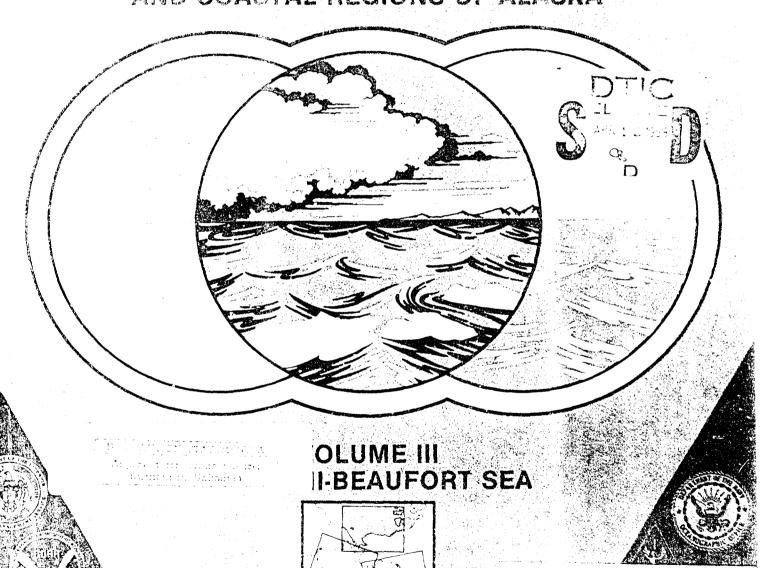
CL WATIC ATLAS

OF THE OUTER CONTINENTAL SHELF WATERS AND COASTAL REGIONS OF ALASKA



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READ INSTRUCTIONS REPORT DOCUMENTATION PAGE BEFORE COMPLETING FORM 2. GOVT ACCESSION NO. 3. RECIPIENT'S CATALOG NUMBER TITLE (and Subtitle) 5. TYPE OF REPORT & PERIOD COVERED CLIMATIC ATLAS OF THE OUTER CONTINENTAL SHELF REFERENCE REPORT WATERS AND COASTAL REGIONS OF ALASKA VOL III CHUKCHI-BEAUFORT SEA 4. PERFORMING ORG. REPORT NUMBER NAVAIR 50-10-553 7. AUTHOR(#) 9. PERFORMING ORGANIZATION NAME AND ADDRESS PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Naval Oceanography Command Detachment Federal Building Asheville, NC 28801-2696 1. CONTROLLING OFFICE NAME AND ADDRESS 12. REPORT DATE Commanding Officer 1988 Fleet Numerical Oceanography Center 13. NUMBER OF PAGES Monterey, CA 93943-5005

Montoring Agency Name & Addressyll different from Controlling Office) 15. SECURITY CLASS, (of this report) unclassified 154. DECLASSIFICATION DOWNGRADING 16. DISTRIBUTION STATEMENT (of this Report) APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED 17. DISTRIBUTION STATEMENT (of the obstract entered in Block 20, if different from Report) 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identity by block number) Marine climatology, isopleths, cumulative percentage frequency distributions, surface winds, visibility, cloudiness, precipitation, surface air temperature, surface pressure, relative humidity, persistance, inversion, tropopause, and refractive index gradient. 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This climatic study consists of monthly charts and tables of (1) clouds, (2) precipitation, (3) visibility-tables, (4) ceiling-visibility (mid-range/low range), (5) wind-visibility-cloudiness, (6) scalar mean wind speed, (7) wind speed less than 11 and greater or equal to 34 knots, (8) wind speed 11-21 and 22-33 knots, (9) surface wind roses, (10) air and sea temperature, (11) wave

height-isopleths, (12) wave height-tables, (13) surface currents (seasonal).

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U.S. DEPARTMENT OF DEFENSE NAVAL OCEANGGRAPHY COMMAND DETACHMENT ASHEVILLE, N.C. NAVY S/N 0850-LP-014-7000



U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL OCEAN SERVICE OFFICE OF OCEANOGRAPHY AND MARINE ASSESSMENTS OCEAN ASSESSMENT DIVISION, ALASKA OFFICE

CLIMATIC ATLAS



OF THE OUTER CONTINENTAL SHELF WATERS AND COASTAL REGIONS OF ALASKA

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NATIONAL CLIMATIC DATA CENTER • ASHEVILLE, NORTH CAROLINA
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ARCTIC ENVIRONMENTAL INFORMATION AND DATA CENTER, UNIVERSITY OF ALASKA • ANCHORAGE, ALASKA

1988

On the Authors

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Acknowledgments

The maps, graphs, and tables in the second section are the result of efforts by many people at NOAA's National Climatic Data Center (NCDC) in Asheville, North Carolina. Special acknowledgment is given to the following named meteorologists of NCDC's Climatological Analysis Division: Phala L. Franks, for performing the voluminous computer processing and editing of data: Michael J. Changery and Joe D. Elms, for their editorial evaluation of the isopleth analyses and graphics products; Richard W. Knight, for production of the cyclone track and sea ice statistics; Thomas R. Karl, for production of the wind and wave persistence statistics; and M. Lawrence Nicodemus, for production of the annual maximum wind and wave statistics. Appreciation is also extended to NCDC's meteorological technicians Charles W. Thomason, Jr. (for assisting in the isopleth analyses), and Elaine H. Mason (for assisting in the edit of the film graphics); and to NCDC's print shop technicians Claude A. Cochran and Berry K. Coleman for filming the numerous graphics and analyses maps.

The observations processed for most of the U.S. coastal stations were collected by the National Weather Service (NOAA), the Federal Aviation Administration, and the U.S. Navy, and routinely sent to NCDC for digitizing and archiving. The digital data for the U.S. Air Force (USAF) and Russian stations were provided by the USAF's Environmental Technical Applications Center in Asheville. The digital data for the Canadian coastal stations were purchased from the Canadian Climate Centre in Downsview, Ontario. Data summaries were made possible through programs designed at NCDC and funded primarily by the Commander, U.S. Naval Oceanography Command, in support of U.S. Navy's continuing marine climatology requirements, and by Department of Interior's Minerals Management Service in support of this

The extremes data in the first section were updated through 1984 from a published Alaska Climate Summaries done by AEIDC in another project, published Canadian normals 1951-1980, and data supplied by Drs. Howard Critchfield and Kelly Redman, state climatologists for Washington and Oregon. Joseph C. LaBelle, glaciologist and geomorphologist at AEIDC assisted in the preparation of Cook Inletice and

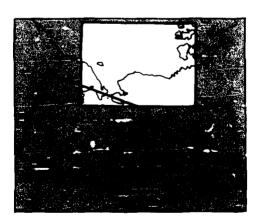
calving glacier ice in Volume I. Thanks also to Denise Cote for editing section I of all volumes and Laura J. Larson who was graphics project leader for the atlas and scheduled work on maps, charts, and text for all 3 volumes.

This revision was funded (under AEIDC contract #NE-EF3100-7-00240 with NOAA) in part by the Minerals Management Service, Department of the Interior, through an interagency agreement with the National Oceanic and Atmospheric Administration, Department of Commerce, as part of the Alaska Outer Continental Shelf Environmental Assessmant Program. Additional funding was provided by the Naval Oceanographic Command Detachment, Asheville, North Carolina.

Abstract

This project updates the knowledge of climatological conditions presented in the 197/publication of this three-volume atlas. Such environmental information for the three Alaskan marine and near-coastal areas is important for resource development of the outer continental shelf—The Gulf of Alaska (Volume I), the Bering Sea (Volume II), and The Chukchi and Beaufort Seas (Volume 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 give the means, extremes, and percent frequency of occurrence of threshold values for these elements: wind, visibility, present weather, sea level pressure, air and sea surface temperature, clouds, waves, and such supplemental information as storm surges, tides, sea ice, cyclone tracks, surface currents, bathymetry, detailed weather, and aviation weather. Data came from



4.5 million surface marine observations and 8.5 million observations for 66 coastal and island stations within the area 40°-84°N and 110°W-160°E, 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. This atlas is useful to those engaged in shipping, national defense, fishing, and applied research where a knowledge of coastal and offshore climate is essential. Weather information also aids in assessing the onshore impact of offshore activities.

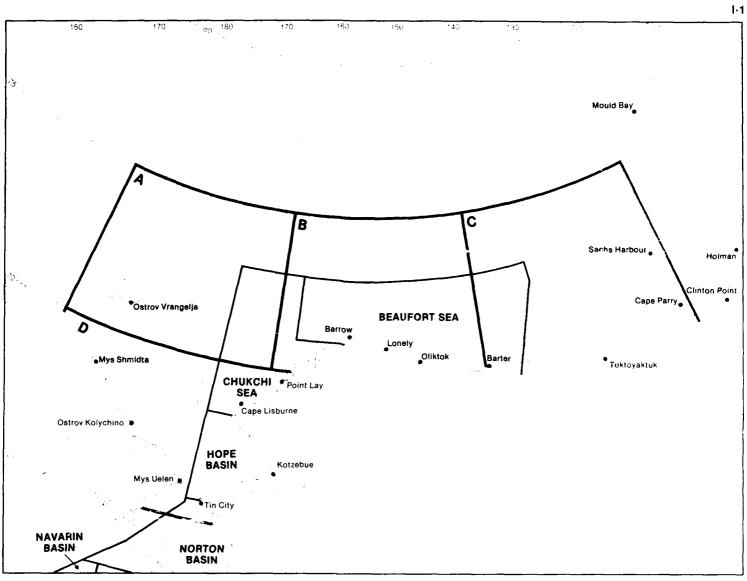
This atlas is the result of a joint effort by the Arctic Environmental Information and Data Center (AEIDC), University of Alaska and the National Climatic Data Center/National Oceanic Atmospheric Administration (NCDC/NOAA) to present descriptive climatology and data analyses of surface marine and atmospheric 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 atias for each of three marine and coastal areas. The Gulf of Alaska (Volume I). The Bering Sea (Volume II), and The Chukchi and Beaufort Seas (Volume 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 tides. The second section presents a detailed climatic profile in the form of isopleth analyses, graphs, and tables.

Section !: Selected Topics in Marine and Coastal Climatology

by James L. Wise and Lynn D. Leslie



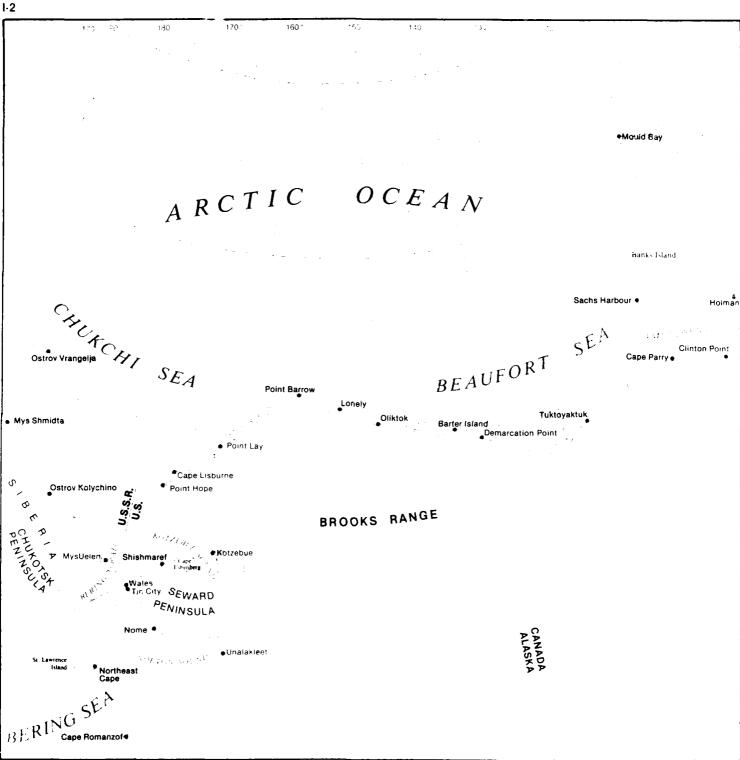


Figure 2. Place Names Map

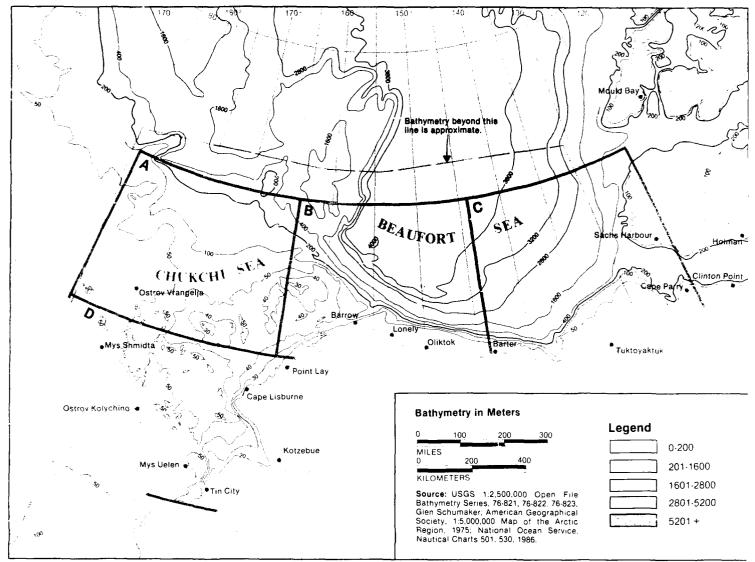


Figure 3. Bathymetry

Currents of the Chukchi and Beaufort

Chukchi Sea

A warm current enters the Chukchi Sea via Bering Strait and flows around Pt. Barrow to approximately 148°-152° W in the Beaufort Sea. Average rate of flow through the strait is 1.6 × 106m3/s. In the Chukchi, this current concentrates near the surface and overlies dense, relict bottom water trapped by the shallow depths. It has a fairly uniform velocity which averages 45 cm/s in the summer and 10 cm/s in winter (Arctic Institute of North America 1974). This flow has many meanders and eddies and is slowed somewhat by dominant northeasterly winds. This semipermanent flow is the dominant barotropic feature. To the east, in deeper waters, the warm water mass descends to mid-depths. Maximum temperatures are observed in 30- to 50-m depths.

Data from mid-depths indicate a northflowing current parallel to the shore, and to a marked degree, the bottom contours, with rapid shifts to the south (Rouse and Wiseman 1980). The along-shore component attains speeds as high as 70 cm/s but is typically on the order of 40 cm/s. The current, comprised of Alaskan Coastal Water and Bering Sea Water, hugs the east side of the Chukchi Sea. In the region of Cape Prince of Wales warm water is present farther to the northeast. The degree of penetration into Kotzebue Sound varies from year to year. Some of the water in Kotzebue Sound is believed to move southwest along the north shore of the Seward Peninsula approximately as far as Shishmaref before joining the general northward flow (Coachman, Aagaard, and Tripp 1975). Near Point Hope and off Cape Lisburne the flow bifurcates. One branch turns northnorthwest toward Herald Shoal, the other closely follows the Alaskan shore. Along the coast, data indicate that the current is quite narrow, approximately 37 km in places (Bourke and Paquette 1974).

Approximately 100 km offshore a warm current originating in the Bering Strait flows northeastward (Coachman et al. 1975). Farther north the current approaches the coast and flows through Barrow Canyon into the Beaufort Sea. Large-scale fluctuations in atmospheric pressure appear to influence the temporal variations in the transport (Mountain 1976).

There is a large anticyclonic eddy between the coast and the warm current (Ingham and

Rutland 1972). Within this eddy and the warm current, both surface and deep currents are strongly influenced by wind stress. Velocities lie along the same octant and are similar in magnitude. This implies a strong barotropic component in the flow (Ingham and Rutland 1972).

Nearshore current patterns and velocities are very complicated and variable because of coastal configuration, bathymetry, and winds. During southwesterly winds, warm surface waters pile up against the coast. Warm waters are displaced offshore and cooler water upwells along the coast during northeasterly winds. A baroclinic coastal jet may be present. Evidence supporting this current consists of alternation of near-surface current direction and simultaneous coastal setup and setdown, caused by Ekman divergence, in response to changing winds. This results in the transport of warm, low salinity, nearshore water and interaction with the Kasegaluk Lagoon waters. The coastal water mass properties are thus modified. Data suggests that due to strong winds, shallow bathymetry, large coriolis, and strong stratification, the baroclinic coastal jet probably dominates the coast from Cape Lisburne to Icy Cape during the summer months (Rouse and Wiseman 1980).

Nearshore lagoon water mixes with river runoff and with the coastal waters forced in by storms. Thus coastal water is freshened as well as warmed by solar radiation. Water within the lagoon becomes well mixed due to wind changes which weaken the vertical stratification.

Water movement from the Bering Strait to Cape Lisburne takes 10-15 days in the summer (Arctic Institute of North America 1974). Other known velocities are listed for the Alaskan Coastal Water. It moves north at 50-200 cm/s on the east coast in the Bering Strait (AEIDC 1975; Arctic Institute of North America 1974; Henkins and Kaplin 1966); 0-50 cm/s on the Siberian side (AEIDC 1975); 25 cm/s near Diomede Island (Arctic Institute of North America 1974); 50 cm/s near Cape Thompson (Arctic Institute of North America 1974); 15-25 cm/s for currents parallel to the coast, at the surface, (0-10 m) in the summer (Coachman et al. 1976); and approximately 30 cm/s near Icy Cape (Coachman et al. 1976).

Tidal currents are rotary and very weak in the Chukchi. They vary from .3 to .9 cm/s depending on the location and tidal stage. Nearshore the tidal currents appear to be small, on the order of 1 cm/s (Wiseman et al. 1974). Kotzebue Sound currents are mostly tide- and wind-induced. Velocities through and within the sound are very slow, averaging less than 0.1 cm/s.

Beaufort Sea

The large-scale clockwise Beaufort Gyre moves waters from the Canadian Basin westward in the deeper offshore regions. Gyre velocities reach 5-10 cm/s north of the Alaskan coast (Aagaard 1975). Another dominant circulation feature is the Alaskan Coastal Current, which enters the Beaufort Sea through the Barrow Sea Canyon. The jet then follows the 200-m isobath to approximately 152°W (Aagaard 1983; Thomas 1983). Velocities are usually on the order of 15-25 cm/s to the east, but the jet frequently reverses in direction, resulting in a lower net eastward movement of about 7 cm/s.

Surface waters in the Beaufort Sea are primarily wind driven. Flow is variable and responsive to meteorological forcing, with periods on the order of three to ten days. Wind forcing may decouple the upper layer from the subsurface flow to produce a reversed flow direction. Seaward of about the 50-m isobath the mean subsurface circulation pattern is predominantly eastward both summer and winter (Aagaard 1984).

This eastward flow, on the order of 10 cm/s. characterized by a temperature maximum, is called the Beaufort Undercurrent. Two water masses comprise the undercurrent flow—Alaskan Coastal Water, characterized by 5°-10°C temperatures and salinities of about 31%, and Bering Sea Water, which has a similar temperature maximum and typically has higher salinities. Temperature gradients associated with the Beaufort Undercurrent do not manifest as a frontal zone in the summer. In winter the temperature maximum disappears and the gradient is negligible.

The undercurrent originates in the Bering Sea and has been observed seaward of the 50-m isobath. This water has been observed as far east as 148°W, where it probably mixes with local surface water and becomes indistinguishable. Bering Sea Water can be traced as far east as Barter Island, at 143°W (Aagaard 1984; Lissauer et al. 1984).

The inner boundary of the flow follows the 40- to 50-m isobath and identifies the demarcation of the inner and outer shelves. The northern edge of the current is less clearly defined due to mixing with local water. The current is known to strengthen seaward of the 100-m isobath and to the east. Aagaard (1984) speculated that other water masses besides those originating in the Bering Sea contribute to the volume and strength of the flow.

The undercurrent extends from near surface to the bottom between the 50- and 2500-m isobaths, producing a band about 60-70 km wide. It may be the nearshore manifestation of a major boundary current which is part of the large-scale circulation within the Canadian Basin. The mechanism which drives the current is not clear, though it is probably not locally driven. Neither wind-driven, geostrophic flow, nor momentum flux upstream, maintained by inertial and momentum balance, are supported observationally. The momentum flux in the western basin from the Chukchi Sea through Barrow Canyon is probably important. One possible explanation for this mean eastward flow arises from differences in sea level between the Atlantic and Pacific (Aagaard 1981).

Nearshore currents tend to follow local wind patterns and bathymetry. In the western Beaufort prevailing winds are from the east-northeast during all seasons. The winds are more bimodal in the eastern Beaufort. During easterly wind events in both the eastern and western regions, transverse circulation would be predominantly offshore in the upper layer. During westerly wind events the flow pattern would be onshore in the upper layer and offshore at depth. Since the wind pattern varies with season, the resultant inner shelf, surface current pattern would be to the east in winter, with an onshore component, and to the west in summer, with an offshore component. There does

appear to be a net shoreward movement; at least within 10 km of the barrier islands (Matthews 1981).

The longshore transport of the inner Beaufort Shelf follows the bathymetry at approximately 15-25 cm/s (3% of the wind speed). In the western Beaufort the mean nearshore current is to the west. Occasional reversals will occur due to the passage of storm systems. In the eastern Beaufort the mean nearshore flow is to the west in the summer. Frequent reversals to the east in the fall and early winter are associated with storm systems which produce a high setup and transport (Barnes and Reimnitz 1974; Barnes et al. 1977; Drake 1977). Lissauer et al. (1984) provides mapped nearshore, wind-driven current estimates for regional stretches of the Beaufort Sea coast for varying wind directions and magnitudes.

Since land-fast sea ice is present out to approximately 25 km all but three months of the year, it is difficult to track the movement of surface waters except during the open water season. There seems to be little net motion of nearshore bottom currents under ice (Aagaard 1984). Generally the speeds are estimated to be less than 5 cm/s, or approximately 20% of the surface speed (Matthews 1981). The current direction is probably variable, but seems to be roughly wind driven, with dampened speeds and response times under the ice. These under-ice. winter currents are probably responses to coastal wind setup or, possibly, direct responses to atmospheric pressure gradients (Aagaard 1984). Thus, although energy and magnitude are dampened under ice, there appears to be a wind-driven component in the Beaufort nearshore current, year-round, which extends to the coast or to local barrier islands. A thermohaline vector component may be present nearshore, driven by the buoyancy gradient from freshwater runoff in early summer and possibly

a density-driven circulation associated with brine drainage in winter.

Considerable research has been accomplished in the central and eastern Beaufort in nearshore and lagoon regions (Hachmeister and Vinelli 1983; Matthews 1979). Observed currents in the lagoons and near shore appear to be predominantly wind driven, with current speeds approximately 3-4% of the wind speed. Superimposed on these mean, wind-driven currents are short-term effects of storm passages, and tidal effects dominated by diurnal (M2) forcing. Circulation patterns and exchange properties of nearshore and lagoon/barrier island systems on the eastern and western Beaufort Shelf show many dissimilarities. Observed differences may be attributable to differences in both coastal and lagoon geometries and their surrounding physical environments.

Three basic lagoon types appear on the Beaufort coastline. The first type is the open lagoon, i.e., those which are open to longshore transport as well as to cross-shelf exchange between multiple large openings in the barrier islands. The second lagoon type is the pulsing lagoon. The pulsing lagoon is closed to longshore current throughout; exchange with the nearshore waters occurs primarily via tidal pumping of water through the single major entrance in the barrier islands, with less exchance occurring through other shallow breaks. The third lagoon type is termed a limited exchange lagoon because it has only limited longshore current throughout, via several larger openings in the barrier island system. These lagoons may or may not exhibit pulsing effects due to tidal pumping. One or more small rivers or streams typically empty into each type of lagoon, providing a source of fresh water in early spring. Each lagoon type is discussed in detail in Lissauer et al. (1984), using specific geographic examples.

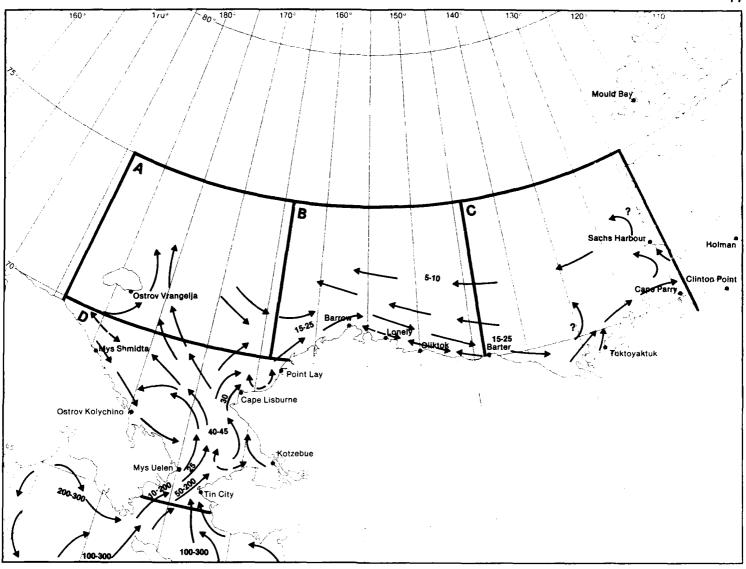


Figure 4. Sea Surface Currents - Summer

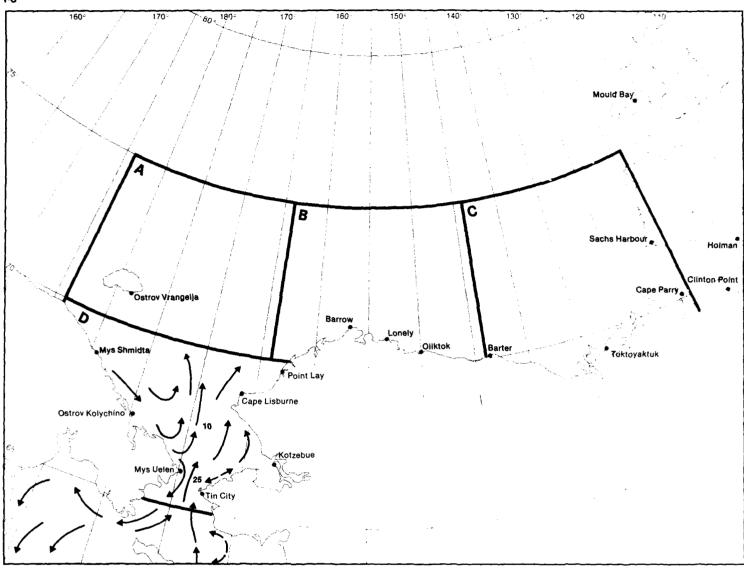
Legend

Beaufort and Chukchi Sea surface currents. Numbers indicate mean speed in cm/s. Arrows depict flow as follows:

← Prevailing current direction

← Variable current direction

Chukchi and Beaufort surface currents synthesized from Coachman, Aagaard and Tripp, 1975; Drury et al. 1981; Lissaver et al. 1984; and O'Rourke, 1974.



Legend

Beaufort and Chukchi Sea surface currents. Numbers indicate mean speed in cm/s. Arrows depict flow as follows:

Prevailing current direction

← — Variable current direction

Chukchi and Beaufort surface currents synthesized from Coachman, Aagaard and Tripp, 1975; Drury et al. 1981; Lissaver et al. 1984; and O'Rourke, 1974.

Figure 5. Sea Surface Currents — Winter

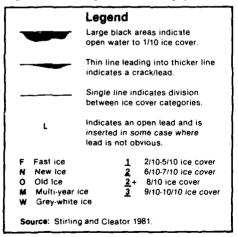
Sea Ice

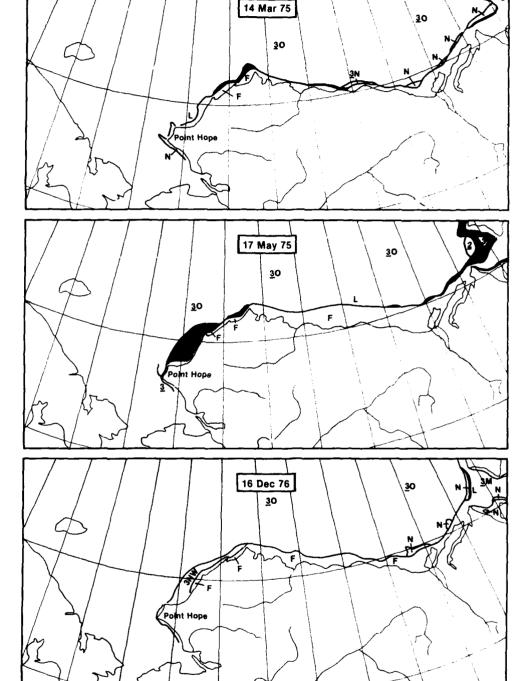
Introduction

The annual cycle of formation and dissipation of sea ice in Alaska waters has widespread effects on a number of phenomena. When the ice forms, the coastal climate changes in character from maritime to continental with much colder temperatures and lower humidities than would be the case if open waters were present. The ice also interferes with and even stops water transportation with the possible exception of icebreakers and other specially designed ships. It makes the cleanup of oil spills difficult, in oil impossible, by hampering cleanup operations and by trapping oil under the ice. Sea ice also has important effects on the cycles of living creatures in and near the sea.

The Chukchi sea remains virtually icecovered from the beginning of December into mid-May, with the exception of a relatively wide shore lead that may develop seaward of the shorefast ice along the northwest coast (Figure 6). This feature is particularly prevalent from Point Lay to Point Barrow during periods of strong easterly winds. Around mid-May the seasonal disintegration of the ice cover begins as shorefast ice and thin ice decay and loosen along the northwest coast and in the interior of Kotzebue Sound (Webster 1982; see map sets 17 and 18 in section II). It is not until the beginning of July that there is a significant reduction in the probability of ice cover in the southern Chukchi Sea. Ice generally stays close in to the coast at Point Barrow into late July and early August. Figure 7 shows the dates that the navigation season around Point Barrow to Prudhoe Bay is open. The length of the navigation season varies

Figure 6. Recurring Leads and Polynyas





from not open at all in 1975 to 99 + days in 1958. The median date for the initial opening of the route to Prudhoe Bay is August 2 and dates of openings varied from July 19 in three years to September 13 in 1955 (U.S. Navy 1986).

Recurring Leads and Polynyas

Wind and current stresses on the ice can cause tension or divergence and open relatively narrow, long stretches of open water in an otherwise dense ice cover. In the absence of strong currents the wind induces leads which run perpendicular to the wind direction. Flaw leads generally occur just seaward of the stable fast ice zone when strong offshore winds develop. The most notable flaw lead event along the Chukchi Sea coast of Alaska is the series of leads which opens each spring and allows whales to reach the Beaufort Sea. Leads open in response to easterly winds that usually occur in March or April.

An area of open water or thin ice is a common occurrence in the Point Hope vicinity (Carleton 1980) but the areal extent varies considerably from year to year. (Figure 8) This area is not necessarily a true polynya. In the early spring, any open water is often refrozen by the cold offshore winds which cause polynya formation. Furthermore, the opening can be very quickly closed by a reversal in the wind field. Therefore, although this area commonly experiences open water or light ice conditions, these circumstances cannot be anticipated with any degree of certainty (AEIDC 1983).

Fast Ice Boundary

Charts showing the fast ice boundary come entirely from the recent work of Stringer, Barrett, and Schreurs (1980), performed for the National Oceanic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program (OCSEAP). The objective of this project was to develop a description of nearshore ice along the Bering, Chukchi, and Beaufort coasts and to identify those features that may be a hazard to oil and gas development. LANDSAT imagery was used to develop regional maps for each year of the study. These yearly regional maps were used to determine average or typical conditions that were then recorded on seasonal maps. Information displayed on the seasonal maps was developed from winter and spring observations for the years 1973 through 1977

In presenting these data, Stringer, Barrett, and Schreurs noted that the fast ice zone can

Selected Sea Ice Data and Severity Index for the North Coast of Alaska 1053-1985

SEVERI RANK		YEAR	1 nmi	2 nmi	3 nmi	4 nmi	5 DATE	6 DATE	7 #DAYS	8 #DAYS
Mildest	1	1958	50	150	50	210	07/19	10/25	92	99 +
	ż	1968	25	165	30	200	07/19	10/18	86	91
	3	1954	20	115	20	210	08/01	09/30	38 +	61+
	4	1973	5	80	5	190	07/31	10/20	73	82
	5	1962	25	150	30	150	07/19	09/30	49 +	68 +
	6	1963	5	130	5	130	08/13	10/18	67	67
	7	1961	15	105	15	135	07/25	09/24	49+	62+
Years are	8	1979	0	125	0	125	08/04	10/08	31	56
listed in	9	1974	10	100	10	100	08/06	10/05	35	61
order of increasing	10	1978	5	70	30	95	07/25	10/09	35	76
severity	11	1977	5	55	25	85	08/02	10/15	63	74
based on	12	1959	20	65	20	65	07/19	10/06	42	86
parameters in columns	13	1982	0	85	0	95	08/03	10/10	21	69
2,4,5,7 & 8.	14	1972	0	60	30	90	07/31	10/01	45	63
	15	1957	5	45	70	60	08/01	10/06	18	67
	16	1981	0	0	35	100	07/26	10/01	0	66 +
	17	1985	0	36	0	53	08/01	10/15	22	52
	18	1967	15	0	30	50	07/25	10/12	UKN	68
	19	1966	5	0	5	45	08/01	10/22	24	65
	20	1984	0	25	0	50	08/11	10/15	21	42
	21	1965	0	10	0	70 +	08/25	09/25	25	32
	22	1980	15	25	15	25	08/05	09/30	11	42
	23	1953	0	0	5	35	07/27	09/16	5	52+
	24	1976	0	15	0	15	08/15	10/07	21	53
	25	1971	0	0	0	30	08/23	11/01	8	71
	26	1960	0	0	20 +	20	08/05	09/07	0	34
	27	1964	0	0	0	5	08/13	09/20	0	39
	28	1983	0	10	0	10	08/08	09/16	0	21
	29	1970	0	0	5	0	08/06	09/14	0	32
	30	1956	0	0	0	40	09/07	09/30	0	24
	31	1969	0	0	0	30	09/07	09/18	5	12
Most	32	1955	0	0	5	15	09/13	09/24	0	12
Severe	33	1975	5	0	5	0	NEVER	N/A	0	0

Column 1: Distance from Point Barrow northward to ice edge (10 August)

Column 2: Distance from Point Barrow northward to ice edge (15 September)

Column 3: Distance from Point Barrow northward to boundary of five-tenths ice concentration (10 August)

Column 4: Distance from Point Barrow northward to boundary of five-tenths ice concentration (15 September)
Column 5: Initial date entire sea route to Prudhoe Bay less than/equal to five-tenths ice concentration

Column 6: Date that combined ice concentration and thickness dictate end of prudent navigation

Column 7: Number of days entire sea route to Prudhoe Bay ice free

Column 8: Number of days entire sea route to Prudhoe Bay less than/equal to five-tenths ice concentration

Source: Navai Polar Oceanography Center, 1986.

Figure 7. Selected Sea Ice Data and Severity Index for the North Coast of Alaska (1953-1985)

vary by tens of kilometers from year to year, month to month, or place to place. This is particularly true off the Beaufort coast. In this area the fast ice boundary has been observed to range from the 20-m isobath to a point 30 to 40 km (20-25 mi) seaward. These extensions appear to be caused by an absence of winds, cur-

rents, and internal forces within the ice sheet that normally keep individual floes within the pack ice from freezing together. They noted that these calm conditions can persist for several weeks before sufficient forces exist for failure to take place along lines considerably closer to shore.

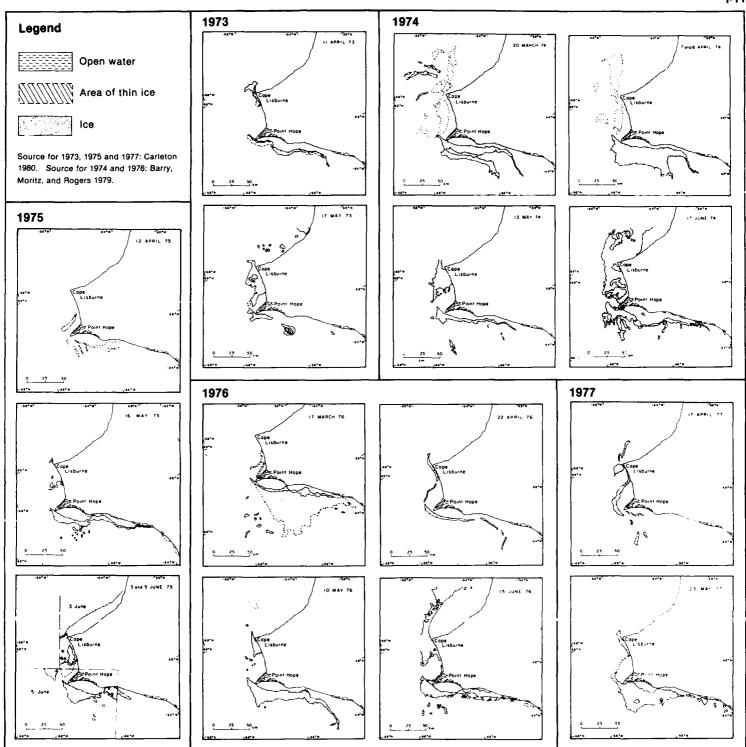


Figure 8. Flaw Leads in the Vicinity of Point Hope

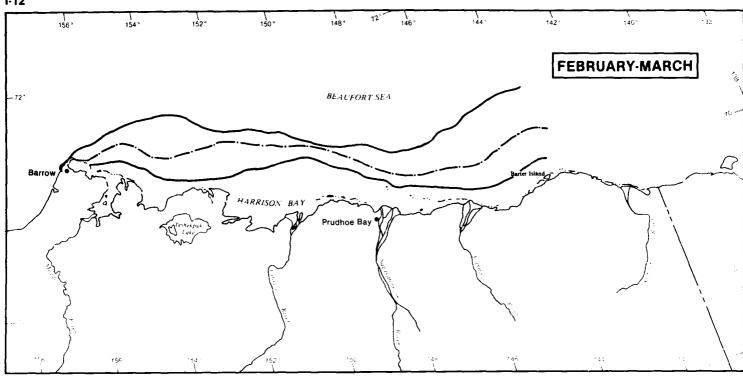


Figure 10. Seasonal Fast Ice Boundary - Beaufort Sea (February/March)

According to the World Meteorological Organization Sea Ice Nomenclature definition, fast ice includes all ice that has become attached to the shore, even multiyear pack ice. Therefore, the fast ice boundary displayed extends from a few meters to many kilometers from the coast and is not necessarily bounded by the shear ridge zone.

Fast Ice and Shear Zones

A common feature at the seaward boundary of the fast ice is an area of shear ridges. This feature is prominent along the Beaufort Sea coast, along the Chukchi Sea coast northeast of Cape Lisburne, and north of the Seward Peninsula between Wales and Shishmaref. Shear

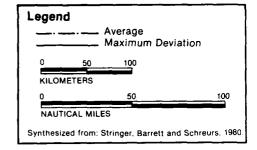
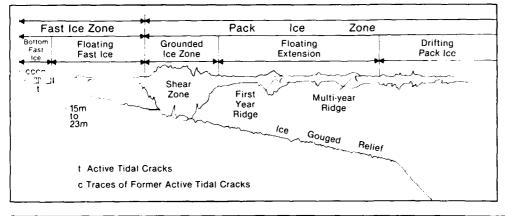
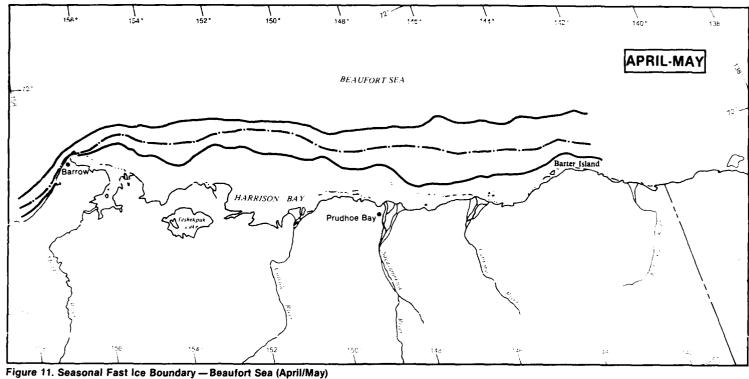


Figure 9. Sea Ice Zones and Types



ridges in the Bering Sea tend to be more localized and of lesser extent and magnitude than farther north. Figure 9 shows the nearshore ice types and interaction with the sea floor typical of the Beaufort Sea coast. Deep gouges in the sea floor are common in the shear zone since these ridges are often grounded. Typical water depth is approximately 20 m for the shear zone in the Beaufort Sea (Stringer, Barrett, and Schreurs 1980), but in the Chukchi Sea this zone usually migrates seaward as the winter progresses. Gouges in the sea floor can also be caused by multiyear ice pieces in the north and by heavily hummocked ice pieces (floebergs) in all areas except the southern Bering Sea.



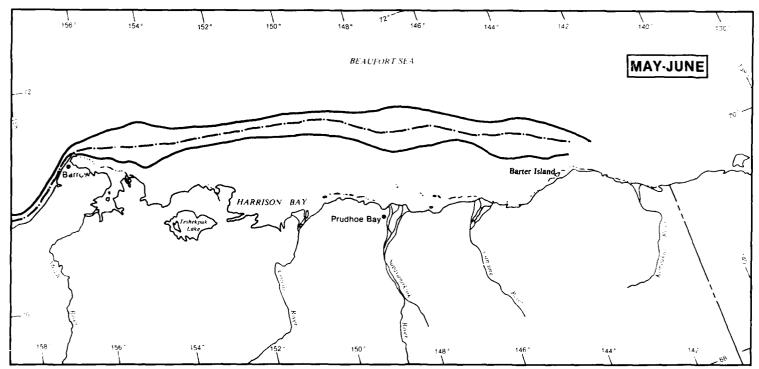
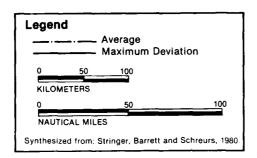


Figure 12. Seasonal Fast Ice Boundary—Beaufort Sea (May/June)



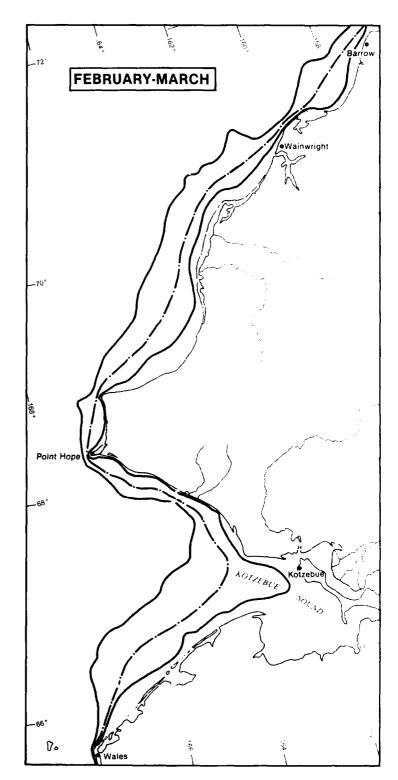


Figure 13. Seasonal Fast Ice Boundary—Chukchi Sea (February/March)

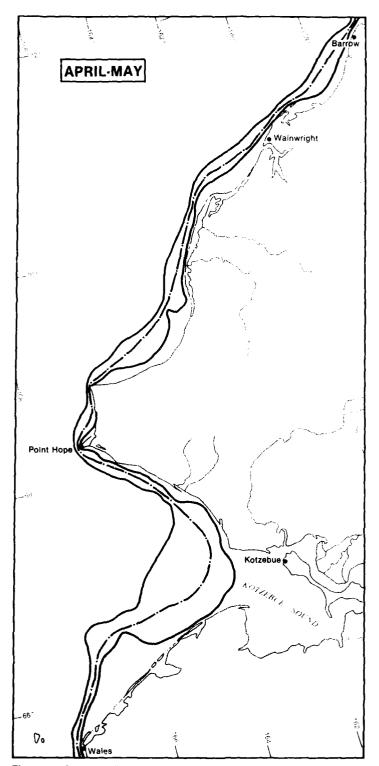


Figure 14. Seasonal Fast Ice Boundary—Chukchi Sea (April/May)

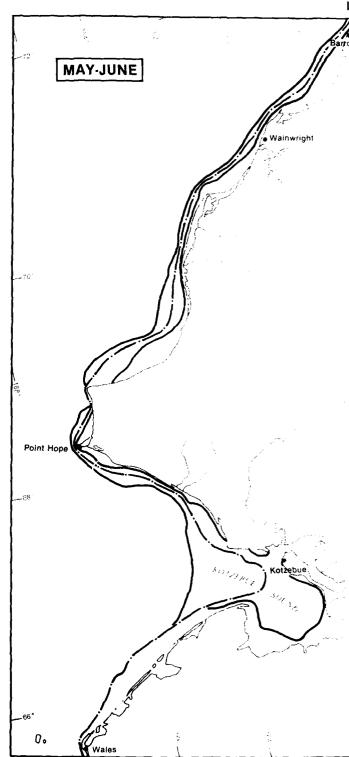


Figure 15. Seasonal Fast Ice Boundary—Chukchi Sea (May/June)

Tides

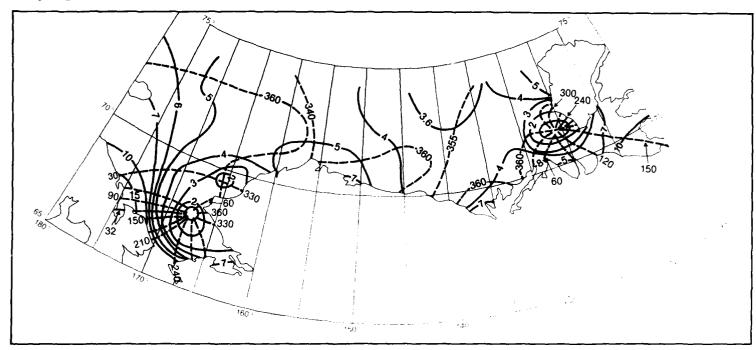


Figure 17. M₂ Tide, Cotidal, and Corange — Beaufort and Chukchi Seas

The practical study of tides, aimed at predicting surface elevations and times, involves the empirical treatment of observations made at the desired location over an extended period of time. The motion of the heavenly bodies, particularly the sun and the moon, relative to the earth is known with great precision, so the tide generating potential at any place and time can be computed. Mathematically the potential can be resolved into a finite number of strictly periodic components which, upon addition, produce the total potential of hundreds of tidegenerating components that are listed by various authors. Many of the components are of insignificant amplitude and can be excluded from consideration. In practice only seven components are widely used: four semidiurnal (M2, S, N, K, and three diurnal components (K, O, P.) (McLellan 1965). The names and relative weights of these components are shown in Figure 16.

Theoretical models of tides must be verified on the strength of observations at tidal stations where the tide wave has been distorted through passage over a continental shelf of complex topography. There have been some scattered

observations of tides along the Chukchi and Beaufort sea coasts around the turn of the century and in the last 20 years. All available data are considered too sparse to draw a consistent picture of the tide distribution in the Beaufort and Chukchi Seas. As an effort to partially rectify this situation, a pattern of the M, component was generated, using the equations of motion and continuity in spherical coordinates, by Zygmunt Kowalik and J.B. Matthews (1982). The results of

SYMBOL	NAME OF PARTIAL TIDE	COEFFICIENT RATIO
M,	Principal Lunar	100.0
s,	Principal Solar	46.6
N,	Larger Lunar Alliptic	19.2
K,	Luni-Solar Semi-Diurnal	12.7
ĸ,	Luni-Solar Diurnal	58.4
Ο.	Principal Lunar Diurnal	41.5
Ρ,	Principal Solar Diurnal	19.4
Contracte	d from table 15.1.	

Contracted from table 15.1, Elements of Oceanography (McLellan 1965).

Figure 16. Tide Generating Components

Legend

Cotidal (broken) and corange (continuous) lines of the M₂ tide. Phase angles (degrees) are referred to Greenwich (solar time); amplitudes are given in centimeters.

Source: Kowalik and Matthews, 1982.

their computations of cotidal and corange are shown in Figure 17. Keep in mind that the M component is not the whole tide but is the largest of the components going to make up the tide. Actual astronomical tide ranges are about half a foot along the Chukchi and Beaufort sea coasts from Cape Lisburne to Barter Island. The tide range in Kotzebue Sound is greater at 2 to 2½ ft and in the eastern Beaufort Sea and Amundsen Gulf tide ranges are slightly more than 1 ft.

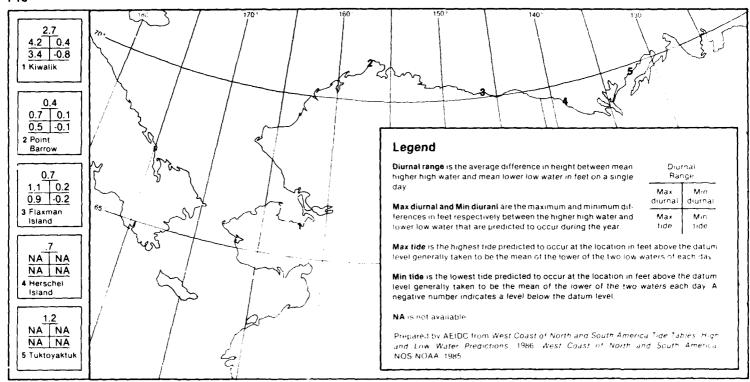


Figure 18. Tide Data

Storm Surges

Storm surges are oscillations in the period range of a few minutes to a few days, in a coastal or inland water body, resulting from forcing from atmospheric weather systems (Murty 1984). By this definition, wind-generated waves (often referred to as wind waves) and swell, which have periods of several seconds, are excluded. The spectrum of storm surge waves is centered around 10-4 cycles per second (CPS), which gives a period of about three hours. However, depending mainly on the topography of the water body and secondarily on other parameters, such as the direction of movement of the storm, strength of the storm, stratification of the water body, presence or absence of ice cover, and nature of tidal motion in the water body, the periods of the water level oscillations may vary considerably. Even in the same water body, storm surge records at different locations can exhibit different periods. Although storm surges belong to the class known as long waves, as do astronomical tides and tsunamis, there are at least two important differences. First, whereas tides and tsunamis occur on an oceanic scale. storm surges are simply a coastal phenomenon. Second, significant tides and tsunamis cannot occur in an enclosed, small, coastal or inland water body, but storm surges can occur even in lakes, or in canals and rivers. The range or height of a storm surge depends not only on characteristics of the storm but also on the topography onshore and bathymetry offshore. Shallow water bodies generally experience surges with greater ranges. Also, the height of a storm surge is less if the sea floor is steep than if there is a shallow slope to the sea floor (Murty 1984). Storm characteristics that effect the height of a surge include atmospheric pressure; wind speed, direction, and length of fetch; the latitude; and the direction and speed of storm movement. Air and water temperature differences also affect the height of surges.

Beaufort Sea Coast

The Beaufort Sea coast from Point Barrow east to Demarcation Point is of low relief, 15 ft or less, characterized by extensive deltas of major rivers and numerous smaller streams. The sea floor slopes gently to the 100 m line about 50 mi offshore. These hydrographic conditions are very favorable for storm surge flooding. The timing of storm surges in relation to high and low tide is generally irrelevant since meteorological tides or storm surges far exceed the astronomical tide ranges, which are less than a foot

(30 cm). Storm surges are more likely to occur from August to October, the open water season along the Beaufort Sea coast. In some years the ice is well north of the coast, allowing for a long fetch for westerly to northwest winds in storms moving west to east along a track well north of the coast. The variation in the extent of open water north of the coast determines to a large extent the development of the wind fetch needed for storm surges. In some years the ice never moves more than a few miles offshore and the open season is very short; e.g., the 1975 season. In other years the ice edge may be well over 100 mi offshore, allowing for a well-developed wind fetch and higher surges. Surges of a meter (3 ft) or so are quite common, and surges of over 3 m (10 ft) have been observed, particularly from driftwood lines. In 1970 a storm occurred which deposited driftwood on long stretches of beach up to a maximum height of 3.4 m (11 ft) above sea level. This event was judged by Reimnitz and Mauerer (1979) to be the highest surge at least since 1890 and possibly represented a 100-year event.

There have been several known cases of storm surges in winter in which cracking of ice occurred and water and ice have come onshore. The most likely tracks for storms that cause surges are from the Bering north-northeast through the Chukchi Sea, then eastward; or eastward from north of Siberia toward Banks Island. (Figure 19) Negative surges have also occured with high pressure and persistent easterly winds, which move water away from the coast to the right of the wind. These can be a hazard in shallow coastal areas such as Prudhoe Bay, where barges, etc., may ground with a negative surge. NOAA Nautical Chart, No. 3 (NOAA 1983), indicates possible negative surges of 0.8 m (2.6 ft) along the coast.

Chukchi Sea Coast

The northern part of the area is generally of low relief, covered with numerous shallow lakes from Point Barrow to Point Lay. The onshore terrain becomes more rugged south to Cape Lisburne and Point Hope. The topography is very rugged at the west end of the Brooks Range. Offshore the ocean floor is gently sloping, except for the areas west of Point Hope and northwest of Point Barrow.

The area most susceptible to storm surge flooding is north from Point Lay. Nearshore, sur-

face currents flow primarily toward the northeast, parallel to the coast. Strong southwest storm winds tend to accelerate this current causing a net transport of surface water to the right toward the coast. Storms moving from the west or southwest can develop sufficient fetch for surges up to 3 m (10 ft) during the ice-free period from July to October. Shorefast ice forms along the entire coast in late October and early November, and ice also forms over the open sea. thereby diminishing the occurrence of storm surges. Known cases of storm surge flooding have been from August to about mid-October. A surge up to 3.5 m (11 ft) occurred at Barrow in October 1963 and was judged to be a 125-year event. For the most part, surges of 2 to 3 m are considered to be 10-year events (Lewbel and Gallaway 1984).

Kotzebue Sound

The north shore of Kotzebue Sound is of moderate relief, becoming less rugged to the east and south. Offshore the sound is generally shallow, less than 20 m with the exception of a deeper channel offshore from Cape Espenberg. at the entrance to the sound. These conditions are favorable for the development of storm surges. Most storm surges occur in late summer and fall. From November to May the sound is generally ice-covered, which reduces the effects of storm surges. However, there have been several occurrences of flooding on top of the shorefast ice in the area. Storm tracks from surge-causing storms can be either from the south (from Bering Sea to southern Chukchi Sea) or from the northwest (from the open water north of Siberia to Kotzebue Sound). See Figure 19.

Northwest Coast of Seward Peninsula

Onshore topography is generally of low relief. A string of barrier islands lies offshore. Offshore bathymetry has variable slope, with the 20 m isobath anywhere from 5 to 25 mi offshore. Prevailing ocean currents are generally parallel to the coast near shore. Southwest winds in the eastern quadrant of storms moving northward tend to accelerate this current, causing beach erosion as well as storm surge. Storm surges and beach erosion are, for the most part, limited to the ice-free season from June to November.

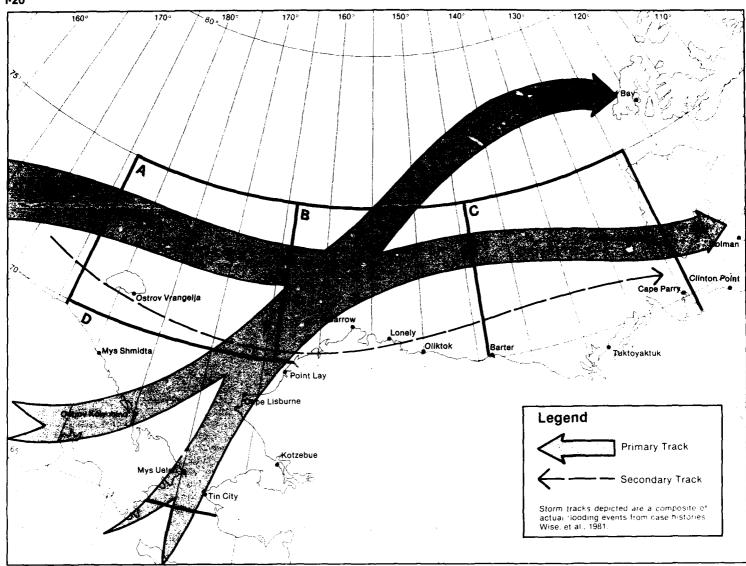


Figure 19. Storm Tracks with Storm Surge Floods

Superstructure Icing

Structural icing on ships, offshore structures, and port facilities is a wintertime hazard in open waters and coastal sections of Alaska. The icing causes slippery decks, renders moving parts inoperable, and, in extreme cases, causes uneven loading and raises the center of gravity on small ships. Accumulation of ice on rigging and on deck equipment such as crab pots also increases wind effects because a larger surface area is presented to the wind. Ice forming on structural surfaces above or close to a body of water arises principally from sea spray (Nauman and Tyage 1985; Liljestrom 1985), with lesser amounts from atmospheric precipitation (freezing rain and wet snow) and fog (arctic sea smoke, white frost, black frost). Sea spray, the most dangerous source of icing, is produced by the breaking of waves against obstacles such as ships' hulls, other floating objects, shore structures, and, possibly, other sources (Minsk 1977).

Statistical analysis (Borisenkov and Panov 1972) of more than 3,000 cases of ship icing indicates that in 86% of the cases icing was caused by ocean spray alone. Spray combined with fog, rain, or drizzle (liquid sources) accounted for only 6.4% of the cases, and spray combined with (solid source) snow only 1.1%. The cases of icing attributable only to fog, rain, or drizzle account for 2.7% (Minsk 1977). In the remainder of icing cases data were not sufficient to determine the cause.

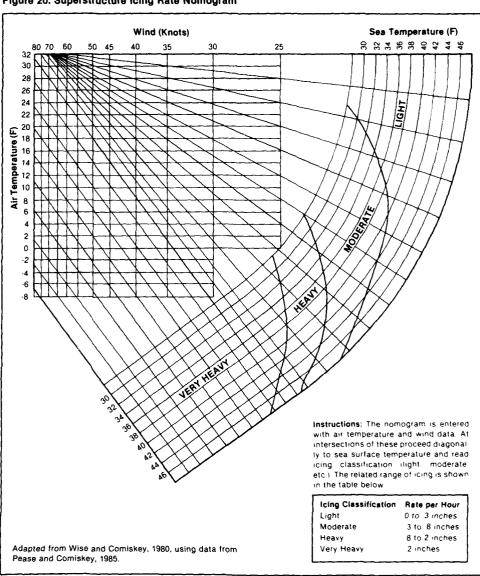
Since the overwhelming majority of superstructure icing on ships and offshore structures is from sea spray, the remainder of this section will concentrate on this type of icing. Since a ship can present different aspects to the wind and spray, it is to be expected that the amount of spray reaching the ship will vary: Russian observations (Kultashev, et al. 1972) showed that the greatest frequency of spray and, therefore, icing occurs when a ship is heading into the wind at an angle between 15° and 45°. Asymmetrical icing occurs under this condition, with the greater accumulation on the windward side. Less icing occurs with the ship headed directly into the wind, and then accumulation tends to be uniform. With ships heading downwind, spray icing is generally much less than at other angles. In developing the nomogram for forecasting spray icing potential, downwind cases (those for which the ship's heading was 120° or greater off the wind) were not used.

Meteorological/oceanographic conditions necessary for significant spray icing are water temperatures less than 8 °C, winds of 25 knots (13 meters per second) or more, and air temperatures less than $-2\,^{\circ}\mathrm{C}$ (28 °F, the freezing temperature of seawater of average salinity). Generally, the stronger the wind, and the colder the air and water, the higher the rate of icing on comparable vessels or structures. In some

cases, however, where the wind fetch is not sufficient to fully develop waves, icing rates are lower

The accompanying potential superstructure icing rate nomogram (Figure 20) is a modification of that shown in Wise and Comiskey (1980), using the open cases appearing in Pease and Comiskey (1985), developed

Figure 20. Superstructure Icing Rate Nomogram



from icing case histories in the Gulf of Alaska and southern Bering Sea. Icing intensities in inches per hour are also from Pease and Comiskey (1985). If a vessel experiencing icing takes evasive action (i.e., changes heading, reduces speed, seeks shelter, etc.), icing rates experienced would probably be less. The potential superstructure icing rate nomogram (Figure 20) was developed from icing case histories in the Gulf of Alaska and southern Bering Sea. We know of no set of case histories of icing north of the Bering Strait.

Kozo (1985), in assessing the possible occurrence of superstructure icing in the Chukchi Sea, shows no chance of spray icing in

the Chukchi Sea or, presumably, the Beaufort Sea from December through April because the entire area is covered with sea ice during those months. In May, moderate to heavy icing is possible just north of the Bering Strait under conditions of minimum sea ice extent, minimum air temperature, and winds over 28 knots. The possibility of moderate to heavy superstructure icing spreads northward in the Chukchi Sea to 72°N, with minimum sea ice, in June. In July, the air temperatures are too warm for more than light to moderate superstructure icing over all the area, except near the pack ice edge. Under extreme conditions of minimum ice and minimum air temperature, moderate to heavy

icing may occur north of 70°N. In August, as air temperatures begin to cool off in the Beaufort and northern Chukchi Seas, the possibility of moderate icing increases under extreme conditions of minimum air temperatures and pack ice extent, and winds of 28 to 50 knots. In September, the area in which possible heavy superstructure icing is greatest extends from the pack ice edge south to Cape Lisburne and the Siberian coast. Light to moderate icing is possible south to the Bering Strait under extreme conditions. By October and November, the seasonal advance of the pack ice limits the possibility of icing of all intensities to the Chukchi Sea.

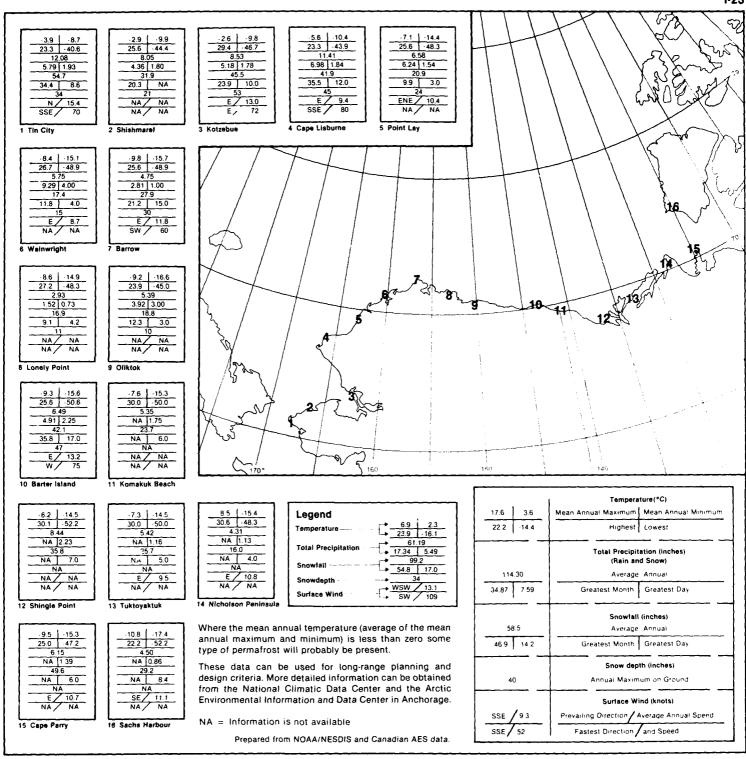


Figure 21. Climatic Means and Extremes

Hypothermia

Hypothermia is the cooling of the body's core temperature to 95°F or below. It can cause shivering, numbness, and disorientation. In the extreme it can cause death. The body loses heat gradually in cold, dry conditions, but quickly becomes hypothermic in wet conditions. Rain, immersion in cold water, and perspiration can all cause rapid heat loss. However, the evaluation and treatment of hypothermia, whether wet or dry, on land or water, is essentially the same, namely to warm the victim by whatever appropriate means are available.

The following discussion was taken in part from Peters (1982).

The body loses heat in five ways:

- A large amount of heat is lost from the body in respiration. Exhaled warm air is replaced by cooler inhaled air, producing a net heat loss. The amount of the net heat loss can be reduced by covering the mouth/nose with wool or fur, thereby "prewarming" the inhaled air as it passes through the material which has been warmed by exhaled air and by heat radiating from the body.
- Evaporation of perspiration from the skin and moisture from the lungs contributes greatly to the amount of heat lost by the body. Although evaporation cannot be prevented, the amount of evaporation (and therefore cooling) can be controlled. Wearing clothing that can be opened or removed easily for ventilation will let water vapor escape and not condense to liquid water in the clothing. Keeping clothing dry preserves its insulating value and reduces heat loss.
- Sitting on snow, touching cold equipment, and being rained upon are all examples of how I eat can be lost as a result of conduction. If an individual becomes wet a tremendous amount of body heat is lost rapidly. Deaths have occurred as a result of immersion in water below 40°F—body temperature could not be maintained. Although not as immediately serious, perspiration, rain, or wet snow should never be allowed to saturate articles of clothing, as this seriously reduces their insulating properties.

- Radiation causes the greatest amount of heat loss from the body from uncovered surfaces, particularly the head, neck, and hands.
 Coverage of these areas, therefore, is extremely important in keeping warm.
- The body continually warms (by conduction) a thin layer of air next to the skin. If the warm layer is removed by wind or air currents (advection), the body is cooled. The primary function of clothing is to retain this layer of warm air next to the skin by enclosing air in cell walls or between numerous fibers, while allowing water vapor to pass outward. Heat is lost rapidly with the lightest breeze unless the proper type of clothing is worn to prevent the warm air from being advected away.

Deaths have been attributed to a loss of body heat at temperatures of 40°F, with a 30 mph breeze. Under these conditions, the cooling effect on the skin is equal to that of much lower temperatures due to increased evaporation and convection. With lower temperatures and/or strong winds, cooling occurs even more rapidly. Wind protection and insulation (dead air space) can help ensure that body heat is retained at a safe level.

Treatment

Recognition and proper treatment of hypothermia must be prompt. Delays even after rescue can cost a person his life. Low body temperature is the best indication of hypothermia. Blood pressure and pulse are also good indicators. The pulse is generally slow and irregular, while blood pressure is low.

The hypothermia victim is pale in appearance, the pupils are constricted and react poorly to light, and respiration is slow and labored. He will usually be shivering violently, with frequent muscular rigidity. There may also be an appearance of intoxication.

Emergency treatment must begin as soon as possible to stop the drop in body temperature. Wet clothing should be removed. If the body temperature is 97 °F or above, no treatment other

than dry clothing and moving the victim to a warm area is generally necessary. If these are not available, the wet clothing should not be removed.

Combatting "afterdrop" in the core body temperature is extremely important. When heat is applied to the arms and legs, it causes those blood vessels to relax. This allows cold blood to flow back into the body core, further cooling the vital organs. Warming of the trunk of the body should be the prime concern.

During experiments in conjunction with the U.S. Coast Guard, researchers determined that the best warming technique was from the inside out, by having the victim breathe moist, warmed oxygen (Wilson 1976).

The next best treatment is a hot bath, with the water temperature between 90 and 100 °F. If a tub is not available, an inflated life raft could be used. If possible, the limbs should remain out of the water. When no tub-type facility is available, a hot (115 °F) shower while wrapped in towels or blankets is preferable.

When hot water for a tub or shower is unavailable, wrap the victim in blankets in a warm room with a heating pad or well-wrapped hot water bottle on the chest, or apply body warmth by direct contact with a rescuer.

Warm liquids may be given, but care must be taken to insure the victim is conscious and does not breathe the liquid into his lungs. Alcohol should never be given because it causes "afterdrop." Observe the victim's respiration closely and monitor for vomiting.

It has been learned in studies done in Alaska that victims of wet hypothermia can survive for a prolonged time in cases of deep cooling. Apparently, in the rapid cooling which occurs with wet hypothermia, physiological changes undergone by the body are more likely to be reversible than in the slower cooling of dry hypothermia. There have been victims of immersion hypothermia who were apparently dead but revived with proper treatment.

Wind Chill (Equivalent Temperatures)

The temperature of the air is not always a reliable indicator of how cold a person will feel outdoors. Other weather elements, such as wind speed, relative humidity, and sunshine (solar radiation), also exert an influence. In addition, the type of clothing worn, together with the state of health and the metabolism of an individual, influence how cold a person will feel. Cooling may be described as loss of heat from exposed flesh. Freezing occurs when there is such total heat loss that ice forms in the exposed tissues. The cooling power of the atmosphere (by wind) is primarily heat transfer by advection-in human cases, by exposure of uncovered flesh to the environment. Even small amounts of air movement have considerable chilling effect because this movement disrupts or removes the thin layer of warmed air that builds up near and about the body. This air movement leads to loss of total heat, since heat is transferred from the core of the body to rewarm the new colder air, replacing that blown away. Therefore, wind chill not on' leads to frostbite locally, but may contribute to general hypothermia.

During the antarctic winter of 1941 Siple and Passel developed a formula to determine wind chill from experiments made at Little America (Siple and Passel 1945). The formula relates heat loss (H) from an object or person to wind speed and to the difference in temperature between the air and the object or person (DT). It is measured in heat units (calories) per unit area over time. The skin temperature of most people is approximately 33 °C (91.4 °F). Heat losses for the human body can then be computed for any combination of wind and temperature. Equivalent temperature is based on calm conditions and a person walking vigorously at 3 knots (4 mph). Each combination of wind and air temperature produces a heat loss H. The equivalent temperature is that temperature that would compute the same heat loss at a wind of 3 knots. The accompanying chart, figure 22, shows equivalent wind chill temperatures in °C for various combinations of winds in knots or km/hr and temperatures.

Concepts in the following discussion of wind chill are from an appendix to an article by

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			Equivalent Chill Temperature																	
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(Flesh May Freeze Within 1 Minute)																				

Figure 22. Equivalent Wind Chill Temperature

Adapted from NWS/NOAA Technical Procedures Bulletin No. 165. Effective Temperature (Wind Chill Index) 1976.

William J. Mills, Jr., M.D., as published in Alaska Medicine (1973). Dr. Mills is still active in the treatment of cold injuries in Alaska.

Almost everyone knows that the increased speed of wind may cause increased danger of skin freezing. Many assume that the increase in wind speed causes the ambient air temperature to fall lower. This is not so. What does occur is air movement, so that warmed air is moved away from the individual exposed to the wind, causing first local, then general body cooling. Any resultant decrease of skin temperature is due to heat loss, insidious or sudden. Local vasoconstriction, vascular shunting, and cellular changes take place; eventually ice forms in the tissues, with true tissue freezing or frostbite.

This phenomenon can be readily proved. Place a laboratory recording thermometer with a thermistor attached (or any outdoor thermometer) out your car window on a calm day when the temperature is, say, $-20\,^{\circ}\text{C}$ ($-4\,^{\circ}\text{F}$)—just a nice winter day in Anchorage, Alaska. Let it sit for a few minutes until the temperature

reading has stabilized. This temperature, as read, will remain at the ambient air temperature level. Now slowly accelerate your vehicle to 80 km/hr (50 mph); the temperature remains unchanged at -20°C (-4°F). Now attach the thermistor to your bare hand. Place your ungloved hand out the same car window in the same ambient temperature of -20°C (-4°F). After a few minutes at 0 km/hr, the skin temperature may be read at approximately 93 °F (normal skin temperature in the nonsmoker). Your skin temperature will drop as heat is lost to the exterior, sometimes falling as low as 85° to 80°F very rapidly. As the car is accelerated and the warmed air layer is moved away, the thermistor records skin heat loss. If you continue driving, your skin temperature may drop to a level near 23°F (-5°C), the temperature at which freezing of skin may actually occur.

Wind chill may occur not only from natural wind, but also with air movement generated by automobile, snowmobile, aircraft, or helicopter rotoblade. These vehicles may predispose passengers to frostbite or general hypothermia

Section II: Marine and Coastal Climatic Atlas

by William A. Brower, Jr., Ronald G. Baldwin, and Claude N. Williams, Jr.

Marine and Coastal Climatic Atlas — Section II

William A. Brower, Jr. Ronald G. Baldwin Claude N. Williams, Jr.

The marine observations used in computing the statistics for the maps, graphs, and tables in this section of the three-volume atlas were taken from the National Climatic Data Center's (NCDC) marine surface data files which include the Comprehensive Ocean Atmosphere Data Set (COADS). COADS is the result of a multiyear effort by NOAA and the National Center for Atmospheric Research (NCAR) to provide a quality-controlled marine data set which incorporates data from a variety of global sources for 1854-1979. Those files are: TD-1170 for COADS and TD-1129 for 1980-1985. Because relatively little data exist for near-coastal zones, observations from 66 U.S., Canadian, and Russian coastal stations were combined with the marine data in order to present the best possible climatological picture of the outer continental shelf waters and coastal regions of Alaska, and adjacent Canadian and Russian regions.

