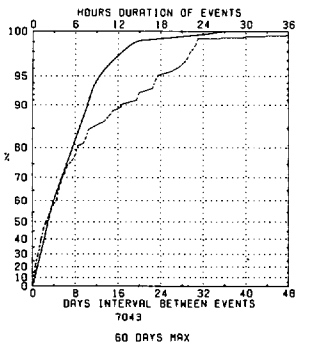
Yakataga



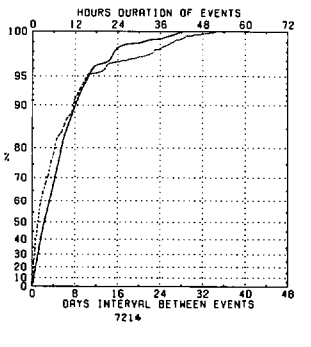
Yakutat



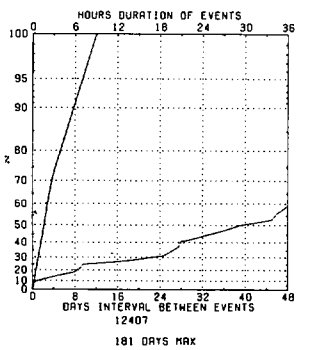
Sitka



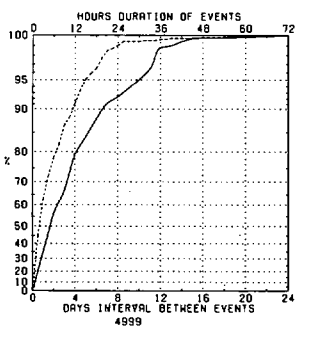
Annette



Anchorage

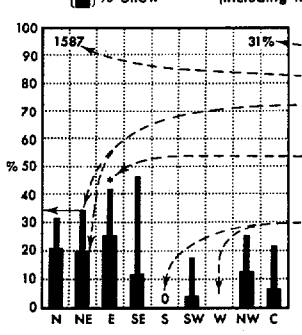


Cold Bay



Legend

Precipitation/wind direction



Percent frequency of surface wind observations from each direction and calm that were accompanied by precipitation, subdivided into liquid type (including freezing rain and freezing drizzle) and snow.

Percentage of present weather observations reporting precipitation.

Number of observations.

(34% of all NE winds were accompanied by precipitation, of which 14% was liquid and 20% was snow.)

An asterisk in the column for a given direction (or calm) indicates that the percentage was based on 10-30 observations of present weather and wind direction.

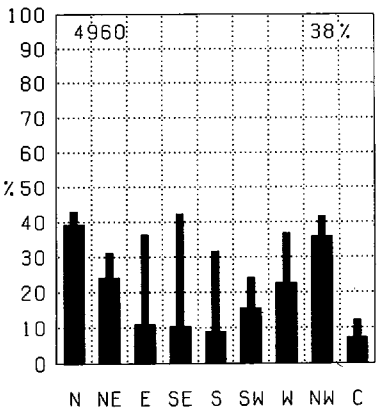
0 replaces bar when no precipitation was observed with winds from a given direction (or calm). No bar graph is presented if less than 10 observations containing present weather were reported for a given direction (or calm).

Map - Precipitation

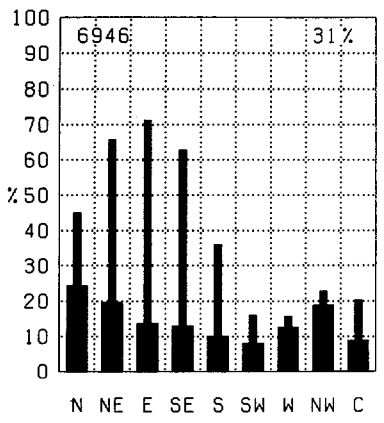
BLACK LINE - Percent frequency of observations reporting precipitation

Of all the elements recorded in historical marine observations, precipitation is one of those most subject to interpretation error, from coding practices, observers preference for certain present weather codes, and other biases.

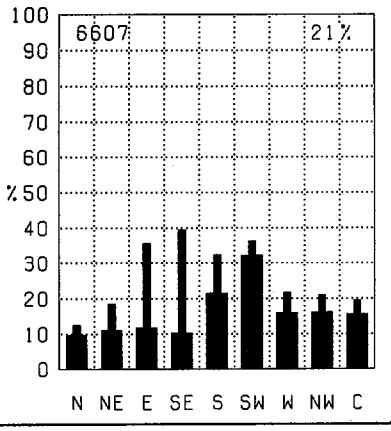
Cold Bay



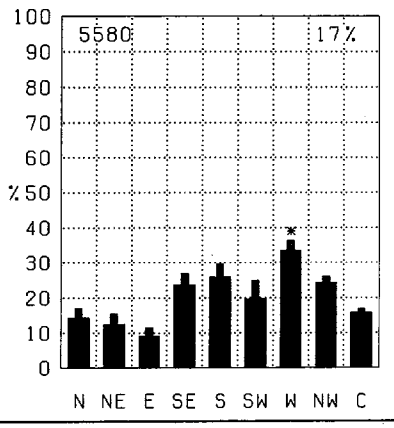
Kodiak



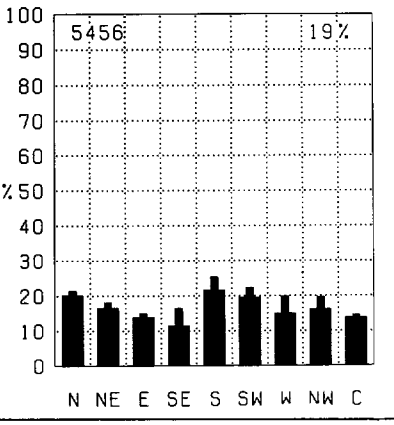
Homer



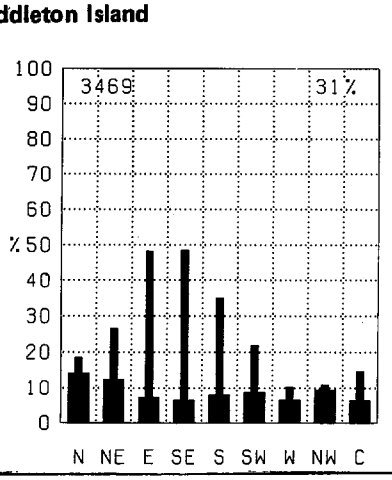
Kenai



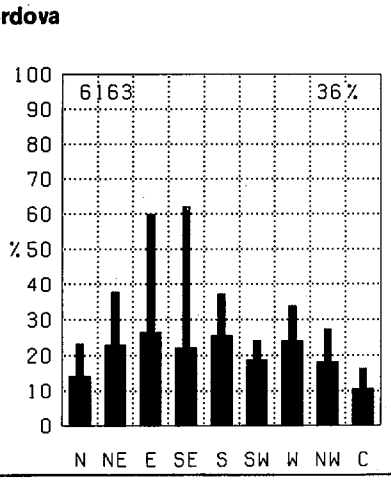
Anchorage



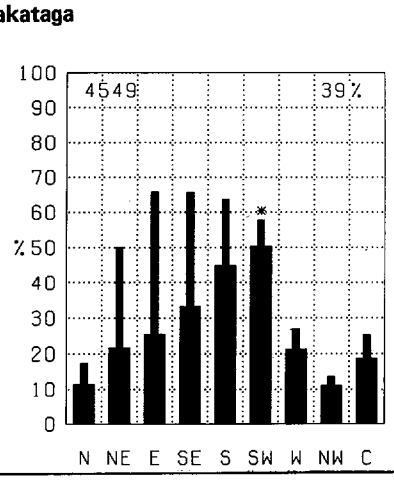
Middleton Island



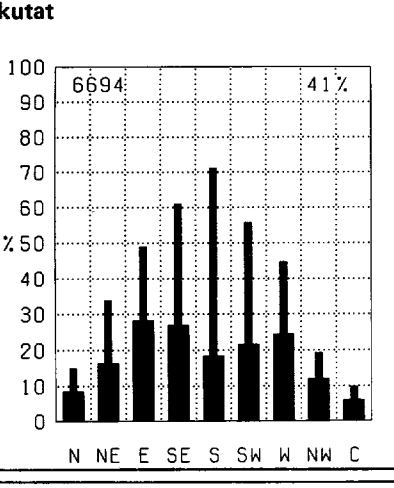
Cordova



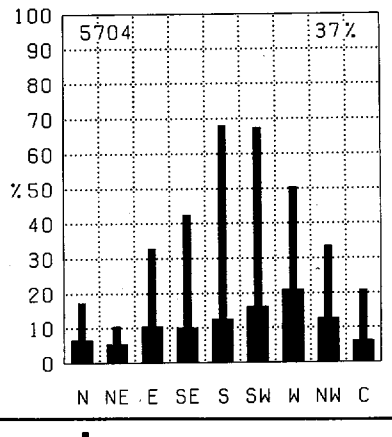
Yakataga



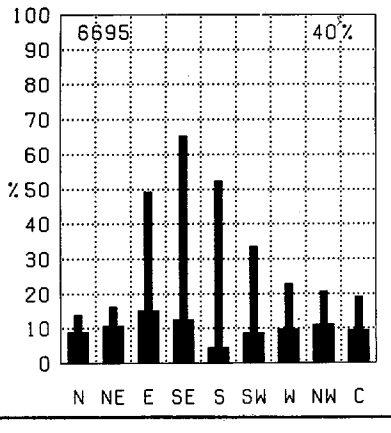
Yakutat



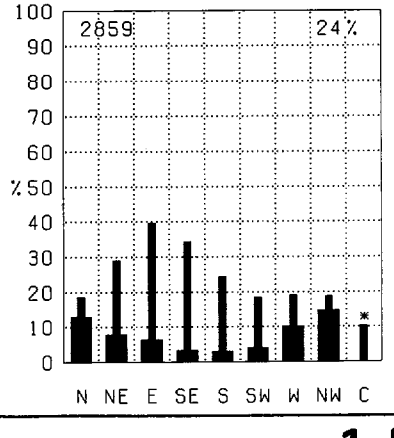
Sitka



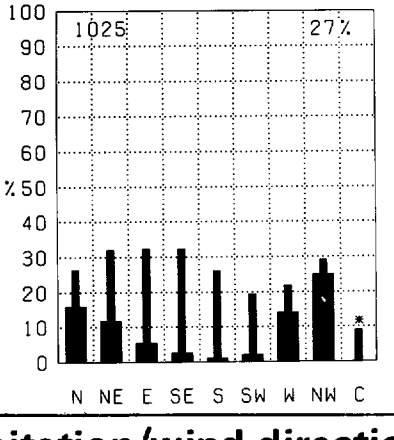
Annette

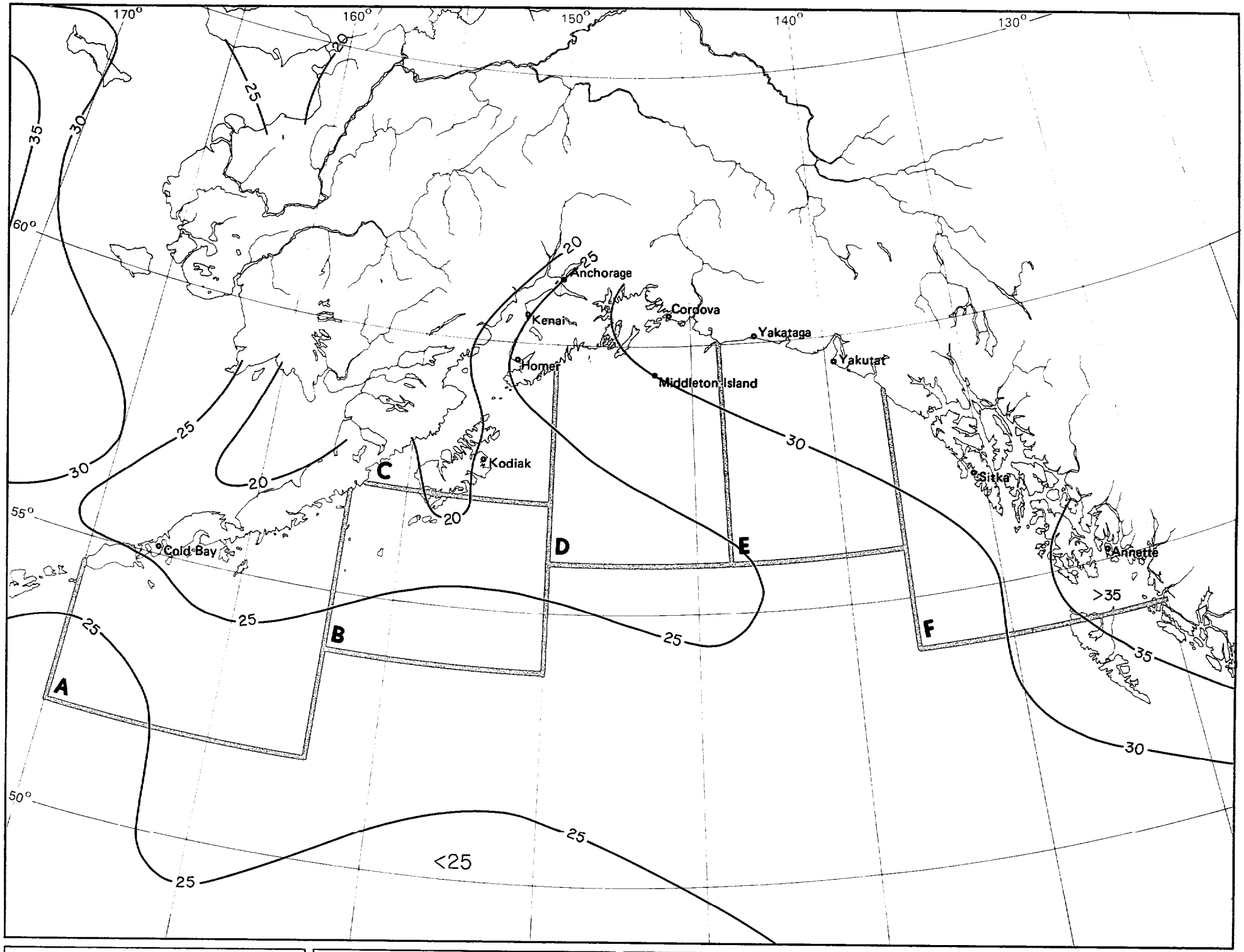


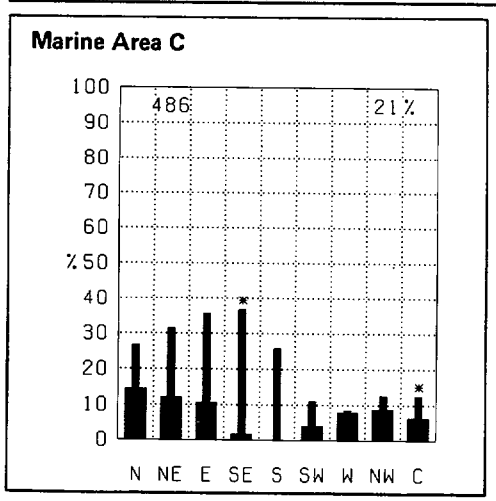
Marine Area A

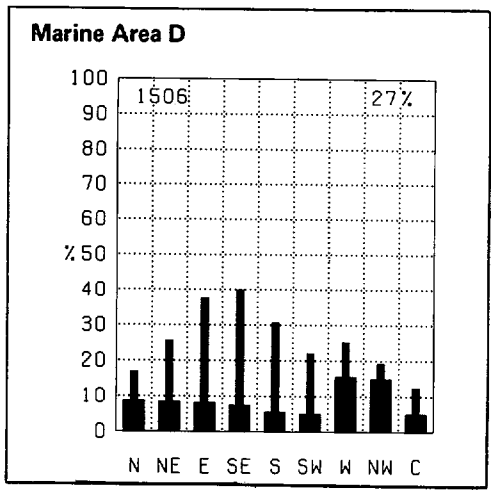


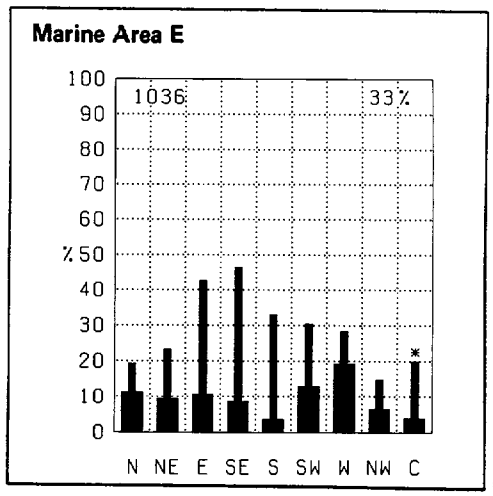
Marine Area B

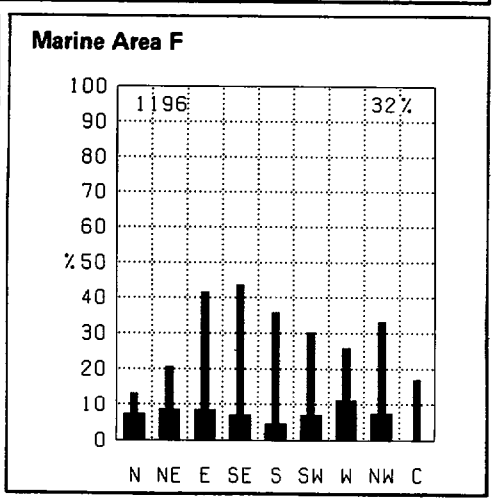



170°
160°
150°
140°
130°
60°
55°
50°
35
30
25
20
<25
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Sitka
Cold Bay
Annette
>35
A
B
C
D
E
F


Marine Area C
486
21%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

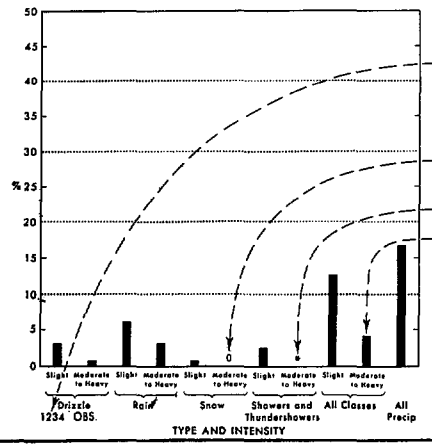

Marine Area D
1506
27%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area E
1036
33%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C


Marine Area F
1196
32%
100
90
80
70
60
%50
40
30
20
10
0
N NE E SE S SW W NW C

Legend

Precipitation types



Percent frequency of precipitation by type and intensity.

Number of observations.

Bars show percent frequency of observations reporting Precipitation of various types and intensities.

0 indicates no observations in the category.

* indicates <.05% but >0.

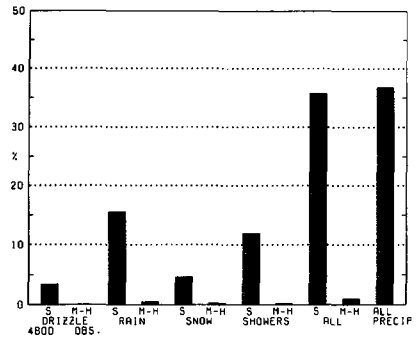
(4.0% of all observations recorded moderate to heavy precipitation.)

Map - Snow

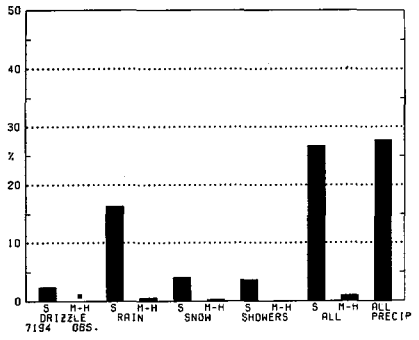
BLACK LINE - Percent frequency of precipitation observations reporting snow

The percent frequency of observations reporting snow for a given point can be determined by multiplying the percent frequency of observations reporting precipitation (map 1.) with that of precipitation observations reporting snow (map 2.).

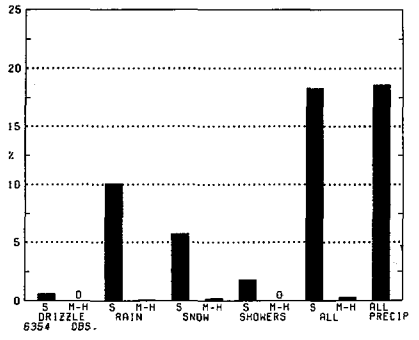
Cold Bay



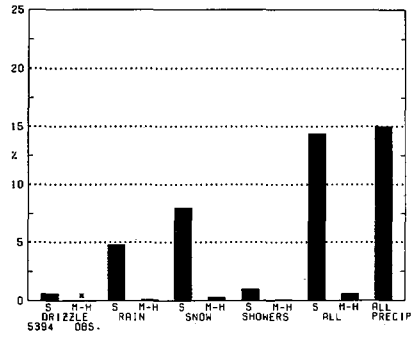
Kodiak



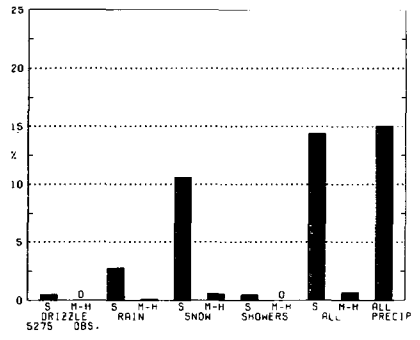
Homer



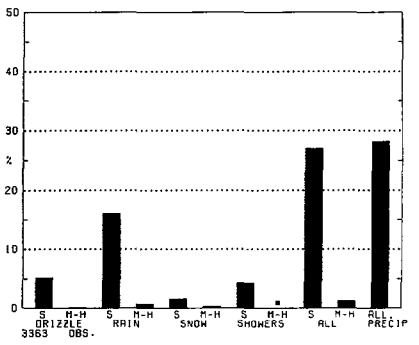
Kenai



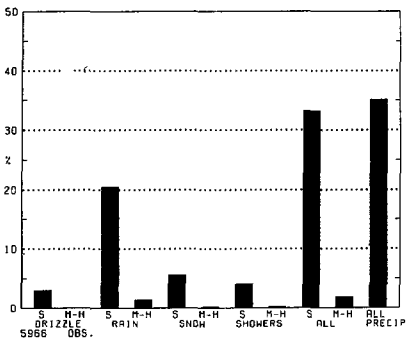
Anchorage



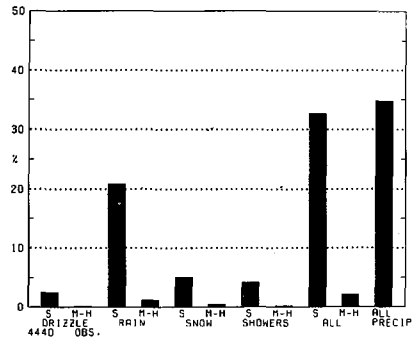
Middleton Island



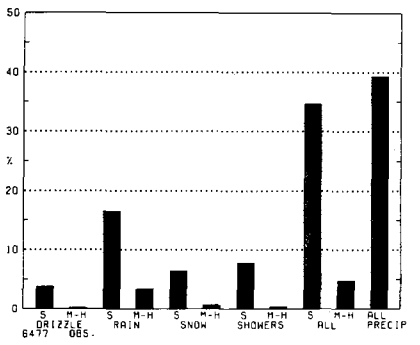
Cordova



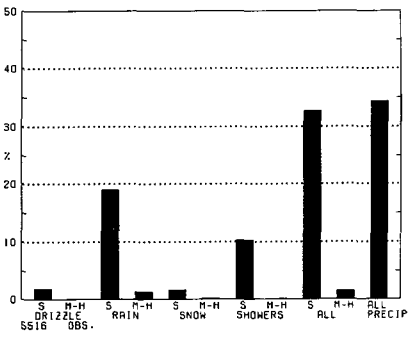
Yakataga



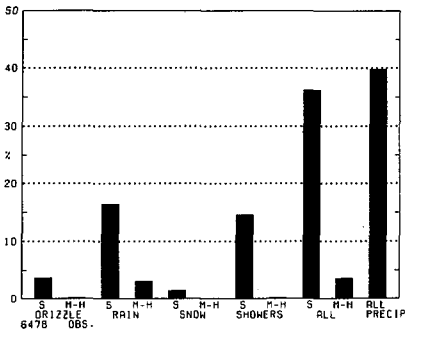
Yakutat



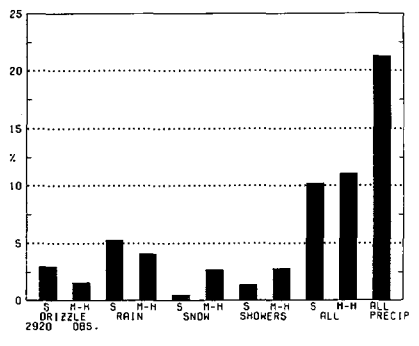
Sitka



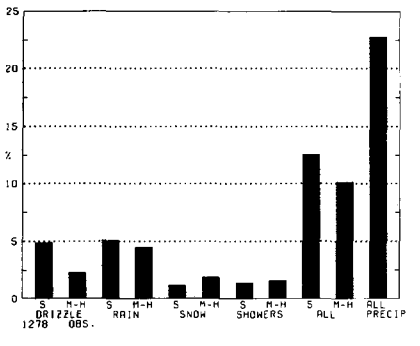
Annette

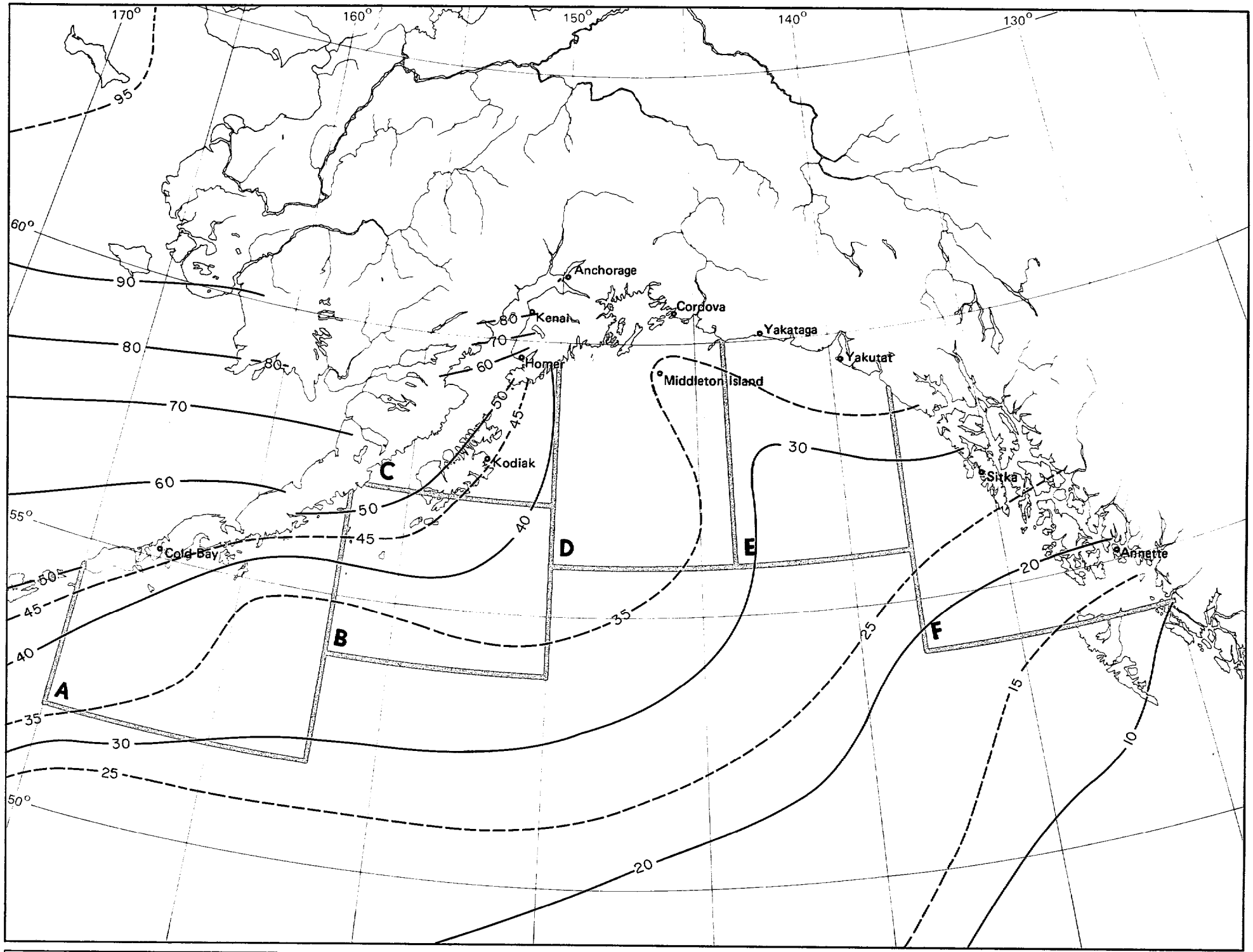


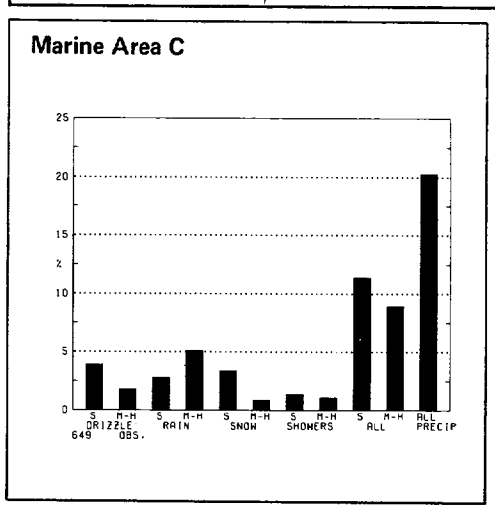
Marine Area A

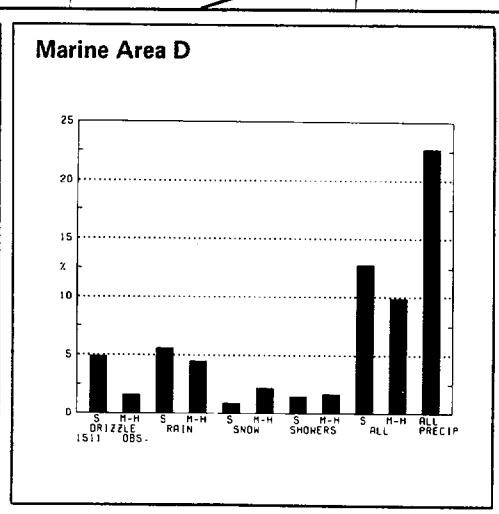


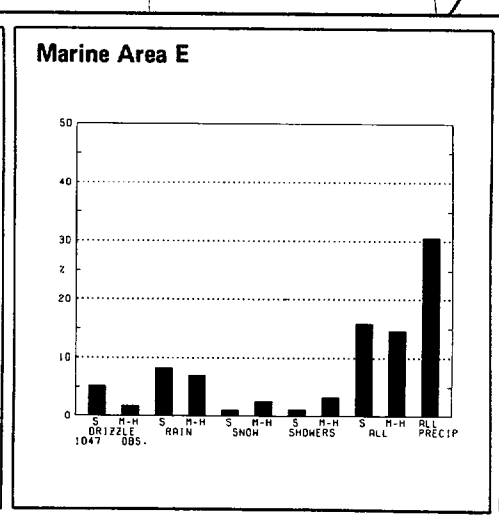
Marine Area B

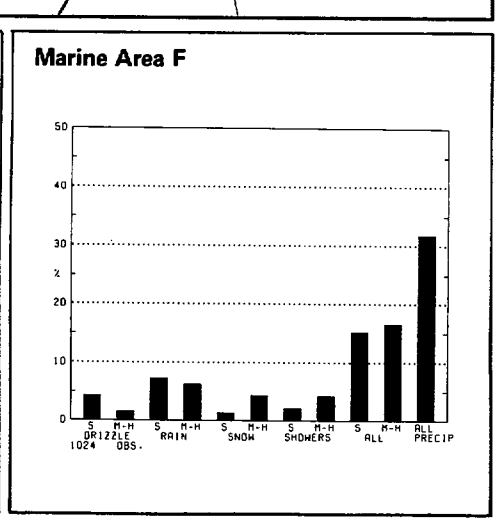



170°
160°
150°
140°
130°
60°
55°
50°
95
90
80
70
60
50
45
40
35
30
25
20
15
10
Anchorage
Kenai
Cordova
Yakataga
Yakutat
Homer
Middleton Island
Kodiak
Cold Bay
Sitka
Annette
A
B
C
D
E
F


Marine Area C
25
20
15
%
10
5
0
S DRIZZLE 649
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

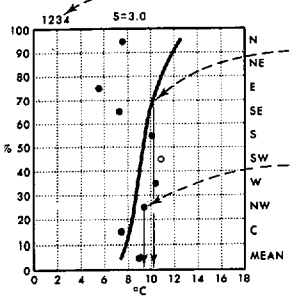

Marine Area D
25
20
15
%
10
5
0
S DRIZZLE 1511
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area E
50
40
30
%
20
10
0
S DRIZZLE 1047
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP


Marine Area F
50
40
30
%
20
10
0
S DRIZZLE 1024
M-H OBS.
S RAIN
M-H
S SNOW
M-H
S SHOWERS
M-H
S ALL
M-H
ALL PRECIP

Legend

Air temperature/wind direction



Number of observations.

Cumulative percent frequency of temperatures equal to or less than the temperature intersected by the curve.

(70% of all temperatures were ≤10.3 °C or ≤50.5 °F.)

S= Standard deviation of temperatures (°C).

Mean temperature for each wind direction, calm and for all data combined are represented by dots.

(With NW winds, the mean temperature was 9.4 °C or 48.9 °F.)

o Indicates that the mean temperature for a direction or calm was computed from 10-30 observations.

The mean temperature is omitted when less than 10 observations for a direction or calm were available.