Data for the U.S. and Russian stations were taken from the edited digital files of NCDC and the U.S. Air Force's Environmental Technical Applications Center (ETAC) in Asheville, North Carolina. Digital data from the Canadian stations were purchased from the Canadian Climate Centre in Downsview, Ontario. All data were subjected to thorough computer and visual quality control in order to eliminate duplicate observations and exclude questionable elements detected during internal consistency and extreme value checks.

The percentages of the summarized 4.5 million marine and 8.5 million coastal station land observations that contain basic weather elements are:

	Marine	Coastal Stations
Wind	93.8	99.1
Visibility	79.5	97.5
Present weather	82.8	95.7
Total cloud amount	79.6	97.3
Low cloud amount	67.4	57.4
Sea level pressure	93.5	89.7
Air temperature	94.4	98.6
Wet bulb temperature	59.4	97.7
Sea surface temperature	85.6	
Waves	65.4	_

The marine and coastal study area for which data were compiled and analyzed was expanded from 50°-80°N and 130°-180°W (in the 1977 atlas) to 40°-84°N and 110°W-160°E in order to afford greater coverage for each of the three atlas areas, with a minimum of overlap between areas. Element statistics (with observation counts) were generated for each of over 2.550 marine squares and 66 coastal stations within the study area, and then plotted by computer on monthly charts which have an albers equal-area conic projection. The marine plots were 1° latitude by 1° longitude squares for the latitude belt 40°-75°N and 1° by 2° areas for 75°-84°N. An analysis was performed on the entire marine and coastal study area in order to permit continuity between the three atlas areas. Meteorologists, aided by computer-drawn iscpleth contours south of 65°N, drew isopleths (lines connecting points of equal magnitude) on 420 monthly element maps, and made subjective adjustments to the analyses when data biases or insufficient observations were evident. They also performed consistency checks in the sets of monthly patterns for each element and among elements, as well as comparative checks with other marine atlases and publications (see Reference).

Although more than a four-fold number of marine data above 65°N was available for this presentation than for the same area in the 1977 atlas, the amount remained inadequate to permit a detailed isopleth analysis by meteorologists or by computer-contouring routines. This was especially true for the cooler months when seasonal sea ice prevented ships of opportunity from frequenting the area. Isopleth analyses for the Chukchi-Beaufort Sea area, by necessity, were based principally on the plotted coastal stations' statistics, extrapolations of weather patterns identified in isopleth analyses for the warmer months, the period of greater data availability, and other marine and continental atlases and publications.

To supplement the isopleth analyses, nearly 16,750 monthly statistical graphs, tables, and roses were produced for 50 of the 66 land stations, 16 representative marine areas, and 43 5° by 5° marine areas. The graphics represent the objective compilation of all available data; they were not adjusted for suspected biases, and differences may be found when comparing the graphics data with the isopleth analyses.

For each topic set, all months are grouped in calendar order with one or two pages preceding each set containing the legend and narrative for that set. The legends contain detailed instructions on how to read the graphics and provide remarks which aid in interpreting the data. The following paragraphs contain additional remarks which are likely to be of interest to those called upon to interpret the data and provide answers to specific operational questions. The table on page II-4 describes the data and marine areas for this volume.

A word of caution. The intent of this atlas presentation was to gather and present existing data on climatological conditions within the marine and near coastal areas of Alaska and adjacent Canada and Russia. The data are presented without discussion and interpretations. Given the information presented in the introductory text, legend descriptions with related text, and number of observations (with measures of variability for some) displayed with the graphics presentations, the user should be able to assess the degree of statistical confidence in the presented climatology for a given month and location.

Standard Deviation

Some of the graphs display 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 was computed using the expression:

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

where N is the number of observations in the sample and x_i is the ith realization of the random variable x.

Sea Ice

The ice isopleths presented in Sets 17-19 give the percent probability of finding ice of any kind, ice concentration of one-half coverage or more, and ice thickness of eight feet or more, within the Alaska study area. Actual concentration boundaries, under the influence of changing synoptic meteorological and oceanographic

situations, may vary widely from the averages. An isopleth label, therefore, does not explicitly define the conditions on either side of the line since presence of sea ice is discontinuous in nature and regions of 80% mean ice concentration may be bordering regions of 20% ice concentrations with no intermediate region of 50% ice concentration. However, the inherent continuity of persistence of sea ice features permit an isopleth presentation to provide meaningful information.

The sea ice data were derived from digitized weekly analyses of sea ice conditions based primarily on satellite imagery (90%) supplemented by ship and shore reports, and aerial reconnaissance. These weekly polar sea ice analyses have been operationally produced by the U.S. Navy/NOAA Joint Ice Center (JIC) since 1972. In 1981, JIC initiated a Sea Ice Digitization Program to digitize the weekly polar ice maps as they become available. NCDC was funded by the U.S. Navy to design software and digitize all weekly ice concentration charts available since 1972 and ice thickness charts available since 1980, and produce polar ice atlases based on data through 1982. The Antarctic Ice Atlas was published in 1985, and the Arctic West and the Arctic East Alases in 1986 (U.S. Navy 1986). The U.S. Navy also funded NCDC to accelerate the digitization of the West Arctic weekly charts through 1985 and produce the ice statistics presented in this atlas.

Low Pressure Center Movement

The roses and tracks of the low pressure center movement maps presented in Set 22 are based on 20 years of Northern Hemisphere track charts (January 1966 - December 1985) prepared by the National Weather Service's National Meteorological Center. These charts show cyclone tracks based on 6-hourly positions of closed centers. The NCDC was funded by the U.S. Navy to develop the software and digitize some 240 monthly cyclone track charts to permit inclusion of the statistics in this atlas. Frequencies of cyclone centers passing through 5° squares were analyzed by meteorologists within the 35°-80°N. 115°W-160°E area of 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.

Persistence of Wind and Waves

Duration and interval tables are presented in Set 23 for wind speed and wave height. Seasonal and annual tables contain objective

compilations for 23 grid points in the Gulf of Alaska and Bering Sea. The statistics are based on numerically-derived wind and wave data generated by NCDC using the Hindcast Spectral Ocean Wave Model (SOWM), developed by Dr. Willard J. Pierson and others, in producing U.S. Navy's SOWM Climatic Atlases for the North Pacific and North Atlantic Oceans (U.S. Navy 1985). No SOWM data were available to produce persistence statistics for grid points within the Beaufort Sea (Vol. III) area.

Episodes of durations (continuous hours or days) of events and episodes of intervals (continuous hours or days) between events were tallied for various thresholds. These tables give an indication of how long an episode is likely to last once it has begun. For convenience, the time an episode persisted above a given threshold is arbitrarily referred to as a "duration" of the event. The times between episodes have been termed "intervals." Data were summarized on a seasonal and annual basis because 12.5 years of hindcast data were considered too small a sample to provide representative durations and intervals for long episodes of wind and wave conditions on a monthly basis. The winter season is January-March; spring, April-June; summer, July-September; and autumn, October-December (World Meteorological Organization, 1981).

Return Periods for Maximum Winds and Waves

Tables of estimated maximum sustained wind speeds and wave heights for selected return periods are presented in Set 24 (Set 23 for Volume III) Estimates for winds are presented for 50 coastal stations within the 3-volume area and for 23 marine grid points within the Gulf of Alaska and Bering Sea areas (Vols. I and II). Hourly wind observations for the stations and numerically-derived wind and wave data generated by Pierson's Spectral Ocean Wave Model (SOWM) for the marine grid points were used in determining the wind and wave extreme estimates. No SOWM data were available for the Beaufort Sea (Vol. III) area. Following the method outlined by Lieblein (1954, 1974a, 1974b), these estimates were obtained by initially fitting an extreme value distribution to each station and marine grid point sample containing N maximum monthly or annual wind speed or wave height 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 has the form:

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

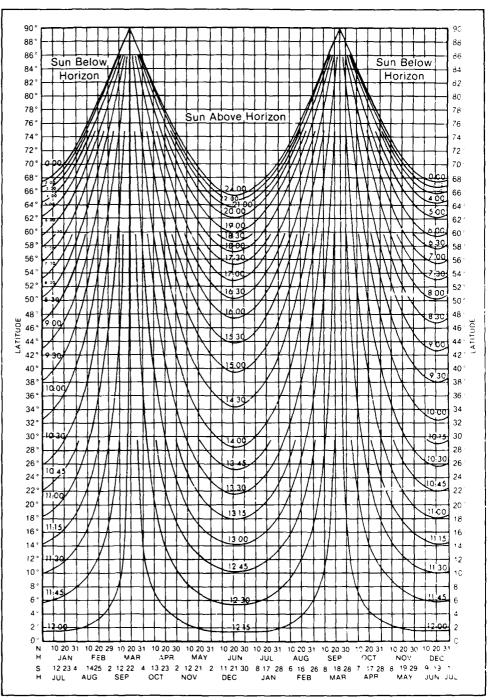
where F(x) is the probability that our observations are equal to or less than the specified value x, μ is the mode, and β is the scale parameter. Since the wind data were transformed logarithmically, μ and β refer to the transformed data, not to the wind maxima. The values given in the tables of Set 24 are the result of applying the natural logarithms of the N annual extreme wind to the extreme value model, determining the μ and β for each data set, and them exponentiating the logarithms of the estimates to give the probability estimates in knots. The wave data were not transformed logarithmically and, therefore, μ and β are in feet.

Graphic presentations similar to Figure 1 of Set 24 were drawn for each month and for the annual values, and are available on microfiche at the NCDC. The year/month extreme data for each station and marine grid point are aiso available on magnetic tape. These presentations provide a visual indication of the "goodness of fit" of the model to the data. The confidence limits shown by the envelope of lines about the line of "best fit" represent the level of uncertainty in the extreme value estimate corresponding to a given probability. For this study, 68% confidence limits were computed. This means that in 68% of repeated samples, the true extreme value will be contained within these limits.

Duration of Daylight

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 23. Duration of Daylight



Volume III

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

Land Stations	Lat.(°N) Long.(°V		Data Processed	No. of Obs.	No. of Obs/Day	
Barrow	71.3	156.8	Jul 1948-Apr 1985	221,998	8-24	
Barter	70.1	143.6	Jan 1949-Apr 1985	215,560	8-24	
Buhta Ambarchik*	69.6	162.3E	Jan 1959-Dec 1963; + Jan 1969-Apr 1985 +	35,323	8	
Cape Billingsa*	69.9	176.1E	Jan 1959-Dec 1963; Jan 1969-Apr 1985 +	32,418	8	
Cape Lisburne	68.9	166.1	Aug 1952-Dec 1971; Jan 1973-Apr 1985	246,746	19-24	
Cape Parry	70.2	124.7	Jan 1956-Dec 1983	231,514	8-24	
Cape Young*	68.9	116.9	Jan 1953-Oct 1967	9,873	2	
Cetyrehstolbovoj*	70.6	162.4E	Jan 1959-Dec 1968; Jan 1973-Apr 1985	48,062	8	
Clinton Point	69.6	120.8	Jan 1973-Dec 1983	53,551	4-24	
Holman	70.7	117.8	Jan 1958-Dec 1983	51,523	4-24	
Komakuk Beach*	69.6	140.2	Aug 1973-Dec 1983	17,185	4-8	
Kotzebue	66.9	162.6	Jan 1945-Apr 1985	255,392	8-24	
Lonely	70.9	153.2	Jul 1957-Apr 1985	40,243	4	
Mould Bay	76.2	119.3	Jan 1953-Dec 1983	133,752	8-24	
Mys Shmidta	68.9	179.5	Jan 1959-Apr 1985 +	55,146	8	
Mys Uelen	66.2	169.8	Jan 1959-Apr 1985 +	55,053	8	
Nicholson*	69.9	129.0	Aug 1973-Dec 1983	17,123	4-8	
Oliktok	70.5	149.9	Aug 1957-Apr 1985	38,955	4	
Ostrov Kolychino	67.5	174.6	Jan 1959-Dec 1963; Jan 1969-Apr 1985 +	33,418	8	
Ostrov Ratmanova*	65.8	169.1	Jan 1959-Dec 1963; Jan 1969-Sep 1984 +	13,838	4	
Ostrov Vrangelja	71.0	178.5	Jan 1959-Dec 1968; Apr 1970-Apr 1985 +	51,312	4-8	
Point Lay	69.7	163.0	Aug 1957-Apr 1985	38,643	4	
Sachs Harbour	72.0	125.3	Nov 1955-Dec 1983	129,276	8-24	
Shingle Point*	68.9	137.3	Aug 1973-Dec 1983	17,155	4-8	
Tin City	65.6	167.9	May 1953-Dec 1971; Jan 1973-Apr 1985	246,842	19-24	
Tuktoyaktuk	69.5	133.0	Jan 1958-Dec 1983	38,032	4	
Valkarkay*	70.1	171.0E	Jan 1959-Dec 1968; Jan 1973-Apr 1985	35,460	8	
Zaliv Kresta*	66.4	179.1	Jan 1960-Apr 1985 +	54,124	8	

⁺ Period excludes Jul 1971-Dec 1972.

^{*}Stations used for isopleth analyses only; no graphics produced.

Representative Marine Areas	Lat.(°N)	Long.(°W)	Da'a Processed	No. of Obs.	
Α	70-75	164W-176E	1878-1984	9,403	
В	70-75	144-164	1916-1984	24.845	
С	Coast-75	124-144	1950-1984	32,883	
D	65-70	Coast-Coast	1878-1984	11,925	

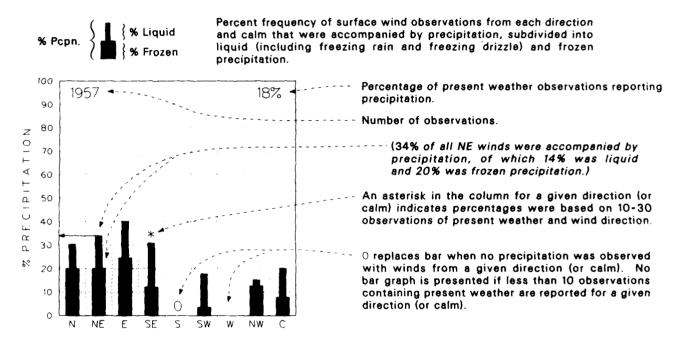
Map 1. Precipitation

BLACK LINE - Percent frequency of observations reporting precipitation.

BLUE LINE - Percent frequency of precipitation observations reporting frozen precipitation.

Albers Equal-Area Conic Projection

Graphs: Precipitation/wind direction



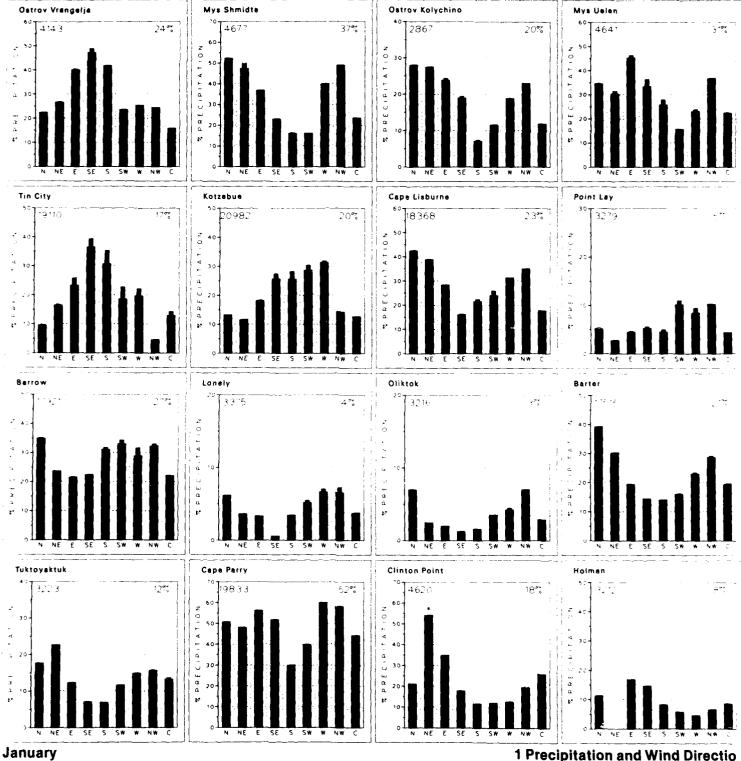
The percent frequency of observations reporting frozen precipitation for a given point on a monthly isopleth map can be determined by multiplying the percent frequency of observations reporting precipitation (BLACK LINE) with that of precipitation observations reporting frozen precipitation (BLUE LINE).

Of the elements recorded in the historical marine data base, precipitation is one that is most subject to error in both the wa it is observed and the way it is interpreted. It is often implied in the literature that ships often try to avoid foul weather an thereby bias the oceanic climatology towards fair weather. A recent study by Elms (1986), in which he compared the Voluntee Observing Ship (VOS) data to Ocean Station Vessel (OSV) and buoy data, concluded there is little evidence that "fair weather bias" is a serious problem for most applications of marine climatic data.

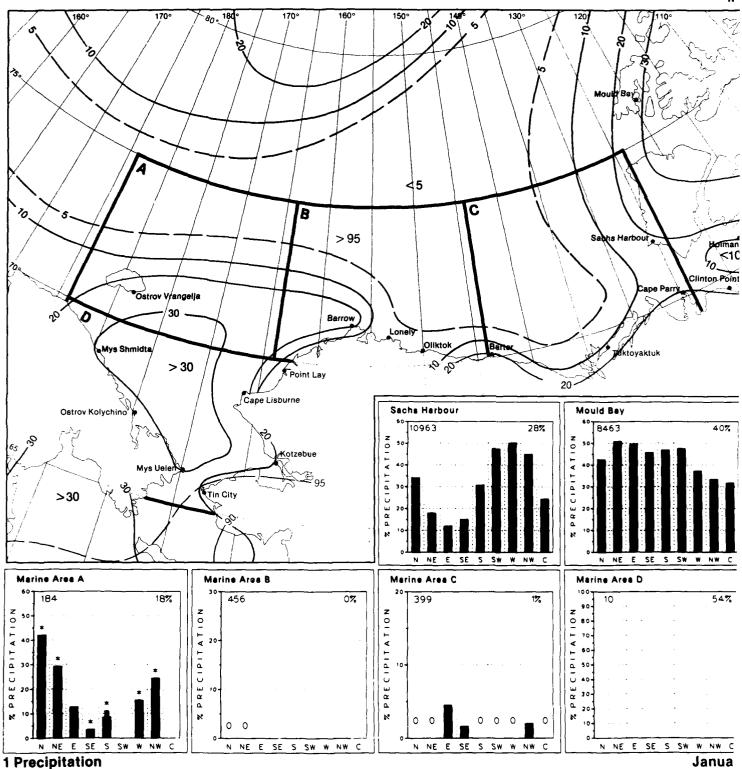
Assessing oceanic rainfall data is a major problem because transit ships are unable to take quantitative precipitatio measurements. A number of studies have been conducted in efforts to predict precipitation amounts, or rates of fall, based c estimates derived from the use of present weather observations from ships of opportunity (Goroch, et al., 1984) and reading from satellites (Rao, et al., 1976). Refer to the text and table in Set 2 for additional information about precipitation.

1 Legend

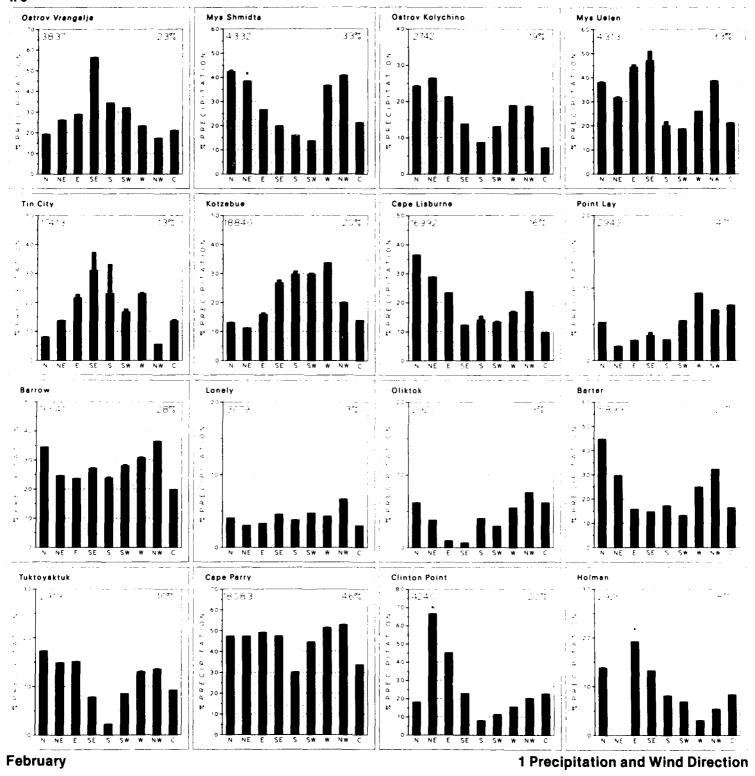
Legend

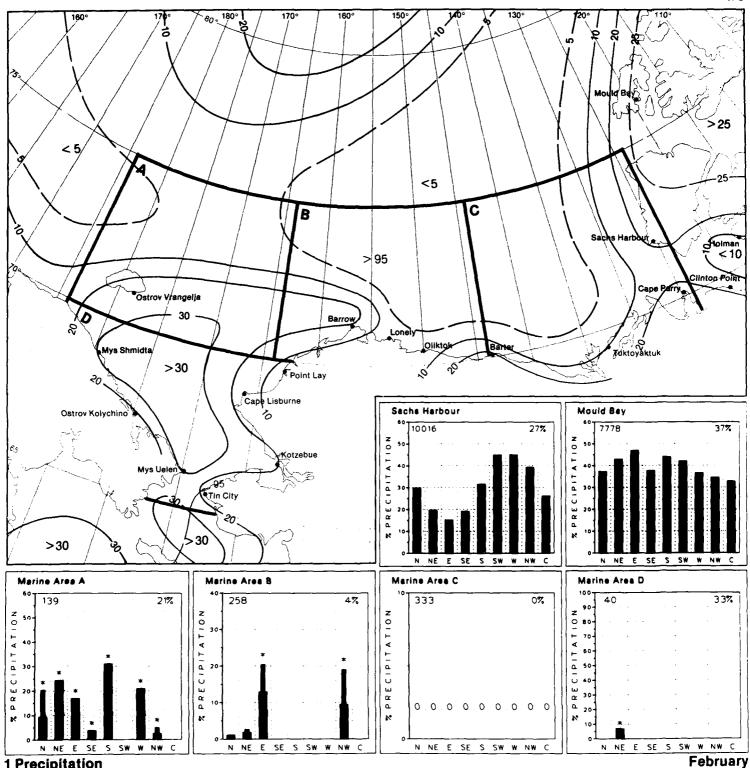


1 Precipitation and Wind Directio

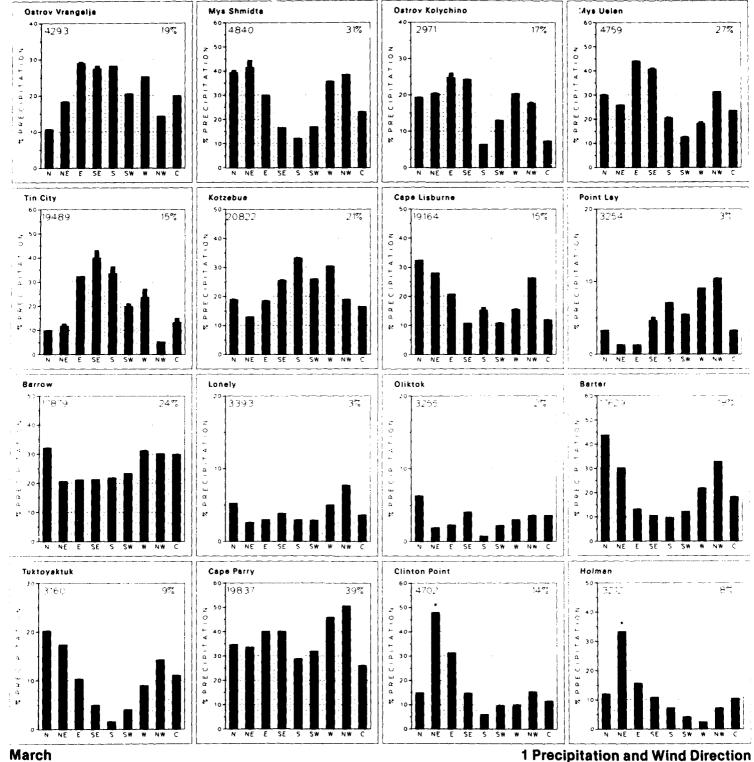


1 Precipitation

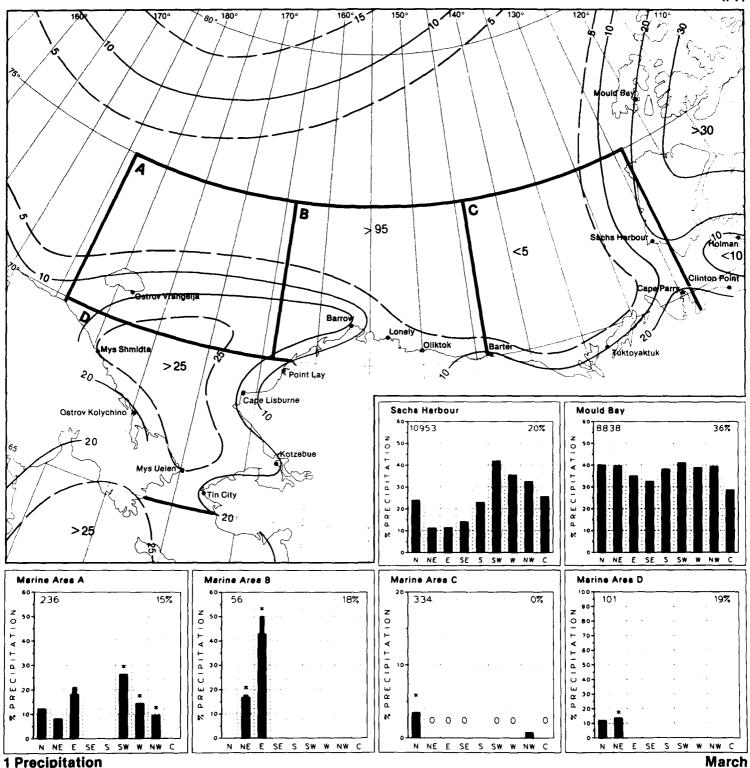




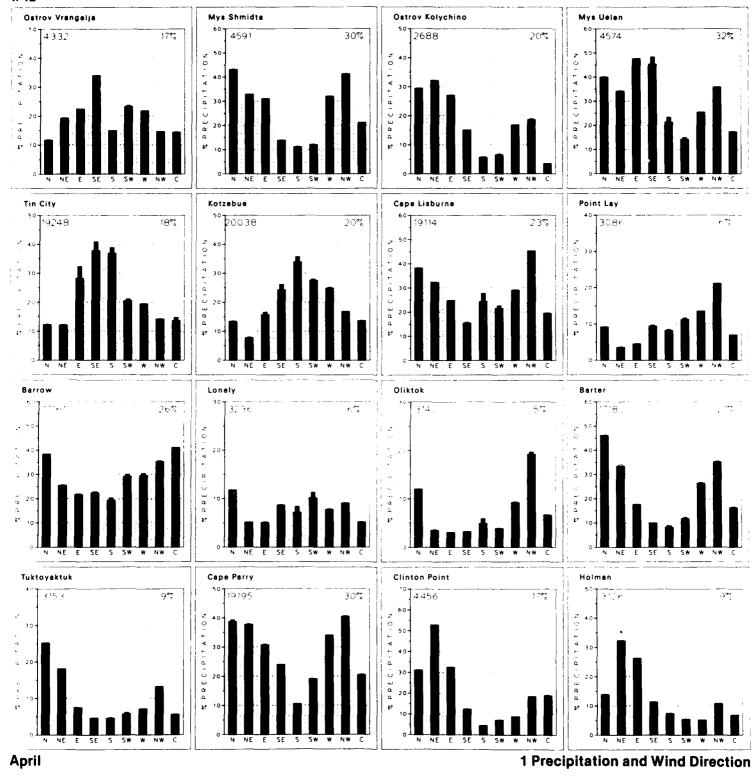
1 Precipitation

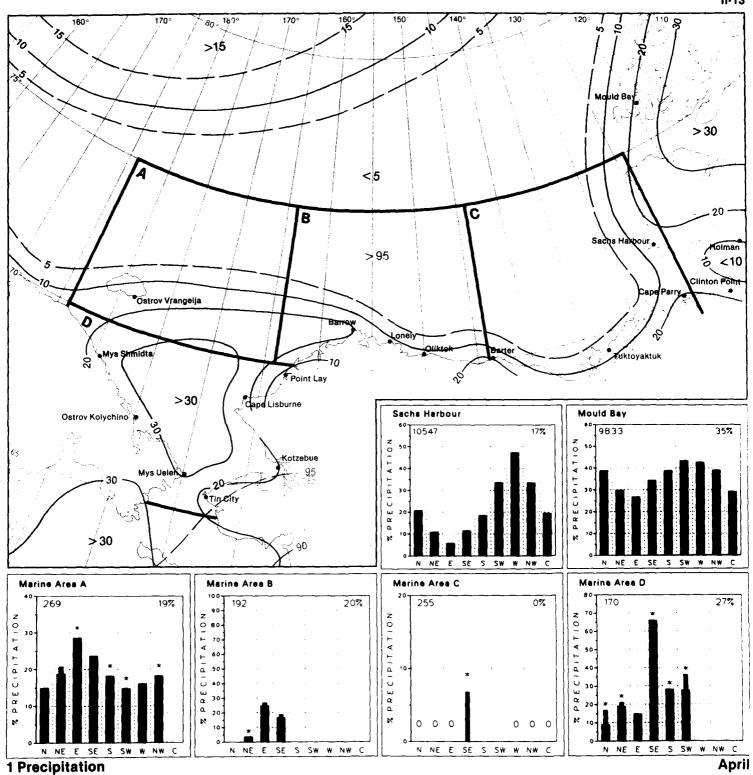


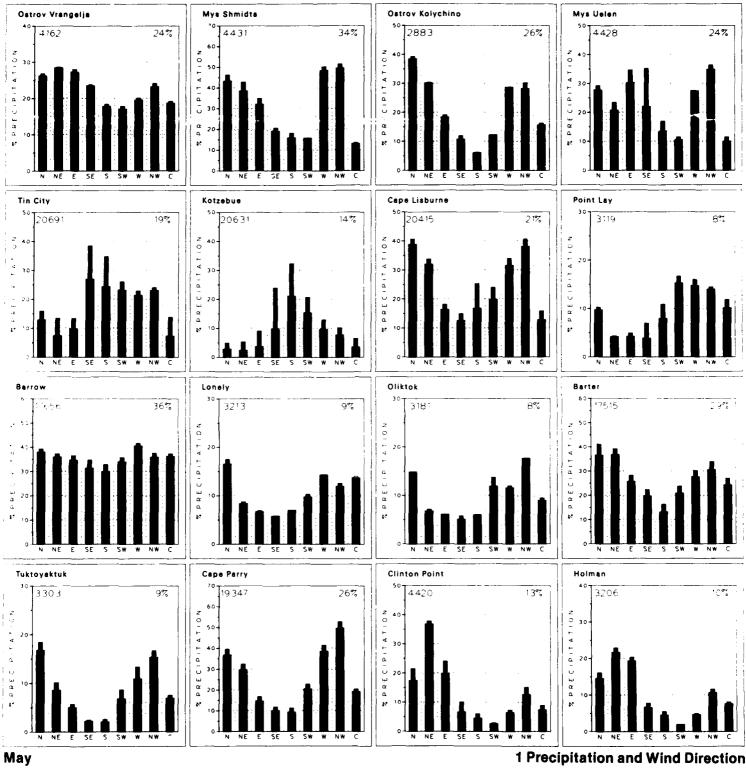
1 Precipitation and Wind Direction

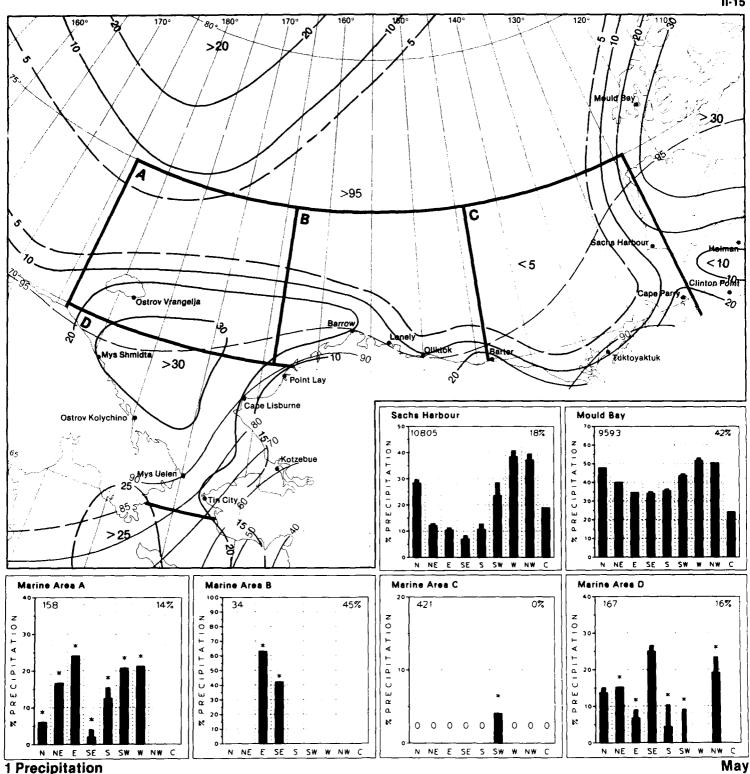


1 Precipitation

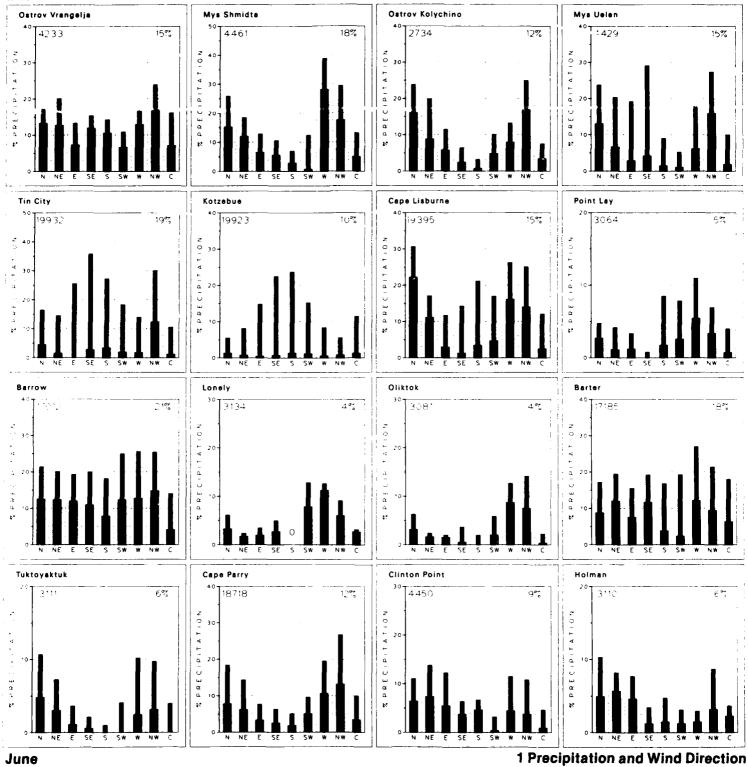


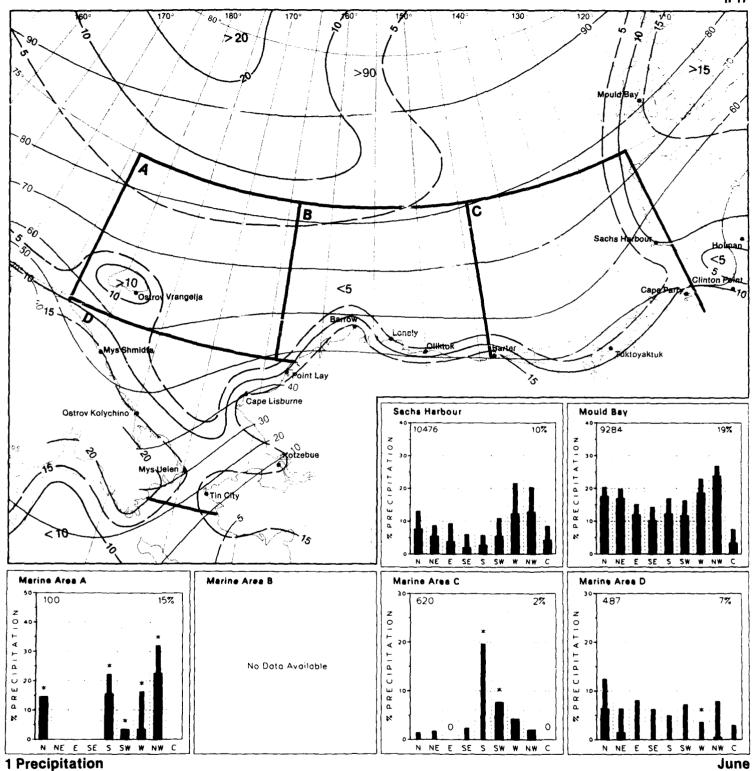


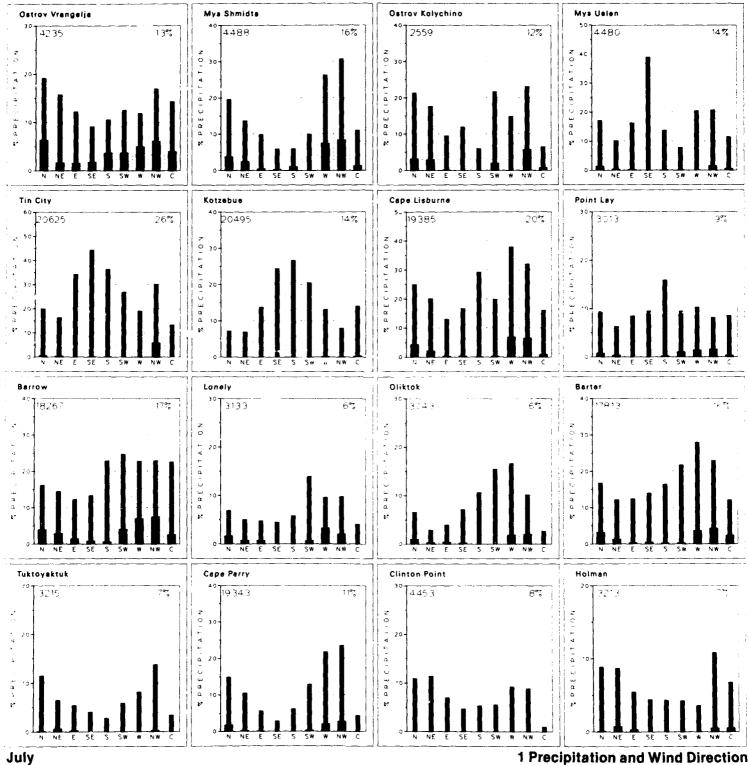


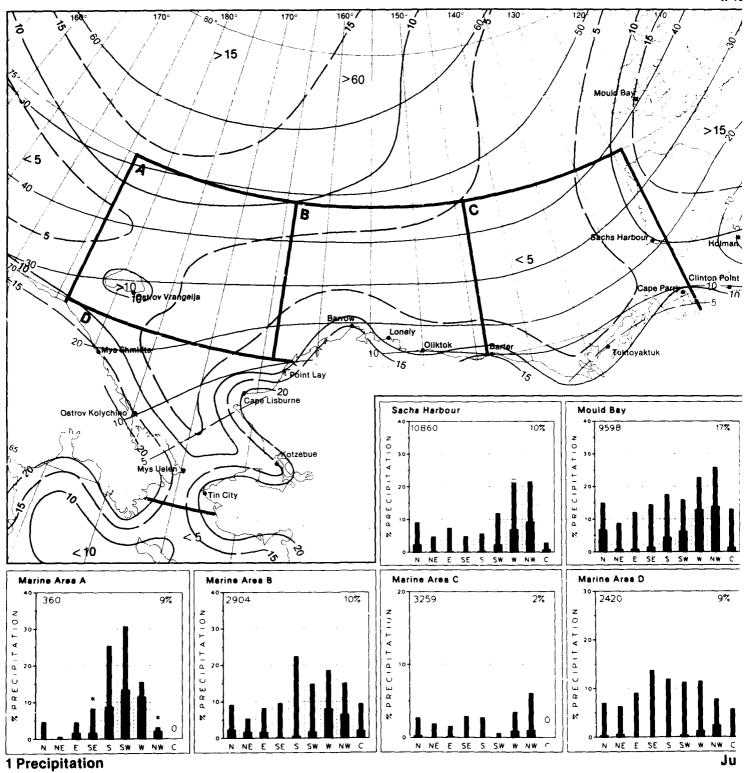


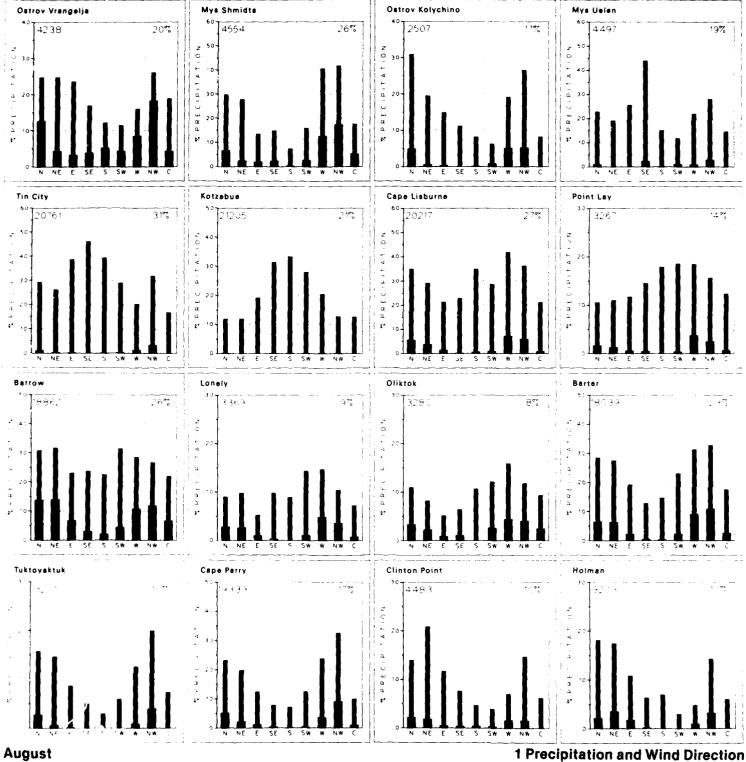
1 Precipitation

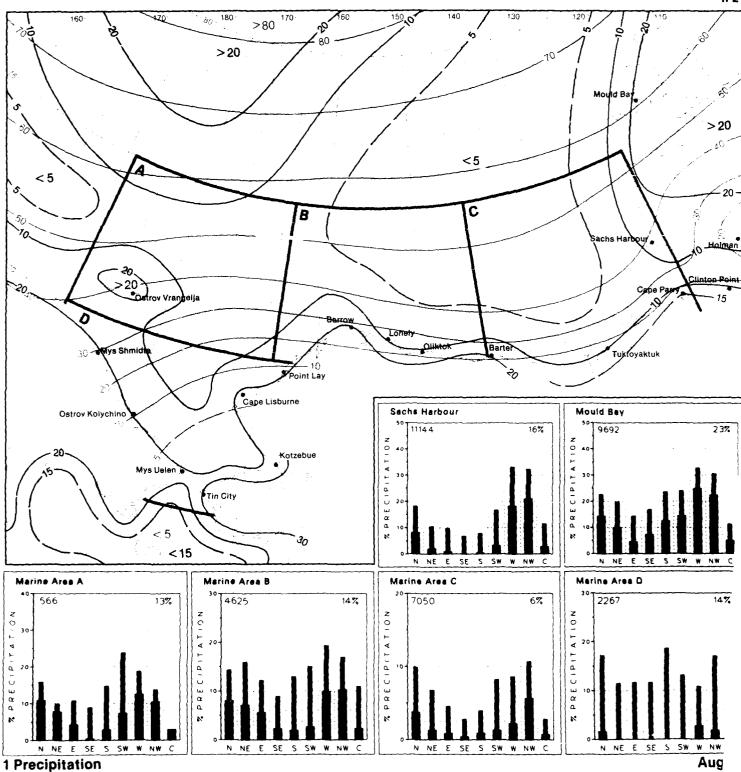


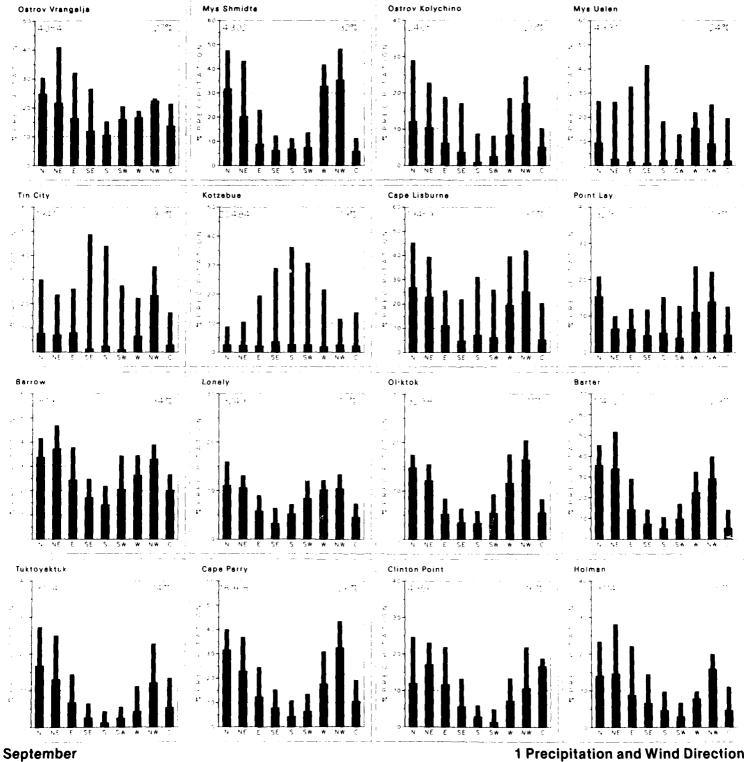


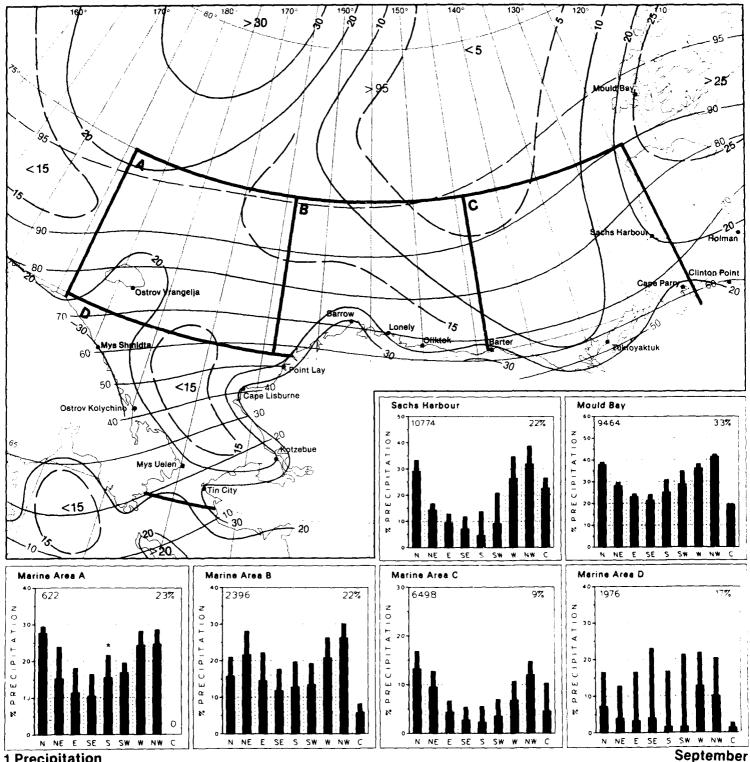




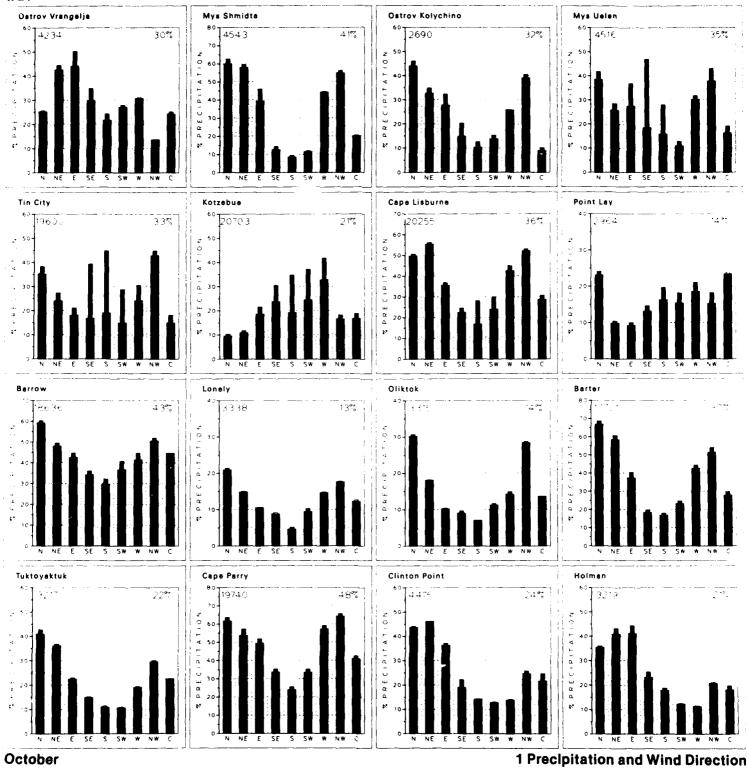


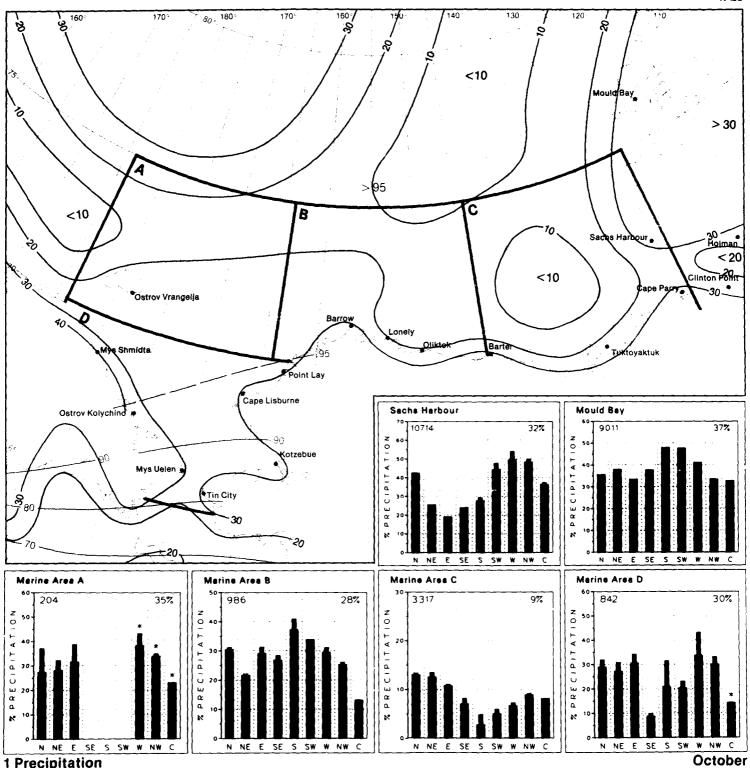




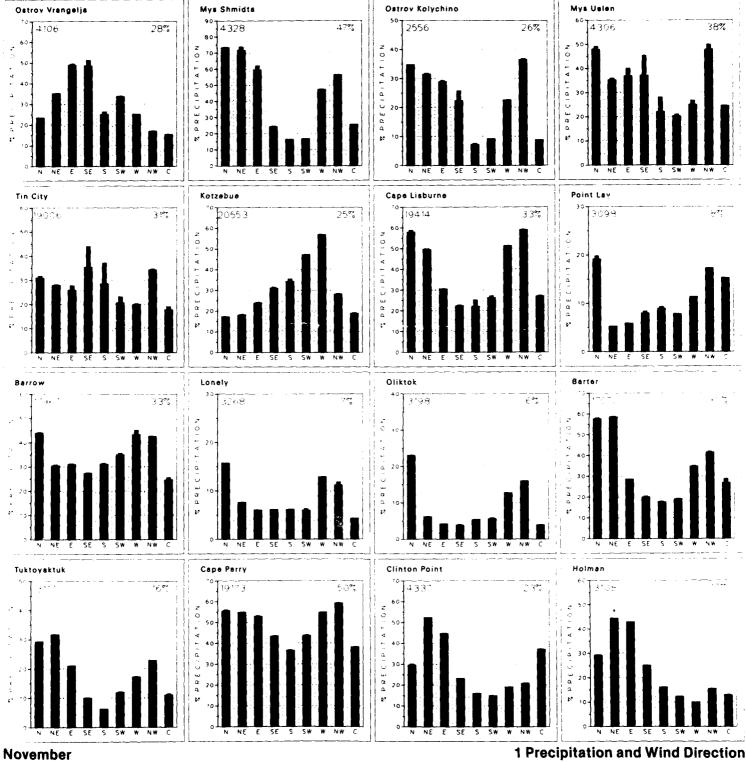


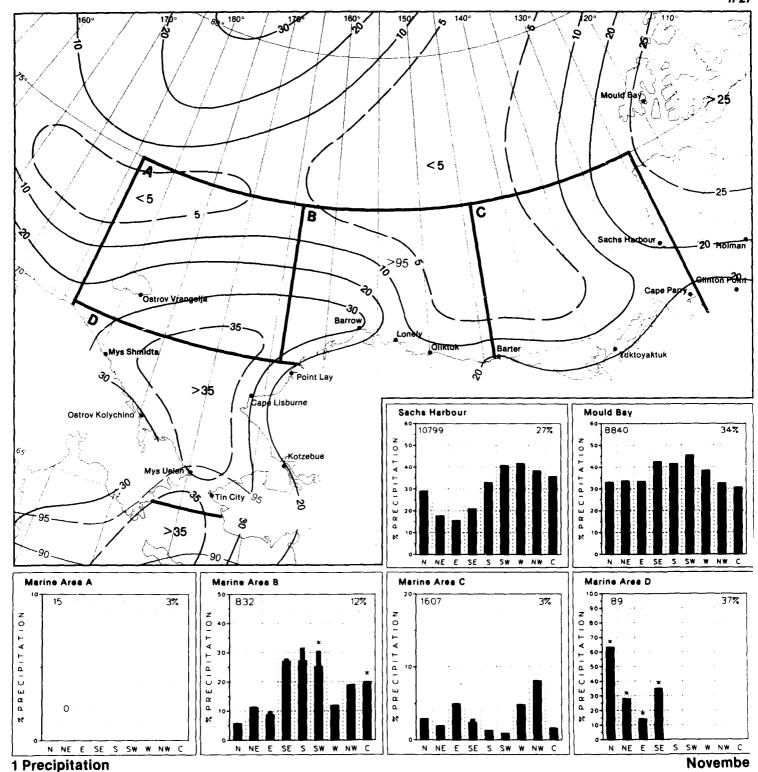
1 Precipitation

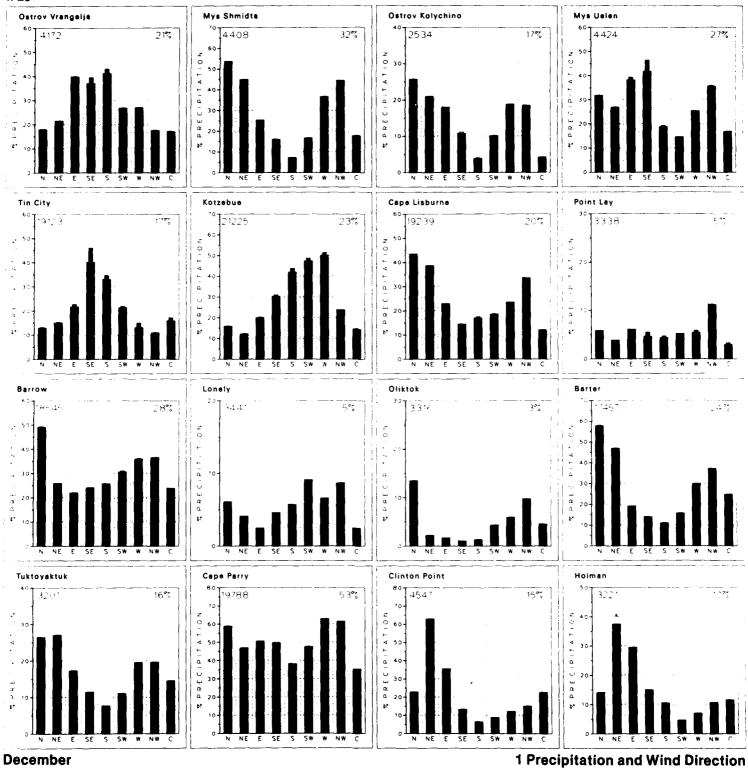


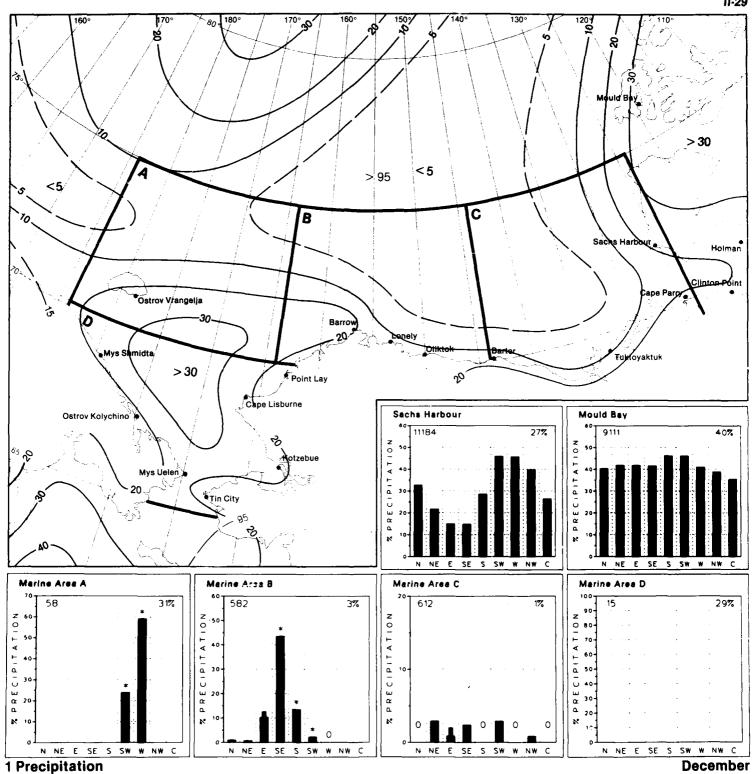


1 Precipitation









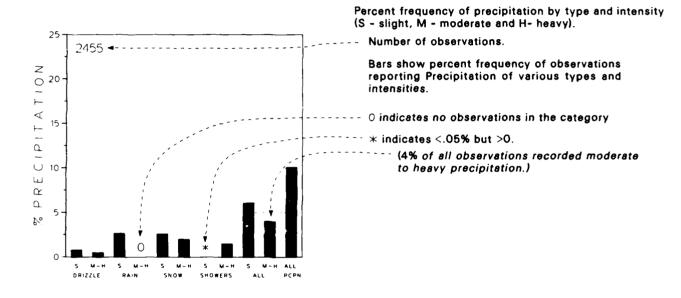
Map 2. Wind/visibility/cloudiness

BLACK LINE — Percent frequency of optimum conditions: Low cloud ceiling (LCC) ≥5000 feet, (or no LCC), visibility ≥5 nautical miles and wind 11–21 knots.

BLUE LINE - Percent frequency of poor conditions. Any one of the following constitutes poor conditions: LCC <300 feet, visibility <1 nautical mile or wind <6 or ≥34 knots.

Albers Equal—Area Conic Projection

Graphs: Precipitation types



Present weather elements that can be reported in an observation are thunderstorms, lightning, waterspouts, squalls, fog. haze, smoke, dust, and all forms of precipitation. Most present weather codes (ww = 00-99, see table) apply to phenomena occurring at the time of observation, but a few refer to phenomena occurring in the past hour. The highest applicable numerical ww code figure is recorded (except that code 17 has preference over 20 to 49, inclusive). Precipitation includes all forms of water particles, whether liquid or solid, that fall to the earth's surface—rain, drizzle, snow, snow pellets, snow grains, ice crystals, ice pellets, and hail. Each form is classified by its character (continuous, intermittent, showery, or combination), intensity (slight, moderate, or heavy), and type (liquid, freezing, or frozen). In this study, frozen precipitation is defined as any precipitation that reaches the ground in frozen form; it does not include liquid that freezes upon impact with the ground or exposed objects. Refer to the text in Set 1 for additional information on precipitation.

2 Legend

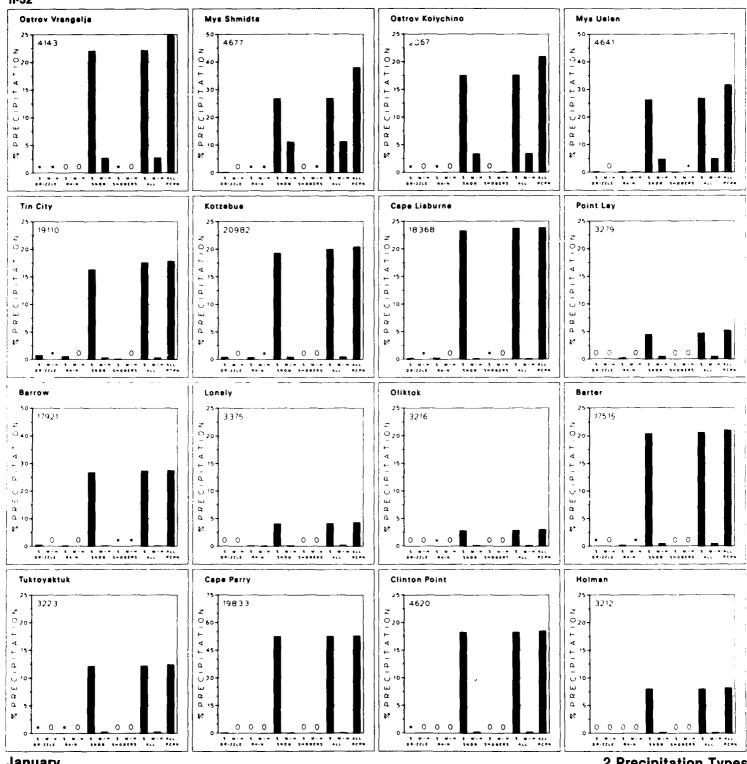
Legend 2

PRESENT WEATHER (WMO Code, 1982)

The present weather (ww) code is arranged in priority order. Reading down the list, select the first applicable (most severe) weather condition that you observe and enter the code number for ww.