Map - Air temperature mean and thresholds

BLACK LINE - Percent frequency of temperature ≤0°C (≤32°F)

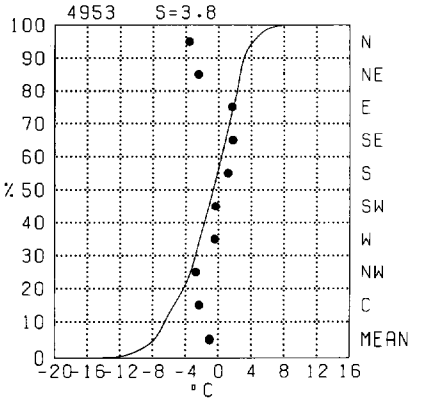
RED LINE - Mean air temperature (°C)

BLUE LINE - Percent frequency of wind chill temperature ≤-30°C (≤-22°F)

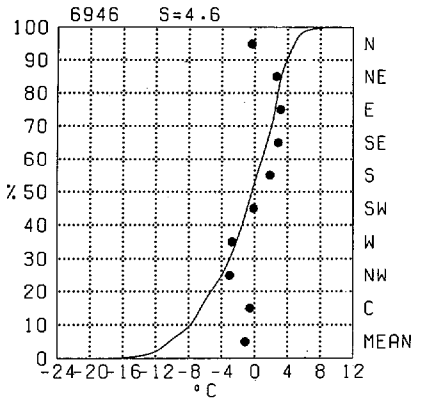
Air temperature readings recorded on transient ships in warm, sunny weather appear biased toward high temperatures, apparently because of improper instrument exposure and ventilation. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graph may vary in both range and class interval. The percentage of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation plus the plotted points on the graphs are based on those observations reporting both temperature and wind direction. The cumulative curve is based on all observations reporting temperature with or without wind direction.

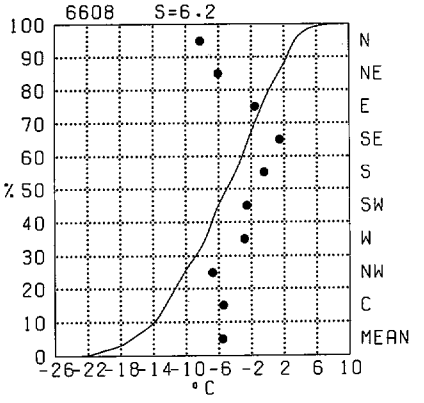
Cold Bay



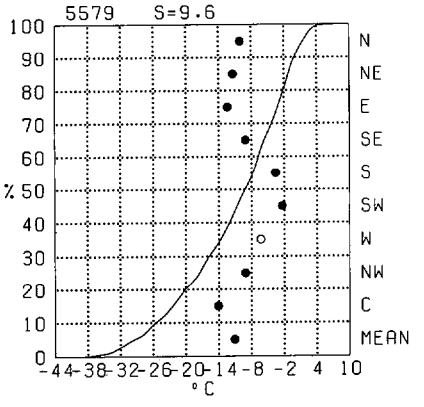
Kodiak



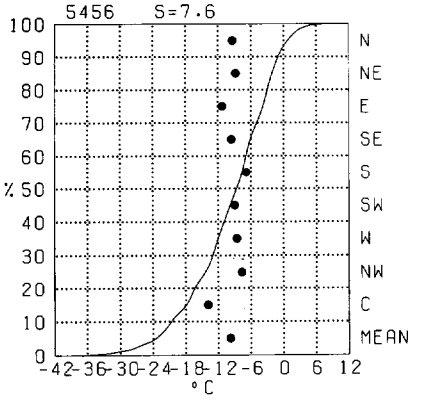
Homer



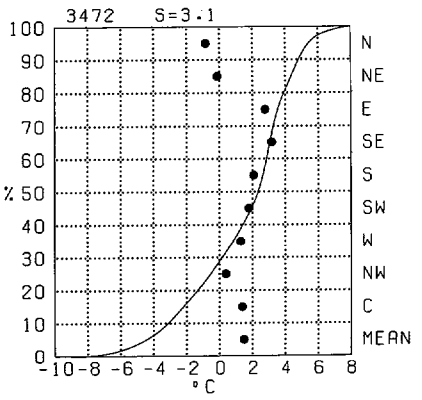
Kenai



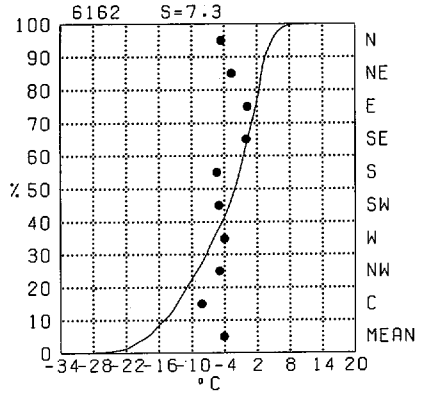
Anchorage



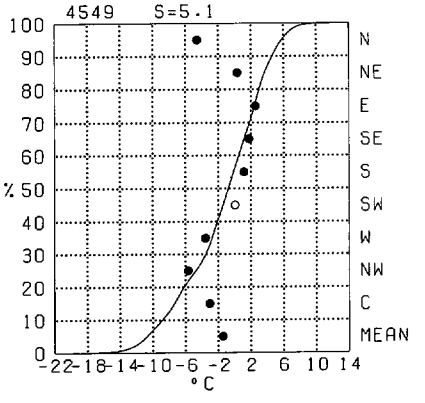
Middleton Island



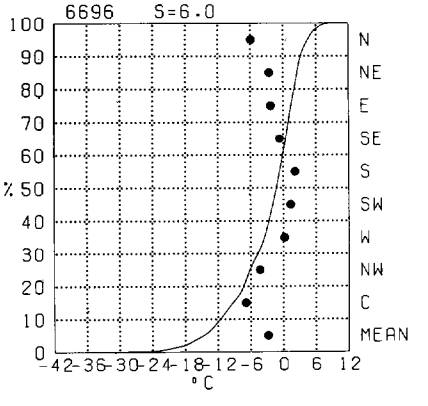
Cordova



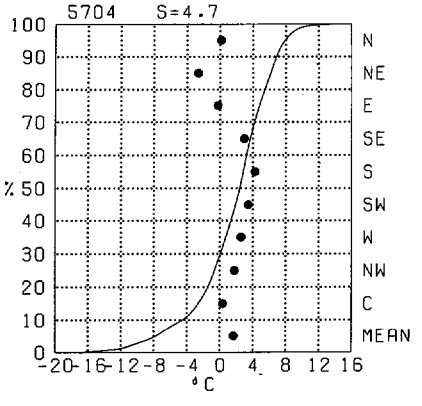
Yakataga



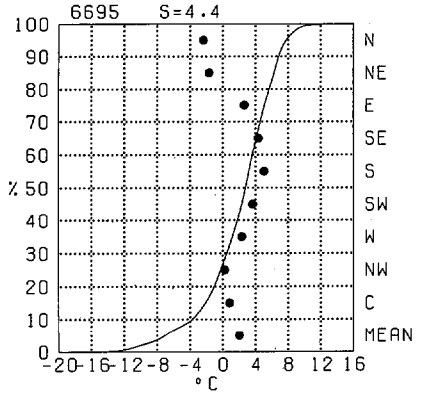
Yakutat



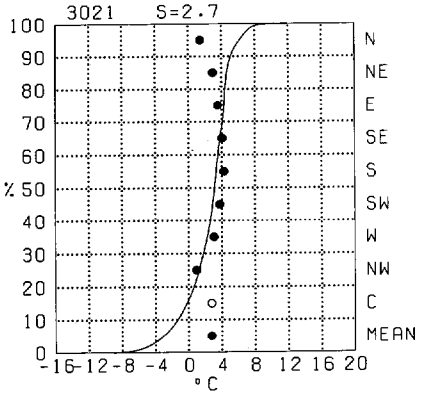
Sitka



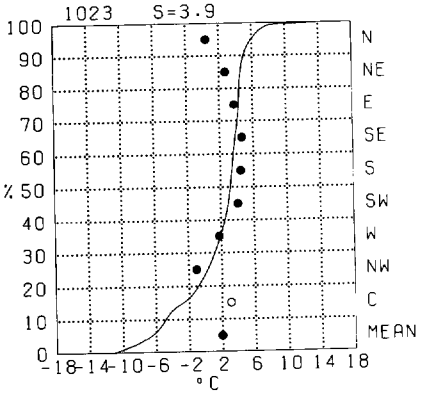
Annette

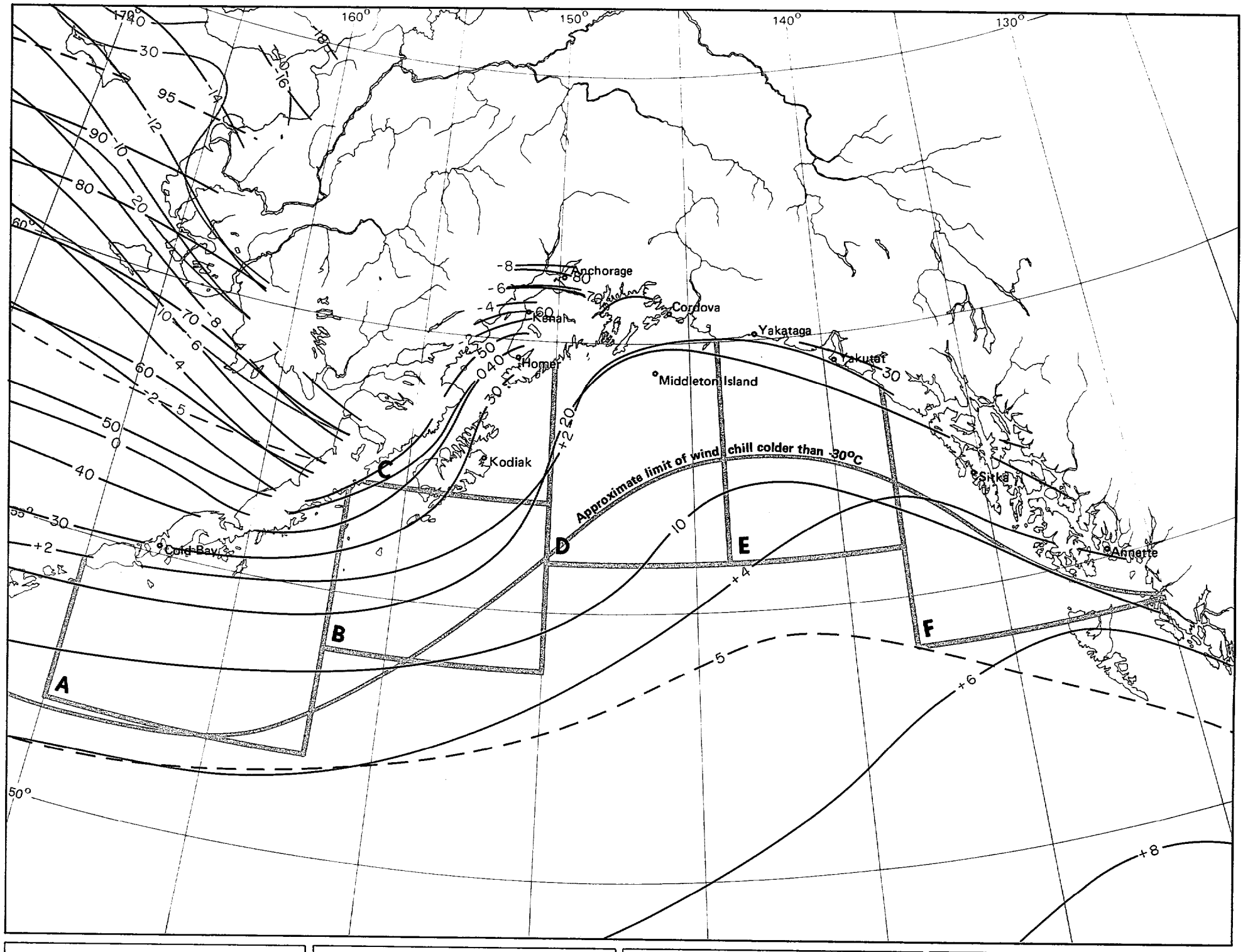


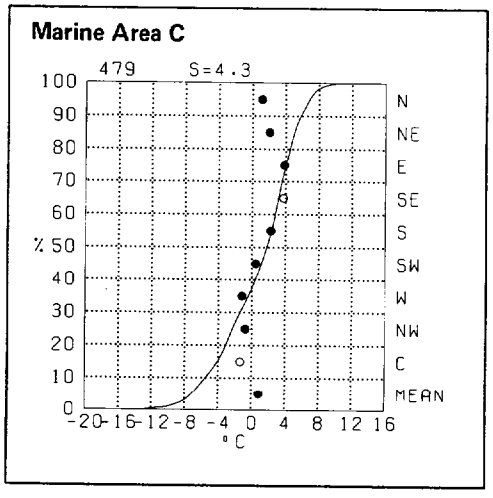
Marine Area A

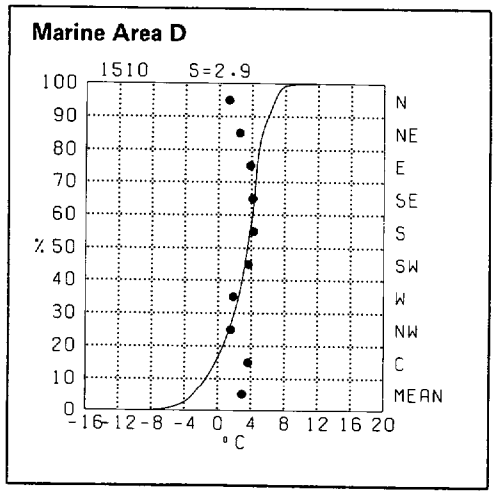


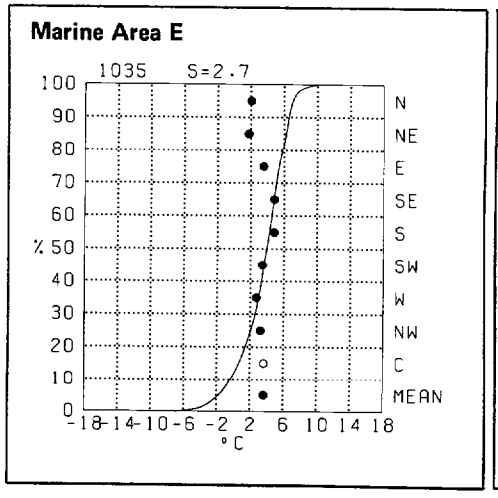
Marine Area B

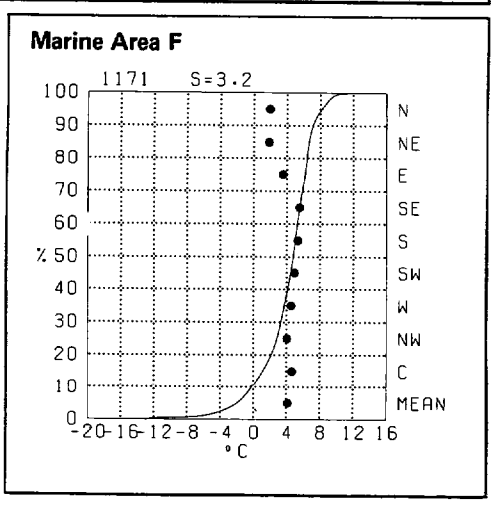










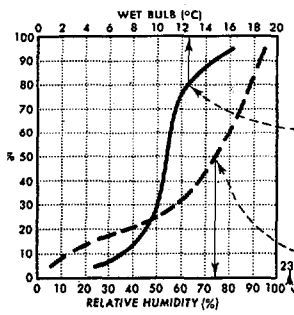


3 Air temperature mean and thresholds

December

Legend

Wet bulb/relative humidity



Cumulative percent frequency of wet-bulb temperatures equal to or less than the temperature intersected by the curve (top scale).

Wet bulb (°C).

(80% of all observed wet-bulb temperatures were ≤12.5°C or 54.5°F.)

Cumulative percent frequency of relative humidities equal to or less than the humidity intersected by the curve (bottom scale).

Relative humidity (%).

(50% of all observed relative humidities were ≤74%.)

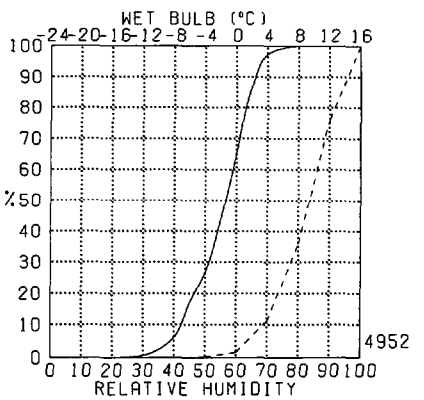
Number of observations.

Map - Mean dew point temperature

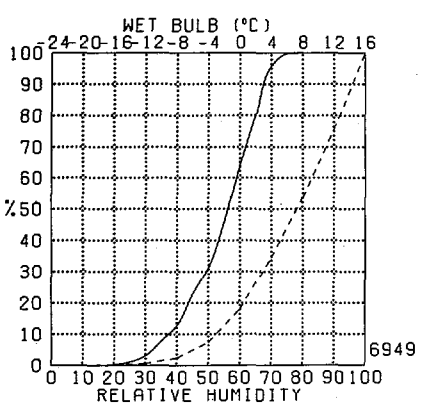
BLACK LINE - Mean dew point temperature (°C)

The observation count of the graph reflects those observations reporting both air and wet bulb temperatures; both are required in computing the relative humidity. The percentage of observations of either element greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%.

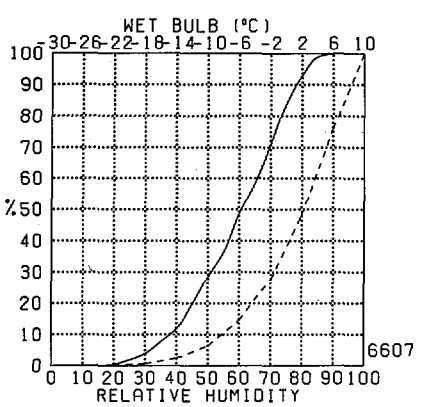
Cold Bay



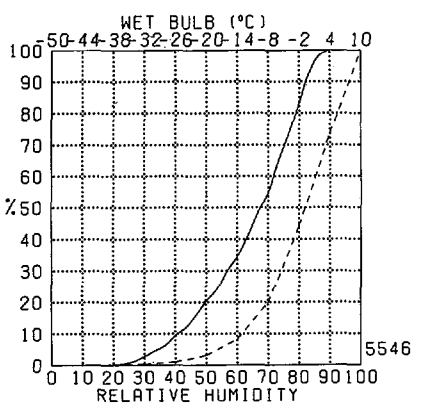
Kodiak



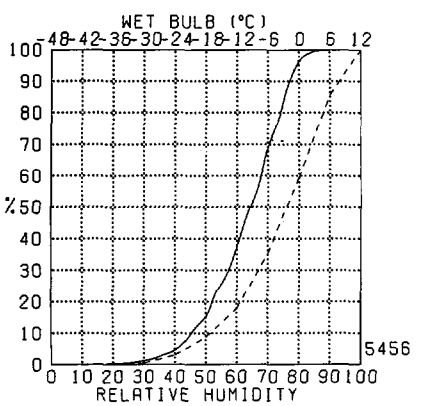
Homer



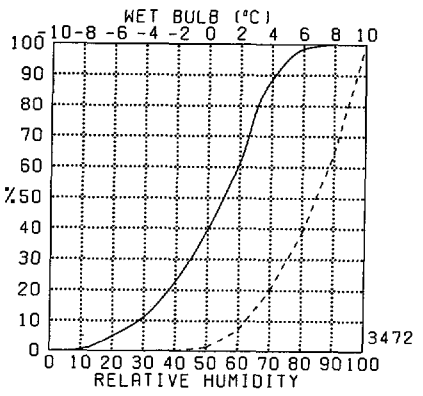
Kenai



Anchorage



Middleton Island



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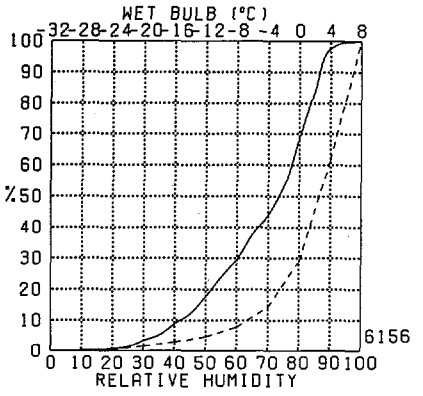
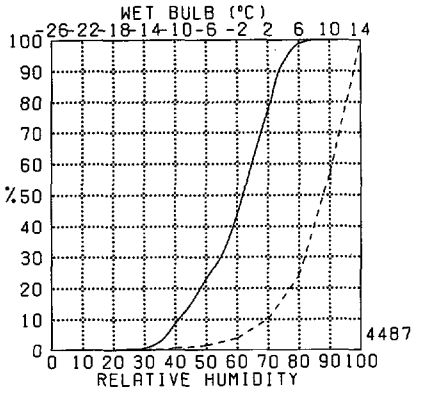
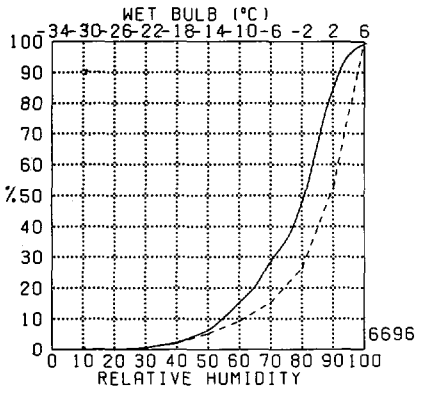


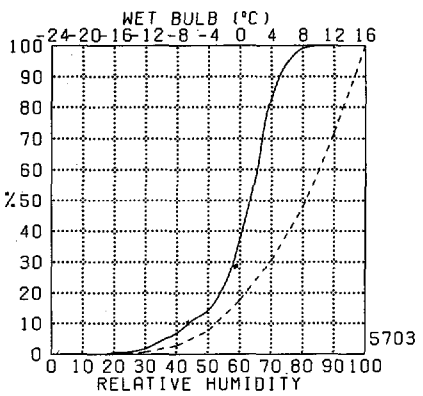
Yakataga



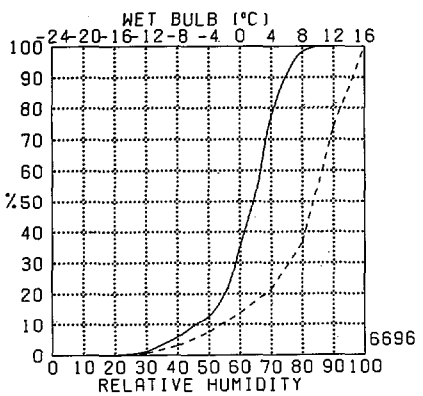
Yakutat



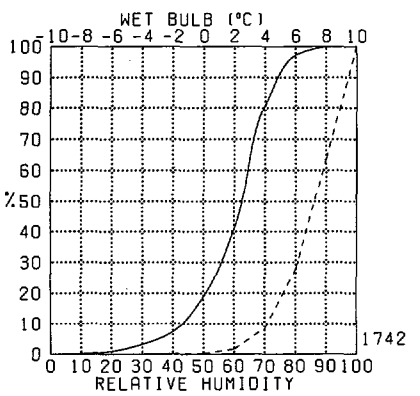
Sitka



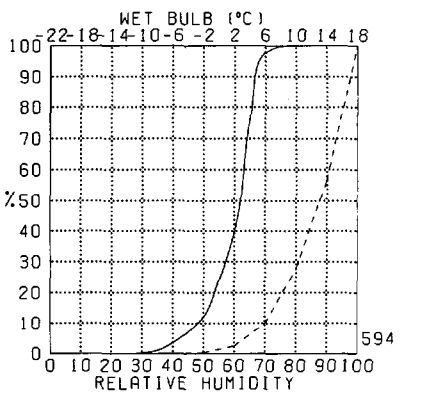
Annette

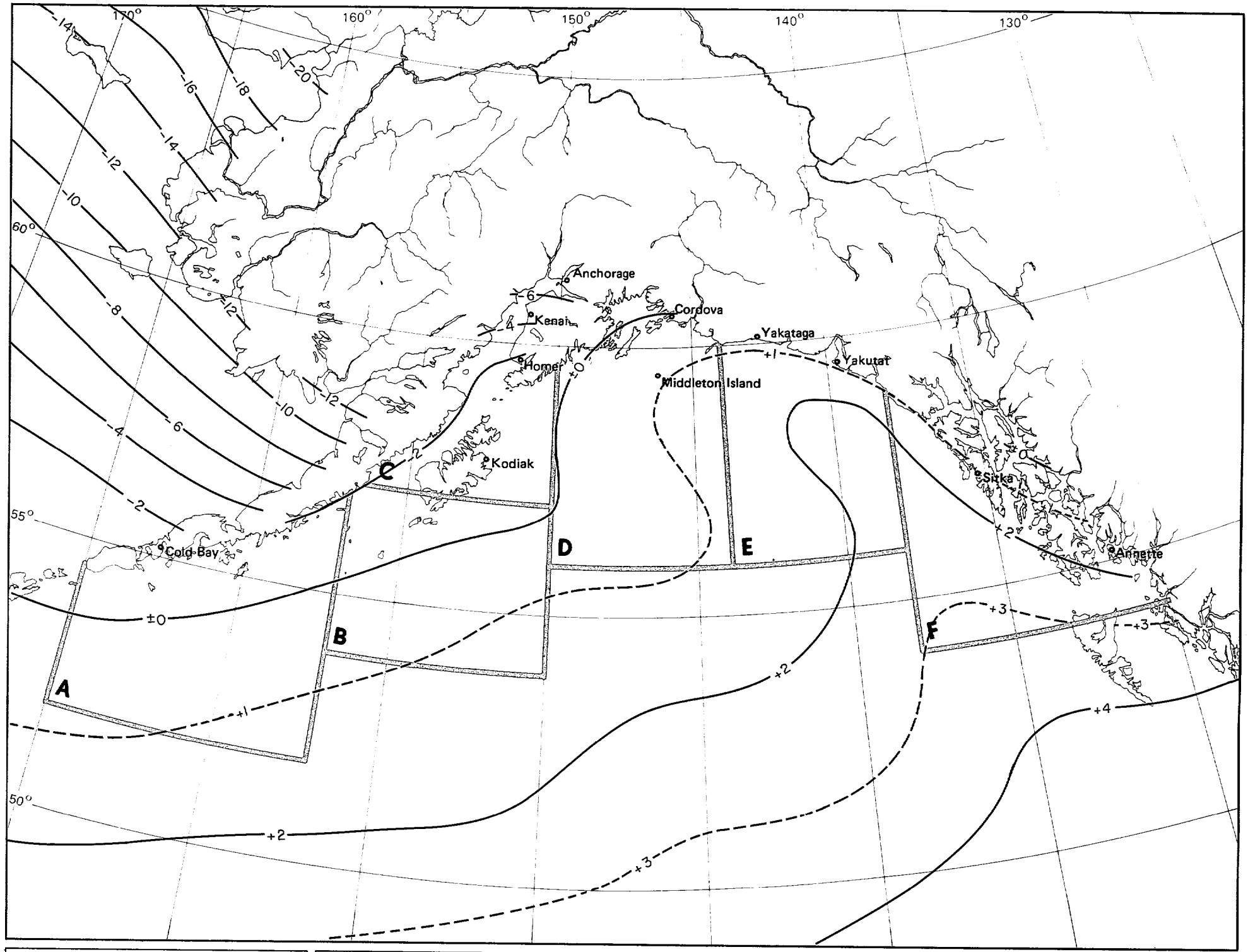


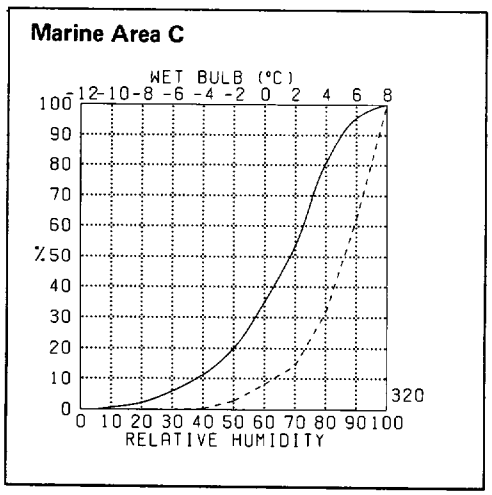
Marine Area A

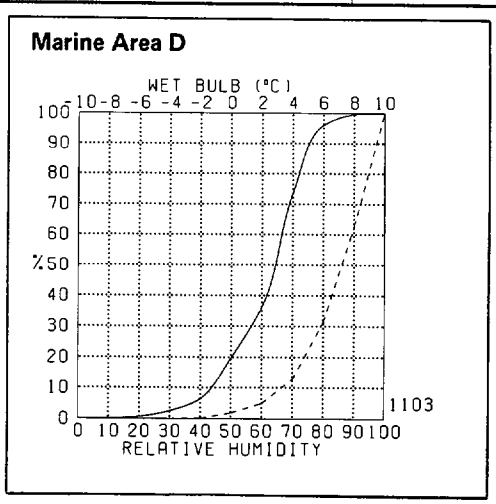


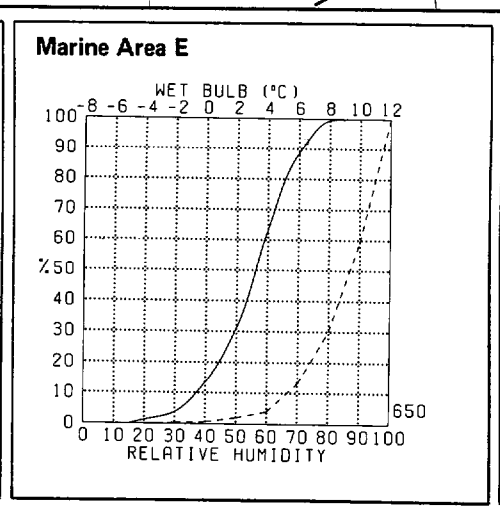
Marine Area B

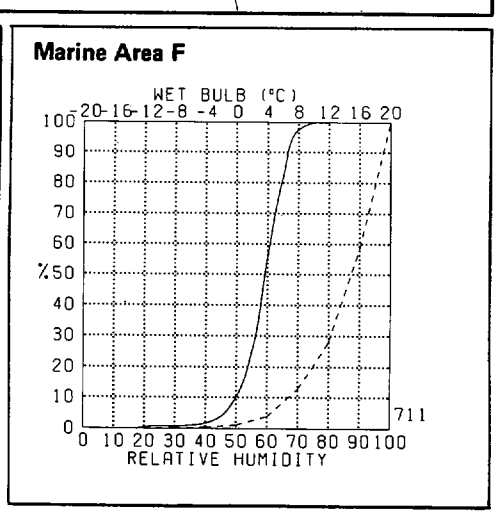












4 Mean dew point temperature

December

Legend

Air temperature/wind speed

WIND SPEED (kts)

Temp (°C)	0-3	4-10	11-21	22-33	≥34
4,5	18	8	7	1	1
2,3	17	8	7	1	1
0,1	13	6	5	1	1
-2,-1	1	+	0	0	0
-4,-3	0	0	0	0	0
-6,-5	+	0	0	+	+
-8,-7	1	+	0	0	0
-10,-9	0	0	0	0	0
-12,-11	1	+	0	0	0
-14,-13	1	0	0	0	0
-16,-15	1	+	0	0	0

3550

Percent frequency of simultaneous occurrence of specified temperature (°C) and wind speed (knots).

(1% of *all observations reported temperature 2-3°C simultaneously with wind speed of 22-33 kts.*)

+ Indicates <.5% but >0.

Number of observations.

Map - Air temperature extremes (°C)

BLACK LINE - Maximum (99%) air temperature (1% of temperatures were greater than the given value)

BLUE LINE - Minimum (1%) air temperature (1% of temperatures were equal to or less than the given value)

The graph can be used to determine the extent of human discomfort from the combined effects of extreme heat or cold and winds or to estimate the likelihood of superstructure icing. Icing potential increases as the air temperature drops below freezing and the winds increase above 10 knots (12 mph) and may become quite severe with temperatures equal to or less than -9°C (16°F) and winds equal to or greater than 34 knots (39 mph).

Cold Bay

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	0	0	0
10,11	0	0	0	0	0
8,9	0	0	+	+	+
6,7	0	+	1	1	+
4,5	+	1	3	2	1
2,3	1	5	10	5	1
0,1	1	7	8	2	+
-2,-1	1	7	8	2	+
-4,-3	1	5	6	1	+
-6,-5	+	3	3	2	0
≤-7	1	3	4	2	+

4953

Kodiak

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	+	0	+	0
8,9	+	+	+	+	+
6,7	+	1	1	+	+
4,5	1	5	5	1	+
2,3	5	9	7	1	+
0,1	4	5	4	1	+
-2,-1	4	6	4	1	+
-4,-3	3	4	3	2	+
-6,-5	1	3	2	1	+
-8,-7	1	3	3	1	+
≤-9	1	3	3	1	+

6946

Homer

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8,9	0	+	+	+	0
6,7	+	+	1	0	0
4,5	+	2	1	+	0
2,3	2	5	3	+	0
0,1	3	5	2	+	0
-2,-1	4	6	2	+	+
-4,-3	4	7	2	+	0
-6,-5	3	5	1	+	0
-8,-7	4	6	1	+	0
-10,-9	3	4	1	0	0
≤-11	7	15	2	+	0

5608

Kenai

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
6,7	0	+	+	0	0
4,5	+	1	+	+	0
2,3	+	2	2	+	0
0,1	1	3	2	+	0
-2,-1	1	5	3	+	0
-4,-3	2	5	3	+	0
-6,-5	2	3	2	+	0
-8,-7	3	5	2	+	0
-10,-9	2	4	1	+	0
-12,-11	2	4	1	+	+
≤-13	18	19	1	+	0

5579

Anchorage

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
8,9	0	0	+	+	0
6,7	+	+	+	+	0
4,5	+	+	1	+	0
2,3	+	1	1	+	0
0,1	1	3	1	0	0
-2,-1	3	5	1	0	0
-4,-3	5	7	1	+	0
-6,-5	3	4	+	+	0
-8,-7	5	7	1	+	0
-10,-9	3	4	+	+	0
≤-11	23	15	4	+	0

5456

Middleton Island

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
6,7	+	1	3	2	+
4,5	1	5	10	4	1
2,3	3	11	15	5	1
0,1	1	4	6	2	+
-2,-1	1	4	5	2	+
-4,-3	1	3	5	1	+
-6,-5	+	1	2	+	0
-8,-7	+	+	+	+	0
-10,-9	0	0	0	0	0
-12,-11	0	0	0	0	0
-14,-13	0	0	0	0	0

3472

Cordova

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	0	0	0
10,11	0	0	+	0	0
8,9	0	+	+	0	0
6,7	+	2	1	+	0
4,5	1	4	3	+	0
2,3	3	9	3	+	+
0,1	6	6	2	+	+
-2,-1	5	5	1	0	0
-4,-3	5	3	+	0	0
-6,-5	4	2	+	0	0
≤-7	27	6	1	0	0

6162

Yakataga

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	0	+	0	0
10,11	0	+	+	+	0
8,9	0	0	1	+	0
6,7	+	1	4	1	+
4,5	+	3	6	1	+
2,3	2	6	8	1	+
0,1	5	7	3	+	+
-2,-1	6	6	2	+	0
-4,-3	5	6	1	0	0
-6,-5	2	4	+	0	0
≤-7	7	11	1	0	0

4549

Yakutat

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	0	+	0	0
8,9	0	0	+	+	0
6,7	0	+	2	1	+
4,5	+	3	3	+	+
2,3	1	8	5	1	+
0,1	3	11	4	+	+
-2,-1	5	8	2	+	+
-4,-3	4	5	2	+	0
-6,-5	2	3	1	+	0
-8,-7	3	3	2	+	0
≤-9	9	6	1	+	0

6696

Sitka

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	+	0
10,11	0	+	1	+	0
8,9	+	1	3	1	0
6,7	1	5	7	1	+
4,5	3	8	6	1	+
2,3	6	12	5	+	+
0,1	5	7	2	+	0
-2,-1	3	4	2	+	0
-4,-3	2	2	1	+	0
-6,-5	1	1	1	+	0
≤-7	1	4	1	+	0

5704

Annette

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
16,17	0	0	+	0	0
14,15	0	+	0	0	0
12,13	+	+	+	+	0
10,11	0	+	+	+	+
8,9	+	1	3	1	+
6,7	1	4	9	3	+
4,5	1	7	9	2	+
2,3	3	11	6	1	+
0,1	3	8	2	+	+
-2,-1	2	5	2	+	0
≤-3	1	7	4	1	0

6695

Marine Area A

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	0	+	+	0
8,9	+	+	+	+	+
6,7	+	2	4	3	1
4,5	1	7	14	10	4
2,3	1	7	11	7	2
0,1	+	2	5	3	2
-2,-1	+	1	2	2	1
-4,-3	0	+	1	2	1
-6,-5	0	+	+	1	+
-8,-7	0	0	+	+	+
-10,-9	0	0	0	+	0

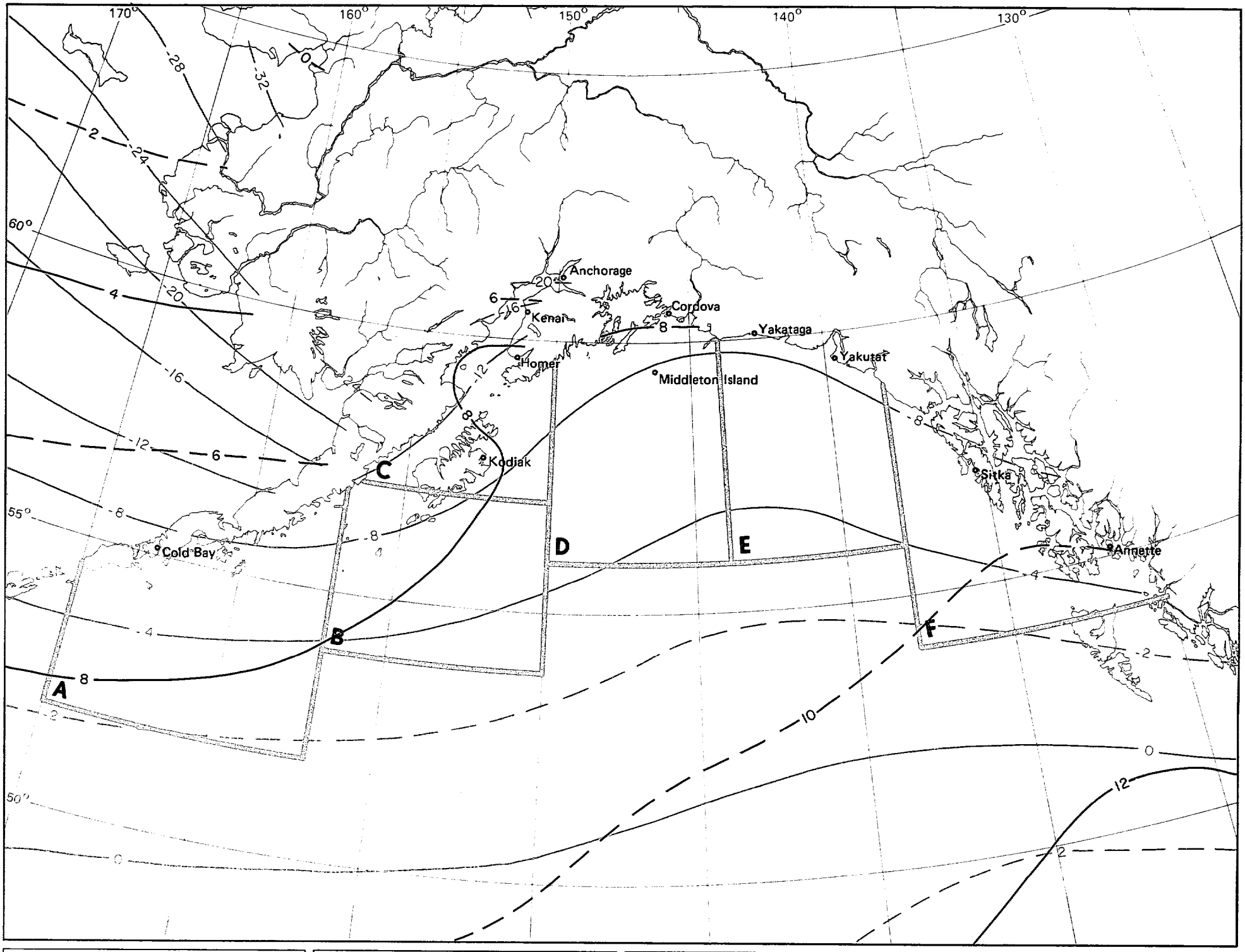
3022

Marine Area B

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
12,13	0	+	+	0	0
10,11	0	0	+	0	0
8,9	0	+	+	+	0
6,7	+	2	5	4	1
4,5	1	7	15	10	3
2,3	1	5	8	5	2
0,1	+	2	4	3	1
-2,-1	+	1	1	2	1
-4,-3	0	+	+	1	1
-6,-5	+	+	3	3	1
≤-7	0	+	1	2	2

1023



Marine Area C

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	> 34
12,13	0	0	+	0	0
10,11	0	0	0	0	0
8,9	+	1	1	+	1
6,7	+	2	3	3	2
4,5	1	4	7	3	4
2,3	1	6	10	4	2
0,1	1	3	6	2	2
-2,-1	1	3	3	2	1
-4,-3	1	3	3	1	3
-6,-5	1	1	1	1	1
≤-7	1	1	2	2	+

480

Marine Area D

WIND SPEED (KTS)

TEMP (°C)	0 3	4 10	11-21	22-33	≥ 34
12,13	0	0	0	+	0
10,11	+	0	+	+	+
8,9	+	+	+	+	+
6,7	+	4	8	4	2
4,5	2	7	14	6	4
2,3	1	6	8	5	3
0,1	+	3	5	4	1
-2,-1	+	1	2	2	1
-4,-3	+	1	1	1	1
-6,-5	0	+	+	+	1
≤-7	0	0	0	+	+

1511

Marine Area E

WIND SPEED (KTS)

TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	0	+	+	0	+
8,9	+	1	1	1	1
6,7	1	6	10	5	3
4,5	1	7	12	6	3
2,3	1	5	8	5	3
0,1	1	3	4	2	1
-2,-1	+	+	2	1	1
-4,-3	0	+	1	1	1
-6,-5	0	0	+	+	0
-8,-7	0	0	+	0	0
-10,-9	0	0	0	0	0

1035

Marine Area F

WIND SPEED (KTS)

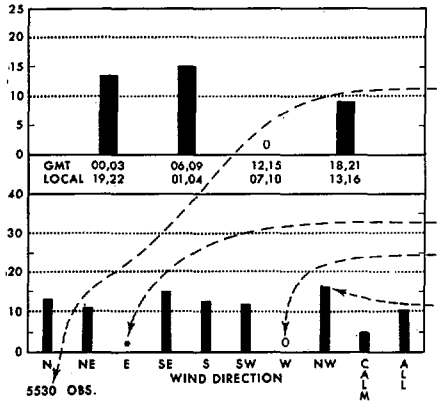
TEMP (°C)	0-3	4-10	11-21	22-33	≥ 34
10,11	+	+	1	+	0
8,9	+	2	3	2	1
6,7	1	7	13	6	3
4,5	1	7	11	6	3
2,3	1	5	6	3	1
0,1	+	2	3	1	1
-2,-1	0	1	1	1	+
-4,-3	+	+	1	1	+
-6,-5	0	+	+	+	+
-8,-7	0	+	+	0	0
≤-9	0	+	+	+	0

1171

5 Air temperature extremes (°C)

Legend

Fog/time and fog/wind direction



Number of observations.

Bar graphs represent percent frequency of Fog (without precipitation) for various hour groupings and wind directions. Data are based on 100% for each hour-group and direction category.

* indicates < 05% but >0.

0 indicates no fog occurred with the wind direction.

(Data show that 17% of all NW winds were accompanied by Fog (without precipitation).)

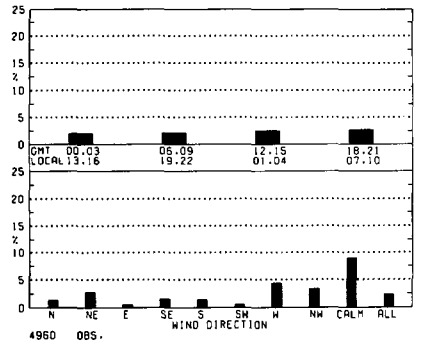
Map - Fog

BLACK LINE - Percent frequency of occurrence of all fog

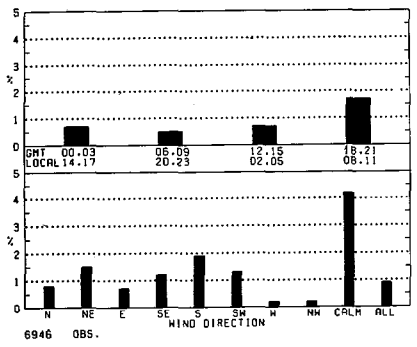
BLUE LINE - Percent frequency of fog occurring without precipitation

The percent frequency of observations reporting fog with precipitation for a given point can be determined by computing the difference between the two analyses.

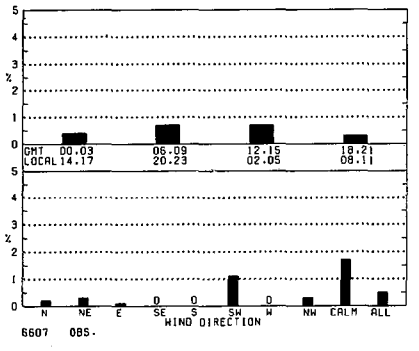
Cold Bay



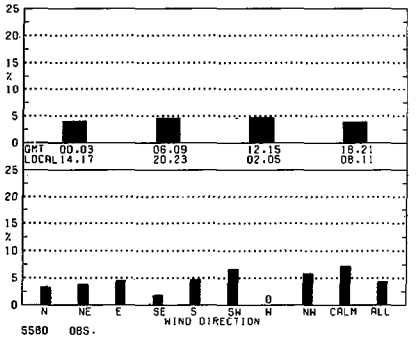
Kodiak



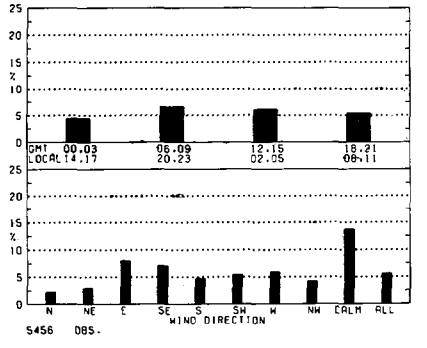
Homer



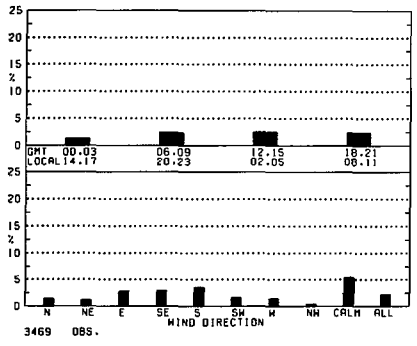
Kenai



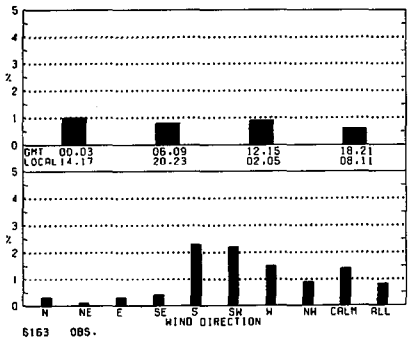
Anchorage



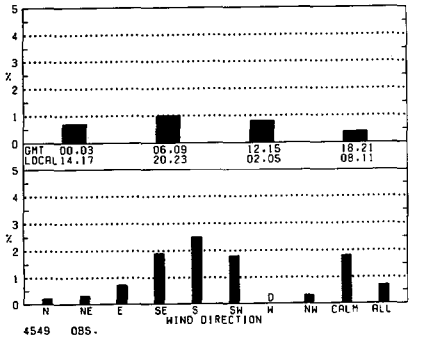
Middleton Island



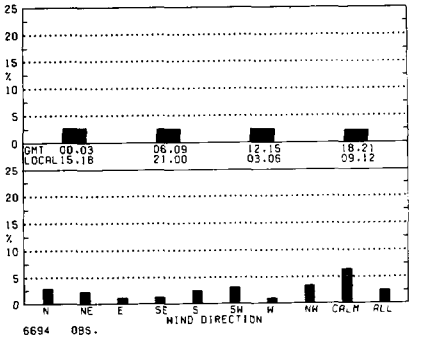
Cordova



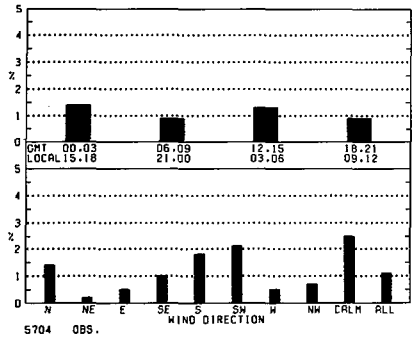
Yakataga



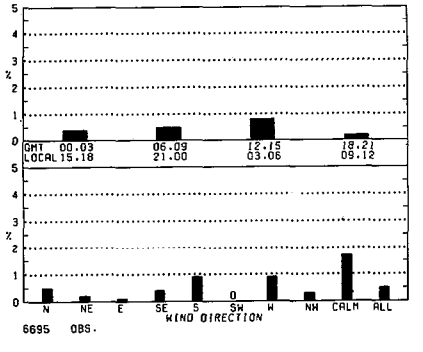
Yakutat



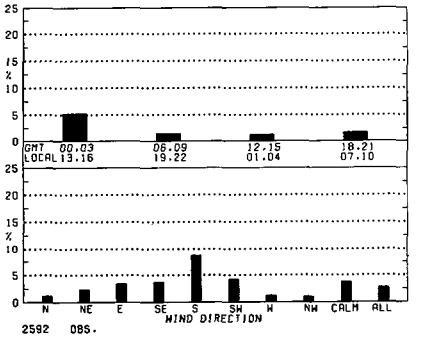
Sitka



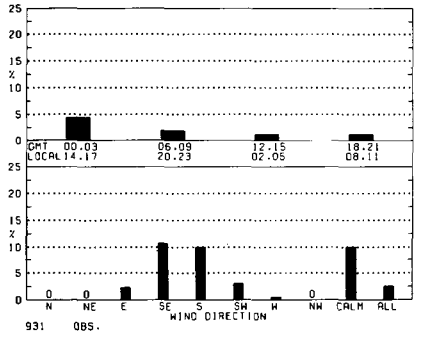
Annette

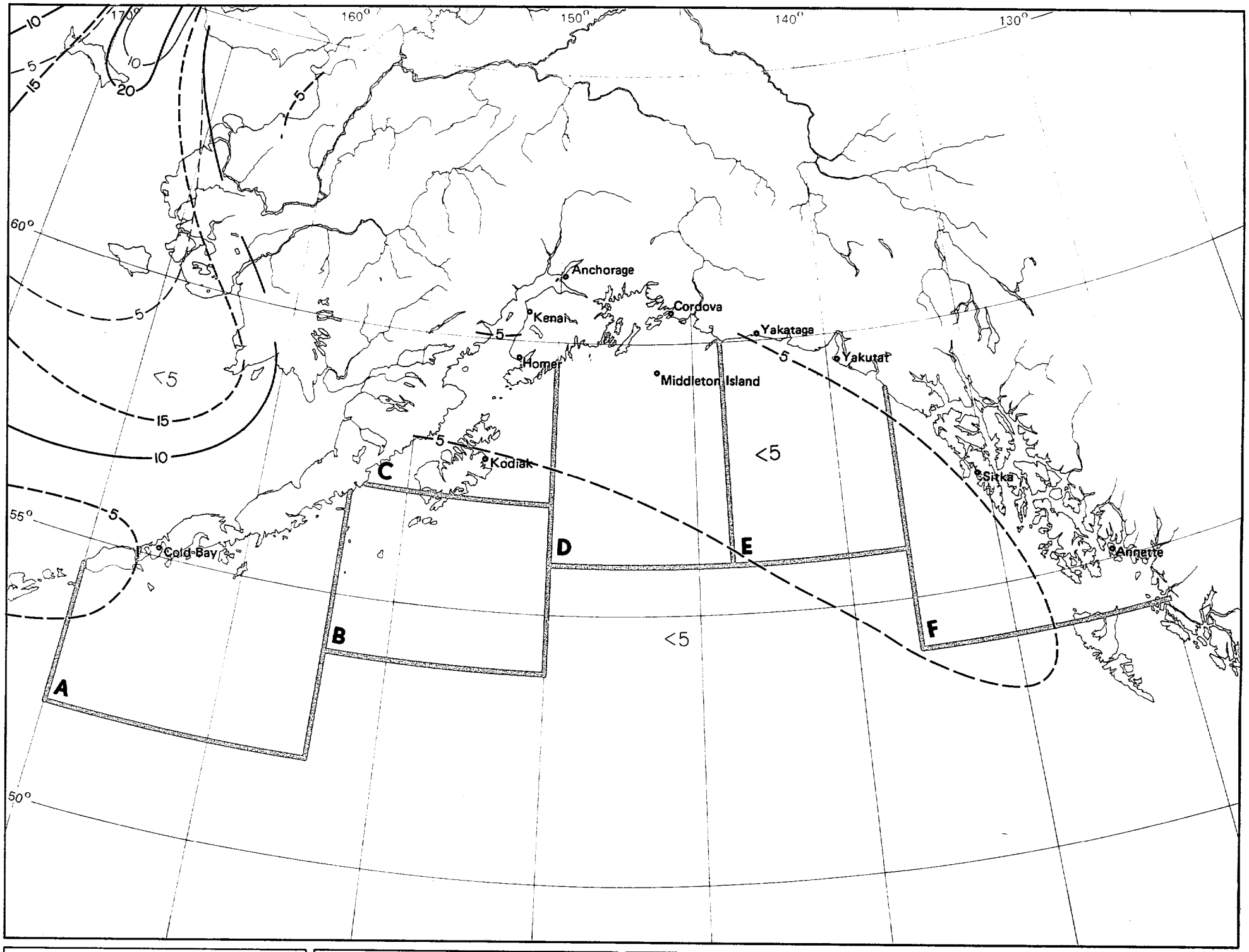


Marine Area A

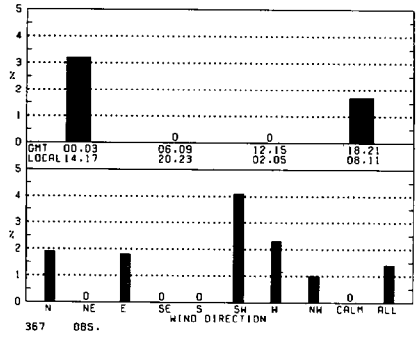


Marine Area B

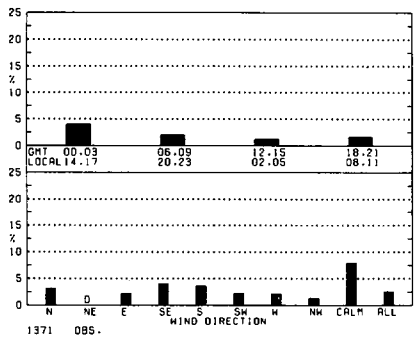




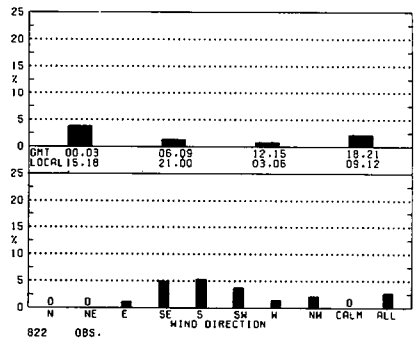
Marine Area C



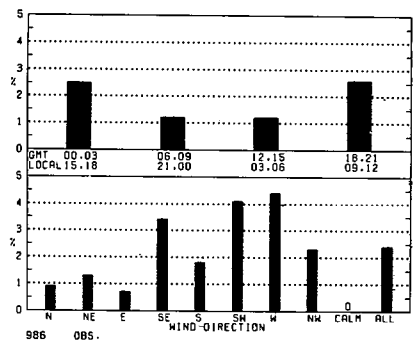
Marine Area D



Marine Area E

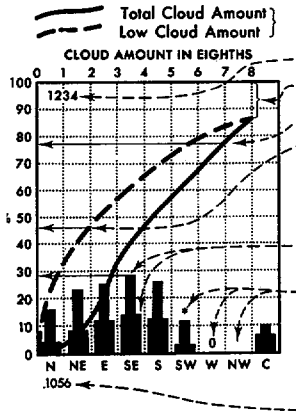


Marine Area F



Legend

Cloud cover/wind direction



Cumulative percent frequency of indicated cloud amount equal to or less than the amount intersected by the curve.

Number of total cloud observations.

Obscurations.

(77% of all total cloud amounts were ≤7/8.)

(46% of all low cloud amounts were ≤2/8.)

≥5/8 { 5/8 & 6/8 / ≥7/8 } Low cloud amount: Percent frequency of observations from each direction and calm that were accompanied by low cloud amounts ≥5/8 and ≥7/8. Low clouds are clouds with bases <8000 feet.

(28% of all SE winds were accompanied by low cloud amounts ≥5/8 and 14% by low cloud amounts ≥7/8.)

An asterisk indicates that the percentage is based on 10-30 observations of wind direction, total and low cloud amount. 0 replaces bar graph when no low cloud amounts ≥5/8 were observed with a wind direction or calm. 0 or bar is omitted when number of observations of total and low cloud amount from a wind direction or calm is less than 10.

Number of low cloud observations.

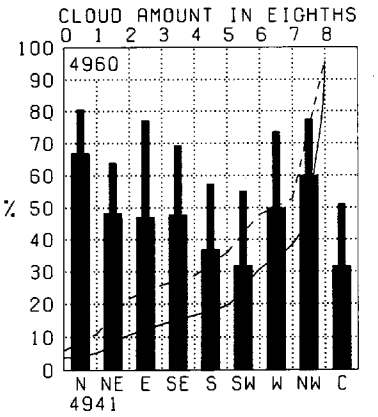
Map - Cloud amount thresholds

BLACK LINE - Percent frequency of total cloud amount ≤2/8

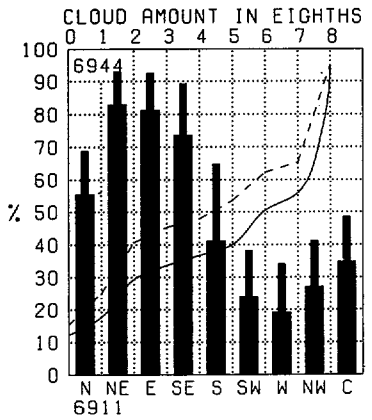
BLUE LINE - Percent frequency of low cloud amount ≥5/8

Since the number of observations reporting low cloud amount is usually less than that for total cloud amount, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where low cloud amount appears higher than the total cloud amount. Where this occurred the graph was adjusted in favor of the total cloud by making the curves coincide. The frequency of obscured conditions may be determined by subtracting the cumulative percent frequency corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

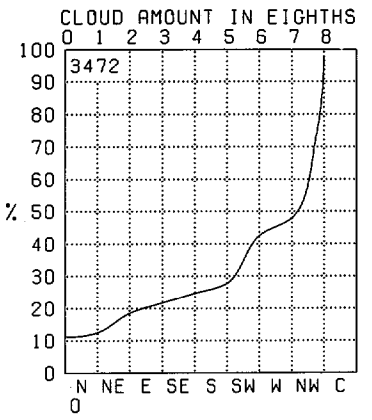
Cold Bay



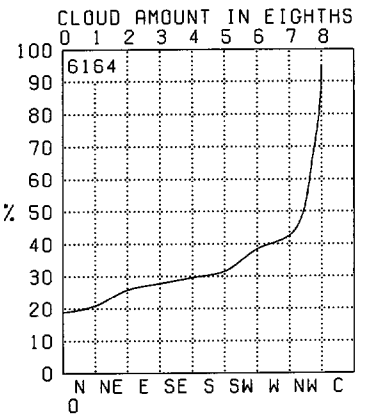
Kodiak



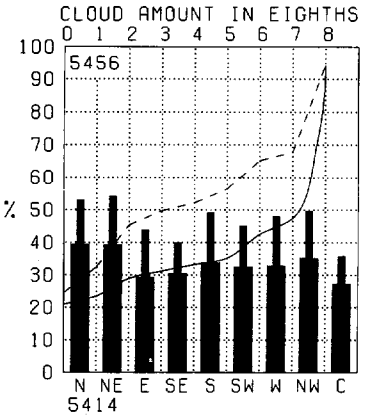
Homer



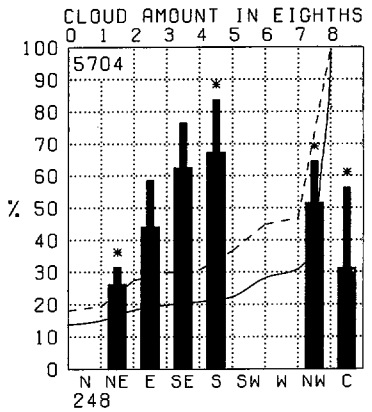
Kenai



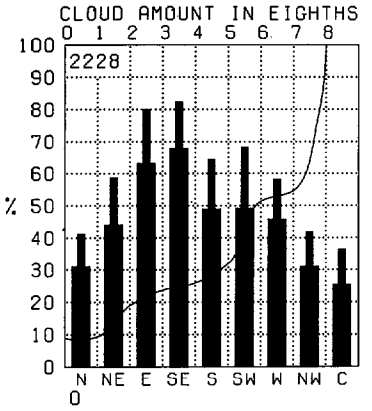
Anchorage



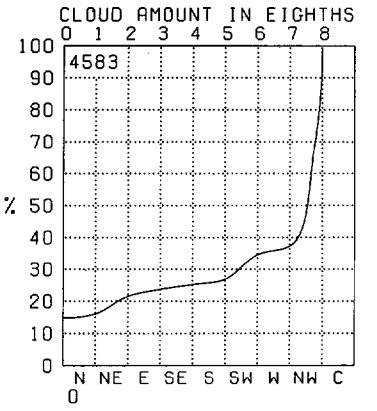
Middleton Island



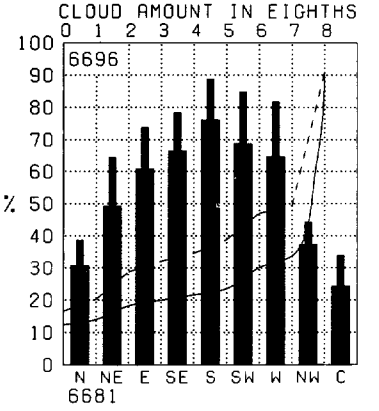
Cordova



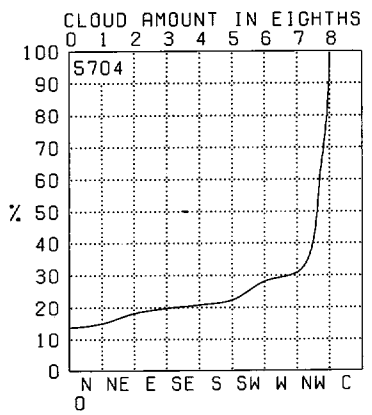
Yakataga



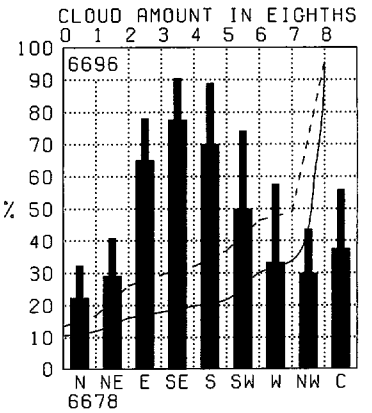
Yakutat



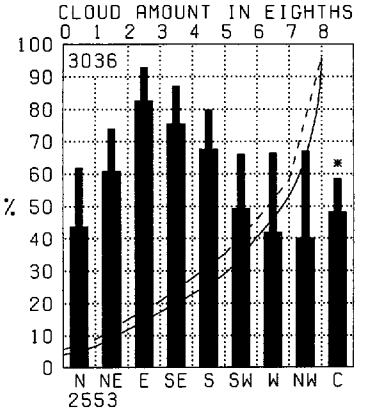
Sitka



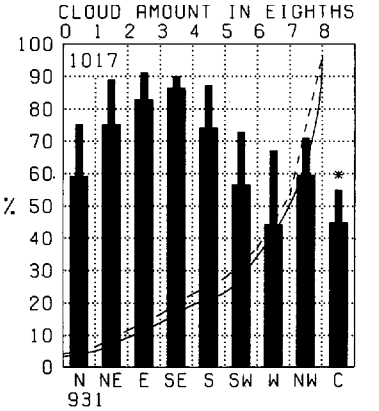
Annette

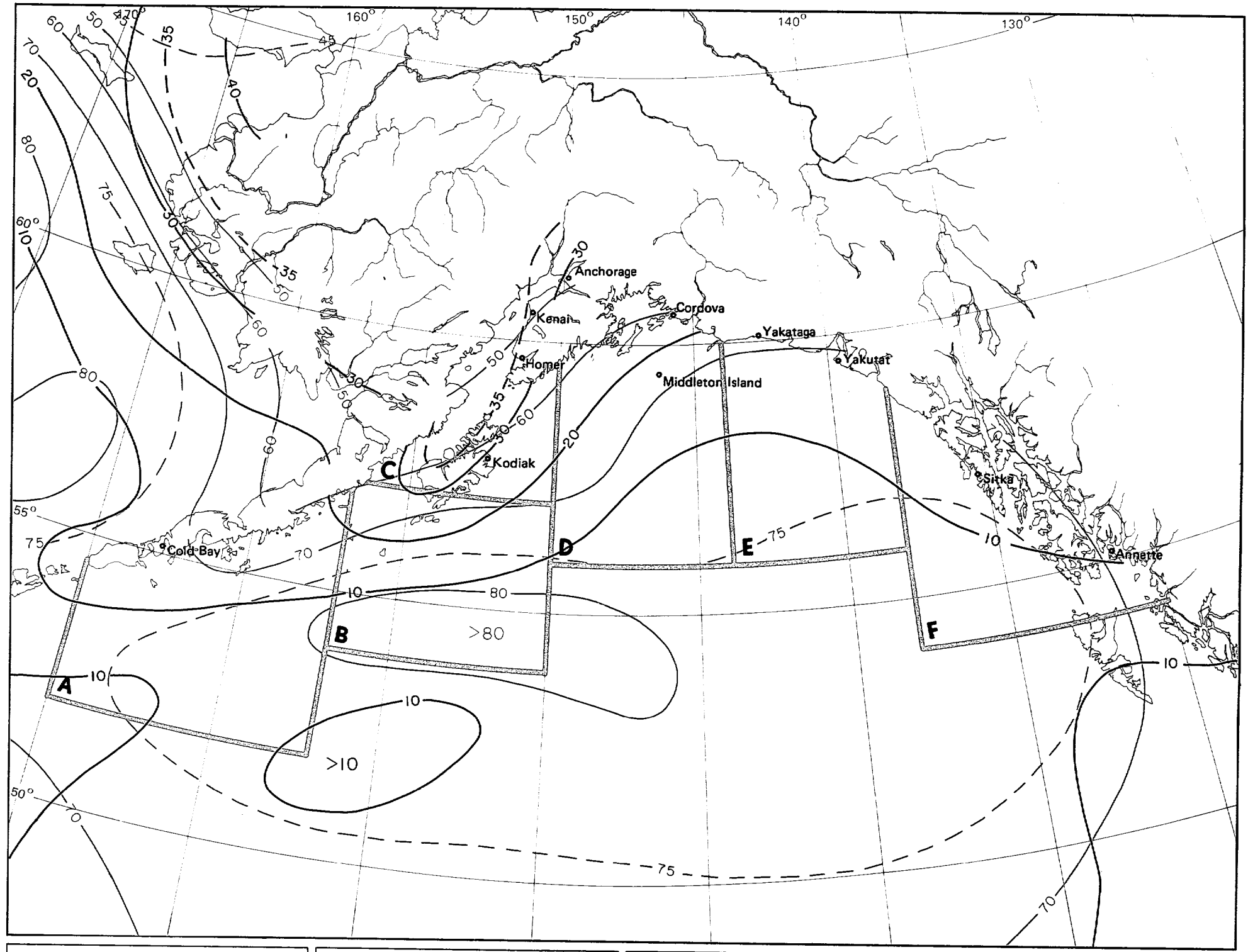


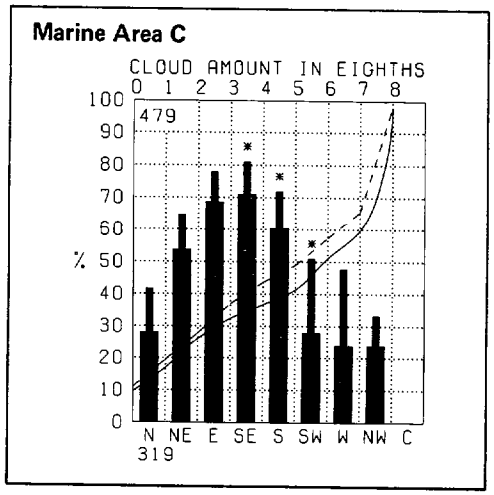
Marine Area A

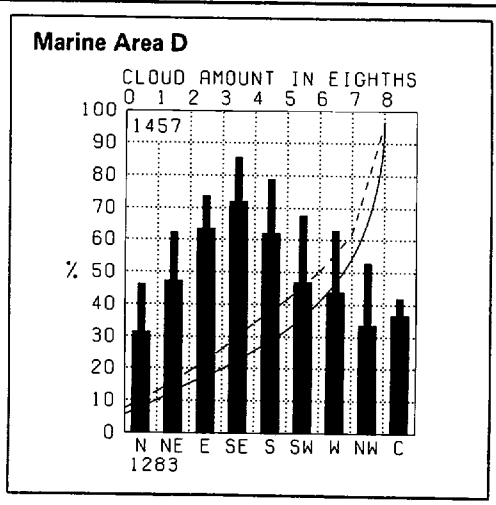


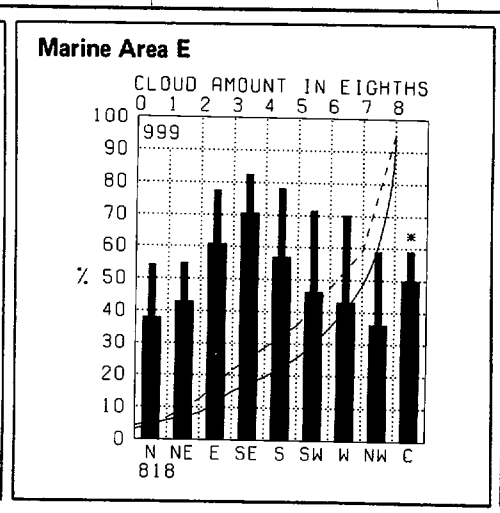
Marine Area B

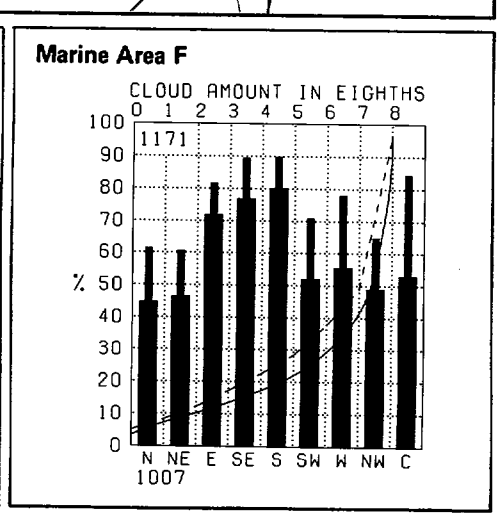








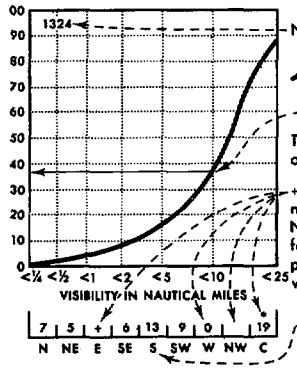




7 Cloud amount thresholds

Legend

Visibility/wind direction



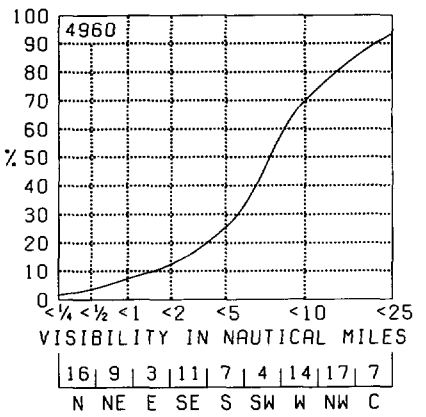
Map - Visibility thresholds

BLACK LINE - Percent frequency of visibilities ≥5 nautical miles

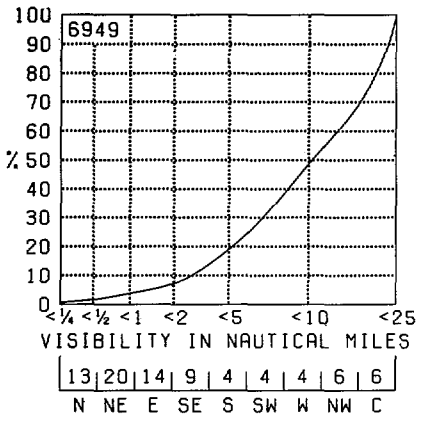
BLUE LINE - Percent frequency of visibilities <2 nautical miles