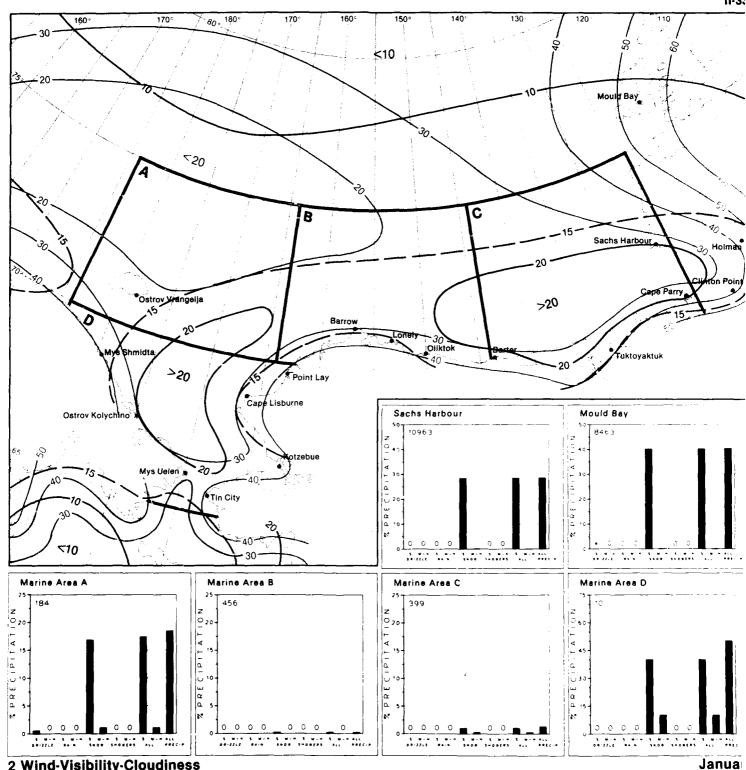
	50-99 PRECIPITATION AT SHIP AT TIME OF OBSERVATION	Inte 74 72	rmittent Heavy snow in flakes Moderate snow in flakes	Continuous 75 73	32 31 30	Duststorm or sandstorm, increasing Duststorm or sandstorm, unchanging Duststorm or sandstorm, decreasing	35 34 33
	95-99 THUNDERSTORM AT TIME OF OBSERVA	11	Slight snow in flakes	71	•	a delication of sandstorm, decreasing	43
9:		C!!-	60-69 RAIN (NOT FALLING A			20-29 PHENOMENA IN PAST HOUR BUT N TIME OF OBSERVATION	OT AT
9		Siig 68		Moderate or Heavy	29	Thomas	
	but no hail*	66	Rain or drizzle with snow Freezing rain	69 67	28	Thunderstorm, with or without precipitat Fog (in past hour but not at time of obs.	ion
9		•	1 (CCEING Tall)	07	27	Shower(s) of hail*, or of hail*, and rain n) Divod
9		Inte	rmittent	Continuous	26	Shower(s) of snow, or of rain and snow r	Dexin
	snow, but no hail*	64	Heavy rain	65	25	Shower(s) of rain	
• 1	ncludes hail, ice pellets, or snow pellets	62	Moderate rain	63	24	Freezing drizzle or freezing rain	
	nordes han, ice peners, or snow peners	60	Slight rain	61	23 22	Rain and snow mixed, or ice pellets	Not falling
!	91-94 THUNDERSTORM DURING THE PAST HOUF	RBUT	50-59 DRIZZLE		21		as shower:
	NOT AT THE TIME OF OBSERVATION		30 00 01112222		20	Drizzle (not freezing) or snow grains	
		Slig	ht	Moderate or heavy		y delice from recently of show grains	
	ote: Use code 29 if there is no precipitation at observation.	time of 58 56	Drizzle and rain mixed Freezing drizzle	59 57	*Inc	ludes hail, ice pellets or snow pellets	
94	Moderate or heavy snow, or rain	lmta	rmittent	0- 4-		18-19 SQUALLS, FUNNEL CLOUDS	
9.	and snow mixed, or hail*	54	Heavy drizzle	Continuous 55		_	
93		rstorm 52	Moderate drizzle	53	19 18	Funnel cloud(s) seen in past hour or at to	ime of obs
	mixed, or hail* in past	50	Slight drizzle	51	10	Squalls (no precip.) in past hour or at time	ne of obs
92 91			· ·		13	-16 PHENOMENA WITHIN SIGHT BUT NOT	AT SHIP
					16	Precip. within 3 naut. mi reaching surfa	ace
-,	noludes hail, ice pellets, or snow pellets		00-49 NO PRECIPITATION AT S	HIP AT TIME OF	15	Precip. beyond 3 naut. mi. ~ reaching sur	face
			OBSERVATION		14	Precipitation in sight, not reaching surfa-	ce
	85-90 SOLID PRECIPITATION IN SHOWERS				13	Lightning visible, no thunder heard	
	ight Moderate of		Thunder at time of observatio	n, no precipitation		10-12 MIST AND SHALLOW FOG	Fog not
89		90	at ship		12	Shallow fog-more or less continuous	deeper
87 85		88 86	•		11	Shallow fog in patches	than 10
8:	Shower of snow	00	40-49 FOG AT TIME OF OB	SERVATION	10	Mist (Visibility 1/2 nautical mile or more)	i33 feeti
	With or without rain, or rain and snow mixed nclude hail, ice pellets, or snow pellets		(Visibility in fog is less than 1/2	nautical mile)		04-09 HAZE, DUST, SAND, OR SMOKE	E
	80-84 RAIN SHOWERS	Sky		Sky	09	Duststorm or sandstorm within sight	
	00-84 HAIN SHOWERS	visit		invisible	08	Dust whirls in past hour (NOT FOR MAR)	INE USE
84	Shower of rain and snow mixed, moderate o	r heavy	Fog, depositing rime	past hour 47	07	Blowing spray at ship	
83		1 neavy 46	Fog. has begun or thickened in Fog. no change in past hour	past nour 47	06 05	Widespread dust suspended in the air	
82		42	Fog, has become thinner in pas		05	Dry haze Visibility reduced by smoke	
81		41	Fog in patches	at nodi	04	Visibility reduced by smoke	
80	Slight rain shower	40	Fog at a distance but not at s	nip in past hour		00-03 CHANGE OF SKY DURING PAST HO	OUR
70	79 SOLID PRECIPITATION NOT FALLING AS \$HO	OWERS	30-39 (Not likely to be used in	ship reports)	Code		
79	Ice pellets	Silai	ht or		figs. 03	Clouds generally forming or developing	
78			erate	Heavy	02	State of the sky on the whole unchanged	,
77		38	Blowing snow, high (above eye		01	Clouds dissolving or becoming less deve	
7€	Diamond dust (with or without fog)	36	Drifting snow, low (below eye le		00	Cloud development not observable	Speo

2 Legend

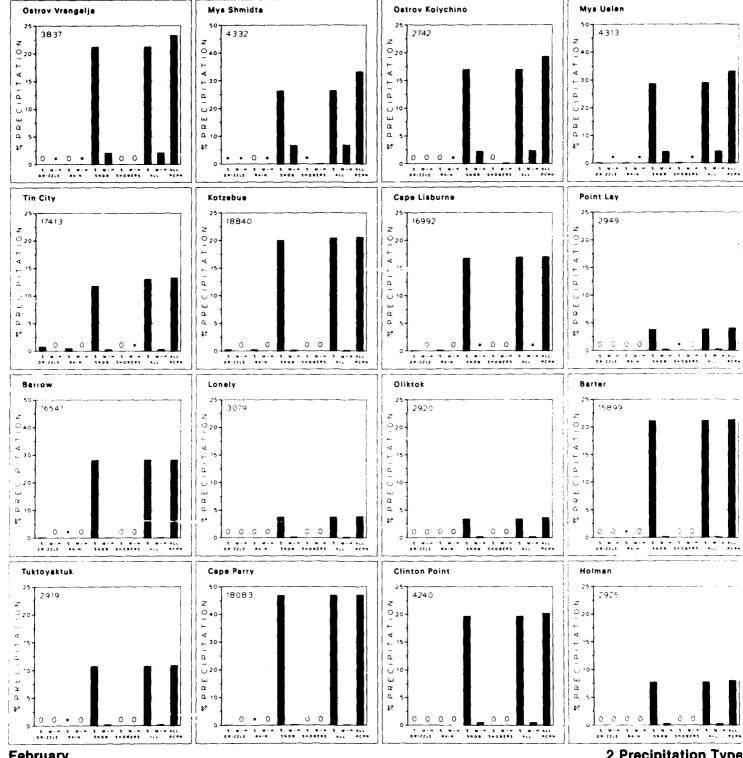


January

2 Precipitation Types

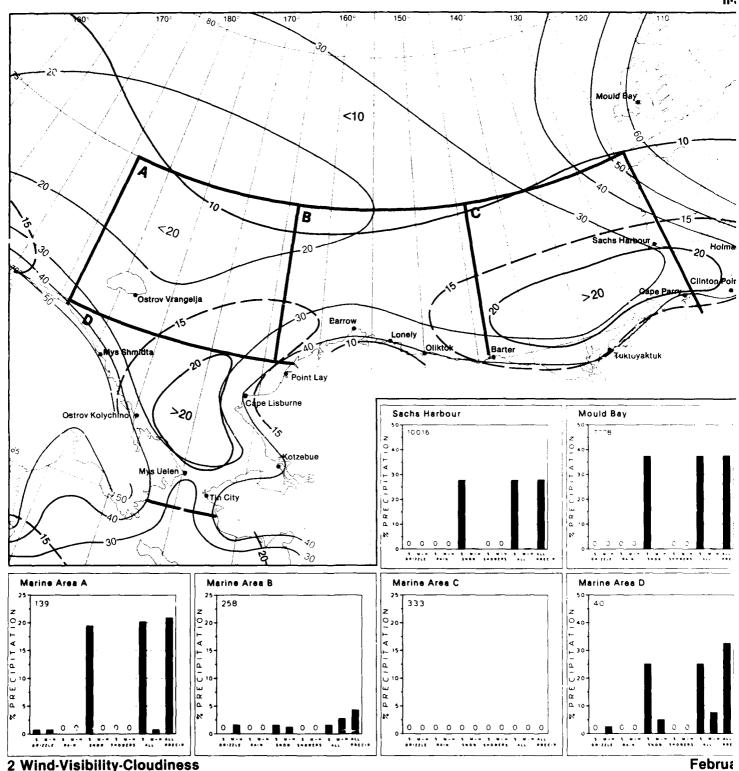


2 Wind-Visibility-Cloudiness

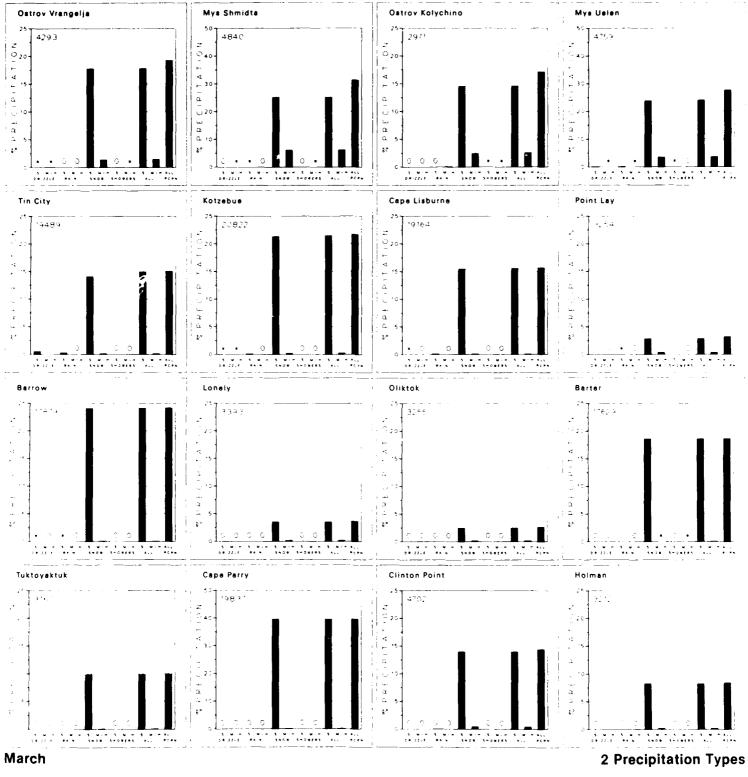


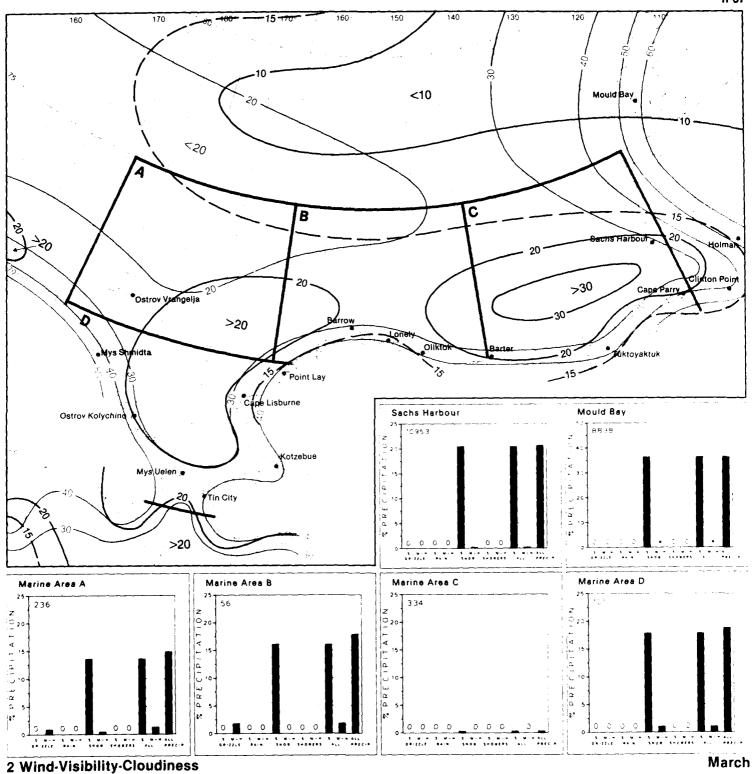
February

2 Precipitation Type

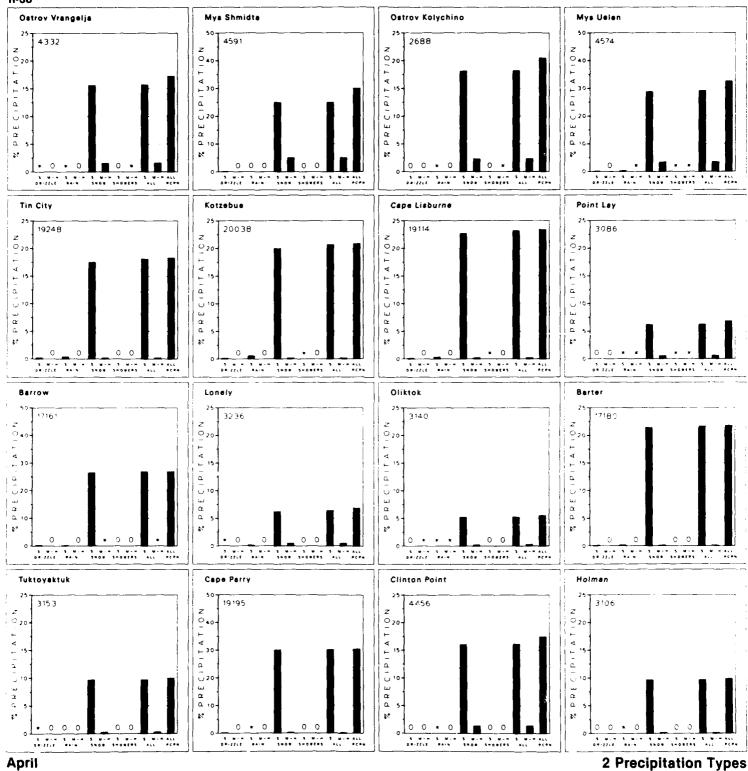


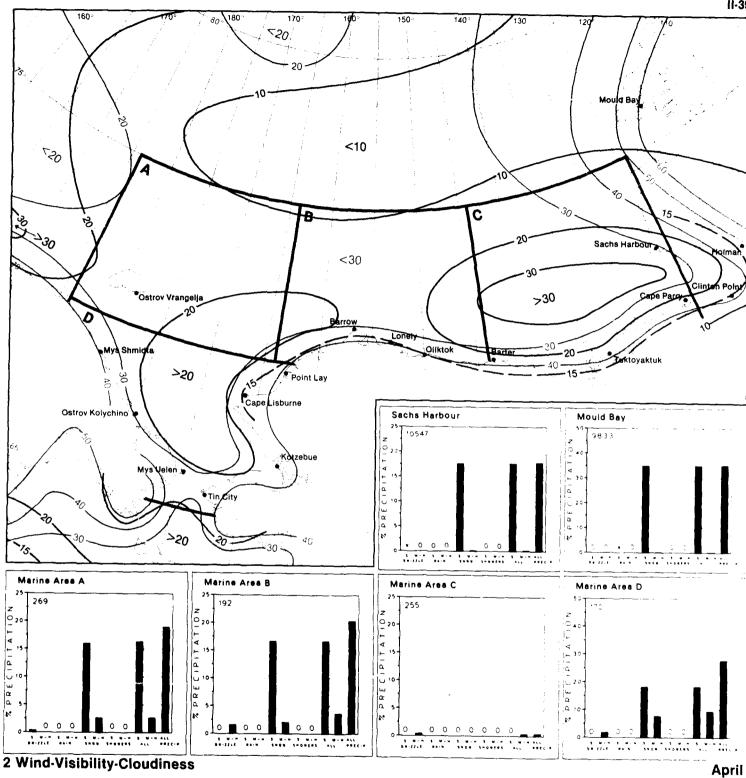
2 Wind-Visibility-Cloudiness



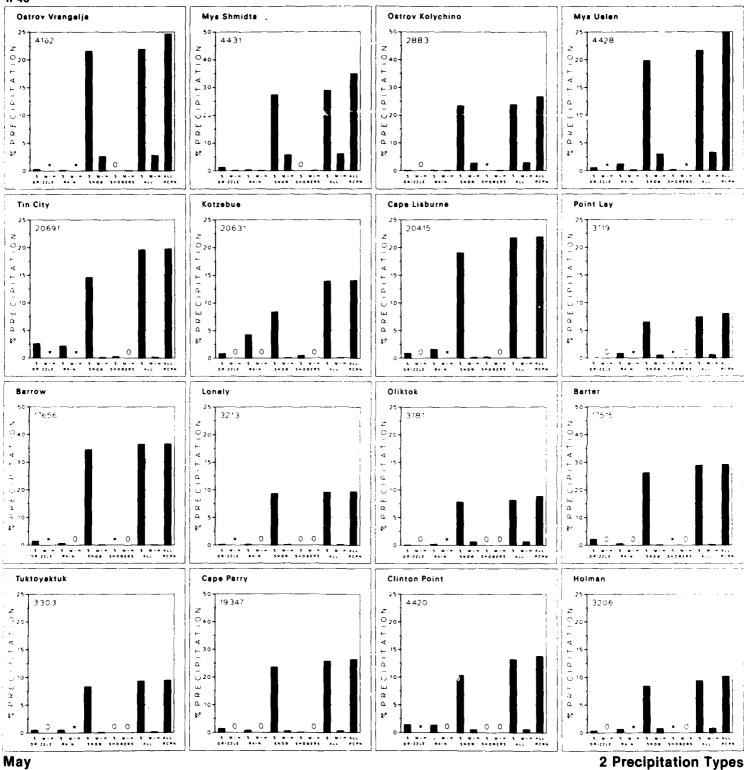


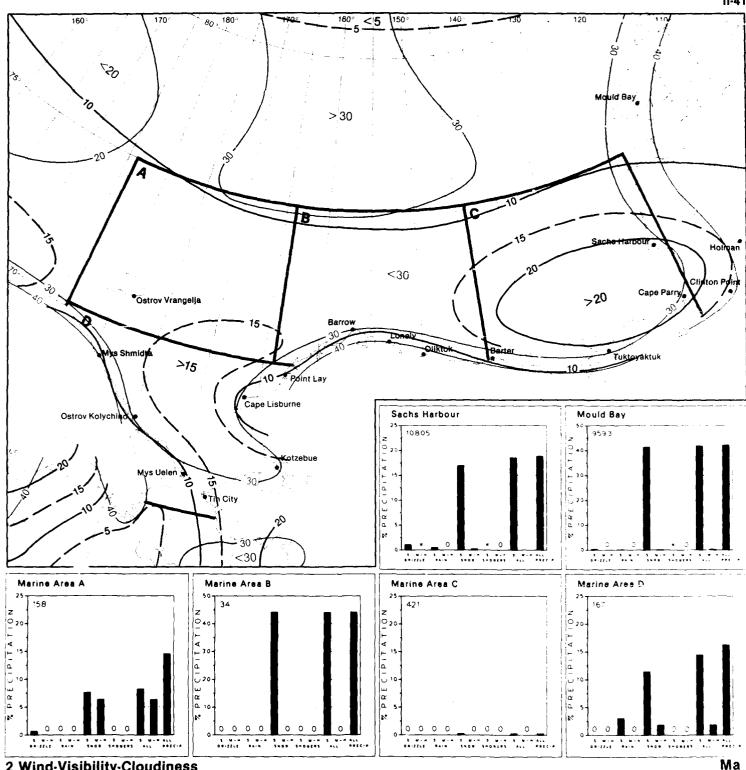




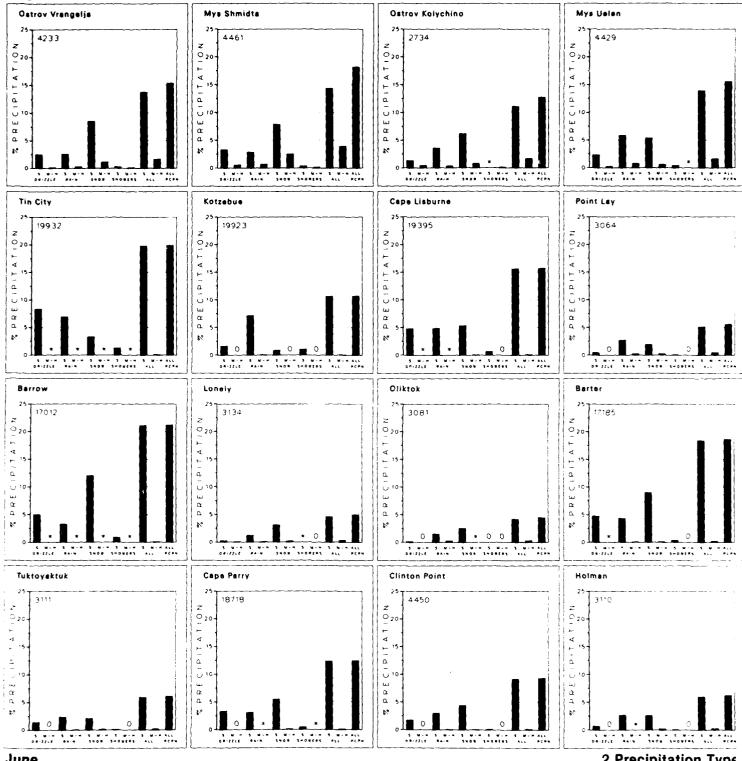






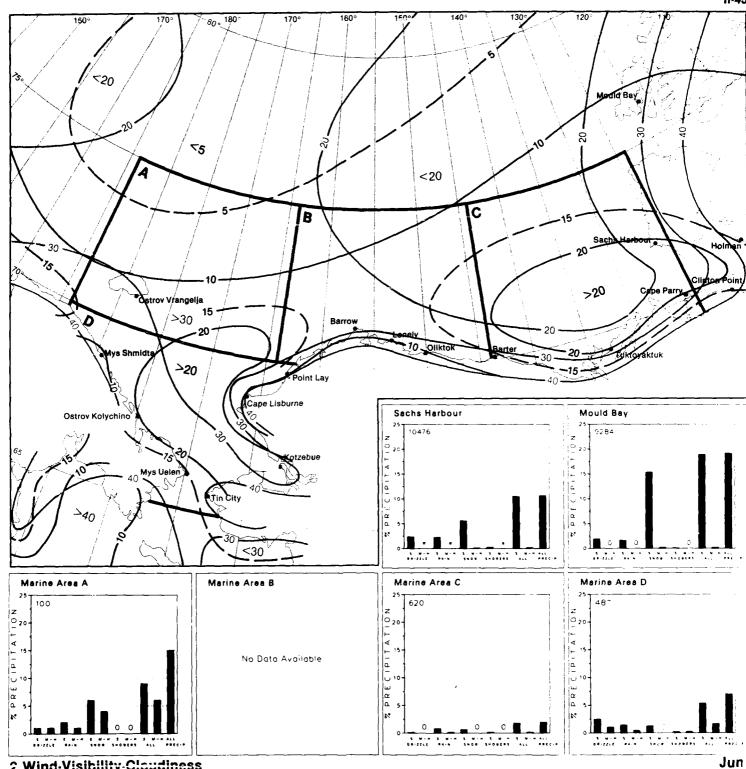


2 Wind-Visibility-Cloudiness

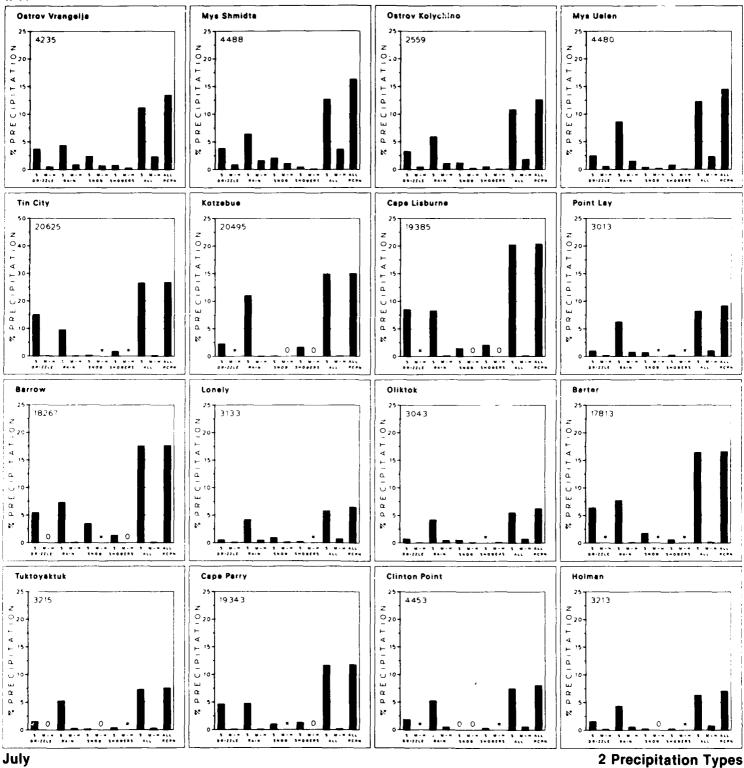


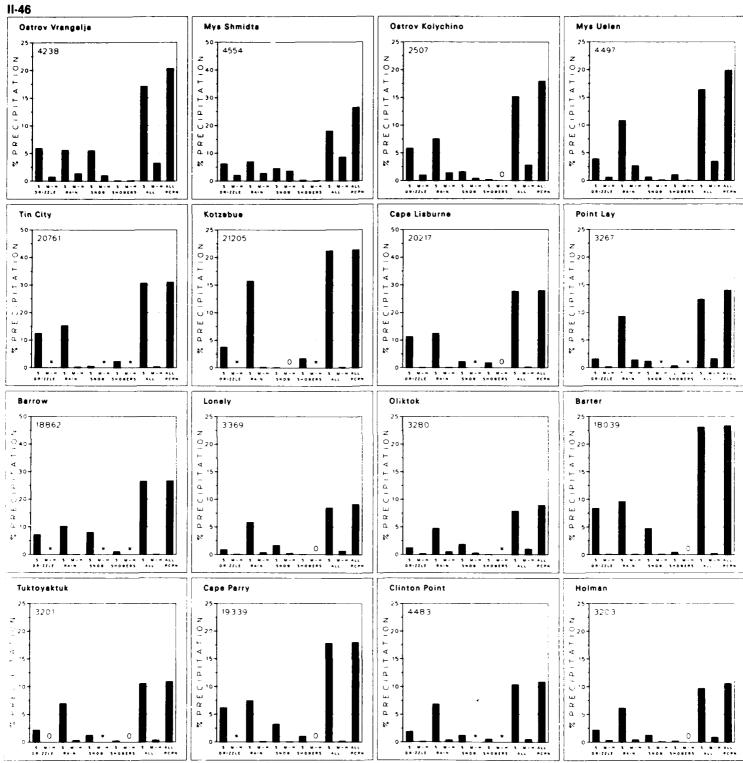
June

2 Precipitation Type



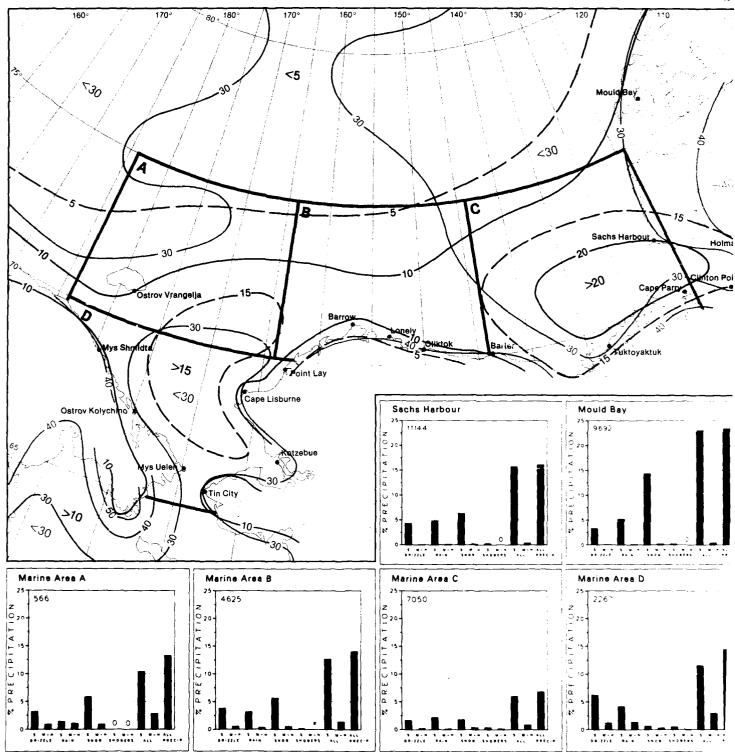
2 Wind-Visibility-Claudiness





August 2 Precipitation Types

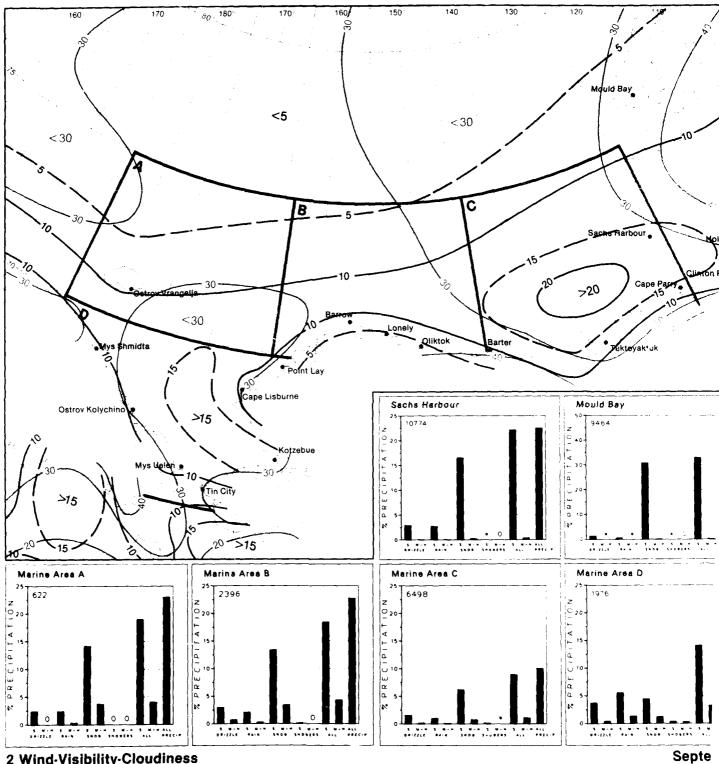
Aug



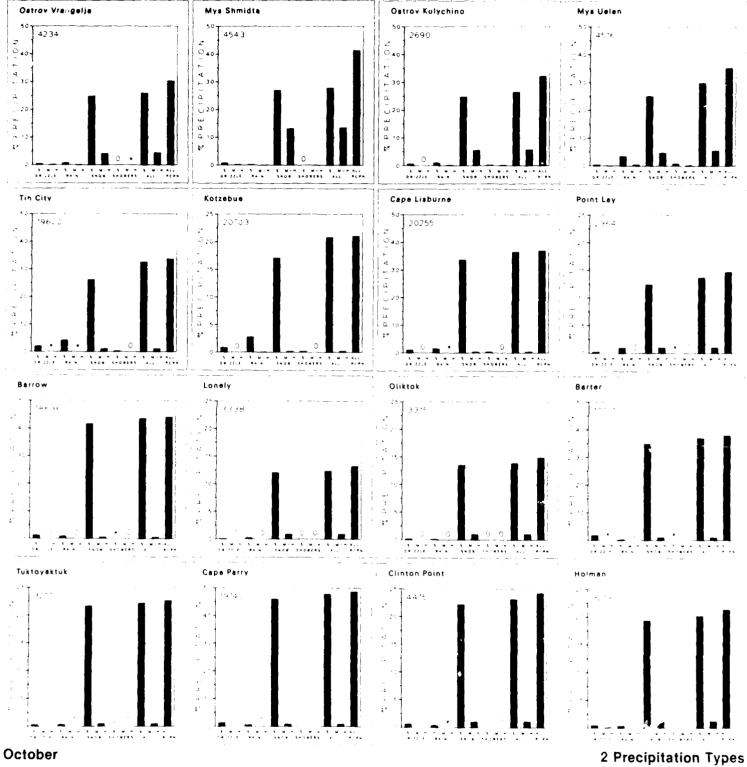
2 Wind-Visibility-Cloudiness

September

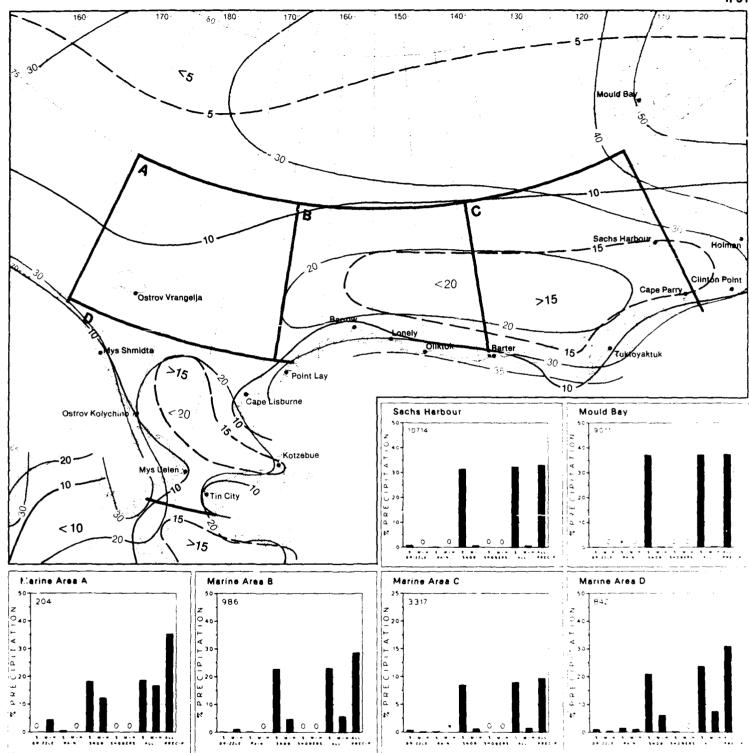
2 Precipitation Type



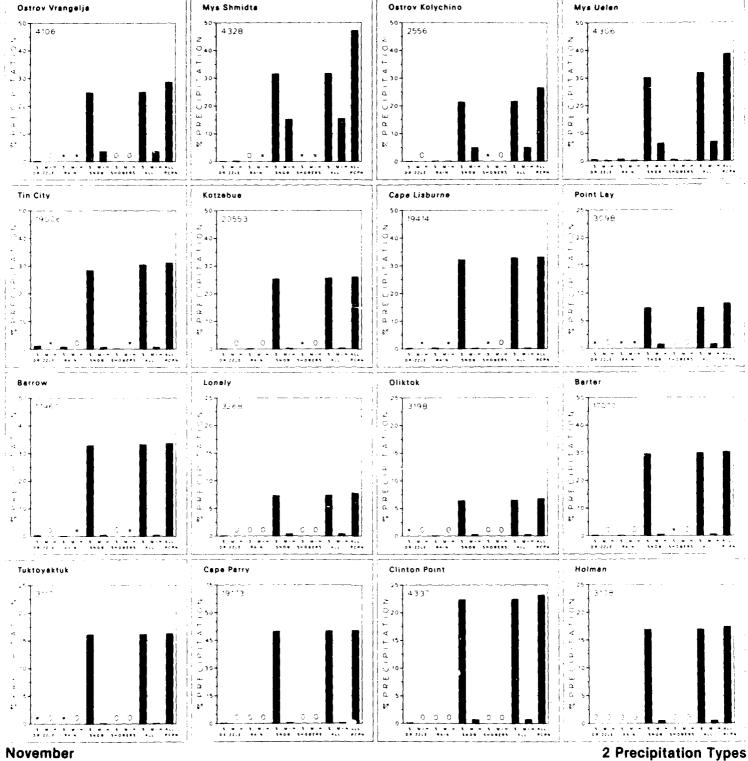
2 Wind-Visibility-Cloudiness



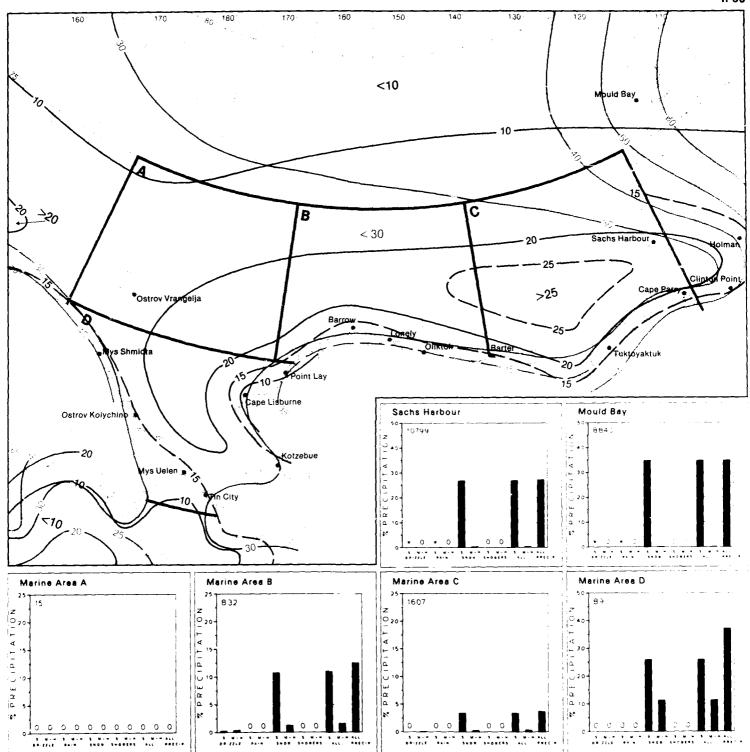
October



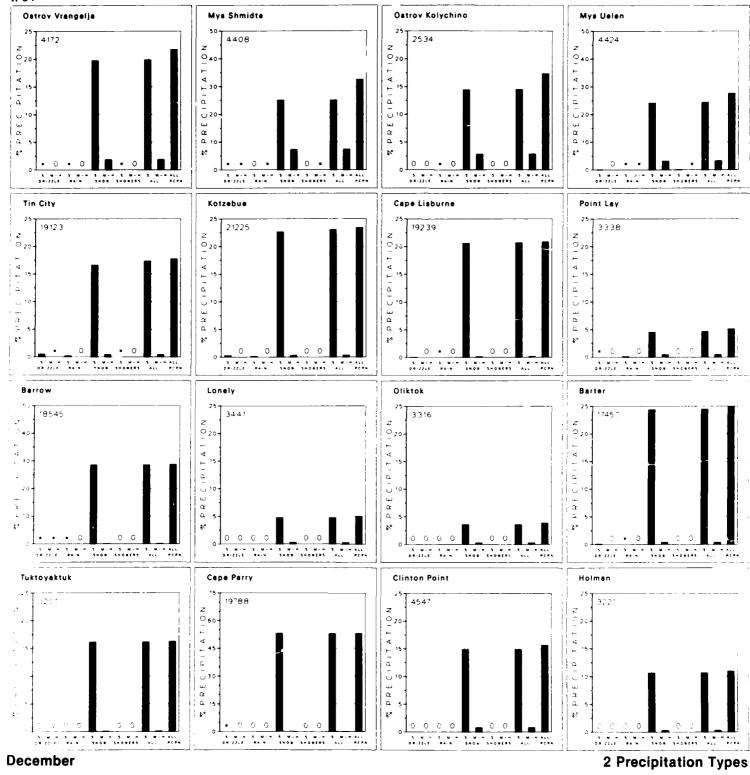
2 Wind-Visibility-Cloudiness



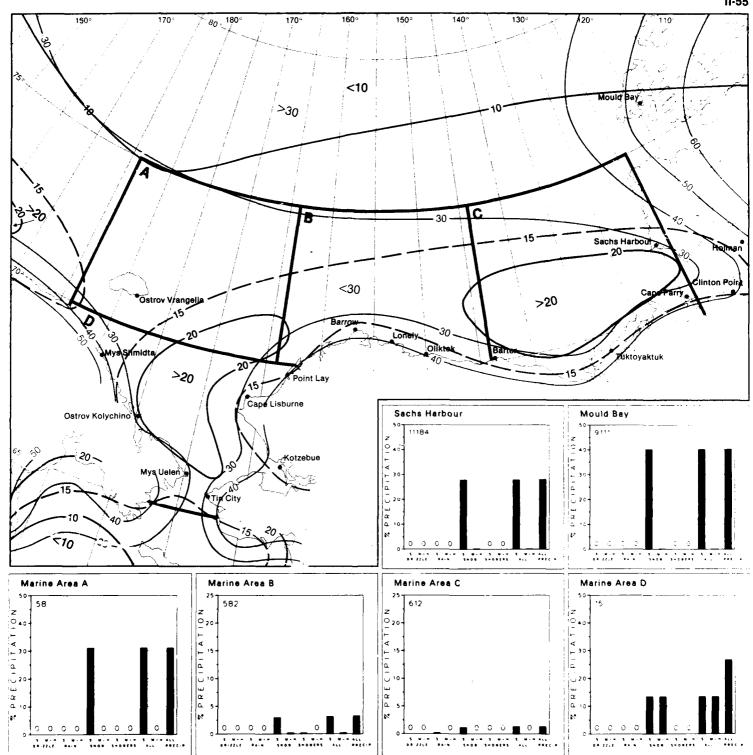
November



2 Wind-Visibility-Cloudiness



December



2 Wind-Visibility-Cloudiness

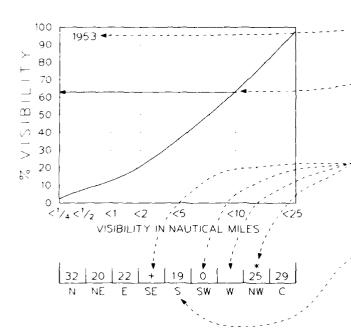
Map 3. Ceiling/visibility (low range)

BLACK LINE - Percent frequency of low cloud ceiling (LCC) <300 feet and/or visibility 1 nautical mile.

BLUE LINE - Percent frequency of LCC <600 feet and/or visibility <2 nautical miles.

Albers Equal—Area Conic Projection

Graphs: Visibility/wind direction



Number of observations.

Curve is the cumulative percent frequency of visibilities less than the visibility intersected by the curve.

- (63% 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.

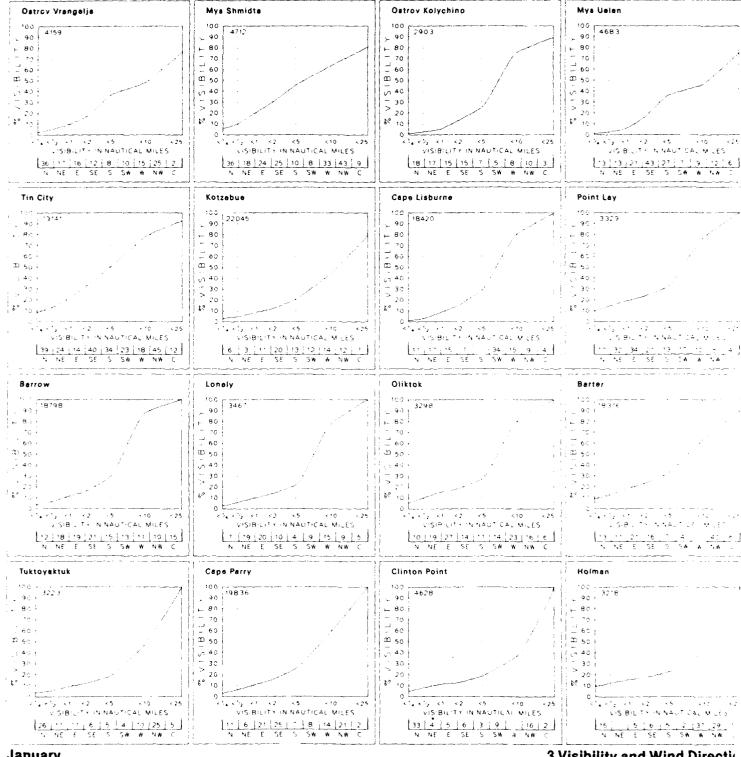
- (19% of all S winds were accompanied by visibilities <2 nautical miles.)

The percent frequency of visibilities 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%. Refer to the text in Set 5 for descriptive information on visibility.

Aircraft-type ceilings are not available from marine observations. The ceilings are estimated from the height of the lowest cloud when low clouds (heights of less than 8,000 feet) cover more than half the sky. When the sky is totally obscured by snow. rain, fog, or other phenomena, the total obscuration is considered a ceiling with a height of zero. Refer to the texts in Sets 4 and 6 for additional information on clouds.

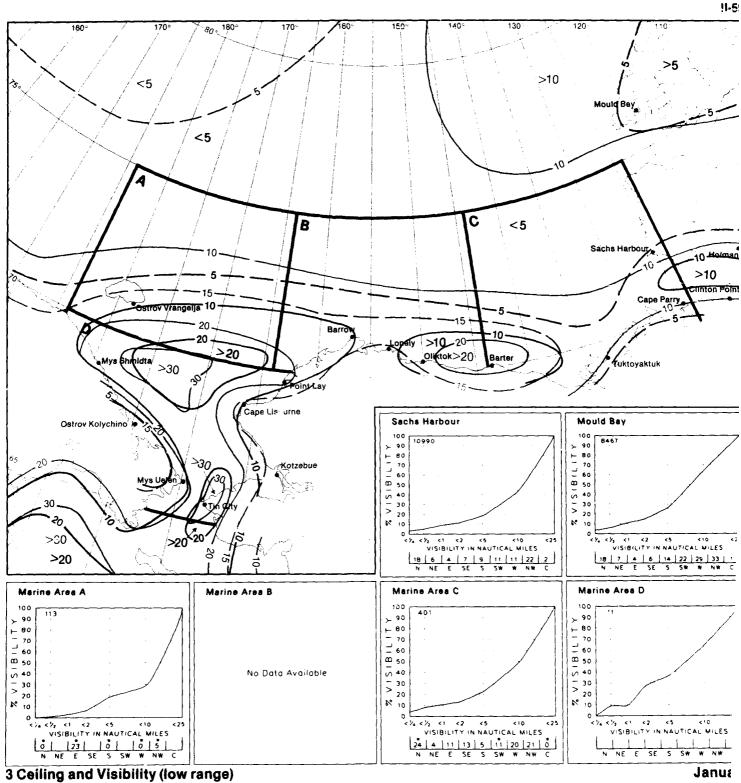
3 Legend

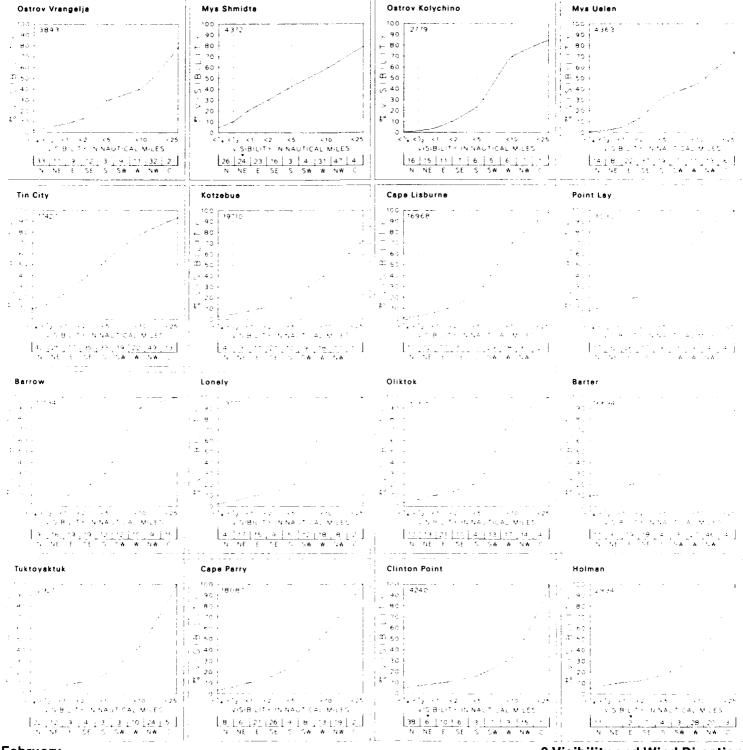
Legend 3



January

3 Visibility and Wind Directic



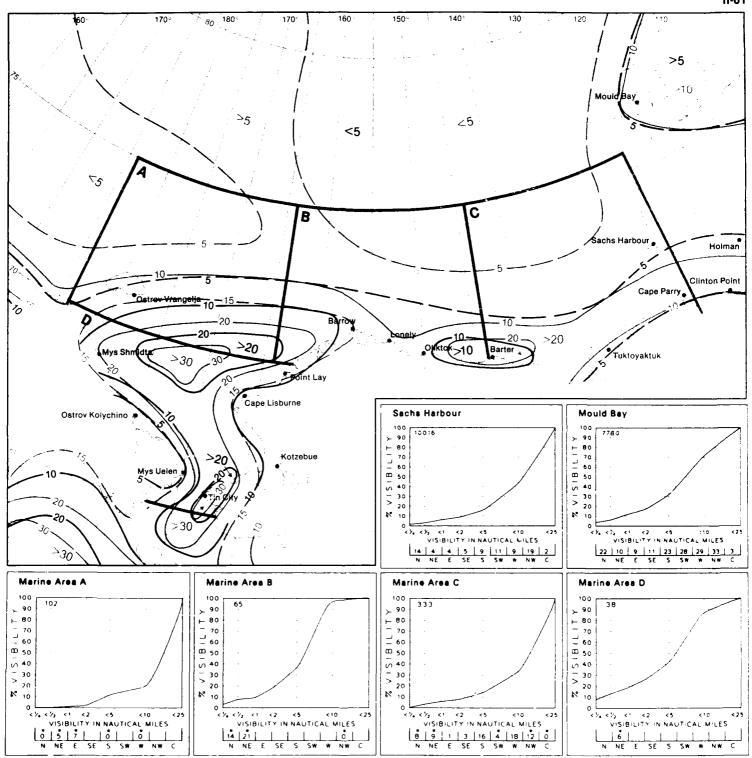


February

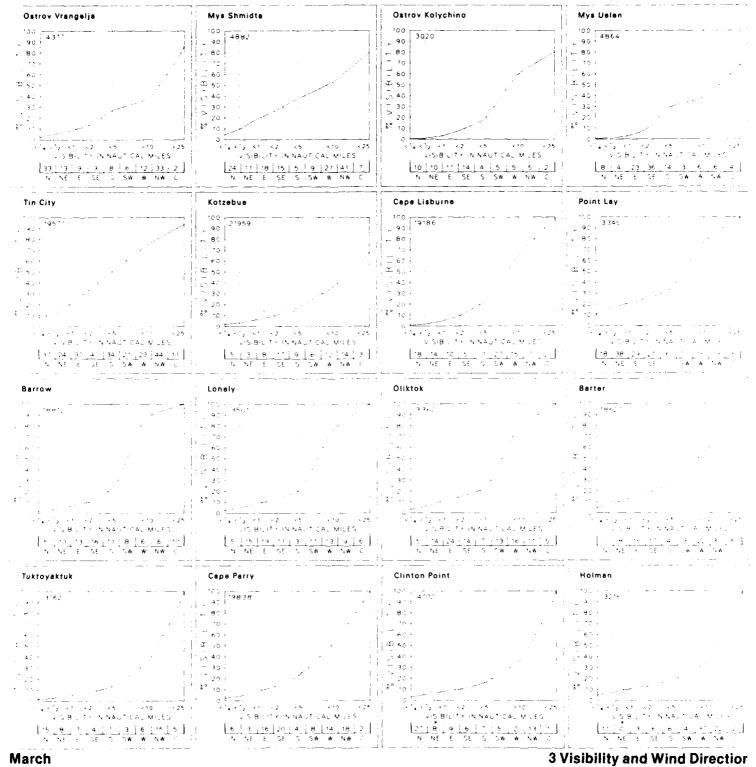
3 Visibility and Wind Direction

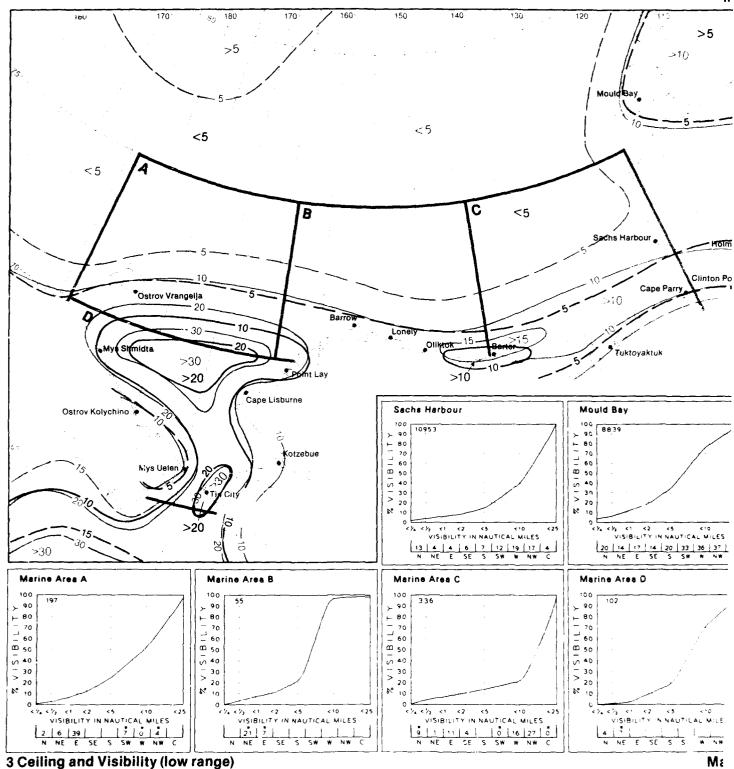


February

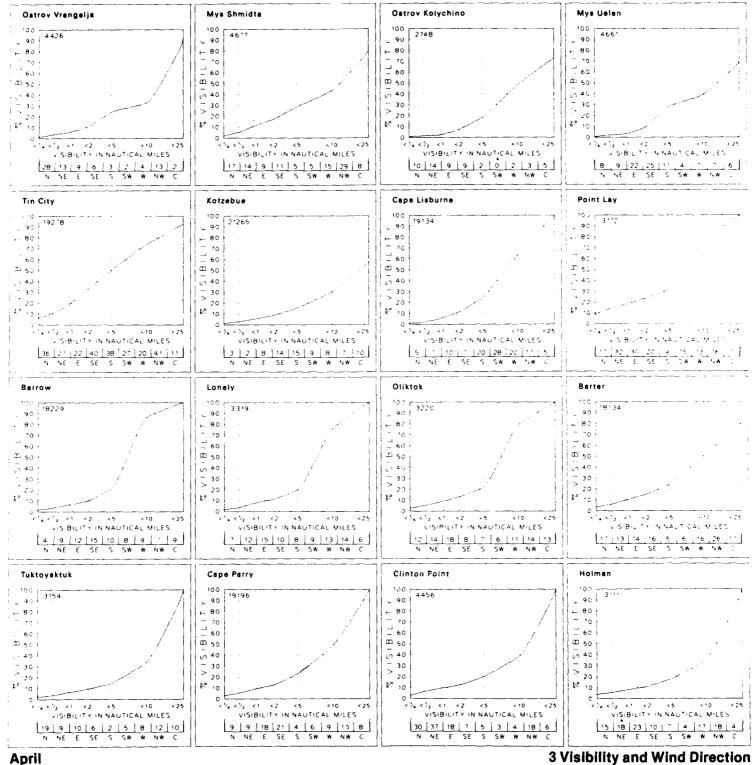


3 Ceiling and Visibility (low range)

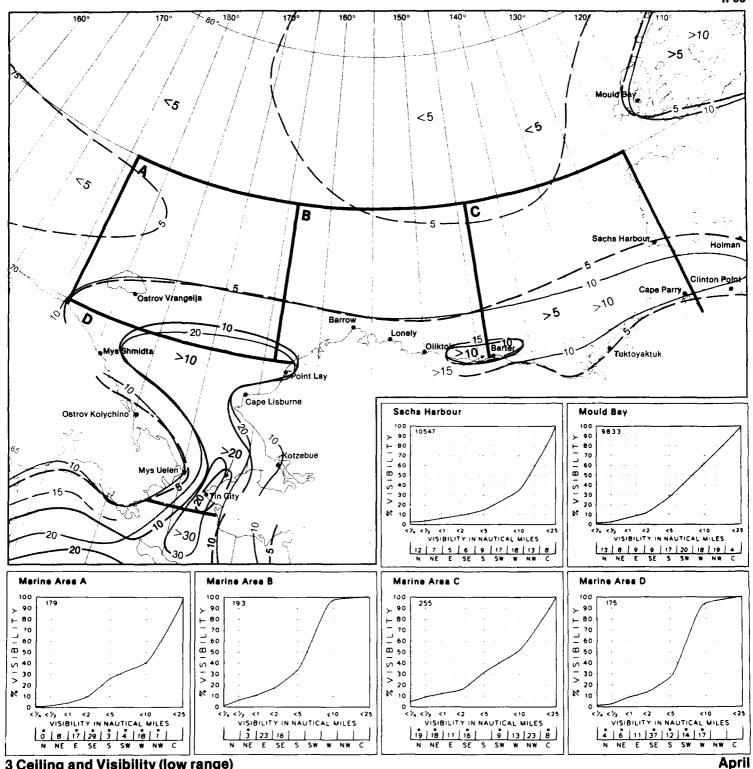




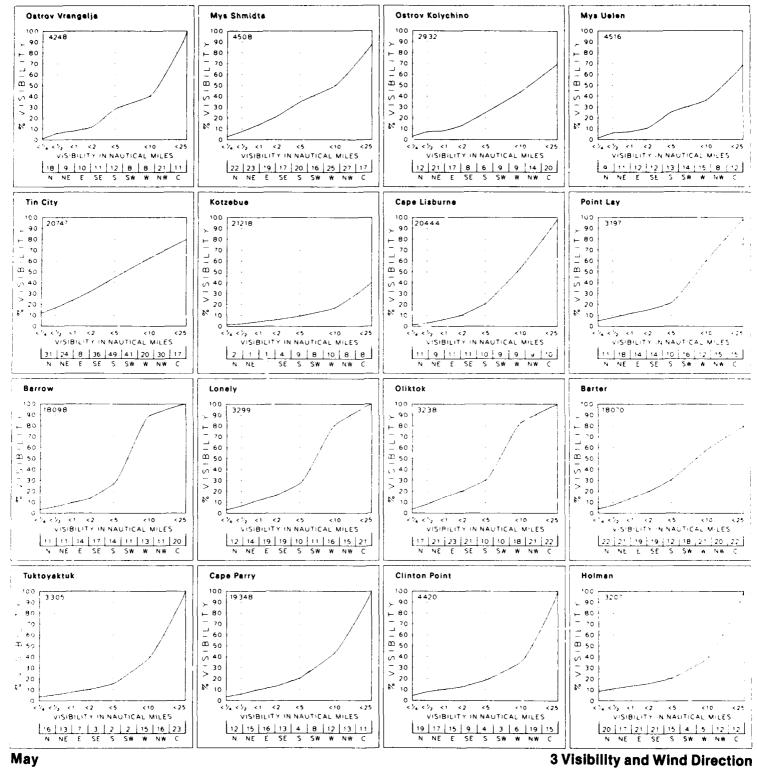




April

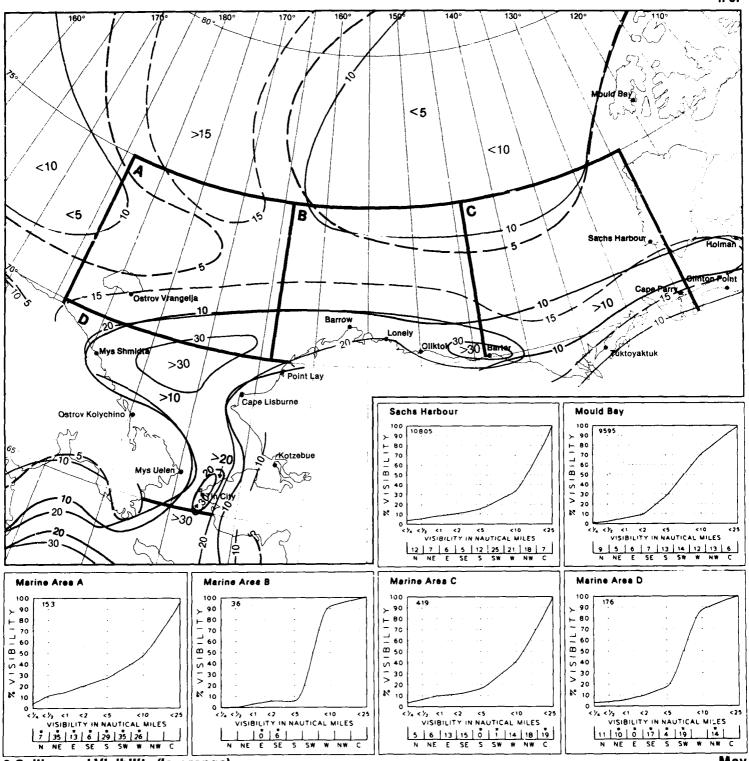


3 Ceiling and Visibility (low range)

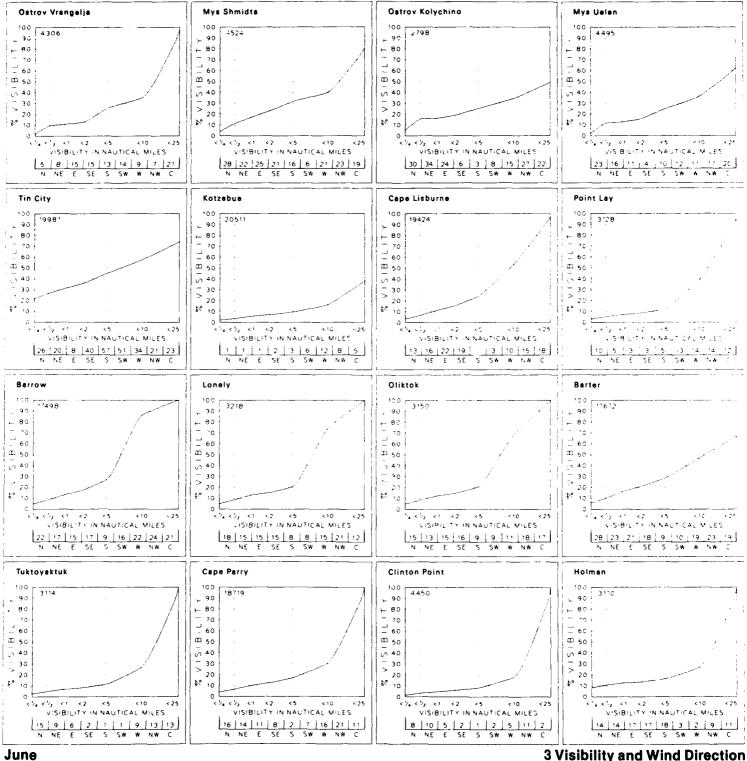




May



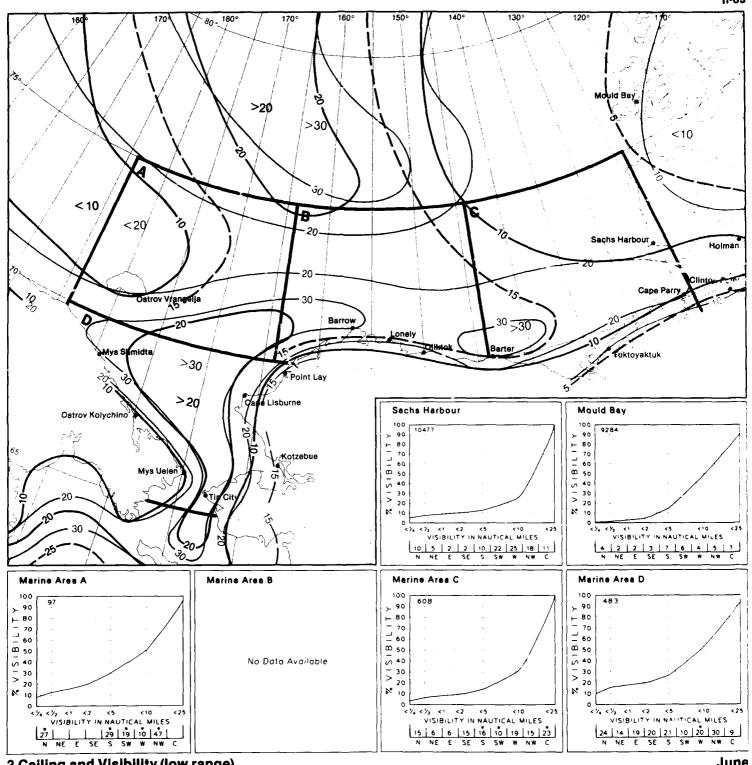
3 Ceiling and Visibility (low range)



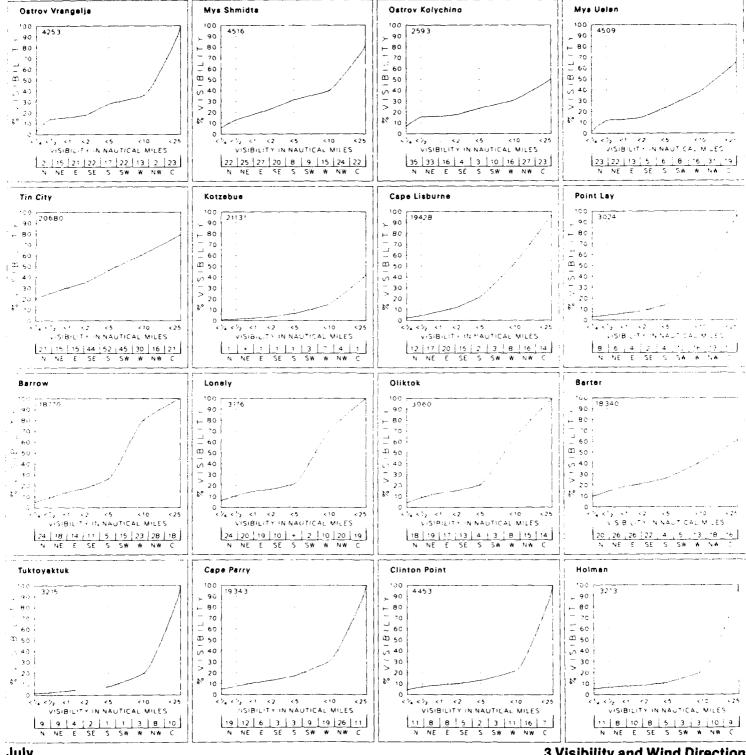
3 Visibility and Wind Direction



June



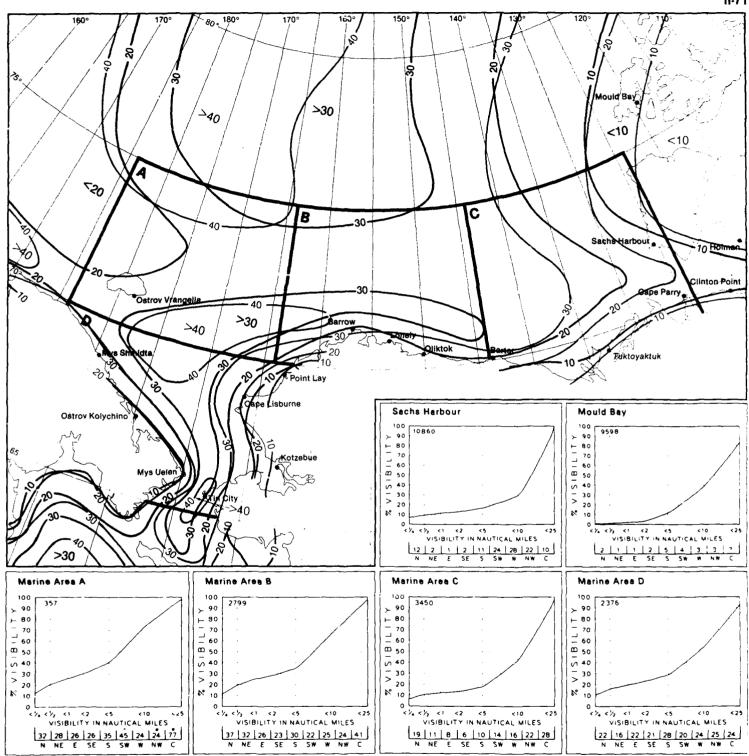
3 Ceiling and Visibility (low range)



July

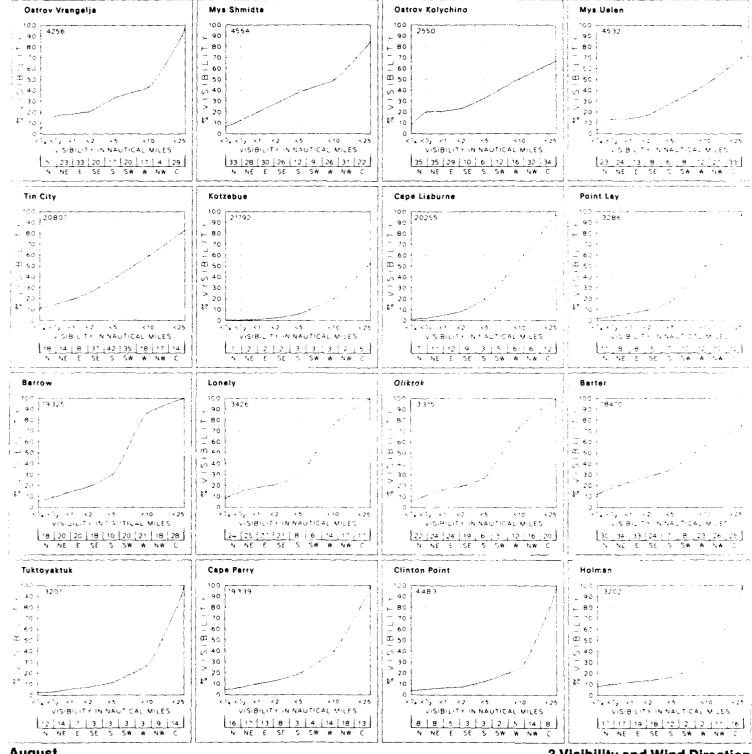
3 Visibility and Wind Direction





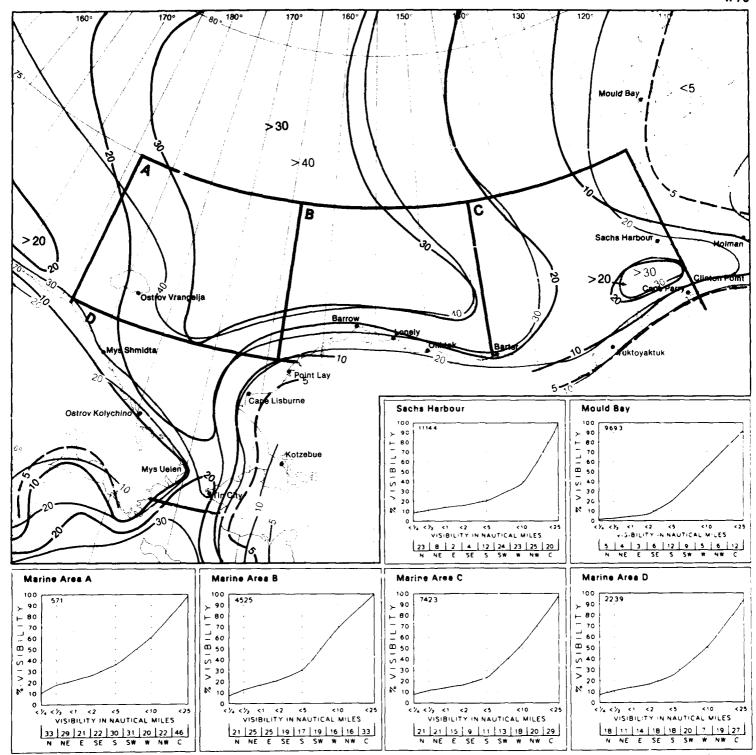
3 Ceiling and Visibility (low range)

July



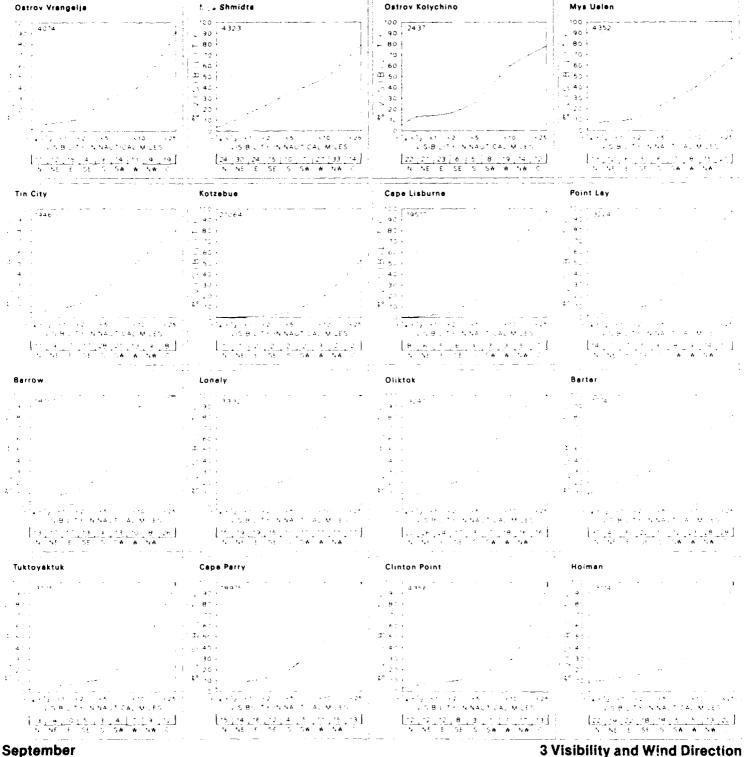
August

3 Visibility and Wind Direction

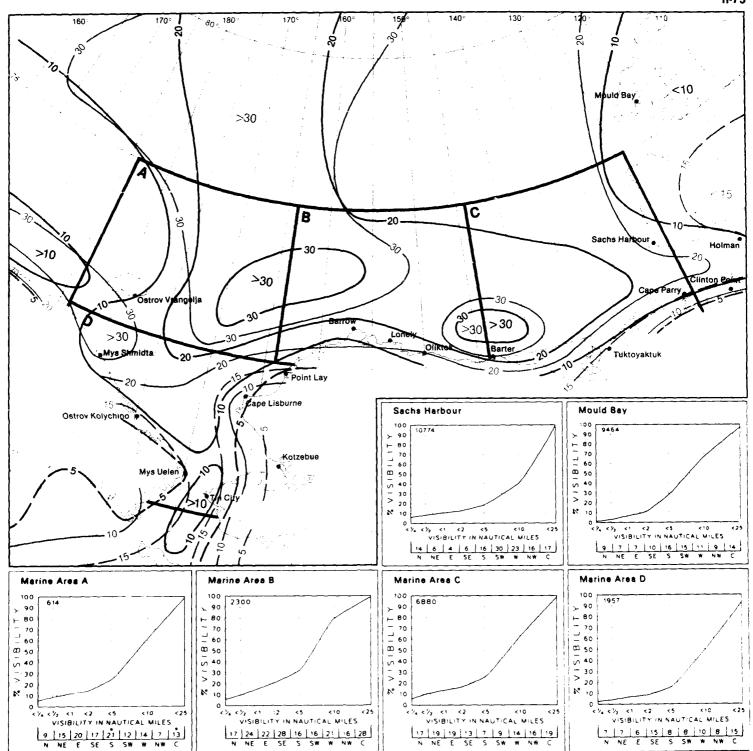


3 Ceiling and Visibility (low range)

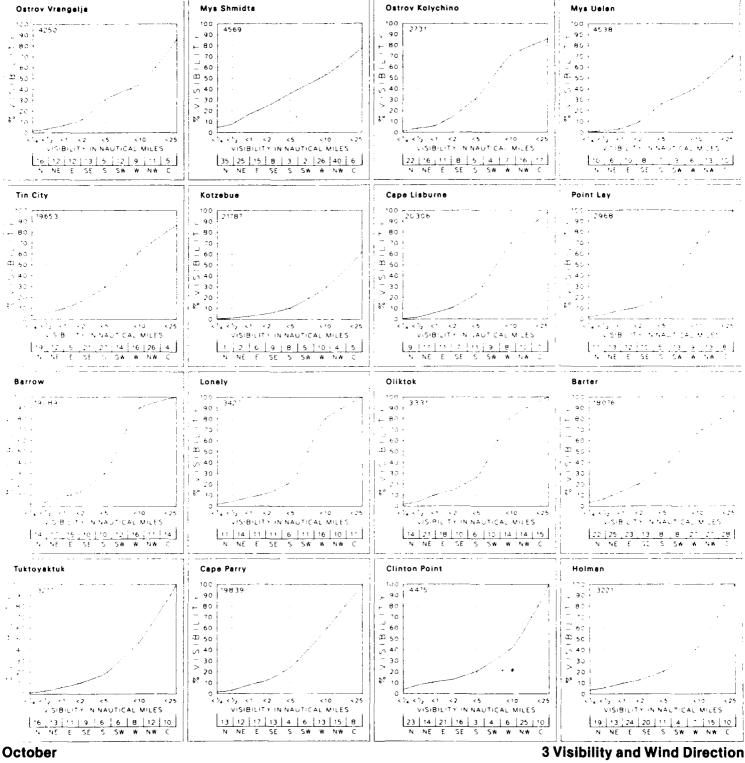
August

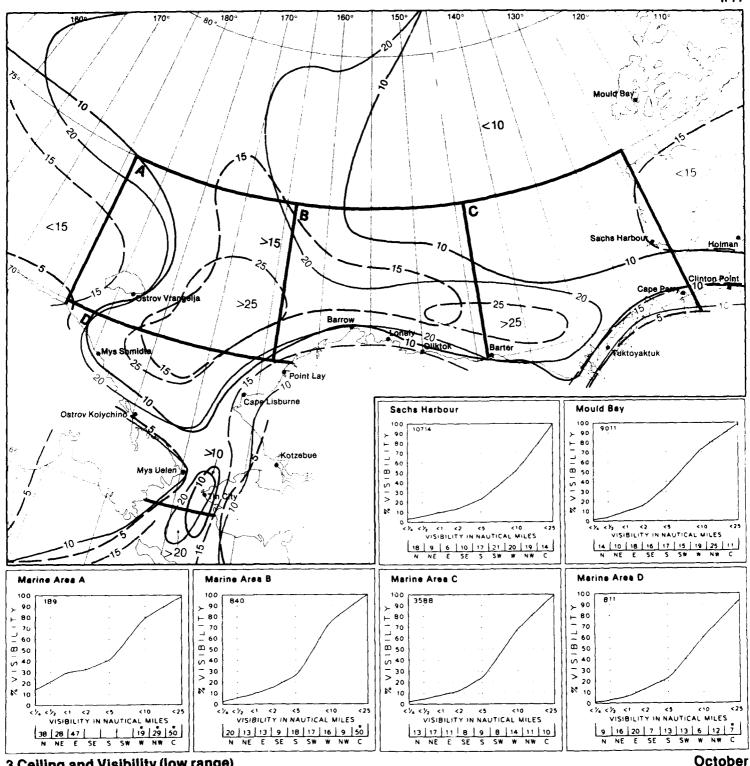


September



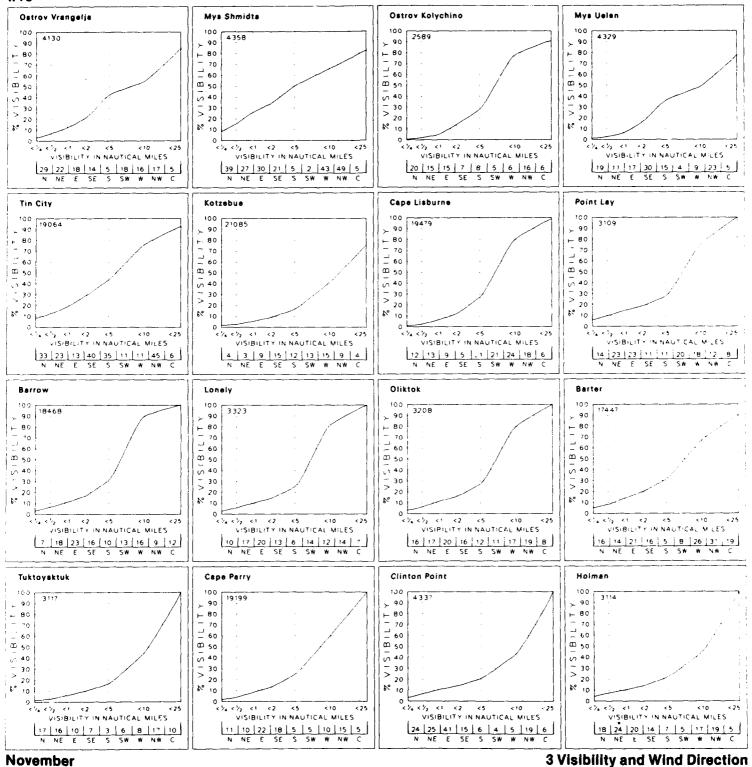
3 Ceiling and Visibility (low range)

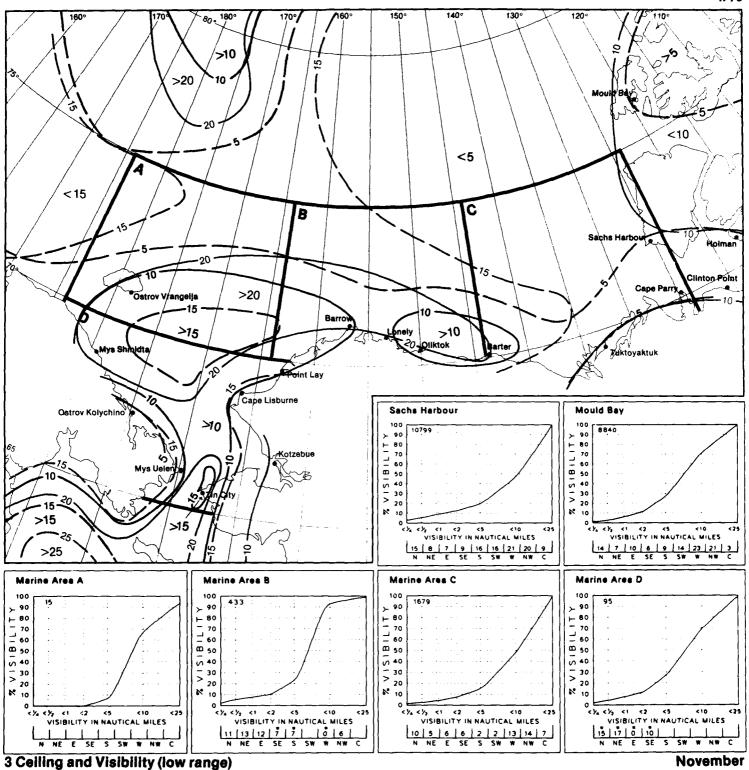


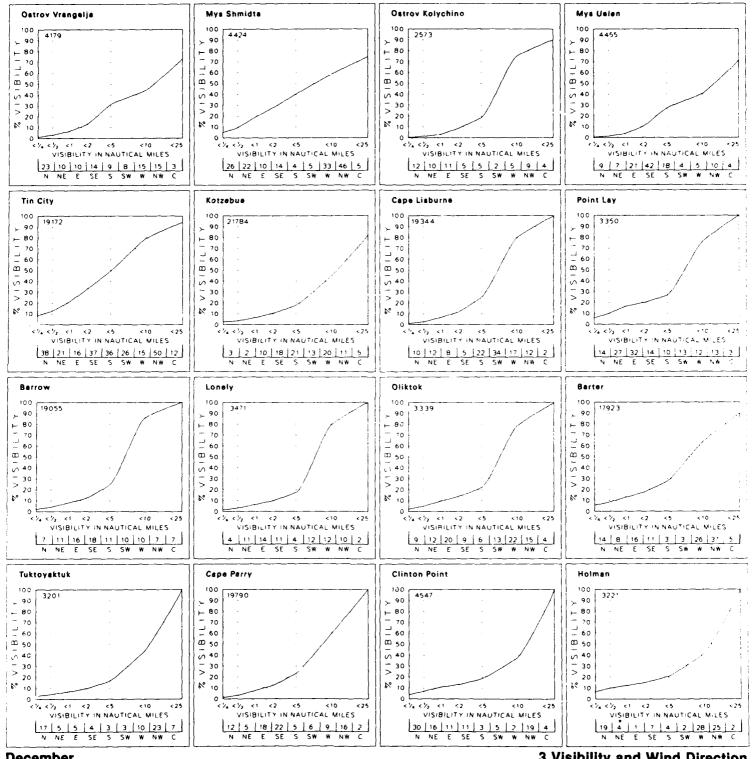


3 Ceiling and Visibility (low range)

October





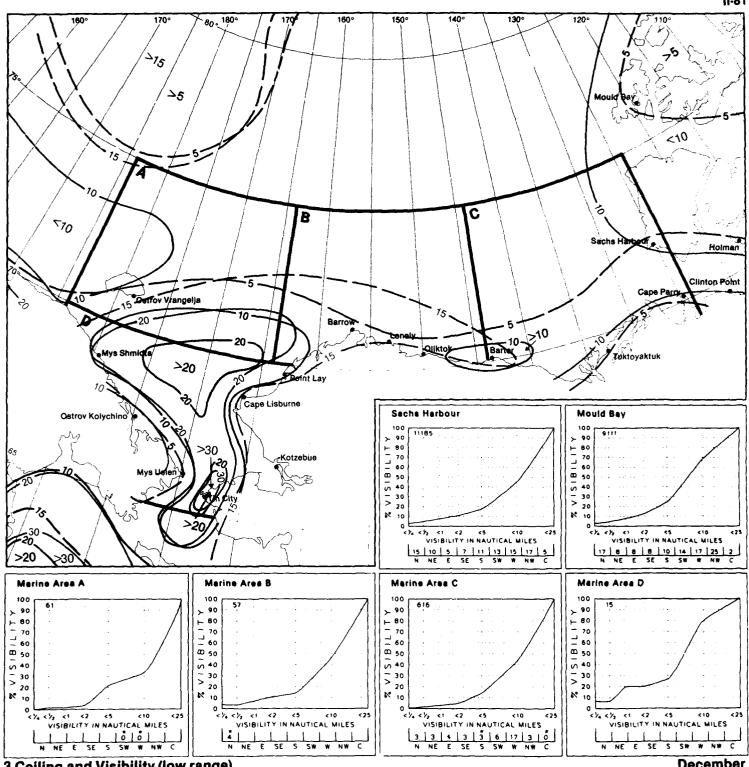


December

3 Visibility and Wind Direction



December



3 Ceiling and Visibility (low range)

Map 4. Ceiling/visibility (mid range)

BLACK LINE - Percent frequency of low cloud ceiling (LCC) <1000 feet and/or visibility <5 nautical miles.