The percentage of visibility equal to or greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%. Visibility at sea is difficult to measure because of the lack of reference points. Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. The coarseness of the coding intervals, however, tends to minimize serious biases in the summarized data. Visibilities greater than 25 nmi. should be interpreted cautiously because the earth's curvature makes it impossible to see 25 nmi. horizontally from the bridges of most ships.

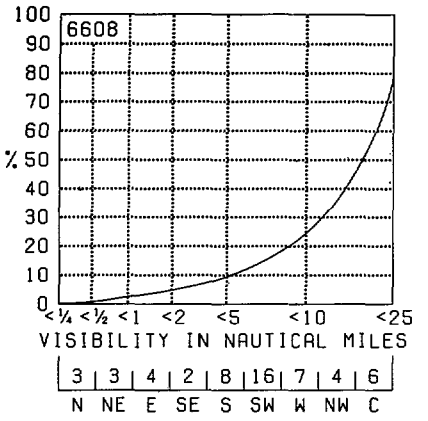
Cold Bay



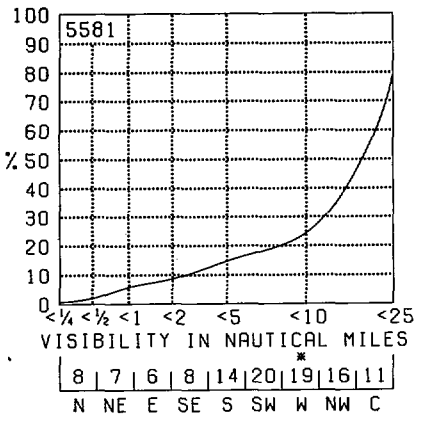
Kodiak



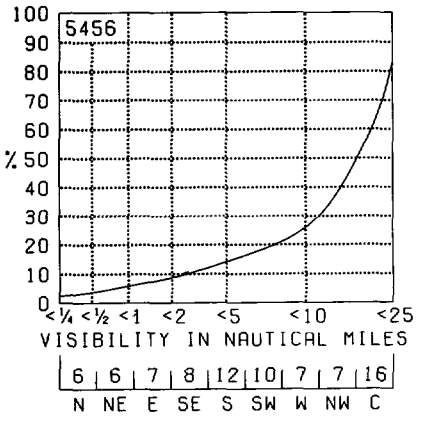
Homer



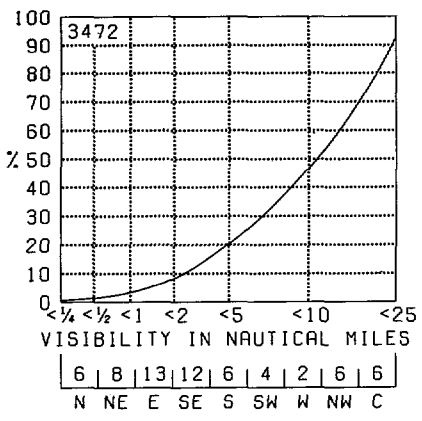
Kenai



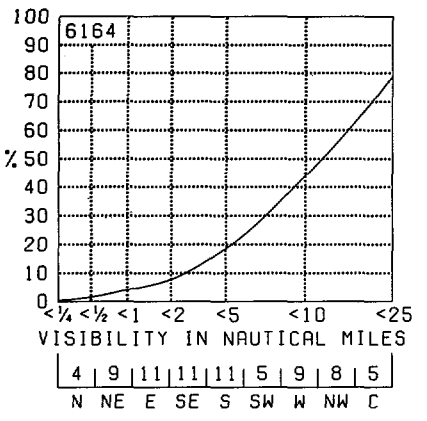
Anchorage



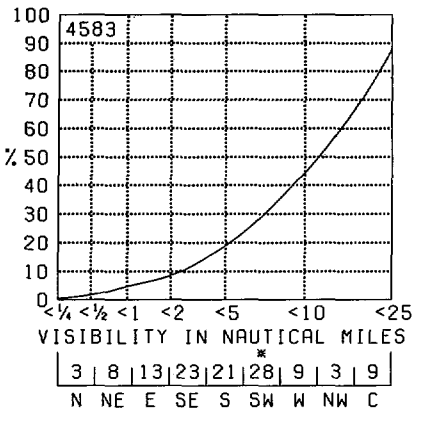
Middleton Island



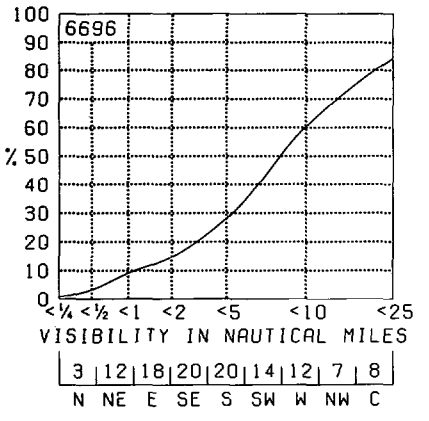
Cordova



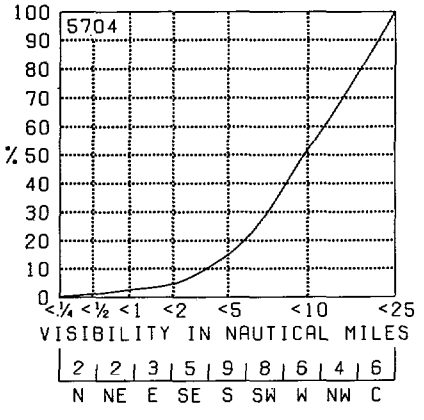
Yakataga



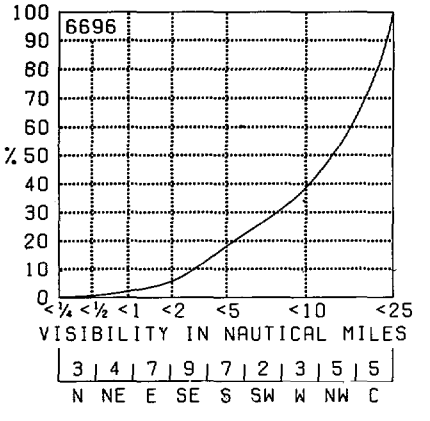
Yakutat



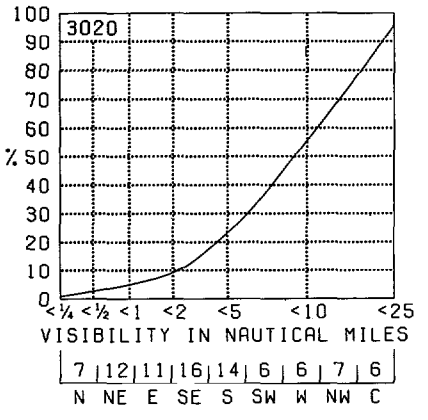
Sitka



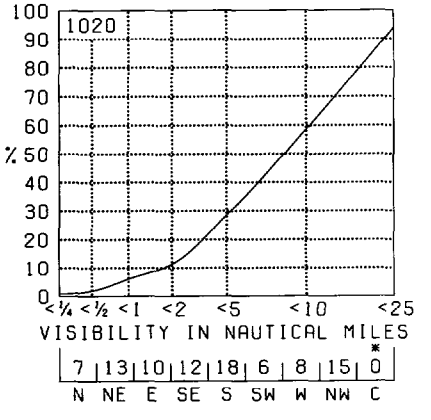
Annette

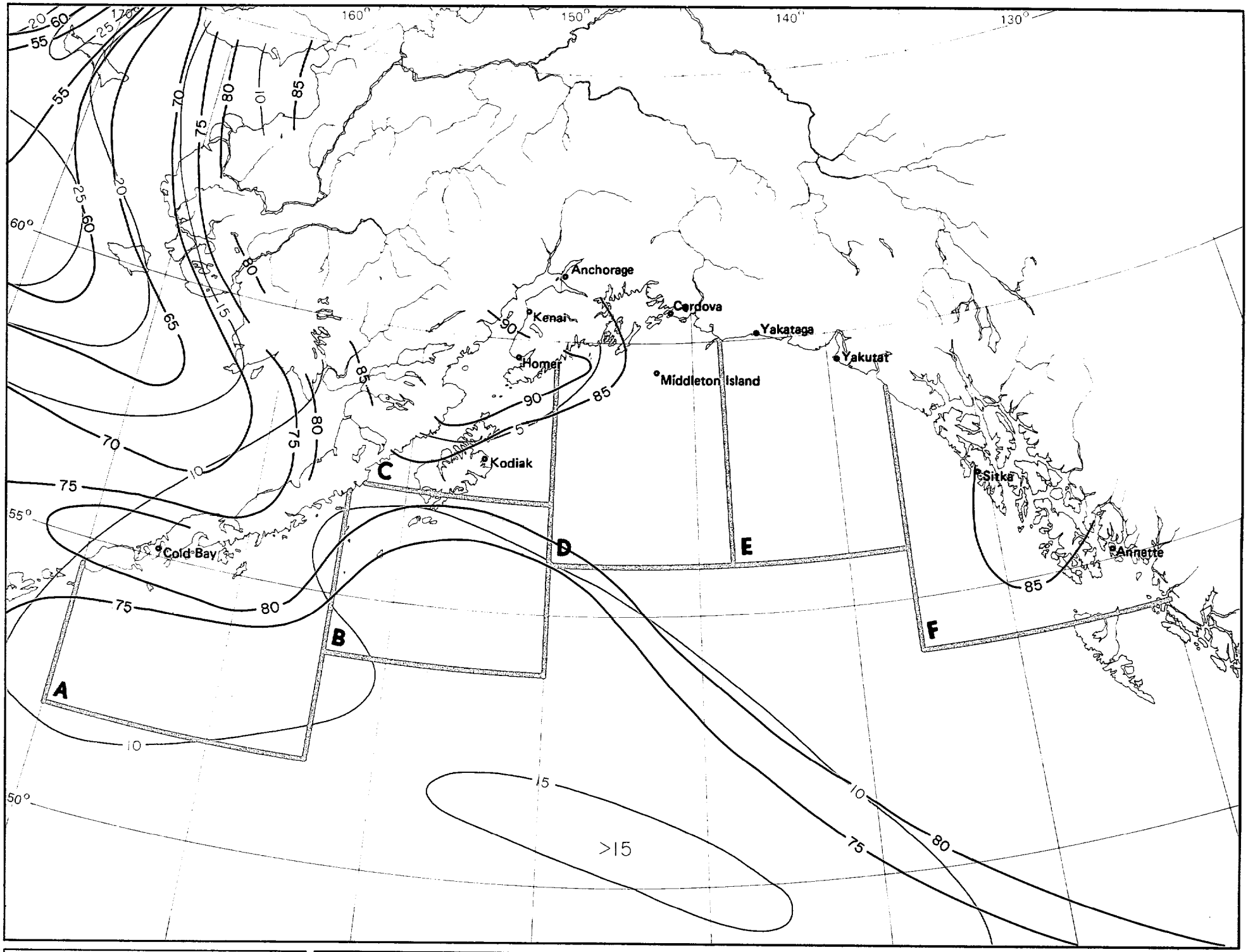


Marine Area A

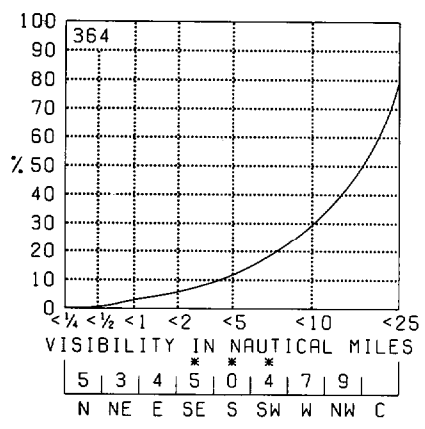


Marine Area B

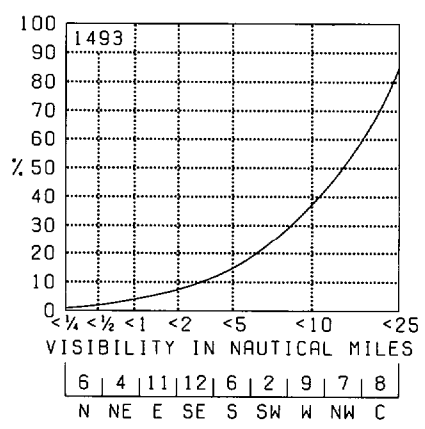




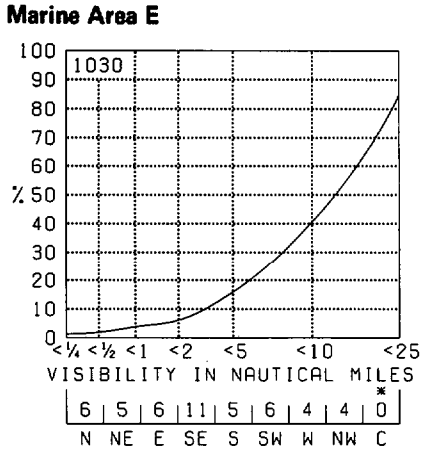
Marine Area C



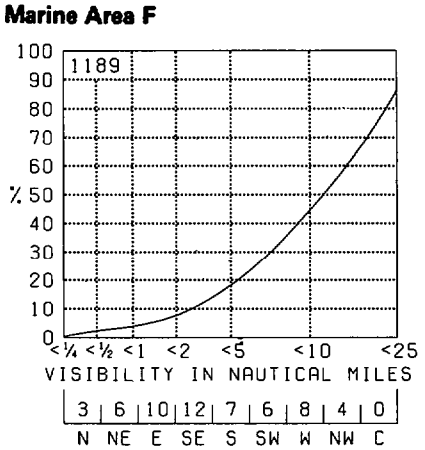
Marine Area D



Marine Area E



Marine Area F



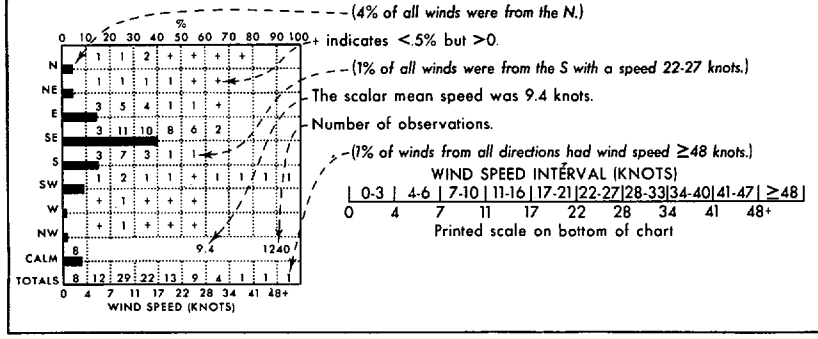
8 Visibility thresholds

December

Legend

Wind speed/direction

Direction frequency (top scale): Bars represent percent frequency of winds observed from each direction. Speed frequency (bottom scale): Printed figures represent percent frequency of wind speeds observed from each direction.



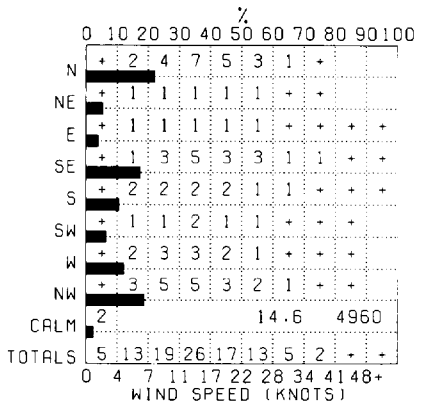
Map - Wind speed thresholds

BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph)

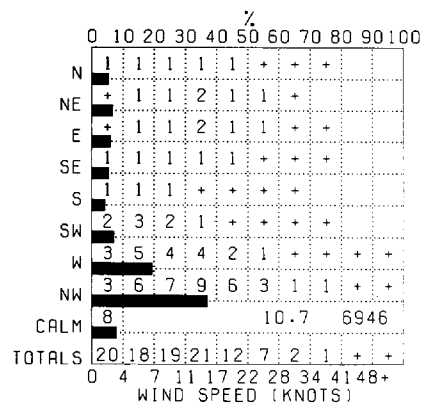
BLUE LINE - Percent frequency of wind speed ≥34 knots (≥39 mph)

The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the totals line provides the cumulative percent frequency of wind speed below a selected threshold value. In the example graph, 71% of all winds were less than 17 knots (20 mph).

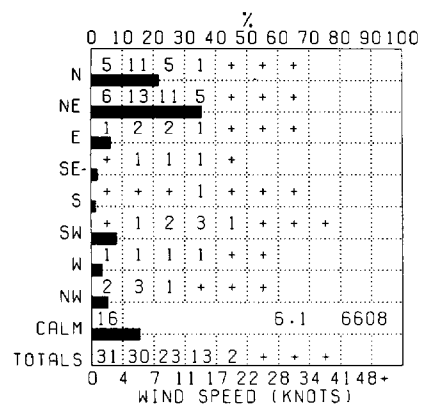
Cold Bay



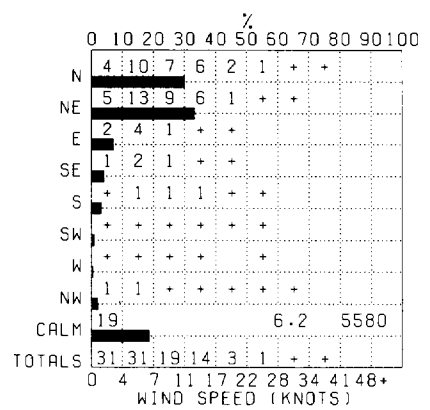
Kodiak



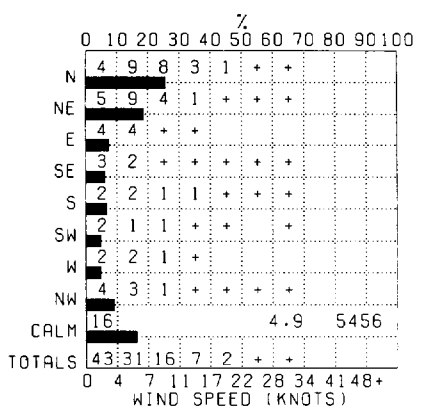
Homer



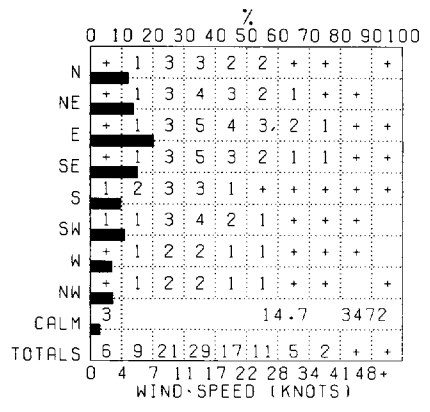
Kenai



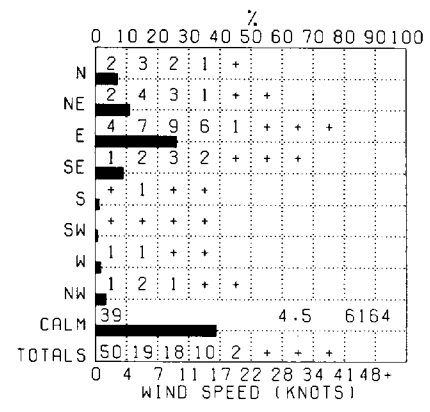
Anchorage



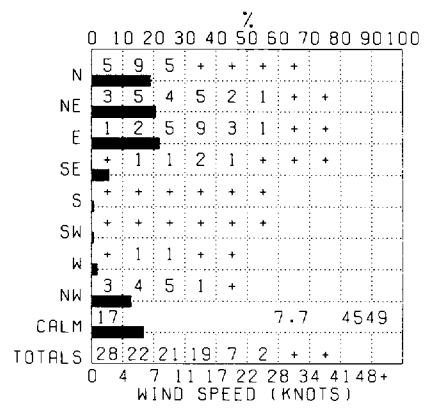
Middleton Island



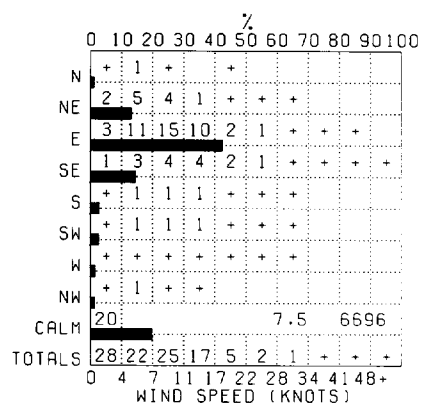
Cordova



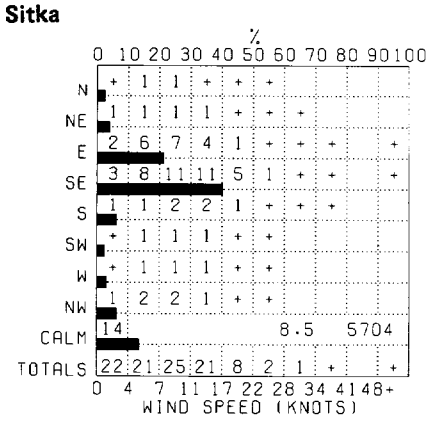
Yakataga



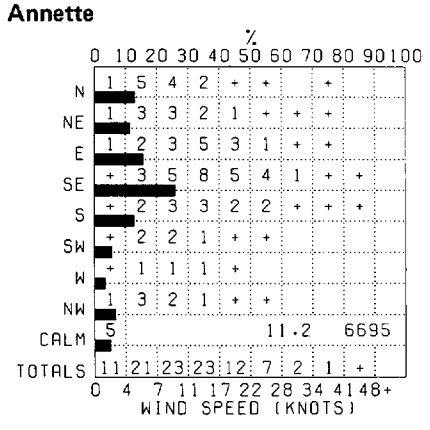
Yakutat



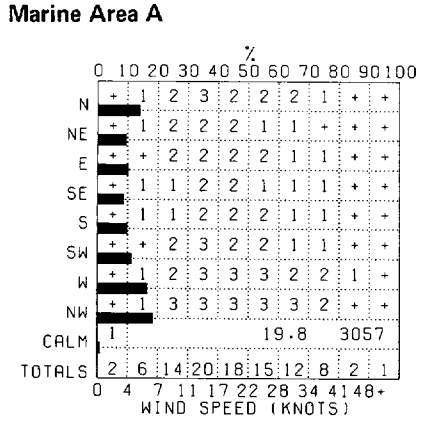
Sitka



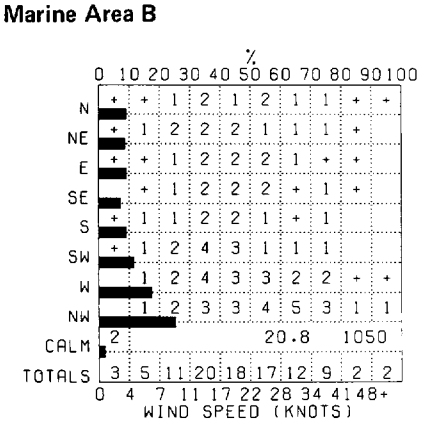
Annette

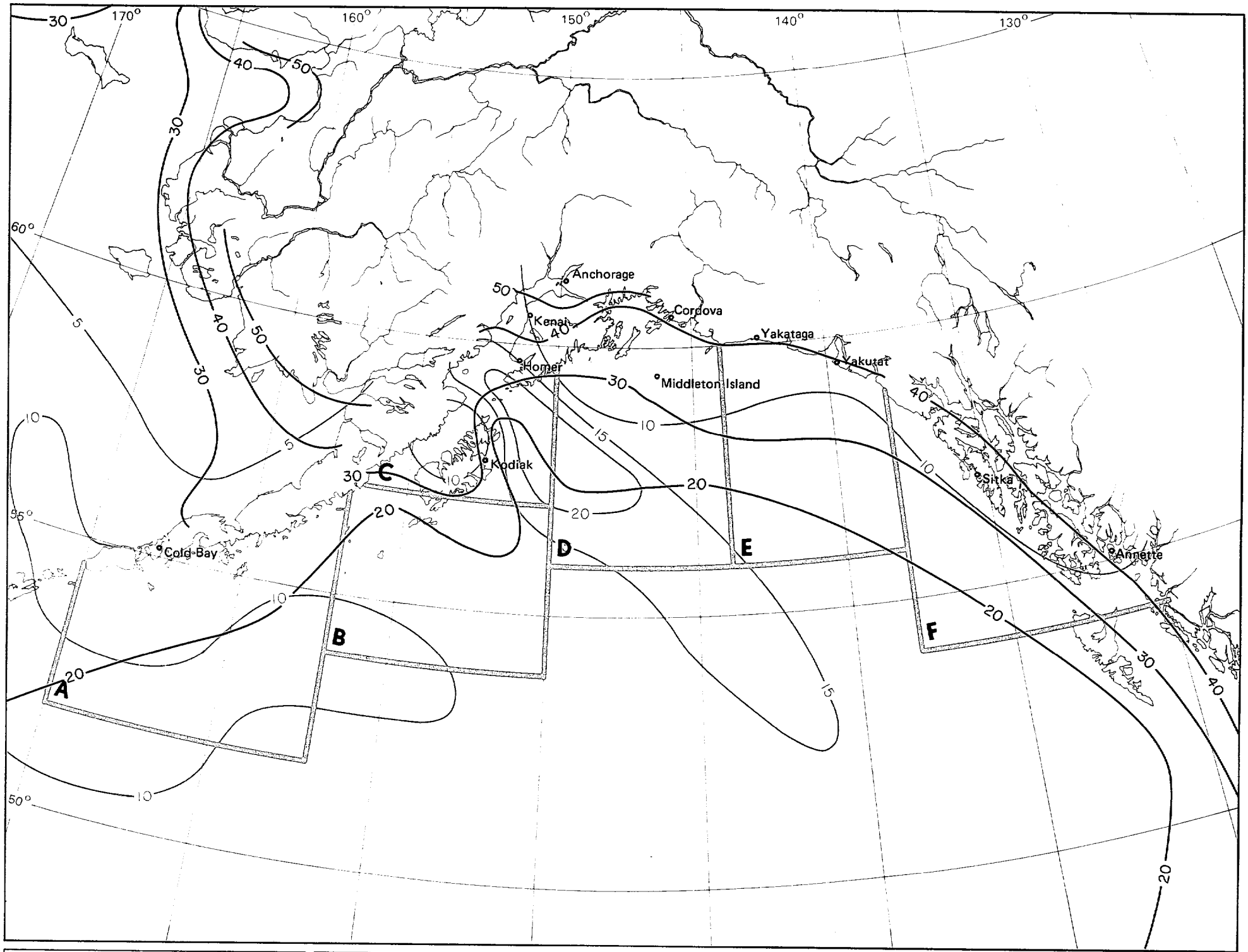


Marine Area A

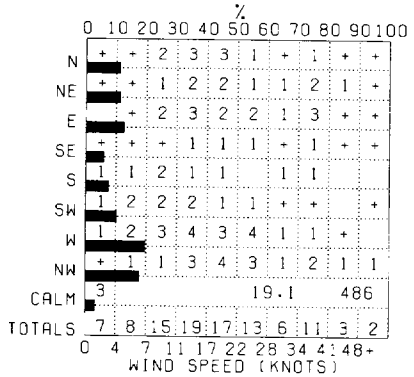


Marine Area B

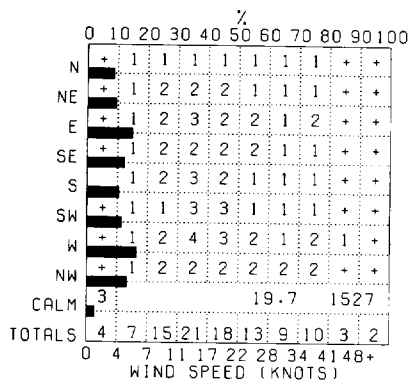




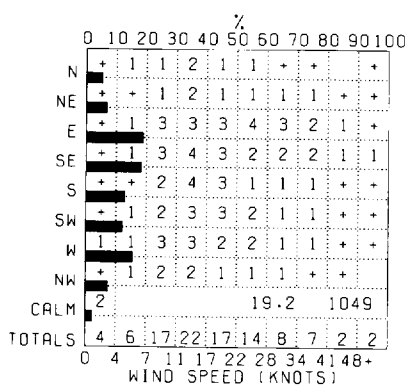
Marine Area C



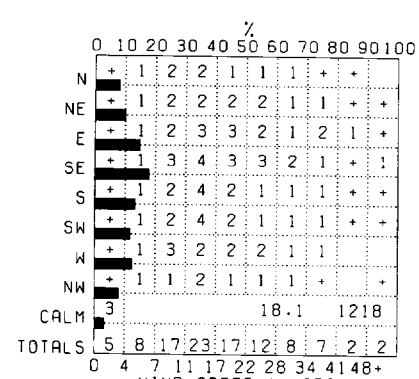
Marine Area D



Marine Area E



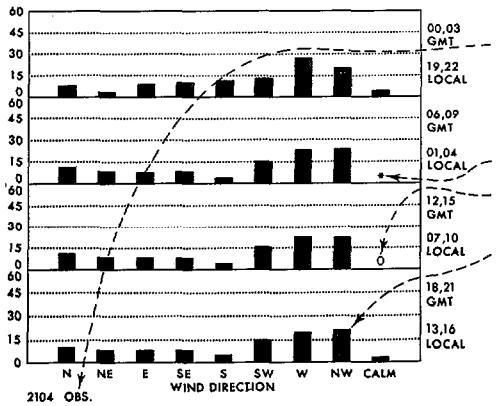
Marine Area F



9 Wind speed thresholds

Legend

Wind direction/diurnal variation



Number of observations.

Bars show percent frequency of wind direction (8 pts.) by hour (GMT and Local Time). Data are based on 100% for each hour-group.

* indicates <.05% but >0.

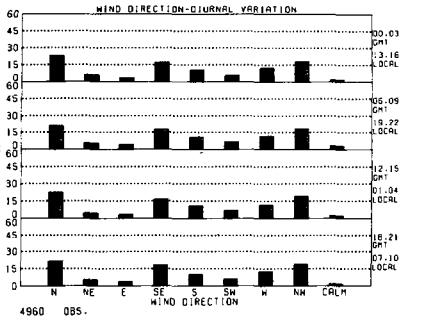
0 indicates no observations in the category.

(22% of the wind observations for the hours 18 and 21 GMT (13 and 16 Local Time) had a direction from the northwest.)

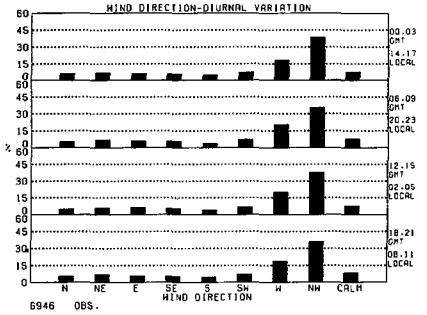
Map - Vector mean wind

10.2 *Direction of flow toward station dot; vector magnitude in knots (example: vector mean wind is from northeast at 10.2 knots or 11.7 mph)*

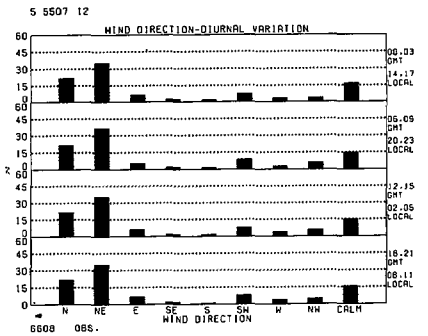
Cold Bay



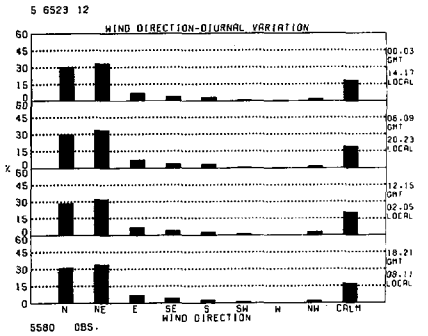
Kodiak



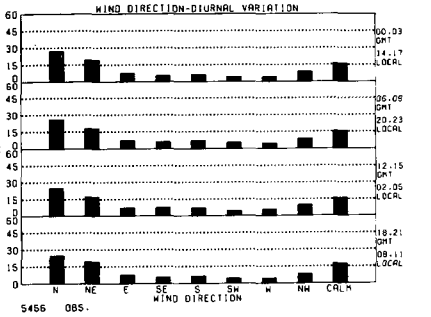
Homer



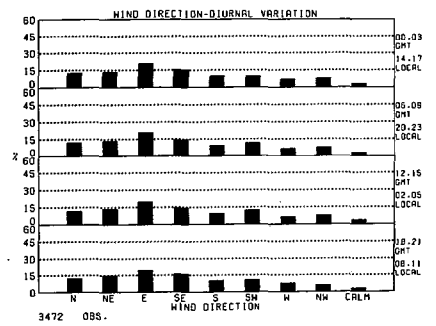
Kenai



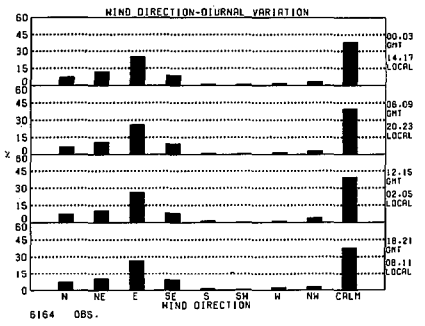
Anchorage



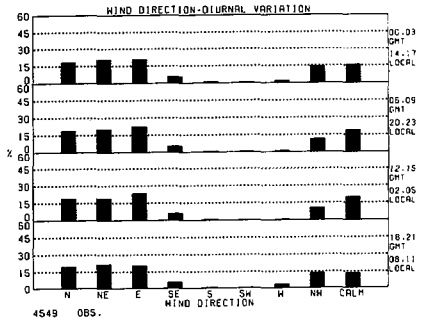
Middleton Island



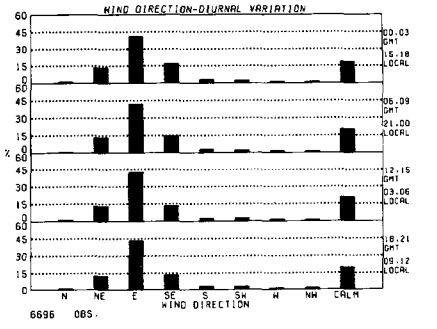
Cordova



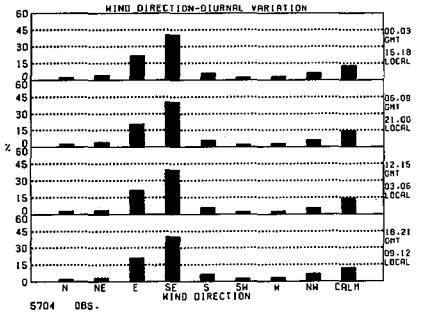
Yakataga



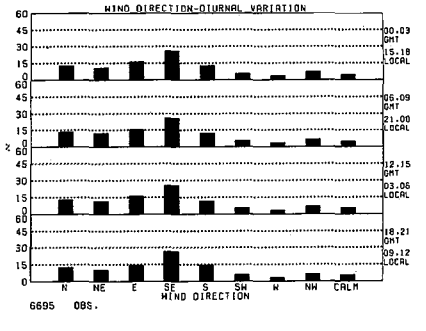
Yakutat



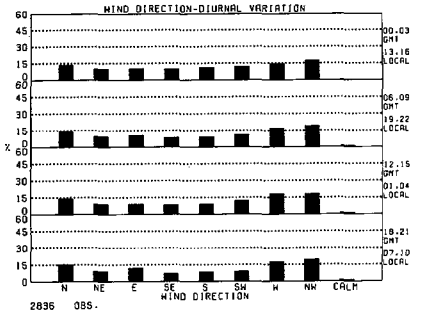
Sitka



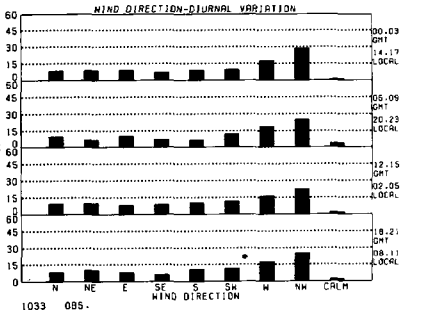
Annette

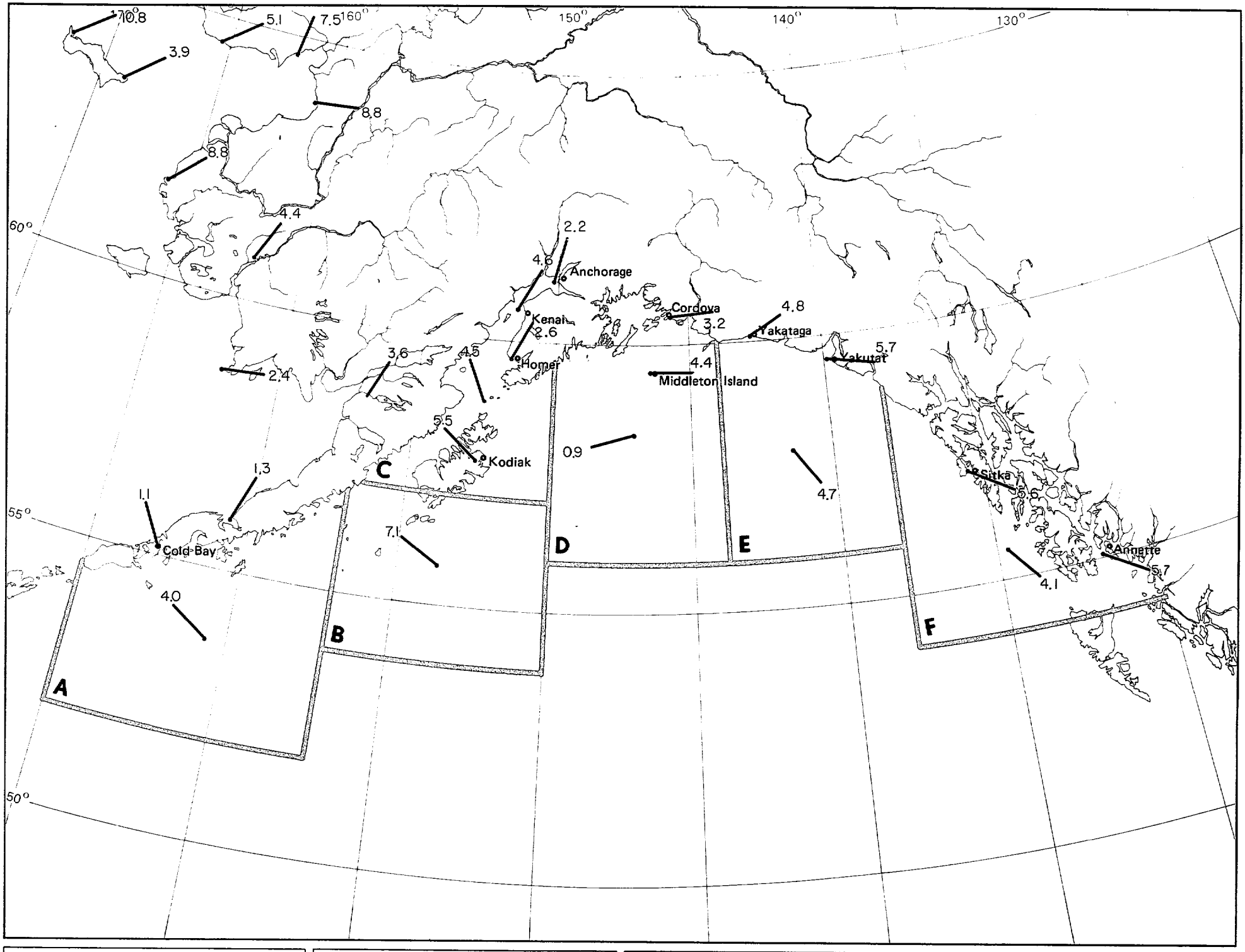


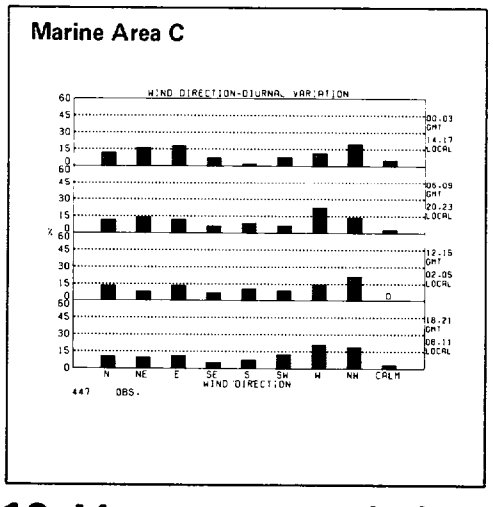
Marine Area A

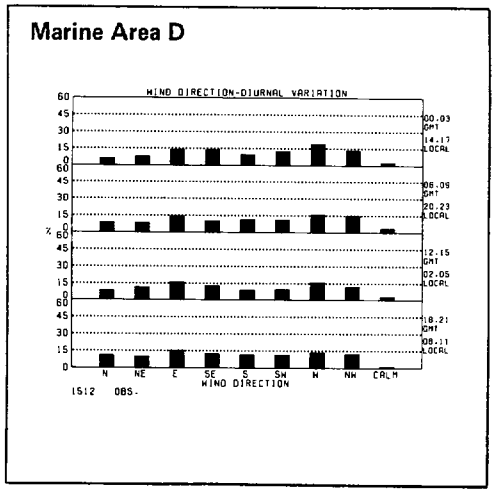


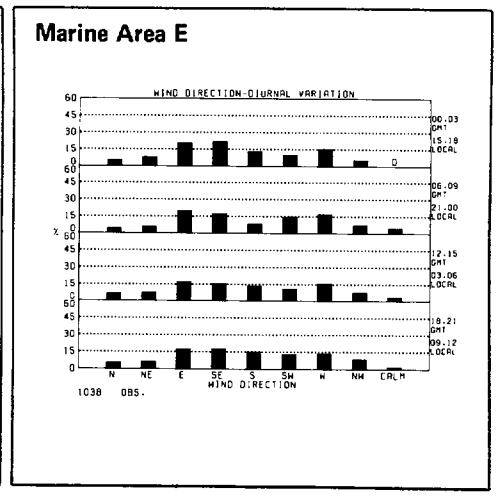
Marine Area B

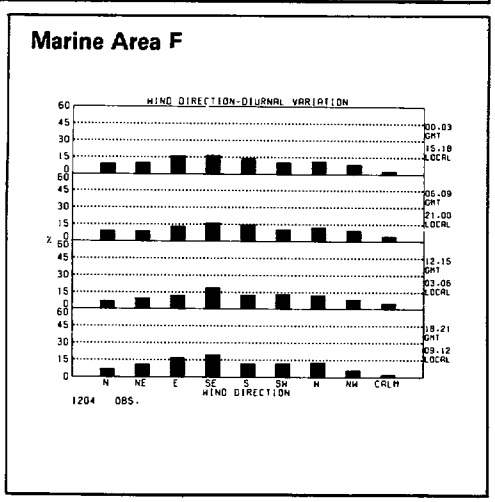










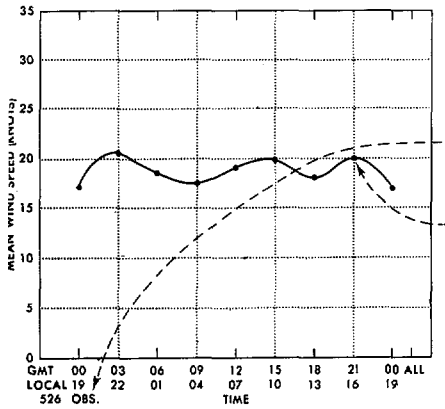


10 Vector mean wind

December

Legend

Wind speed/diurnal variation



Number of observations.

Mean wind speed (knots) by hour (GMT and Local Time) and for all hours.

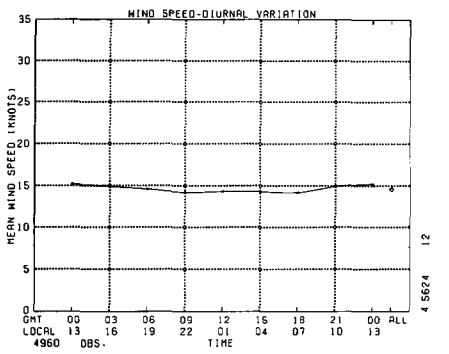
(The mean wind speed for the hour 21 GMT (16 Local) was 20 knots.)

Map - Scalar mean wind

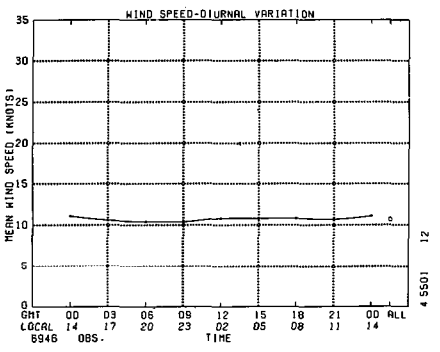
BLACK LINE - Scalar mean wind (knots)

In areas of high persistence of direction, the magnitude of the vector mean winds should closely approach that of the scalar mean winds. As most of the marine observations are recorded at six hour intervals, disregard the plots for other than 00, 06, 12, 18, GMT hours on the marine area graphs.

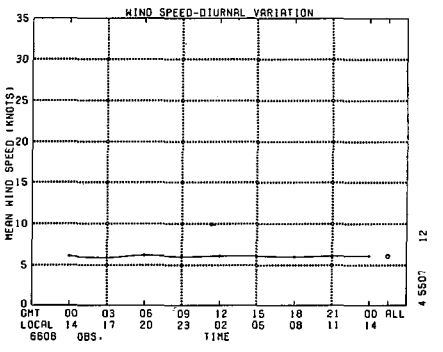
Cold Bay



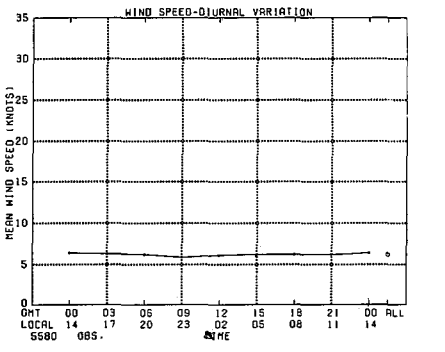
Kodiak



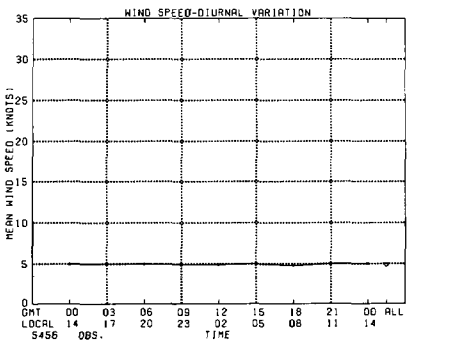
Homer



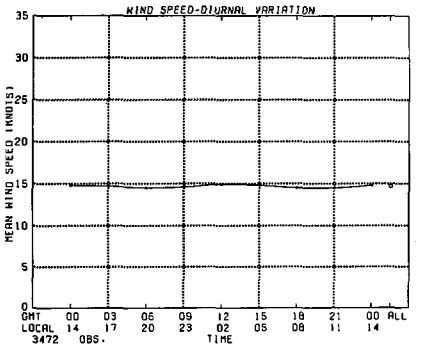
Kenai



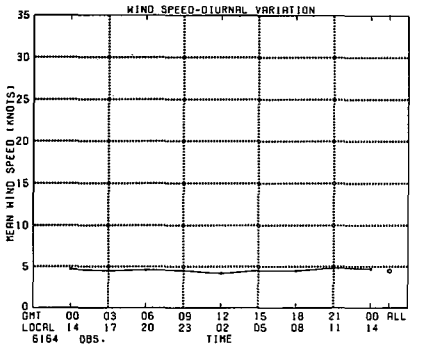
Anchorage



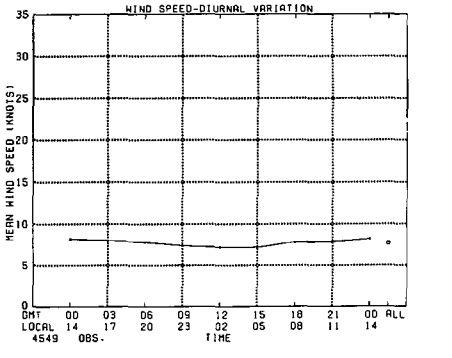
Middleton Island



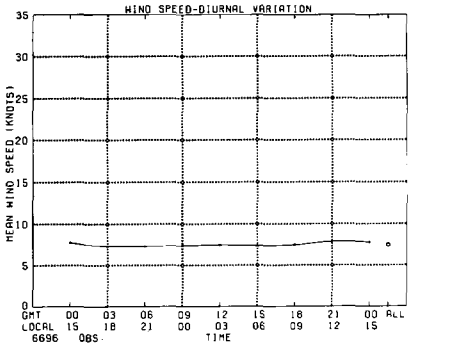
Cordova



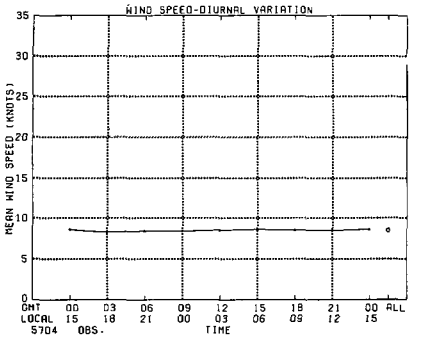
Yakataga



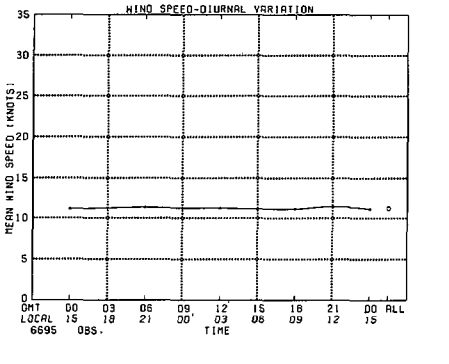
Yakutat



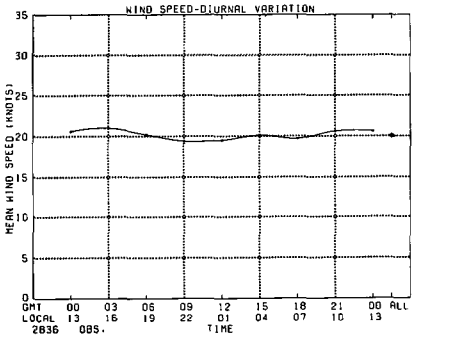
Sitka



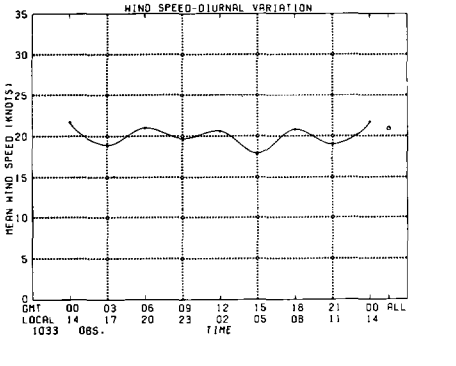
Annette

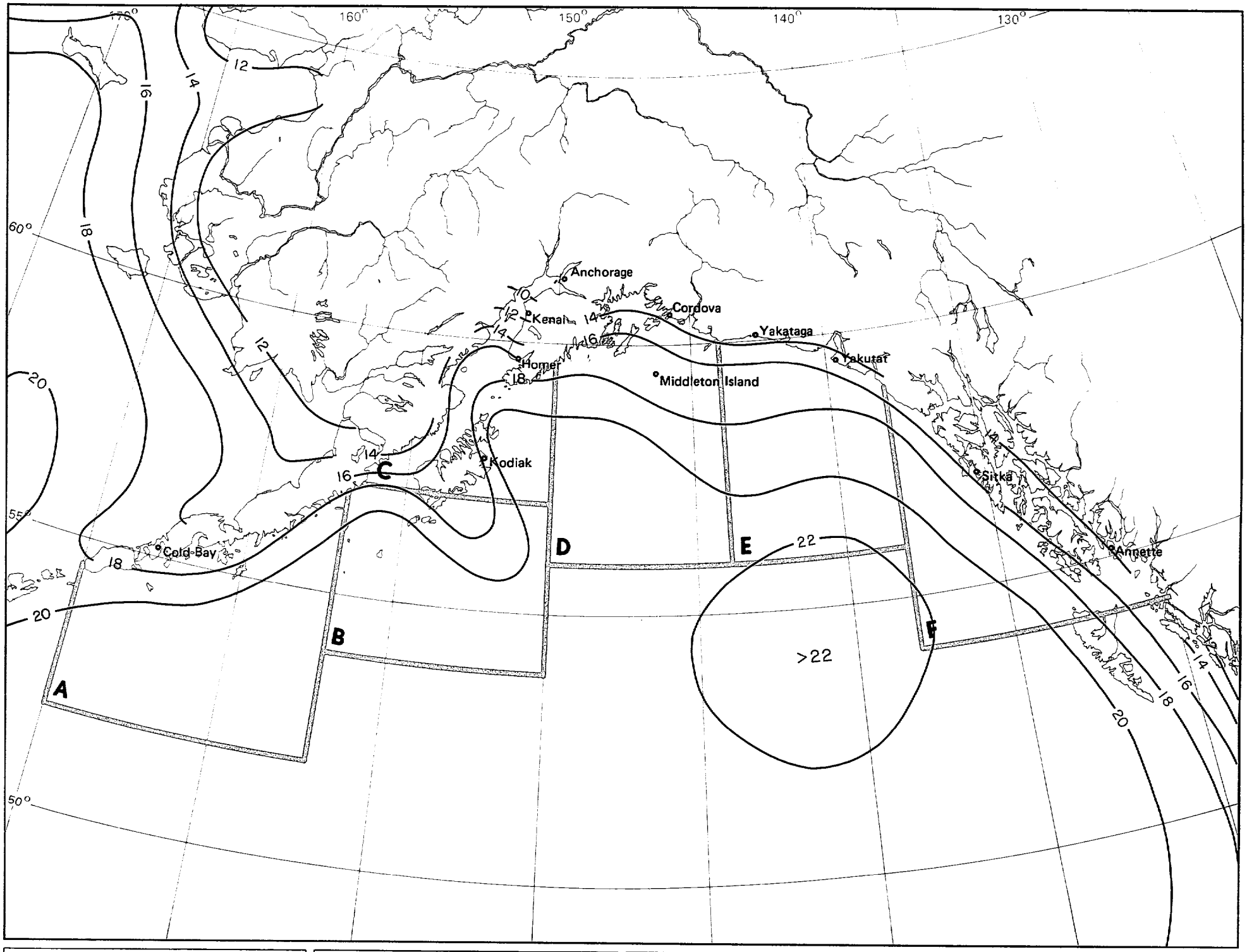


Marine Area A

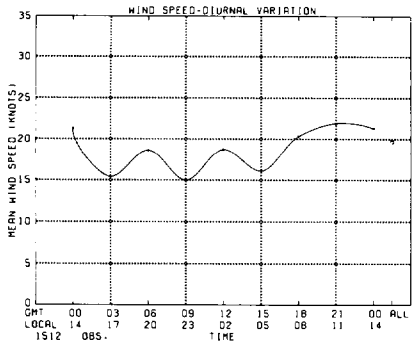


Marine Area B

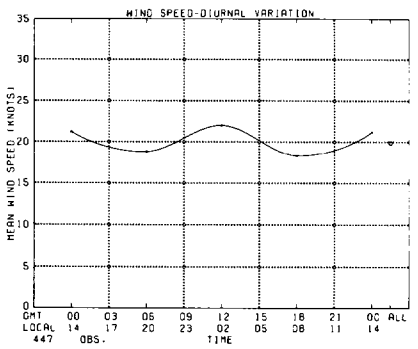




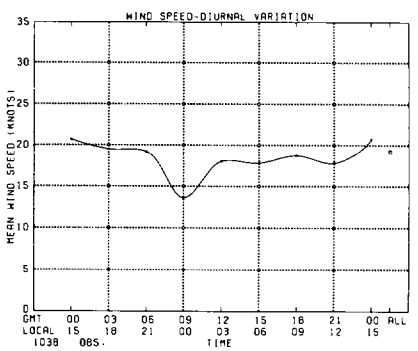
Marine Area C



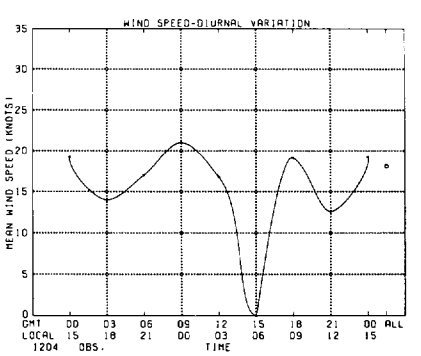
Marine Area D



Marine Area E



Marine Area F



11 Scalar mean wind

December

Legend

Low cloud ceiling/visibility

Percent frequency of simultaneous occurrence of specified low cloud ceilings (hundreds of feet) and visibilities (nautical miles).

Low cloud ceiling heights are estimated from the height of low clouds (h) when low cloud amount (N_h) is ≥5/8.

Obscurations are included under ceiling "0 <1.5".

"N C" (no ceiling) includes bases of clouds ≥8000 feet as well as occurrences of N_h <5/8.

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	3	13	64
50<80	0	0	0	0	+	1
35<50	0	+	0	0	0	4
20<35	0	+	1	1	2	2
10<20	0	+	1	1	2	1
6<10	0	1	0	+	+	0
3<6	+	+	0	+	+	0
1.5<3	+	0	0	0	0	0
0<1.5	+	0	0	0	0	0

334

(2% of all observations reported ceiling ≥1000 but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles.)

+ indicates <.5% but >0.

Number of observations.

Map - Low cloud ceiling and visibility thresholds

BLACK LINE - Percent frequency of low cloud ceiling ≥1000 feet (or no low cloud ceiling) and visibility ≥5 nautical miles

BLUE LINE - Percent frequency of low cloud ceiling <600 feet and/or visibility <2 nautical miles

Cold Bay

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	11	17
50<80	0	0	+	0	1	1
35<50	+	+	+	+	2	2
20<35	1	1	1	3	13	6
10<20	+	+	1	4	11	4
6<10	+	+	1	3	5	1
3<6	+	1	1	2	2	+
1.5<3	0	+	+	+	+	0
0<1.5	2	1	1	+	+	0

4941

Kodiak

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	+	1	10	40
50<80	0	0	0	+	1	2
35<50	0	+	+	+	1	2
20<35	+	+	+	1	7	6
10<20	+	+	1	4	8	2
6<10	+	+	1	3	2	+
3<6	+	+	1	2	1	+
1.5<3	+	+	+	+	+	0
0<1.5	1	1	1	1	+	+

6911

Homer

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	0	+	43
50<80	0	0	0	0	1	5
35<50	0	0	0	0	1	14
20<35	0	0	+	1	6	11
10<20	0	0	1	1	2	8
6<10	0	0	0	+	+	+
3<6	0	0	0	1	0	0
1.5<3	0	+	0	+	0	0
0<1.5	+	1	1	1	0	0

339

Kenai

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	0	0	1	7	47
50<80	0	0	+	0	0	6
35<50	0	0	0	0	3	3
20<35	0	0	+	2	3	3
10<20	0	0	0	2	2	1
6<10	0	0	0	0	2	+
3<6	0	0	+	+	0	0
1.5<3	0	0	0	+	0	0
0<1.5	4	4	3	3	1	0

240

Anchorage

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	1	+	+	1	3	51
50<80	+	0	+	+	+	7
35<50	0	0	+	+	1	5
20<35	+	0	+	+	2	6
10<20	+	+	+	1	2	3
6<10	+	+	+	1	1	1
3<6	+	+	+	1	2	1
1.5<3	+	+	+	+	+	+
0<1.5	2	1	1	1	+	+

5414

Middleton Island

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	+	7	24
50<80	0	0	0	0	1	1
35<50	0	0	0	0	+	2
20<35	+	0	+	1	5	8
10<20	0	+	1	3	10	7
6<10	+	1	5	8	6	1
3<6	+	+	1	1	+	0
1.5<3	0	0	0	0	0	0
0<1.5	2	2	1	+	0	0

1240

Cordova

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	2	38
50<80	+	0	0	0	+	3
35<50	+	+	0	+	1	5
20<35	+	0	+	2	10	9
10<20	+	+	1	6	8	2
6<10	0	+	+	1	1	+
3<6	0	0	+	+	+	+
1.5<3	0	0	0	0	+	0
0<1.5	1	2	2	1	+	0

4396

Yakataga

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	0	0	40
50<80	0	0	0	0	1	9
35<50	0	0	0	+	2	12
20<35	0	0	+	1	7	4
10<20	0	+	0	2	1	0
6<10	0	0	0	+	0	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	4	6	4	5	+	0

247

Yakutat

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	7	27
50<80	+	0	0	0	+	2
35<50	0	+	+	+	1	2
20<35	+	+	+	1	6	4
10<20	+	+	1	5	12	3
6<10	+	1	1	3	4	1
3<6	+	1	1	2	2	+
1.5<3	+	+	+	+	+	0
0<1.5	3	4	2	1	+	+

6681

Sitka

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	0	4	27
50<80	0	0	0	0	4	6
35<50	0	0	0	+	7	6
20<35	0	0	+	6	10	4
10<20	0	0	+	8	4	0
6<10	0	0	0	2	0	0
3<6	0	0	0	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	1	4	2	4	0	0

248

Annette

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	1	32
50<80	0	0	0	0	+	2
35<50	0	0	+	0	+	3
20<35	0	0	+	+	3	10
10<20	0	0	1	5	11	12
6<10	0	+	1	3	4	2
3<6	+	+	1	2	1	1
1.5<3	0	0	+	+	+	0
0<1.5	1	1	1	1	+	+