BLUE LINE - Percent frequency of LCC <8000 feet and/or visibility <10 nautical miles.

Albers Equal—Area Conic Projection

Graphs: Low cloud ceiling/visibility

	\ 11	CIDII	17.7	(N.IN. A)			
LOM CLOUD	1	SIBIL	11 Y	(NM))	1659	•
CEILING		1/2-	1-	2-	5-		
(10 ² FT)	<1/2	<1	<2	<5	<10	≥10	
NC	+	0	+	2	7	11	
50<80	0	_ 0	+	+	1	1	
35<50	+	+	+	1	2	3	
20<35	1	1	2	3	8	11	
10<20	1	3	3	_4	8	8	
6<10	+	+	1	2	1	1	_
3<6	+	+	+	1	+	+	
1.5<3	0	_ 0	+	0	0	+	
0<1.5	5	2	2	1	2	+•	-

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

Number of observations.

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

Obscurations are included under ceiling "0<1.5".

"NC" (no ceiling) includes bases of clouds ${\gtrsim}8000$ feet or $N_h\,{<}5/8.$

(8% of all observations reported ceiling ≥1000 feet but <2000 feet simultaneously with visibility ≥5 but <10 nautical miles).

----- + indicates <.5% but >0.

Cloud classification is based upon the cloud appearance and, when possible, the formation process. In estimating the height of the lowest cloud base (h), the observer first determines the type of cloud; and, based on the normal height range for that cloud type, determines the height. Heights are generally higher in the tropics and lower at high latitudes. Similarly, clouds will generally be higher in summer and lower in winter. The appearance of the cloud, such as motion visible in the cloud base and the size of the cloud elements, gives some indication as to how much it is higher or lower than the average. After the observer estimates the height of the base of the lowest cloud in sight, he selects and records the appropriate code (see height table and LCC column in graph). Refer to the texts in Sets 3 and 6 for additional information on clouds.

HEIGHT (h) ABOVE THE SEA OF THE BASE OF THE LOWEST CLOUD SEEN (WMO Code, 1982)

If sky is clear or has only Cirrus-type clouds, code h as 9.

figs.	Height in meters	Height in feet
ō	0 to 49	100 or less
1	50 to 99	200 or 300
2	100 to 199	400 to 600
3	200 to 299	700 to 900
4	300 to 599	1000 to 1900
5	600 to 999	2000 to 3200
6	1000 to 1499	3300 to 4900
7	1500 to 1999	5000 to 6500
8	2000 to 2499	6600 to 8200
9	2500 or more, or no clouds	8300 or mare, or no clouds
1	Sky obscured by fog or snow	

Ostrov Vrangelja

.0•	lvis	iBiL	iΤγ	(NA	1) 4	1162
CLOUD CEILING (10° FT)	ورا >	- را ا >	1-	2 - < 5	5 - < 10	≩ 10
NC	3	3	4	11	9	46
50<80	+	+	+	1	+	+
35<50	+	+	+	+	+	1
20<35	+	1	1	1.	1	1
10<20	+	+	1	3	1	2
6<10	0	+	+	1	+	1
3<6	+	+	+	+	+	+
1.5 < 3	0	0	0	0	0	0
0<1.5	1	+	0	0	0	+

Mys Shmidte

. 0₩	VIS	ieil	ıT y	(NN	1) 4	693
CLOUD CEILING (10° FT)	<15	/ ₂ - د ا	1~ <2	2 - <5	5 - < 10	≩10
NC	5	6	6	10	14	34
50 <b0< td=""><td>+</td><td>+</td><td>+</td><td>1</td><td>-</td><td>+</td></b0<>	+	+	+	1	-	+
35<50	+	+	+	1	1	+
20<35	1	1	1	2	- ;	1
10<20	1	2	2	2	1	1
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	+
1.5<3	+	+	+	+	0	0
0<1.5	2	+	+	0	0	0

Ostrov Kalychina

.00	VIS	BIL	IT Y	(NN	1) 2	890
CLOUD CEILING (10 ² FT)	<'/>/>	ソァ- <1	1-	2 - <5	5- <10	≥10
NC	i	7	3	7	43	22
50<80	+	+	1	2	2	1
35<50	0	+	+	0	+	+
20<35	0	+	+	1	3	1
10<20	+	+	2	2	2	+
6<10	+	+	•	+	+	+
3<6	0	Ò	+	0	0	0
1.5<3	0	0	0	0	Ó	0
0<1.5	1	+	+	+	0	+

Mys Uelen

	٠					6.70
CF000 F0#	1 012	BIL	H T	(NN	1) 4	678
CEILING		7, -	1	2 -	5 -	1 1
(10° FT)	< 1/2	· < 1	< 2	< 5	<10	₹10
NC	+		3	7	5	45
50<80	0	+	+	+	+	+
35<50	0	+	+	+	+	+
20<35	+	+	1	2	1	4
10<20	1	1	5	9	4	4
6<10	+	+	1	1	+	+
3<6	+	+	+	+	+	+
1.5<3	0	0	+	+	0	0
0<1.5	1	0	0	+	+	+

Tin City

د ۵ 🛊	V13	uBiL	IT Y	(NN	4) :	1889
CLOOD		- ولا	,_	ا ء –	ا ا د	
CE'LING (10° FT)	< 1/2	/3 - < 1	<2	<5	3-10	≥10
NC	5	5	4	7	14	17
		-			-	- , -
50<80	+	+	+	+	1 '.	1
35<50	+	+	+	1	1	1
20<35	1	1	1	2	2	1
10<20	1	1	1	2	2	
6<10	+	+	1	2	2	+
3<6	+	1	+	1	1	+
16/2	4	Ò	+	0	+	0
0<1.5	13	T	1	+	0	0

Kotzebue

Lu#	l vis	SIBIL	IT Y	(NA	1) 15	508
CLOUD CEILING (10° FT)	وراي	1 ₂ -	1 - < 2	2 -	5 - < 10	≥10
NC	1	1	1	3	9	52
50<80	+	+	+	+	1	2
35<50	+	+	+	+	2	-7
20<35	+	+	1	2	3	- 3
10<20	+	+	1	2	2	1
6<10	+	+	+	+	1	+
3<6	+	+	+	+	+	+
1,5< 3	-	+	+	+	+	+
0<1.5	3	2	1	+	+	+

Cape Lisburne

	_	_	_			
CLOUD	VIS	181L		(NN)	() .1 s_	145
(10° FT)	< 1/2	2 <1	<2	< 5	<10	≩10
NC	1	2	1	3	16	31
50<80	0	+	+	,	3	
35<50	0	+	+	+	1	,
20<35	+	1	1	3	7	3
10<20	+	1	2	4	7	3
6<10	0	+	+	1	-	1
3<6	0	+	0	+	+	0
1.5< 3	0	0	0	0	0	0
0<1.5	1	2	- 1	+	0	0

Point Lay

	1/15	IBI	IT Y	(NN	1) 3	332
Crond	1	/ ₂ -	Ι,	,		
(10° FT)	<55	<1	<2	<5	<10	<u>₹</u> 10
NC	7	2	2	4	28	20
50<80	+	+	+	+	2	+
35<50	0	0	+	0	+	+
20< 35	+	+	+	1	4	1
10<20	2	1	1	4	9	2
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	Ô
1.5< 3	+	0	0	+	0	0
0<1.5	5	+	+	+	٥	+

Barrow

LOW	1 .//5	1011	ITΨ	/ NIA	4) 14	644
CLOND		1	i. '			
CEILING (10° FT)	< 1/2	½ - <1	! - <2	2- <5	5 - < 10	≥10
NC	2	2	3	6	42	11
50<80	+	+	+	1	4	+
35<50	+	+	+	+	1	+
20<35	+	+	+	1	4	+
10<20	1	1	1	2	5	+
6<10	+	+	+	1	2	+
3<6	+	+	+	1	1	+
1.5<3	+	+	+	+	+	0
0<1.5	3	1	+	+	+	0

Lonely

10W	VIS	BIL	IΤΥ	(NN	1) 3	372
CEILING		1/2-	1 -	2	5 -	
(10° FT)	< 1/2	<1	< 2	< 5		≥10
NC	2	2	2	3	40	[20]
50<80	+	+	+	,	2	
35<50	+	0	0	+	1	+
20<35	+	+	+	1	4	1
10<20	1	1	1	2	7	1
6<10	+	+	+	+	1	+
3<6	+	+	+	+	+	0
1.5< 3	+	+	+	+	+	0
0<1.5	2	1	+	+	+	0

Oliktok

LOW	VIS	iBiL	r Tt	(NA	1) 3	3284
CLOUD CEILING (10 ³ FT)	ر ^{را} >	- را ا >	t- <2	2 - < 5	5 - < 10	≥10
NC	4	3	-2	5	38	17
50<80	+	+	+	+	2	1
35<50	0	0	Ö	+	'	+
20<35	+	+	+	1	4	1
10<20	1	1	1	2	8	1
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	0
1.5< 3	+	+	0	0	+	0
0<1.5	4		+	+	+	0

Barter

L O ≢	VIS	IBIL	IT Y	(NN	4) 15	276
CEILING (10° FT)	< ½	/ ₂ - くり	1 - < 2	⊋- <5	5 ~ < 10	<u>≥</u> 10
NC	-	3	2	4	19	34
50<80	1	+	+	1	3	2
35<50	+	+	+	+	1	1
20<35	1	1	1	2	3	1
10<20	1	1	1	1	3	1
6<10	+	+	+	+	1	+
3<6	+	+	+	+	+	0
1.5<3	+	+	+	+	+	0
0<1.5	5	1	+	+	+	0

Tuktoyaktuk

LOW CLOUD CEILING (10 ² FT)	1	اBIL - درا	1 -	(NN 2 - <5	5 -	30 <i>2</i> 9
NC NC	+	+	1	3	18	48
50<80	+	+	+	+	2	2
35<50	+	+	+	+	1	1
20<35	+	+	+	1	4	3
10<20	+	1	1	1	4	1
6<10	0	+	+	+	+	+
3<6	+	+	+	+	+	+
1.5<3	+	0	0	0	+	+
0<1.5	2	1	+	+	+	0

Cape Parry

10W	VIS	iBiL	IT Y	(NN	1) 18	3239
CEILING (10° FT)	< ½	ر د ا	1 - < 2	2 - < 5	5 -	<u></u> 10
NC NC	1	1	2	6	28	42
50<80	+	+	+	1	2	1
35<50	+	+	+	1	1	1
20<35	+	+	1	1	2	-
10<20	1	1	1	1	1	+
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	0
1.5<3	0	+	+	+	+	0
0<1.5	2	+	+	+	+	+

Clinton Point

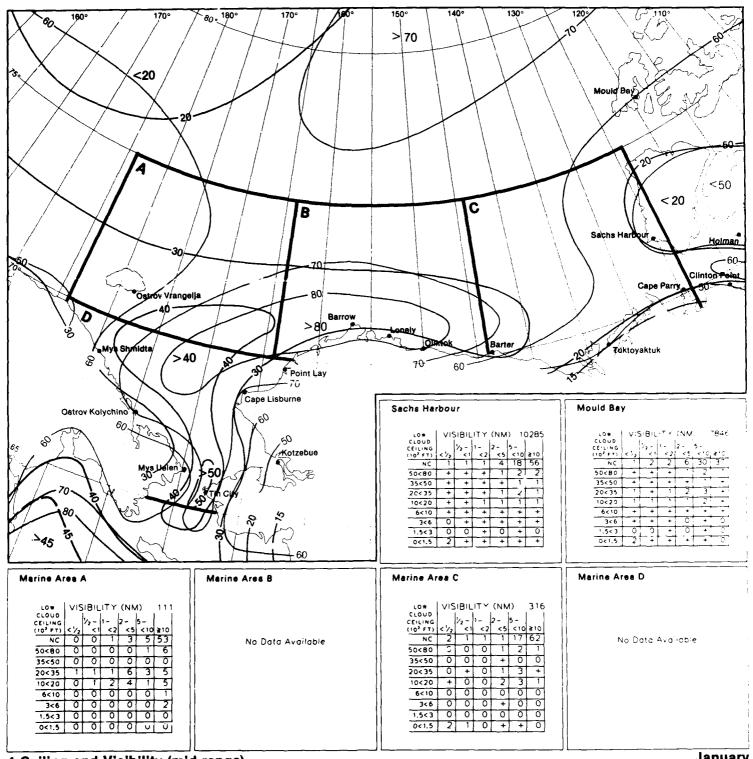
LOW	VIS	iBiL	ITY	(NN	1) 4	263
CLOUD CEILING (10° FT)	< 1/2	- ولا ا >	1-	2 - <5	5 - <10	≥10
NC	1	1	+	3	10	61
50<80	+	+	+	+	2	2
35<50	+	+	+	+	2	1
20<35	1		+	1	4	2
10<20	1	1	+	1	7	1
6<10	+	+	+	+	+	+
3<6	+	+	0	+	+	+
1.5<3	+	0	0	0	+	+
0<1.5	+	+	+	0	+	0

Holman

L O W	VIS	IBIL	JTY.	(NA	1) 2	92
CLOUD CEILING (10° FT)	<'/ ₂	1/2 - <1	1-	2 - <5	5 - <10	≥10
NC	2	+	+	1	9	57
50<80	+	+	+	+	2	3
35<50	+	+	+	+	1	1
20<35	1	+	+	1	4	3
10<20	1	1	1	2	3	1
6<10	+	+	+	+	+	+
3<6	+	+	+	0	0	0
1.5<3	0	0	0	0	0	0
0<1.5	4	+	+	+	+	0

January





January

Ostrov Vra	ngelj	
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LOW CLOUD CELLING (NM) 3893 (100 FT) (1

Mys Shmidta

LOW	VIS	BIL	ITY.	(NN	1) 4	1354
CLOUD	['	/2 -	l	2-	5-	
(10° FT)	<1/2	1 < 1	<2	< 5		≩10
NC	7	9	7	9	14	39
50<80	+	+	+	+	1	+
35<50	+	+	+	+	+	+
20<35	1	+	1	2	1	1
10<20	1	1	1	1	+	+
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	+
1.5<3	0	0	0	+	+	0
0<1.5	1	+	+	0	0	0

Ostrov Kolychino

CLOUD L	VIS	IBIL	ΙΤΥ	(NN	1) 2	774
CEILING	<1/2	⅓- <1	1- <2	2 - . <5	5 - <10	≥10
NC	+	1	3	7	40	28
50<80	+	1	2	2	2	1
35<50	+	+	+	+	+	+
20<35	+	+	+	_ 1	3	1
10<20	+	+	1	2	1	+
6<10	٥	+	+	+	0	+
3<6	0	0	+	+	0	+
1.5<3	0	0	0	0	0	0
0<1.5	+	+	+	0	0	0

Mys Uelen

	ء بر ا		, T \vee	/ h i h		247
CLOUD LOW	1 015	ואוי	.11 *	(1/11/	1) 4	347
CEILING	{	1/2 -	1 - 1	2 -	5 - 1	
(10° FT)	< 1/2	<1	<2	<5	<10	≥10
NC	+	1	3	8	9	50
50<80	0	0	+	0	+	+
35<50	+	0	+	+	+	+
20<35	+	+	1	2	1	2
10<20	1	1	4	7	3	3
6<10	+	+	+	1	+	+
3<6	0	+	+	+	+	+
1.5<3	0	0	+	+	0	0
0<1.5	1	0	0	0	0	0

Tin City

LOW	VIS	BIL	ITΥ	(N)	1) [3597
CLOUD	ļ	l	١. '	١,	ایا	1 1
(10° FT)	< 1/2	/2 = <1	< 2	∠ - <5	710	≥10
						= 10
NC	8	4	5	10	16	21
50<80	0	+	+	+	+	1
35<50	+	+	+	+	1	_
20<35		1	1	2	1	1
10<20	1	1	1	2	1	1
6<10	+	1	1	1	2	+
3<6	+	+	+	1	+	+
1.5<3	0	+	+	+	+	0
0<1.5	9	1	+	+	0	0

Kotzebue

LOW) VIS	SIBIL	JT Y	(NN	1) 1;	3959
CLOUD CEILING (10° FT)	< 1/2	/ ₂ - <1	1-	2 - <5	5 - <10	≥10
NC	1	1	1	3	9	53
50<80	+	+	+	+	1	2
35<50	+	+	+	1	1	2
20<35	+	+	1	2	3	3
10<20	+	+	1	2	2	2
6<10	+	+	+	+	1	+
3<6	+	+	+	+	+	+
1.5<3	0	+	0	+	+	+
0<1.5	2	1	7	+	+	+

Cape Lisburne

LOW CLOUD CEILING	VIS	SIBIL	T Y	(NN 2-	1) 3	8958
(10° FT)	<1/2	< 1	<2	₹5	<10	≥10
NC	2	2	1	3	17	44
50<80	+	0	+	+	1	
35<50	+	+	0	+	1	Ť
20<35	+	1	1	2	5	3
10<20	+	1	-	2	5	
6<10	0	+	+	1	+	+
3<6	0	0	+	+	+	0
1.5<3	0	0	Õ	+	+	0
0<1.5	2	1	+	+	Ô	Õ

Point Lav

LO#	VIS	iBiL	IΤΥ	(NN	1)	302.
CLOUD CEILING (10° FT)	< '/ ₂	/ ₂ - < 1	 <2	2 - <5	5 - < 10	≥10
NC	6	4	2	4	33	20
50<80	+	+	+	+	2	+
35<50	0	0	0	+	1	-
20<35	+	+	+	1	4	
10<20	2	,	,	3	8	
6<10	+	+	+	+	+	Ōi
3<6	+	+	+	0	+	+
1.5<3	0	+	0	0	+	
0<1.5	4	+	+	-	+	-

Barrow

LO#	VIS	iBiL	ITY	(NA	1) 1	333
CENTING		1/2 -	1 -	ı-	5 -	
(10° FT)	< 1/2	< 1	< 2	_<5	<10	≥10
NC	2	2	3	7	46	10
50<80	+	+	+	1	3	+
35<50	+	+	+	+	1	+
20<35	+	1	1	5	4	+
10<20	+	1	1	2	4	+
6<10	+	+	+	1	2	+
3<6	-	+	+	+	1	+
1.5<3	+	+	+	+	+	Ö
0<1.5	1	+	+	+	0	0

Lonely

LOW	VIS	IBIL	ΙΤΥ	(NN	1)]	3073
CEILING		/ ₂ -	1-	2 -	5 -	
(10° FT)	< 1/2	<1	< 2	< 5		≥10
NC	2	1	_2	3	42	23]
50<80	+	+	+	+	5	\Box
35<50	+	0	+	+	1	+
20<35	+	+	+	1	4	T
10<20	1	1	1	1	7	1
6<10	+	+	+	+	1	0
3<6	+	+	+	+	+	0
1.5<3	0	+	0	+	+	0
0<1.5	1	1	+	+	Ö	0

Oliktok

LOW) VIS	BIL	JTY.	(NN	4) (3059
CLOUD		1/2-	1 -	2-	5 -	l {
(10° FT)	<1/2	<1	<.2	<5	<10	≥10
NC	3	2	_ <u>5</u>	4	42	18
50<80	+	+	+	+	2	1
35<50	+	+	+	+	1	+
20<35	1	+	+	1	4	1
10<20	1		1	2	8	+
6<10	+	+	+	+	+	0
3<6	+	+	+	+	+	0
1.5<3	0	+	+	0	+	Ô
0<1.5		+	+	+	+	+

Rarter

LOW	VIS	Bil	ĮΤΥ	(NN	(h) 12	1226
CLOUD CEILING (10° FT)	<\/>\(\frac{1}{2}\)	ソ _フ - < 1	·_ <2	2 - <5	5 - <10	≥10
NC	4	2	2	4	20	36
50 <b0< td=""><td>1</td><td>Î</td><td>+</td><td>1</td><td>3</td><td>2</td></b0<>	1	Î	+	1	3	2
35<50	1	+	+	1	1	+
20<35	1	1	1	Ž	3	
10<20	1	-	1	1	1	+
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	0
1.5<3	+	0	+	+	+	+
0<1.5	5		+	+	+	0

Tuktoyaktuk

LOW	1 V15	iBiL	ITY	(NA	<i>a</i>) :	2759
CLOUD CEILING	1 -	/2 - 	1-	1	5 -	≥ 10
NC	+	1	+	2	16	54
50<80	+	+	+	1	3	3
35<50	0	+	+	+	1	1
20<35	+	+	+	1	3	1
10<20	+	1	1	1	3	1
6<10	+	+	+	+	+	+
3<6	0	+	+	+	+	+
1.5<3	0	0	Ŏ	0	0	0
0<1.5	1	+	+	+	+	0

Cape Parry

LO#	VIS	IBIL	ITY	(NA	1) 16	876
CLOUD CEILING (10° FT)	< 1/2	⅓- <1	1- <2	2 - < 5	5~ <10	≥10
NC	2	2	2	6	27	45
50<80	+	+	+	1	1	1
35<50	+	+	+	+	1	+
20<35	+	+	+	1	2	+
10<20	+	+	+	1	1	+
6<10	+	+	+	+	+	+
3<6	+	+	+	+	+	+
1.5<3	0	+	+	+	0	0
0<1.5		+	+	+	+	+

Clinton Point

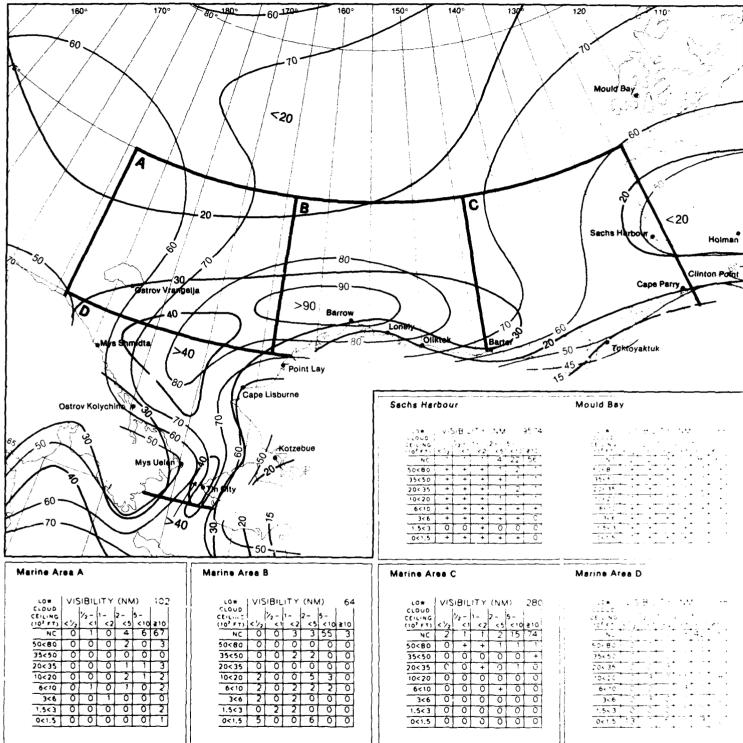
LOW	VIS	BIL	ITY	(NK	0 3	3907
CLOUD CE:LING		1/2-	1 –	2 -	5 ~	
(10° FT)	< 1/2	<1	<2	<5	<10	≩10
NC	1	+	1	2	10	65
50<80		+	+	+	2	3
35<50	+	+	+	+	2	2
20<35	+	-	+	1	2	2
10<20	1	+	+	1	1	+
6<10	+	+	+	+	+	+
3<6	+	Ò	+	+	+	0
1.5<3	0	0	0	0	0	0
0<1.5	+	+	+	+	0	0

ioiman

LOW	VIS	iBiL	IT Y	(NN	4) 2	739
CLOUD CEILING (10° FT)	< 1/2	½- <1	1- <2	2 ~ < 5	5 - <10	≥10
NC	1	1	+	2	9	63
50<80	+	+	+	+	2	2
35<50	+	+	+	+	1	1
20<35	+	+	+	1	3	2
10<20	1	+	1	1	2	1
6<10	+	+	+	+	+	+
3<6	+	0	0	0	0	0
1.5<3	0	0	0	+	0	0
0<1.5	2	+	+	0	0	0

February

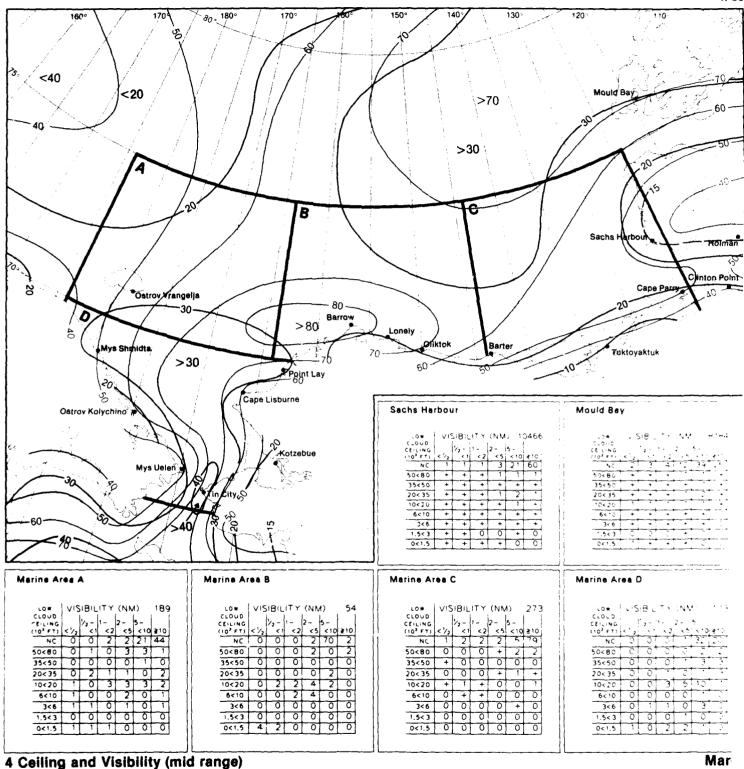




Februa

II-88			
Ostrov Vrangelja	Mya Shmidta	Ostrov Kolychino	Mys Uelen
LOW VISIBILITY (NM) 4385 CLOUD $2 - 1 - 2 - 5 - 10 = 10 $ CEILING $2 - 1 - 2 - 5 - 10 = 10 $ NC 4 2 4 9 8 60 50<80 + 0 + + + + + + + + + + + + + + +	COW CLOUD CEILING $\frac{1}{2} \frac{1}{1} - \frac{1}{2} - \frac{1}{5} - \frac{1}{6} = \frac{1}{1} = \frac{1}{2} - \frac{1}{5} - \frac{1}{6} = \frac{1}{1} = \frac{1}{2} = \frac{1}{5} - \frac{1}{6} = \frac{1}{1} $	COND CEILING (10° FT: C/2 C) C C C C C C C C C C C C C C C C C C	Composition VIS(BILITY (NM) 4856
Tin City	Kotz-bue	Cape Lisburne	Point Ley
VIS.BILITY (NM) 4194 C.000 C.000	.0* VISIB-LIT (NM) 15306 C.000 CF. NO 100 1 1 2 15 10 210 100 1 1 3 157 50.80 + + + + 3 35:50 + + + + 2 20:35 + + 1 2 3 3 10:20 + + 1 2 3:6 + + + + + + + + + + + + + + + + + + +	COM VIS(BILITY (NM) 4712	COM
Barrow	Lonely	Oliktok	Barter
5 · · 9 · · · · · · · · · · · · · · · ·	10	COM VISIB TO NM 3367 1000 100	CON S.B. M. In F. C. COLO TELLOS 2 2 5 5 10 4 10 4 10 10 10 10 10 10 10 10 10 10 10 10 10
Tuktoyaktuk	Capa Parry	Clinton Point	Holman
NC	CONTROL VISIBILITY (NM) 1885 TO CE 100 B	CON VISIBILITY (NM) 4368 CCOURT (NG) 4368 CCOURT (NG) 42 - 2 - 5 - 1 NC 1 1 1 3 16 65 SOCRO + + + 1 1 + + 20035 + + 1 1 1 1 10020 + + + + + + + 6010 + 0 + + 0 0 300 + + 0 + 0 0 1.503 0 0 0 0 0 0 0 001.5 1 0 0 + 0 0	10-20
March		4 Low	Cloud Ceiling and Visibility





Ostrov Vrangelja	Mys Shmidts	Ostrov Kolychino	Mys Uelen
LOW CLOUD CELLING (10) FT (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	CLOWD CEILING (10° F7) $2 \cdot \frac{1}{2} - \frac{1}{1} - \frac{2}{2} - \frac{5}{5} - \frac{1}{100} = 10$ NC 3 4 4 8 10 54 50 80 + + + + + + + + + + + + + + + + + +	CON VISIBILITY (NM) 2751 CLOUD CEILING NC + + 2 5 24 46 SOC80 + + 2 2 2 1 35c50 0 + + + + + + + 20c35 0 + + 1 3 3 10c20 0 + 1 2 1 1 6c10 0 0 0 + + + 3c6 0 + 0 + + + 1.5c3 0 0 0 0 0	CELLING Y2-1-2-5- Y2-1-2-5-
Tin City	Kotzebue	Cape Liaburne	Point Lay
LOW VISIBILITY (NM) 4236 CENTING (10 FT) $< \frac{1}{2} < 1 - 2 - 5 - (10 \ge 10)$ NC 3 3 3 4 6 9 21 $50 < 80 + + + + + + + 1$ $20 < 35 $	COW VISIBILITY (NM) 14888 CLOUD $V_2 - 1 - 2 - 5 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6$	LOW VISIBILITY (NM) 4500 CEILING	LOW VISIBILITY (NM) 317 CLOUD CELLING NC B 2 3 4 29 20 50<80 + + + + 2 35<50 0 0 + 0 1 20<35 1 + + 5 5 10<20 2 2 2 3 7 6<10 1 + + + + 1 3<6 + + + + + 1 1.5<3 + 0 0 0 0 0 0<1.5 2 + + 0 0 0 0
Berrow	Lonely	Oliktok	Barter
COUNTY VISIBILITY (NM) 14399 COUNTY 2- 1- 2- 5- 102 FT C ¹ / ₂ C5 C10 ≥ 10 NC 2 1 1 4 45 12 50<80 + + + + + 3 + 35<50 + + + + 2 + 10<20 + + 1 3 7 + 6<10 + 1 1 2 4 + 3<6 + + + 1 1 + 15<3 + + + + + 0<15 1 + + + 0<15 1 + + 15< 3 + + + 0<15 1 + + 15< 3 + + 15< 3 + + 15< 3 + + 15< 3 + + 15< 3 + + 15< 3 + + 15< 3 + 15< 3 + 15< 3 + 15< 3 + 15< 4 + 15< 5 1 + 15< 6 1 1 15< 6 1 1 15< 7 1 15< 8 1 15< 8 1 15< 8 1 15< 8 1 16< 8 1 17< 8 1 18< 8 18< 8 19< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8 10< 8	LOW VISIBILITY (NM) 3219 CLOUD CEILING (10 FT) (1/2) <1 <2 <5 <10 ≥10 NC 1 2 1 3 38 22 50<80 0 + + + + 2 1 35<50 0 0 + + + 1 + 2 10<20 1 1 1 3 3 9 1 6<10 + + + 1 1 + 4 3<6 + + + + + + 0 1.5<3 + + 0 + + 0 0<1.5 1 + + + + 0	LOW VISIBILITY (NM) 3221 CLOUD CEILING (107 et) 1/2 - 1 - 2 - 5 - 1 NC 2 1 2 3 40 19 50<80 + + + + 1 1 35<50 0 + + + 1 1 10<20 1 1 1 3 8 + 6<10 + + + 1 1 6<10 + + + + 1 0 3<6 + + + + + 0 1.5<3 + 0 + + 0 0 0<1.5 2 + 0 + 0 0	LOW VISIBLE TY (NM): 1883 CLOUD CEILING (10° FT) (7) - 1 - 2 - 5 - 5 - (10° FT) (7) - 1 - 2 - 5 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7
Tuktoyaktuk	Cape Parry	Clinton Point	Holmen
20 * VISIBILITY (NM) 3030 CCOUD 1/2 - 11 - 2 - 5 -	LOW VISIBILITY (NM) 18148 CCOUD CEILING (10° F7) < 1/2 < 1 < 2 < 5 < 10 ≥ 10 NC 1 1 2 5 19 51	LOW VISIBILITY (NM) 4100 CELING 1/2-1-2-5- (102 FT) < 1/2 < 1 < 2 < 5 < 10 ≥ 10 NC + 1 1 2 9 60	COW VIS BILITY (NM) 29" CEULING (10° FT) < 1

50<80

35<50

20<35

10<20

6<10 3<6

1.5<3

0<1.5

+

50<B0

35<50

20<35

10<20

6<10

3<6

+ + + + +

1.5<3

0<1.5

7

Ó

0

3

+

+ 0 0 0

+

+

April

50<80 35<50

20<35

10<20

6<10

3<6

1.5<3

4 Low Cloud Ceiling and Visibility

0

50<80

35<50

20<35

10<20

6<10

3<6

1.5<3

0<1.5

3

0

Ö

2

+ + + + 2 + + + + + 0 0 + 0 + + 0 0

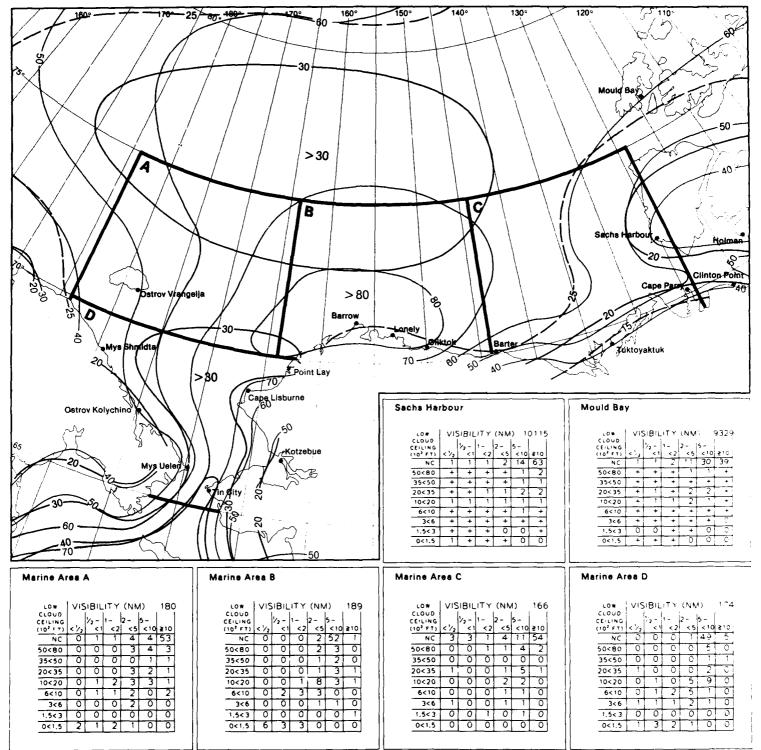
+

0 0

0

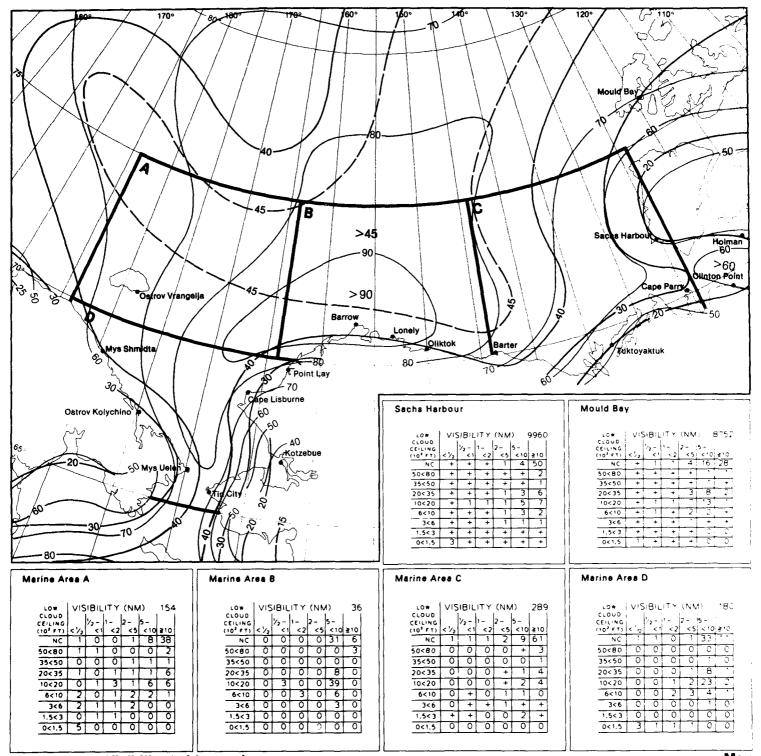
+ + +





April

1-92			
Ostrov Vrangalja	Mys Shmidts	Ostrov Kolychino	Mys Ueien
CLOWD CEILING $ v_2 = v_3 $	CLOUD CEILING 1/2 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 5 - 1 - 2 - 2 - 1 - 2 - 2 - 2 - 2 - 2 - 2 -	LOW VISIBILITY (NM) 2919 CLOUD CEILING (10° FT) (7.5 < 1 - 2 - 5 - 10 210 NC 1 + 1 2 3 30 50<80 + + 1 1 1 1 35<50 0 0 0 + + 1 1 20<35 + + 2 4 9 10<20 + 2 4 7 12 6<10 + 0 + 2 3 3 3<6 0 + 1 2 1 1 1.5<3 0 0 + + + + + + + + + + + + + + + + +	LOW VISIBILITY (NM) 4651 CLOUD CELLING (10° FT) 2/2 <1 <2 <5 <1 <2 <5 <10 210 NC 1 + + 2 1 27 50<80 0 0 0 + 0 + 1 35<50 0 0 + + + 1 1 10 10<20 + + 2 8 521 6<10 0 + 2 2 5 3<6 0 + 1 1 1 1.5<3 0 + + + + + + + + + + + + + + + + + +
Tin City	Kotzebue	Cape Lisburne	Point Ley
COUNTY OF THE PROPERTY OF THE	CLOW CLOUD CETEING (10° FT) $\frac{1}{2}$ $\frac{1}{2$	COW VISIBILITY (NM) 4898 CLOUD	CO
Barrow	Lonely	Oliktok	Barter
LOW VISIBILITY (NM) 14855 CLOUD CEILING (10° FT) < 1/2 < 1 < 2 < 5 < 10 ≥ 10 NC	LOW VISIBILITY (NM) 3249 CLOUD CEILING NC 1 1 + 1 15 10 50<80 + 0 + 1 1 5 3 50<35 + + 1 1 5 3 10<20 1 1 2 4 22 5 6<10 1 1 2 7 + 3<6 1 1 1 1 1 3 + 1.5<3 + + + + 1 0 0<1.5 3 1 + + + 1 0	LOW VISIBILITY (NM) 3223 CLOUD CEILING 1/2 - 1 - 2 - 5 - NC 1 1 1 14 10 50<80 0 0 + + 2 2 35<50 0 + 0 + 1 + 20<35 + 1 1 1 8 2 10<20 1 2 2 5 21 2 6<10 1 1 1 2 4 + 3<6 1 1 1 1 2 + 1.5<3 + 0 0 + 0 0	LOW CLOUD CEILING 1972 CEILING 1972 CEILING 1971 CONTROL 1971 CONTROL 1972 CONTROL
Tuktoyaktuk	Cape Parry	Clinton Point	Holmen
COUNTY CLOUD CEILING (10 FT) $< V_2 = 1 - 2 - 5 - (10) \ge 10$ NC + + + + 4 4 46 $> 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 $	LOW VISIBILITY (NM) 1666 1 CEULING $\frac{1}{2} - \frac{1}{1} - \frac{2}{2} - \frac{5}{5} - \frac{1}{1}$ NC 1 1 1 1 1 7 45 50<80 + + + + + 1 1 35<50 0 + + + + 1 1 10<20 + + 1 2 6 6 6<10 + + + 1 4 3 3<6 + 1 1 2 3 1 1.5<3 + 1 + + + +	COW VISIBILITY (NM) 3851 CEILING (107 FT) (1/2 < 1 < 2 < 5 < 10 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CELLING CIÓPET (NM) 2939 CELLING CIÓPET (1/2 - 1 - 2 - 5 - 10 210) NC 1 + + 1 3 45 50<80 + + + + 1 3 7 10<20 1 1 1 2 7 7 6<10 + + + 1 1 1 1 3<6 + + + + 1 1 1.5<3 + + 0 + + +



May

11-94			
Ostrov Vrangelja	Mys Shmidta	Ostrov Kolychino	Mys Uelen
CON VISIBILITY (NM) 4285 CLOUD CEILING (10 FT) (1/2) - 1 - 2 - 5 - (10 210) NC	COM	LOW VISIBILITY (NM) 2800 CEILING (10 FT) (2) <1 <2 <5 <10 210 NC 1 + 1 1 2 44 50<80 + 0 + + + 2 35<50 0 0 0 0 0 1 20<35 + + + + 1 1 9 10<20 + + 2 3 7 6<10 + 1 1 2 2 3<6 0 + 1 1 2 2 3<6 0 + 1 1 2 2 1.5<3 0 + + + + + 1 0<1.5 14 + + + 0 +	LOW VISIBILITY (NM) 4478 CLOUD CEILING (10 ⁷ ft) (2) - 1 - 2 - 5 - 10 210 NC 2 + + 1 2 41 50<80 0 0 0 0 + 0 + 1 20<35 + 0 + + + 6 10<20 + 1 1 3 5 12 6<10 0 + 1 2 2 3 3<6 + + 1 2 2 1 1.5<3 + + + + + + + + 0<1.5 9 + 0 + + + + 6
Tin City	Kotzebue	Cape Lisburne	Point Lay
LOW VISIBILITY (NM) 4879 CLOUD CENING (10 ³ FT) < \(\frac{1}{2}\) = 1 - 2 - 5 - (10 \text{\geq}) NC 3 1 1 1 1 2 27 50<80 + + + + + + + 3 35<50 + + + + 0 + 3 20<35 + + + + 1 4 10<20 + + + 1 2 3 2 3<6 1 1 1 1 4 4 1 1.5<3 + + + + + + + + + + + + + (1.5<3 3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LOW VISIBILITY (NM) 15013 CLOUD CEILING (10' FT) (7/2	LOW VISIBILITY (NM) 4675 CLOUD CEILING NC 1 1 1 1 1 6 29 50<80 + + + + + + 5 35<50 + + + + 1 2 4 10<20 + + + 1 1 8 5 3<6 + 1 + 1 3 1 1.5<3 + + + + + 0 0<1.5 6 2 1 + + 0	LOW VISIBILITY (NM) 313 CLOUD CEILING (10 ² Ft) (1/2 - 1 - 2 - 5 - 10 210 NC 1 + + + 8 32 50<80 + + 0 0 1 3 35<50 0 0 0 + + 2 20<35 + + + + 3 9 10<20 1 1 1 1 11 14 6<10 + + + 2 3<6 + + + + 1 1.5<3 + + 0 + + +
Barrow	Lonely	Oliktok	Barter
CLOUND CEILING (10° FT) (2°) 2 - 1 - 2 - 5 - 10° (10° FT) (2°) 2 - (1 - 2°) 5 - (10° FT) (2°) 2 - (1 - 2°) 5 - (10° FT) (2°) 2 - (1 - 2°) 5 - (10° FT) (2°) 2 - (1 - 2°) 5 - (10° FT) (2°) 3 - (1 - 2°)	LOW VISIBILITY (NM) 3133 CEDUD CEILING (101 FT) (7/2 C1 2 5 110 & 10 NC	LO# VISIBILITY (NM) 3150 CEILING (10 ² FT) (2 ² <1 <2 <5 <10 ≥10 NC	CON VISIB TY (NM 1597 B) CELLING (10) FT) C 1
Tuktoyaktuk	Cape Parry	Clinton Point	Holman
CLOUD CELLING (10°FT) (2'2) <1 <2 <5 <10 ≥10	LOW VISIBILITY (NM) 15970 CLOUD CEILING (107 FT) < 1/2 NC 1 + 1 1 4 62	LOW VISIBILITY (NM) 3796 CEILING	co+ VISIBILITY (NM) 2777 ccoub cciuns cciuns criuns co+ VISIBILITY (NM) 2777 ccoup cciuns cci

50<80

35<50

6<10 3<6 1.5<3 0<1.5

4

+ 1 2 2 4 2 1 1 +

0

June

50<80

35<50

6<10

00

+

0

50<80 3-<50

20<35

1.5<3

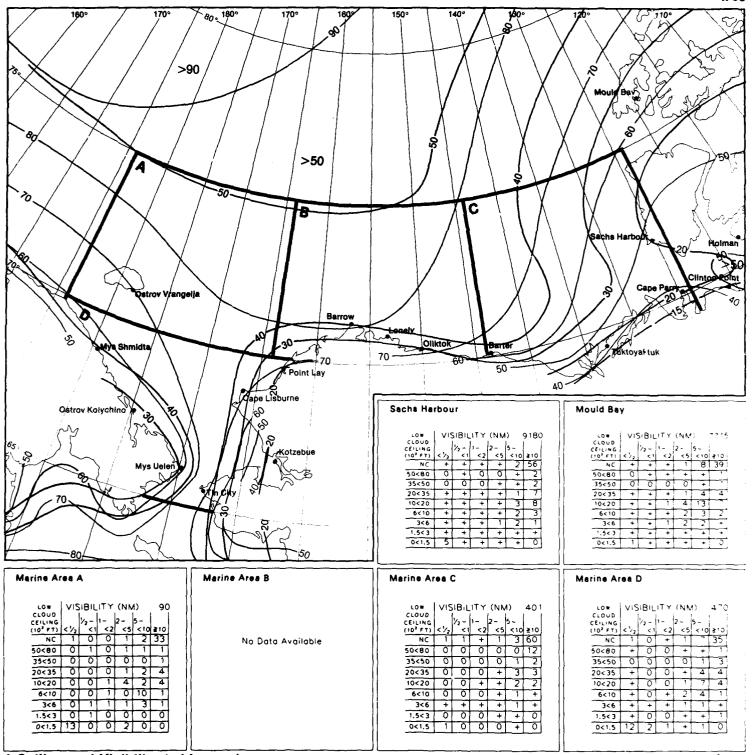
4 Low Cloud Ceiling and Visibility

20<35

6<10 3<6

1.5<3 0<1.5





June

Ostrov Vrangelja

LOW COUNTY (NM) 4217 (NM)

Mys Shmidte

LOW CLOUD CEILING		1BIL /2-	1 ~	2	5	489
(10° FT)	< 1/2	_ <1	<2	<5	<10	≥10
NC	_ 2	_ 1_	1	2	2	43
50 <b0< td=""><td>+</td><td>+</td><td>0</td><td>+</td><td>0</td><td></td></b0<>	+	+	0	+	0	
35<50	+	0	+	+	+	2
20<35	+	+	+	+	1	4
10<20	0	+	+	[]	1	3
6<10	+	+	+	1	1	3
3<6	+	2	2	4	3	4
1.5<3	+	1	1	1	1	+
0<1.5	11	+	+	+	+	+

Ostrov Kolychino

LOW	VIS	SIBIL	JTY	(NN	1) 2	2581
CEILING (10° FT)	< ′/っ	/ ₂ - く!	1 ~ < 2	2 - <5	5- <10	≥10
NC	1	+	1	2	2	46
50 <b0< td=""><td>+</td><td>0</td><td>0</td><td>+</td><td>+</td><td>1</td></b0<>	+	0	0	+	+	1
35<50	+	0	0	0	+	1
20<35	0	+	+	1	1	11
10<20	0	0	+	1	2	7
6<10	+	+	+	+	1	2
3<6	+	0	+	1	1	1
1.5<3	0	0	+	+	+	+
0<1.5	14	+	+	+	0	+

Mys Uelen

LOW	VIS	SIBIL	ΙŤΥ	(NA	1) 4	484
CLOUD CEILING (10° FT)	< 1/2	ر ا > درا	1-	2 - <5	5 - <10	≥10
NC	3	+	+	1	4	41
50<80	0	0	0	+	+	+
35<50	+	0	0	+	+	1
20<35	+	0	0	+	1	6
10<20	+	+	+	3	6	10
6<10	+	+	1	2	2	3
3<6	+	+	1	2	2	•
1.5<3	+	+	+	+	+	+
0<1.5	9	+	+	+	+	+

Tin City

LO#	اررو	aBii.	iτ∨	CNIA		1758
CLOUD	V 13	וסונ	, I I T	LININ	11) 4 	-/JC
CEILING		1/2-	1 -	2	5	
(10° FT)	< 1/2	< 1	<2	< 5	<10	≥10
NC	1	+	+	1	2	18
50<80	0	0	0	+	+	_1
35<50	+	+	+	+	+	2
20<35	+	+	+	+	1	3
10<20	+	+	0	+	2	3
6<10	+	+	+	2	3	3
3<6	+	1	Î	6	4	2
1.5<3	+	+	1	1	1	+
0<1.5	30	3	2	1	+	+

Kotzebue

LO#	VIS	BIL	ΙΤΥ	(NN	1) 15	385
CEILING CLOUD		½ -	1-	_	5 -	
(10° FT)	<1/2	< 1	<2	<5	<10	≩10
NC	+	+	+	+	1	54
50<80	0	+	+	+	+	4
35<50	0	+	0	+	+	3
20<35	0	0	+	+	1	6
10<20	0	+	+	+	2	10
6<10	0	+	+	-	2	6
3<6	+	+	+	1	2	2
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	+

Cepe Lisburne

LO#	1715	iBIL	.ITY	(NA	1) 4	459
CEILING (102 FT)	< ½	√2 - <1	1 < 2	2- <5	5 - < 10	<u>₹</u> 10
NC	1	+	1	1	7	27
50<80	+	+	+	+	1	3
35<50	0	0	+	0	1	2
20<35	+	+	+	+	3	6
10<20	+	+	+	1	9	7
6<10	+	+	1	2	9	3
3<6	+	+	1	1	2	+
1.5<3	0	+	+	+	+	+
0<1.5	4	2	1	+	+	0

Point Lay

L O 🗰	VIS	BIL	ITΥ	ONN	A) ;	3025
CLOUD CEILING (102 FT)	< ½	½ - <1	1 - < 2	2 - <5	5 - < 10	≥10
NC	+	+	+	+	6	29
50<80	0	Ú	+		1	3
35<50	0	Ö	0	+	+	1
20<35	0	+	+	+	4	9.
10<20	+	1	1	3	13	14
6<10	+	+	1	1	3	
3<6	+	+	+	1	1	+
1.5<3	+	Ō	+	+	+	
0<1.5	3	1	+	+	+	+

Barrow

LOW	VIS	BIL	ΙTΥ	(NN	4) 15	5590
CEILING	ļ	1/2 -	1 –	2 –	5 -	
(10° FT)	< 1/2	< 1	< 2	< 5	< 10	≥10
NC	1	1	+	1"	24	13
50<80	+	+	+	+	3	T
35<50	+	+	+	+	3	1
20<35	+	+	+	+	4	1
10<20	+	+	+	1	5	1
6<10	+	+		2	8	1
3<6	1	2	2	4	9	+
1.5<3	1	1	+	ì	+	+
0<1.5	6	T	+	+	+	0

Lonely

LOW	VIS	BIL	Y TI.	(NN	0 3	3094
CEILING (10° FT)	< 1/2	/ ₂ - < 1	1-	2 - < 5	5-	≥10
	1 /2				31	17
NC	_ '		+	_	2 '	17
50 <b0< td=""><td>+</td><td>_+</td><td>_0</td><td>+</td><td>2</td><td>2</td></b0<>	+	_+	_0	+	2	2
35<50	+	0	0	+	1	1
20<35	+	+	0	+	6	4
10<20	+	+	+	1	11	5
6<10	1	+	+	1	4	1
3<6	1	1	+	1	2	+
1.5<3	+	+	+	+	1	0
0<1.5	8	1	+	+	+	0

Oliktok

LO#	VIS	BIL	IT Y	(NN	1) 3	3057
CLOUD CEILING (10° FT)	< 1/2	/ ₂ - <1	1- <2	2 - <5	5- <10	≥10
NC	1	1	+	1	17	23
50<80	0	+	+	0	2	2
35<50	0	+	0	+	1	1
20<35	+	+	+	+	5	6
10<20	+	+	+	2	13	4
6<10	+	+	1	-	3	+
3<6	+	+	+	1	2	+
1.5<3	+	0	0	+	+	0
0<1.5	7	2	1	1	+	0

Barter

LO#	VIS	18:	JΤΥ	(NA	1,16	556
CEILING		1/2 -	1-	2 -	5 -	
(10° FT)	< 1/2	< 1	< 2	< 5	<10	≱10
NC	1	1	+	1.	4	44
50 <b0< td=""><td>+</td><td>+</td><td>+</td><td>+</td><td>1</td><td>4</td></b0<>	+	+	+	+	1	4
35<50	+	+	+	+	,	2
20<35	+	+	+	+	2	3
10<20	+	+	+	1	2	2
6<10	+	+	+	·	3	2
3<6	1	1	1	Ž	4	2
1.5<3	1	+	+	+	+	+
0<1.5	10	1	+	+	+	+

Tuktoyaktuk

			σv	/*/*		2067
CLOUD CEILING (10° FT)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	181L 1/2 - <1	11-Y	(NN 2- <5	1) 2 5 - <10	2967 ≩10
NC	+	+	+	+	2	60
50<80	0	0	Ö	0	+	4
35<50	0	+	0	0	+	2
20<35	0	+	+	+	1	5
10<20	+	+	+	1	4	7
6<10	+	+	+	1	2	-3
3<6	+	+	1	1	2	1
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	0

Cape Parry

LOW	VIS	IBIL	iT Y	(NN	1) 16	901
CLOUD CEILING (10° FT)	< 1/2	√2 - <1	1~	2 - < 5	5 - <10	≥10
NC	1	1	1	1	6	65
50<80	+	0	+	+	+	2
35<50	+	+	0	+	+	2
20<35	+	+	+	+	+	2
10<20	+	+	+	+	1	2
6<10	+	+	+	+	1	1
3<6	+	1		1	2	1
1,5<3	+	1	1	_ 1	+	+
0<1.5	4	1	+	+	+	+

Clinton Point

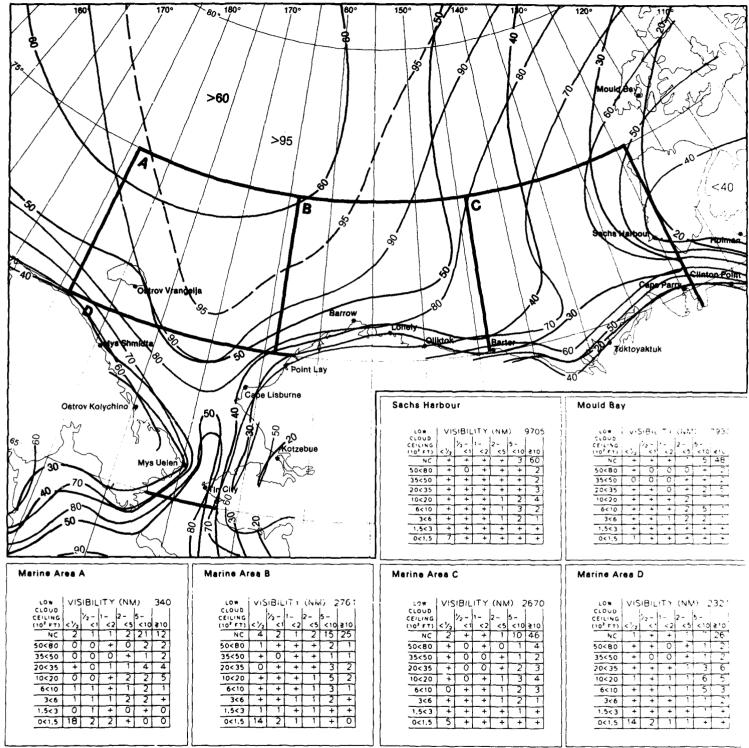
10 %	VIS	BIL	ΙΤΥ	(NN	4) 3	3740
CLOUD CEILING (10° FT)	< 1/2	½~ <1	1-	2 - <5	5 - <10	≥10
NC	+	+	+	+	2	67
50<80	0	+	+	+	+	2
35<50	+	+	0	0	+	2
20<35	+	+	+	+	1	7
10<20	+	+	+	1	2	3
6<10	+	+	+	+	1	1
3<6	1	T	+	1	2	1
1.5<3	+	+	0	+	+	0
0<1.5	1	+	+	+	+	0

Holman

LO.	J VIS	iBiL	iTY.	(NIN	n ;	うけいと
CLOUD CEILING (10° FT)	< >,	1/2 - < 1	1-	2 -	5 - < 10	≥10
NC	-1	+	+	+	3	61
50<80	+	0	+	0	+	4
35<50	+	+	0	+	+	Ž
20<35	+	+	+	+	7	9
10<20	+	+	+	1	3	5
6<10	+	+	+	1	1	1
3<6	+	+	+	1	+	+
1.5<3	0	0	0	+	+	0
0<1.5	4	+	+	+	+	O

July





Jul

Oatrov Vrangelja

Mys Shmidte

Ostrov Kolychino

Mys Uelen

LOW CLOUD CEILING (10° FT) (10

Tin City

LOW CLOUD CEILING ($\frac{1}{2}$) $\frac{1}{2}$ $\frac{1}$

Kotzebue

VISIBILITY (NM) 15575 | 1/2 - 1 - 2 - 5 - | | <1 <2 <5 <10 ≥10 NC + + + + 2 41 0 0 0 + 0 + + 20<35 10 1 4 15 6<10 3 6 3<6 1 2 + + + + + 1.5<3 + 0<1.5

Cape Lisburne

LOW CLOUD CEILING (10° FT) (10

Point Lay

Barrow

		_				
LOW	VIS	BIL	ΠY	(NN	4) 15	/94
CEILING	İ	1/2-) 1	2-	5 -	
(10° FT)	< 1/2	^{''2} <1	<2	< 5	-	≥10
NC	1	+	+	1	15	7
50<80	+	+	+	+	1	1
35<50	+	0	+	+	2	+
20<35	+	+	+	+	4	1
10<20	+	+	+	1	10	2
6<10	+	1	1	3	13	1
3<6	1	2	2	5	11	1
1.5<3	+	+	+	1	1	0
0<1.5	7	1	+	+	+	0

Lonely

CLOUD LOW	VIS	BIL	IΤΥ	(NN	1) 3	336
CEILING	< 1/2	½ - <1	1-	2 ~ < 5	5 - < 10	≥10
NC	Ť	+	+	1	11	11
50<80	+	+	0	0	2	2
35<50	0	Ô	0	+	1	1
20<35	0	+	+	+	6	4
10<20	+	+	1	2	16	7
6<10	+	+	+	2	7	1
3<6	1	1	1	2	5	+
1.5<3	+	+	+	+	1	+
0<1.5	11	1	+	+	+	0

Oliktok

LOW	V!S	IBIL	JTY	(NN	1) 3	3301
CEILING (10° FT)	< 1/2	/ _フ ー <1	1-	2 - <5	5 - <10	≥10
NC	1	+	+	1	11	13
50<80	+	0	0	+	2	1
35<50	0	0	0	+		1
20<35	+	+	+	+	7	5
10<20	+	+	+	2	18	5
6<10	+	+	1	2	5	1
3<6	+	1	1	2	3	+
1.5<3	+	+	+	+	+	+
0<1.5	10	3	1	1	+	+

Barter

LOW	VIS	18n.	ΙΤΥ	INN	4) 16	325
CLOUD CEILING (10° FT)	< ½	1/2 - <1	1_ <2	2 - <5	5 - <10	≥10
NC	1	1	+	1	5	29
50 <b0< td=""><td>+</td><td>+</td><td>+</td><td>+</td><td>1</td><td>4</td></b0<>	+	+	+	+	1	4
35<50	+	+	+	+	1	2.
20<35	+	+	+	+	2	2
10<20	+	+	+	1	4	5
6<10	+	+	7	1	5	2
3<6	2	2	2	3	5	2
1.5<3	ī	+	+	+	+	+
0<1.5	14	2	+	+	+	+

Tuktoyaktuk

LO#	VIS	IBIL	ITY	(NN	1) 2	95
CEILING (10 FT)	< 1/2	½- </td <td>1-</td> <td>2 - <5</td> <td>5 -</td> <td>≥10</td>	1-	2 - <5	5 -	≥10
NC	. 13	+			1	46
			_ +			
50<80	+	+	+	_0	+	4
35<50	0	0	0	0	+	2
20<35	0	0	0	+	2	7
10<20	+	+	+	1	6	11
6<10	+	+	+	1	3	4
3<6	+	+	1	1	_ 2	1
1.5<3	0	+	+	+	+	+
0<1.5	2	1	+	+	+	0

Cape Parry

LOW	VIS	IBIL	ΙΤΥ	(NN	1) 16	104
CEILING (10° FT)	< 1/2	/2- 12	1-	2 - <5	5 -	≥10
	/2			1		
_NC	1	+	+	1	8	48
50<80	+	+	+	+	+	□ 1]
35<50	+	+	Ò	+	+	1
20<35	+	+	+	+	-	4
10<20	+	+	+	+	3	7
6<10	+	+	+	1	3	3
3<6	+	1	1	2	3	1
1.5<3	+	1	1	1	+	+
0<1.5	4	1	+	+	+	+

Clinton Point

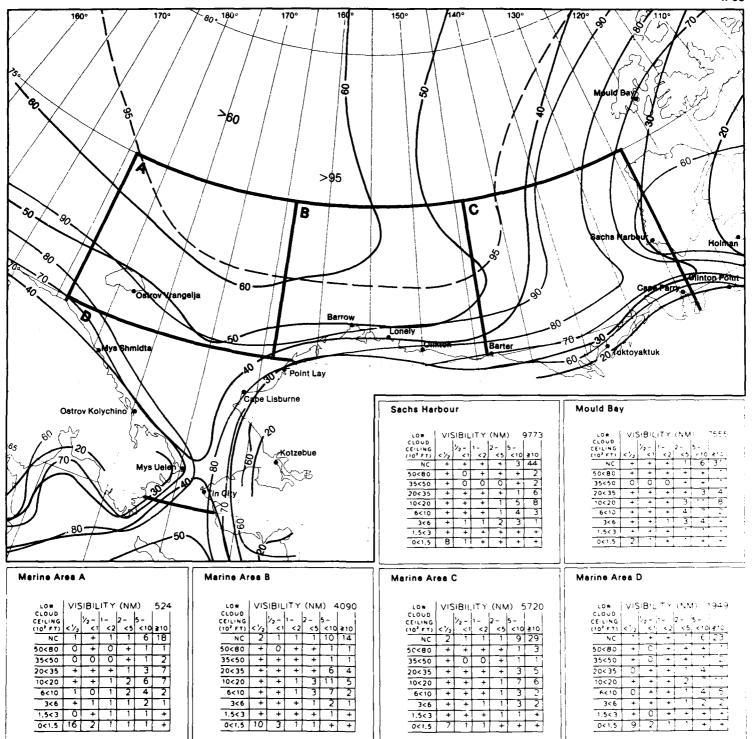
LOW	VIS	BIL	JTY.	(NN	1) 3	3777
CLOUD CEILING (10 ² FT)	< 1/2	/ ₂ - <1	1-	2 - <5	5 <10	≥10
NC	+	+	+	1	3	52
50<80	+	+	+	+	+	2
35<50	0	0	+	+	+	3
20<35	+	0	+	+	1	9
10<20	+	+	+	2	5	10
6<10	+	+	+	1	2	2
3<6	+	+	+	1	1	+
1.5<3	+	+	+	+	+	+
0<1.5	1	+	+	+	+	+

Holman

LOW	VIS	ıBıL	IT Y	(NN	1) 2	868
CEILING (10° FT)	< 1/2	/ ₂ - <1	1-	⊋- <5	5 - 1 <10	 ≩10
NC.	1	+	+	+	3	4
50<80	+	+	0	+	1	-3
35<50	0	0	0	0	+	2
20<35	+	+	0	+	2	10
10<20	+	+	+	1	6	9
6<10	+	+	+	1	,	1
3<6	+	+	+	1	1	+
1.5<3	+	+	0	+	+	0
0<1.5	6	+	+	+	+	0