6678

Marine Area A

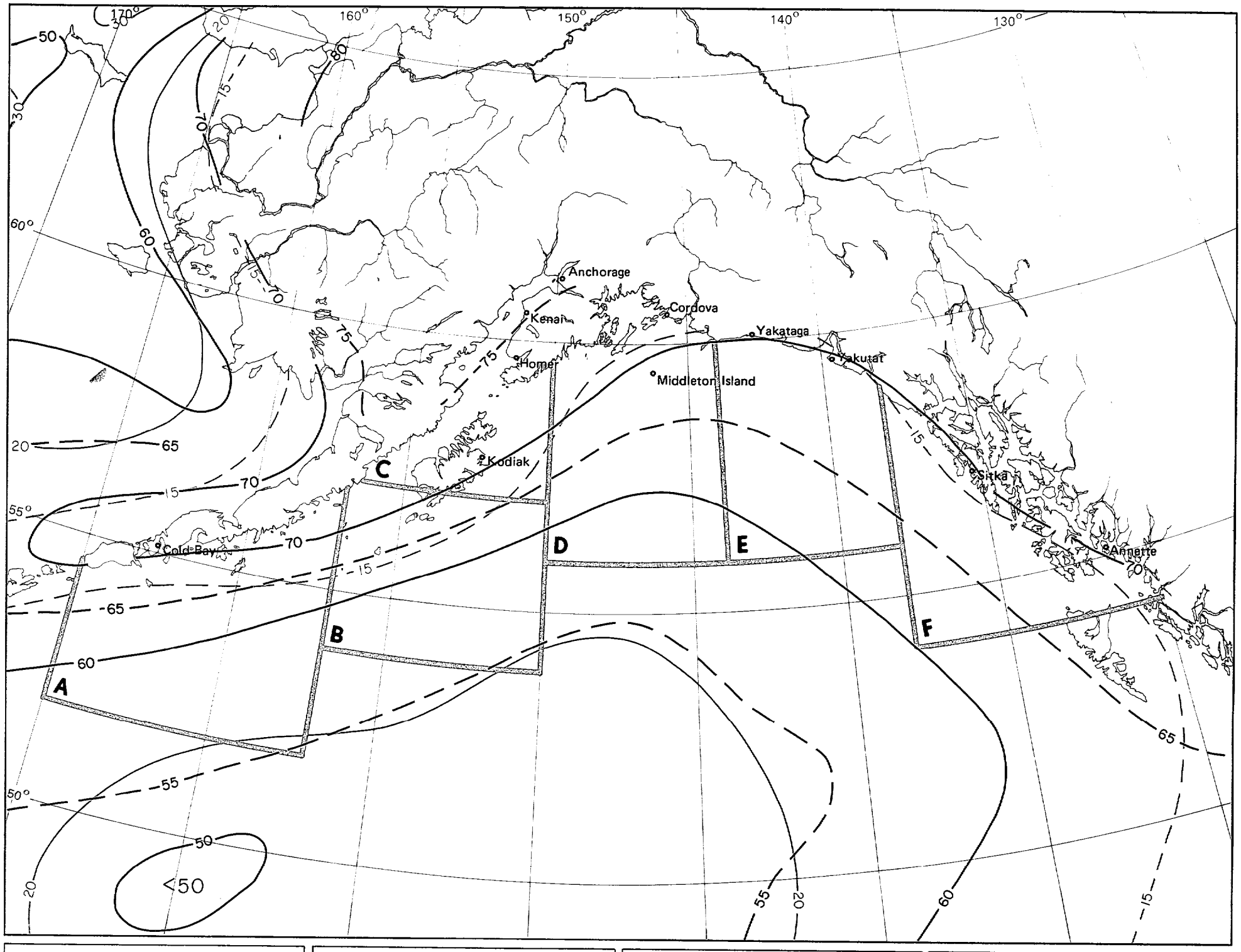
LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	+	+	1	6	21
50<80	0	0	+	+	+	1
35<50	0	+	+	+	1	3
20<35	0	+	+	2	5	7
10<20	+	1	1	4	9	10
6<10	+	+	+	3	6	4
3<6	+	+	1	1	1	1
1.5<3	+	+	+	+	+	+
0<1.5	2	+	1	1	+	+

2365

Marine Area B

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	+	1	4	18
50<80	0	0	+	0	+	+
35<50	0	+	+	1	1	2
20<35	+	2	+	5	8	5
10<20	+	1	2	4	7	11
6<10	+	0	1	3	6	5
3<6	+	+	+	1	2	1
1.5<3	0	0	0	+	+	0
0<1.5	1	1	1	1	1	0

848



Marine Area C

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	+	0	0	4	41
50<80	0	0	0	1	3	0
35<50	+	0	0	0	+	2
20<35	+	0	0	+	+	6
10<20	0	+	1	+	5	15
6<10	0	+	0	3	3	8
3<6	0	0	+	1	1	1
1.5<3	0	+	+	+	1	1
0<1.5	0	2	1	1	1	+

304

Marine Area D

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	+	0	0	1	3	31
50<80	0	0	0	0	+	+
35<50	0	0	0	0	+	1
20<35	0	0	+	+	2	6
10<20	+	1	1	1	4	15
6<10	+	+	1	2	6	10
3<6	0	+	+	1	2	2
1.5<3	+	0	+	+	1	1
0<1.5	1	1	1	1	1	+

1191

Marine Area E

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	1	2	25
50<80	0	0	0	0	1	+
35<50	0	0	0	+	+	2
20<35	0	0	0	1	2	5
10<20	+	+	+	1	6	15
6<10	+	+	+	3	8	10
3<6	0	0	+	1	3	1
1.5<3	+	+	0	+	1	2
0<1.5	2	1	1	2	1	+

764

Marine Area F

LOW CLOUD CEILING \ VISIBILITY	<½	½<1	1<2	2<5	5<10	≥10
NC	0	0	0	+	2	21
50<80	0	0	+	0	0	1
35<50	0	0	+	+	1	4
20<35	+	+	+	1	5	9
10<20	+	+	1	1	7	12
6<10	+	+	+	4	8	8
3<6	+	+	+	+	2	1
1.5<3	0	0	+	+	1	1
0<1.5	2	1	1	1	+	1

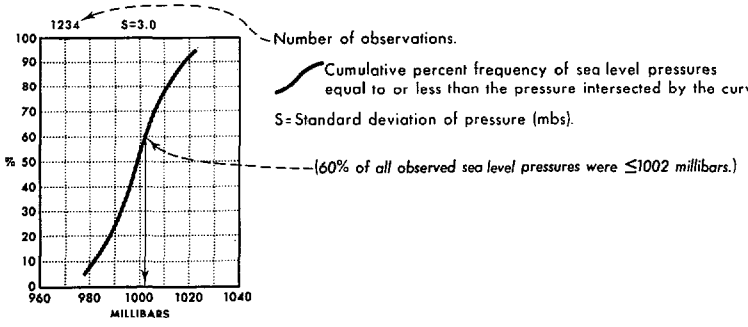
939

12 Low cloud ceiling and visibility thresholds

December

Legend

Sea level pressure

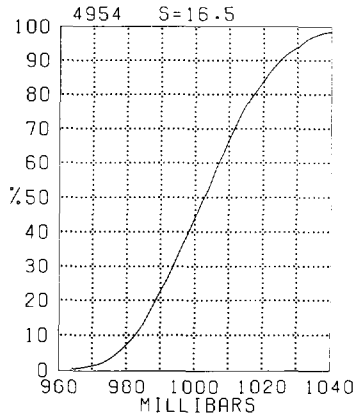


Map - Mean sea level pressure

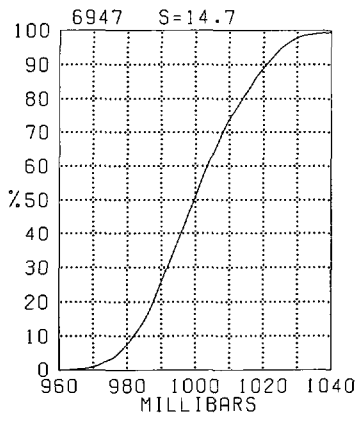
BLACK LINE - *Mean sea level pressure (millibars)*

Sea level pressure is one of the most frequently recorded elements but one of the least accurate because of instrument and coding errors. Despite the inaccuracies of the individual readings, however, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

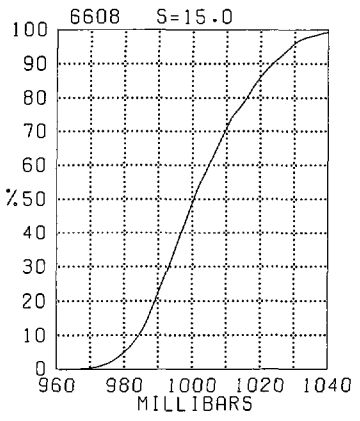
Cold Bay



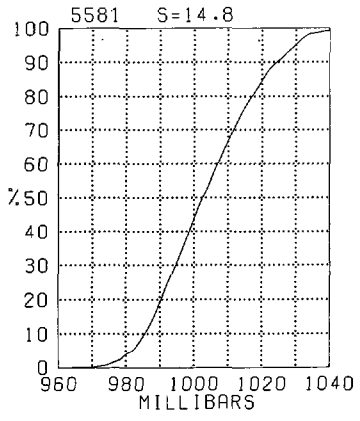
Kodiak



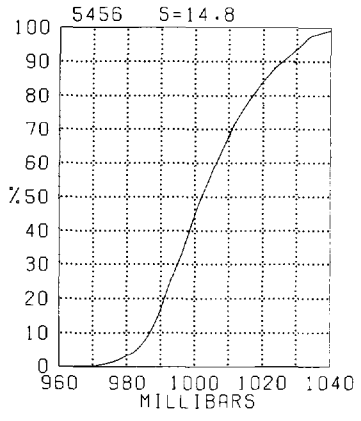
Homer



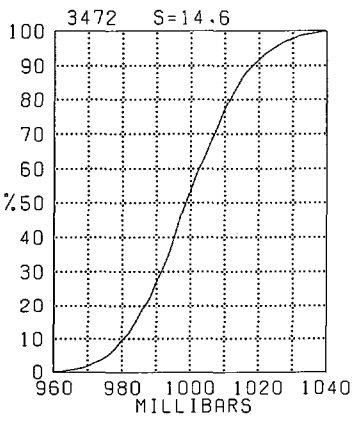
Kenai



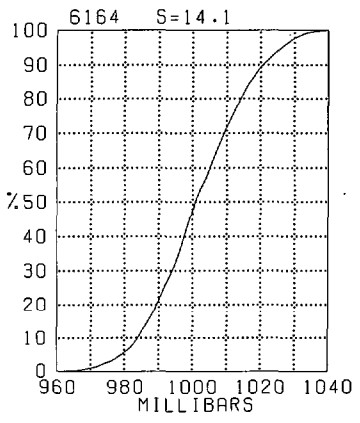
Anchorage



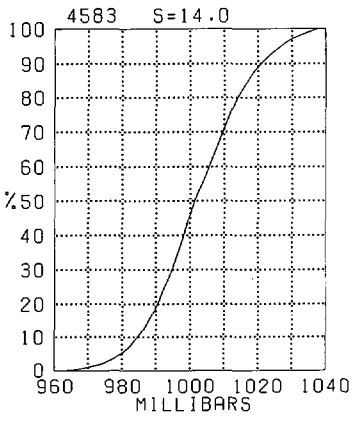
Middleton Island



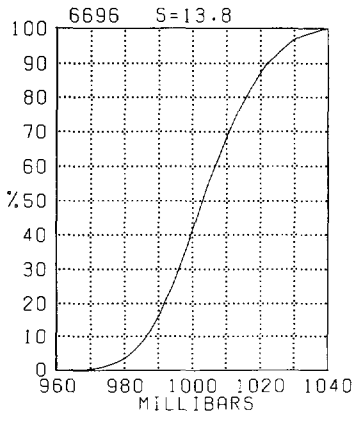
Cordova



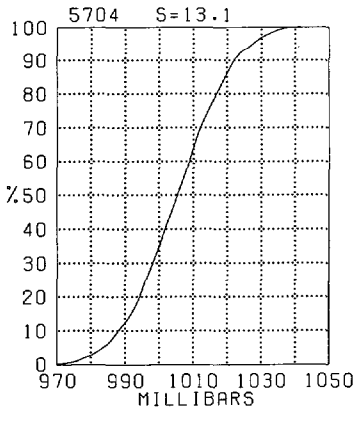
Yakataga



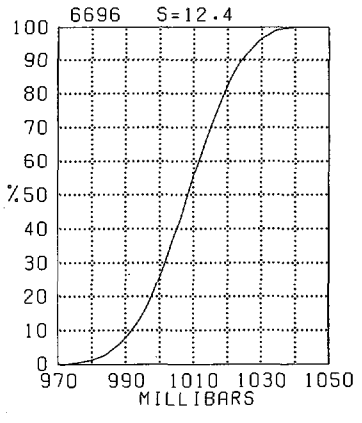
Yakutat



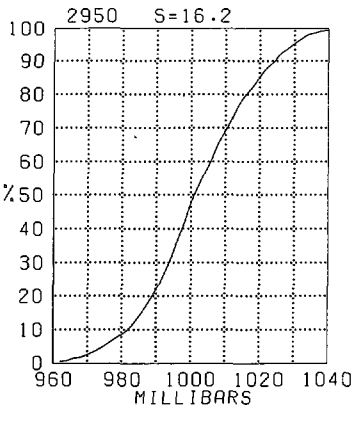
Sitka



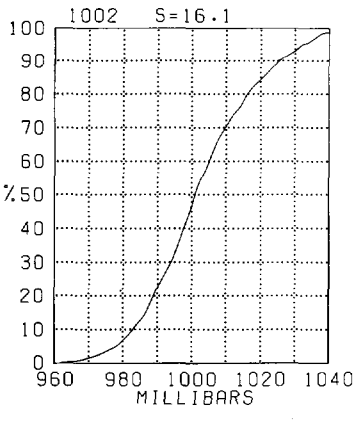
Annette

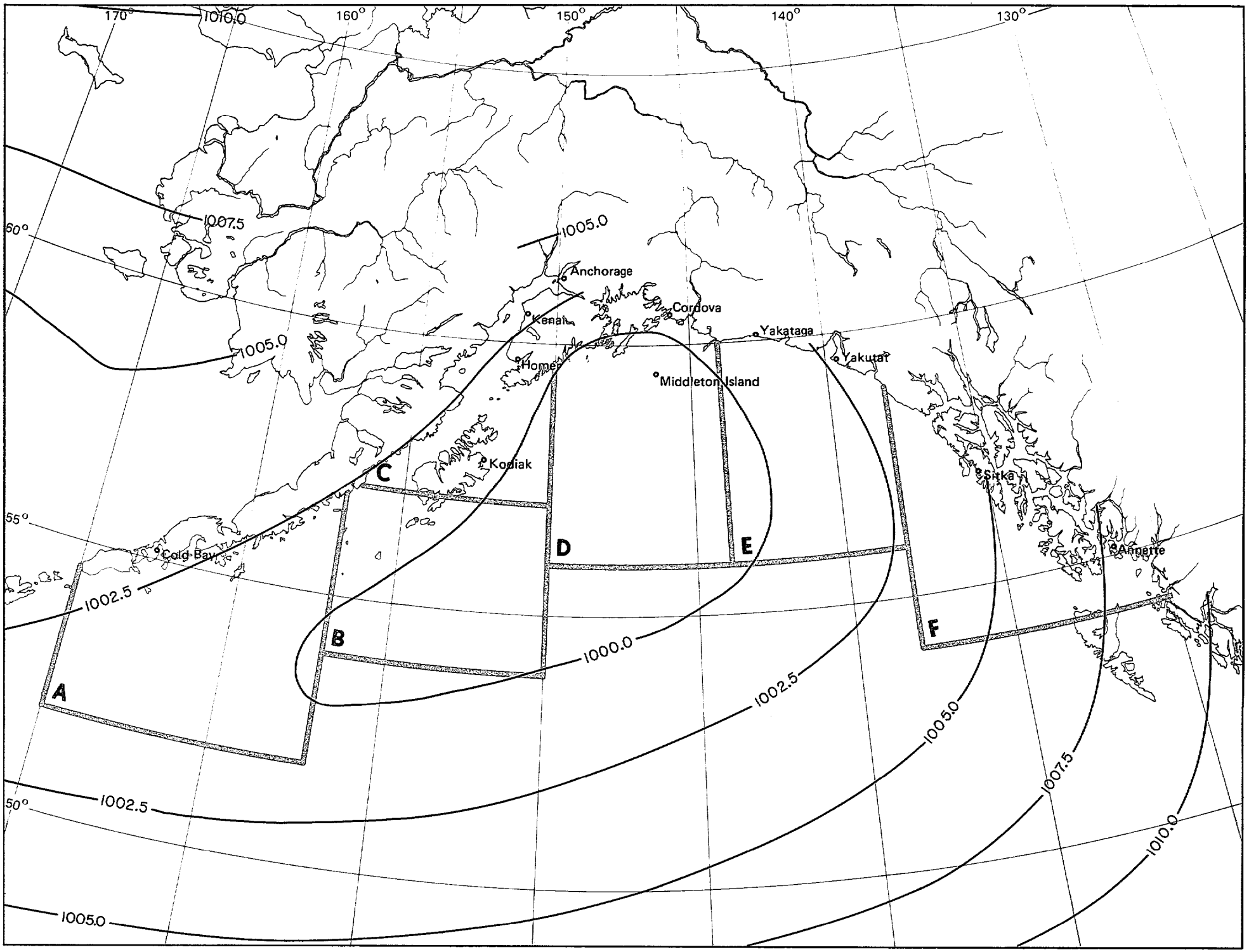


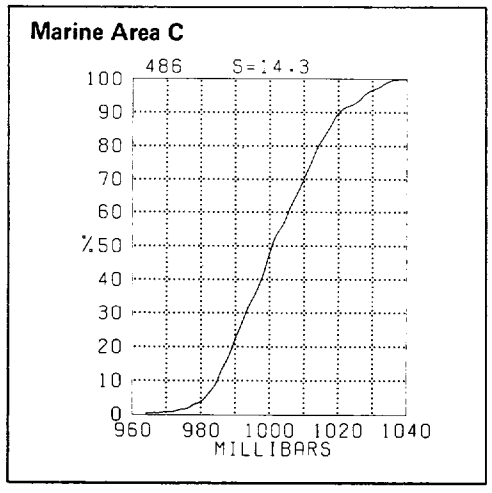
Marine Area A

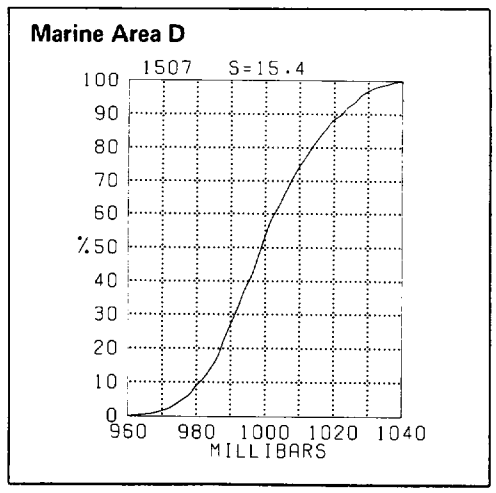


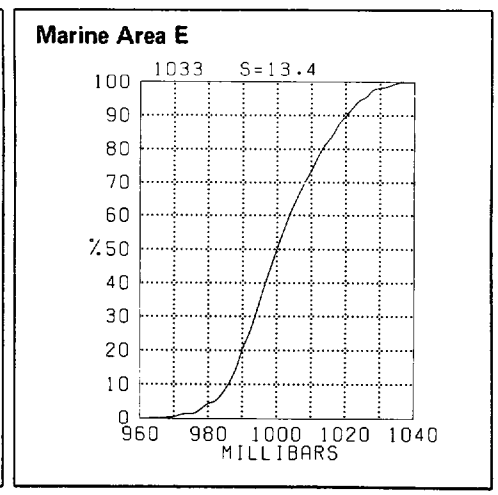
Marine Area B

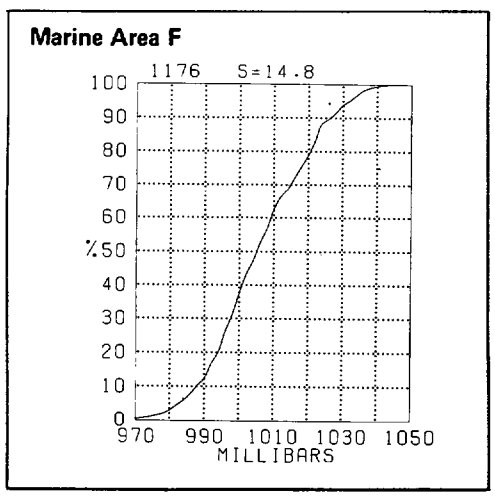










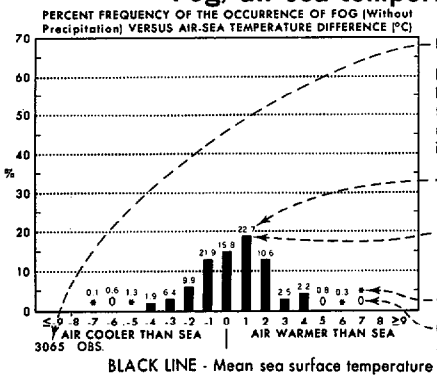


13 Mean sea level pressure

December

Legend

Fog/air-sea temperature difference



BLACK LINE - Mean sea surface temperature (°C)

Number of observations.

Bars show the percentage of observations with Fog (without Precipitation) for each Air-Sea temperature difference category. Plotted numbers indicate the percentage of observations in each Air-Sea temperature difference category.

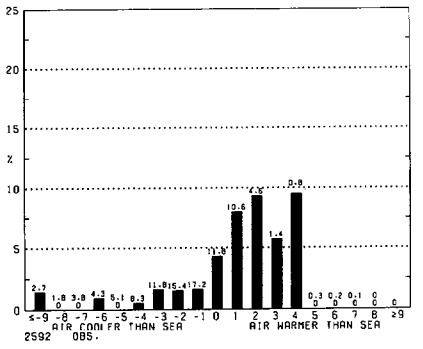
(22.7% of all observations had Air-Sea temperature difference of +1 °C.)

(19% of all observations with Air-Sea temperature difference of +1 °C were accompanied by Fog (without Precipitation).)

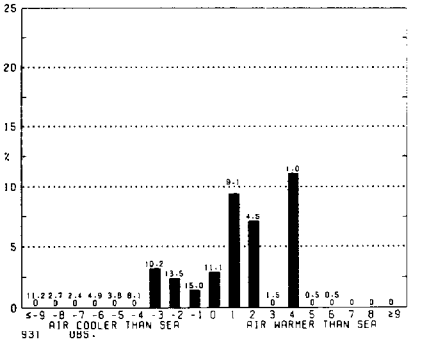
• indicates <.05% but >0.

0 indicates no fog with the Air-Sea temperature difference category.

Marine Area A



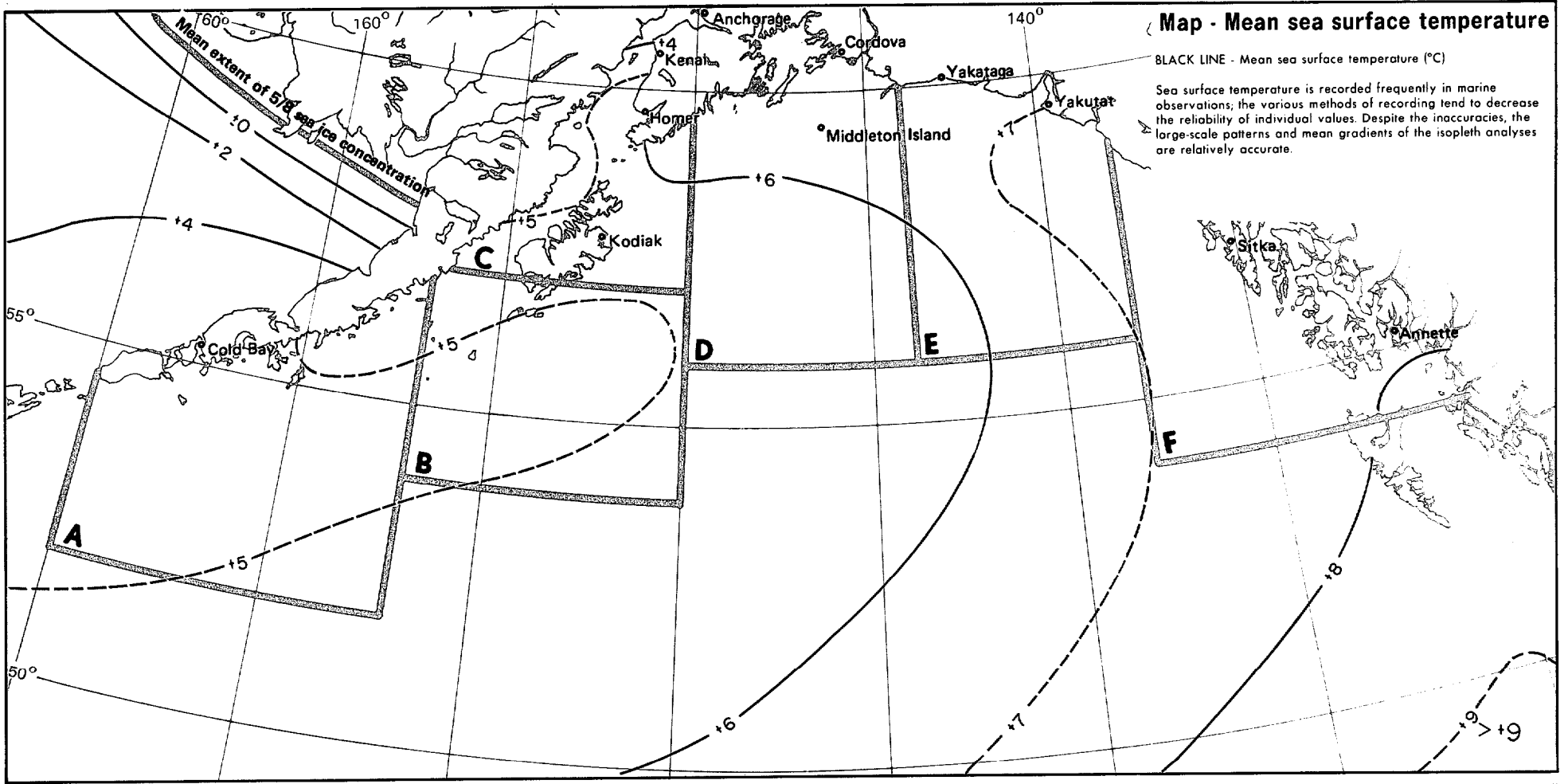
Marine Area B



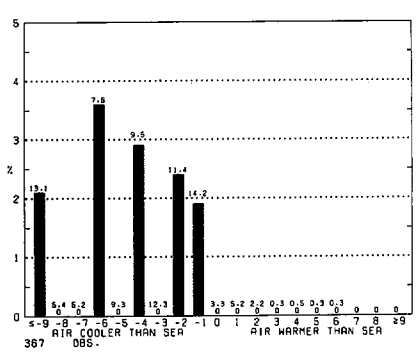
Map - Mean sea surface temperature

BLACK LINE - Mean sea surface temperature (°C)

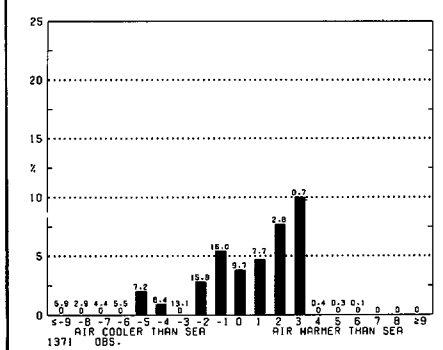
Sea surface temperature is recorded frequently in marine observations; the various methods of recording tend to decrease the reliability of individual values. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.



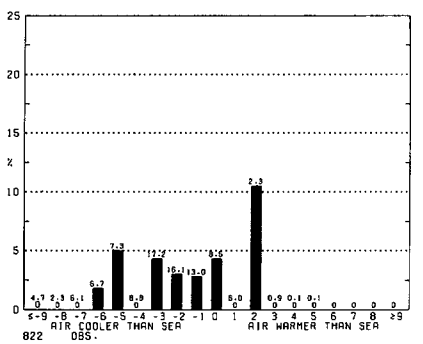
Marine Area C



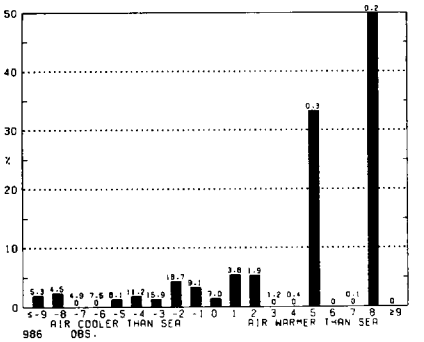
Marine Area D



Marine Area E

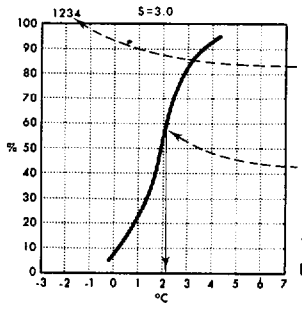


Marine Area F



Legend

Sea surface temperature



Number of observations.

Cumulative percent frequency of sea surface temperatures equal to or less than the temperature intersected by the curve.

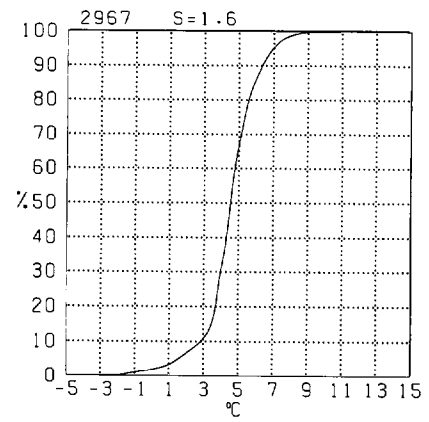
(60% of *all observed sea surface temperatures were* ≤2.1°C or ≤35.8°F.)

S = Standard deviation of sea surface temperatures (°C).

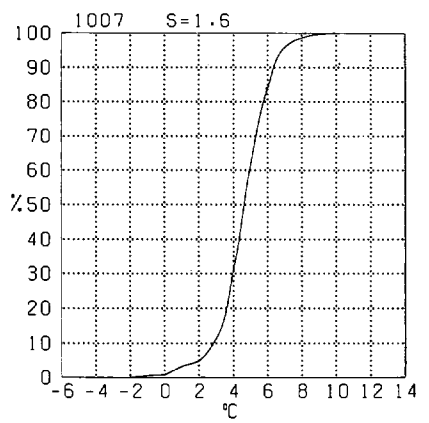
BLACK LINE - Maximum (99%) sea surface temperature (°C) (1% of the temperatures were greater than the given value)

BLUE LINE - Minimum (1%) sea surface temperature (°C) (1% of the temperatures were equal to or less than the given value)

Marine Area A

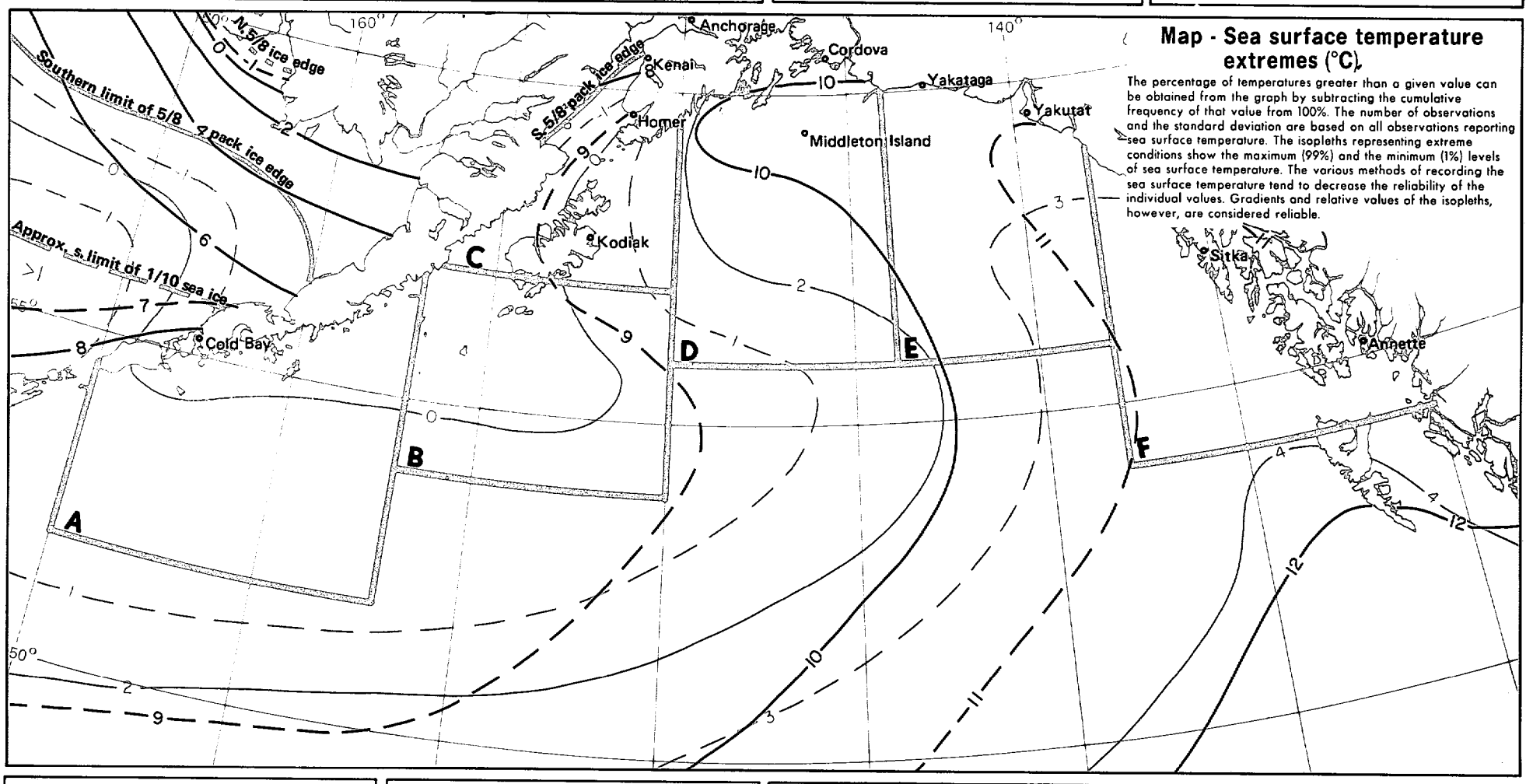


Marine Area B

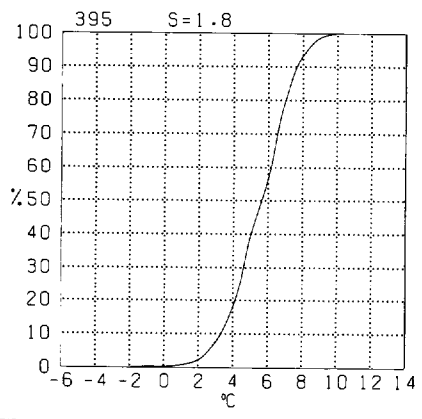


Map - Sea surface temperature extremes (°C)

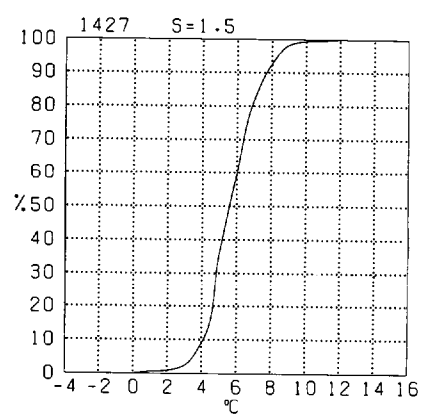
The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the cumulative frequency of that value from 100%. The number of observations and the standard deviation are based on all observations reporting sea surface temperature. The isopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface temperature. The various methods of recording the sea surface temperature tend to decrease the reliability of the individual values. Gradients and relative values of the isopleths, however, are considered reliable.



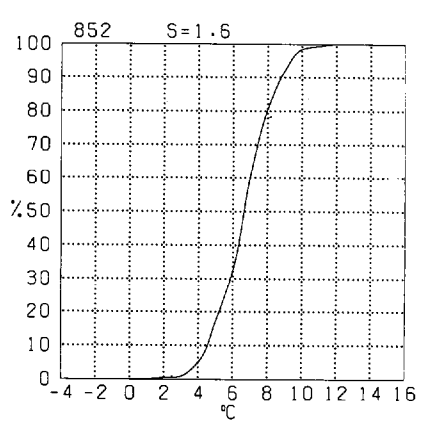
Marine Area C



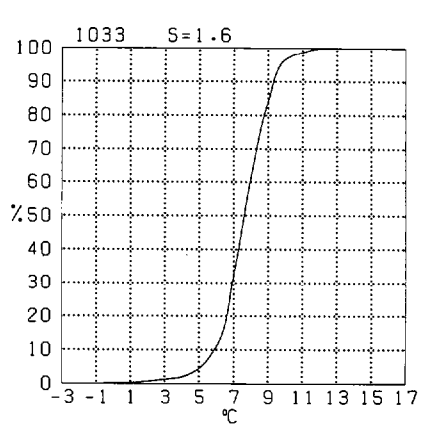
Marine Area D



Marine Area E



Marine Area F

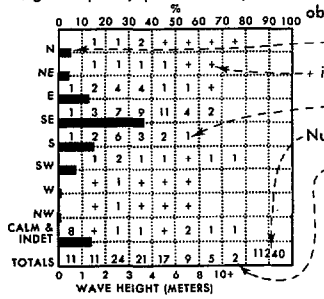


Legend

Wave height/direction

Direction frequency (top scale): Bars represent percent frequency of waves from each direction.

Height frequency (bottom scale): Printed figures represent percent frequency of wave heights observed from each direction.



- - - (5% of all waves were from the N.)

+ indicates <.5% but >0.

- - - (1% of all waves were from the S with heights from 6-7.5 meters.)

Number of observations.

(2% of the waves from all directions had heights ≥10 meters.)

WAVE HEIGHT INTERVAL

Feet	0-2	3-6	7-9	10-12	13-19	20-25	26-32	≥33
Meters	0-.5	1-1.5	2-2.5	3-3.5	4-5.5	6-7.5	8-9.5	≥10

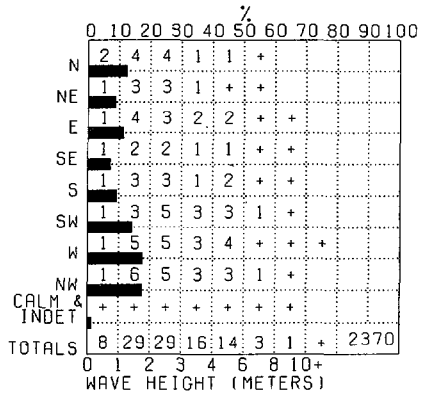
0 1 2 3 4 6 8 10+

Printed scale on bottom of chart

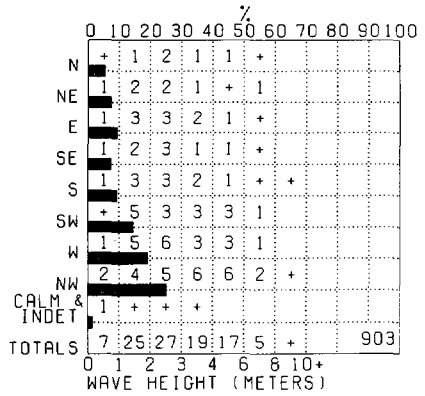
BLACK LINE - Percent frequency of wave height <1.5 meters (<5 feet)

BLUE LINE - Percent frequency of wave height <2.5 meters (<8 feet)

Marine Area A

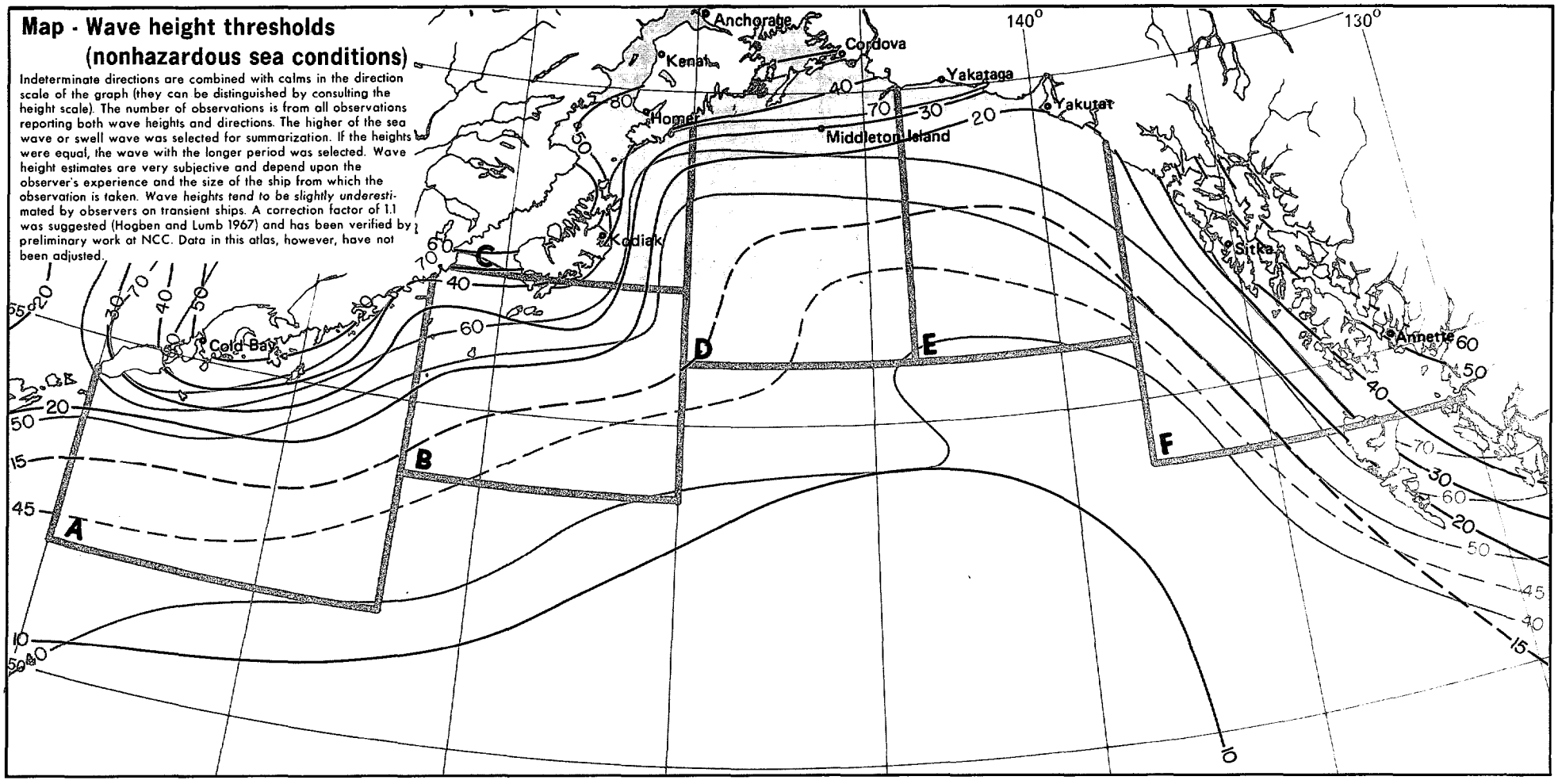


Marine Area B

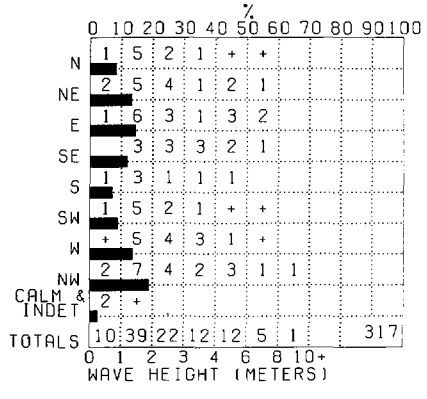


Map - Wave height thresholds (nonhazardous sea conditions)

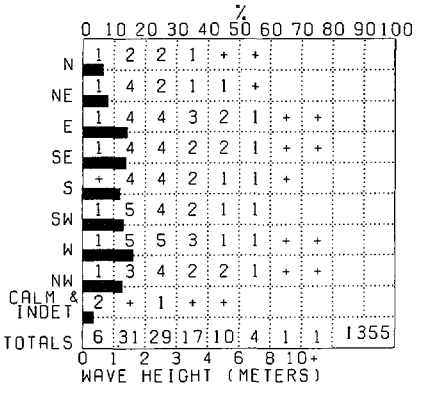
Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished by consulting the height scale). The number of observations is from all observations reporting both wave heights and directions. The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ships. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.



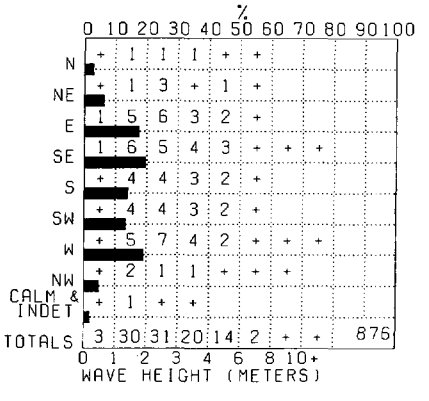
Marine Area C



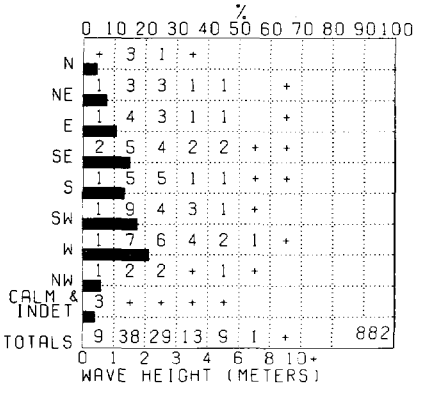
Marine Area D



Marine Area E



Marine Area F



Legend

Wave height/period

PERIOD (Seconds)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	21	3	1	+	+	+	6
1-1.5	22	16	6	2	1	+	+
2-2.5	3	6	4	3	1	+	+
3-3.5	+	1	1	1	1	+	+
4-5.5	+	+	+	+	+	+	0
6-7.5	0	+	+	0	0	+	0
8-9.5	0	0	0	+	0	0	0
≥10	0	0	0	0	0	+	0

4010

Percent frequency of occurrence of wave period and height.

(2% of observed waves had a height of 1-1.5 meters and a period of 10-11 seconds.)

+ indicates <.5% but >0.

Number of observations.

Waves are selected on the basis of the higher of sea and swell when both are reported. If both heights are equal, the wave with the longer period is selected.

BLACK LINE - Percent frequency of wave height ≥3.5 meters (≥12 feet)

BLUE LINE - Percent frequency of wave height ≥6 meters (≥20 feet)

BLUE NUMBER - Maximum observed wave height (meters)

Marine Area A

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	+	+	0	0	1
1-1.5	18	6	2	1	1	+	1
2-2.5	8	11	7	2	1	+	1
3-3.5	2	6	4	2	1	+	1
4-5.5	1	4	5	2	1	+	1
6-7.5	0	+	1	1	+	+	+
8-9.5	0	0	+	0	+	+	+
≥10	0	0	+	+	0	0	0

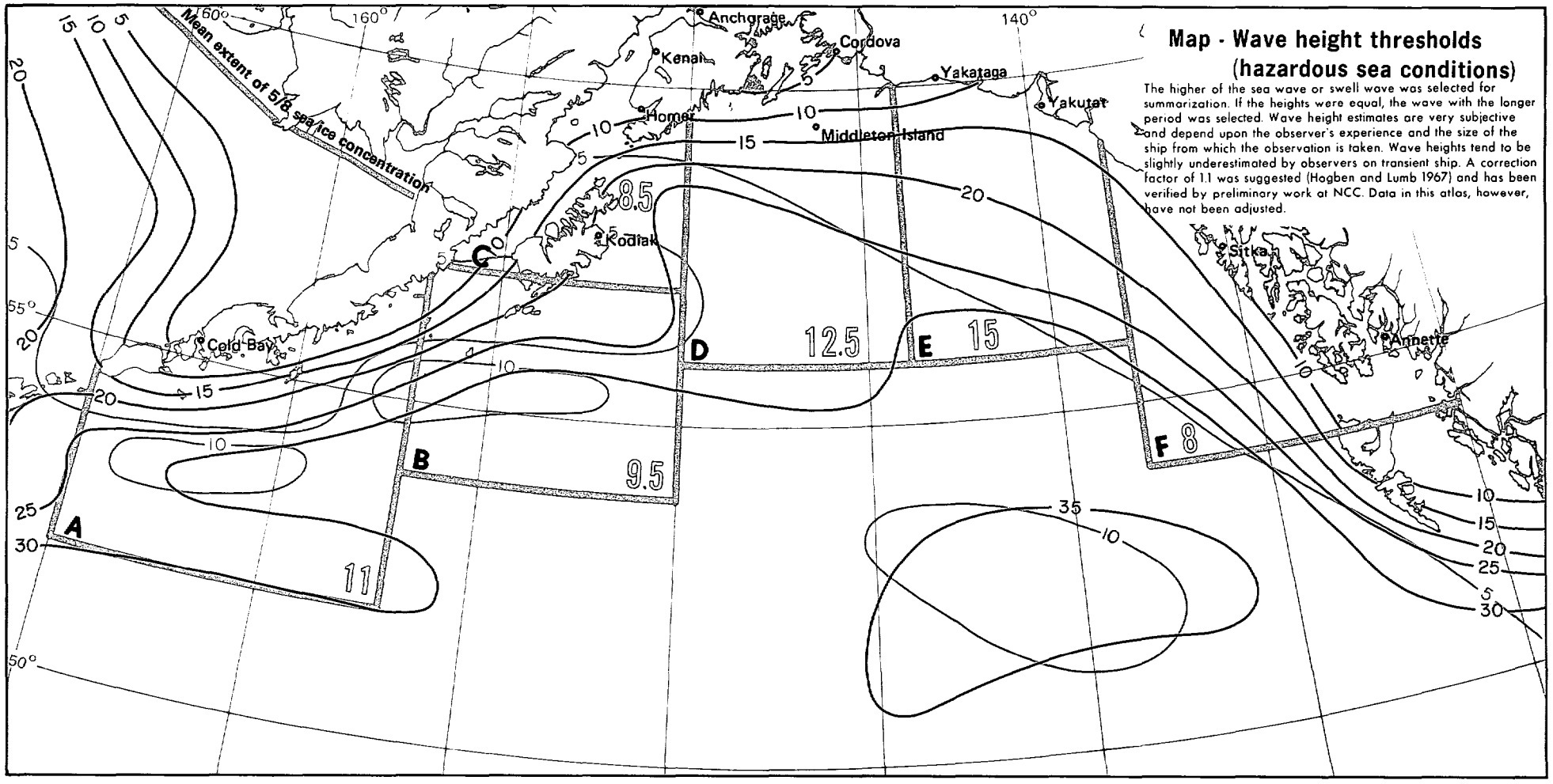
2398

Marine Area B

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	1	+	0	0	0	2
1-1.5	14	6	2	1	+	0	2
2-2.5	5	11	7	2	1	+	1
3-3.5	1	7	6	2	1	+	+
4-5.5	1	6	6	2	1	1	+
6-7.5	0	1	2	1	+	1	+
8-9.5	0	0	+	+	0	0	0
≥10	0	0	0	0	0	0	0

908



Map - Wave height thresholds (hazardous sea conditions)

The higher of the sea wave or swell wave was selected for summarization. If the heights were equal, the wave with the longer period was selected. Wave height estimates are very subjective and depend upon the observer's experience and the size of the ship from which the observation is taken. Wave heights tend to be slightly underestimated by observers on transient ship. A correction factor of 1.1 was suggested (Hogben and Lumb 1967) and has been verified by preliminary work at NCC. Data in this atlas, however, have not been adjusted.

Marine Area C

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	1	+	+	0	0	3
1-1.5	20	11	2	1	2	0	2
2-2.5	4	8	5	2	+	+	1
3-3.5	2	3	4	2	1	+	+
4-5.5	1	3	3	1	1	1	1
6-7.5	0	1	1	1	1	+	0
8-9.5	0	0	0	0	+	+	0
≥10	0	0	0	0	0	0	0

324

Marine Area D

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	5	1	+	0	0	0	2
1-1.5	15	8	4	1	1	+	1
2-2.5	7	10	6	3	1	1	1
3-3.5	3	5	5	2	1	1	+
4-5.5	1	3	3	1	1	+	1
6-7.5	0	1	1	1	+	1	0
8-9.5	0	0	+	+	+	+	0
≥10	0	0	0	0	0	1	0

1368

Marine Area E

PERIOD (SECONDS)

HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	4	+	+	+	0	0	+
1-1.5	12	10	5	1	1	+	1
2-2.5	8	10	8	3	+	+	2
3-3.5	3	5	6	3	1	1	1
4-5.5	1	4	4	2	1	1	1
6-7.5	0	+	+	1	+	+	+
8-9.5	0	0	0	+	+	0	+
≥10	0	0	+	0	+	+	0

889

Marine Area F

PERIOD (SECONDS)

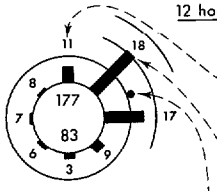
HEIGHT (MTRS)	<6	6-7	8-9	10-11	12-13	>13	IND
0-.5	7	+	+	0	0	0	4
1-1.5	25	8	3	1	+	0	1
2-2.5	8	7	8	3	+	1	1
3-3.5	3	4	3	2	1	+	+
4-5.5	1	2	2	2	1	1	1
6-7.5	0	+	1	+	+	+	0
8-9.5	0	+	+	0	0	0	0
≥10	0	0	0	0	0	0	0

909

Legend

Low pressure center movement

12 hour movements of low pressure centers considering only closed circulations.

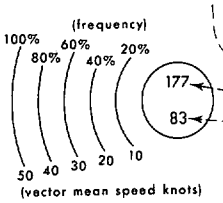


Mean speed: Printed figure at the end of each bar represents the mean speed of movement (in knots) toward the indicated direction.

(Low pressure centers moving toward the N had a mean speed of 11 knots.)

Direction frequency: Bars represent percent frequency of 12 hour movements toward each direction. Each circle represents 20%.

(41% of all 12 hour movements were toward the NE.)



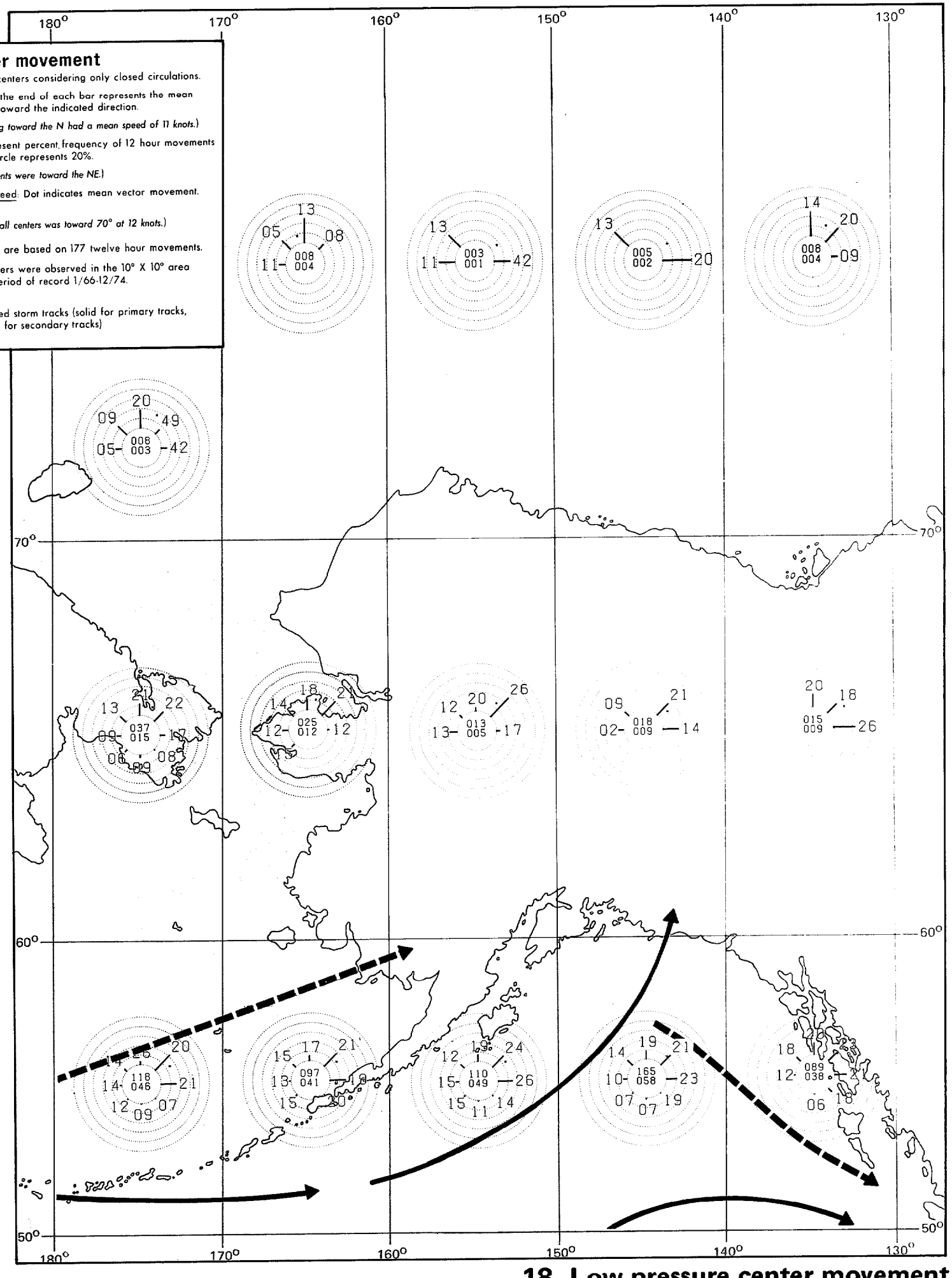
Vector mean direction and speed: Dot indicates mean vector movement. Each circle equals 10 knots.

(Mean vector movement of all centers was toward 70° at 12 knots.)

Statistics for this rose are based on 177 twelve hour movements.

83 low pressure centers were observed in the 10° X 10° area during the 9 year period of record 1/66-12/74.

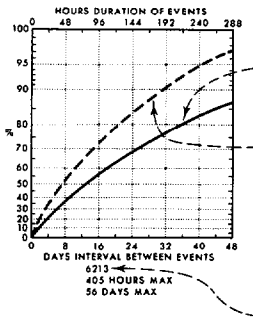
BLACK ARROWS - Preferred storm tracks (solid for primary tracks, dashed for secondary tracks)



18 Low pressure center movement

Legend

Persistence of visibility <2 n. mi.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

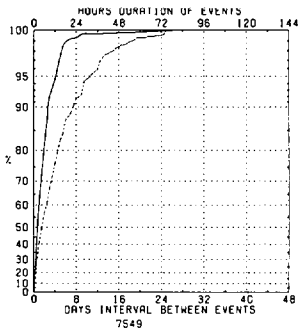
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

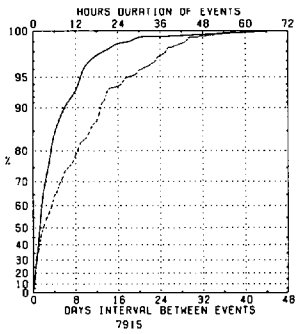
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

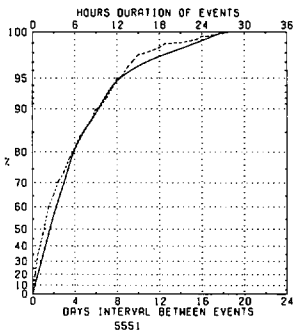
Kodiak



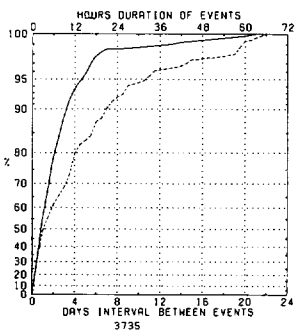
Homer



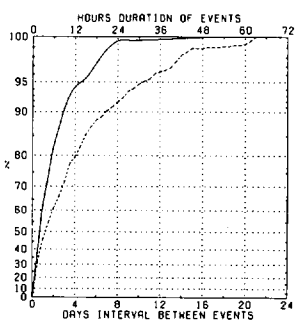
Kenai



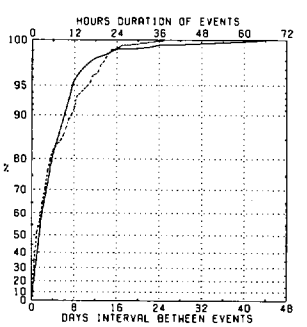
Middleton Island



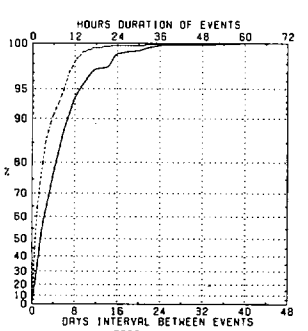
Cordova



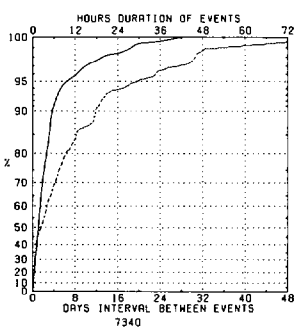
Yakataga



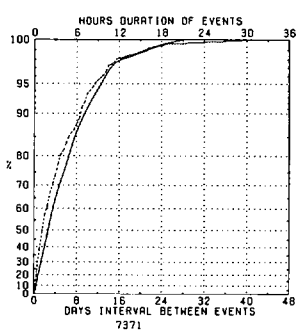
Yakutat



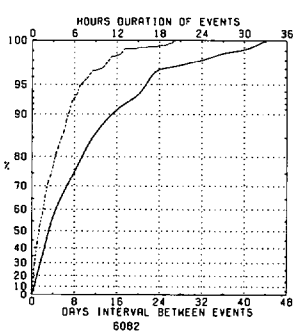
Sitka



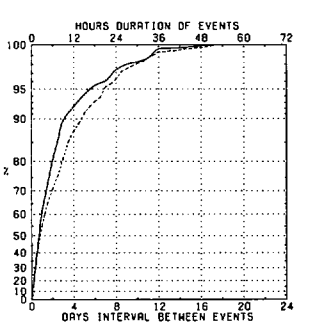
Annette



Anchorage

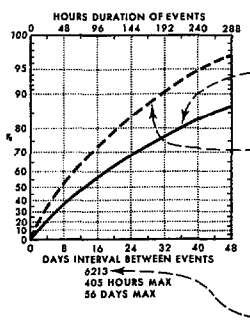


Cold Bay



Legend

Persistence of wind ≥10 kts.



Hours duration of events - Days interval between events.

Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

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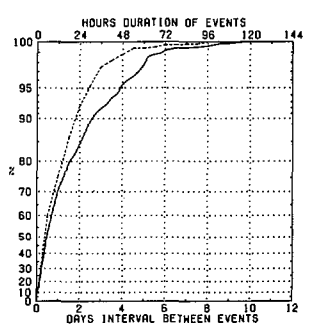
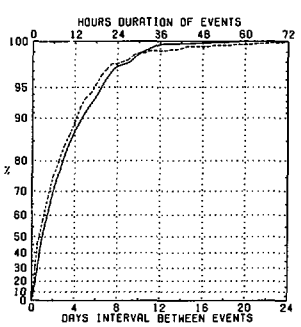
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

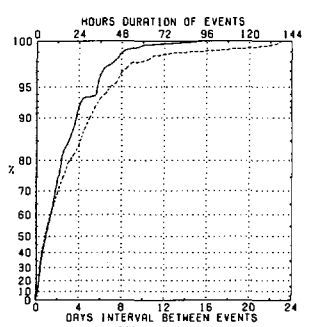
Kodiak



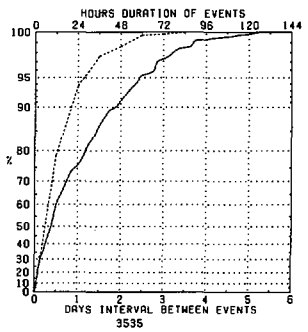
Homer



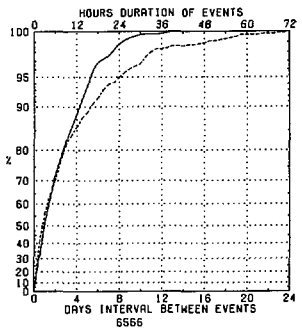
Kenai



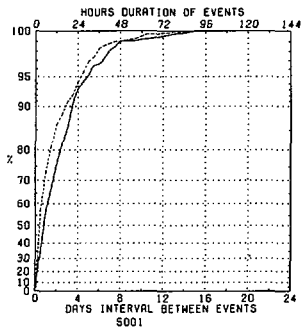
Middleton Island



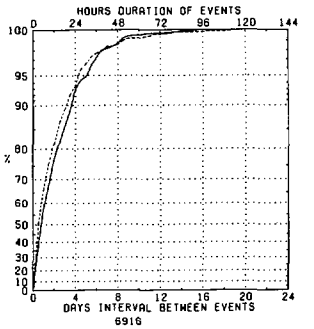
Cordova



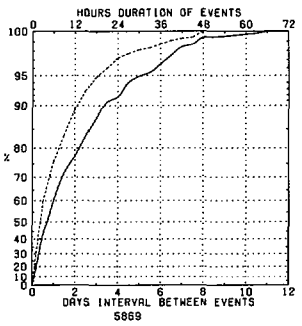
Yakataga



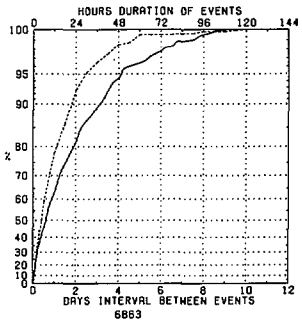
Yakutat



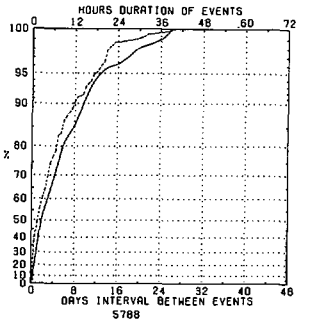
Sitka



Annette



Anchorage



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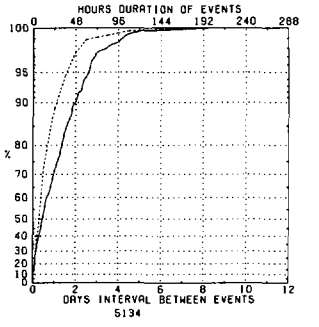
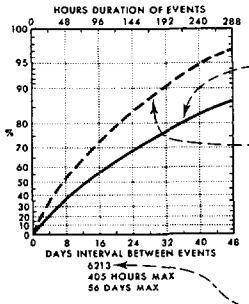


Legend

Persistence of wind ≥20 kts.

Hours duration of events - Days interval between events.



Cumulative percent frequency of hours duration equal to or less than the number of hours intersected by the solid curve.

(80% of the events had a duration ≤216 hours.)

Cumulative percent frequency of days interval between events equal to or less than the number of days intersected by the broken curve.

(88% of the events were followed by another event in 28 days or less.)

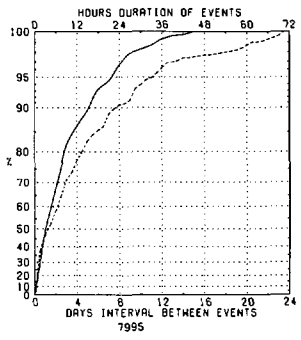
The maximum value(s) of hours duration and/or the days interval will be displayed when the graph limits are exceeded.

Durations and intervals for a particular month extend from the time they begin (or the first of the month if already in progress) and are terminated at the actual ending time, regardless of what month that may be.

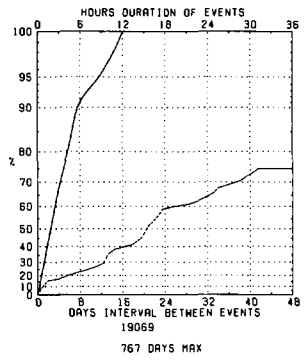
Number of observations.

Top and bottom scales are variable to allow for variations in the data.