August



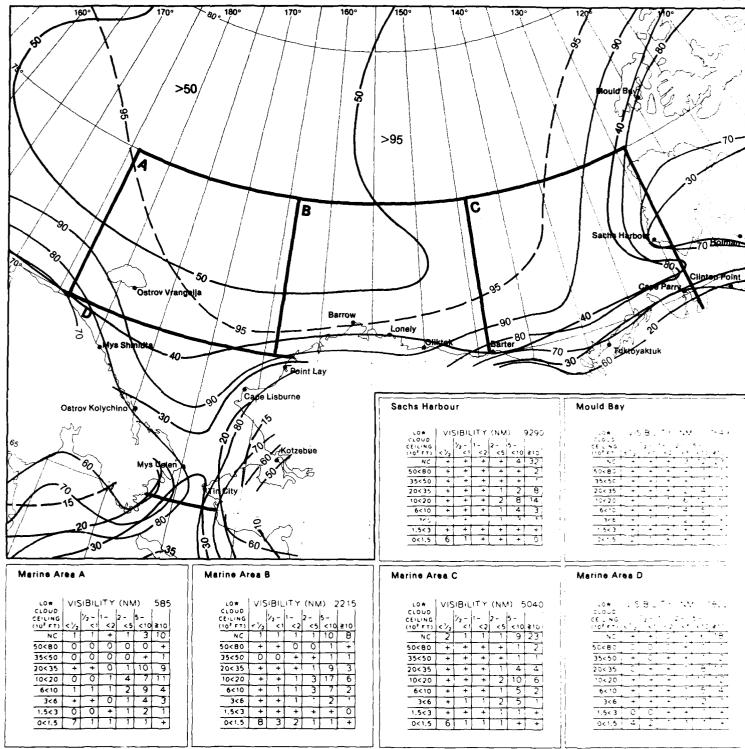


August

l-100			
Ostrov Vrangelja	Mys Shmidts	Ostrov Kolychino	Mys Uelen
VISIBILITY (NM) 4048 CLOUD CEILING (10 FT) $< y_2 > 1 - 2 - 5 - (10 \frac{3}{2})0$ NC 1 + 1 2 2 24 $\frac{50<80}{50<80} = 0 + + 1 = 1$ $\frac{35<50}{10<20} = 1 + 1 = 2 = 15$ $\frac{10<20}{10<20} = 1 = 1 = 7$ $\frac{33<6}{10} = 1 = 7$ $\frac{33}{10} = 1 $	LOW VISIBILITY (NM) 4299 CENTING (10° FT) < 1/2	LOW CLOUD CEILING 1/2 - 1 - 2 - 5 - 1 (10 210 10 10 10 10 10 10 10 10 10 10 10 10 1	LOW VISIBILITY (NM) 4331 CLOUD CEILING $\frac{1}{\sqrt{2}} - \frac{1}{1} - \frac{1}{2} - \frac{1}{5} - \frac{1}{5}$ (10° FT) $<\frac{1}{2} < 1 < 2 < 5 < 100$ 210 $\frac{1}{2} < 1 < 2 < 5 < 100$ 210 $\frac{1}{2} < 1 < 2 < 5 < 100$ 210 $\frac{1}{2} < 1 < 2 < 5 < 100$ 210 $\frac{1}{2} < 1 < 2 < 5 < 100$ 210 $\frac{1}{2} < 1 < 2 < 100$ 22 $\frac{1}{2} < 1 < 100$ 22 $\frac{1}{2} < 1 < 100$ 22 $\frac{1}{2} < 1 < 100$ 23 $\frac{1}{2} < 1 < 100$ 20 $\frac{1}{2} < 1 < 100$ 33 $\frac{1}{2} < \frac{1}{2} < \frac$
Tin City	Kotzebue	Cape Lisburne	Point Lay
LOW VISIBILITY (NM) 4364 CLOUD CELLING (10° FT) $< /_2 = 1 - 2 - 5 - 10$ NC $+ + + + 3$ 17 $50<80 + + 0 + 1$ 2 $20<35 + + 1$ 4 12 $10<20 + + 1$ 4 12 $10<20 + + 1$ 4 7 4 $3<6 + 1$ 7 4 $3<6 + 1$ 7 4 3 2 $1.5<3 + 1$ 1 1 + + $0<1.5$ 8 1 2 + + 0	LOW VISIBILITY (NM) 15249 CLOUD CEILING (10 ² FT) 2 ² , 21 22 5 10 210 NC + + + + 2 50 50<80 + 0 0 + + 1 5 35<50 + 0 + + 1 5 20<35 + + + + 2 10 10<20 + + 1 4 11 6<10 0 + + 1 3 2 3<6 + + + 1 1 1 1 1.5<3 + + + + + + 0	LOW VISIBILITY (NM) 4634 CLOUD CEILING 72 1- 2- 5- 10210 NC + + + + + 5 12 50<80 0 0 0 + 1 1 35<50 + 0 0 + 1 11 10<20 + + + 1 11 12 10<20 + + + 3 18 9 6<10 0 1 1 3 8 2 3<6 0 + + 1 1 1 + 1 1,5<3 0 0 + + 0 0 0<1,5 1 1 1 1 1 + 0	LOW VISIBILITY (NM) 3234 CLOUD CELLING (10 ² FT) (2/2 - 1 - 2 - 5 - 10 210 NC + + + + 7 18 50<80 0 0 + + 1 35<50 0 0 0 0 1 1 20<35 + + 0 + 5 5 10<20 + 1 1 4 22 14 6<10 + + 1 2 5 2 3<6 + 1 1 1 2 1 1,5<3 + 0 0 + + 0 0<1.5 2 + + + 0 0<1.5 2 + + + 0 0<1.5 2 + + + 0 0<1.5 2 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 1 - 2 - 5 - 2 10.5 3 - 2 - 2 - 3 - 3 10.5 3 - 2 - 3 - 3 10.5 3 - 3 - 3 10.5 3 - 3 - 3 1
Barrow	Lonely	Oliktok	Barter
LOW VISIBILITY (NM) 15300 CETUNG (10) FT (2) $< 1 - 2 - 5 - 10$ (10) FT (2) $< 1 - 2 - 5 - 10$ (10) FT (2) $< 1 - 2 - 5 - 10$ (10) FT (2) $< 1 - 2 - 5 - 10$ (10) FT (2) $< 1 - 2 - 5 - 10$ (10) FT (COW VISIBILITY (NM) 3264 CLOUD CEILING NC 1 1 + + 9 7 50080 + + + + 1 + 1 + 35<50 + 0 + 0 + 0 1 + 20<35 + + 0 + 6 3 10<20 + 1 1 2 24 9 6<10 + 1 1 2 10 1 3<6 1 1 1 2 5 + 1.5<3 + + + + 1 0 0<1.5 6 1 + + + + 1	LOW VISIBILITY (NM) 3240 CLOUD CEILING (10' FT) (1/2 < 1 < 2 < 5 < 10 ≥ 10 NC	COW VISIBILITY (NM) 15663 CELLING (1/2-11-2-5-1) (1
Tuktoyektuk	Cape Parry	Clinton Point	Holman
COW VISIBILITY (NM) 2824 CELLING	CEILING NC + + + 1 1 8 35 50<80 + + 0 + + 1 1 20<35 + + + + 2 6 10<20 + + + 1 1 2 3 1 1,5<3 + 1 + 1 + 1 0<1.5<3 3 1 + + + 0 CEILING NC + + + 1 8 35 10<20 + + 1 0 + 1 11 15<3 + 1 1 2 3 1 1,5<3 + 1 + 1 + 1 + 1 0<1.5<3 1 1 + + + 0	LOW VISIBILITY (NM) 3663 CELLING (10) FT) ($\frac{1}{2}$ < $\frac{1}{2}$	COW VISIBILITY (NM) 2814 CELLING (107 FT) (1 2 - 5 - 1 2 - 5 - 1 2 - 1

September

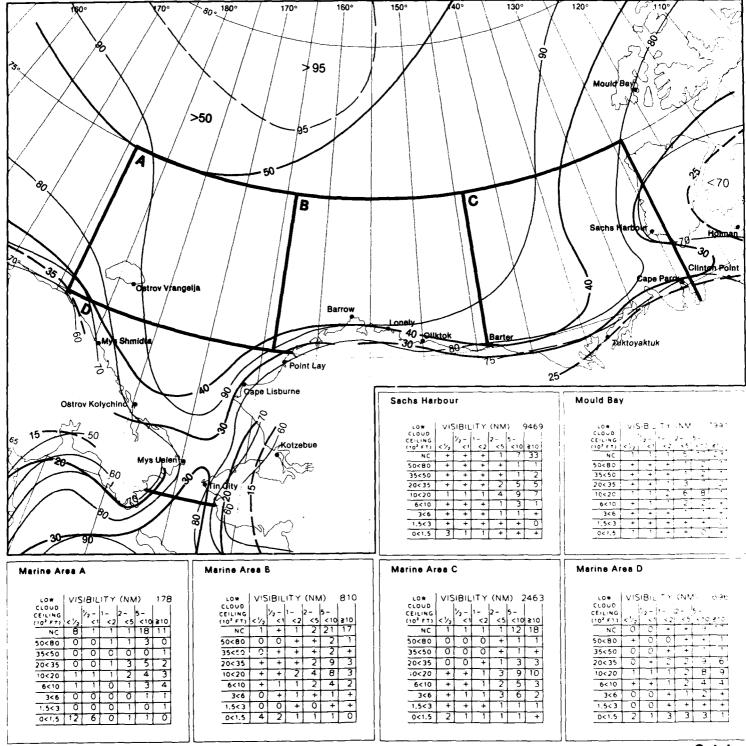




Septembe

Ostrov Vrangelja	Mys Shmidts	Ostrov Kolychino	Mys Uelen
COUNT CLOUD CELLING 1/2-1-1-2-5-1 CLOUD CELLING 1/2-1-2-5-1 CLOUD CLOUD 1/2-1-2-5-1	LOW VISIBILITY (NM) 4553 CECUMO CECLUMO NC 2 2 1 3 6 30 50<80 0 + + + + 1 1 35<50 + + + + 1 3 20<35 1 1 1 3 4 7 10<20 2 3 3 5 3 5 6<10 1 1 1 1 1 1 1 3<6 + 1 + 1 1 1 1 1.5<3 + + 0 + 0 + 0 + 0<1.5 1 + + + 0 +	LOW VISIBILITY (NM) 2715 CLOUD CEILING NC 1 + 1 3 14 13 50<80 0 0 + 1 1 1 1 35<50 0 0 + 1 1 1 1 20<35 + 0 1 3 11 8 10<20 1 1 5 8 11 6 6<10 0 + 1 1 1 1 3<6 + + + + + + + 1.5<3 0 0 0 0 0 0 0 0<1.5 2 + + + + + +	LO# VISIBILITY (NM) 4515 CLOUD CEILING (10 ² FT) < ½ NC + + + + 1 2 21 50<80 0 0 0 + + + 2 20<35 + + 1 3 4 20 10<20 + 1 4 1 8 14 6<10 + + 1 1 1 1 1 3<6 0 + + + 1 1 1 1 1.5<3 0 + 0 + 0 + 0 0 0<1.5 1 0 0 0 0 +
Tin City	Kotzebue	Cape Lisburne	Point Lay
CELLING 12-1- 2- 5- (10 210 NC) + + + + 1 4 16 50<80 + 0 0 + + 1 1 3 20<35 + + 1 3 12 13 10<20 + + 2 4 8 5 6<10 + + 1 1 1 1 1 + 1 1.5<3 0 + + 1 1 1 1 1 1 + 1 1.5<3 0 + + 1 1 1 1 1 1 + 1 1.5<5 0 0 0 0 + + 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LOW VISIBILITY (NM) 15696 CLOUD CEILING (10° FT) < 1/2	LOW VISIBILITY (NM) 4512 CLOUD CEILING $\frac{1}{2}$ - $\frac{1}{2}$ - $\frac{5}{5}$ - $\frac{1}{2}$ - $\frac{5}{2}$ - $\frac{5}{2}$ - $\frac{1}{2}$ - $\frac{5}{2}$ - $\frac{1}{2}$ - $\frac{5}{2}$ - $\frac{1}{2}$ - $\frac{5}{2}$ - $\frac{1}{2}$ - $\frac{1}{2}$ - $\frac{5}{2}$ - $\frac{1}{2}$ -	LOW VISIBILITY (NM) 3179 CLOUD CEILING 103 FT) 2/2 1 2 - 5 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Berrow	Lanely	Oliktok	Barter
Company VISIBILITY (NM) 15462 COUD CETIMA V2-1-2-5-10 CE	Lonely Low VISIBILITY (NM) 3342 CLOUD CEILING (10' FT) NC 1 + 1 155 11 50<80 0 + 1 2 1 35<50 + 0 + 1 1 + 2 20<35 + 1 + 1 15 2 10<20 + 1 1 4 24 5 6<10 1 1 1 3 7 + 3<6 1 1 1 1 3 7 + 1.5<3 + 0 + + + 0 0<1.5 2 1 + + + 1 0<1.5 2 1 + + + 1 1.5<3 + 0 + + + + 1 0<1.5 2 1 + + + + + + + + + + + + + + + + + +	Oliktok LOW CLOUD CEILING 1/2-1- 2- 5- 1/2-10 1/2-1- 2- 5- 1/2-10 1/2-1- 1/2- 1/2-10	Company Comp
COM VISIBILITY (NM) 15462 COUD CETUME COUD CETUME COUD CETUME COUD CETUME COUD LOW VISIBILITY (NM) 3342 CLOUD $y_2 - y_1 - y_2 - y_3 - y_4 = y_4 = y_5 - y_5 = y_5 = y_6	COW CLOUD VISIBILITY (NM) 3346 CEILING (10°FT) (72 - 1 - 2 - 5 - 10 210) NC + 1 + 1 16 71 50<80 + + + 2 1 35<50 0 + + + 1 8 2 10720 2 2 6 24 4 6<10 + 1 1 3 4 + 1 3<6 + 1 1 1 1 1 1 + 1 1.5<3 0 0 0 0 + + 0	COM VIS BULL (NM: 15954 CLOUD CEICING 27 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 2 - 3 - 3	

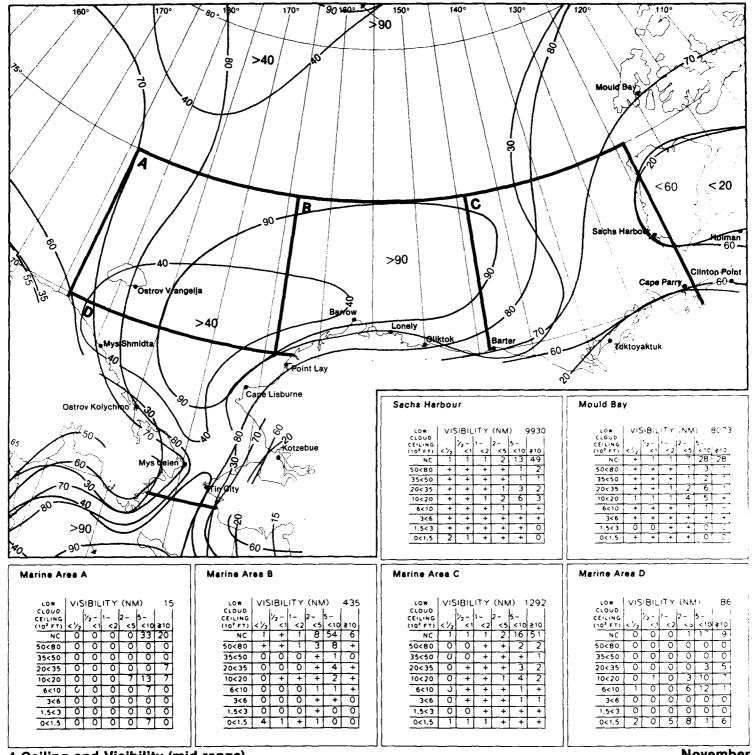
October



Octobe

II-104			
Ostrov Vrangelja	Mys Shmidts	Ostrov Kolychino	Mys Uelen
COW CLOUD CEILING (10 FT) (2) 2-11-2-5-10 210 (10 FT) (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2) 2-11-2-10 (2)	LOW CLOUD CEILING (10° FT) $< > > > > > > > > > > > > > > > > > > $	LOW VISIBILITY (NM) 2577 CEILING (10 ² FT) (2/ ₂ 1- 2- 5- (10 ±10) NC 1 1 2 5 30 15 50<80 + + 1 2 2 + 35<50 0 + 0 + 1 + 1 20<35 + + 1 3 9 4 10<20 + 1 4 4 7 2 6<10 + + 1 1 1 + 1 3<6 + 0 0 + 0 + 0 1.5<3 0 0 0 0 0 + 0 0<1.5 1 + + 0 + 0	CLOUD CELLING (10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 1 - 2 - 5 - 10° FT) < 1/2 - 10° FT) < 1
Tin City	Kotzebue	Cape Lisburne	Point Lay
COW CLOUD CELLING (10 FT) $\frac{1}{2}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	CLOW CLOUD CEILING COUNTY (NM) 4138 CLOUD CEILING COUNTY (NM) 4138 NC + 1 + 1 + 1 13 17 50<80 0 0 0 0 + 1 1 1 35<50 0 + 1 + 1 1 1 4 10<20 + 1 2 6 21 3 6<10 + 1 + 1 1 3 + 1 3<6 + 0 0 + 1 1 3 + 1 1.5<3 0 0 0 0 0 0 0 0 0 0<1.5 2 2 1 1 1 + 0	COM
Barrow	Lonely	Oliktok	Barter
.0* VISIBILITY (NM) 14740 CELNG (10751) (1/2) (1/2) (2/5) (10 210) NC 1 1 2 4 28 9 50<80 + + + + 1 2 + 35<50 + + + + 2 6 1 10<20 2 1 2 5 11 + 6<10 + 1 1 2 6 + 3<6 + + + 1 2 + 1.5<3 + + + + + + + 0<1.5 2 + + + + + + +	LOW VISIBILITY (NM) 3235	CLOUD CEILING COURT CO	COUNTY OF THE CO
Tuktoyaktuk	Cape Parry	Clinton Point	Holman
COM VISIBILITY (NM) 2956 COUNTY	COW VISIBILITY (NM) 17038 CEILING (10 ² FT) (2 ² / ₂ 1 - 2 - 5 - 2 - 5 10 ±10 NC 1 1 1 4 20 38 50<80 + + + + + 1 1 20<35 + + 1 1 3 1 10<20 1 1 1 3 7 2	CEILING NC + + + + 1 7 45 50<80 + + + + + 1 1 20<35 1 + + 1 1 4 4 10<20 2 2 1 3 8 6	COW VS BILLTS (NM) 289 CEUNG (10°57) (2°51) (2°52) (5°51) (10°57) (2°51) (10°57) (2°51) (10°51

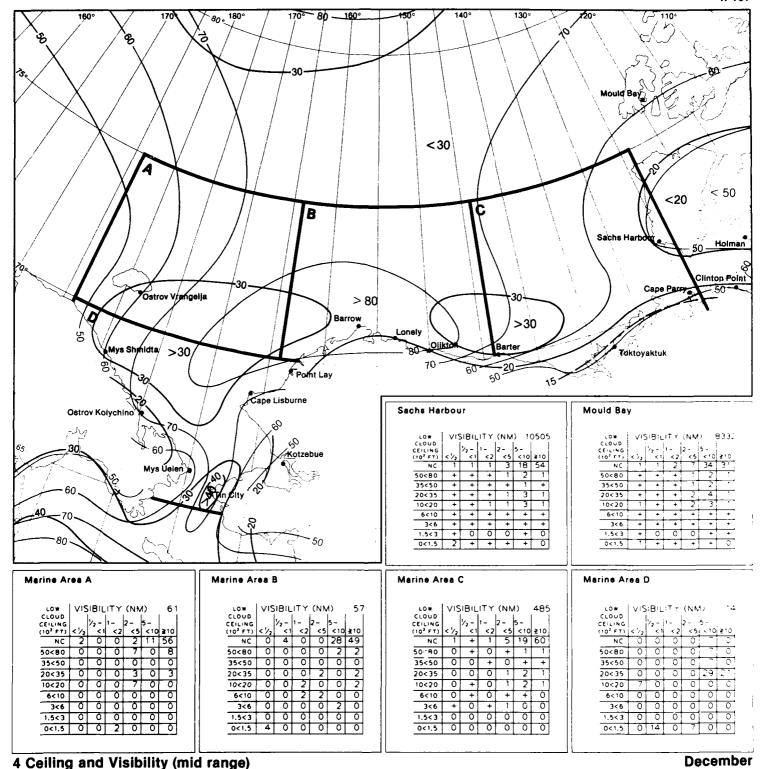
November



November

l-106			
Ostrov Vrangelja	Mys Shmidta	Ostrov Kolychino	Mys Uelen
COW VISIBILITY (NM) 4170 CEILING (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - 5 - (10 ⁷ FT) C/2 <1 - 2 - (10 ⁷ FT	LOW VISIBILITY (NM) 4420 CEILING (10 ² FT) (² / ₂ < 1 < 2 < 5 < 10 ≥ 10 NC 5 5 5 7 15 39 50<80 + + + + + + + + + + + + + + + + + + +	LOW CLOUD CEILING $\frac{1}{2}$ $\frac{1}{2$	CELLING CELLING CELLING COPT 17 2/2 - 1 - 2 - 5 - 10 210 NC + 1 2 5 6 50 50<80 0 + + + + + + + 1 20<35 + + 1 2 2 4 10<20 1 1 3 8 4 5 6<10 + + + 1 1 + 1 3<6 + + + + + + + + + + + + + + + + + + +
Tin City	Kotzebue	Cape Lisburne	Point Lay
LOW VISIBILITY (NM) 4007 CEILING (10 FT) (2) <1 - 2 - 5 - 10 ≥10 NC 5 5 5 8 17 14 50<80 + + 0 + + 1 + 1 20<35 3 1 1 2 5 1 10<20 2 2 2 3 3 3 + 6<10 1 1 2 1 1 + 3 3<6 + + + 1 1 + + 1 1.5<3 + 0 + 1 0 0 0<1.5 9 1 + + 0 0	LOW CLOUD CEILING (10° FT) ($\frac{1}{2}$ (1	LOW CLOUD CEILING 1/2-11- 2- 5- 10-210 CEILING 1/2-11- 2- 5- 10-210 NC 1 1 1 1 2 17 30 Society 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LOW VISIBILITY (NM) 3352 CLOUD CELLING 1/2 - 1 - 2 - 5 - CLOUD CHOING 1/2 - 1 - 2 - 5 - CLOUD CHOING 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 2 - 1 - 1 - 1 - 2 - 5 - CLOUD 1/2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Barrow	Lonely	Oliktok	Barter
LOW VISIBILITY (NM) 14692 CEILING CEILING (10 ⁷ FT) < V ₂ (11	LOW VISIBILITY (NM) 3395 CEILING (10 ² FT) < 1/ ₂ - 1 - 2 - 5 - 1	LOW VISIBILITY (NM) 3336 CEILING (10 ³ FT) < 1/ ₂ < 1 < 2 < 5 < 100 210 NC 1 2 2 3 38 19 50<80 0 + + + 2 + 1 20<35 + + + 1 1 4 2 10<20 1 1 1 3 10 1 6<10 + + + + 1 0 3<6 + + + + + 1 0 1.5<3 + 0 0 0 0 0 0<1.5 2 1 + + + 0	COW CLOUD CELLING 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 5 - 1/2 - 1 - 2 - 1 - 2 - 2 - 2 - 2 - 2 - 2 -
Tuktoyaktuk	Cape Parry	Clinton Point	Holman
COW CELLING 1/2	LOW CLOUD CEILING (NM) 18124 CLOUD CEILING (10° FT) $< > > > 1 - 2 - 5 - 10 \ge 10$ NC 1 1 2 6 27 40 50<80 + + + 1 1 1 1 20<35 + + 1 1 3 1 10<20 + 1 1 1 3 1 6<10 + + + + 1 + 1 3<6 + + + + + + + + + + + 1 1.5<3 0 + + + + + 0	LOW CLOUD CEILING 1/2 1 2 - 5 - 1 2 - 1 2 - 5 - 1 2 - 1	Cow VISIBILITY (NM) 2934 CEUND CEUND CEUND CEUND COMPAN C

December



Map 5. Visibility thresholds

TABLE - Percent frequency of visibility (nautical miles).

Albers Equal—Area Conic Projection

Graphs: Visibility thresholds

		designated mari	ne are	as and	coast	el statio	ons.	
VISIBILITY (NM)	<u>%</u>							
<.5	1.2							
.5 <1	2.9	(2.9% o ≧1/2 na						
1<2	1.2	similarly					Ū	
2 < 5	3.2		l _	j	J	1 _		ı
5 < 10	30.7	Nautical miles	.5	1	2	5	10	
3 < 10	30.7	Kilometers	1	2	4	10	20	
≥10	60.8		L	L	L	L		i
N=	342	N = Observat	ion co	unt.				

Percent frequency of visibility of various ranges for

Visibility is a term that denotes the greatest distance from an observer that an object of known characteristics can be seen and identified with the unaided eye. When the visibility is not the same in all directions, the greatest distance common to one-half or more of the horizon circle is determined. Visibilities are difficult to measure at sea because of the lack of reference points. Climatically, many low visibility observations probably are missed because the observer is too busy with other duties (this is a form of fair weather bias). Also, some observers seem to report reduced visibilities at night because of darkness, though this tendency has abated in recent years. However, the coarseness of the visibility intervals (see code table) tends to minimize the problem, thereby permitting the summarized data to be relatively consistent. Visibilities greater than 25 nautical miles should be interpreted cautiously because the earth's curvature makes it impossible to see that distance horizontally from the bridge of most ships.

	VISIBILITY (W	MO Code, 1982)	
Code	Visibility (vv)		Code
figs.	in m/km	in yd./naut. mi.	figs
90	less than 50 m	less than 55 yd.	90
91	50 but less than 200 m	55 but less than 220 yd.	9
92	200 but less than 500 m	220 but less than 550 yd.	
93	500 but less than 1000 m	550 but less than ½ n. mi.	
94	1 but less than 2 km	½ but less than 1 n. mi.	-
95	2 but less than 4 km	1 but less than 2 n. mi.	
96	4 but less than 10 km	2 but less than 5 n. mi.	
97	10 but less than 20 km		
98	20 but less than 50 km	11 but less than 27 n. mi.	98
	E0 1 m az mara	27:	
	50 km or more e visibility ranges correspo	27 n. mi. or more nding to various weather ty	-
The are 90 91 92 93		nding to various weather ty zzle Fog. thick haze	90 91 92 93
The are 90 91 92 93 94	e visibility ranges correspo as follows: Heavy snow, heavy dri	nding to various weather ly zzle Fog. thick haze rate drizzle	90 91 92 93
The are 90 91 92 93 94 95	e visibility ranges correspo as follows: Heavy snow, heavy dri Moderate snow, moder Heavy rain	nding to various weather ty zzle Fog. thick haze	90 91 92 93 94 95
The are 90 91 92 93 94 95 96	e visibility ranges correspo as follows: Heavy snow, heavy dri Moderate snow, moder Heavy rain Moderate rain	zzle Fog. thick haze rate drizzle Mist. haze	90 91 92 93 94 95
	e visibility ranges correspo as follows: Heavy snow, heavy dri Moderate snow, moder Heavy rain Moderate rain	nding to various weather ly zzle Fog. thick haze rate drizzle	90 91 92 93 94 95

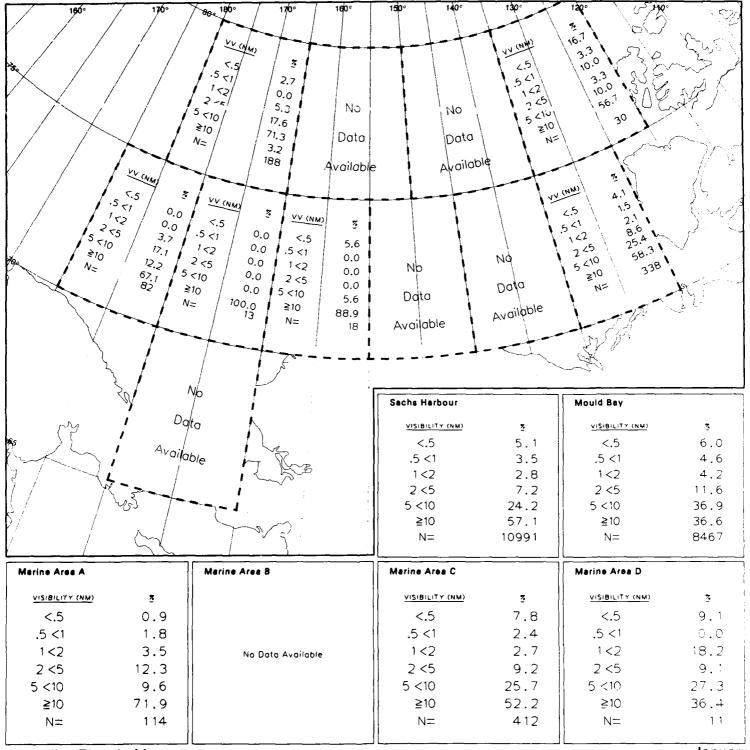
5 Legend 5

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Ostrov Vrangelja		Mys Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY_(NM)	7.	VISIBILITY (NM)	%	VISIBILITY (NM)	3	VISIBILITY (NM)	3
<.5	5.1	<.5	10.1	<.5	2.7	<.5	2.6
.5 <1	4.3	.5 <1	9.4	.5 <1	2.7	.5 < 1	2.9
1<2	7.7	1<2		11		1 1	
		11	10.5	1<2	8.0	1<2	10.0
2 < 5	19.2	2 < 5	15.7	2 < 5	12.1	2 < 5	23.2
5 < 10	11.7	5 < 10	17.7	5 < 10	50.5	5 < 10	10.2
≥10	51.9	≧10	36.6	≥10	24.6	≧10	54.1
N=	4184	N=	4726	N=	2935	N=	4713
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>%</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u> 3</u>
<.5	12.8	<.5	4.6	<.5	2.8	<.5	14.4
.5 <1	8.0	.5 <1	3.5	.5 <1	5.3	.5 <1	4.5
1<2	12.0	1<2	3.9	1<2	6.7	1<2	4.3
2 < 5	16.9	2 < 5	8.6	2 < 5	13.8	2 < 5	8.5
5 < 10	28.5	5 < 10	23.6	5 < 10	51.6	5 < 10	44.6
≥10	21.8	≥10	55.8	≧10	19.7	≥10	23.8
N=	19165	N=	22050	N=	18462	N=	3337
Barrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	%	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	<u>7</u> .	VISIBICITY (NM)	7
<.5	6.4	<.5	5.8	<.5	10.0	<.5	12.6
.5 <1	4.7	.5 <1	4.0	.5 <1	5.1	.5 <1	5.5
1<2	4 0	1<2	4.1	1<2	3.2	1<2	4,0
1 \ 2	4.9	11					
2 < 5	4.9 12.6	2 <5	7.9	2 < 5	8.8	2 < 5	9.1
		11	7.9 56.3	2 < 5 5 < 10	8.8 52.8	2 < 5 5 < 10	9.1 30.7
2 < 5	12.6	2 <5		1			
2 <5 5 <10	12.6 59.3	2 <5 5 <10	56.3	5 < 10	52.8	5 < 10	30.7
2 <5 5 <10 ≥10	12.6 59.3 12.2	2 <5 5 <10 ≥10	56.3 22.0	5 <10 ≧10	52.8 20.0	5 <10 ≥10	30.7 37.1
2 < 5 5 < 10 ≧10 N=	12.6 59.3 12.2	2 <5 5 <10 ≥10 N≈	56.3 22.0	5 < 10 ≥10 N=	52.8 20.0	5 <10 ≥10 N=	30.7 37.1
2 < 5 5 < 10 ≥10 N=	12.6 59.3 12.2 18798	2 <5 5 <10 ≥10 N≈	56.3 22.0 3476	5 < 10 ≥ 10 N=	52.8 20.0 3301	5 <10 ≥10 N=	30.7 37.1 18317
2 <5 5 <10 ≥10 N= Tuktoyaktuk VISIBILITY (NM)	12.6 59.3 12.2 18798	2 <5 5 <10 ≥10 N≈	56.3 22.0 3476	5 < 10 ≥10 N= Clinton Point VISIBILITY (NM)	52.8 20.0 3301	5 < 10 ≥10 N= Holman VISIBILITY (NM) <.5	30.7 37.1 18317
2 < 5 5 < 10 ≥ 10 N= Tuktoyaktuk VISIBILITY (NM) < .5	12.6 59.3 12.2 18798	2 <5 5 <10 ≥10 N≈ Cape Parry VISIBILITY (NM) <.5	56.3 22.0 3476 	5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5	52.8 20.0 3301 3 8.0	5 < 10 ≥10 N= Holman	30.7 37.1 18317 5 12.4 2.9
2 < 5 5 < 10 ≥10 N= Tuktoyaktuk VISIBILITY (NM) < .5 .5 < 1 1 < 2	12.6 59.3 12.2 18798 5.2 3.5 3.3	2 <5 5 <10 ≥10 N≈ Cape Parry VISIBILITY (NM) <.5 .5 <1	56.3 22.0 3476 3 6.1 4.2 4.9	5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2	52.8 20.0 3301 3.2 1.5	5 < 10 ≥10 N= Holman VISIBILITY (NM) <.5 .5 < 1 1 < 2	30.7 37.1 18317 <u>\$</u> 12.4 2.9 2.1
2 < 5 5 < 10 ≥ 10 N= Tuktoyaktuk VISIBILITY (NM) < .5 .5 < 1 1 < 2 2 < 5	12.6 59.3 12.2 18798 5.2 3.5 3.3 6.0	2 <5 5 <10 ≥10 N≈ Cape Parry VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	56.3 22.0 3476 	5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	52.8 20.0 3301 3.2 1.5 6.0	5 < 10 ≥10 N= Holman VISIBILITY (NM) < .5 .5 < 1 1 < 2 2 < 5	30.7 37.1 18317 5 12.4 2.9 2.1 5.1
2 < 5 5 < 10 ≥ 10 N= Tuktoyaktuk VISIBILITY (NM) < .5 .5 < 1 1 < 2 2 < 5 5 < 10	12.6 59.3 12.2 18798 5.2 3.5 3.3 6.0 28.5	2 <5 5 <10 ≥10 N≈ Cape Parry VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	56.3 22.0 3476 3 6.1 4.2 4.9 10.0 33.4	5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	52.8 20.0 3301 3.2 1.5 6.0 18.5	5 <10 ≥10 N= Holman VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	30.7 37.1 18317 5 12.4 2.9 2.1 5.1 18.1
2 < 5 5 < 10 ≥ 10 N= Tuktoyaktuk VISIBILITY (NM) < .5 .5 < 1 1 < 2 2 < 5	12.6 59.3 12.2 18798 5.2 3.5 3.3 6.0	2 <5 5 <10 ≥10 N≈ Cape Parry VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	56.3 22.0 3476 	5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	52.8 20.0 3301 3.2 1.5 6.0	5 < 10 ≥10 N= Holman VISIBILITY (NM) < .5 .5 < 1 1 < 2 2 < 5	30.7 37.1 18317 5 12.4 2.9 2.1 5.1

January

5 Visibility Thresholds



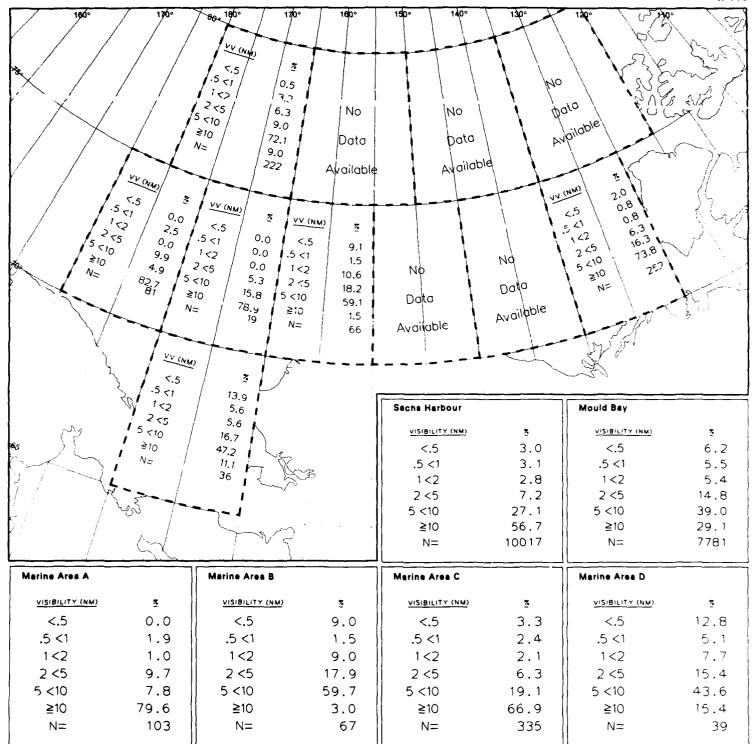
5 Visibility Thresholds

January

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II-112		, ,				, ,	
Ostrov Vrangelja		Mya Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	3	VISIBILITY (NM)	2 .	VISIBILITY (NM)	<u>%</u>	VISIBIL:7 (NM)	3
<.5	5.2	<.5	10.0	<.5	1.4	<.5	1.8
.5 <1	2.7	.5 <1	11.0	.5 <1	2.6	.5 <1	2.7
1<2	4.9	i<2	9.0	1<7	6.7	1<2	8.2
2 < 5	16.3	2 <5	12.5	2 <5	12.7	2 <5	19.1
5 < 10	11.7	5 < 10	16.3	5 < 10	46.2	5 < 10	13.0
≥10	59.2	<u>}</u> 10	41.2	≧10	30.5	<u>≥</u> 10	55.1
N=	3917	N=	4391	N=	2811	N=	4385
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>
<.5	13.3	<.5	4.8	<.5	2.9	<.5	11.9
.5 <1	9.0	.5 <1	3.2	.5 <1	3.4	.5 <1	5.5
1<2	13.2	1<2	4.0	1<2	5.4	1<2	3.0
2 < 5	18.3	2 < 5	8.0	2 < 5	11.5	2 < 5	8.0
5 < 10	24.6	5 < 10	21.8	5 < 10	46.5	5 < 10	48.5
≥10	21.6	} ≥10	58.3	≥10	30.2	≥10	23,0
N=	17454	N=	19710	N=	16991	N=	3033
Barrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	7.	VISIBILITY (NM)	7.	VISIBILITY (NM)	74	VISIBILITY (NV)	<u>z</u>
	<u>*</u> 4.3		_		₹ 6.0		3 12.2
<.5	4.3	<.5	4.7	VISIBILITY (NM) <.5 .5 <1	6.0	<u>visibility (NW)</u> <.5 .5 <1	12.2
<.5 .5 <1	4.3 3.9	<.5 .5 <1	4.7 3.6	<.5 .5 <1	6,0 3.8	<.5 .5 <1	12.2 5.4
<.5	4.3	<.5	4.7	<.5	6.0	<.5	12.2
<.5 .5 <1 1 < 2	4.3 3.9 5.9	<.5 .5 <1 1 <2	4.7 3.6 3.7	<.5 .5 <1 1 <2	6.0 3.8 3.8	<.5 .5 <1 1 < 2	12.2 5.4 4.5
<.5 .5 <1 1 <2 2 <5	4.3 3.9 5.9 15.9	<.5 .5 <1 1 <2 2 <5	4.7 3.6 3.7 5.9	<.5 .5 <1 1 <2 2 <5	6.0 3.8 3.8 8.2	<.5 .5 <1 1 <2 2 <5	12.2 5.4 4.5 8.9
<.5 .5 <1 1 <2 2 <5 5 <10	4.3 3.9 5.9 15.9 60.2	<.5 .5 <1 1 <2 2 <5 5 <10	4.7 3.6 3.7 5.9 57.6	<.5 .5 <1 1 <2 2 <5 5 <10	6.0 3.8 3.8 8.2 57.6	<.5 .5 <1 1 <2 2 <5 5 <10	12.2 5.4 4.5 8.9 30.1
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	4.3 3.9 5.9 15.9 60.2 9.8	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	4.7 3.6 3.7 5.9 57.6 24.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	6.0 3.8 3.8 8.2 57.6 20.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	12.2 5.4 4.5 8.9 30.1 38.8
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	4.3 3.9 5.9 15.9 60.2 9.8 17135	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	4.7 3.6 3.7 5.9 57.6 24.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	6.0 3.8 3.8 8.2 57.6 20.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	12.2 5.4 4.5 8.9 30.1 38.8 16695
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk	4.3 3.9 5.9 15.9 60.2 9.8 17135	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry VISIBILITY (NM)	4.7 3.6 3.7 5.9 57.6 24.5 3172	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM)	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Holmen VISIBILITY (NM)	12.2 5.4 4.5 8.9 30.1 38.8 16695
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5	4.3 3.9 5.9 15.9 60.2 9.8 17135	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry VISIBILITY (NM) <.5	4.7 3.6 3.7 5.9 57.6 24.5 3172	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point visibility (NM) <.5	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Molmen	12.2 5.4 4.5 8.9 30.1 38.8 16695
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk visibility (NM) <.5 .5 < 1	4.3 3.9 5.9 15.9 60.2 9.8 17135	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry VISIBILITY (NM) <.5 .5 <1	4.7 3.6 3.7 5.9 57.6 24.5 3172	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point visibility (NM) <.5 .5 < 1	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Holmen visibility (NM) <.5 .5 < 1	12.2 5.4 4.5 8.9 30.1 38.8 16695
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 < 1 1 < 2	4.3 3.9 5.9 15.9 60.2 9.8 17135	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Capa Parry VISIBILITY (NM) <.5 .5 <1 1 <2	4.7 3.6 3.7 5.9 57.6 24.5 3172	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Holmen VISIBILITY (NM) <.5 .5 < 1 1 < 2	12.2 5.4 4.5 8.9 30.1 38.8 16695
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	4.3 3.9 5.9 15.9 60.2 9.8 17135 3.8 3.5 3.1 6.7	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry visibility (NM) <.5 .5 <1 1 <2 2 <5	4.7 3.6 3.7 5.9 57.6 24.5 3172 3 6.0 4.1 4.3 10.3	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Clinton Point VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Holmen visibility (NM) <.5 .5 < 1 1 < 2 2 < 5	12.2 5.4 4.5 8.9 30.1 38.8 16695 7.9 2.6 1.8 5.5
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	4.3 3.9 5.9 15.9 60.2 9.8 17135 3.8 3.5 3.1 6.7 25.6	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry visibility (NM) <.5 .5 <1 1 <2 2 <5 5 <10	4.7 3.6 3.7 5.9 57.6 24.5 3172 3 6.0 4.1 4.3 10.3 31.4	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	6.0 3.8 3.8 8.2 57.6 20.5 3067 7.1 1.9 2.7 4.8 16.9	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Holmen visibility (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	12.2 5.4 4.5 8.9 30.1 38.8 16695 7.9 2.6 1.8 5.5
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	4.3 3.9 5.9 15.9 60.2 9.8 17135 3.8 3.5 3.1 6.7	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry visibility (NM) <.5 .5 <1 1 <2 2 <5	4.7 3.6 3.7 5.9 57.6 24.5 3172 3 6.0 4.1 4.3 10.3	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Clinton Point VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	6.0 3.8 3.8 8.2 57.6 20.5 3067	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Holmen visibility (NM) <.5 .5 < 1 1 < 2 2 < 5	12.2 5.4 4.5 8.9 30.1 38.8 16695 7.9 2.6 1.8 5.5

February

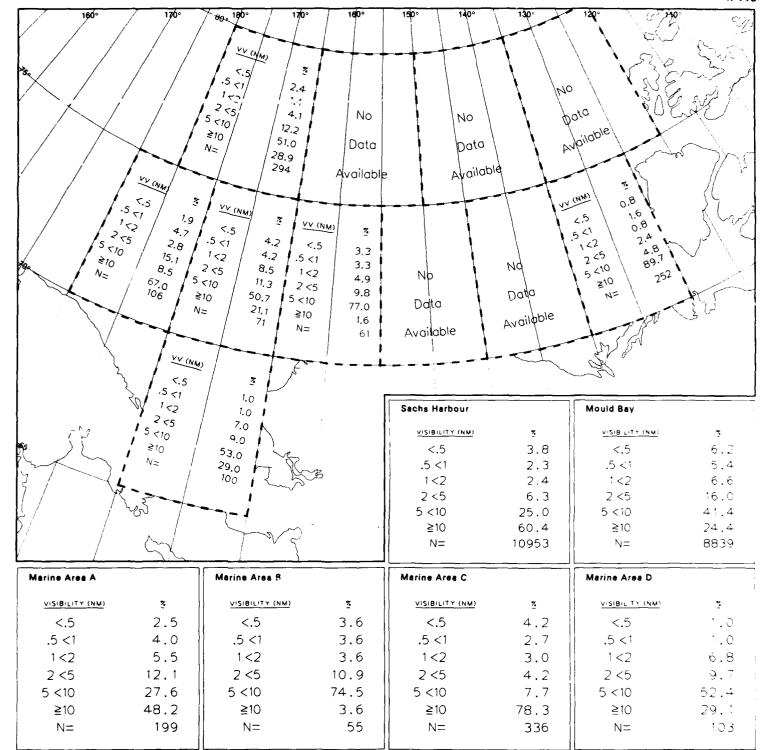


February

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Ostrov Vrangelja		Mys Shmidts		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	3	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3
<.5	5.2	<.5	9.6	<.5	0.9	<.5	1.5
.5 <1	3.2	.5 <1	8.8	.5 <1	2.0	.5 <1	1.3
1<2	5.2	1<2	7.6	1<2	5.2	1<2	5.7
2 < 5	13.4	2 < 5	11.4	2 < 5	9.6	2 < 5	20.5
5 < 10	10.5	5 < 10	15.3	5 < 10	41.6	5 < 10	9.6
≥10	62.5	<u> </u> ≥10	47.2	≥10	40.8	≥10	61.5
N=	4415	N=	4902	N=	3056	N=	4896
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u> .	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	3
<.5	11.8	<.5	3.2	<.5	1.8	<.5	15.6
.5 <1	8.5	.5 <1	2.7	.5 <1	2.7	.5 <1	4.9
1<2	13.3	1<2	3.6	1<2	5.2	1<2	4.2
? <5	17.0	2 <5	8.1	2 < 5	11.9	2 < 5	8.2
5 < 10	24.3	5 < 10	18.3	5 < 10	42.7	5 < 10	44. 0
≥10	25.1	≥10	64.0	≥10	35.8	≥10	23.2
iv-	196 15	N-	21962	N=	19207	N=	3349
Berrow		Lonely		Oliktok		Barter	
		\ 		 		! !	
VISIBILITY (NM)	7	VISIBILITY (NM)	<u>%</u>	VISIBILITY (NM)	3	VISIE - IT F ONM"	3
	³ 3.3	11	<u>₹</u> 5.0	}	=	VISIB OF FORM	
<.5	3.3	<.5	5.0	<u>visibility (NM)</u> <.5 .5 <1	3 6.2 4.4		7.9 5.1
		11		<.5	6.2	<.	7.9
<.5 .5 <1	3.3 2.7	<.5 .5 <1	5.0 3.8	<.5 .5 <1	6.2 4.4	<. .5 <1	7.9 5.1
<.5 .5 <1 1 <2	3.3 2.7 4.1	<.5 .5 <1 1 <2	5.0 3.8 3.5	<.5 .5 <1 1 < 2	6.2 4.4 4.3	<. .5 <1 1 < 2	7.9 5.1 4.5
<.5 .5 <1 1 <2 2 <5	3.3 2.7 4.1 11.7	<.5 .5 <1 1 <2 2 <5	5.0 3.8 3.5 8.2	<.5 .5 <1 1 < 2 2 < 5	6.2 4.4 4.3 6.9	<. .5 <1 1 < 2 2 < 5	7.9 5.1 4.5 8.8
<.5 .5 <1 1 <2 2 <5 5 <10	3.3 2.7 4.1 11.7 67.0	<.5 .5 <1 1 <2 2 <5 5 <10	5.0 3.8 3.5 8.2 56.0	<.5 .5 <1 1 <2 2 <5 5 <10	6.2 4.4 4.3 6.9 56.2	<. .5 <1 1 <2 2 <5 5 <10	7.9 5.1 4.5 8.8 30.0
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	3.3 2.7 4.1 11.7 67.0 11.2	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	5.0 3.8 3.5 8.2 56.0 23.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10	6.2 4.4 4.3 6.9 56.2 22.0	<. .5 <1 1 <2 2 <5 5 <10 ≥10	7.9 5.1 4.5 8.8 30.0 43.7
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	3.3 2.7 4.1 11.7 67.0 11.2	<.5 .5 <1 1 <2 2 <5 5 <10 ≧10 N=	5.0 3.8 3.5 8.2 56.0 23.5	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	6.2 4.4 4.3 6.9 56.2 22.0	<. .5 <1 1 <2 2 <5 5 <10 ≥10 N=	7.9 5.1 4.5 8.8 30.0 43.7
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Capa Parry VISIBILITY (NM)	5.0 3.8 3.5 8.2 56.0 23.5 3528	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N=	6.2 4.4 4.3 6.9 56.2 22.0 3373	<5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N==	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	5.0 3.8 3.5 8.2 56.0 23.5 3528	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Clinton Point VISIBILITY (NM)	6.2 4.4 4.3 6.9 56.2 22.0 3373	<. .5 <1 1 <2 2 <5 5 <10 ≥10 N=	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 <1	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Cape Parry VISIBILITY (NM) <.5	5.0 3.8 3.5 8.2 56.0 23.5 3528	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5	6.2 4.4 4.3 6.9 56.2 22.0 3373	<5 <1 .1 <2 .2 <5 .5 <10 ≥10 N= Holman y(S(B)(U(T) (NW)) <.5	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 <1 1 <2	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Capa Parry VISIBILITY (NM) <.5 .5 <1 1 <2	5.0 3.8 3.5 8.2 56.0 23.5 3528 4.1 4.2 4.3	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2	6.2 4.4 4.3 6.9 56.2 22.0 3373 5.3 2.6 2.4	<5 <1 1 <2 2 <5 5 <10 ≥10 N= Holman visiBiuity (NW) <.5 .5 <1 1 <2	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Tuktoyektuk VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Cape Parry VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	5.0 3.8 3.5 8.2 56.0 23.5 3528 4.1 4.2 4.3 9.9	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	6.2 4.4 4.3 6.9 56.2 22.0 3373 5.3 2.6 2.4 5.8	<	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk visi8iLiTY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	3.3 2.7 4.1 11.7 67.0 11.2 18813 2.6 2.3 2.8 5.5 23.0	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Capa Parry VISIBILITY (NM) <.5 .5 <1 1 <2	5.0 3.8 3.5 8.2 56.0 23.5 3528 4.1 4.2 4.3	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2	6.2 4.4 4.3 6.9 56.2 22.0 3373 5.3 2.6 2.4 5.8 20.2	<5 <1 1 <2 2 <5 5 <10 ≥10 N= Holman visiBiuity (NW) <.5 .5 <1 1 <2	7.9 5.1 4.5 8.8 30.0 43.7 18627
<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Tuktoyektuk visiðility (NM) <.5 .5 <1 1 <2 2 <5	3.3 2.7 4.1 11.7 67.0 11.2 18813	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Cape Parry VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	5.0 3.8 3.5 8.2 56.0 23.5 3528 4.1 4.2 4.3 9.9 29.2	<.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N= Clinton Point VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	6.2 4.4 4.3 6.9 56.2 22.0 3373 5.3 2.6 2.4 5.8	<5 <1 1 <2 2 <5 5 <10 ≥10 N= Holman yisiBiuity (NW) <.5 .5 <1 1 <2 2 <5 5 <10	7.9 5.1 4.5 8.8 30.0 43.7 18627 7.4 3.0 2.5 4.9 16.0

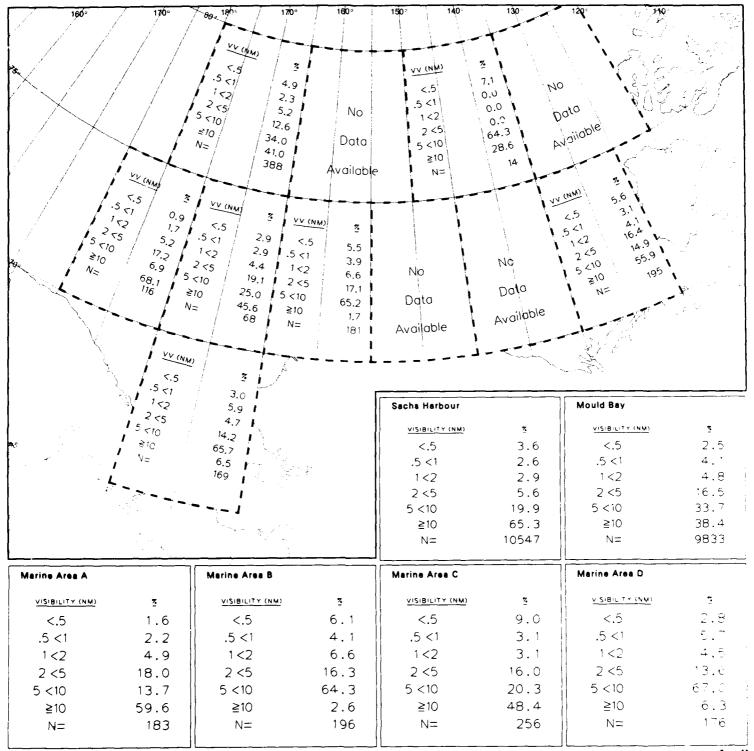
March



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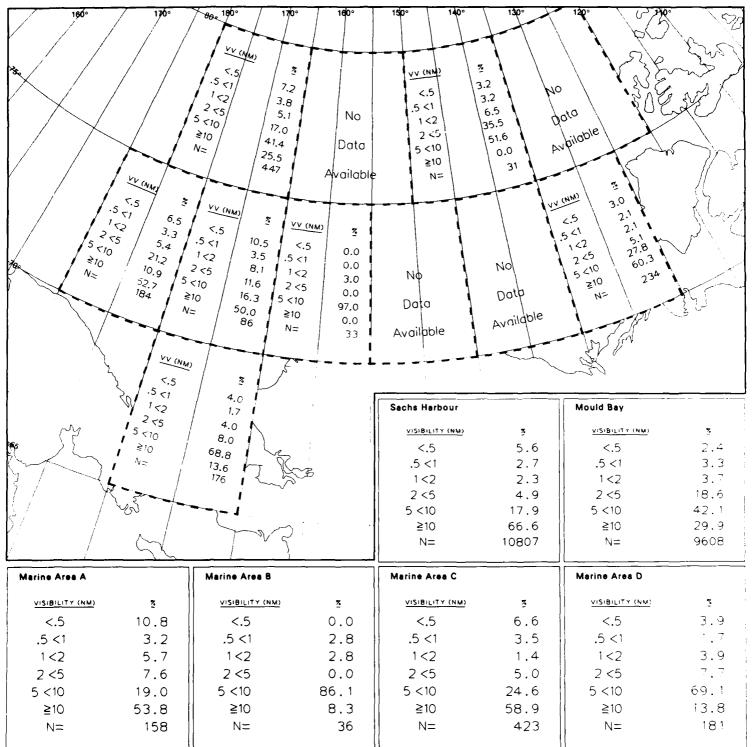
Ostrov Vrangelja	··········	Mys Shmidts		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	3	VISIBILITY (NM)	7.	VISIBILITY (NM)	7.	VISIBILITY (NM)	3
<.5	3.6	<.5	5.3	<.5	1.5	<.5	2.0
.5 <1	2.2	.5 <1	6.0	.5 <1	0.9	.5 <1	1.2
1<2	5.1	1<2	6.0	1<2	4.9	1<2	5.3
2 < 5	13.5	2 < 5	11.2	2 < 5	11.1	2 < 5	19.2
5 < 10	8.1	5 < 10	14.7	5 < 10	29.5	5 < 10	10.9
≥10	67.5	≥10	56.7	≥10	52.1	≥10	61.4
N=	4453	N=	4706	N=	2794	N=	4695
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	3	VISIBILITY (NM)	<u>%</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	3
<.5	10.6	<.5	2.9	<.5	2.0	<.5	13.8
.5 <1	8.5	.5 <1	2.5	.5 <1	3.4	.5 <1	4.3
1<2	13.7	1<2	3.3	1<2	5.9	1<2	5.4
2 < 5	17.7	2 < 5	6.7	2 < 5	13.2	2 <5	7.9
5 < 10	23.4	5 < 10	14.8	5 < 10	38.9	5 < 10	43.6
≥10	26.0	≥10	69.8	≧10	36.7	≥10	24.9
N=	19317	N=	21267	N=	19177	N=	3.79
Berow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	3	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	3
< . 5	3.4	<.5	3.8	<.5	5.2	<.5	5.9
.5 <1	3.0	.5 <1	4.2	.5 <1	3.4	.5 < 1	4.3
1<2	3.4	1<2	3.4	1<2	4.4	1<2	4.8
<i>2</i> <5	11.4	2 < 5	8.3	2 < 5	8.6	2 <5	8.7
5 < 10	65.1	5 < 10	56.2	5 < 10	56.9	5 < 10	26.7
≥10	13.6	≥10	24.1	≥10	21.4	≥10	49.5
N=	18229	N=	3330	N=	3223	N=	18134
Tuktoyaktuk		Cape Parry	· · · · · · · · · · · · · · · · · · ·	Clinton Point		Holman	
VISIBILITY (NM)	ā.	VISIBILITY (NM)	7.	VISIBILITY (NM)	3.	VISIBILITY (NM)	3
<.5	3.7	<.5	5.4	<.5	6.6	<.5	5.6
.5 <1	2.8	.5 <1	3.7	.5 <1	2.9	.5 <1	2.6
1<2	2.9	1<2	3.8	1<2	3.1	1<2	2.9
2 <5	5.3	2 < 5	9.8	2 < 5	7.7	2 < 5	6.6
2 \ 3	19.0	5 < 10	25.5	5 < 10	18.3	5 < 10	17.0
5 < 10	13.0			1.1		1.1	
	66.4	≥10	51.7	≥10	61.4	≥10	65.4



April

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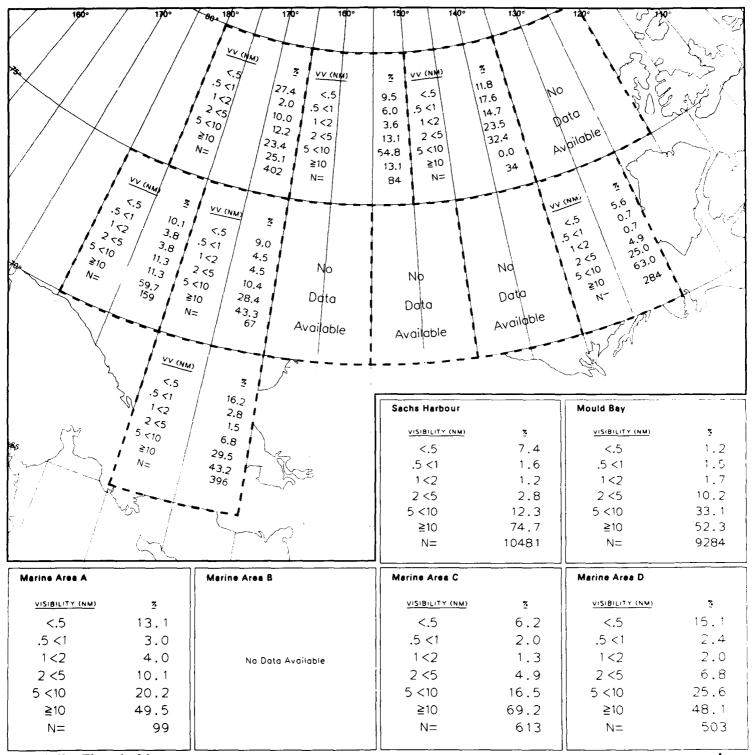
Ostrov Vrangelja		Mys Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	3	VISIBILITY (NM)	7	VISIBILITY (NM)	7	ZISIBILITY (NM)	7
<.5	6.0	<.5	7.4	<.5	7.2	1 <.5	£.9
.5 < 1	2.0	.5 <1	5.9	.5 <1	0.9	∬ .5 < `	• . •
1 < 2	3.5	1 < 2	7.6	1<2	5.0	1<2	3.5
: 2 <5	16.8	2 < 5	13.6	2 < 5	11.7	2 <5	14.2
5 < 10	12.1	5 < 10	14.5	5 < 10	18.9	5 < 10	·0.9
≥10	59.6	≥10	51.0	≧10	56.3	i <u>≧</u> 10	64.5
N=	4436	N=	4688	N=	2982	 i	4 769
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBNUTY (NM)	3	VIS:BILITY (NM)	<u> 3</u>	VISIBILITY (NM)	<u>"</u>	VISIB C TY INM.	<u>3</u>
<.5	16.9	<.5	2.2	<.5	2.9	K.5	3 .0
.5 < '	6.6	.5 <1	1.9	.5 <1	3.2	.5 < 1	3.4
1<2	8.5	1<2	1.8	1<2	4.1	1<2	1
2 < 5	12.7	2 < 5	3.4	2 <5	10.5	ii 2 <5	·
5 < 10	17.8	5 K 10	7.4	5 < 10	32.5	j 5210	35.7
≥10	37.4	≥10	83.2	<u> </u> ≥10	46.8	<u>}</u> 10	39.9
\ =	20813	1 11=	21220	 	20501		3202
Barrow		Lonely		Oliktok		Barter	
VIS BICKEY (NM)	3	VIS:BILITY (NM)	5	VIS'BILITY (NM)	5	VIS-BILITY INM	~
<5	5.9	ii <.5	6.5	<.5	8.1	₹.5	
.5 <1	3.6	.5 <1	5.2	.5 <1	6.2	∬ .5 <1	5.9
1<2	4.2	1<2	4.5	1<2	5.8	<u> </u> 1<2	6.2
2<5	13.1	2 < 5	10.7	2 < 5	10.0	2 < 5	3
5 < 10	62.2	5 < 10	54.0	5 < 10	52.7	5 < 10	~ ~ ~
≥10	11.1	≥10	19.0	≥10	17.2	≧10	42.0
M=	18099	N=	3307	N=	3243	<u> </u>	.801.
Tuktoyaktuk		Cape Parry		Clinton Point		Holman	
VISIBILITY (NM)	3	VISIBILITY (NM)	3	VISIBILITY (NM)	<u>"</u>	VISIB C TO INMS	3
<.5	5.4	<.5	5.9	<.5	7.9	<.5	٠٠.٥
.5 <1	2.2	.5 <1	4.0	.5 <1	2.3	.5 <	4
·<2	2.7	1<2	3.2	1<2	2.5	1<2	2.3
2 < 5	5.1	2 < 5	7.4	2 < 5	6.0	2 < 5	5.2
5 < 10	22.6	5 < 10	23.0	5 < 10	16.4	5 < 10	17.7
≥10	61.9	≥10	56.5	≥10	64.8	≥10	61.9
N=	3305	N=	19348	N=	4420	N=	3218
May		J L		J L		5 Visibility	Thresholds



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Ostrov Vrangelja		Mys Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u>z</u> .	VISIBILITY (NM)	<u>%</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	7.
<.5	9.5	<.5	11.2	<.5	15.3	<.5	11.5
.5 <1	1.4	.5 <1	5.8	.5 <1	0.7	.5 <1	0.9
1<2	2.2	1<2	5.9	1<2	2.7	1<2	3.1
2 < 5	12.6	2 < 5	8.7	2 <5	6.3	2 <5	8.8
5 < 10	9.6	5 < 10	8.3	5 <10	9.1	5 < 10	11.5
≥10	64.7	≧10	60.0	≥10	66.0	≥10	64.2
N=	4329	N=	4557	N=	2857	N=	4534
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u>7</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	<u>%</u>	VISIBILITY (NM)	7
<.5	26.6	<.5	3.6	<.5	6.5	<.5	5.3
.5 <1	4.7	.5 <1	2.0	.5 <1	4.7	.5 <1	1.8
1<2	4.8	1<2	1.5	1 < 2	4.1	1<2	1.6
2 < 5	9.2	2 <5	2.5	2 <5	8.9	2 < 5	3.4
5 < 10	12.4	5 < 10	6.7	5 < 10	28.8	5 < 10	26.9
≥10	42.4	≧10	83.8	≥10	47.0	≧10	61.0
N=	20039	N=	20512	N=	19435	N=	3137
		\] [
Barrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	ā	VISIBILITY (NM)	7	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3
<.5	8.4	<.5	8.6	<.5	8.3	<.5	10.1
.5 <1	4.8	.5 <1	4.1	.5 <1	4.0	.5 <1	5.9
1<2	4.3	1<2	2.4	1<2	2.4	1<2	5.0
2 <5	9.7	2 < 5	5.5	2 < 5	6.1	2 < 5	7.2
5 < 10	58.6	5 < 10	53.2	5 < 10	47.2	5 < 10	18.6
≧10	14.2	≥10	26.3	≥10	32.0	≥10	53.2
N=	17498	N=	3222	N=	3160	N=	17672
Tuktoyektuk		Cape Parry		Clinton Point		Holman	
VISIBILITY (NM)	<u>7</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>3</u>	VISIPILITY (NM)	3
<.5	4.8	<.5	6.6	<.5	3.2	<.5	10.9
.5 <1	2.1	.5 <1	3.2	.5 <1	1.5	.5 <1	i.6
1<2	1.4	1<2	2.6	1<2	1.2	1<2	1.1
2 <5	3.2	2 < 5	4.6	2 < 5	2.4	2 < 5	2.7
5 < 10	15.2	5 < 10	13.4	5 < 10	9.8	5 < 10	10.5
≥10	73.4	≥10	69.6	≥10	82.0	≥10	73.1
N=	3117	N=	18719	N=	4450	N=	3112
ne		J L		J L		5 Visibility	Threshol



June

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Ostrov Vrangelja		Mys Shmidts		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>"</u>
<.5	14.0	<.5	12.9	<.5	15.4	<.5	11.9
.5 <1	1.4	.5 <1	4.7	.5 <1	0.4	.5 <1	0.7
1<2	2.6	1<2	5.1	1<2	1.6	1<2	2.0
2 < 5	10.1	2 < 5	8.5	2 < 5	5.9	2 < 5	8.8
5 <10	7.7	5 < 10	8.3	5 < 10	7.6	5 < 10	14.9
≥10	64.3	<u>≥</u> 10	60.4	≥10	69.1	≥10	61.7
N=	4271	N=	4545	N=	2643	M=	4536
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	%	VISIBILITY (NM)	7	VISIBILITY (NM)	<u> 3</u>	VISIBILITY (NM)	3
<.5	25.2	<.5	1.4	<.5	4.4	<.5	4.4
.5 <1	5.0	.5 <1	0.9	.5 <1	3.5	.5 <1	1.9
1<2	5.0	1<2	1.1	1 < 2	4.0	1<2	2.2
2 < 5	11.2	2 < 5	3.2	2 < 5	9.6	2 < 5	5.5
5 < 10	15.0	5 < 10	8.5	5 < 10	30.8	5 < 10	28.3
≥10	38.5	≥10	85.0	≥10	47.7	≥10	51.8
N=	20713	N=	21131	N=	19446	N=	303.
Berrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	%	VISIBILITY (NM)	7
<.5	8.9	<.5	10.7	<.5	9.0	<.5	14.2
.5 <1	4.9	.5 <1	3.8	.5 <1	3.8	.5 <1	٠. ·
1<2	3.7	1<2	2.0	1<2	2.4	1<2	2.8
2 <5	8.5	2 < 5	5.0	2 < 5	5.1	2 < 5	4.8
5 < 10	54.1	5 < 10	49.2	5 < 10	43.9	5 < 10	15.0
≥10	19.7	≥10	29.4	≥10	35.7	≥10	59.0
N=	18771	N=	3191	N=	3073	N=	18347
Tuktoyaktuk		Cape Parry		Clinton Point		Holman	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	7.	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>~</u>
<.5	2.4	<.5	7.7	<.5	7.2	<.5	6.7
.5 <1	1.4	.5 <1	2.9	.5 <1	1.6	.5 <1	1.1
1<2	1.6	1<2	2.5	1<2	1.3	1<2	0.7
		2 < 5	4.1	2 < 5	3.1	2 <5	2.6
	2.2			1)		[1]	
2 < 5	2.2 12.0	5 < 10	13.5	5 < 10	8.8	5 < 10	9.7
2 <5 5 <10	12.0	13	13.5 69.4	5 <10 ≥10	8.8 77.9	5 <10 ≧10	9.7 79.1
2 < 5		5 <10				I 1	

July

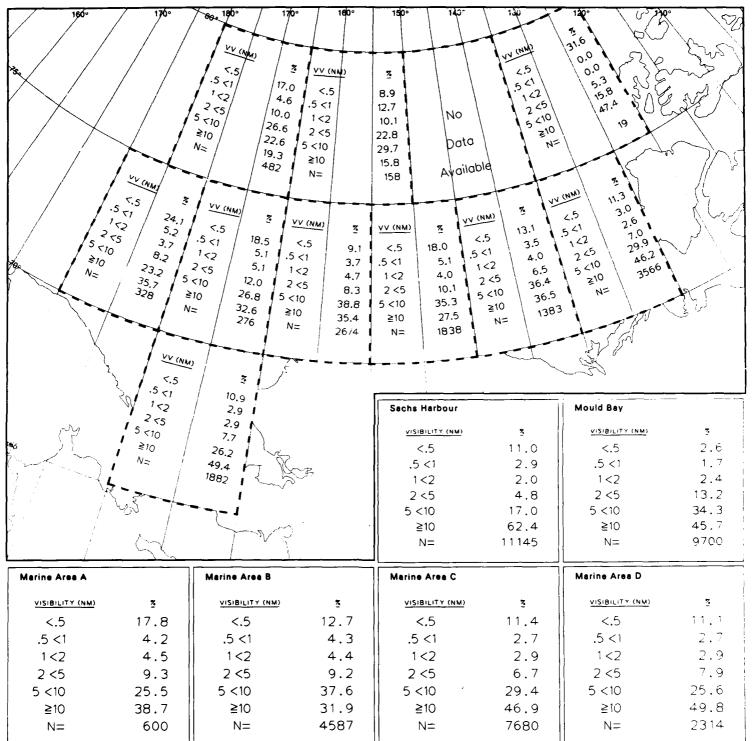
180°	176°	800 1800 17)° 160°	150° 140°	1300	1200	\$. \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
*\$c.		1.5 \(\sigma_1\) 21.3 \(\sigma_2\) 3.3 \(\sigma_2\) 5 \(\sigma_1\) 25.9 \(\sigma_1\) 5.9 \(\sigma_1\) 15.9	5.5.1	17.9 < <.5	1.1 11.1 16.7	oto Siloble	
	NV (NM)	N= 34.9 484	5 <10 ≥10 N=	39.3 5 <10 10.7 ≥10 140 N=	18	ann 11.1	ro)
5 710 2 8 5 710	5 7.5 24.1 72 1.7 75 0.4 12.9	COMMY C.5 .5 <1 18.1 1 7.1 .5	VV (NM) 2 <.5 17.6 5 <1 5 2	<.5 21.8	18.9 2.3 <1 1.7	551 13 522 250 L 250 L	
N= 10	$\begin{pmatrix} 13.7 \\ 47.3 \\ 241 \end{pmatrix} = 5$	2 <5	5.3 4.7 7.2 7.2 10 30.4	1<2 3.0	2 4.3 2 < 5 5 < 10 45.8	5 210 1862 N= 1862	
		1 156 1	10 34.9 = 1824	≥10 31.2 N= 1084	N= 349		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
J.	<.5 .5 <1	3	~ <u>L</u>		-		
İ		17.1					
1	1<2	3.6		Sachs Harbour		Mould Bay	
Lvi	1 255	3.6		Sachs Harbour	<u>*</u>	Mould Bay	3
	1 2 <5 1 5 <10 ≥10	3.8			<u>*</u> 9.4		3 1.0
L (r	5 < 10	3.8 6.7 24.6 44.1	~z	<u>visibility (NM)</u> <.5 .5 <1	1	VISIBILITY (NM)	1.0
L (r	1 2 <5 1 5 <10 ≥10	3.8	3	VISIBILITY (NM) <.5 .5 <1 1 < 2	9.4 2.1 1.4	VISIBILITY (NM) <.5 .5 <1 1 < 2	1.0 0.9 1.2
1. ("	1 2 <5 1 5 <10 ≥10	3.8 6.7 24.6 44.1	∑£	visibility (NM) <.5 .5 <1 1 < 2 2 < 5	9.4 2.1 1.4 3.7	visibility (NM) <.5 .5 <1 1 < 2 2 < 5	1.0 0.9 1.2 8.6
1. ("	1 2 <5 1 5 <10 ≥10	3.8 6.7 24.6 44.1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	visiBility (NM) <.5 .5 <1 1 <2 2 <5 5 <10	9.4 2.1 1.4 3.7 12.6	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	1.0 0.9 1.2 8.6 25.8
1. ("	1 2 <5 1 5 <10 ≥10	3.8 6.7 24.6 44.1		visibility (NM) <.5 .5 <1 1 < 2 2 < 5	9.4 2.1 1.4 3.7	visibility (NM) <.5 .5 <1 1 < 2 2 < 5	1.0 0.9 1.2 8.6
L (r	1 2 <5 1 5 <10 ≥10	3.8 6.7 24.6 44.1	3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≧10	9.4 2.1 1.4 3.7 12.6 70.7	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≧10	1.0 0.9 1.2 8.6 25.8 62.5
	1 2 <5 1 5 <10 ≥10	3.8 6.7 24.6 44.1 1973	3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	9.4 2.1 1.4 3.7 12.6 70.7	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N=	1.0 0.9 1.2 8.6 25.8 62.5
Marine Area A	2 <5 5 <10 ≥10 N=	3.8 6.7 24.6 44.1 1973 Marine Area B	\$ 19.7	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area D	1.0 0.9 1.2 8.6 25.8 62.5 9599
Marine Area A VISIBILITY (NM)	2 <5 5 <10 ≥10 N=	3.8 6.7 24.6 44.1 1973 Marine Area B		VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5	1.0 0.9 1.2 8.6 25.8 62.5 9599
Marine Area A VISIBILITY (NM) <.5	2<5 5<10 ≥10 N= 21.1	3.8 6.7 24.6 44.1 1973 Marine Area B VISIBILITY (NM) <.5	19.7	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM)	1.0 0.9 1.2 8.6 25.8 62.5 9599
Merine Area A VISIBILITY (NM) <.5 .5 <1	2<5 5<10 ≥10 N= 21.1 5.1 5.1	3.8 6.7 24.6 44.1 1973 Marine Area B VISIBILITY (NM) <.5 .5 < 1	19.7 5.3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1 1 < 2	1.0 0.9 1.2 8.6 25.8 62.5 9599
Merine Area A visiBiLity (NM) <.5 .5 <1 1 <2	2<5 5 < 10 ≥10 N= 21.1 5.1	3.8 6.7 24.6 44.1 1973 Marine Area B VISIBILITY (NM) <.5 .5 <1 1 <2	19.7 5.3 4.0 6.8	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 ,	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5	1.0 0.9 1.2 8.6 25.8 62.5 9599
Marine Area A VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	2 < 5 5 < 10 ≥ 10 N = 21 . 1 5 . 1 9 . 5	3.8 6.7 24.6 44.1 1973 Marine Area B VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	19.7 5.3 4.0	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2	9.4 2.1 1.4 3.7 12.6 70.7 10861 3 10.8 1.6 1.2 4.5 24.1	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1 1 < 2	1.0 0.9 1.2 8.6 25.8 62.5 9599
Merine Area A VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	2<5 5 < 10 ≥ 10 N= 21.1 5.1 5.1 9.5 31.4	3.8 6.7 24.6 44.1 1973 Marine Area B VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	19.7 5.3 4.0 6.8 30.6	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	9.4 2.1 1.4 3.7 12.6 70.7 10861	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	1.0 0.9 1.2 8.6 25.8 62.5 9599 16.5 3.5 6.3

July

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Ostrov Vrangelja		Mys Shmidts		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u> 3</u>	VISIBILITY (NM)	<u>z</u> .	VISIBILITY (NM)	ž	VISIBILITY (NM)	3
<.5	16.7	<.5	12.4	<.5	20.1	<.5	13.2
.5 <1	1.5	.5 <1	7.3	.5 <1	0.6	.5 <1	0.8
1<2	2.6	1<2	7.9	1<2	2.4	1<2	2.8
2 < 5	11.8	2 <5	10.3	2 < 5	9.4	2 < 5	10.6
5 < 10	10.3	5 < 10	11.2	5 < 10	17.6	5 < 10	17.1
≥10	57.0	≥10	50.9	≥10	49.8	≥10	55.5
N=	4278	N=	4582	N=	2591	N=	4549
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	7.	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u> 3</u>	VISIBILITY (NM)	3
<.5	14.6	<.5	0.4	<.5	2.2	<.5	3.7
.5 <1	4.3	.5 <1	0.6	.5 <1	2.7	.5 <1	2.5
1<2	6.5	1<2	1.3	1<2	3.5	1<2	3.1
2 < 5	12.6	2 < 5	3.6	2 < 5	10.8	2 < 5	7.6
5 < 10	20.9	5 < 10	14.2	5 < 10	36.0	5 < 10	33.1
≥10	41.1	≥10	79.9	≧10	44.7	≥10	50.0
N=	20855	N=	21794	N=	20280	N=	3298
Barrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	3
<.5	9.3	<.5	14.2	<.5	11.0	<.5	17.6
.5 <1	4.9	.5 <1	3.8	.5 <1	5.1	.5 <1	5.5
1<2	4.6	1<2	2.7	1<2	3.1	1<2	4.5
2 < 5	10.7	2 < 5	7.0	2 < 5	7.8	2 < 5	6.9
5 < 10	57.0	5 < 10	48.1	5 < 10	46.4	5 < 10	22.0
≥10	13.5	≥10	24.1	≥10	26.5	≥10	43.5
N=	19325	N=	3433	N=	3322	N=	18470
Tuktoyektuk		Cape Perry		Clinton Point		Holman	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	%
<.5	3.0	<.5	6.7	<.5	5.3	<.5	10.1
.5 <1	2.3	.5 <1	3.2	.5 <1	1.3	.5 <1	1.9
1<2	1.9	1<2	2.8	1<2	0.8	1<2	1.4
2 <5	3.9	2 <5	6.1	2 <5	5.2	2 <5	2.9
5 < 10	15.8	5 <10	20.4	5 < 10	12.1	5 < 10	15.2
≥10	73.1	≥10	60.8	≧10	75.4	≥10	68.4
N=	3223	N=	19340	N=	4483	N=	3202
August		J L		l L		5 Visibility	Threshold



August

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Ostrov Vrangelja		Mya Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	%	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	2
<.5	7.0	<.5	8.5	<.5	13.0	<.5	7.8
.5 <1	1.5	.5 <1	7.6	.5 <1	0.9	.5 <1	0.8
1<2	3.5	1<2	7.6	1<2	2.5	1<2	3.0
2 < 5	16.3	2 < 5	11.5	2 < 5	9.2	2 < 5	11.3
5 < 10	13.2	5 < 10	12.9	5 < 10	33.7	5 < 10	16.8
≥10	58.6	≥10	52.0	≥10	40.7	≥10	60.2
N=	4091	N=	4340	N=	2471	N=	4374
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u> .	VISIBILITY (NM)	<u>z</u>
<.5	6.1	<.5	0.4	<.5	0.7	<.5	3.2
.5 <1	2.3	.5 <1	0.5	.5 <1	1.7	.5 <1	2.4
1<2	4.9	1<2	0.9	1<2	2.8	1<2	2.5
2 <5	11.4	2 < 5	3.0	2 < 5	10.4	2 < 5	7.5
5 < 10	28.5	5 < 10	15.4	5 < 10	45.9	5 < 10	42.3
≧10	46.9	≥10	79.8	≥10	38.5	≧10	42.1
N=	19573	N=	21065	N=	19538	N=	3237
Barrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	3
<.5	5.1	\\\\ <.5	8.3	<.5	8.8	<.5	14.6
.5 <1	3.8	.5 <1	4.2	.5 <1	5.9	.5 <1	6.5
1<2	4.9	1<2	3,2	1<2	4.2	1<2	5.3
2 <5	13.5	2 < 5	7.8	2 < 5	8.9	2 <5	8,:
5 < 10	62.0	5 < 10	56.1	5 < 10	52.8	5 < 10	26.2
≥10	10.6	≧10	20.4	≥10	19.5	≥10	39.4
N=	18707	N=	3337	N=	3251	N=	17742
Tuktoyaktuk		Cape Perry		Clinton Point		Holmen	
VISIBILITY (NM)	<u>"</u>	VISIBILITY (NM)	3	VISIBILITY (NM)	<u> 3</u>	VISIBILITY (NM)	<u>.</u>
<.5	3.9	<.5	5.2	<.5	5.7	<.5	·j.8
.5 <1	1.8	.5 <1	4.0	.5 <1	2.7	.5 <1	2.8
1<2	2.5	1<2	3.3	1<2	1.0	1<2	2.2
2 <5	3.8	2 < 5	7.6	2 < 5	5.0	2 <5	5.0
5 < 10	24.2	5 < 10	26.6	5 < 10	14.8	5 < 10	17.0
≥10	63.8	≥10	53.4	≥10	70.8	≥10	62.1
N=:	3119	N=	18975	N=	4356	N=	3114
	 	JL		JL		5 Visibility	

September

186° 186° 186° 186° 186° 187°	VV (NM) 5 5 7 1 11.2 1.9 5 7 2 8.0 8.7 28.0 47.4 321 N VV (NM) 5 5 7 1 11.2 1.9 2.8 8.7 28.0 5 2.8 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8	 <.5 .5 <1 6.7 1 <2 3.4 .5 2 <5 2.7 1.6 8.4 2.6 \$10 43.3 5 <1 298 N= 	<.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= V(NM) Z <.5 8.4 <1 3.7 <2 6.6 <5 9.1 10 49.2 0 23.1	17.4 < .5 5.0 .5 < 1 13.6 1 < 2 20.8 2 < 5 27.8 5 < 10 15.5 ≥ 10 317 N= VV (NM)	0.0 5 < 1 0.0 5 < 1 0.0 5 < 10 0.0 5 < 10 51.6 N= 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 4.0 13.8 13.8 13.8 13.8 13.8 13.8 13.8 14.0 15	11.2 2.5 3.6 5.5 1.2 2.7 3.7 2.7 3.6 3.6 5.7 3.6 3.6 5.7 3.6 3.6 5.7 3.6 3.6 5.7 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6	
	150	4.8		Sachs Harbour		Mould Bay	
- Ng	1 255	2.6 I		Sachs Harbour	7.	Mould Bay	
5 } {	1 2 <5 1 5 -10	2.6 1.4 7.2			<u>₹</u> 8.3		3.0
	1 255	2.6 1.4 7.2 34.6 49.3	~~	<u>visibility (nm)</u> <.5 .5 <1	8.3 2.2	<u>visiallity (NM)</u> <.5 .5 <:	
	3y 1<2 2<5 5<10 ≥10	2.6 1.4 7.2	· B	VISIBILITY (NM) <.5 .5 <1 1 < 2	8.3 2.2 2.1	<u>visiBility (NM)</u> <.5 .5 <1 1 <2	3.6 3.6 4.2
	3y 1<2 2<5 5<10 ≥10	2.6 1.4 7.2 34.6 49.3	· B	visibility (NM) <.5 .5 <1 1 < 2 2 < 5	8.3 2.2 2.1 5.9	visibility (NW) <.5 .5 <1 1 < 2 2 < 5	3.6 3.6 4.2 17.4
	3y 1<2 2<5 5<10 ≥10	2.6 1.4 7.2 34.6 49.3	B	VISIBILITY (NM) <.5 .5 <1 1 < 2 2 < 5 5 < 10	8.3 2.2 2.1 5.9 22.1	visibility (NM) <.5 .5 <1 1 < 2 2 < 5 5 < 10	3.6 3.6 4.2 17.4 38.3
	3y 1<2 2<5 5<10 ≥10	2.6 1.4 7.2 34.6 49.3	3	visibility (NM) <.5 .5 <1 1 < 2 2 < 5	8.3 2.2 2.1 5.9	visibility (NW) <.5 .5 <1 1 < 2 2 < 5	3.6 3.6 4.2 17.4
Marine Area A	3y 1<2 2<5 5<10 ≥10	2.6 1.4 7.2 34.6 49.3	" "	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10	8.3 2.2 2.1 5.9 22.1 59.4	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10	3.6 3.6 4.2 17.4 38.3 33.6
Marine Area A	2 <5 5 < '0 ≥ 10 N=	2.6 1.4 7.2 34.6 49.3 1526	·}	VISIBILITY (NM) <.5 .5 <1 1 < 2 2 < 5 5 < 10 ≧10 N=	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NW) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N=	3.6 4.2 17.4 38.3 33.6 9464
Merine Area A VISIBILITY (NM)	2 <5 5 < '0 \$10 N=	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM)	予 9.6	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C	8.3 2.2 2.1 5.9 22.1 59.4	visiBicity (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area D	3.6 3.6 4.2 17.4 38.3 33.6
Merine Aree A VISIBILITY (NM) <.5	2 <5 5 < '0 \$10 N= 8.5	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B	予 9.6 5.2	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NW) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D	3.6 3.6 4.2 17.4 38.3 33.6 9464
Merine Area A VISIBILITY (NM)	2 <5 5 < '0 \$10 N=	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM) <.5	9.6	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NM) <.5 .5 < 1 .1 < 2 .2 < 5 .5 < 10 .≥ 10 .N= Marine Area D VISIBILITY (NM) <.5	3.6 3.6 4.2 17.4 38.3 33.6 9464 4.3 2.3 1.8
Marine Area A VISIBILITY (NM) <.5 .5 <1	2 < 5 5 < '0 ≥ 10 N= 8.5 2.9	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM) <.5 .5 <1	9.6 5.2	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NM) <.5 .5 <: 1 < 2 2 < 5 5 < 10 ≥ 10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1	3.6 4.2 17.4 38.3 33.6 9464
Marine Area A VISIBILITY (NM) <.5 .5 <1 1 <2	2 < s 5 < '0 ≥ 10 N = 2 8 . 5 2 . 9 2 . 7	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM) <.5 .5 <1 1 <2	9.6 5.2 6.3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NW) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N=	3.6 4.2 17.4 38.3 33.6 9464 4.3 2.3 1.8
Marine Area A VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	2 <5 5 < '0 ≥10 N= 2.7 10.7	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5	9.6 5.2 6.3 10.3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 ,	8.3 2.2 2.1 5.9 22.1 59.4 10775	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥ 10 N =	3.6 3.6 4.2 17.4 38.3 33.6 9464 4.3 2.3 1.8 1.0 33.9 50.7
Marine Area A VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	2 < s 5 < '0 ≥10 N= 3 8.5 2.9 2.7 10.7 36.0	2.6 1.4 7.2 34.6 49.3 1526 Marine Area B VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	9.6 5.2 6.3 10.3 47.3	VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10 ≥10 N= Marine Area C VISIBILITY (NM) <.5 .5 <1 1 <2 2 <5 5 <10	8.3 2.2 2.1 5.9 22.1 59.4 10775 3.3 3.1 9.3 36.3	VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10 ≥10 N= Marine Area D VISIBILITY (NM) <.5 .5 < 1 1 < 2 2 < 5 5 < 10	3.6 4.2 17.4 38.3 33.6 9464

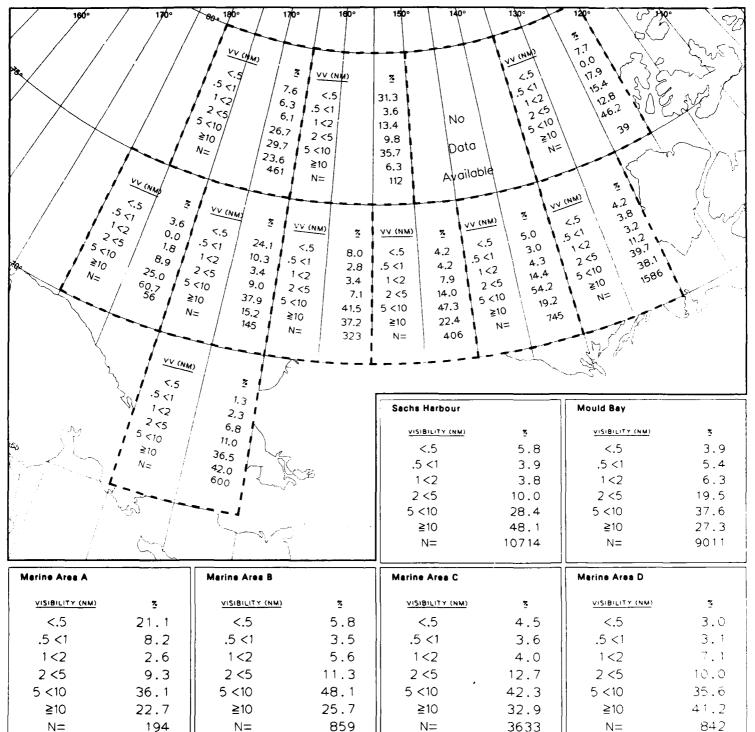
September

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Ostrov Vrangelja		Mys Shmidts		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	<u> </u>
<.5	3.5	<.5	7.8	<.5	3.7	<.5	1.5
.5 <1	3.2	.5 <1	8.8	.5 <1	1.9	.5 <1	1.5
1<2	5.4	1<2	7.6	1<2	8.4	1<2	5.8
2 < 5	18.8	2 < 5	12.2	2 < 5	16.8	2 <5	16.9
5 < 10	13.6	5 < 10	16.2	5 < 10	39.7	5 < 10	15.4
≥10	55.4	≥10	47.5	≥10	29.4	≥10	58.8
N=	4279	N=	4600	N=	2760	N=	4565
Tin City		Kotzebue		Cape Lisburne		Point Ley	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	7
<.5	5.3	<.5	1.2	<.5	1.8	<.5	4.1
.5 <1	3.9	.5 <1	1.6	.5 <1	3.8	.5 <1	3.5
1<2	7.2	1<2	2.4	1<2	4.9	1<2	3.2
2 < 5	13.0	2 < 5	5.4	2 <5	12.6	2 < 5	9.2
5 < 10	33.0	5 < 10	18.2	5 < 10	46.6	5 < 10	47.7
≥10	37.6	≥10	71.3	<u>≥</u> 10	30.3	≧i0	32.3
N=	19749	N=	21788	N=	20333	N=	3186
Barrow		Loneix		Oliktok	<u> </u>	Barter	
VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	3	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM:	<u> </u>
<.5	3.8	<.5	4.3	<.5	4.1	<.5	6.7
.5 <1	4.3	.5 <1	3.5	.5 <1	6.1	.5 <1	6.4
1<2	5.4	1<2	3.9	1<2	4.8	1<2	7.3
2 < 5	16.1	2 < 5	10.3	2 < 5	11.6	2 < 5	14.2
5 < 10	60.4	5 < 10	58.4	5 < 10	55.2	5 < 10	32.3
≥10	10.0	≥10	19.6	≥10	18.3	≥10	33.1
N=	19089	N=	3431	N=	3352	N=	18077
Fuktoyaktuk		Cape Parry		Clinton Point		Holman	
VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>*</u>
<.5	2.7	<.5	3.2	<.5	7.9	<.5	5.6
.5 <1	3.0	.5 <1	4.5	.5 <1	2.9	.5 <1	3.7
1<2	4.4	1<2	4.5	1<2	2.4	1<2	3.4
2 < 5	7.8	2 <5	12.0	2 < 5	7.4	2 <5	7.9
5 < 10	29.0	5 < 10	33.7	5 < 10	21.1	5 < 10	22.1
≥10	53.2	≥10	42.1	≥10	58.2	≥10	57.2
N=	3217	N=	19839	N=	4475	N=	3221
ctober		J [5 Visibility	Thresho

.

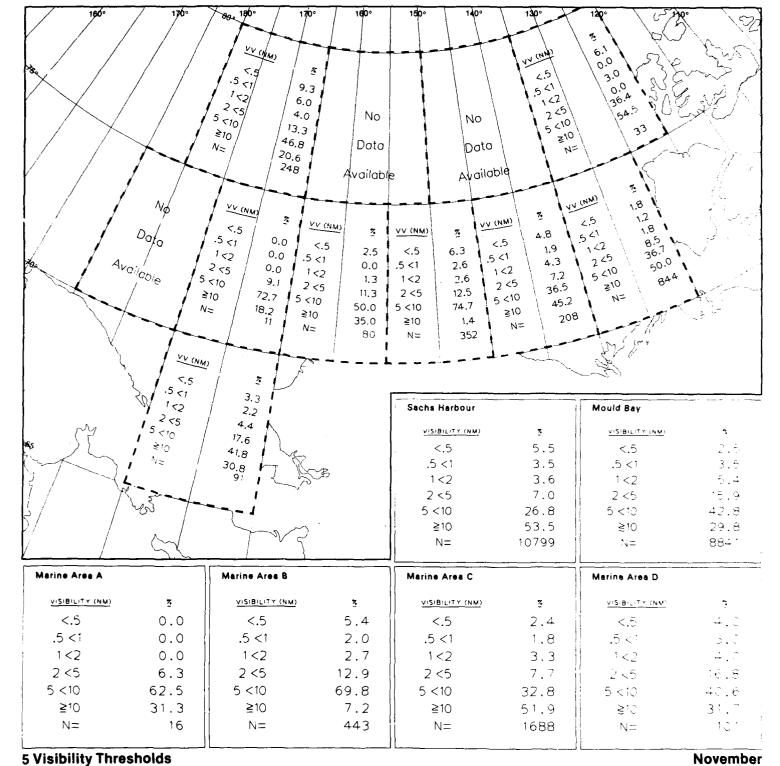
•



October

11	-1	30

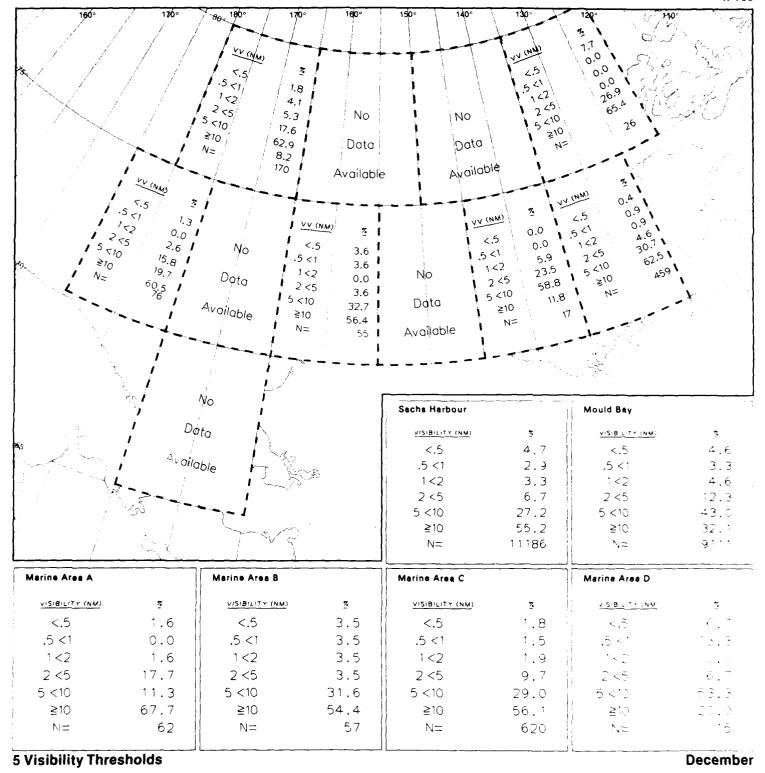
Ostrov Vrangelja		Mys Shmidta		Ostrov Kolychino		Mys Uelen	
VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	7
<.5	6.7	<.5	15.2	<.5	2.0	<.5	2.4
. 5 <1	5.5	.5 <1	10.4	.5 <1	2.6	.5 <1	3.4
1<2	8.7	1<2	8.3	1<2	9.2	1<2	9.6
2 <5	21.4	2 < 5	16.0	2 < 5	14.1	2 < 5	20.2
5 < 10	12.2	5 < 10	15.8	5 < 10	49.4	5 < 10	12.9
≥10	45.5	≥10	34.3	≧10	22.6	<u> </u> ≥10	51.5
N=	4149	N=	4375	N=	2621	N=	4359
Tin City		Kotzebue		Cape Lisburne		Point Lay	
VISIBILITY (NM)	<u> 3</u>	VISIBILITY (NM)	<u>3</u>	VISIBILITY (NM)	<u>z</u>	VISIBILITY (NM)	3
<.5	12.2	<.5	2.7	<.5	2.3	<.5	9.3
.5 <1	6.4	.5 <1	2.7	.5 <1	3.9	.5 <1	4.7
1<2	10.0	1<2	3.6	1<2	5.7	1<2	4.2
2 < 5	15.3	2 < 5	7.5	2 < 5	15.3	2 < 5	9.0
5 < 10	31.9	5 < 10	24.5	5 < 10	52.8	5 < 10	∔6.8
≥10	24.2	≥10	58.9	≥10	20.0	≧10	25.9
N=	19227	N=	21085	N=	19506	N=	3240
Berrow		Lonely		Oliktok		Barter	
VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	<u> </u>	VISIBILITY (NM)	3	VISIBILITY (NM)	7
<.5	6.4	<.5	5.8	<.5	6.2	<.5	8.2
.5 <1	4.5	.5 <1	4.2	.5 <1	5.0	.5 <1	5.6
1<2	5.7	1<2	4.6	1<2	4.5	1<2	6.3
2 <5	14.7	2 < 5	10.6	2 < 5	11.6	2 < 5	11.6
5 < 10	58.2	5 < 10	56.4	5 < 10	52.1	5 < 10	35.2
≥10	10.4	11 ≥10	18.4	≥10	20.6	≥10	33.2
N=	18468	N=	3332	N=	3223	N=	17448
uktoyaktuk		Cape Parry		Clinton Point		Holman	
VISIBILITY (NM)	7	VISIBILITY (NM)	7	VIŞIBILITY (NM)	<u>3</u>	V-SIBILITY (NM)	<u>.</u>
<.5	2.8	<.5	3.9	<.5	6.6	<.5	4
.5 <1	3.0	.5 <1	4.4	.5 <1	4.0	.5 <1	2.9
1<2	4.0	1<2	5.0	1<2	3.5	1<2	3.8
2 <5	6.8	2 < 5	11.5	2 < 5	6.8	2 < 5	, , ¬
5 < 10	27.6	5 < 10	35.2	5 < 10	22.4	5 < 10	23.1
≥10	55.8	≧10	40.0	≥10	56.7	≥10	55.1
N=	3117	N=	19199	N=	4340	N=	3114
14-		11				11	



II-132	2
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Ostrov Vrengelja		Mys Shmidte		Ostrov Kalychino		Mys Uelen	
VISIBILITY (NM)	3	VISIBILITY (NM)	3	VISIBILITY (NM)	7	VIS-BILLTY (NM)	7.
<.5	3.1	<.5	9.3	<.5	1.4	<.5	•
.5 <1	3.3	.5 <1	9.1	.5 <1	1.5	.5 < 1	1.3
1<2	6.7	1<2	8.9	1<2	5.5	172	P
2 <5	18.2	2 < 5	12.8	2 <5	10.1	2 < 5	· ř =
5 < 10	12.8	5 < 10	18.1	5 < 10	55.9	5 876	
≥10	55.9	≥10	41.8	≥10	25.6	<u>'</u> ≧16	5.3.3
N=	4195	N=	4447	M=	2603	1,-	4481
Tin City		Kotzebue		Cape Lisburne		Point Lay	
V:S:BIL ** (NM)	7	VISIBILITY (NM)	<u>\$</u>	VISIBILITY (NM)	*	√(S(B) ∪ T + 114M)	7
<1.5	1.1.5	₹.5	3.5		2.5	·	
.5 <1	8.2	.5 < '	2.8	.5 <1	3.8	Sec. 1	,
. <2	12.0	1<2	4.0	1<2	5.2	·	
2<5	16.6	1 2 <5	6	11 235	13.7	2.5	,
5 4,17	29.7	5 < 10	26.4	d 5 < 10	54.3	\$ 21°;	4
210	20.9		55.7	.≟ ≥10	20.5	<u> 2</u> 1 1	
: -	19232	<u> </u>	21785	% =	19370	÷.=:	7.4
Barrow		Lonely		Oliktok		Barter	<u> </u>
Dellow		LONGIA		Ollktok		:	
1 1 <u>8</u> 2 1 1 <u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>	7	CS/BIG TY (NM)	•	VIS B (27 + (NM)	7	ES BIE TO INM	P**
4 . 5	÷.	s	₹.0	<.5	5.6	e. . .	
	3.5	.E *	3. '	1 .5 - 1	4.3	5	4.4
	4.4	* 🛴	3.5	1 . 2	÷.5	4. ************************************	
	12.4	1. 2.55	•	2 + 5	8.3	1 2 4 5	
	o'.3		61.8	5 < 10	56.0		• • •
1	· •	<u>.</u> ≥ 10.	20.8	≥*C	22.0	≧ 10	×1.
•	19756	비 NE	3476	d Na	3344	· 'v:=	* * * * * * * * * * * * * * * * * * * *
Tuktoyaktuk	· ·	Cape Parry		Clinton Point		Holman	
/ <u>% ∄ </u>	7	VIS BIL TY (NM)	7	VIS-BIGHT FIRM)	2	. 5 8 . T - NV	7
	÷.÷	<.5	3.3	(£	6.9	S*	
4	7 .	.5 <*	4.:	∦ .5 ≥ 1	3.7	1	
	3.0	- <2	4.8		2.6		
	ő. A	2 <€	* q = x	2 < 5	5.5	2.65	
	27.6	5 < 10	35.9	∯ 5 k10	19.1		
	55.9	d 210	40.8	∄ 1 <u>210</u>	62.2	≥*()	
<i>≥</i> • *		- ·				-	
	320	· , =	19790	`; ';=	454		

December



Map 6. Cloud amount

BLACK LINE – Percent frequency of total cloud amount $\leq 2/8$.

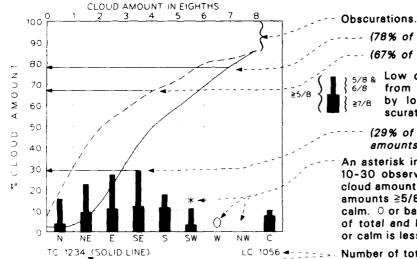
BLUE LINE – Percent frequency of low cloud amount $\geq 5/8$.

Albers Equal-Area Conic Projection

Graphs: Cloud cover/wind direction

Total Cloud Amount >

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



-- (67% of all low cloud amounts were ≤4/8.)

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

(29% of all SE winds were accompanied by low cloud amounts \geq 5/8 and 12% by low cloud amounts \geq 7/8.)

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

(78% of all total cloud amounts were ≤7/8.)

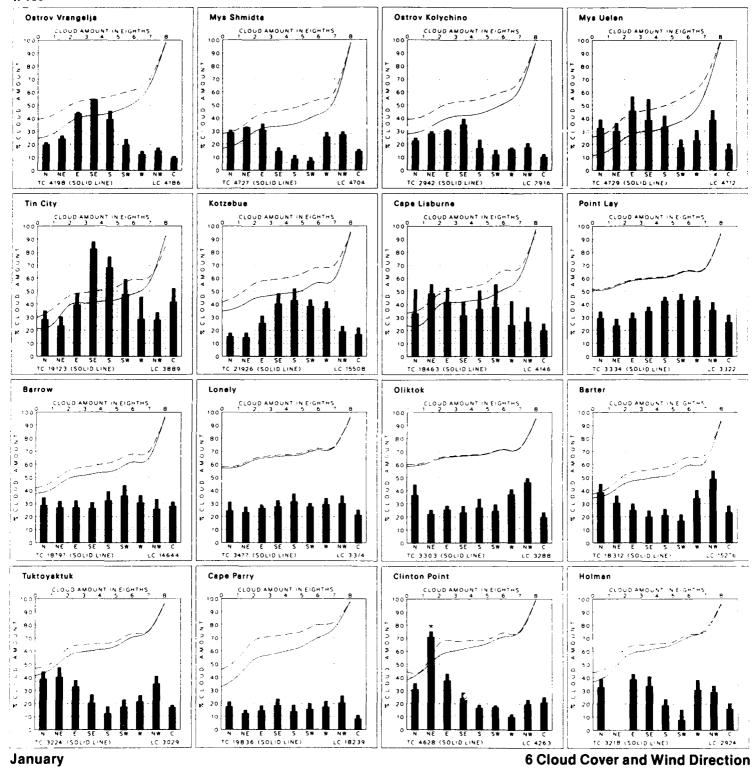
Number of total cloud (TC) and low cloud (LC) observations.

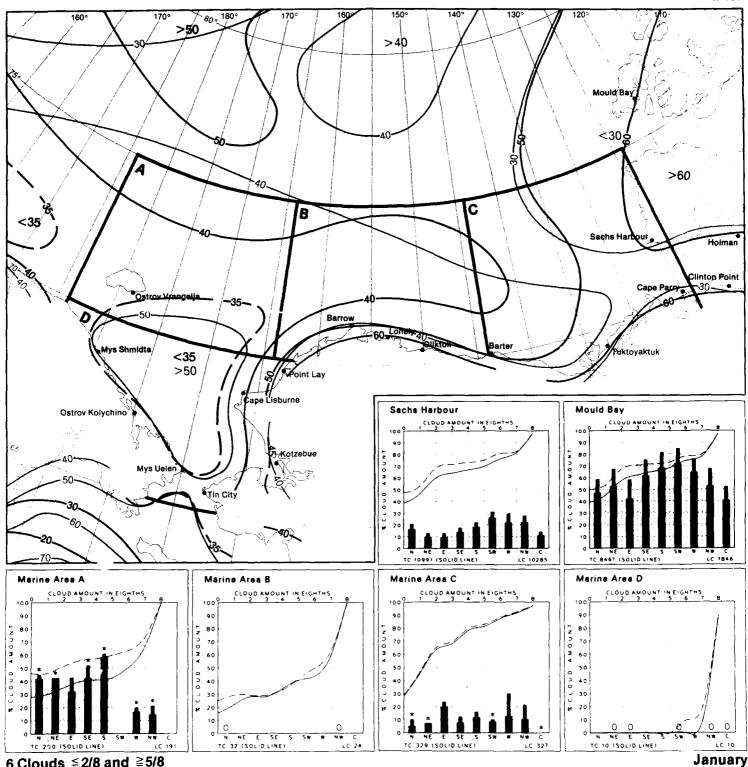
A survey of the cloud data (total and low cloud amounts) from the marine data base shows the number of total cloud reports significantly greater than that of low cloud amounts. This is because many of the early marine observations contain only total cloud amounts. Therefore, somewhat different samples may be used to compute the two curves on the graph. This may lead to inconsistencies where the 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 from the graph by subtracting the cumulative percent frequency on the curve corresponding to 8/8 coverage from 100%. In computing the bar graph, obscurations are considered as 8/8 coverage.

For the two isopleth presentations (total cloud amount \leq 2/8 and low cloud amount \geq 5/8), only those observations reporting both total and low cloud amounts were summarized. This helps eliminate problems introduced as a result of different size data sets. A comparison of total cloud analyses based on satellite data by the U.S. Department of Commerce and U.S. Air Force (1971) shows a fairly close agreement with, and bolsters the confidence in, the marine cloud statistics presented in this atlas. Refer to the texts in Sets 3 and 4 for additional information on clouds.

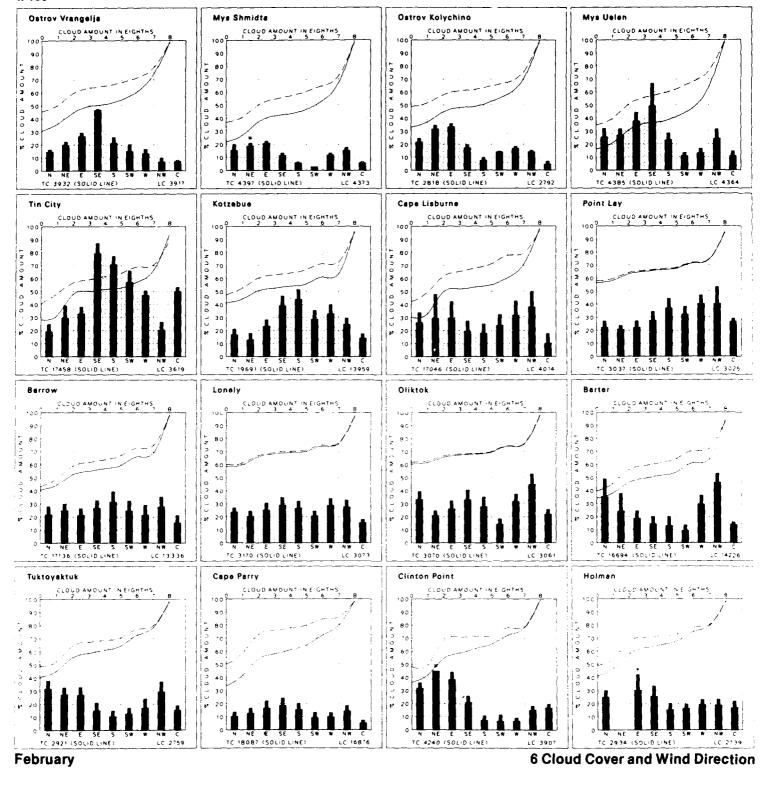
6 Legend

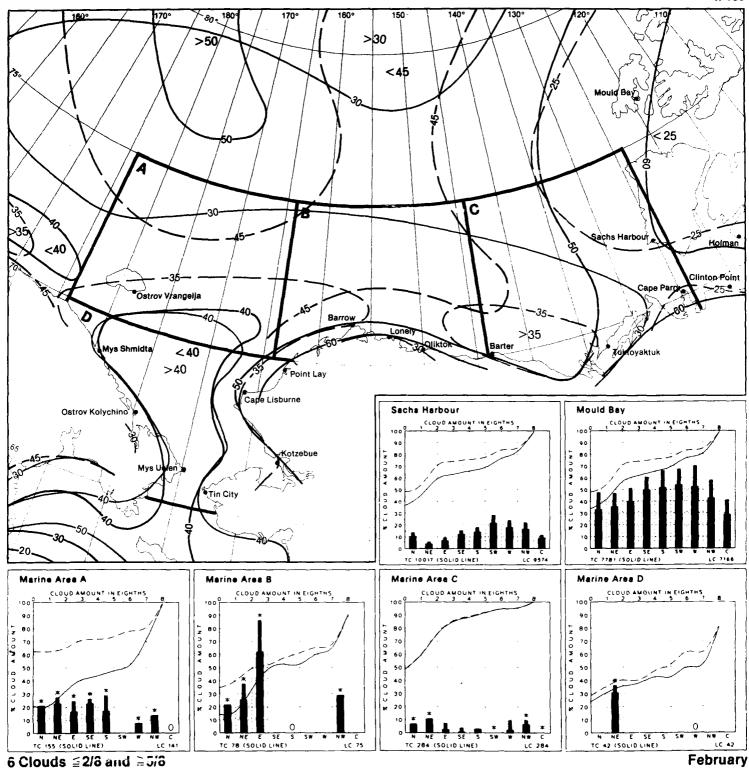
Legend 6

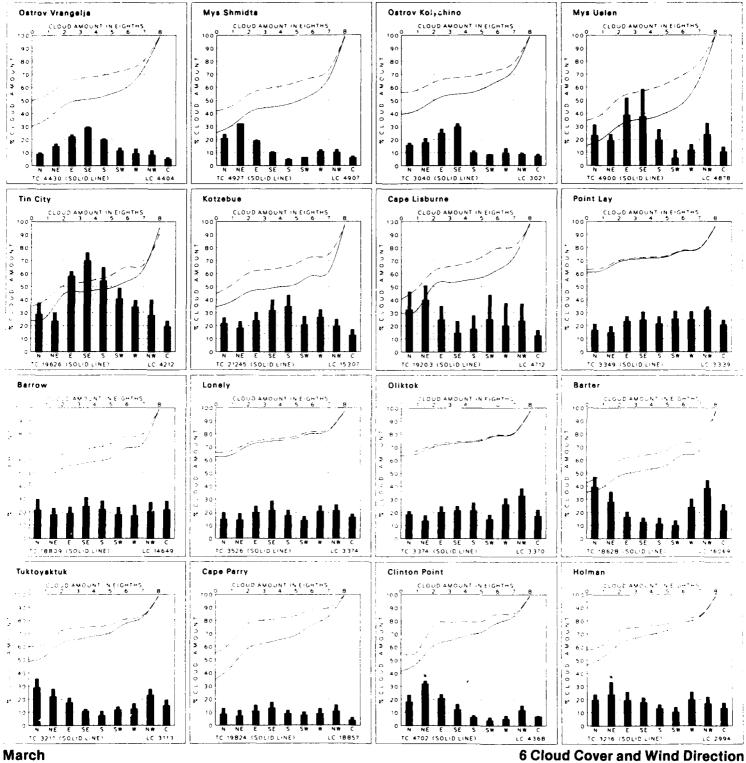


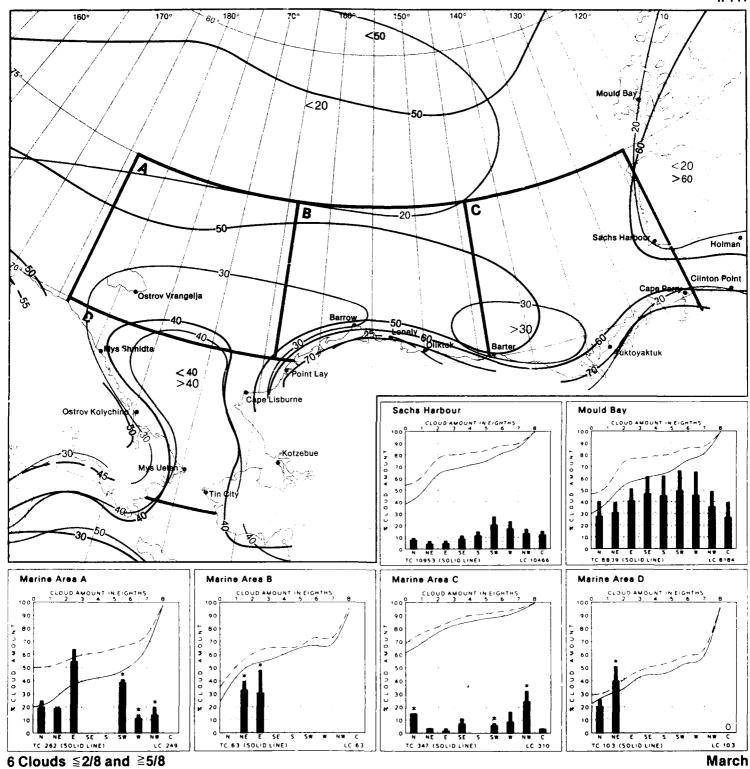


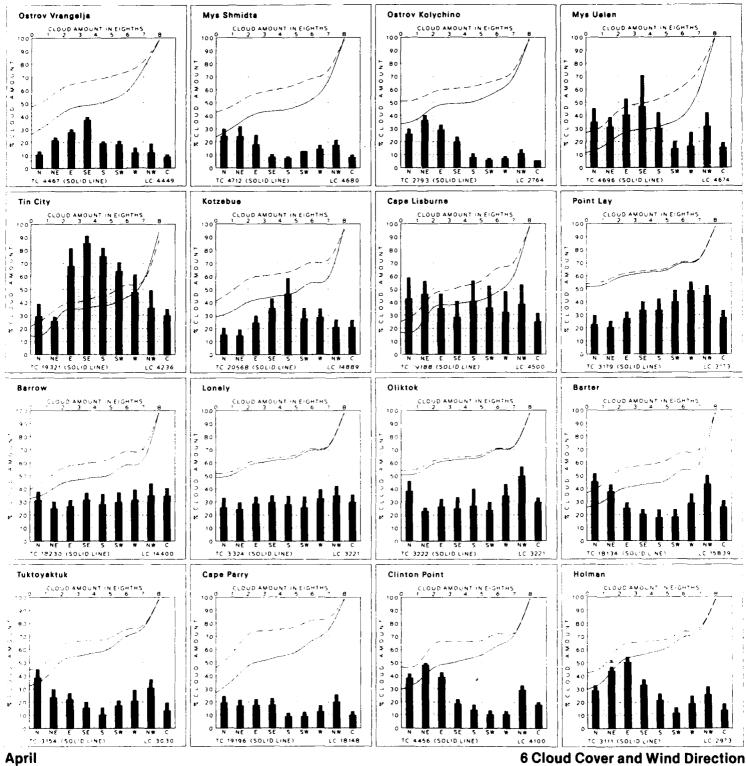
6 Clouds ≤ 2/8 and ≥ 5/8

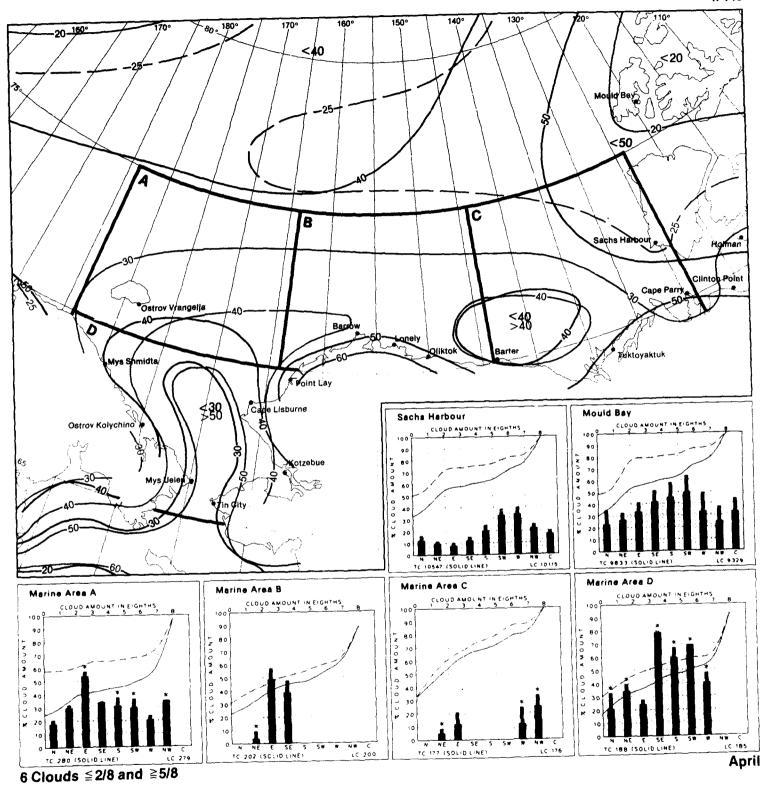


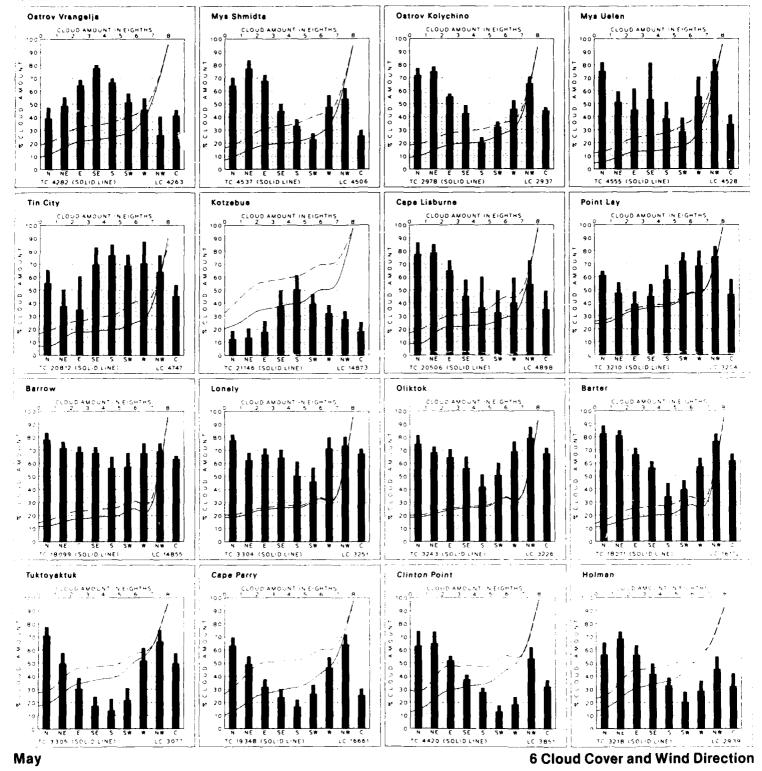


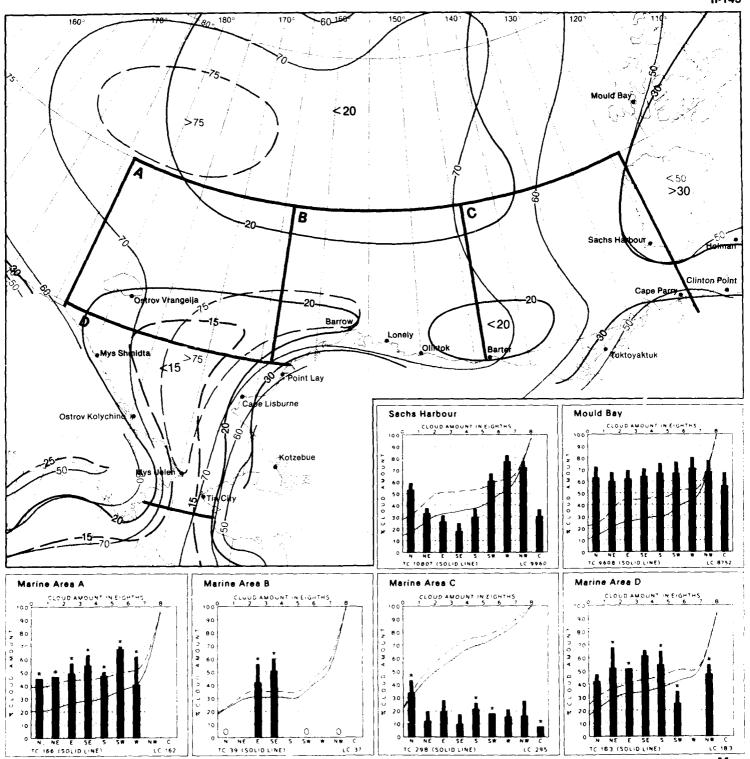






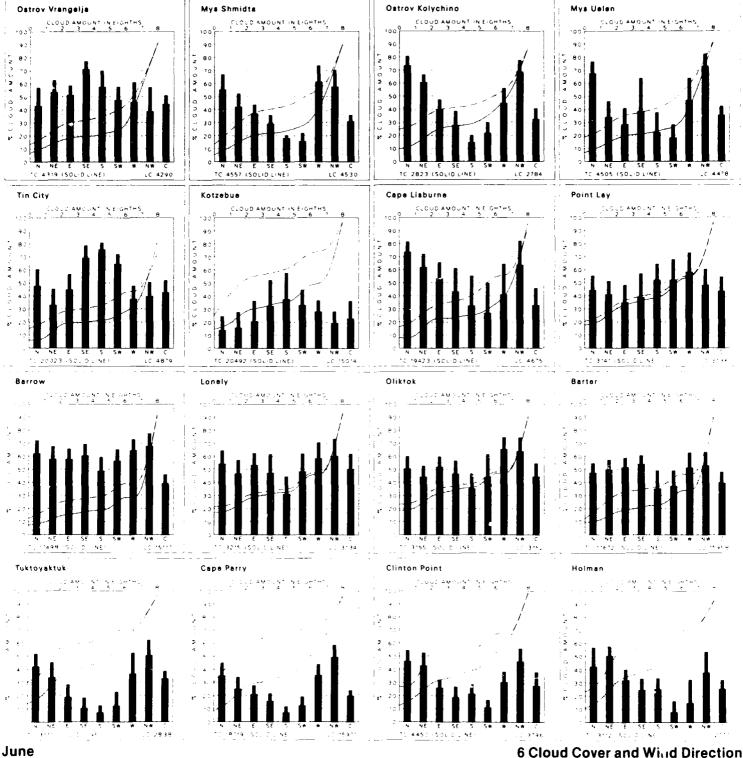




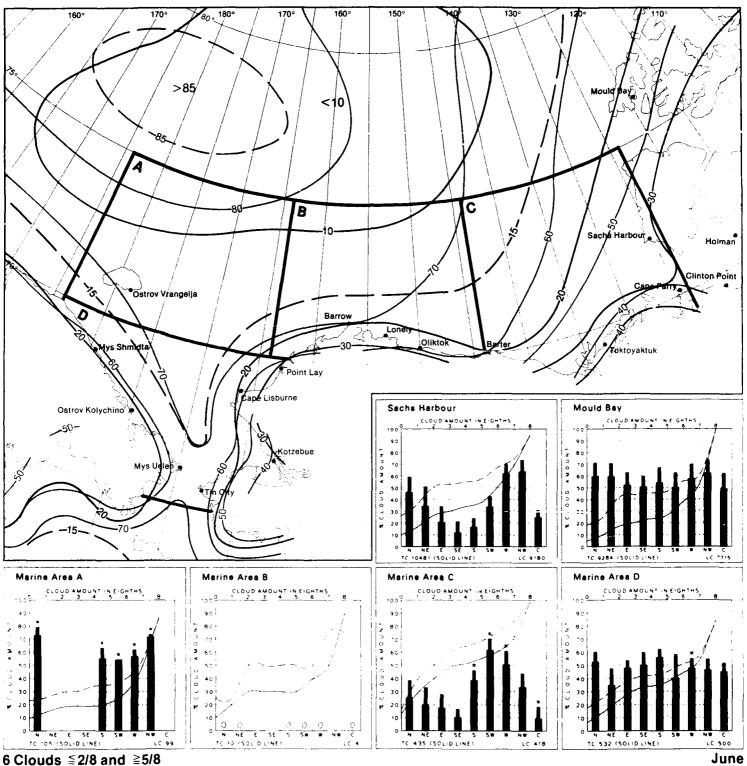


6 Clouds ≤ 2/8 and ≥ 5/8

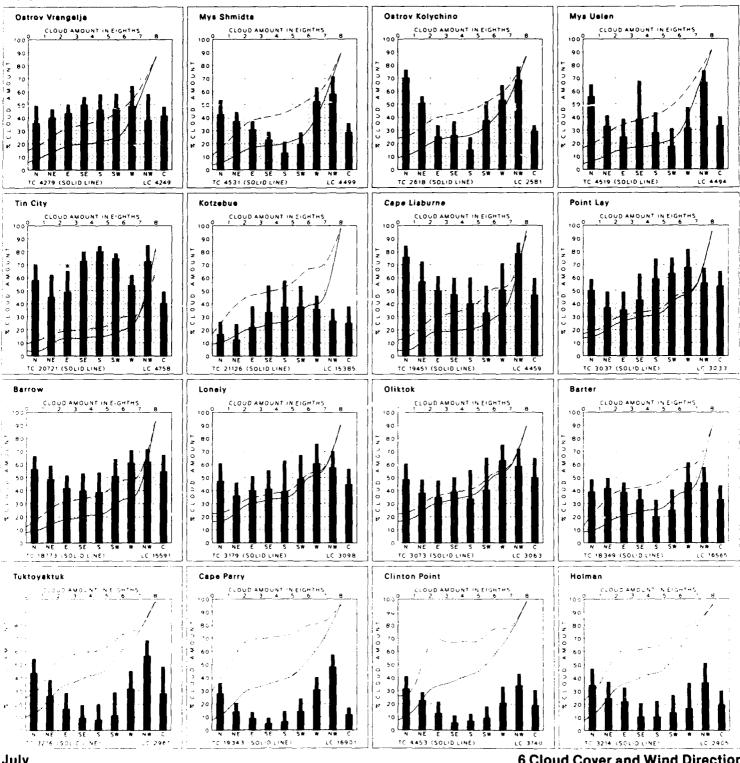
May



6 Cloud Cover and Wind Direction

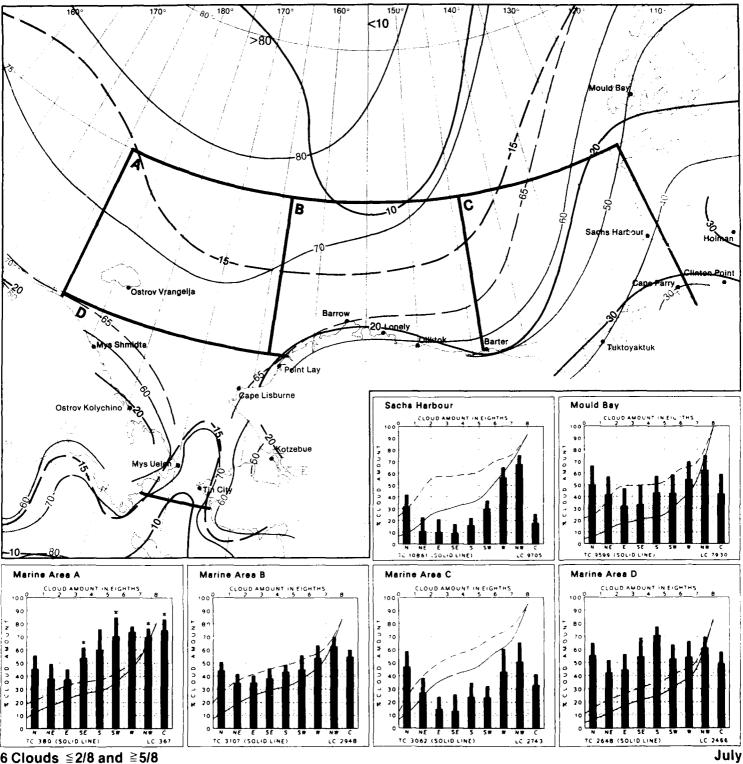


II-148



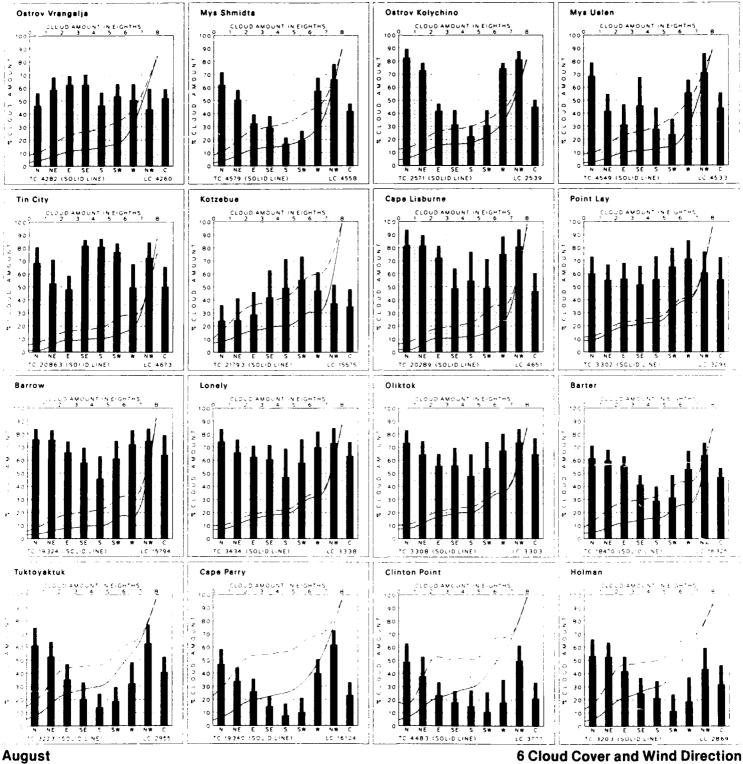
July

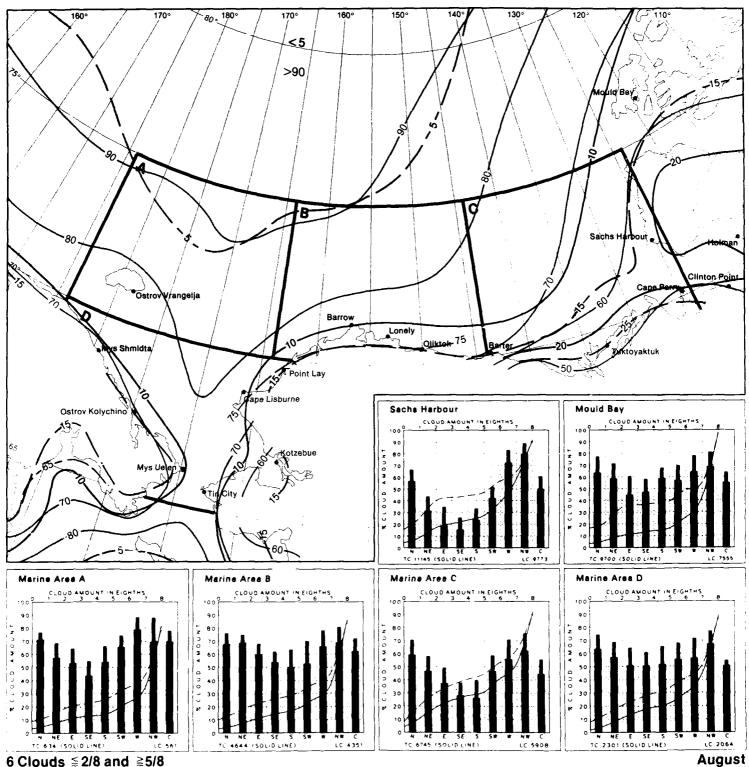
6 Cloud Cover and Wind Direction



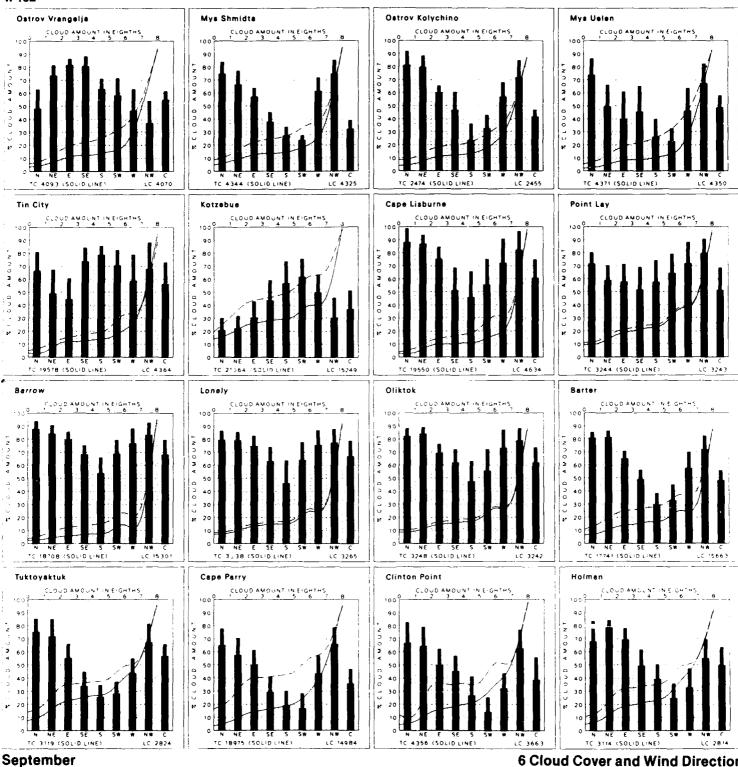
6 Clouds ≤ 2/8 and ≥ 5/8

II-150

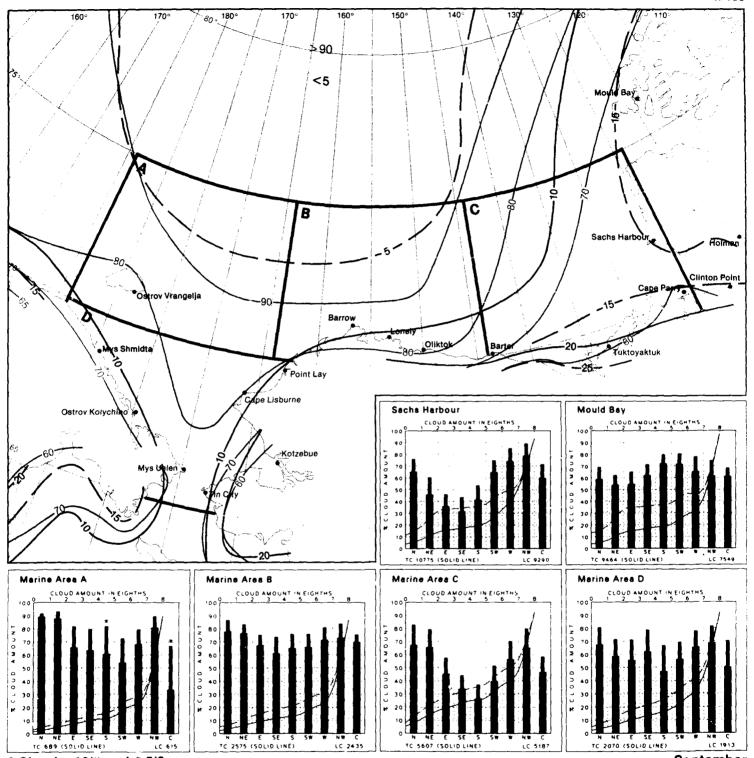




6 Clouds ≦ 2/8 and ≥ 5/8



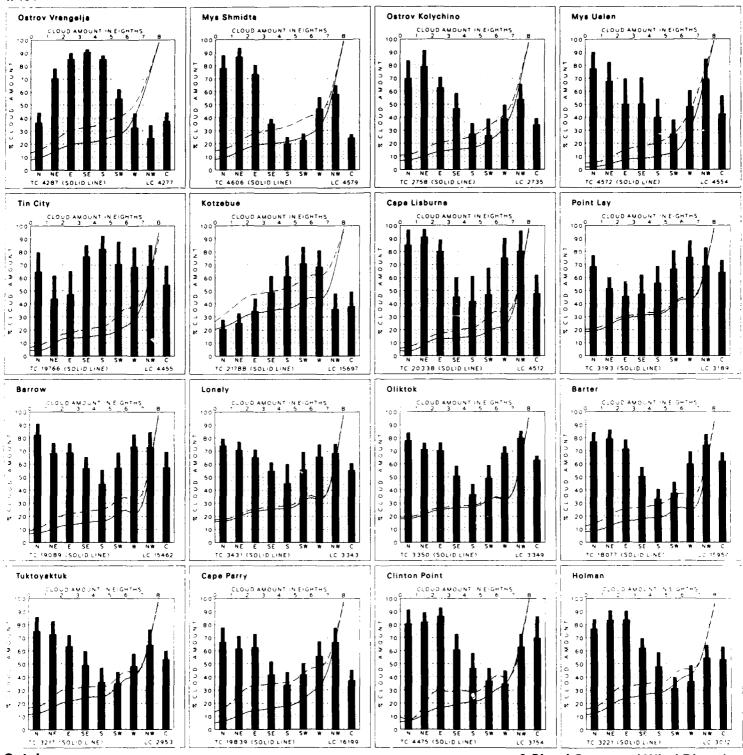
6 Cloud Cover and Wind Direction



6 Clouds ≤ 2/8 and ≥ 5/8

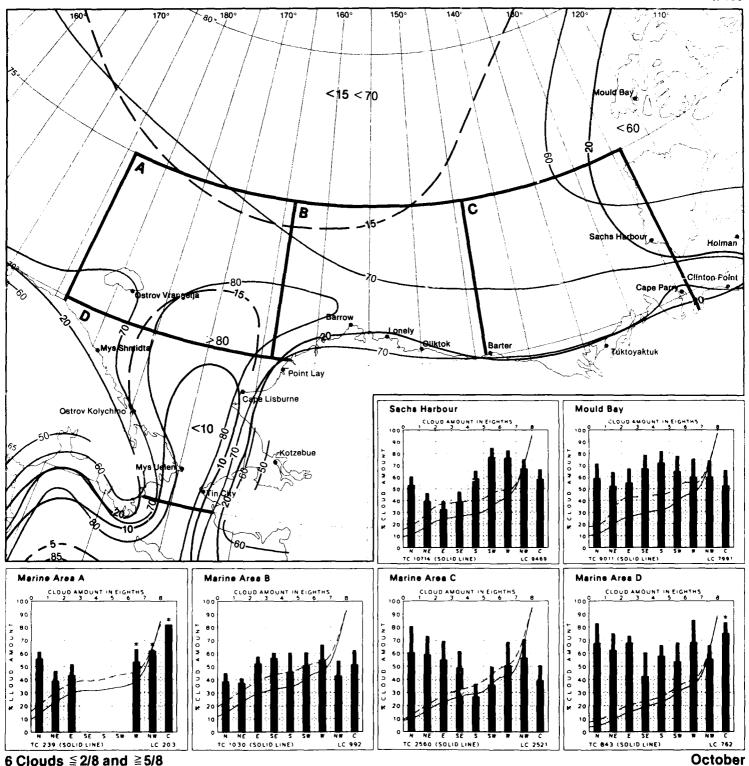
September

11-154

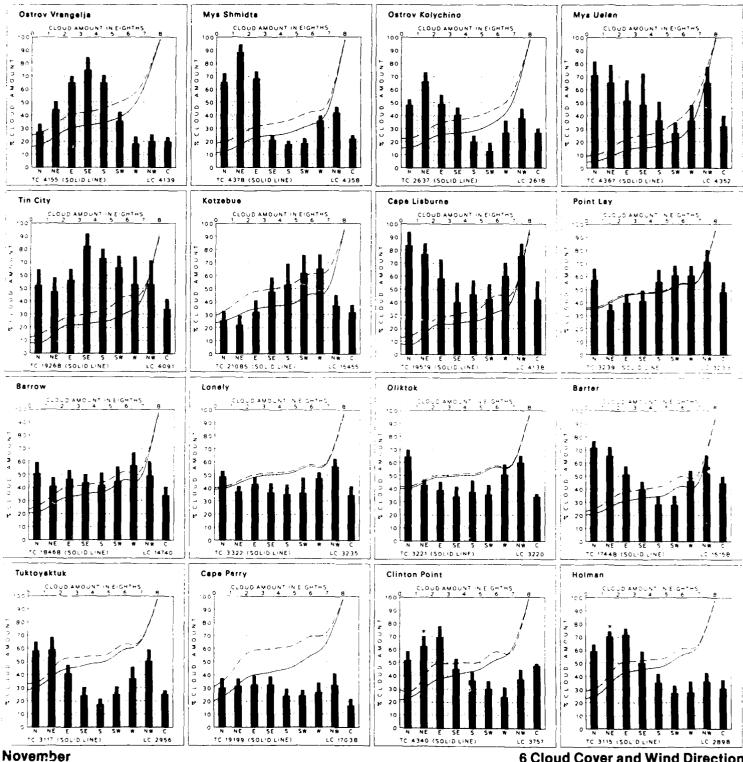


October

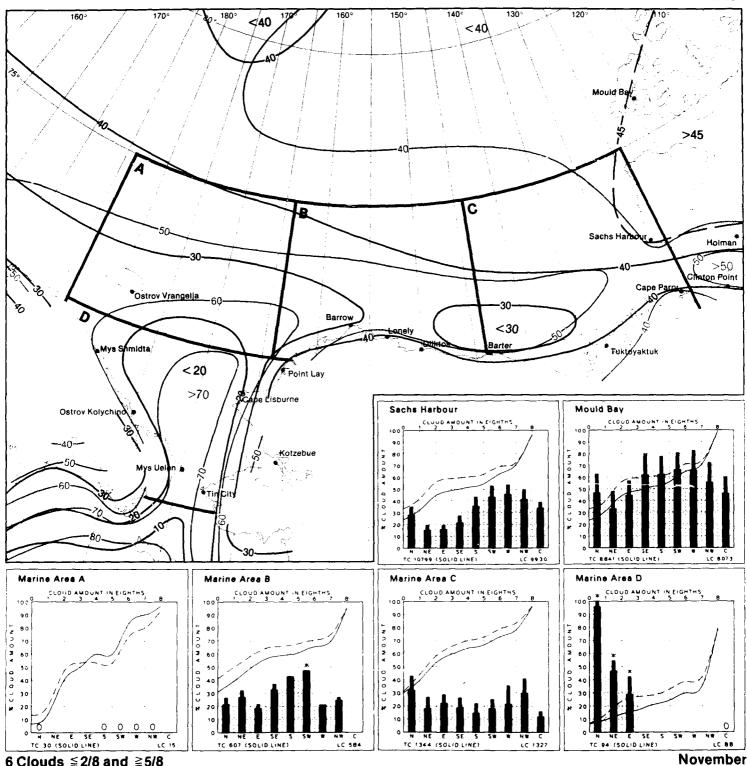
6 Cloud Cover and Wind Direction



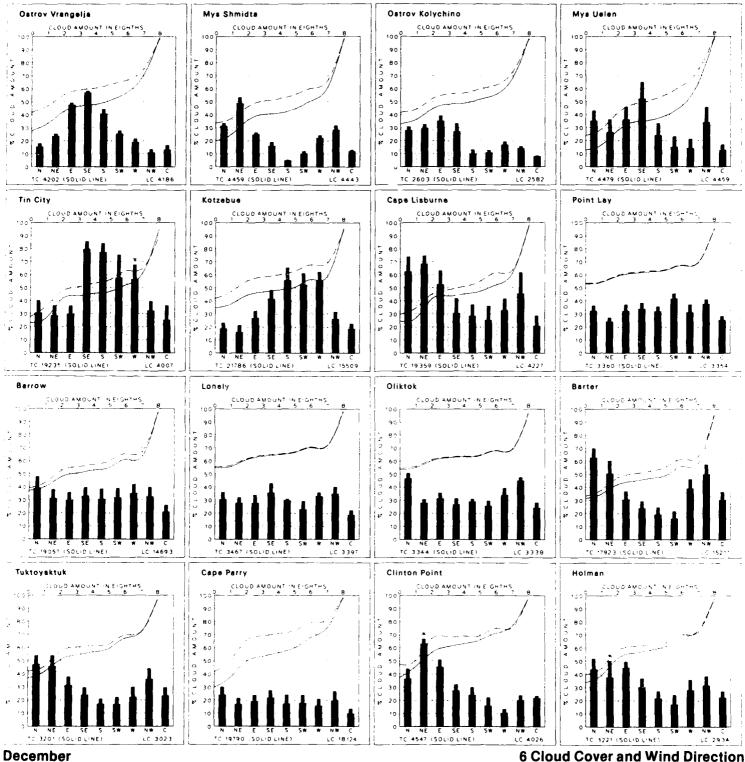
6 Clouds ≤ 2/8 and ≥ 5/8

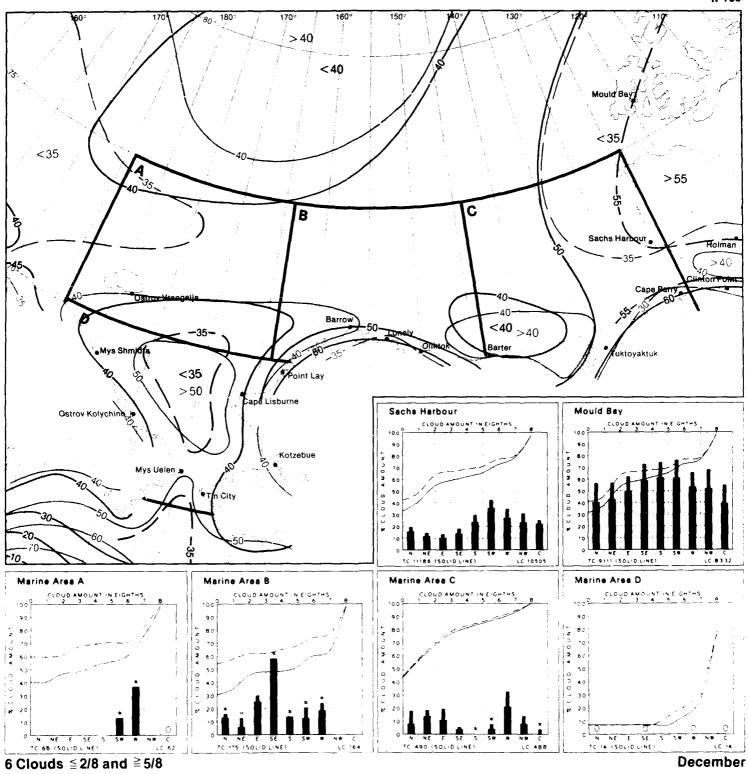


6 Cloud Cover and Wind Direction



6 Clouds ≤ 2/8 and ≥ 5/8





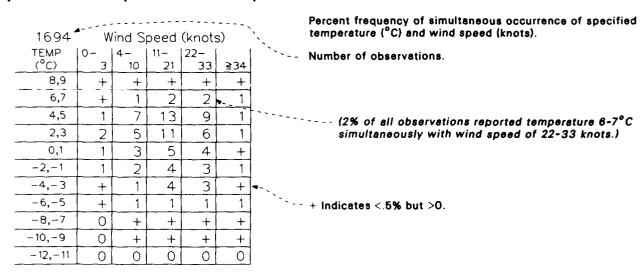
Map 7. Air temperature extremes (°C)

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).