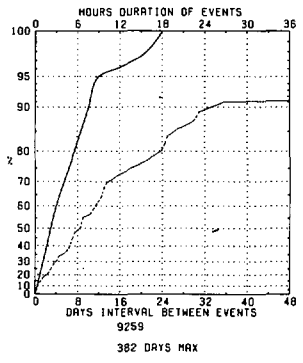
Kodiak



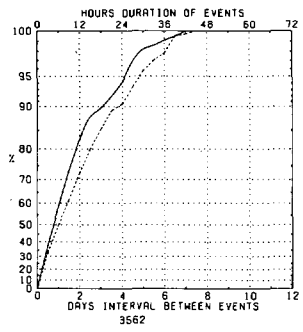
Homer



Kenai



Middleton Island



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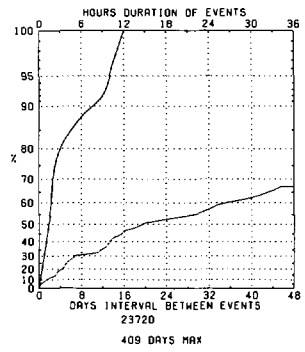
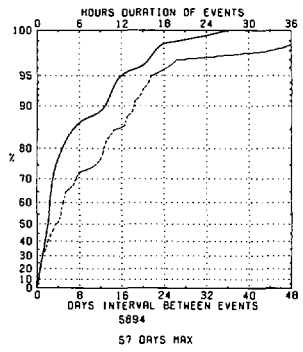
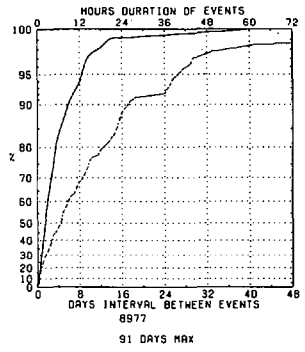


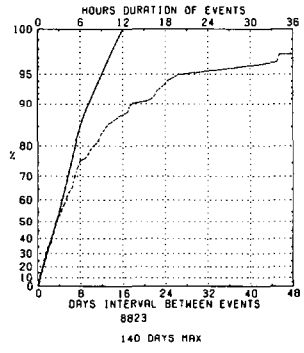
Yakataga



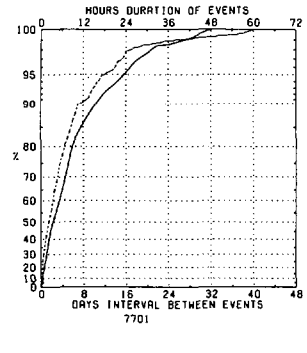
Yakutat



Sitka



Annette



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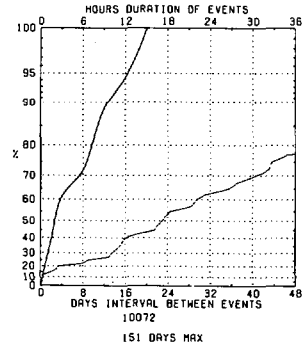

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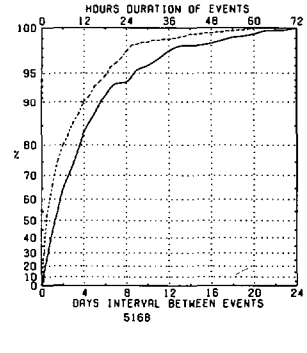


Legend

Annual maximum winds and waves for selected return periods—Marine areas

Return periods for maximum sustained winds and for maximum significant and extreme wave heights are presented in tabular form for selected marine areas. Sustained winds are winds averaged over a period of one minute, the significant wave height is the average height of the highest one third of all waves (sea and swell) in view, and the extreme wave height is an empirical estimate of 1.8 times the significant wave height. Estimates presented in the tables were based primarily on methods described by Thom (see References). For example, on the average the Marine Area A can expect annual maximum sustained wind speed to exceed 105 knots once in 100 years.

Area C

Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	72	12.5 (42)	23.0 (75)
10	78	14.0 (47)	26.0 (85)
25	87	17.0 (55)	30.0 (99)
50	94	19.0 (62)	34.0 (112)
100	102	21.5 (70)	38.0 (125)

Area D

Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	73	13.0 (42)	23.0 (75)
10	79	14.5 (47)	26.0 (85)
25	88	17.0 (55)	30.0 (99)
50	96	19.0 (62)	34.0 (112)
100	104	21.5 (70)	38.0 (125)

Area A

Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	74	13.0 (43)	23.5 (77)
10	80	14.5 (48)	26.5 (87)
25	89	17.5 (57)	31.0 (102)
50	97	19.5 (64)	35.0 (115)
100	105	22.0 (72)	39.0 (129)

Area E

Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	72	12.5 (42)	23.0 (75)
10	78	14.0 (47)	26.0 (85)
25	87	17.0 (55)	30.5 (100)
50	94	19.0 (62)	34.0 (112)
100	102	21.5 (70)	38.0 (126)

Area B

Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	75	13.5 (44)	24.0 (79)
10	82	15.0 (50)	27.0 (89)
25	91	17.5 (58)	32.0 (105)
50	99	20.0 (65)	36.0 (118)
100	107	22.0 (73)	40.5 (132)

Area F

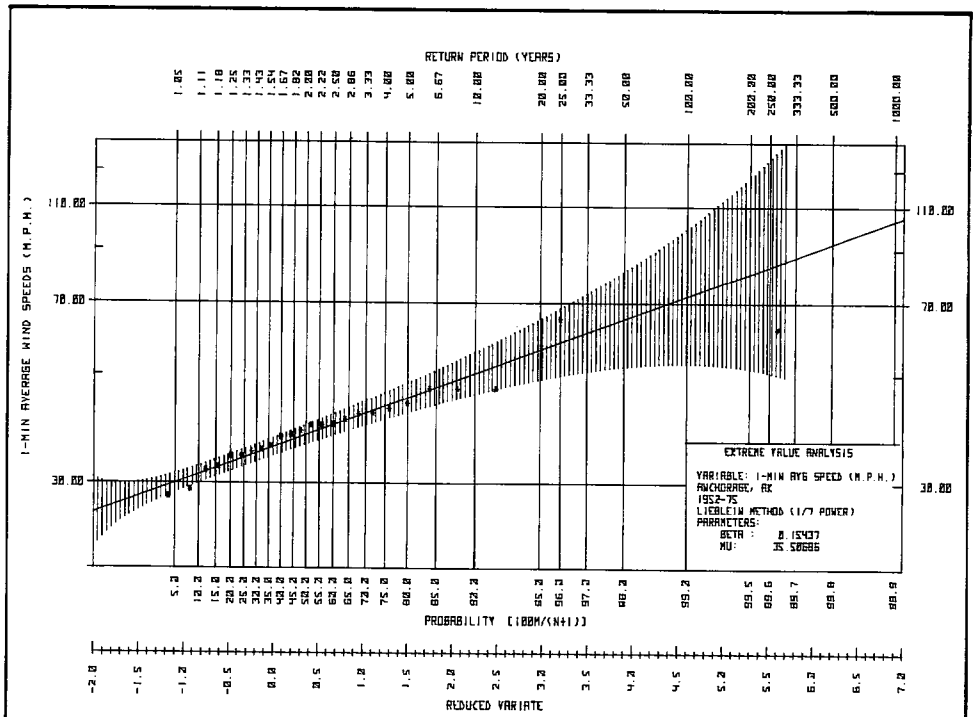
Return period years	Maximum sustained wind-knots	Maximum significant wave-meters (feet)	Extreme wave-meters (feet)
5	69	12.0 (40)	22.0 (72)
10	76	14.0 (46)	25.0 (82)
25	84	16.0 (53)	29.5 (96)
50	91	18.5 (60)	33.0 (108)
100	99	20.5 (67)	36.0 (121)

22 Annual maximum winds and waves for selected return periods—Marine areas

Legend

Annual maximum sustained winds for selected return periods

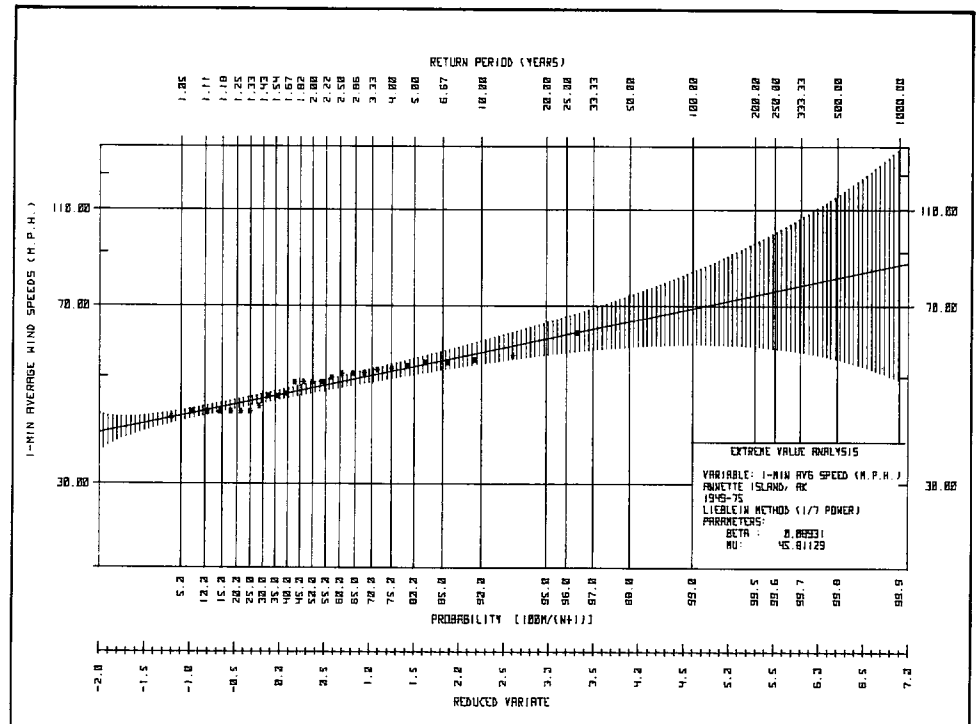
Values of annual maximum sustained wind speeds for selected return periods in years are presented in graphic and tabular form for selected coastal stations. For example, on the average Anchorage can expect annual maximum sustained wind speed to exceed 72 mph once in 100 years. Stated another way, the probability is 0.99 that the maximum sustained wind will be equal to or less than 72 mph; the probability of exceeding 72 mph in any year is 0.01 (the return period is the reciprocal of the latter probability). This is an estimate of the true 100-year return period value; the probability is 0.68 that the true 100-year value lies in the interval bounded by 53 and 99 mph.



STATION: ANCHORAGE, AK POR: 1952-75

RETURN PERIOD—YEARS

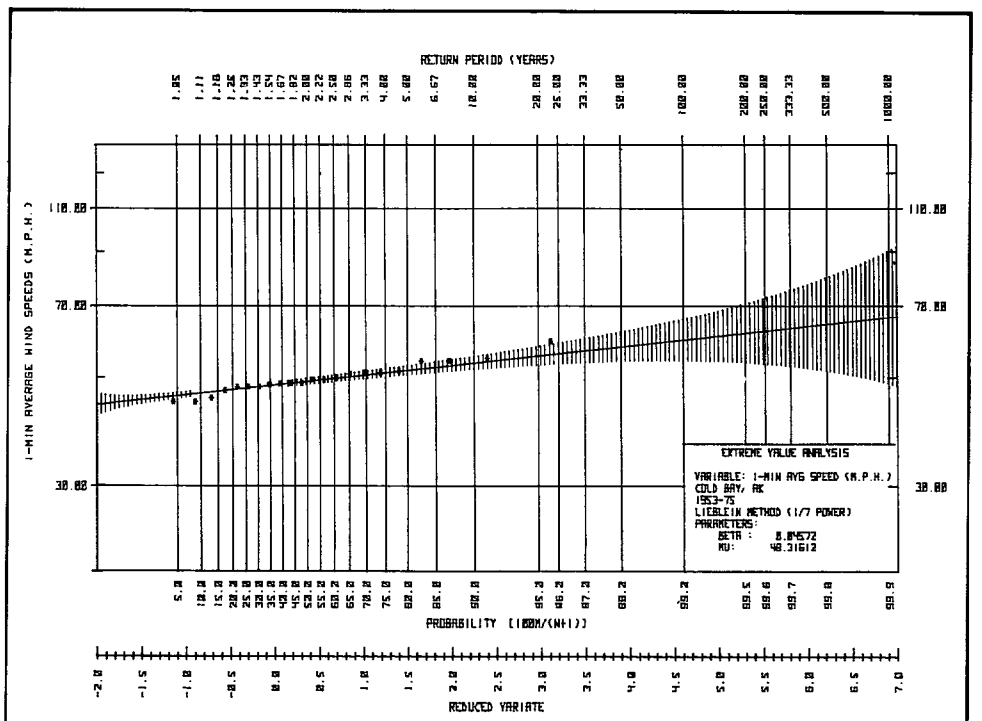
	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	39.32	48.03	55.52	68.11	81.04	98.99	125.57	279.35
WIND ESTIMATE (MPH)	37.57	44.76	50.26	58.18	64.85	72.23	80.42	103.13
LOWER BOUND (MPH)	35.90	41.71	45.49	49.70	51.90	52.71	51.50	38.07



STATION: ANNETTE ISLAND, AK POR: 1949-75

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	48.52	54.43	59.14	66.43	73.30	82.04	93.74	146.19
WIND ESTIMATE (MPH)	47.34	52.38	56.01	60.96	64.91	69.09	73.51	84.89
LOWER BOUND (MPH)	46.18	50.40	53.04	55.94	57.48	58.18	57.65	49.30

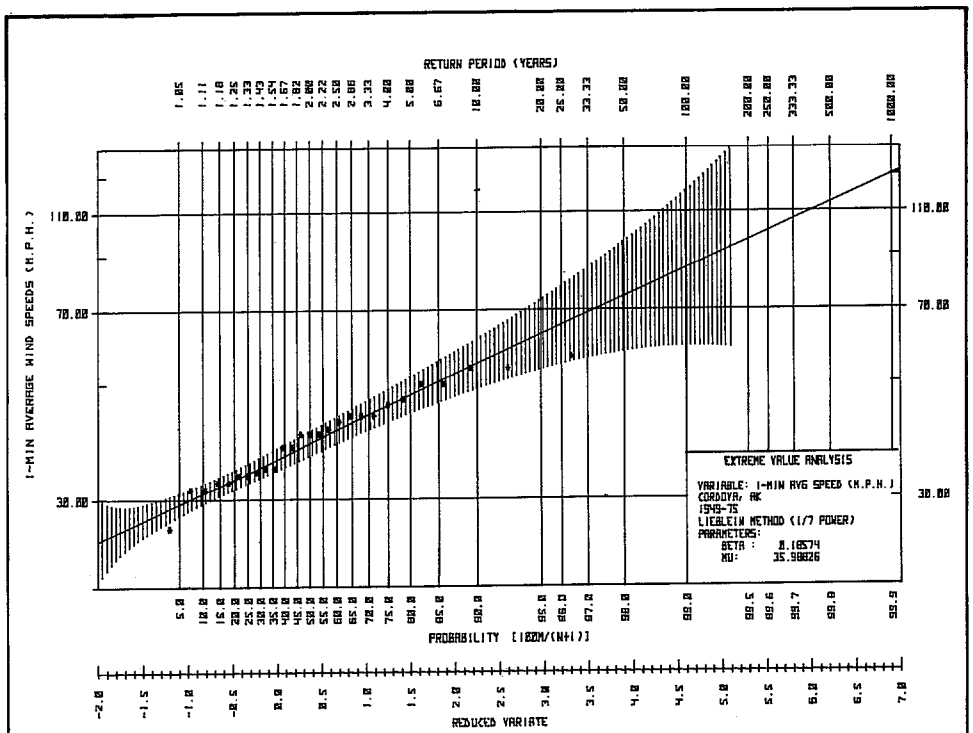


STATION: COLD BAY, AK POR: 1953-75

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	49.83	52.89	55.23	58.72	61.87	65.73	70.65	90.18
WIND ESTIMATE (MPH)	49.13	51.75	53.55	55.92	57.75	59.63	61.55	66.26
LOWER BOUND (MPH)	48.45	50.63	51.93	53.26	53.91	54.09	53.63	48.68

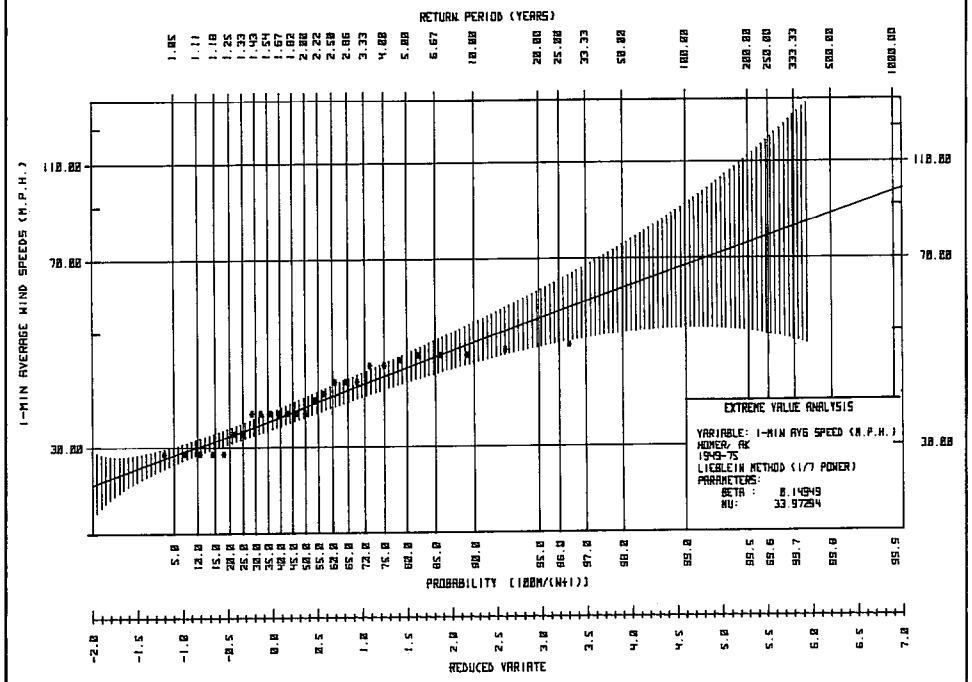
23 Annual maximum sustained winds for selected return periods



STATION: CORDOVA, AK POR: 1949-75

RETURN PERIOD—YEARS

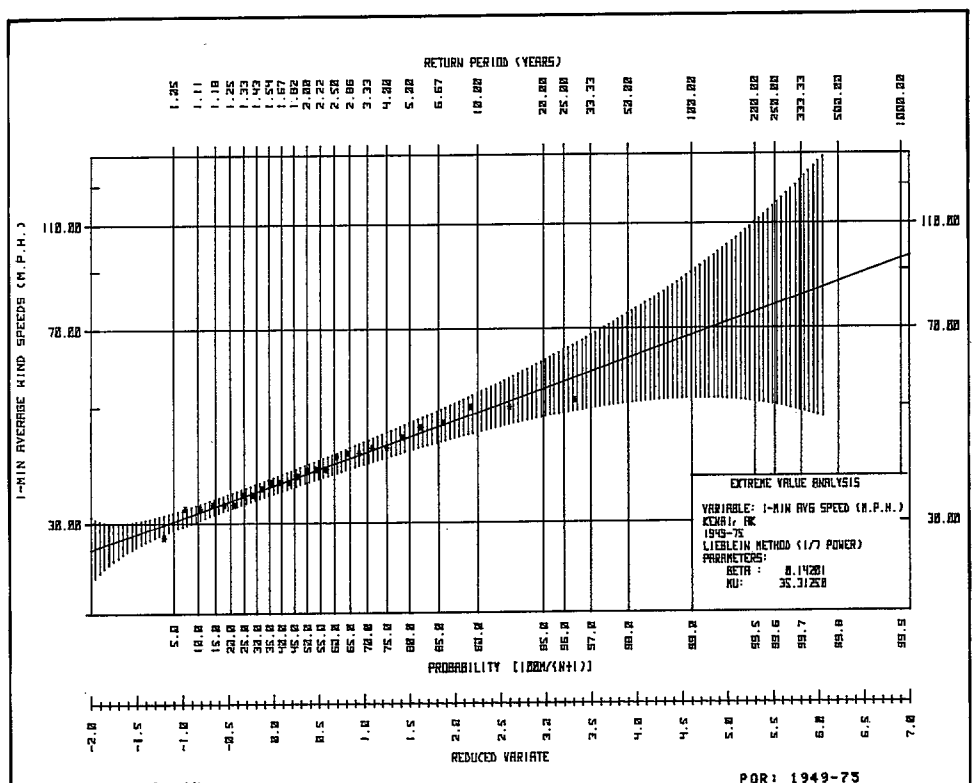
	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	40.56	51.52	61.21	77.95	95.65	120.91	159.55	402.01
WIND ESTIMATE (MPH)	38.52	47.55	54.66	65.19	74.29	84.57	96.24	129.82
LOWER BOUND (MPH)	36.59	43.89	48.82	54.52	57.69	59.15	58.05	41.92



STATION: HOMER, AK POR: 1949-75

RETURN PERIOD—YEARS

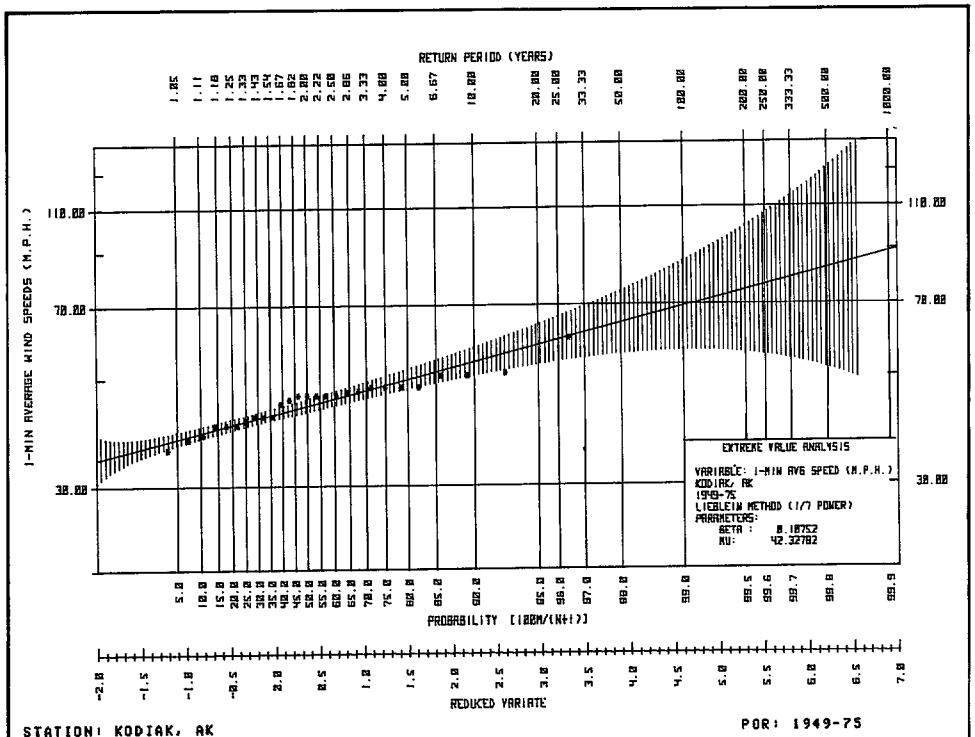
	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	37.41	45.34	52.09	63.28	74.61	90.10	112.63	236.97
WIND ESTIMATE (MPH)	35.89	42.51	47.56	54.80	60.88	67.58	74.98	95.41
LOWER BOUND (MPH)	34.43	39.86	43.42	47.46	49.67	50.68	49.92	38.41



STATION: KENAI, AK POR: 1949-75

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	38.70	46.45	53.00	63.76	74.56	89.19	110.25	223.49
WIND ESTIMATE (MPH)	37.20	43.70	48.61	55.62	61.46	67.86	74.91	94.17
LOWER BOUND (MPH)	35.76	41.10	44.58	48.51	50.66	51.64	50.90	39.68

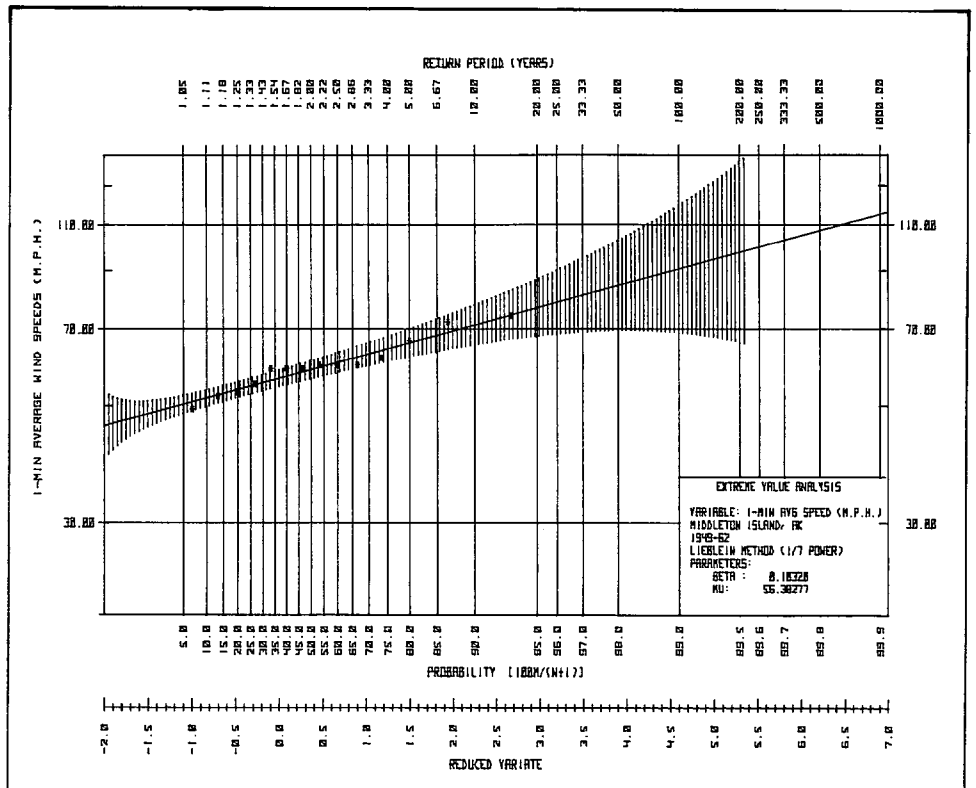


STATION: KODIAK, AK POR: 1949-75

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	45.36	52.10	57.56	66.21	74.54	85.37	100.23	171.13
WIND ESTIMATE (MPH)	44.03	49.74	53.91	59.70	64.39	69.41	74.80	88.95
LOWER BOUND (MPH)	42.73	47.48	50.50	53.83	55.63	56.44	55.82	46.24

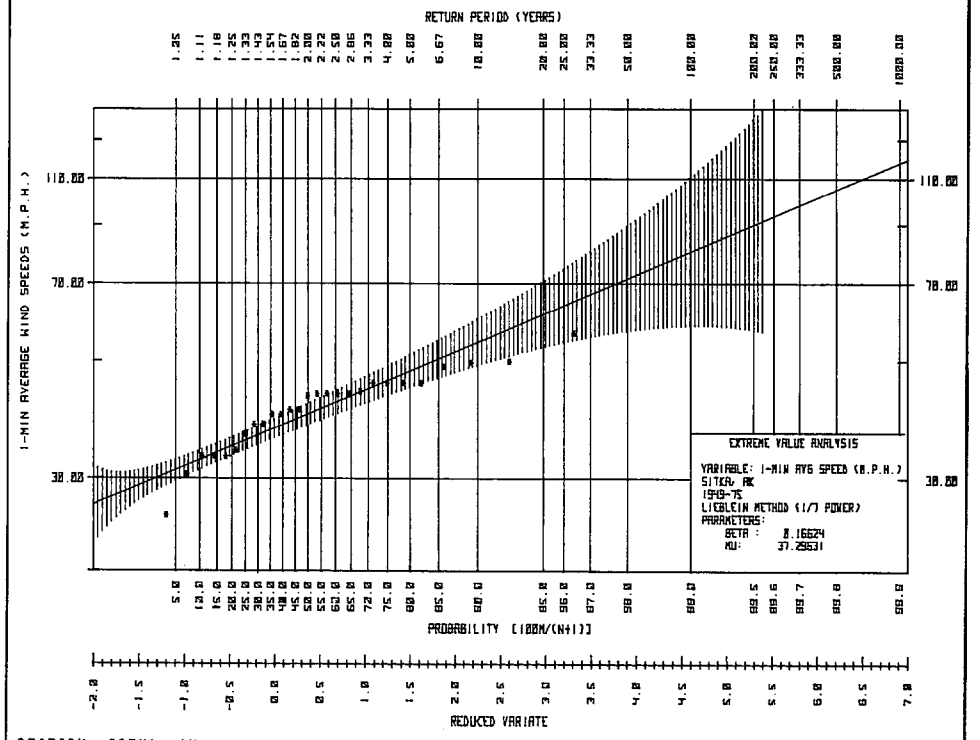
23 Annual maximum sustained winds for selected return periods (cont.)



STATION: MIDDLETON ISLAND, AK POR: 1949-62

RETURN PERIOD—YEARS

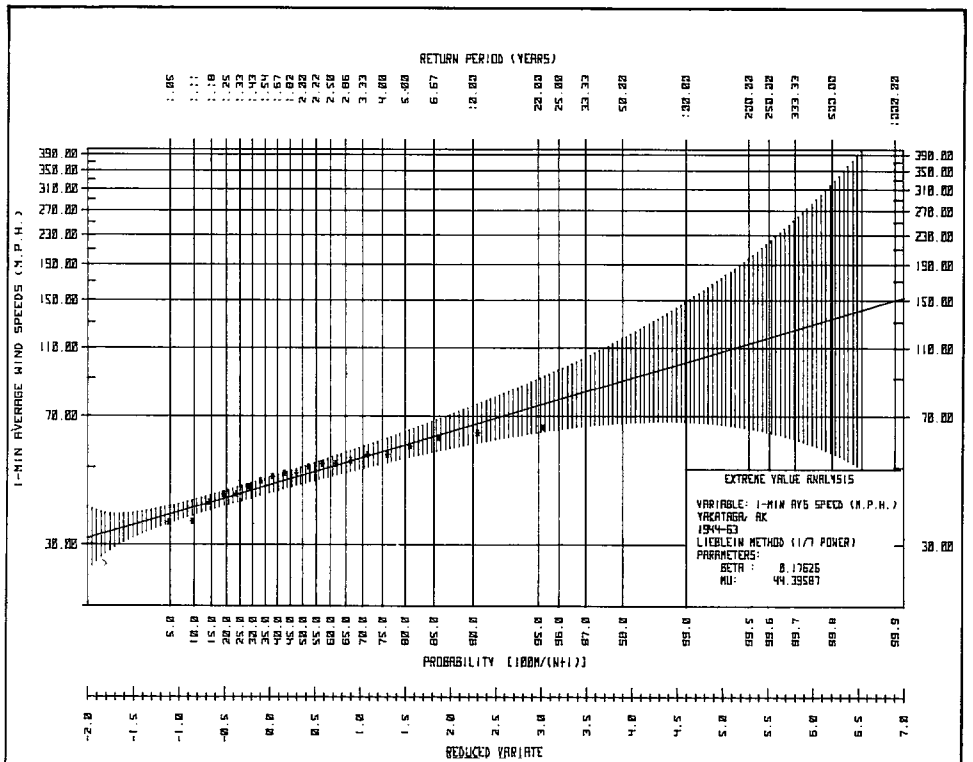
	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	60.93	70.02	77.61	90.03	102.50	119.43	143.85	275.13
WIND ESTIMATE (MPH)	58.56	65.82	71.12	78.43	84.34	90.64	97.39	115.01
LOWER BOUND (MPH)	56.27	61.88	65.18	68.33	69.40	68.79	65.93	48.08



STATION: SITKA, AK POR: 1949-75

RETURN PERIOD—YEARS

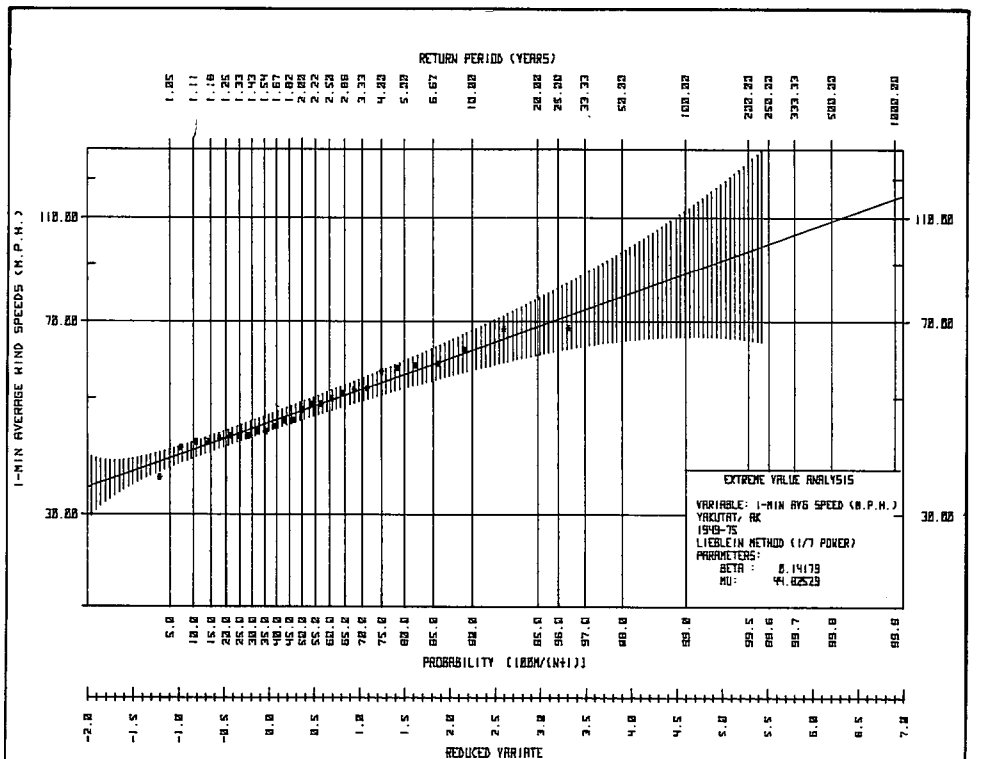
	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	41.51	51.42	59.99	74.49	89.46	110.34	141.42	323.40
WIND ESTIMATE (MPH)	39.64	47.86	54.22	63.47	71.35	80.13	89.95	117.59
LOWER BOUND (MPH)	37.85	44.55	49.00	54.09	56.90	58.19	57.22	42.75



STATION: YAKATAGA, AK POR: 1944-63

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	50.13	63.17	74.78	95.01	116.70	148.13	197.15	521.65
WIND ESTIMATE (MPH)	47.36	57.83	66.01	78.02	88.31	99.88	112.91	150.00
LOWER BOUND (MPH)	44.74	52.94	58.27	64.06	66.83	67.35	64.66	43.13



STATION: YAKUTAT, AK POR: 1949-75

RETURN PERIOD—YEARS

	2	5	10	25	50	100	200	1000
UPPER BOUND (MPH)	49.11	58.94	67.23	80.86	94.54	113.06	139.71	282.90
WIND ESTIMATE (MPH)	47.22	55.45	61.67	70.55	77.95	86.06	94.98	119.36
LOWER BOUND (MPH)	45.39	52.16	56.57	61.55	64.27	65.51	64.57	50.36

23 Annual maximum sustained winds for selected return periods (cont.)

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