Albers Equal-Area Conic Projection

Graphs: Air temperature/wind speed



Air temperature is one of the elements most frequently observed by mariners. On many ships, the heating effect of the ship's structure has a tendency to produce higher than actual ambient air temperature readings because of instrument exposure. This is especially true under calm, sunny conditions. Despite the inaccuracies, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate.

The temperature scale of the graphs varies in both range and class interval. 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. Refer to Section I of this atlas for detailed information on superstructure icing and wind chill.

7 Legend

Legend 7

II-162

A	. Wassasiis

4164	Wit	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11~	22 -	1 1
(°C)	3	10	21	33	≥34
≧-14	2	5	5	1	+
-16,-15	1	1	_ 2	1	+
-18,-17	1	2	2	2	1
-20,-19	1	2	2	1	1
-22,-21	_2	3	4	2	1
-24,-23	2	3	3	2	1
-26,-25	3	3	3	2	+
-28,-27	5	3	3	1	+
-30,-29	4	2	1	+	+
~32,-31	3	2	1	+	+
≦-33	7	2	+	+	0

Mys Shmidta

78 3111110					
4703	Wie	nd Sp	eed	(kno	ts)
TEMP	0-	4 -	11 - 3	22-	į į
(°C)	3	_10	21	33	≥34
≥-16	3	6	5	2	+
-18,-17	2	2	2	1	+
-20,-19	1	2	2	+	+
-22,-21	1	_2	4		+
-24,-23	1	3	4	1	+
-26,-25	2	3	4	1	+
-28,-27	3	4	5	2	1
-3029	1	_2	2	1	+
~32,-31	2	2	3	1	+
-34,-33	2	_2	2	+	+
≨-35	6	3	1	+	0

Ostrov Kolychino

2885	Wii	nd So	need	(kno	ts)
TEMP	0 -	4-	11~	22-	
(°C)		10	21	33	≩34
≥-12	1	_ 5	7	4	+
-14,-13	+	1	_2	+	0
-16,-15	+	2	2	+	0
-18,-17	1	3	2	1	+
-20,-19	+	3	3	1	0
-22,-21		4	4	+	+
-24,-23	1	3	3	1	+
-26,-25	1	4	4	1	+
-28,-27	1	4	4	1	+
-30,-29	1	3	3	1	+
≦-31	5	9	4	+	+

Mys Uelen

•••	,					
	4675	Wie	na Sp	eed	(****	ts)
	TEMP	0 -	4 -	11-	22 -	1
	(°C)	3	10	21	3 3	≥ 34
	≩-8	1	_5	6	_5	4
	-10,-3	+	1	1	+	•
	-12,-11	1	2	2		+
	~14,-13	1	2	2	1	+
	-16,-15		3	2	+	•
	~18,-17	1	3	3	1	+
	-2019	1	3	2	+	•
	-2221	1	3	3	+	-
	-24,-23	1	3	3		+
	-26,-25	2	2	2	1	+
	≦-27	6	7	8	2	-

Tin City

19113	wi	nd Sr	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	
(°C)	3	10	21	33	≥34
≥ ∽8	3	6	_10	4	+
-10,-9	1	2	3	1	+
-12,-11	1	1	2	1	+
-14,-13	1	1	3	2	+
-16,-15	+	1	2	2	+
-18,-17	+	1	_ 2	2	+
~20,-19	+	1	3_	3	+
-22,-21	1	1	3	3	+
-24,-23	1	1	4	4	+
-26,-25	+	1	3	2	1
≤-27	+	1	7	6	1

Kotzebue

22043	Wil	nd Sp	eed	(kno	ts)
TEMP	10-	4 -	11-	22 -	1
(°C)	3	10	21	33	≥34
<u>≥</u> ~10	+	4	10	7	1
-12,-11	+	2	2	1	+
-14,-13	4.	2	3	2	+
- 16,-15	+	2	2	1	+
-18,-17	1	3	2	1	+
-20,-19	1	3	2	1	+
-22,-21	1	3	2	1	+
-24,-23	1	3	2	1	+
-26,-25	1	2	1	+	+
-28,-27	1	3	2	+	+
≤-29	6	11	4	1	+

Cape Lisburne

18369	Win	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11~	22-	1
(°C)	3	10	21	33	≥34
≥ -8	2	4	6	6	1
-10,-9	_1	2	1	1	+
-12,-11	1	2	1	+	+
-14,-13	1	2	1	+	+
-16,-15	1	2	1	+	+
-181-	1	3	2	+	+
-20,-19	1	4	3	1	+
-22,-21	1	4	2	+	+
-24,-23	1	4	3	1	+
-26,-25	1	3	2	4	+
≦-27	5	11	7	1	+

Point Lay

3299	¥.ii	ان 2	ced	Okro	t 27
	0 - '	4 -	111 -	22 -	ı
1°C3	3	.0	21	33	34 ج
₹-16	3	10	- 7	_ 2	
-18,-17		2	_ ·		+
~20.~19	1	2	2		٠
-22,-21	,	_2	2		+
-24,-23	:	2	2	•	+
-26,-25	•	2	2		+
-28,-27	•	3	3		+
-30,-29	2	3	3		
-32,-31	,	-	2	•	-
-34,-33	•	3	2	,	
≦-35	4	8	5	-	

Barrow

18798	Wie	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22-	
(°C)	3	10	21	33	≥34
≥-16	+	5	6	2	+
18,-17	+	2	2	- 1	+
-20,-19	+	7	3	- 1	0
-22,-21	+	3	3	1	+
-2423	+	4	5	+	0
-26,-25	+	4	3	+	0
-28,-27	1	5	4	+	+
-3029	1	6	3	+	. 0
-32,-31	. 1	5	_ 2	+	0
-34,-33	1	6	1	+	0
≦-35	3	12	1	+	0

Lonely

3404	wa	nd Sp	eed	(kno	ts)
TEMP	0-	4 -	11-	22 -	1
(°C)	3	10	21	3 3	≥34
≥~18	2	7	6	2	+
-20,-19	,	2	2		+
-22,-21	1	2	2	1	+
-24,-23	1	4	4	1	+
-26,-25	1	3	3	1	0
-28,-27	1	4	4	1	+
-30,-29	1	_ 5	3	+	0
~32,-31	1	4	1	+	0
-34,-33	2	5	2	+	0
-36,-35	2	4	1	0	0
≤ - 37	4	8	1	+	0

Oliktok

3239	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	14 -	11-	22 -	l i
(°C)	3	10	21	33	≩34
≧-1B	_2	7	7	2	+
-20,-19	+	2	2	1	+
-22,-21	+	2	2	1	0
-24,-23	1	3	4	1	+
-26,-25	1	2	3	1	+
-28,-27	1	3	4	1	+
-3029	1	3	4	1	+
-32,-31	1	3	2	+	0
-34,-33	1		3	ı	
~36,-35	1	2	2	+	_ 0
≦-37	4	10	3	+	0

Barter

18317	Wit	nd Sp	eed:	Gens	٠,5
TEMP	C	4	***	22:	
(°C)	3	10		33	. 34 ≨ ا
≥-16	1	5	4	_ 2	
-18,-17		2	2	- 1	
-20, 19	+	2	3	_ •	
-22,-21	+	_2	2		+
-24,-23		3	3		
-26,-25	1	2	3	1	
-28,-27	1	4	4	2	
-30,-29	1	_4	7	•	
-32 -31	<u> </u>	3	2		
34 - 33		_ 4	-		+
≦ - 35	3	10	4		

Tuktoyaktuk

3223	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22-	l
(°C)	3	10	21	33	≥ 34
₹ - 18	1	6	6	1	+
-20,~19	+	2	2	+	+
-22,-21	+	1	_ 2	+	0
-24,-23	1	3	3	+	0
-26,-25	+	3	3	+	0
-2827	1	4	4	1	+
-30,-29	1	5	4	1	0
-32,-31	1	4	3	+	+
- 34 , - 33	2	6	2	+	0
-36,-35	2	4	2	+	0
≤ -37	4	1.1	2	+	0

Cape Parry

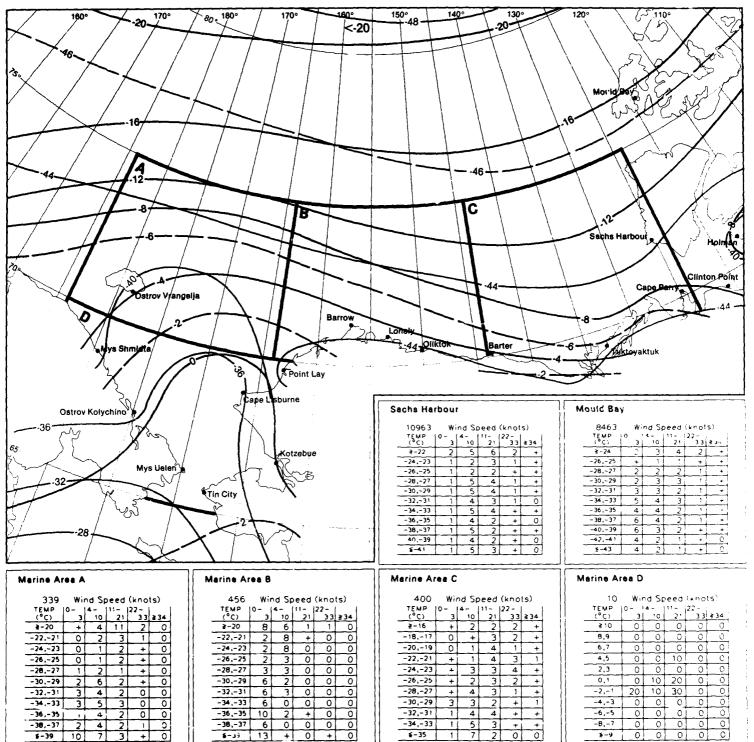
19835	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 ~	11 -	22 -	1 1
(°C)	3	10	21	33	≥34
≥-20	2	5	6	1	+
-22,-21	1	. 2	2	+	+
-24,-23	1	2	3	1	+
- 26,-25	1	3	3	1	+
-20,-27	2	3	4	1	+
-30,-29	2	3	5	1	+
-32,-31	2	3	5	1	+
-34,-33	3	5	5	1	+
-36,-35	2	_4	3	+	+
-38,-37	2	3	2	+	0
<u>≤</u> -39	2	2	1	+	0

Clinton Point

4620 Wind Speed (knots)								
TEMP	0-	4 -	11-	22-				
(°C)	3	10	21	3.3	₹34			
≥-20	1	6	_ 6	2	+			
-22,-21	+	1	1	+	+			
~24,-23	1	3	3	+	+			
~26,-25	1	. 3	3	+	+			
~28,-27	1	5	5	1	+			
-30,-29	2	5	4	1	+			
~32,-31	2	4	3	1	+			
~34,-33	2	6	2	+	0			
~36,-35	1	5	2	+	0			
-38,-37	1	6	:	+	0			
≦-39	2	5	+	+	0			

Holman

3212	Will	nd Sp	eed	(arig	is:
TEMP (°C)	0 -	4	111-	22 -	
≥-18	3	10	3	33	33.4
-20,-19	1	7	į	1	
-~2,-21	1	2	,	1	
-24,-23	2	2	2		+
-26,-25	2	2	- 2		
-28,-27	3	3	4	3	
-30,-29	3	_ 5	4	3	
-32,-31	3	4	7	1	
- 34 ,- 33	3	3	2	Ī	
-36,-35	- 2	3	1	+	+
≦-37	2	4	2	+	-



January

0	atrov Vra	ngel	j a			
	3890	Wi	nd Sp	eed	(kno	ts)
{	TEMP	0-	4-	111-	22-	1 1
İ	(°C)	3	10	21	33	≥34
	₹-16	_ 1	3	_ 2	+	+
	-18,-17	1	1	1	1	+
	-20,-19	1	1	2	1	+
, 1	-22,-21	.2	3	3	2	+
	-24,-23	3	3	3	2	+
	-26,-25	3	4	3	2	+
	-28,-27	6	3	2	1	1
	-30,-29	4	2	1	1	+
	-32,-31	7	2	1	+	+
Ì	-34,-33	6	1	+	+	+

М	ys Shmid	ita				
	4371	Wi	nd Sp	eed	(kno	ts)
	TEMP	0-	4 -	11-	22 -	1 1
	(°C)	3	10	21	33	≥ 34
	≥ - 18	1	4	3	1	+
	-20,-19	+	1	1	+	+
	-22,-21	1	2	2		+
	-24,-23	1	3	2	1	+
	-26,-25	2	3	4	2	+
	-28,-27	2	5	6	3	+
•	-30,-29	. 1	2	3	1	+
	-32,-31	3	3	4	2	+
	-34,-33	2	3	3	1	+
	-36,-35	4	3	2	1	+
	<u>≤</u> -37	5	3	1	+	0

strov Kol	ychir	10			
2768	Wi	nd Sp	eed	(kno	ts)
TEMP (°C)	0-3	4-	11-	22- 33	≥34
≧-16	1	4	5	2	+
-18,-17	1	2	2	1	+
-20,~19	1	1	_2	+	+
-22,-21	1	2	_3	+	0
-24,-23	1	2	4	1	0
-26,-25	_1	2	5	1	+
-28,-27	1	5	5	2	+
-30,-29	1	3	3	1	+
-32,-31	2	6	4	+	0
-34,-33	_2	6	2	+	0
≨-35	_2	7	2	+	0

Mys Uelen					
4357	Wi	na Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	
(°C)_	3	10	21	33	≥ 34
≥-14	_2	4	5	3	2
-16,-15	1	2		+	+
- 18 17	1	3	2	+	+
-20,-19	1	2	1	+	0
-22,-21	1	3	3	+	0
-24,-23	1	3	3		0
-26,-25	1	2	4	+	+
-28,-27	3	4	6	1	+
-30,-29	2	3	3	+	+
-32,-31	3_	4	. 3	+	+
و د ⊶ ≧	٤,	5	3	1	ن

Tin City					
17416	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	. 1
_ (°C)	3	10	21	33	≩34
≥-12	3	5	8	3	+
-14,-13	1	1	2	1	+
-16,-15	1	1	2	2	+
-18,-17	1	1	3	3	+
-20,-19	+	1	3	3	+
-22,-21	+	+	2	3	+
-2423	+	1	4	5	1
-26,-25	+	1	3	5	1
-28,-27	+	+	3	4	1
-30,-29	+	1	4	4	1
<u>s</u> -31	+	1	6	6	1

19709	Wil	nd Sp	eed	(kno	ts)
TEMP	0-	4 ~	11-	[22-	
(°C)	3	10	21	33	≥34
≥-12	1	5	10	5	1
-14,-13	+	2	2	1	+
-10,-15	+	2	2.	1	+
-18,-17	+	2	2	1	+
-20,-19	1	3	2	1	+
-22,-21	1	3	2	+	+
-24,-23	1	4	3	+	+
-26,-25	1	3	2	+	+
-28,-27	2	4	2	+	+
-30,-29	2	4	1	+	+
≨-31	6	Q.	2	+	+

16993	Wi	nd Sp	eed	(kno	ts)
TEMP	0-	4-	11-	22-	
(°C)	3	10	_21	33	234
≧-14	3	5	5	4	1
~16,-15	1	2	1	+	+
~18,-17	1	2	_ 1	+	+
-20,-19	1	3	2	+	0
-22,-21	1	4	2	+	+
-24,-23	2	5	4	+	+
-26,-25	_ 2	4	3	+	+
-28,-27	2	5	3	+	+
-30,-29	2	5	3	+	+
-32,-31	2	3	_ 2	+	+
≨-33	4	6	3	+	+

2997	Win	nd Sp	eed	(kr)	15/
TEMP	0 -	4 -	11-	122	
(°C)	3	10	2.	33	≥ 34
₹-20	3	_ a	.,	2	
-22,-21		2	1	+	+
-24,-23	,	2		•	•
-26,-25	1	2	2		0
-28,-27	1	3	.2		+
-30,-29	1	4	4	•	•
-32,-31	1	3	3	•	•
- 34 , - 33	•	3	3		+
-36,-35	1	3	3		-
-38,-37	1	4	2		ૈ
≨-39	3	8	4	+	

Barrow					
• 7135	wi	nd Sp	seed	(kno	ts)
TEMP	10-	4-	111	122 -) /
(°C)	ذ إ	10	21	33	≥ 34
≥ 20	1_ +	_6	6	1	+
-22,-21	+	2	3	+	+
-24,-23	+	2	4	-	+
-26,-25	+	- 2	3	+	0
-28,-27	+	5	4	+	0
- 30, - 29	1	8	4	+	0
-32,-31	1	6	2	+	0
- 34 , - 33	1	8	2	+	0
- 36, - 35	1	6	1	+	0
- 38 , - 3?	1	6	1	0	0
≤-39	1	7	1	0	0

Lone	Lonely									
	3126	w:	Wind Speed (knots)							
	EMP	10 -	J 4 -	11-	122 -	j	1			
	°()	3	10	21	33	₹34				
	- 20	_2	7	5	:	+	ĺ			
- 2	221	+	2	2_	+	+				
- 2	4,~23	+	2	_ 2	1	О				
- 2	625	1	2	2	+	0				
- 2	8,~27	1	3	2	+	+	l			
- 3	10,-29	2	5	3	+	0				
- 3	32,~31	_2	5	3	+	0				
-3	34,~33	2	6	2	+	0	ĺ			
- 3	6,~35	_2	5	1	+	0				
-3	8,-37	3	6	1	0	0				
-	-39	5	9	+	0	0				

Oliktok					
2969	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	i
(°C)	. 3	10	21	33	₹34
≥ - 20	2	7	6	2	+
-22,-21	_ 1_	2	2	1	+
-24,-23	1	3	2	1	+
-26,-25	1	2	2	+	+
-20,-27	1	5	2	1	+
-30,-29	. 1	4	3	+	0
-32,-31	1	_3	2	+	0
-34,-33	2	5	2	+	0
- 36 ,- 35	1	4	3	+	0
-38,-37	2	5	2	+	0
≨-39	5	11	3	+	0

16692	₩:	nd Sp	eed	(***	* <u>~</u>
TEMP	0 -	4 -	11-	-22 -	
(°C)	3.	_ 's	2'	_ 33	23.
₹-20	`	. 6	6	3	
-2221	4	,	- 2		
-24,-23	+	2	3		
-26,-25	+	?	2	1	
-282	,	3	4		
-30,-29		4	3		
-32,-3'	+	3	3		
-34,-33		4	4		
- 36, - 35	•	4	3	+	
-38,-37		5	3	-	
≤-39	7	a		+	

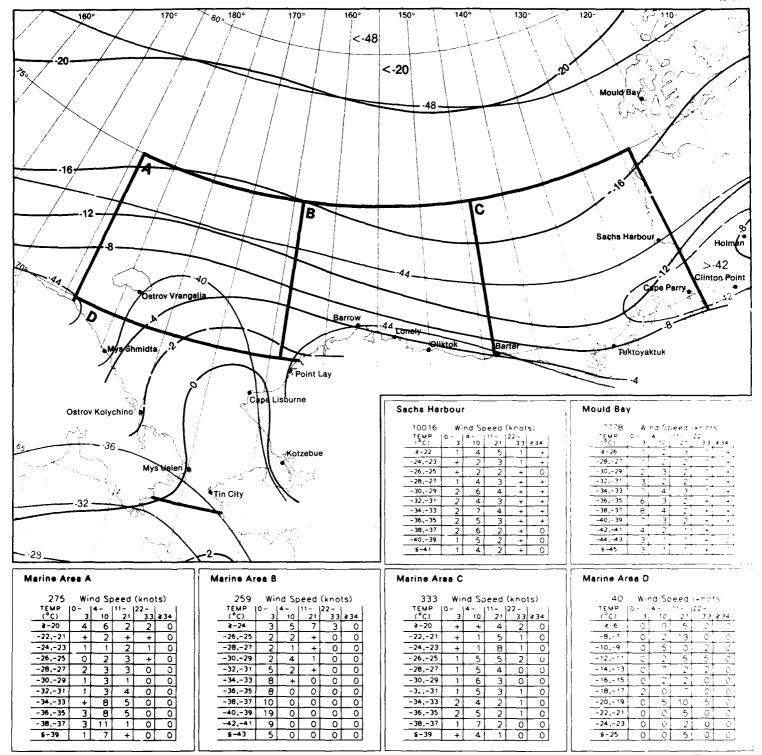
2919 Wind Speed (knots)
(°C) 3 10 21 33≥34
≥-20 2 7 7 1 +
-22,-21 1 3 2 + 0
-24,-23 + 3 + 6
-26,-25 1 3 2 + 0
-2827 1 5 3 + 0
-30,-29 1 6 3 + 0
-32,-31 1 4 2 + 0
-34,-33 2 6 2 + 0
-36,-35 2 5 2 + 0
-38,-37 2 6 1 0 0
§-39 4 7 1 0 0

18086 Wind Speed (knots)								
TEMP	0 -	4 -		22-	i			
(°C)	3	10	21	33	₹34			
≥-20	2	4	5		+			
-22,-21	+	1	_ 2_	1	+			
~24,-23		1	3	1	+			
-26,-25	,	1	3	1	+			
-28,-27	1	3	4	1	+			
-30,-29	2	3	5	1	+			
-32,-31	2	4	4	1	0			
- 34 ,- 33	4	6	. 5	+	0			
-36,-35	3	4	3	+	+			
-38,-37	3	4	2	+	+			
≤-39	3	4	2	+	0			

4240	Wii	Wind Speed (knots)								
TEMP	0-	4-	11-	22-	:					
(°C)	3	10	21	_33	≥ 34					
≥-20	2	7	5	1	+					
-22,-21	1	3	2	1	+					
-24,-23	1	2	2	+	+					
-26,-25	+	2	2	+	+					
-28,-27	1	3	3	1	+					
-30,-29	+	4	4	+	+					
-32,-31	1	5	4	+	+					
-34,-33	2	8	3	+	0					
-36,-35	1	6	2	+	0					
-38,-37	2	_ 8	ì	+	Ö					
≨-39	2	5	+	+	0					

.7925	Wie	nd Sp	eed	. Kr 21	S
	0-	4	11.	22.5	
(°C)	3	10		_ 3%	2 - 4
₹-18	_3	_ ~	2		
-20,-19				-	4
-2221	,		•	+	•
-24,-23	2	3	- 2	,	-
-26,-25	2	2	2		•
-28,-27	2	-1	3	2	•
-30,-29	5	5	3	2	4
~32,-31	3	. 3			+
-34,-33	3	5	2		,
~36,-35	2	3	1	-	+
<u>s</u> - 37	- 5	.4	7	+	+

February



February

					~					
0	Ostrov Vrangelja									
	4389	Wind Speed (knots)								
1	TEMP	10-	4 -	11-	22-	1 1				
l	(°C)	3	10	21	33	≥34				
	≩-14	1	3	3	1	+				
	-16,-15	1	2	2	1	+				
	-18,-i7	1	2	3	1	+				
	-20,-19	1	1	3	2	+				
ĺ	-22,-21	3	3	4	2	1				
	-24,-23	4	3	3	2	1				
	-26,-25	4	3	2	1	+				
	-28,-27	6	3	2	1	+				
	-30,-29	4	2	1	+	+				
	-02,-31	5	2	1	+	0				
	≨~33	7	2	+	+	+				

Mys Shmidta								
4882	Wi	nd Sp	eed	(kno	ts)			
	0-	4 -	11-	22-				
_ (<u>°C)</u>	3	10	21	33	≩34			
≥-;6	2	3	3	1	+			
-18,-17	1		1	+	_+			
-20,-19	1	1_	- 1	+	+			
-22,-21	2	3	-3	1	+			
-24,-23	1	4	4	2	+			
-26,-25	2	4	6	2	+			
-28,-27	3	4	6	2	1			
-30,-29	1	3	3	2	+			
-32,-31	2	3	3	1	+			
-34,-33	3	2	2	+	+			
≨ −35	5	2	1	+	0			

0	Ostrov Kolychino								
	2992	Wii	nd Sp	oeed	(kno	tsi			
	TEMP	0 -	4 -	[11-	22 -	1 1			
	(°C)	3	10	21	3 3	≥34			
	≧-14	1	3	5	2	+			
	-1615	1	1		+	0			
	-18,-17	1	3	2	+	0			
	-20,-19	+	2	2	+	0			
	-22,-21	1	3	3	1	0			
	-24,-23	_ 1	4	4	1	0			
	-26,-25	1	4	5	1	0			
	-28,-27	1	7	6	1	+			
	-30,-29	. 1	5	3	+	+			
Ī	-32,-31	2	6	2	+	0			
Ī	≦-33	2	7	2	+	0			

ys Uelen					
4845	w.	nd Sp	seed	(kno	15/
	0 -	4 -	11-	22 -	
(°C)	3	10	21	33	≥ 34
≱-12	2	5	5	3	•
-14,-13	+	•	1	+	+
-16,-15	1	2	2	+	0
-18,-17	2	4	2	+	+
20,-19	1	3	3	•	ن
-22,-21	2	4	4	+	- 0
-24,-23	2	5	4	+	+
-26,-25	2	4	4	+	+
-28,-27	3	3	4	1	+
-30,-29	•	2	2	+	÷ ;
≤-31	5	4	2	+	- 0

Tin City					
19490	wi	nd Sp	eed	(kno	ts)
TEMP	0	4 -	11-	22 -	
(°C)	3	10	21	3.3	≥34_
≧-10	3	6	7	3	+
-12,-11	+	1	2	1	+
-14,-13	1	1	3	2	+
-16,-15	+	- 1	2	3	+
~18,~17	1	1	3	3	+
-20,-19	+	1	4	5	+
-22,-21	+	1	3	4	+
-24,-23	+	1	4	6	1
-26,-25	+	1	3	3	1
-28,-27	+	1	3	3	1
≨ 29	+	1	4	4	1

otzebue					
21958	y wi	nd Sp	eed	(kno	ts)
TEMP	10 -	14 -	11 -	122 -	I
_ (°C)	3	10	21	33	≥34
₹-8	+	4	7	3	+
-10,-9	+	3	3	1	+
-12,~1	1 +	2	2	1	+
-14,-1	3 1	4	2	1	+
-16,-15	5 1	3	2	1	+
-18,-17	7 1	4	2	1	+
-20,-19	2	5	2	1	+
-22,-2	T T	3	2	+	+
-24,-2	3 1	5	2	+	+
-26,-25	5 1	3	1	+	+
<u>≤</u> - 27	5	1.1	4	1	+

٠.	BDS LISD	1100				
	19166	Wi	nd Sp	oeed	(kno	ts)
	TEMP	0 -	4 -	111-	22 -	
	(°C)	3	10	21	33	≥ 34
	≥-12	3	4	4	3	1
	-14,-13	1	2	1	+	+
	-16,-15	1	2	1	+	+
	-18,-17	1	3	1	+	+
	-20,-19	2	4	3	+	+
	-22.~21	1	5	3	+	+
	-24,-23	1	6	_5	1	+
	-26,-25	1	4	3	+	+
•	-28,-27	2	4	3	+	+
	-30,-29	2	4	2	+	+
	≦-31	4	4	2	+	+

oin	Lay					
	3327	Wii	nd Sp	eed	(Fro:	s
		10 -	4 -	• • •	22 -	
(°C)_	3	10	21	3.3	≥ 34
3	-18	2	8	4	•	-
- 2	0,-19	Ī	2			
- 2	2,-21		2	- 2		•
- 2	423		3	3		-
- 2	6,-25	1	2	- 2		
- 2	8,-27	1	4	3		-
- 3	029	•	5	4		-
- 3	2,-31	1	4	- 3		
- 3	4,-33	1	4	_3,		- :
- 3	6,-35	1	3		-	
5	-37	3	6	3	-	-

Berrow					
18810	Wil	nd Sp	eed	(kno	ts)
TEMP	0-	4 -		22-	1 1
<u>(°C)</u>	3	10	21	_33	≥ 34
≥-18	+	4	4	1	+
- 20, - 19	+	3	3	+	+
-22,-21	+	3	3	+	+
-24,-23	1	6	6	1	+
-26,-25	+	5	5	+	0
-28,-27	1	9	6	+:	0
-30,-29	1	9	4	+	0
-32,-31	1	6	2	+	0
- 34 33	+	6	1	0	0
-36,-35	÷	3	1	0	0
≨-37	+	4	1	0	0

nely					
3494	Wii	nd Sp	eed	(kno	ts)
TEMP) - C	4 -	11- 1	22-	
(°C)	3	10	L_21	_ 33	≥ 34
≥-18	2	4	3	1	+
-20,-19	1	2	2	_ 1	+
-22,-21	+	3	2	+	+
-24,-23	1	4	4	1	+
-26,-25	1	4	3	1	+
-28,-27	2	6	3	+	+
-30,-29	3	7	3	+	+
-32,-31	2	5	1	+	_ 0
-34,-33	2	5	1	+	0
-36,-35	2	4	+	0	0
≨-37	4	9	+	0	0

3344	Win	nd Sp	seed	(kno	(s)
TEMP	0-	4 -	11~	122 -	
(°C)	3	10	21	33	≥ 34
≥-18	1	4	3	1	+
-20,-19	1	2	. 2	1	+
-22,-21	+	2	2	1	+
-24,-23	1	3	4	1	+
-26,-25	1	3	4	1	0
-28,-27	2	4	4	1	+
-30,-29	2	6	4	+	+
-32,-31	1	4	2	+	0
-34,-33	2	5	2	+	0
-36,-35	1	5	1	+	0
≤-37	3	9	3	0	0

18626	Wi	na Sp	eed	(4 mg)	3
TEMP	: C -	4 -	. * *	22 -	
(°C)	3	10	2.	33	334
≥-'8	_:	4	4	- 2	•
-2019		2	3	•	
-22,-21	,-	- 2	3		_
-24,-23	. 1	4	4		- ,
-26,-25		-1	4		
-28,-27	•	6	6		٠,
-30,-29		5	5		
-32,-31	1	4	3	+	-
-34,-33	1	4	3	+ .	-
-36,-35		3	,	-	
≨ - 37	•	4			

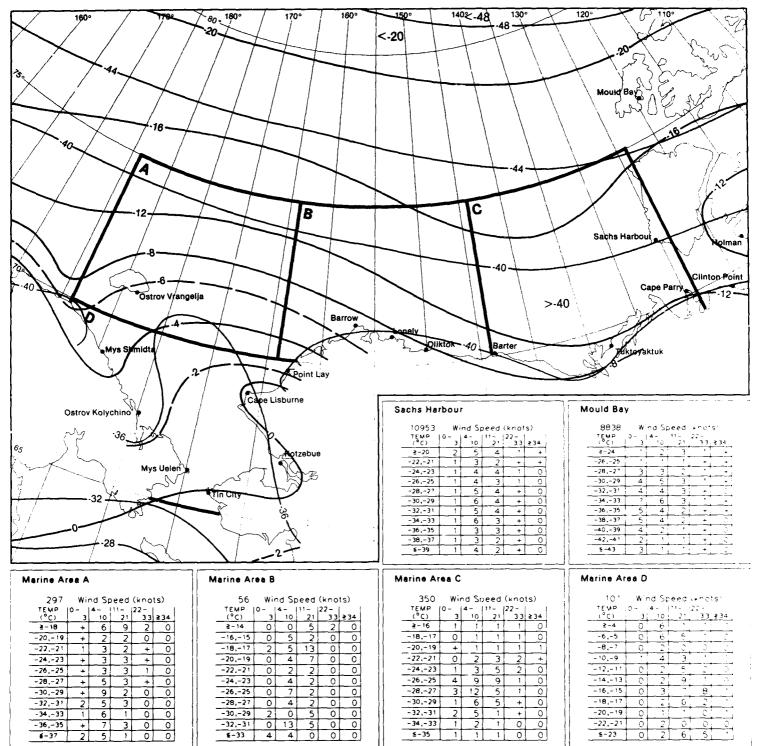
3:00	Wi	nd Sc	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	
_ <u>(°C)</u>	3	10	21	3.3	≥34
≩-18	1	5	5	+	+
-20,-19	1	3	2	+	+
-22,-21	1	3	2	+	0
-24,-23	1	5	5	+	0
-26,-25	1	5	4	+	0
-28,-27	2	6	5	+	0
-30,-29	2	7	4	+	0
-32,-31	2	5	2	+	0
-34,-33	2	6	2	0	0
~3€,~35	1	4	1	0	0
≨-37	1	4	1	0	0

C	ape Parry	,				
	19837	Wie	nd Sp	eed	(kno	ts)
	TEMP	0-	4	11-	22-	!!
	(°C)	[3]	10	21	3 3	≥34
	≥-18	1	3	3	+	+
	-20,-19	1	2	2	+	+
	-22,-21	1	2	2	+	0
	-24,-23	2	_3_	4	1	+
	-26,-25	2	3	4	1	+
	-28,-27	4	5	6	1	+
	-30,-29	3	5	5	1	+
	-32,-31	3	4	3	+	0
	-34,-33	3	4	3	+	0
	-36,-35	2	3	1	+	0
	≨27	2	3	1	+	0

4702	Wit	Wind Speed (knots)							
TEMP	[0-	4 -	11-	22 ~					
(°C)	3	10	21	33	≥34				
≩-20	1	3	4	+	+				
-22,-21	+	_2	2	+	+				
-24,-23	1	5	4	+	0				
-26,-25	1	_ 5	_ 4	+	0				
-28,-27	2		5	1	0				
-30,-29	2	æ	5	+	0				
-32,-31	2	6	2	+	0				
-34,-33	3	7	3	+	0				
-36,-35	1	4	1	+	0				
-38,-37	1	3	+	Ō	0				
≨-39	+	3	+	0	υ				

Clinton Point

32.15	W.	nd Sp	eed	***	:5
TEM₽ I	0	4 -	111	22- 1	
(°C)	3		- 2 '	3.3	<u> </u>
≩~16	2	2			+
- 18,-17	2	1			. +
-20 - 19	2	2	,		
-22,-21	2	2	. 2		+
-24,-23	4	-1	2		
-26,-25	3	4	- 2	-	•
-28,-27	4	5	3		+
-3029	4	6	3		+
-32,-31	3	4	1		+
-34,-33	3	4	1	•	+
±-35	2	3	1	+	+



March

Ostrov Vrs	ngel	j a				
4427	Wi	nd Sp	eed	(kno	ts)	
TEMP	0-	4	11-	22-	1 1	
(°C)	3	10	21	33	≥34	
≩-10	2	3	3	+	+	
-12,-11	1	2	2	1	_+	
-14,-13	2	2	2	1	+	
-16,-15	3	3	3	1	+	
-18,-17	4	5	4	3	+	
-20,-19	3	3	_ 2	2	+	
-22,-21	5	4	3	2	+	
-24,-23	5	3	2	1	+	
-26,-25	5	2	1	+	+	
-28,-27	4	1	+	+	0	
<u>≤</u> -29	3	+	0	0	+	

4665	Wi	nd Sp	eed	(kno	ts)
TEMP	0 ~	4 -	11-	22-	1
(°C)	3	10	21	33	≥ 34
≧-10	2	5	3	1	0
-12,-11	1	2	1	+	+
-14,-13	1	2	2	+	+
-16,-15	2	3	3	+	+
-18,-17	2	5	4	1	+
-20,-19	2	3	3	1	į
-22,-21	3	5	5	1	+
-24,-23	3	5	4	1	+
-26,-25	_3	4	3	+	+
-28,-27	3	3	2	+	+
≤-29	4	2	+	+	0

0	strov Kol	ychir	10			
	2719	wi	nd Sp	eed	(kno	ts)
	TEMP	0 -	4 -	11 -	22 -	
	(°C)	3	10	21	_ 33	≩34
	-8	1_	5	5	1	+
	-10,-9	+	1	2	+	0
	-12,-11	1	2	2	+	0
	-14,-13	1	3	2	+	0
	-16,-15	1	4	3	1	0
	-1817	1	5	4	1	+
	-20,-19	2	4	3	1	+
	-22,-21	2	6	5	1	0
	-24,-23	2	7	_ 3	+	+
	-26,-25	2	5	1	+	+
	≦-27	2	7	1	+	0

4644	Wil	nd Sp	eed	(knc	(s)
TEMP	0 -	4 -	1 * -	22 -	
(°C)] 3	.0	21	33	2 }4
ž -6	2	4	2	2	,
-8,-7	2	2	2	+_	_ +
-10,-9	1	•		+	9
-12,-11	2	3	2	+	- 0
- 14,-13	2	3	2	•	0
-16,-15	•	3	4	-	
-18,-17	3	6	6	,	
-20,-19	2	4	3		
-22,-21	3	4	3	+	
-2423	3	3	2	-	
S-25	4	3	2		

Tin City					
19252	Wii	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11 -	22-	
(°C)	3	10	21	33	≥ 34
≧-4	2	5	9	_ 3	+
-6,-5	+	1	3	1	+
-8,-7	+	1	3	1	+
-10,-9	+	2	3	2	+
-12,-11	+	1	3	2	+
-14,-13	1	2	4	3	+
-16,-15	1	1	5	3	+
-18,~17	1	2	5	4	+
- 20,-19	+	1	5	4	+
-22,-21	+	+	3	3	+
≦-23	+	+	4	3	+

K	otzebue					
	21265	Wi	nd Sp	eed	(kno	ts)
	TEMP	0 -	4-	11-	22 -	1 1
	(°C)	_ 3	10	21	3.3	≥34
	≥-2	1	5	6	2	+
	-4,-3	1	3	3	1	+
	-6,-5	1	3	2	+	+
	-8,-7	1	5	3	1	+
	-10,-9	1	5	3	1	+
	-12,-11	1	3	2	ì	+
	-14,-13	1	5	3	1	+
	-16,-15	t t	3	2	+	0
	-18,-17	1	4	2	+	+
	-20,-19	1	4	2	+	+
	≦-21	3	9	2	+	+

19118	Wi	nd Sp	eed	(kno	ts)
TEMP	10 -	4 -	11-	22-	1
(°C)	3	10	21	3.3	≩34
≧-6	2	5	6	3	+
-8,-7	1	2	1	1	+
-10,-9	1	3	1	+	+
-12,-11	2	2	1	+	+
-14,-13	3	5	2	+	+
-16,-15	2	5	2	+	+
-18,-17	3	5	3	+	+
-20,-19	2	-6	3	+	0
-22,-21	2	_ 5	3	+	0
-24,-23	2	4	2	+	+
≨-25	7	3	2	+	+

3158	₩.	nd Sp	eed	1 - 1 €	٠, .
TEMP	0 -	4 -	١.	22 .	
(9€)	1 3	1.6			
≥ - 10	1 2		5	:	_ •
- '2 ' '		2			
14,-13		3	. 2	•	
-1615	,	-1	2		
е.		:	3		٠.
-2019	2	-4	3		•
-22,-21	1	4	3		
-24,-23		-			
-26,-25		3		•-	٠
-28,-27	1	. 3			
s-29	-	ŕ			•

Barrow					
18230	W٠	nd Sp	eed	(kno	ts)
	0 -	4 -	1 - 1 -	22 -	
_ (°C)	3	10	21	33	≥34
≱-10	1	- 6	- 6	+	٥
-12, 11	+	2	_ 2	+	0
-14,-13	+	4	4	+	0
- 16, - 15	+	4	3	+	+
-18, 17	1	5	4	+	+
- 20,-19	1	7	4	+	0
-2221	1	6	3	+	0
-24,-23	1	7	4	+	0
- 26 ,- 25	1	5	2	+	0
-28, -27	1	6	1	+	0
<u>s-29</u>		6	1	+	0

Lonely					
3311	Wi	nd Sp	eed	(kno	ts)
	0 -	4	11-	22	1
(°C)	3	'0	21	33	≥ 34
≥-10	2	6	3		+
-12,-11	_1_	2	1_	+	+
-14,-13	- 2	4	2	1	+
-16,-15	1	4	2	+	+
-18,-17	1	5	2	1	+
-20,-19	2	6	2	+	+
-22,-21	2	5	2	1	+
-24,-23	2	6	3	+	Û
-26,-25	2	4	1	+	+
-2827	2	4	1	+	+
≨-29	3	8	1	+	0

3205	Wil	nd Sp	eed	(kno	ts)
TEMP	0 - 1	4 -	11-	22 -	
(°()	(3	٠.	21	33	≥ 34
≥-10	2	5	-4	1	
-12,-11	1	2	- 1	+	0
- 14,-13	1	3	3		Ų
- 16,-15	1	3	2	+	0
- 18 1 1	2	5	2	+	+
-20,-19	2	5	3	+	0
-2221	1	5	3	1	+
-24,-23	2	- 5	3	+	0
-26,-25	2	4	2	+	+
-28,-2?	1	5	2	+	+
≨-29	2	8	2	+	0

TEMP	G .	4	٠	1
, e c	3		~ -	ិនម 🧟
2.10				
17211				-
- 4	, -	4		
-16,-15			3.	
- '8 '		5*	-:-	
-2019	•	£.		— . • ·
-22,-21	٠,٠			
-24,-23		-5+	3 +	·
-26,-25		3		
-2827		-4		
<u>≤-</u> 29				

Barter

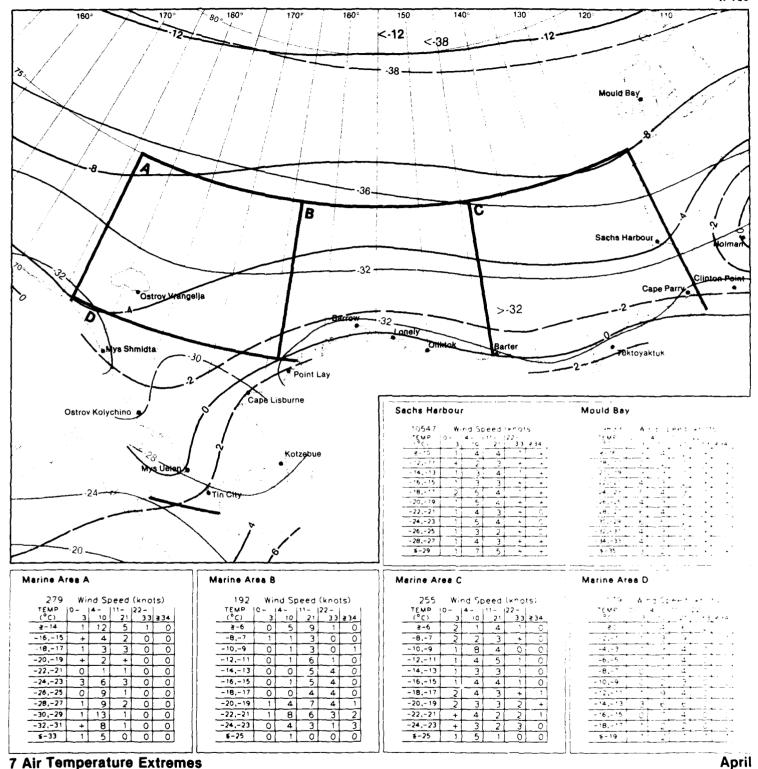
2162 15 16 140 1
3153 Wind Speed (knots)
TEMP (0 - 4 - 11 - 22 -
(°C) 3 10 21 33 ≥34
≥-8 1 7 5 + +
-109 1 4 2 + +
-12,-11 + 2 2 + 0
-14,-13 1 4 4 + 0
-16,-15 1 4 2 + 0
-18,-17 1 5 4 + 0
-20,-19 1 6 3 + 0
-222! i 4 2 + 0
-24,-23 2 5 2 + 0
-26,-25 1 3 1 + 0
§-27 3 9 2 + 0

19195	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 - 1	1
(°C)	3	10	_ 2 '	3.3	≥ 34
0′-≨	2	5	6	,	+
-12,-11	1	2	2	+	+
-14,-13	1	2	3	1	+
-16,-15	;	2	3	1	+
-18,-17	2	3	5	1	+
-20,-19	2	4	4	1	+
-2221	2	3	3	i	+
-24,-23	3	4	3	+	0
-26,-25	2	3	2	+	+
-28,-27	2	3	2	+	+
≨-29	3	4	2	+	+

4456	Wil	nd Sp	eed	(kno	ts:
	0 -	4 -	11.	22 -	
(°C)	3	10	21	33	≥34
≥-10	2	ġ.	5	+	Ç
-12,-11	1	3	1	+	0
-14,-13	1	3	2	-	+
-16,-15	1	4	2	+	0
-18,-17	,	3	4		+
-20,-19	1	5.	4	,	0
-22,-21	1	4	3	+	0
-24,-23	2	5	2	+	0
-26,-25	1	4	1	•	0
-2827	2	4	1	+	0
≨-29	3	8	1	+	0

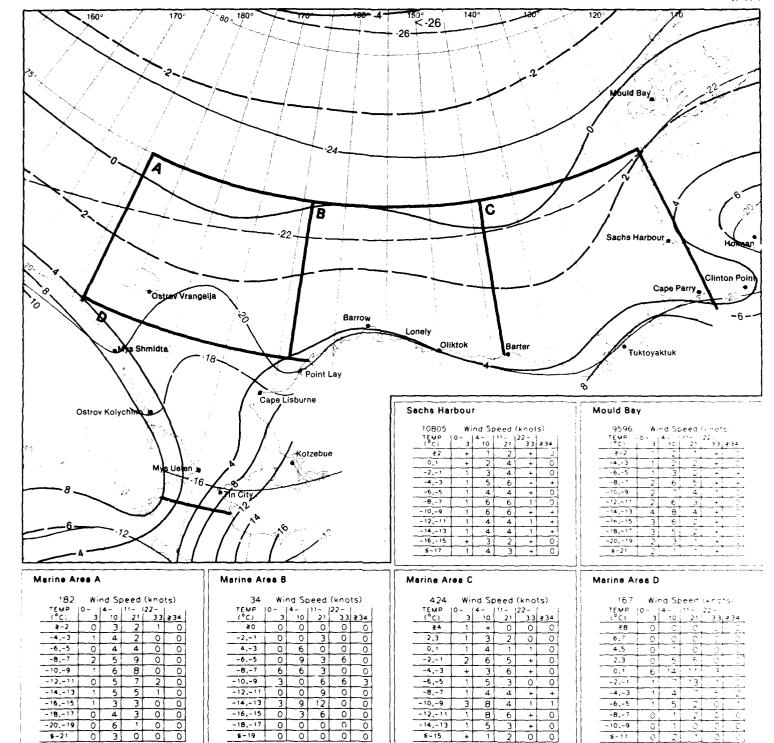
3108	A ·	ng is	ees		• :
EMP	Ĵ	4 -	• •		
. 0 ()	. 3			3.3	2 30
≥ - 8	4	7		•	
-10,-9				•	·
12. 11					
14 ,- 13	. 3				
1615				· —.	•
Э,	-4	-1	1 3		•
-20,-19	, 5	-1			Ţ.,
-22,-21	3	4			† —
-24,-23	- 4	-:-			
-26,-25	-	3	1		•
<u> </u>	4	5		• •	• -

April



170			
Ostrov Vrangelja	Mys Shmidts	Ostrov Kolychino	Mys Usien
4241 Wind Speed (knots) TEMP 0- 4- 11- 22- (°C) -3 10 21 333 \(\) 34 \(\frac{2}{2} \) 1 + + + 0 0,1 1 2 + + + + -2,-1 2 6 2 + + + -4,-3 4 0 3 1 + -6,-5 3 7 4 1 + -8,-7 3 8 5 2 1 -10,-9 3 4 3 1 + -12,-11 2 4 3 1 + -14, 13 2 2 2 2 + 0 -16,-15 1 1 1 + + 5-17 2 1 + +	4486 Wind Speed (knots) TEMP 0 - 4 - 11 - 22 - (°C) 3 10 21 33 234 \$2 2 3 1 + 0 0,1 1 2 1 + 0 -2,-1 2 6 3 + + -4,-3 2 8 5 + + -6,-5 2 8 4 1 0 -8,-7 2 7 4 + + -10,-9 1 3 3 1 + -14,-13 1 4 2 + + -14,-13 1 4 2 + + -16,-15 1 2 1 + 0	2906 Wind Speed (knots) 1EMP 0- 4- 11- 22- (°C) 3 10 21 33 234 24	45.12 Wind Opend Chots FEMP 0 4 11 22 (*C) 3 10 11 33 65 24 2.3 2.1 2.2 -4,-3 -6,-5 -6,-5 -10,-9 -12,-11 -4,-13 -4,-13 -4,-14 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15 -4,-15
Tin City	Kotzebue	Cape Lisburne	Point Lay
20 '04	2121 Wind Speed (Incis) FMP U- 4-11- 22 (°C 3 10 2: 33 & 34 28 + 2 2 + 0 6: + 3 + 0 4.5 1 4 2 + 0 2.3 2 11 6 + 0 0. 3 13 1 + 0	20422 Wind Speed (knots) TEMP 0 - 4 - 11 - [22 - (°C) 3 10 21 33 234 26 1 1 + + + + + + + + + + + + + + +	3.8 Wind Speed with the second
Berrow	Lonely	Oliktok	Barter
	184 And Speed (kn is 184)	321 Wind Speed sknots. TEMP 0 4- 11 22 33 434 34	FMC Any poet of the first section of the first sect
	Cape Parry	Clinton Point	Holman
130.3 Wind Speed vinots 15MP	3 Wind Speed whots 1994 Wind speed who to 1994 Wind speed who 1994 Wind speed who to 1994 Wind speed who to 1994 Wind speed who to 1994 Wind speed who to 1994 Wind speed who to 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed who 1994 Wind speed w		4. 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4





May

II-172

0	Ostrov Vrangelja								
i	4288	Wi	nd Sp	eed	(kno	ts)			
	4M3T (°C)	0-3	10	11-	22 - 33	234			
	≩10	+	0	+	0	0			
	8,9	0	+	0	0	0			
	6,7	+	+	+	+	0			
	4,5	1	_2	1	+	+			
,	2.3	6	12	4	+	+			
	0.1	7	17	5	1	+			
	-2,-1	7	14	5	+	+			
	-4,-3	3	_6	2	_+	+			
	-6,-5	1	_2	1	+	+			
	-87	+	+	+	+	+			
	≨-9	0	+	+	0	0			

lys Shmid	ys Shmidte							
4502	Wi	nd Sp	eed	(kno	ts)			
	0 -	4 -		22 -				
(°C)	3	10	21	33	≩34			
≥ 10	_ 1_	2	1_	0	0			
8,9	1	_i	1	+	+			
6,7	1	2	1	+	0			
4,5	1	5	2	+	0			
2,3	3	13	6	1	+			
0.1	2	17	_ 5_	+	+			
-2,-1	3	15	4	+	+			
-4,-3	1	5	1	+	+			
-6,-5	+	2	1	+	+			
-8,-7	+	+	+	+	0			
≦-9	0	0	0	٠	0			

Ostrov Kolychino								
2764	Win	nd Sp	eed	(kno	ts)			
TEMP	0-	4		77-	i i			
(°C)	3	10	2.	3 3	≩ 34			
≥ 10	+	1	2	0	0			
8,9	+		_2	+	0			
6,7	_ 1	2	3	+	0			
4,5	1	4	5	1	Ō			
2,3	_ 2	9	_8	1	0			
0,:	_ 3	12	_6	+	0			
-2,-1	2	14	5	+	0			
-4 - 3	1	5	2	+	+			
-65	1	2	1	+	_0			
-8,-7	0		+	0	U			
≨-9	0	+	+	0	0			

4479	N-r	ام کا فرا	eed :	Frot	S)
TEMP	0- 1	4	11- (2	22-	
(°C)	3	10	21	3.3	≥ 34
≥12	+	+ 1	+ [<u> </u>	_0
10,11	+	+	7	+	0
8,9	+	•	•	0	Ó
6,7	1	2	21	•	0
4.5	2	4	4		+
2,3	6	12.	8	3	+
0.1	5	10	7	2	
-2,-1	3	9	6	7	+
-4,-3	1	2	2	+	5
-6,-5	+	+	-	+	
≤ ~ 7	0	01	- j †	0.	- 0

iin City					
199	39 wi	nd Sr	oeed	(kno	ts)
TEM		4 -		22 - 1	
(°C)] 3	10	21	33	≥ 34
_ ≥ 1	211	<u> </u>	+	+	0
10.1	1 1	2	1	+	0
8.9		2	2	+	0
6,7	2	5	4	+	+
4,5	2	5	5	1	+
2,3	2	_ 8	11	2	0
0.1	2	9	14	_ 3	+
-2	1 1	4	6	1	+
4	3 +	1	2	,	0
-6,-	5 +	+	+	+	0
ş	7 0	+	0	0	0

Kotzebue					
20512	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4		22-	
(°C)	3	10	21	33	≥ 34
≥ 16	+	2	1	+	0
14,15	+	2	1	+	0
12,13	+	4	2	+	0
10,11	1	6	4	+	0
8,9	1	5	4	+	0
6,7	1	.8	6	+	0
4,5	3	_7	5	+	0
2,3	1	10	7	1	0
0,1	1	.7	7	1	+
~2,~1	+	1	2	+	0
≦-3	+	+	+	+	0

C	Cape Lisburne										
	19396	Wi	nd Sp	eed	(kno	ts)					
	TEMP	10-	4-	11-	22-	1 1					
	(°C)	3	10	21	33	≥34					
	≩12	+	1	. 1	+	+					
	10,11	1	1	1	1	+					
	8,9	1	2	2	1	+					
	6.7	4	4	2	1	+					
	4,5	4	5	2	1	+					
	2,3	8	11	3	1	+					
	0,1	8	15	5	+	+					
	-2,-1	2	7	2	+	+					
	-4,-3	1	1	1	+	+					
	-6,-5	+	+	+	0	0					
	<u>s</u> - 7	+	+	+	0	0					

3124	W	nd Sp	eed	(+00	15.
TEMP	10 -	4 -	• • •	22 -	
(°C)	1 _ 3	•0	5.	3.3	234
₹14	+	2		+	7
12,13	1	2		+	_0
10,11	·	4	•	. +	_ ^
8,9	1 1	5	2	+	- 0
6,7	2	7	2	+	- 3
4,5	2	- 8	2		+
2,3	3	12	5		•
0,1	3	1.2	Ē		
-2,-1	:	4			Ĵ
-4,-3	+	•	•		
≨-5	+		+	۲.	

Barrow					
17498	Wil	nd Sp	eed	(kno	(5)
TEMP	S -	4 - 1	11 -	22~	
(°C)	3	_ 10_	21	33	≥ 34
₹ ,0	+	1	1	0	0
6,9	+		+	+	0
6.7	+	2	1	+	0
4,5	+	3	2	+	0
2.3		8	- 6	+	0
0.1	1	23	15	+	0
-2,-1	1	1.2	9	+	+
-43	+	5	5	+	0
-6,-5	+		†	+	0
-8 7	+	+	+	+	Ç
ş-9	+	+	+	+	0

Lonely					
3194	Wie	nd Sp	eed	(kno	ts)
	0-	4 -		22 -	1 /
(°C)	3	10	21	3 3	≥ 34
≥ 10	1	2	+	+	0
8,9	+	1	+	0	0
6,7	1	3	1	+	0
4,5	1	5	2	+	0
2,3	3	12	4	+	0
0.1	5	22	9	1	0
-2,-1	2	9	4	1	0
-4,-3	+	3	2	+	0
-65	+	1	1	+	0
-8,-7	+	,	+	0	0
<u>s</u> - 9	+	+	0	0	Ö

Oliktok					
3131	Wii	nd Sp	eed	(kno	ts)
	10 -	4 -		22 -	l - E
<u>(°C)</u>	3	10	21	33	≥34
≥ 10	1	- 1	+	0	_ 0
8.9	1	_1	+	0	0
6,7	1	3	1	+	0
4,5	2	5	2	+	0
2,3	3	13	7	+	0
0,1	5	19	1.1	1	+
-2,-1	1	8	5	+	+
-4,-3	1	2	2	+	+
-6,-5	+	1	1	+	0
-8,-7	+	1	+	+	0
<u>s</u> - 9	0	+	0	0	0

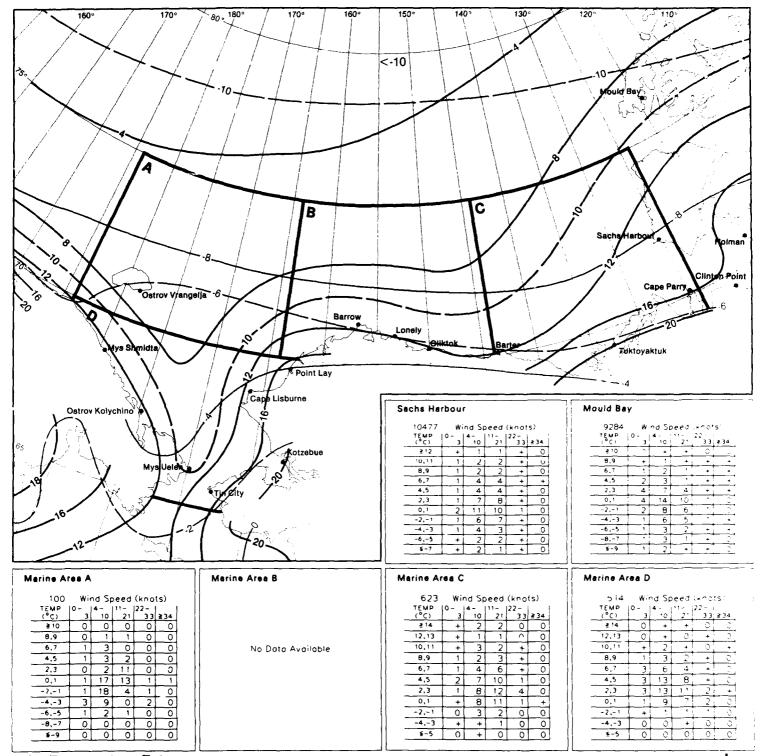
17672	Wil	nd Sp	eed	(unit	3.
	0 -	4 -		22	
(°C)	3	10	211	3.3	¥ 34
≥ 10	+	•	+	2.	
8,9			+		0
6,7	+	2	1	+	
4,5		3	2	+ ;	7
2,3	•	1.1		-	7
0,1	3	25	· E		٠,
-2,-1	1	8	8	•	- 7
-4,-3	+	3	3	+	- 0
-6,-5	+	+	-	+	- 0
-8,-7	+	+	+	0.1	
<u>s</u> -9	C	+			

Tuktoyaktuk										
3111	Wi	nd Sp	eea	(kno	ts)					
TEMP	0	4 -		22 -	1					
1°C1	. 3	10	21	33	≥ 34					
≥ •4	+	5	2	0						
12,13		2	2	0	_ C }					
10.11	+	4	_2	+	0					
8.9	+	3	3	+	0					
6 '	1	6	4	+	0					
4.5	7	6	3	+	0					
2.3	1	11	7	+	0					
0.*	•	14	. 7	+	0					
-2,-1	+	5	2	+	0					
-4,-3	+	3	1	ು	0					
≨ -5	+	1	+	0	0					

apo Parry										
18718	wii	nd Sp	eed	(kno	ts)					
TEMP	0 - 3	10	11- 21	22 - 33	≥ 34					
≥ 10		1	1	+	0					
8,9	1	1	1	+	0					
6,7	1	2	2	+	0					
4,5	Ī	4	4	+	0					
2,3	2	9	10	i	0					
0,1	3	13	15	2	+					
-2,-1	1	7	6	+	0					
-4,-3	1	3	3	1	+					
-65	+	1	1	+	+					
-8,-7	+	+	1	+	0					
≨ - 9	+	+	+	+	0					

Clinton Point											
4450											
TEMP	10 -	4-	11-	22 -							
(°C)	3	10	21	3.3	<u>*</u>						
≥12	+	2	1	+	0						
10,11	+	2	1	_0	0						
8,9	+	2	1	0	0						
6,7	1	4	1	+	0						
4,5	1	6	2	+	0						
2,3	3	14	6	+	0						
0,1	5	18	7	1	0						
-2,-1	2	7	2	+	0						
-4,-3	1	3	2	0	C						
-6,-5	+	2	1	0	0						
≤ - 7	1	2	1	0	0						

Holman					
3110	w	nd Sp	eeg	.enoti	÷
TEMP	. 0 -	4 -	• • -	22	
(°C)	3_	10	2.	33,2	3.4
≥ 12					
10.11	2	•	•		
8.9				+	
6.7		- 5			
4,5	2	5		+	+
2.3	4	Э	c.		+
0.1	6	١3	ŕ.		* .
- 7	3	6		. + .	7.
-4,-3		3			- 07
-65		,			
\$ '	+				: ূ



June

0	strov Vre	ngel	įe			
1	4253	Win	nd Sp	eed	(kno	ts)
	TEMP	:0-	4-	111-	22 -	1 1
	(°C)	3	10	21	33	≥34
	≥12	0	+	+	_ +	0
	10,11	+	+	+	0	ि
	8,9	+	1	1	+	0
	6,7	1	2	1	+	0
!	4.5	\bar{z}	7.	4	7	0
	2,3	8	21	9	1	+
	0.1	9	14	5	+	+
	-2,-1	5	6	2	+	0
į.	-4,-3	+	1	+	+	0
;	-65	0	0	0	_ 0	0
(≤ - 7	0	0	0	0	0

Ays Shmid	ys Shmidts									
4499	Wi	nd Sp	eed	(kno	ts)					
TEMP	0-	14-	111-	22-						
(°C)	3	10	21	33	≩34					
≩ 14	1	2	1	+	0					
12,13		2	1	+	Ö					
10,11	+	1	1	+	Ō					
8,9	1	2	1	+	0					
6,7	1	5	2	+	0					
4,5	2	9	3	+	0					
2,3	4	23	9	1	0					
0.1	2	12	6	1	0					
-2,-1	1	3	2	+	Ō					
-4,-3	+	+	0	0	0					
≨-5	0	0	0	0	0					

Ostrov Ko	lychir	10			
2581	Wie	nd Sp	eed	(kno	ts)
TEMP	10 -	4 -	11-	122 - 1	1 1
(°C)	3	10	. 21	33	≥34
≥ 14	+	1	2	+	+
12.13	1	2	2	+	0
10,11	+	2	3	1	+
8,9	1	3	6	1	0
6,7	1	4	6	2	0
4,5	2	6	6	1	+
2,3	3	12	6	1	0
0.1	2	1.1	3	+	+
-2,-1	1	6	3	+	0
-4,-3	+	+	0	0	0
≨ -5	0	0	0	0	0

rs Uelen					
4497	W.	nd Sp	eed	(FUO	(5)
TEMP	O	4 -	11 =	22	
(°C)	_ 3	10	21	_33	34 ي
≩ 14	+	1	1	[+ <u>]</u>	Ç
12,13	+		2		0
10,11	1	2	2		0
8,9		3	5	. 3	
6.7	3	5	7	5	
4,5	4	8	ϵ	4	
2.3	4	1.1	ខ		•
0,1	1	3	2	+	٠
-2,-1	+	+	+	•	0
-4,-3	0	0	0	_ C	
≨-5	0	0	0	. 0	5

Tin City					
20635	Wi	nd Sp	oeed	(kno	(s)
TEMP	0 -	4 -		22-	1 . 1
(°C)	3	10	21	33	≥34
≥ 16	1. 1.	1	+	_ 0	_ 0]
14,15	+	_ 1	1	_ ၁	Û
12,13	1	3	2	+	0
10,11	2	5	3	+	+
8.9	2	6	7	1	+
6,7	2	10	15	_ 2	+
4,5	1	7	12	2	+
2,3	+	3	6	, 1	+
0,1	+	+	2	+	+
-2,-1	+	+	+	+	0
<u>\$</u> - 3	0	0	0	0	0

otzebue					
21130	Wi	nd Sp	eed	(kno	ts)
	10-	4 -	111 -	22-	1
(°C)	3	10	21	33	≥34
≥ 20	+	2	1	+	0
18,19	+	_2	1	+	0
16,17	1	.5	3	+	0
14,15	1	7	4	+	0
12,13	1	11	8	1	0
10,11	1	11	11	1	+
8,9	+	5	6	1	0
6.7	+	4	6	1	+
4,5	+	1	3	1	+
2,3	+	+	1	+	0
§ 1	+	+	+	+	0

Cape Lisb	ırne				
19393	Wi	nd Sp	peed	(kno	15)
TEMP	10 -	4-	111-	122 -	1 1
(°C)	3	10	21	3.3	≥ 34
≥ 16	+	1	1	+	0
14,15	1	,	1.	+	+
12,13	2	2	2	1	+
10,11	3	5	4	2	+
8,9	4	6	4	2	+
6,7	5	9	5	1	+
4.5	4	7	3	1	+
2,3	4	9	3	+	+
0.1	2	4	1	+	+
-2,-1	+	+	+	0	0
≨-3	0	0	0	0	0

3015	W-	nd S;	eed	(200	15
TEMP	0 -	4 -	11.	22-	
(°C)	3	10	2.	3.3	يه و ج
≥18	+	- T		•	5
16,17	+	2		-	
14.15	1	2		+	
12,13	2	5	2	+	- 0
10.11	3	9	4	+	0
8.9	2	7	5	+	Ô
6,7	2	9	5		
4,5	2	8	3	+	
2.3	2	7			
0,1	1	3	1	-	
\$ - 1	+	-		0	

Barrow					
18772	Wii	nd Sr	eed	(kno	ts)
	10-	4- 1		22-	[
(°C)_	. 3	10	21	33	₹34
₹12	+	2	_2	+	0
10,11	+	2	2	+	0
8,9	+	3	2	+	_ 0
6.7	1	5	4	+	U
4,5	. 1	6	5	+	0
2,3	1	12	10	+	+
0,1	1	19	14	+	0
-2,-1	1	5	2	+	0
-4,-3	+	+	+	0	0
-6,-5	0	0	_0	0	0
<u>\$</u> - 7	0	0	0	0	0

пец					
3136	Win	nd Sp	eed	(kno	(s)
TEMP .	10-1	4 -	111-	22-	
(°C)_	3	_10	21	33	≥34
≥ 14	1	3	1	+	0
12,13	+	2	1	+	0
10,11	1	4	1	0	0
8,9	1	3	1	+	0
6,7	2	7	3	+	0
4,5	2	8	4	+	0
2,3	3	17	7	1	+
0.1	3	15	5	1	2
-2,-1	1	3	1	+	0
-4,-3	+	+	0	0	0
≦-5	0	0	0	0	0

0	liktok					
	304.7	Wi	nd Sp	eed	(kno	(5)
	TENA	0 -	4 -	111-	22-	1
	(°C)_	3	10	21	33	≥ 34
	≩ 14	1	3	+	0	_ 0
	12,13	1	3	1	0	0
	.0,11	1	3	1	+	0
	8,9	1	3	1	+	0
	6,7	2	7	4	1	0
	4,5	3	8	7	1	+
	2,3	3	14	10	1	+
	0,1	2	1.1	4	+	0
	-2,-1	+	2	1	0	0
	-4,-3	+	+	0	0	0
	≨-5	0	0	0	0	0

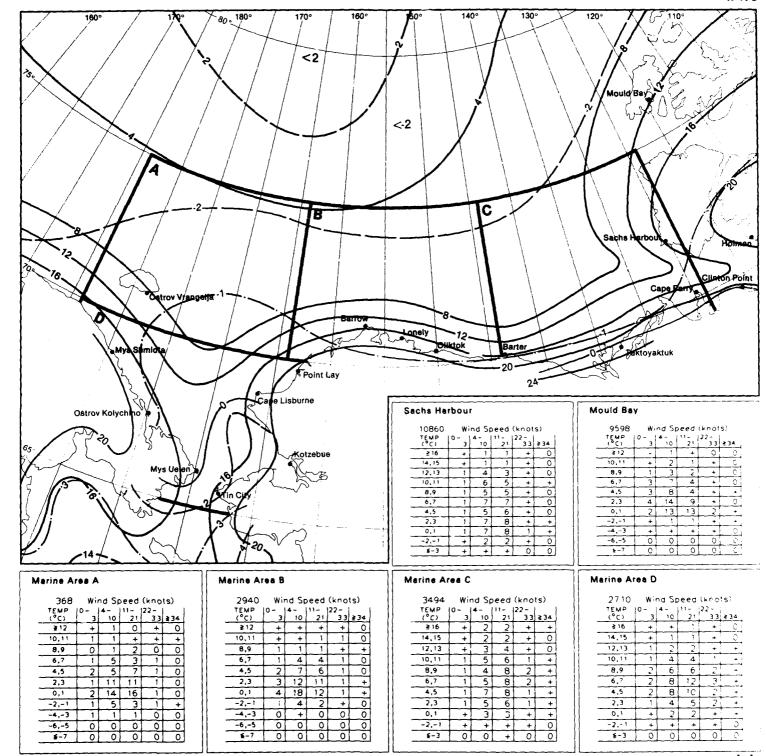
18342	₩.	nd Sp	eed	(***	: 5.
TEMP	S -	4 -	11-	22	
(°C)	3	10_	2.	33	-
≥ 14	+			- (-	
12,13	T +		+	•	
10,11	7	3	•	+	
8.9	1	-4		•	
6,7	,	7	4	•	
4,5	,	8	6	•	
2,3	2	16	10	+	
0,1	. 2	15	8	+	
-2,-1	+	2	•	•	
-4,-3	. +	+			
≨-5	1 0	٥	0	- 5	

Tuktoyaktı	uk				
3215	w.	na St	oeec	(kad	(s)
TEMP	10 -	4 -	11-	22~	
(°C)	3	10	21	33	≩ 34
≩ 20	+	4	1	+	0
18,19	+	3	1	0	0
16,17	+	4	3	+	0
14.15	+	5	3	+	0
12,13	1	7	4	+	0
10,11	1	8	5	+	+
8.9	1	7	4	+	0
6.7	1	9	5	+	0
4,5	1	6	4	+	0
2,3	+	5	3	+	0
≨ 1	+	2	1	+	0

19343	Wi	nd St	heed	(kno	ts)
TEMP	0-	4-		22-	1
(°C)	. 3	10	21	33	≥ 34
≩ 14	1	2	1	+	0
12,13	1	_ 2		+	0
10,11		3	2	+	0
8,9	1	4	3	+	0
6,7	3	8	8	+	0
4,5	2	. 8	. 8	+	0
2,3	3	11	10	+	0
0,1	2	6	4	+	0
-2,-1	+	1	+	+	0
-4,-3	+	+	+	0	0
≦ -5	0	0	0	0	0

Clinton Point								
	4453 Wind Speed (knots)							
	TEMP	0-	4 -		22 -			
	(°C)	3	10	21	33	≥34		
	≥ 16	+	3	_ 1	0	0		
	14,15	+	_ 2		0	0		
	12,13	+	4	1	0	0		
	10,11	1	6	1	+	0		
-	8,9	1	6	2	+	0		
	6,7	2	13	4	+	0		
	4,5	3	11	5	+	0		
	2,3	5	14	8	1	+		
	0,1	+	4	3	+	0		
	-2,-1	+	+	+	+	0		
	≨-3	+	0	0	_0	0		
_								

3213	₩.	nd Sp	eed	(ROC	· s
TEMP	(C -	4 -	, * * -	22-	
(°C)	3	.0	-31	33,	<u> 34</u>
≥ ≀6		3	_ :	•	:
14,15		1	-	-	C
12,13	2			+	-
10,11	3	5	7	+	•
8,9	3	6	3	+	0
6,7	4	10	5		+
4,5	4	9	5	1	•
2,3	4	8	5	•	
0.1	Ī	3	2	+	Ĺ
-21	+	+		Ç	(
§ - 3	0	+	0	0	(



July

!!-176

0	strov Vra	ngel	j e					
	4252 Wind Speed (knots)							
	TEMP	0 -	4-	11-	22-		1	
	(°C)	3	10	21	33	≩34		
	≥12	0	+	+	0	0		
	10,11	+	+	+	+	0		
·	8,9	+	1	+	+	0		
	6,7	1	3	1	+	0		
	4,5	3	7	2	1	+		
	2,3	8	14	8	2	+		
	0,1	7	12	5	1	+		
	-2,-1	5	8	3	Ī	+		
	-4,-3	1	2	1	+	+		
	-6,-5	+	+	+	0	0		
	≦-7	0	0	0	0	0		

Mys Shmid	ite				
4564	Wi	nd Sp	eed	(kno	ts)
TEMP (°C)	0 - 3	4 - 10	11- 21	22-	≥34
₹12	1	2	1		0
10,11	+	2	+	0	0
8,9	1	2	1	+	0
6,7	1	4	2	+	+
4,5	2	8	3	+	0
2,3	3	16	9	1	+
0,1	2	12	7	1	+
-2,-1	2	8	5	1_	+
-4,-3	+	1	1	+	0
-6,-5	+	+	0	0	0
<u>≤</u> -7	0	0	0	0	0

Ostrov Kolychino								
	2530	Wii	nd Sp	eed	(kno	ts)		
	TEMP	0 -	4 -	11- 3	22-	1 1		
_	(°C)	3	10	21	33	≥34		
	= 14	+	+	1	0	0		
	12,13	+	1	1	+	0		
	10,11	+	2	3	+	0		
-	8,9	1	3	5	1	+		
	6,7	1	5	6	1	+		
-	4,5	1	8	6	2	÷		
-	2,3	2	11	8	-	+		
_	0,1	1	9	7	1	+		
-	-2,-1	1	6	3	+	+		
_	-4,-3	+	+	+	0	0		
-	≦-5	0	0	0	0	0		

Mys Uelen								
4515	wi	nd Sp	eed	(kno	·s)			
TEMP	10 -	4 -	11-	22 -	l			
(°C)	3	10	2 :	3 3	≥ 34			
≥ 14	+	+	+	+	0			
12,13	+	+	1	+	+			
10,11	+	1	2	+	+			
8,9	1	2	5	2	+			
6.7	3	6	7	3				
4,5	5	12	11	3	•			
2,3	4	10	12	2	+			
0.1	· •	2	2	+				
-2,-1	+	+	0	+	0			
-4,-3	0	0	0	0	C			
≨-5	0	0	0	О	0			

Tin City					
20765	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	1 :
(°C)	3	10	21	33	≩34
≥ 16	+	+	+	0	0
14,15	+	1	1	+	0
12,13	1	2	2	+	0
10,11	1	4	5	1	+
8,9	2	7	9	- 1	+
6,7	2	12	18	3	+
4,5	1	5	10	2	+
2,3	+	3	4	1	+
0,1	+	1	+	+	. +
-2,-1	+	0	0	0	0
≦3	0	0	+	0	O

Kot	zebue					
2	1792	Wi	nd St	eed	(kno	ts)
	TEMP	0 ~	4 -		22 -	1 1
	(°C)	3	10	21	33	≥ 34
	≥ 20	+	+	+	+	0
	18,19	+	1	+	+	0
	16,17	+	2	2	+	0
	14,15	+	4	3	+	0
	12,13	1	9	8	+	+
_	10.11	1	13	13	1	+
	8,9	1	8	9	1	+
	6,7	1	6	7	1	+
	4,5	+	2	2	+	+
	2,3	+	1	1	+	0
_	≦ 1	0	+	+	+	0

Cape Li	* D U	1110				
202	20	Wir	nd Sp	eed	(kno	ts)
TEM		0 -	4 -	11 -	22-) i
(°C)	3	10	21	33	≥34
≥ 1	6	+	_ 1	+	+	0
14,1	5	+	1	+	+	0
12,1	3	2	3	1	+	+
10,1	1	3	5	3	1	+
В,9	,	4	7	5		+
6,7		5	10	7	1	+
4,5	, [3	9	6	1	+
2,3		2	7	7	1	+
0,1		1	1	2	+	0
-2,-	1	+	+	+	+	0
<u> </u>	3	0	0	0	0	0

3273	Wil	nd Sp	eed	(kno	15)
TEMP	0-	4 -	11	22-	
(°C)	3	10	2.	33	≥ 3
≩ 16	1	2	+		
14,15	+	2	+	-	,
12,13	,	5	,	+	
10,**	2	~	3	•	
8,9	2	8	3	•	_
6,7	3	:0	5		
4,5	3	Ģ	5	•	
2,3	2	8	3	-	_
0.1		5	- 2	-	
-2,-1	+	•		+	
≦-3	+	+	—		

Barrow					
19325	Wit	nd Sp	eed	(kno	ts)
TEMP (°C)	0 - 3	4 - 10	11	22 - 33	≥ 34
≥12	+	2	1	+	0
10,11	+	2	1	+	0
8,9	+	3	. 2	+	0
6,?	+	5	4	+	+
4,5	1	7	5	+	+
2,3	1	10	8	1	0
0.1	1	14	13	1	0
-2,-1	1	7	5	+	0
-4,-3	+	2	2	+	0
~6,-5	+	+	+	0	0
≦ - 7	0	0	0	0	0

3372	Wil	nd Sp	eed	(kno	ts)
TEMP	0 -	4-	11-	22 -	1
(°C)	3	10	21	33	≥ 34
≥ 12	1	3	. 1	+	0
10,11	1	3	1	+	0
8,9	1	3	1	+	+
6,7	_ 2	7		+	0
4,5	2	10	3	+	+
2,3	4	15	6	1	+
0,1	3	15	8	1	+
-21	1	4	2	+	0
-4,-3	+	1	+	+	0
-6,-5	0	+	0	0	0
≦-7	0	0	0	0	0

Oliktok					
3289	Wi	nd Sp	peed	(kno	ts)
TEMP	10-	14-	11-	22-	1 4
(°C)	3	10	21	33	≩34
≥ 14	+	1	+	Ō	0
12,13	1	2	1	0	0
'0,11	1	4	1	+	0
8,9	1	4	1	+	0
6,7	2	7	4	1	0
4,5	2	8	5	1	0
2,3	3	14	8	1	+
0,1	3	11	7	1	+
-2,-1	1	3	2	+	0
-4,-3	+	+	+	0	0
≦-5	0	0	0	0	0

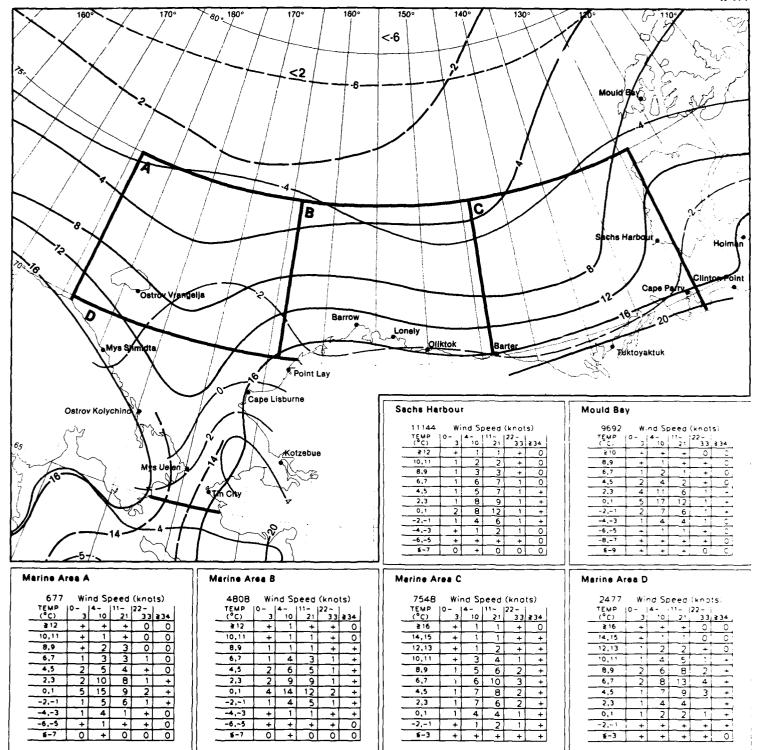
Barter					
18470	w:	nd Sp	ees	(kno	's
TEMP	0 -	4 -	11-	22-	
(°C)	3	10	21	3.3	234
≥ 14	+	1	+	+	
12.13	+	1	-	+	ĝ.
10,11	+	3		+	0
8,9	•	4	2	+	+
6,7	1	9	4	+	+
4,5	1	8	5	•	+
2,3	2	12	• 1	•	+
0,1	1	12	10	2	-
-2,-1	1	3	2	+	+
-4,-3	+	1	+	+]	0
<u>≤</u> -5	0	+	0	0	0

3201	Wii	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22-	
(°C)	3	10	21	33	≩34
<u>₹</u> 18	+	2	1	+	0
16,17	+	3	1	+	0
14, 15	+	3	2	+	0
12,13	1	7	3	+	0
10,11	1	9	5	+	0
8,9	1	8	4	+	0
6,7	1	10	6	+	0
4,5	1	7	4	1	0
2,3	1	6	5	1	0
0.1	+	2	2	+	0
≨-1	+	+	+	0	0

19339	Wi	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22-	
(°C)	3	10	21	33	≥34
≥ 14	+	1	+	0	0
12,13	+	1	1	0	0
10,11	1	3	2	+	0
8,9	1	4	3	+	0
6.7	3	8	9	1	0
4,5	2	_ 8	9	1	+
2,3	3	9	9	1	+
0,1	1	5	5	1	0
-2,-1	+	2	2	+	0
-4,-3	+	+	+	+	Ö
<u>≨</u> -5	0	0	0	0	0

4483	Wil	nd Sp	eed	(kno	ts)
TEMP	10-	4 -	11-	22~	ı
(°C)	3	10	21	33	≥34
≥ 16	+	2	1	0	0
14,15	+	1	+	+	0
12,13	+	3	1	0	0
10,11	1	5	2	+	0
8,9	1	7	4	+	0
6,7	2	14	8	+	0
4,5	2	10	6	+	0
2,3	1	8	8	2	+
0,1	+	4	3	1	+
-2,-1	+	1	+	+	0
<u>≨</u> –3	0	+	0	0	0

Нο	iman					
	3203	Wii	nd Sp	eed	ikno	ts:
		0 -	4	11-	22 -	: :
	(°C)	3	10	21	33	≥34
_	<u>≩</u> 16	+	1	,	+	_ 0
	14,15	1	1	'	+	0
	12,13	1	2	1	+	0
_	10,11	2	3	2	1	0
	8,9	2	4	2	+	О,
_	6.7	5	9	5	1	+
_	4,5	4	9	5	1	+
_	2,3	4	8	6	;	+
_	0,1	2	5	3	1	0
_	-2,-1	1	1	1	+	0
_	≨-3	+	+	+	+	0



August

11-178

0	Ostrov Vrangelja										
	4070 Wind Speed (knots)										
	TEMP	0-	4-	11-	22~	1 1					
	(°C)	3	10	21	33	≥34					
	≩8	0	0	0	0	0					
	6,7	+	+	+	+	_ 0					
	4,5	1	1	1	+	0					
	2,3	2	5	4	1	+					
	0,1	4	7	6	1	+					
	-2,-1	6	12	10	1	+					
	-4,-3	4	8	6	2	+					
	-6,-5	1	3	3	1	+					
	-8,-7	1	1	1	+	+					

M	ys Shmid	ita				
	4315	Wit	nd Sp	eed	(kno	ts)
	TEMP	0 -	4 -	11~	22-	
	(°C)	3	10	21	3 3	≥34
	≩8	+	1	+	0	0.
	6,7	+	1	1	+	0
	4,5	1	3	1	0	0
	2,3	3	.8	6	+	+
	0,1	2	10	6	1	+
	~2,-1	4	13	11	2	+
	-4,-3	2	6	5	2	+
	~6,-5	1	2	2	1	+
•	~8,-7	1	1	1	+	+
	-10,-9	+	+	+	+	+
•	≦ −11	1	+	+	+	+
		1		+		

Ostrov Kolychina								
2431 Wind Speed (knots)								
TEMP	10-	4 -	11-	22-	I I			
(°C)	3	10	21	33	≩ 34			
≩ 10	+	+	+	+	0			
8,9	+	+	1	+	0			
6.7	+	2	2	+	0			
4,5	1	3	5	1	+			
2,3	2	9	12	3	+			
0,1	2	10	9	1	+			
-2,-1	2	9	10	2	+			
-4,-3	1	4	3	1	+			
-6,-5	+	1	1	+	0			
-8,-7	+	+	+	0	0			
₹-9	+	0	0	0	0			

Mys Uelen	ı				
4350	w;	nd Sp	peed	(kno	ts)
TEMP	0-	4 -	11~	22 ~	. 1
(°¢)_	3	_10	21	3 3	≥34
≩12	0	0	+	+	+
10,11	+	+	+	+	J
8,9	+	+	1	+	+
6,7	+	2	2	1	+
4,5	2	6	9	3	+
2,3	4	13	18	7	,
0,1	2	5	7	3	+
-2,-1	1	3	4	•	+
-4,-3	+	1	1	+	0
-6,-5	+	+	+	+	C
≨-7	+	+	+	+	0

lin C	ity					
19	412	Wit	nd Sp	eed	(kno	ts)
	MP	0-	4-	[11-	22-	1
_ (°C)_	3	10	21_	3.3	≥34
	≧ 14	+	+	+	+	0
1	2,13	+	+	+	+	0
10	2,11	1	1	1	+	+
	9,9	1	3	3	1	+
	5,7	2	6	9	2	+
	4,5	2	7	11	2	+
	2,3	2	8	12	3	+
	0,1	1	5	8	2	_ +
-	2,-1	+	2	3	1	+
	ŧ,-3	+	+	1	1	+
	<u>≨-5</u>	+	+	+	+	0

K	otzebue					
	21063	Wil	nd Sp	eed	(kno	ts)
	TEMP (°C)	0-	4-		22-	≥34
	≥ 14	+	10	21	- 5 3	0
	12,13	+	1	$\dot{}$	+	Ö
	10,11	+	4	3	+	0
	8,9	1	5	5	+	0
	6,7	1	11	11	_ 1	_ +
	4,5	1	8	7	1	+
	2,3	1	8	7	1	+
	0,1	1	5	5	1	+
	-2,-1	+	2	2	+	+
	-4,-3	+	1	1	+	0
	≦-5	+	1	+	+	0

C	Cape Lisburne										
	19462 Wind Speed (knots)										
	TEMP	0 -	4 -	11-	22-	1					
	(°C)		10	21	33	≥34					
	≥12	+	+	+	+	0					
	10,11	+	1	1	+	+					
	8,9	1	2	1	+	0					
	6,7	3	5	_ 3	_ 1	+					
	4,5	3	6	5	1	+					
,	2,3	4	10	9	1	+					
	0,1	3	9	11	_ 2	+					
	-2,-1	1	3	4	1	+					
	-4,-3	+	1	2	+	+					
	-6,-5	+	+	1	+	+					
	≤-7	0	+	+	+	0					

Point Lay					
3220	wi	nd Sp	eed	(kno	ts)
TEMP (<u>°</u> C)	0 - 3	10	11-21	22 - 3 3	≥ 34
≥ 10	1	2	1	+	Û,
8,9	1	2	+	С	0
6,7	1	4	1	+	0
4,5	2	5	2	+	0
2,3	3	10	5	1	0
0,1	3	12	8	·	0
-2,-1	2	9	5	1	•
-4,-3	1	4	3	1	
-6,-5	+	2	,	+	0
-8,-7	+	1	•	+	C
≨-9	+	1	,	+	٥.

Bellow					
18708	Win	nd Sp	eed	(kno	ts)
TEMP	0-	4-	11-	22-	
(°C)	3	10	21	33	≥34
≥8	+	1	+	0	0
6,7	+	1	1	+	0
4,5	+	2	1	+	0
2,3	+	5	5	+	+
0,1	1	13	11	1	+
-2,-1	1	11	12	1	+
-4,-3	1	8	8	1	+
-6,-5	+	3	4	+	0
-8,-7	+	3	2	+	0
-10,-9	+	1	1	0	0
≦-11	+	1	1	+	0

onely									
325	4 Wi	nd Sp	eed	(kno	ts)				
TEMP (°C)	0-	10	11-	22 - 33	≥34				
(€/	+	1	+	0	0				
6,7	+	1	+	+	ō				
4,5	1	2	1	+	0				
2,3	2	7	3	+	0				
0,1	4	15	8	1	+				
-2,-1	3	13	9	1	+				
-4,-3	2	8	5	1	+				
-6,-5	1	3	3	+	+				
-8,-7	+	1_	1	+	+				
-10,-9	T +	1	+	+	0				
≦-11	+	+	+	+	0				

Dliktok											
324	3240 Wind Speed (knots)										
TEMP		-1	4 -		22-						
(°C)		3	10	21	33	≥34					
≥8	1 4	٠Į	1	+	0	0					
6,7		٠	2	+	0	0					
4,5		1	3	1	+	_ 0					
2,3		2	7	_ 3	+	0					
0.1		ıŢ	14	10	_ 2	_ +					
-2,-	1] 3	3]	9	9	_ 2	+					
-4,-	3 2	2]	6	5	1	+					
-6,-	5	Ī	2	2	+	0					
-8,-	7 -	F	1	1	+	0					
-109	9 -	- [+	1	+	0					
≦-11	-	FĪ	+	+	0	0					

Clinton Point

Barter					
1774	0 w i	nd Sp	peed	(kno	ts:
TEMP	10-	4 -	11-	22-	
(°C)	3	10	_21	33	≥ 34
≥ 10	+	+	+	_0	_0_
8,9	+	+	_ +	0	<u></u> ၂၀
6,7	+	2	1	+	0
4,5	+	3	1	+	+
2,3	1	7	5	1	+
0,1	2	14	14	2	+
-2,~1	2	11	9	2	+
-4 -	3 1	7	4	1	+
-6,-5	+	2	1	+	+
-8,-7	' +	1	1	_+	Ō.
≦-9	+	1	+	+	+

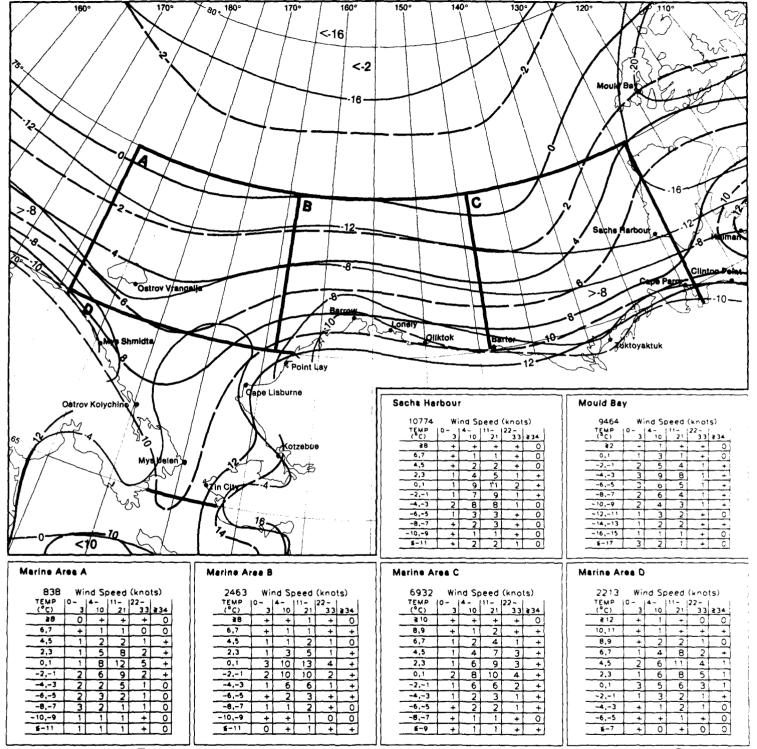
Tuktoyaktı	ľuktoy a ktuk									
3104	- · · · · · · · · · · · · · · · · · · ·									
TEMP	0 -	4 -	11-	22-	1					
(°C)	3	10	21	33	≥34					
≥12	+	1	1	+	0					
10,11	+	2	1	0	+					
8,9	1	3	1	+	0					
6.7		6	3	+	Ö					
4,5	1	7	4	+	0					
2,3	2	12	8	1	+					
0,1	1	13	10	1	0					
-2,-1	1	5	4	+	0					
-4,-3	+	3	2	+	+					
-6,-5	+	1	1	+	0					
≨-7	+	1	1	0	0					

18968	Wi	nd Sp	eed	(kno	ts)
TEMP	0-	4-	11-	22-	ľ
(°C)	3	10	21	33	≥34
≥ 10	+	+	+	0	0
8,9	+	+	+	+	0
6,7	1	2	2	+	0
4,5	1	3	4	+	+
2,3	2	8	9	1	+
0,1	_3	13	15	2	+
-2,-1	2	6	7	1	+
-4,-3	1	4	4	1	+
-6,-5	+	1	2	+	0
-8,-7	+	+	1	+	0
<u>≨</u> -9	+	+	+	+	0

4356 Wind Speed (knots)									
TEMP (°C)	0-	4-	11- 21	22- 33	≥34				
≥ 10	+	1	1	+	0				
8,9	+	1	+	+	0				
6,7	+	4	2	+	0				
4,5	1	7	4	+	+				
2,3	2	13	9	1	+				
0,1	2	14	10	. 1	+				
-2,-1	1	5	5	1	+				
-4,-3	1	3	3	1	+				
-6,-5	+	1	1	1	+				
-8,-7	+	+	+	0	_ 0				
<u>≨</u> -9	+	+	+	0	0				

3114	Wi	Wind Speed (knots)							
	10 -	0- 14- 111- 122-							
(°C)	3	10	21	_ 3 3	≥34				
≥ 10	1	1	_ 1	+	_0				
8,9	+	1	1	+	_+				
6,7	2	2		+	+				
4,5	2	4	2	+	0				
2,3	5	-8	4		+				
0,1	5	12	. 8	1	+				
-2,-1	3	8	7	1	0				
-4,-3	2	4	4	1	+				
-6,-5	+	1	2	1	0				
-8,-7	+	1	1	1	0				
≨ -9	0	+	+	+	+				

September



September

Ostrov Vrangelja

_	out transacta										
	4248	Win	Wind Speed (knots)								
	TEMP	0 -	4-	11-	22-	1 1					
	(°C)	3	10	21	_ 33	≩34					
	≩0	1	2	2	+	0					
	-2,-1	1	3	3	+	+					
	-4,-3	1	5	5	1	+					
	-6,-5	1	4	5	1	+					
	-8,-7	2	5	7	2	1					
	-10,-9	1	3	4		1					
	-12,-11	2	4	3	1	+					
	-14,-13	2	3	4	1	+					
	-16,-15	1	2	3	1	+					
	-18,-17	1	2	2	_ 1	+					
	≨-19	2	1	1	1	+					

Mys Shmidta

•										
4565	4565 Wind Speed (knots)									
TEMP	0-	4-	11-	22-						
(°C)	3	10	21	33	≥34					
≥0	+	1	1	+	0					
-2,-1	1	4	_3	+	+					
-4,-3	_1	4	5	2	+					
-6,-5	[1	3	6	2	_ 1					
-87	2	5	6	2	- 1					
-109	1	3	3	1	+					
-12,-11	2	3	3	1	1					
-14,-13	2	3	3	2	+					
-16,-15	1	2	2	1	+					
-18,-17	1	2	2	+	+					
≦-19	_3	2	1	-	+					

Ostrov Kolychino

2709 Wind Speed (knots)										
TEMP	0 -	4 -	11-	22-	1					
(°C)	3	10	21	33	≩ 34					
≩4	+	O	+	_ +	0					
2,3	+	1		+	+					
0,1	+	2	3	1	+					
-2,-1	1	5	8	4	1					
-4,-3	1	5	7	5	1					
-6,-5	1	3	7	4	2					
-8,-7	1	6	6	2	1					
-10,-9	+	. 2	2	1	+					
-12,-11	+	2	2	1	+					
-14,-13	+	1	2	+	+					
≦ 15	2	3	2	1	+					

Mys Uelen

4532	Wie	nd Sp	eed	(kno	ts)
TEMP	0-	4 -	11-	22 -	i
(°C)	3	10	21	3 3	≥34
≩6	0	+	+	+	+
4,5	+	+	_ 1		+
2,3	1	2	- 5	2	1
0,1	1	3	6	2	+
~2,~1	1	6	'0	7	2
-4,-3	1	3	7	6	,
~6.~5	1	3	4	4	1
~67	1	3	3	2	,
-10,-9	+	1	1	1	+
-12,-11	+	1	1	+	+
≨ -!3	7	2	. !	+	C

Tin City

19607	Win	nd Sp	eed	(kno	ts)
TEMP (°C)	0-3	10	11- 21	22-	≥ 34
₹6	+	+	+	+	+
4,5	+	1	1	1	+
2,3	1	2	4	1	+
0,1	1	5	7	3	+
-2,-1	2	5	8	2	+
-43	2	6	9	4	+
-6,-5	1	4	5	2	+
-87	1	3	4	_ 2	+
-10,-9	+	2	3	1	+
-12,-11	+	;	1	+	+
≦-13	+	1	1	+	+

Kotzebue

21788	Wis	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22 -	ļ
(°C)	3	10	21	33	≥ 34
≩4	_+	_1	2	+	0
2,3	+	2	4	1	0
0,1	1	6	8	1	+
-2,-1	1	5	5	1	0
-4,-3	1	7	6	2	+
-6,-5	1	5	4		+
-8,-7	1	6	4	1	+
-109	+	5	3	1	+
-12,-11	+	3	2	+	+
-14,-13	+	3	1	+	0
≦-15	+	5	1	+	0

Cape Lisburne

20259 Wind Speed (knots)									
(°C)	0 - 3	4 - 10	11-	22 - 3 3	34 ا				
≥4	+	+	1	1	+				
2,3	1	1	2	1	+				
0,1	_ 2	_ 3	3	1	+				
-2,-1	2	4	5	2	+				
-4,-3	3	6	8	3	+				
-6,-5	2	5	5	2	+				
-8,-7	1	4	5	1	+				
-10,-9	1	4	3	1	+				
-12,-11	+	2	2	_1	+				
-14,-13	+	2	3	+	+				
≨ ~15	+	. 2	3	+	+				

Point Lay

2966	Wil	nd Sp	eed	(kne	ts.
TEMP (°C)	0 -	1-,		22-	<u>2</u> 34
	1	4	3	3.3	= -3-7
-2,-1		4	. 3		
-4,-3	2	5	. 3		-
-65	2	4	. 3		
-8,-7	3	-6	3		
-10,-9	1	4	3	+	
-1211	1	4	2		+
-14,-13		4	3		
- 16,-15	1	3	. 2	•	
-18,-17		3	_2		- Ĉ
≨-19	1	6	4		

Berrow

19089	Wii	Wind Speed (knots)							
TEMP	0-	4	11~	22-					
(°C)	3	10	21	33	≥ 34				
≥0	+	1	3	+	+				
-2,-1	+	2	4	1	+				
-4,-3	1	4	6	1	+				
-6,-5	1	4	4	1	0				
-87	1	7	6	1	+				
-10,-9	+	6	5	- 1	+				
-12,-11	+	3	3	+	0				
-14,-13	+	4	4	+	0				
-1615	+	3	3	+	0				
-18,-17	+	3	3	+	0				
ş-19	1	7	3	+	0				

Lonely

3340	Wir	nd Sp	oeed	(kno	te)
TEMP	0-	4	11-	22 -	
رټ°)	3	10	21	33	≥34
₹0	+	- 2	1	+	0
-2,-1	+	_ 3	2	1	+
-4,-3	1	5	4	2	+
-6,~5	1	5	4	2	+
-8,-7	2	6	4	1	0
-10,-9	_2	5	4	1	0
-12,-11	1	4	2	+	+
-14,-13	1	4	2	1	O
-16,~15	1	3	2	+	0
-18,-17	1	4	2	+	+
≨-19	3	8	2	+	0

Oliktok

3320	wi	nd St	peed	(kno	ts)
TEMP	0-	4-	11-	22~	1
(°C)	_ 3	10	_21	33	≩34
≥0	+	2	1	+	+
-2,-1	+	2	3	1	+
4,-3	2	4	4	2	1_
-6,-5	1	_ 5	5	1	+
-87	2	6	4	1	+
-10,-9	2	_ 5	3	1	0
-12,-11	1	4	2	+	+
-14,-13	1	4	2	1	+
-16,-15	1	2	1	+	0
-18,-17	1	4	2	+	0
≦19	3	8	2:	+	0

Barter

18073	w:	nd Sp	eed	(kno	!s"
TEMP	0 -	4 -	11-	22 -	
(°C)	3	. 10	L 2°	_ 3 3	≥ 3 :
≥0	+	2		+	•
-2,-1		3_	3_		
-4,-3	1	5	5	- 2	
-6,-5	,	4	- 5	3	
-8,-7		6	6	_ 3	+
-10,-9	1	- 6	4	_ 2	Ŀŧ
-12,-11	1	4	2	_ 1	+
-14,-13	1	4	3	1	+
-16,-15	+	2	2	+	+
-18,-17	+	3	1	-	+
≦-19	1	5	2	+	+

Tuktoyaktuk

3217	Wii	nd Sp	eed	(kno	ts)
TEMP	0 -	4 -	11-	22-	
(°C)	3	10	21	33	≥34
≩2	+	1	+	0	0
0,1	+	3	3	+	0
-2,-1	+	5	4	+	+
-4,-3	1	8	7	1	0
-6,-5	1	6	4	+	0
-8,-7	2	7	5	+	0
-10,-9	1	5	4	+	0
-12,-11	1	3	2	+	+
-14,-13	1	3	3	+	0
-16,-15	1	3	2	+	0
≨ -17	2	6	2	+	0

Cape Parry

19740 Wind Speed (knots)								
TEMP	0	4-	11-	22-	l i			
(°C)	3	10	21	33	≧34			
≧ 2	+	+	+	+	0			
0,1	1	2	3	+	0			
-2,-1	1	4	6	1	0			
-4,-3	2	6	10	2	+			
-6,-5	1	5	6	2	+			
-8,-7	1_	5	7	1	+			
-10,-9	1	4	5	1	+			
-12,-11	1	2	2	+	+			
-14,-13	1	_2	2	1_	0			
-16,-15	_ 1	_1	1	+	+			
≨-17	2	2	2	+	+			

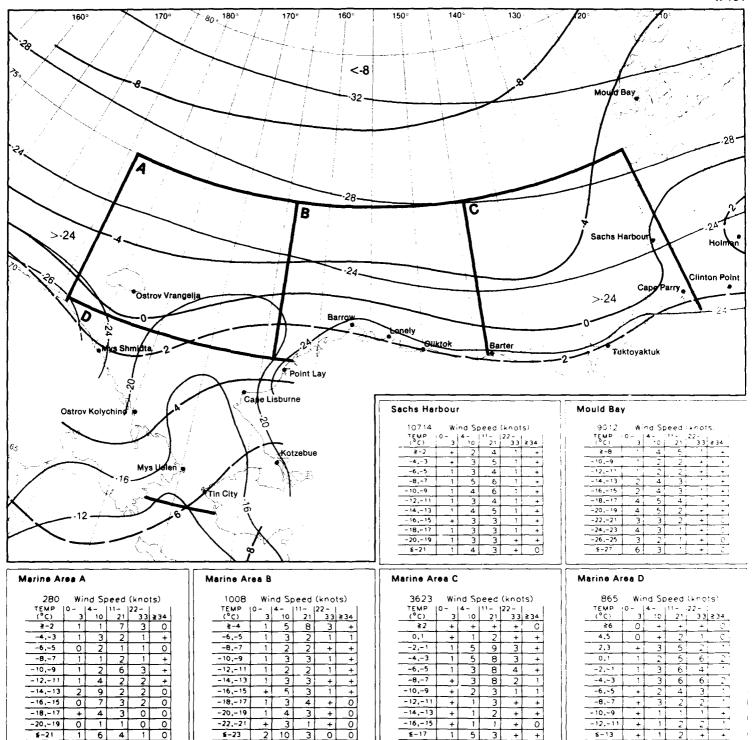
Clinton Point

4475	Wii	nd Sp	eed	(kno	ts)
TEMP (°C)	0-	4 -	11-	22-	≥34
₹2	3		21		0
	+	+	+	_ 0	
0,1	+	2	_2	+	
-2,-1	1	5	3	1	+
-4,-3	1	7	6	2	+
-6,-5	1	_ 5	6	_2	+
-B, -7	1	٥.	7	_3	+
-10,-9	1	6	4	_1	+
-12,-11	+	3	2	+	+
-14,-13	+	3	2	+	+
- '6,-15	+	3	1	+	0
≦-17	1	4	2	+	0

Holman

3219				(kno	
	0 -	4 -		22	
(°C)_	3	10	21	33	≥34
≥ 2	1	:		+	Ç
١,٥	1	2	•	+	+
-21	2	3	3	1	+
-4,-3	3	6	5	,	_+
-6,-5	2	6	4	2	+
-87	2	8	6	2	+
~10,-9	1	6	5	1	+
~12,~11	1	3	2	1	+
~14,-13	1	2	2	1	+
-16,-15	+	1	2	+	+
≦-17	1	2	2	1	+

October



October

Oet	Ostrov Vrangelja									
	4118	Win	nd Sp	eed	(kno	ts)				
		10-	4-	11-	22-	1 1				
	(°C)	3	10	21	33	≩34				
	≩-6	1	2	4	2	+				
	-8,-7	1	2	5	1	+				
	-10,-9	+	1	2	1	+				
	-12,-11	1	2	3	1	1				
_	-1413	1	3	4	2	+				
_	-16,-15	1	3	4	2	1				
_	-18,-17	2	3	5	3	1				
	-20 -10	1	3	~	~					

M	Ays Shmidts								
	4342	wi	nd Sp	eed	(kno	ts)			
	TEMP	0 -	4-		22 -				
	(°C)	3	10	21	33	≥34			
	≩-8	1_	4	8	3	1_			
	-10,-9	+	1	2	+	+			
	-12,-11	1	2	2	1	+			
	-14,-13	1	2	3	2	1			
	-16,-15	1	2	3	2	1			
	-18,-17	2	3	4	2	1			
	-20,-19	1	2	3	2	+.			
	-22,-21	1	3	3	2	1			
	-24,-23	1	2	3	2	+			
	-26,-25	2	2	3	1	+			
	≦-27	4	4	3	1	+			

strov Kolychino						
2577	Win	nd Sp	eed	(kno	ts)	
TEMP	0 -	4 -	111-	j22 - I	l	
(°C)	3	10	21	3 3	≥34	
≩~4	+	2	5	2	1	
-6,-5	+	1	4	2	1	
-8,-7	+	2	6	2	1	
-10,-9	+	1	3	1	+	
-12,-11	1	2	4	1	+	
-14,-13	+	2	4	2	1	
-16,-15	1	3	4	1	+	
-18,-17	1	4	4	1	+	
-20,-19	+	2	2	1	+	
-22,-21	1	3	2	1	0	
≨-23	3	7	4	1	0	

iys Uelen					
4328	Wi	nd Sp	eed	(uno	ts,
TEMP	0 -	4 -	11-	22~	
(°Ç)	j. 3	10	Ĺ 2.	33	≥ 34
≹O	+	+	•	2	
-2,-1	+	•	3	2	
-4,-3	1	2	4	3	•
-6,-5	1	3	4	4	•
-8,-7	1	3	5	4	•
-10,-9	+	_2	3_	2	+
-12,-11	1	2	3	2	+
-14,-13	1	3	3	2	-
-16,-15	+	3	3	_ ,	+
-18,-17	1	2	3	•	+
<u>≤</u> -19	3	4	4	•	+

Tin City					
19014	Wi	nd Sp	eed	(kno	ts)
TEMP	0-	14-	t t =	22-	[
(°c)	3	10	21	33	≩34
≥0	+	1	2	2	+
-2,-1	1	2	2	- 1	+
-4,-3	1	2	4	2	+
-6,-5	1	2	4	2	+
-8,-7	1	2	6	3	+
-10,-9	1	_ 3	6	_ 3	1
-12,-11	1	2	4	2	+
-14,-13	+	2	6	3	+
-16,-15	+	1	4	2	+
-18,-17	+	1	3	. 1	+
≦-19	+	1	4	2	+

K	tzebue					
	21084	Wie	nd Sp	eed	(kno	ts)
	TEMP	10-	4	111-	122	1 1
	(°C)	3	10	21	33	≥34
	≧-4	1	2	5	3	+
	-6,-5	1	2	3	1	+
	-8,-7	1	3	5	2	+
	-10,-9	1	4	4	_ 2	+
	-12,-11	1	4	3	1	+
	-14,-13	1	5	4	2	+
	-16,-15	1	4	3	1	+
	-18,-17	1	5	2	1	+
	-20,-19	1	4	2	1	+
	-22,-21	+	2	1	+	+
	≦-23	3	8	2	+	+

Ce	Cape Lisburne							
	19420	Win	nd Sp	eed	(kno	ts)		
	TEMP	0-	14-		122			
_	(°C)	3	10	21	33	≥ 34		
	≧-4	2	3	5	4	1		
	-6,-5	1	2	2	1	+		
-	-8,-7	1	3	3	1	+		
-	-:0,-9	1	4	3	1	+		
-	-12,-11	1	3	3	1	+		
	-14,-13	1	5	4	1	+		
-	-16,-15	1	5	4	1	+		
_	-18,-17	1	5	4	1	+		
-	-20,-19	1	4	5	1	+		
-	-22,-21	1	2	2	1	0		
_	≦-23	1	3	2	+	+		
_								

3103	W	nd Sp	peed	'kno	is.
TEMP	0 -	4 -	·:-	.22~	
(°C)	3	10	2.	3.3	.≩34
≧~8	1	6	- 5	. 2	_
-10,-9	1	2	2	+	
-12,-11	1	3	•	•	-
-14,-13	1	4	- 2	·	
-16,-15	•	3	3	•	-
-18,-17	1	4	4	-	-
-20,-19	1	3	3		
-2221	1	3	. 3	2	
-24,-23	1	3	3		-
-2625	1	2	. 2	•	
≦-27	2	7	5		

B	woma					
	18466	Win	nd Sp	eed	(kno	ts)
	TEMP	0-	4-	11-	22-	í
	(°C)	3	10	21	33	≥ 34
	≩-10	1	5	8	2	+
	-12,-11	+	1	2	1	0
	-14,-13	+	3	4	,	+
	-16,-15	+	3	4	1	+
	-18,-17	1	5	5	1	+
	-20,-19	+	5	4	1	0
	-22,-21	+	5	4	1	0
	-24,-23	+	6	5	+	0
	-26,-25	+	4	2	+	0
	-28,-27	1	4	1	0	0
	<u>≤</u> -29	1	5	1	0	0

nery					
3268	Wi	nd Sp	seed	(kno	ts)
TEMP	10	4 -	11-	122-	ļ
(°C)	3	10	21	33	≩34
≧~10	1	5	5	2	+
-12,-11	+	2	1	+	+
-14,-13	1	4	3	1	+
-16,-15	1	3	2	1	+
-18,-17	2	3	4	1	+
-20,-19	1	4	4	1	+
-22,-21	1	4	3	1	+
-24,-23	1	5	4	1	+
-26,-25	2	4	3	+	0
-28,-27	1	4	1	+	0
≦-29	3	6	1	+	0

0	liktok					
	3199	Wi	nd Sp	seed	(kno	ts)
	TEMP (°C)	0 -	4 - 10	111-	22 - 33	≥34
-	≥-10	1	4	5	2	+
	-12,-11	1	2	2	1	+
	- '4,-13	1	3	4	•	+
•	-16,-15	1	3	3	1	+
	-18,-17	1	3	4	1	+
	-20,-19	1	3	3_	1	+
	-22,-21	1	4	3	1	+
	-24,-23	2	4	3	2	0
	-26,25	1	4	2	+	0
	-28,-27	1	4	2	+	0
	≦~29	3	7	2	+	0

Clinton Point

В	srter					
	17447	w:	nd Sp	eed	(****	٠,
	TEMP (°C)	C -	4 - C	21	22~	≥ 34
-	≩~B	,	3	4		
	-10,-9	+	2	3	2	-
	-12,-11	+	2	2	•	
•	-14,-13		3	4		
	-16,-15	•	3	3		+
	-18,-17	1	4	3		-
	-20,-19	1	4	4	2	-
	-22,-21	1	3	2	-	+
•	-24,-23	1	5	4		+
	-26,-25	1	3	2	+	+
-	≦-27	2	10	3		+
-						

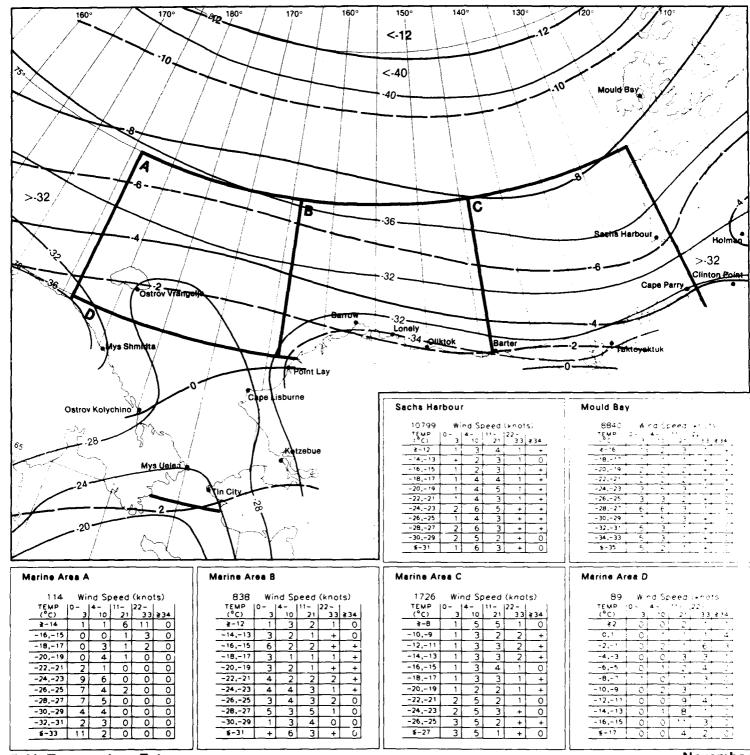
Tuktoyaktı	uk				
3117	Wi	nd Sp	eed	(kno	ts)
TEMP	10-	4 -	[11-	22-	
(°C)	3	10	21	33	≩34
≧-10	1	_5	_ 5	1	+
-12,-11	+	2	2	+	0
-14,-13	1	4	3	+	0
-16,-15	1	5	2	1	0
-18,-17	1	5	4	1	+
-20,-19	1	5	3	+	0
-2221	1	4	3	+	0
-24,-23	2	6	2	+	0
-26,-25	2	4	2	0	0
-28,-27	2	4	1	0	0
≦-29	4	8	1	0	0

С	Cape Parry								
	19173	Wi	nd Sp	eed	(kno	ts)			
	TEMP	0-	4 -		22 -	1			
	(°C)	3	10	21	33	≥34			
	≥ -8	1	2	3	1	+			
	-10,-9	1	2	3	1	+			
	-12,-11	1	2	2	1	+			
	-14,-13	1	4	5	1	+			
	-16,-15	1	3	4	1	+			
	-18,-17	1	4	4	1	+			
	-20,-19	2	4	4	1	0			
	-22,-21	2	3	3	1	+			
	-24,-23	2	4	3	+	+			
	-26,-25	2	3	2	+	0			
	≨-27	4	5	3	+	0			

4337 Wind Speed (knots)								
TEMP	0-	4 -	11-	22-	, ,			
(°C)	3	10	21	33	≥34			
<u>₹</u> -8	1	3	4	1	+			
-10,-9		4	4	1	+			
-12,-11	1	3	4	1	+			
-14,-13	1	4	5	1	+			
-16,-15	1	3	4	1	0			
-18,-17	1	4	4	1	+			
-20,-19	1	4	3	1	+			
-22,-21	1	_3	2	+	+			
-24,-23	1	4	3	1	+			
-26,-25	+	3	2	1	+			
≨-27	3	11	2	+	0			

н	olman					
	3108	Wil	nd Sr	eed	irno	:s
	TEMP	0 -	4-	11-	.22 -	
	(°C)	3	10	2.	3.3	234
	<u>₹</u> ~8	2	3	2		-
	-10,-9	1	3	2		+
	-1211	•	3	2	•	-
	-14,-13	2	5	3	1	+
	-16,-15	1	4	3	•	•
	-18,-17	2	4	3	2	+
	-20,-19	3	4	3	2	+
	-22,-21	2	3	2	1	+
	-24,-23	2	5	3	·	+
	-26,-25	1	3	2	1	+
	≦-27	2	4	2	+	+

November



November

II-184

4 183 Wind Speed (knots) TEMP 0 - 3 4 - 1 11 - 22 - 3 3 2 34 e-12 1 3 2 1 0 -14,-13 1 1 1 + + + -16,-15 1 2 2 1 + + -18,-17 2 3 3 4 1 + + -20,-19 2 2 2 1 + + -20,-19 3 3 3 4 2 1 -24,-23 3 5 4 2 1 -26,-25 4 5 3 2 1 -28,-27 5 5 3 1 + + 30,-29 2 2 1 + + + 5-31 4 1 1 + 0	Ostrov Vra	ngel				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4183	Wi	nd Sp	eed	(kno	ts)
e-12 1 3 2 1 0 -14,-13 1 1 1 + + -16,-15 1 2 2 1 + -18,-17 2 3 4 1 + -20,-19 2 2 2 1 + -22,-21 3 3 4 2 1 -24,-23 3 5 4 2 1 -26,-25 4 5 3 2 1 -28,-27 5 5 3 1 + 30,-29 2 2 1 + +	TEMP (°C)		10			≥34
-16,-15 1 2 2 1 + -18,-17 2 3 4 1 + -20,-19 2 2 2 1 + -22,-21 3 3 4 2 1 -24,-23 3 5 4 2 1 -26,-25 4 5 3 2 1 -28,-27 5 5 3 1 + -30,-29 2 2 1 + +		1			1	
-18,-17	-14,-13	1	1	_ 1	+	+
-20,-19	-16,-15	1	2	2	1	+
-20,-19	-18,-17	2	3	4	1	+
-24,-23 3 5 4 2 1 -26,-25 4 5 3 2 1 -28,-27 5 5 3 1 + 30,-29 2 2 1 + +	-20,-19	2	2	2	1	+
-2625	-22,-21	3	3	4	2	1
-28,-27 5 5 3 1 + -30,-29 2 2 1 + +	-24,-23	3	5	4	2	1
-30,-29 2 2 1 + +	-26,-25	4	5	3	2	,
	-28,-27	5	5	3		+
5-31 4 1 1 + 0	-30,-29	2	2	1	+	+
	§ -31	4	1	1	+	0

М	ys Shmid	ita				
	4427	Win	nd Sp	eed	(kno	ts)
	TEMP	0-	4 -	11-	22- 1	1
	(°C)	3	10	21	3.3	≥ 34
	≩ 14	1	3	2	_ 1_	+
	-16,-15	1	2	1	+	+
	-18,-17	_2	3	3	1	+
	-20,-19		2	2	1	+
	-22,-21	2	. 2	3	1	+
•	-24,-23	.2	3	4	- 1	+
•	-26,-25	. 2	3	4	2	1
	-28,-27	3	5	5	1	+
	-3029	1	3	3	1	+
	-32,-31	2	2	3	1	+
	≨ −33	6	3	2	1	+

35.40					
2548	Will	ua 2t	eed	(kno	ts,
TEMP	10 -	4	11 -	22 -	
_(°C)	3	10	21	3.3	₹34
≥-12	1	3	7	2	+
-14,-13	+	1	2	+	+
-16,-15	+	2	2	+	+
-1B,-17	1	4	5	;	+
-20,-19	1	2	2	+	+
-22,-21	1	3	4	_1	+
-24,-23	1	5	5	1	+
-26,-25	1	4	4	1	0
-28, -27	2	6	4	1	+
-30,-29	2	4	2	+	0
<u>\$</u> -31	3	7	2	+	0

ys Uslan					
4443	Wie	nd Sp	eed	(++0)	2
TEMP	0 -	4 -	• •	22	
(°C)	3	10	21	_3.3	43.
≥-10		4	€	4	
-12,-11		- 2	2		
-14,-13	1	2	2		
-16,-15	,	2	- 2		
-18,-17	2	3	5		
-20,-19	1	2			
- 2221	2	3	4	,-+	
-2423	2	3	4		
-26,-25	2	4	3		
-20,-27	3	3	2		:
≦-29	3	3	7		

Tin City					
19131	Wii	nd Sp	beed	(kno	ts)
	- ۱۵	4 -	11-	22 -	
(°€)	3	٥٠	21	3 3	≥ 34
≥ -8	_ 2	5	7.	3	1
- '09	1	•	. 2		+
-12,-11	1	'	2		+
-14,-13	1	1	-4	2	+
1615		1	. 3	2	+
*8,-17	•	,	5	3	+
-70, 9	1		5	3	+
-22,-21	+		-4	3	+
24, 23	•	1	5	-4	+
26, 25	•	1	3	2	+
5 2 7			. 5	3	+

Kotzebue					
21787	Wit	na Sp	eed	(kno	ts)
	0 ~ [4 -	11-	22 -	()
(°C)	3	_ 10	21	33	≥ 34
₹ −13		4	9	6	,
- 12,=11	+	•		1	+
-14,-13	,	3	2	1	, 1
6, 15	1	3	2	,	+
-1817	1	3	2	1	-
- 20,- 19	•	4	2	1	7
-27, -21	1	4	2	,	+
24, 23		4		1	-
26. 35	,	3	,	+	+
28, 27		-4	1	+	+
s-29	6	1.1		+	+

spe Lisbi	3 f H @				
19244	Win	nd Sp	eed	(kno	ts)
	10-	4 -	11-	22-) ;
(°C)	3	10	21	33	≥34
≥-10	2	4	- 4	4	
-12,-11	1	1		+	+
-14,-13	1	3		_+	+
16,-15	1	3	2	+	+
-181*	1	4	3	1	+
-20,-19	2	5	5	1	+
-2221	2	4	4	1	+
-24,-23	2	5	4	1	+
-26,-25	2	3	2	+	+
· 28, - 27	2	3	2	+	+
\$-29	3	4	,	+	σ,
	19244 TEMP (°C) =-10 -12,-11 -14,-13 -16,-15 -18,-17 -20,-19 -22,-21 -24,-23 -26,-25 -28,-27	TEMP 10 - 3 \$\frac{1}{2}\$ \cdot 0 \cdot 2 \cd	19244 Wind St TEMP 10 - 4 - (°C) 3 10 ≥ -10 2 4 -12,-11 1 1 -14,-13 1 3 -16,-15 1 3 -18,-11 1 4 -20,-19 2 5 -22,-21 2 4 -24,-23 2 5 -24,-23 2 5 -24,-25 2 3 -28,-27 2 3	19244 Wind Speed TEMP 10- 4- 11- (°C) 3 10 21 ≥-10 2 4 4 -12,-11 1 1 1 -14,-13 1 3 2 -18,-11 1 4 3 -20,-19 2 5 5 -22,-21 2 4 4 -24,-23 2 5 4 -26,-25 2 3 2 28,-27 2 3 2	19244 Wind Speed (kno 15EMP 10 - 4 - 11 - 122 - (°C) 3 3 10 21 33 ≥ -10 2 4 4 4 4 4 4 4 4 4

3338	۸ ^	ძენ.	eed .	et 215
	9	4 -		2
C°C)	3.	10		33.2
ş- 6	2	~	ŕ	
1811	-			
-20,-19				: *
-22,-2		7	- - -	
24,-23		4		-
-26, 25				
-28, 7				· . •
-30,-29	··•	-:-		-
-32,-31			: +	. •
34,-33	-;-			
5 - 35				-

1401	4.	150	ee t	403	7		
EMP .	∴ . 3	4	٠٠ , :	ુ. 33	2 7.4		
- <u>*</u> 16					- · ·		
9.	•	3		+-			
20,-19	+	-4	4		+		
72. 21	1	4	4				
24, 23	1	6	5,	· , †	-		
26,-25	1	5.	3				
-202			3	+ /	<u>≥</u> 34 		
30, 29			21	+ ;	୍		
32.3		5	1	0	0		
34,-33		5	•	5]	0		
\$ 35	7	7	-, '	5	-,5		

Lonely					
444_7	٨	nd Sp	eet		ts
(Mb		4	**	22. 	₹34
₹ 16 °					
19 -	•	3			
		-:	3	•	
22, 21		-4			
24, 23		- 4	3		
26, 25	•	3	2	+	
-29, 27		4	3		
30,-29	3	6	_2	+	
32,-31	2	5		+	2
- 34 ,- 33	3	4	•	0	0
ş · 35	5	ġ.		+	

3317 Wind Operations	5
*EMF	
<u> </u>	34
그 6 1 시 시 세 최 회	+
	+
3 3	•
	•
2e, 2	+
30, 29	
7-32, 31, 27, 47, 27, 47	-0
-34, 33 2 4 2	्
£ 35 [5] 1 [3] + [Ī

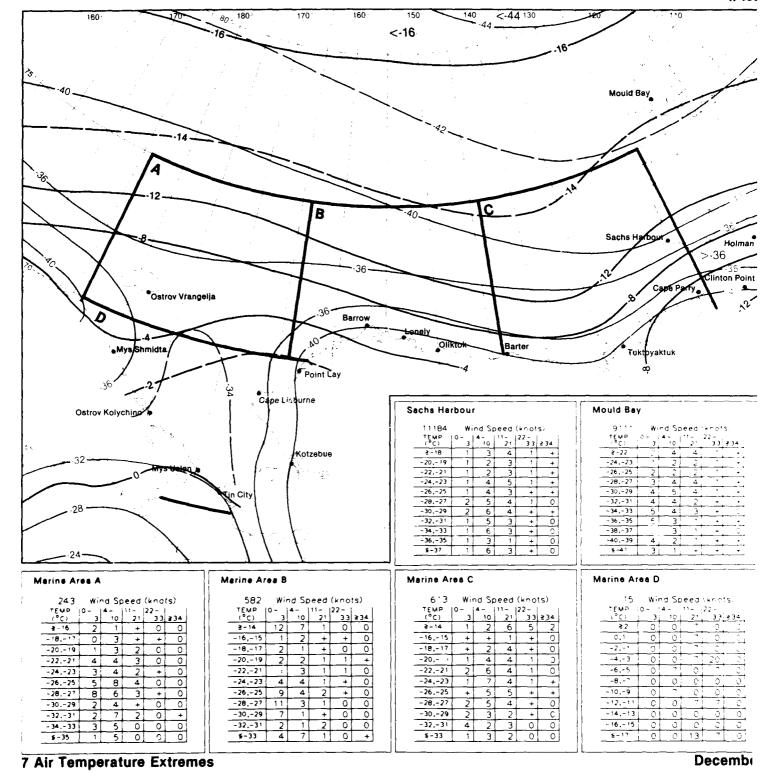
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22.		•		
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7e. 7	•		. •	٠.٠
- 30. 29	٠.	* .	•	
32, 31				
34, 33	— . - -		•	
34, 33		-4		•

ktoyáktuk						
320.	W	nd Sp	eed	.kno	ts)	
TEMP	0	4 -		22-		
261	3	10	21	33	₹ 34	
4 - 16		4	5		+	
8.	1	3	2	+	4	
-22,-19	•	4	3	1	C	
-2221	1	3	3	+	0	
-24,-23		. 5	4	1	0	
-2625	1	4	3	+	C	
28, 27	·	- 5	4	+	-	
- 30,-29	2	7	2	+	0	
32, 3	2	4	•	+	С	
34, 33	2	.4	1	*	C	
\$ - 35	3	6	,	0	Ċ	

19788	♦ ind Speed (*nots)					
	· O	4 -	: • • -	22-		
_ t°C+	<u> </u>	0	2.	3 3	≥34	
≥ 15	L .	. 3	5		+	
-18,-17	1	3	3	,	+	
- 20, - '9	•	3	4	1	+	
-22,-21		3	3	1	+	
~24,-23	2	3	5		+	
-26,-25	1	3	4	•	0	
-28,-27	2	5	6	1	+	
-30,-29	3	5	4		+	
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-20,-19	,	2	3	1	٠
-22,-2	1	3	3	1	+
-24,-23	· ·	4	4	1	+
-26,-25	1	3	4	2	+
-28,-27	1	5	.1	2	+
-30,-29	1	6	3	1	+
-32,-31		5	2	+	0
-34,-33	2	8	+		0
-36,-35	,	4	+	0	0
≦-37	2	5	+	0	

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26,-25					
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5 33		-	. •		



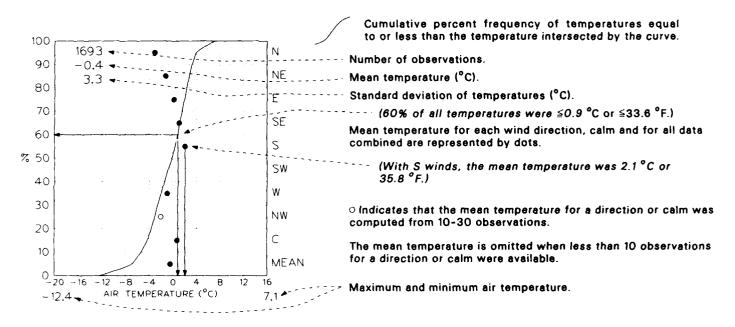
Map 8. Air temperature mean and frequency ≤0°C

BLACK LINE - Mean air temperature (°C).

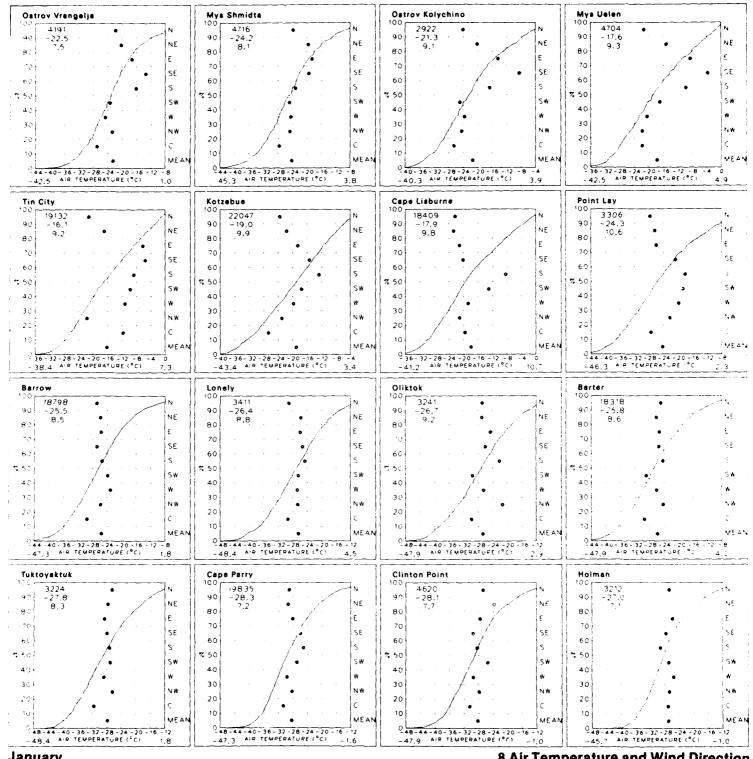
BLUE LINE - Percent frequency of temperature ≤0°C (≤32°F).

Albers Equal-Area Conic Projection

Graphs: Air temperature/wind direction

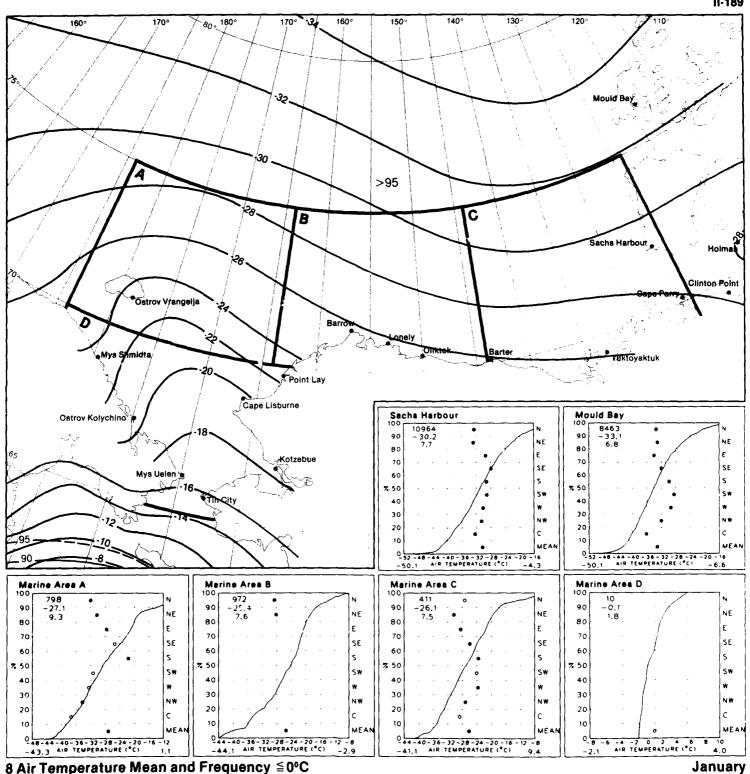


The temperature scale of the graphs varies in both range and class interval. The percent frequency of temperature observations greater than a given value can be obtained by subtracting the cumulative percent frequency of that value from 100%. The number of observations and the standard deviation, plus 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.

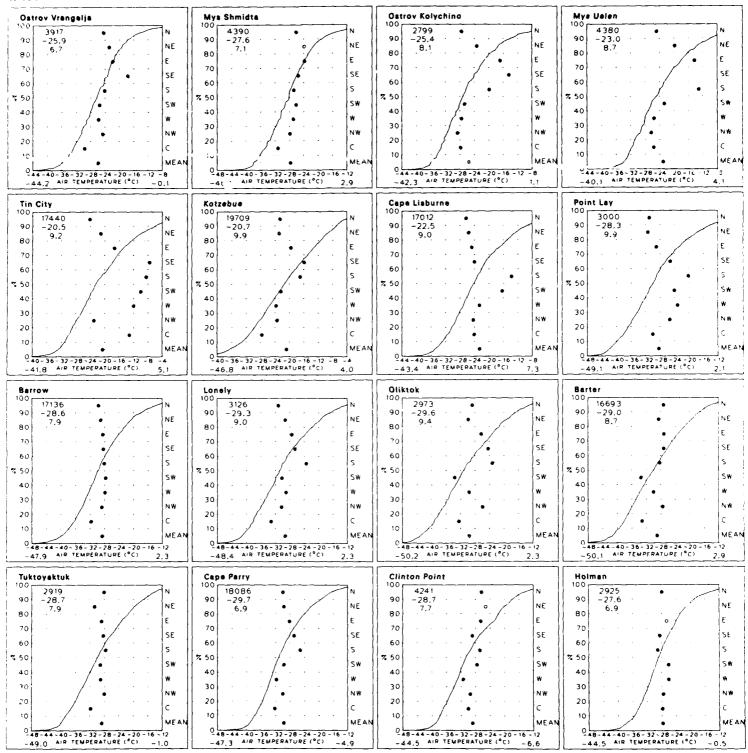


January

8 Air Temperature and Wind Direction

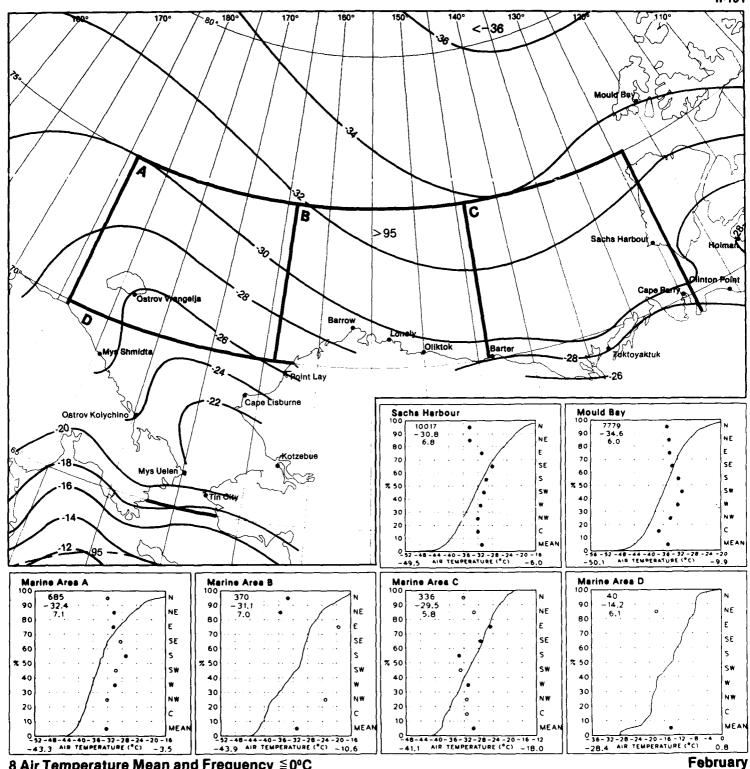


8 Air Temperature Mean and Frequency ≤ 0°C

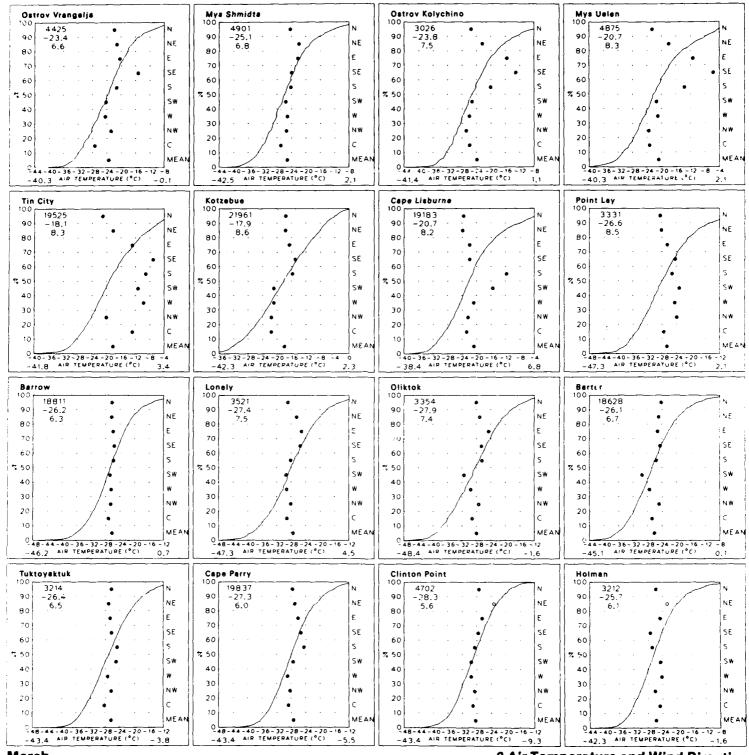


February

8 Air Temperature and Wind Direction



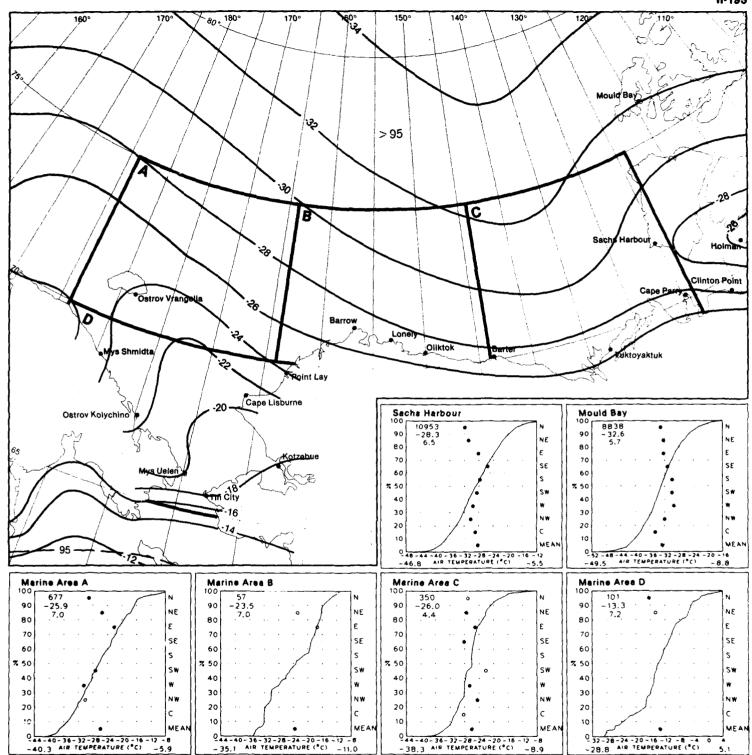
8 Air Temperature Mean and Frequency ≤ 0°C



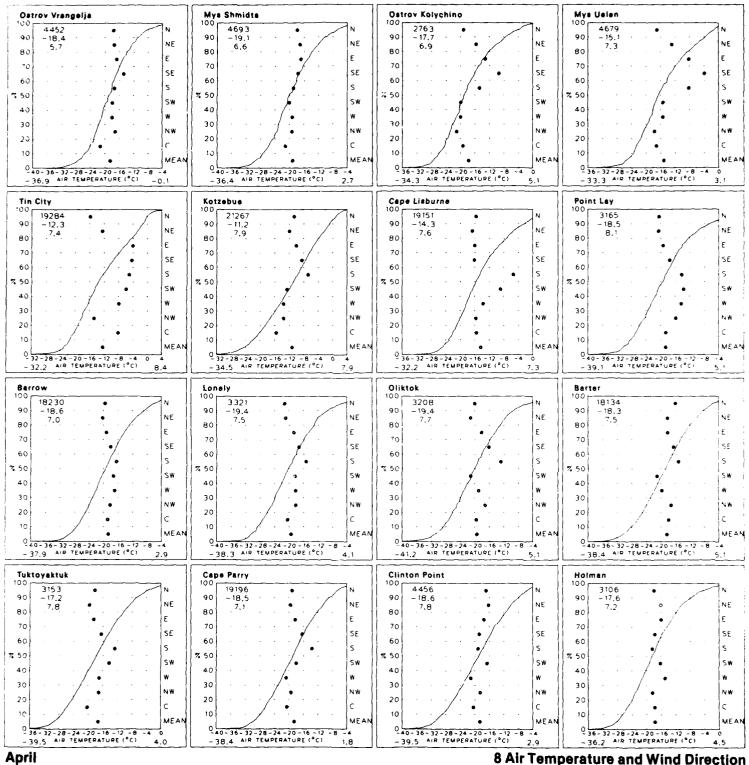
March

8 Air Temperature and Wind Direction

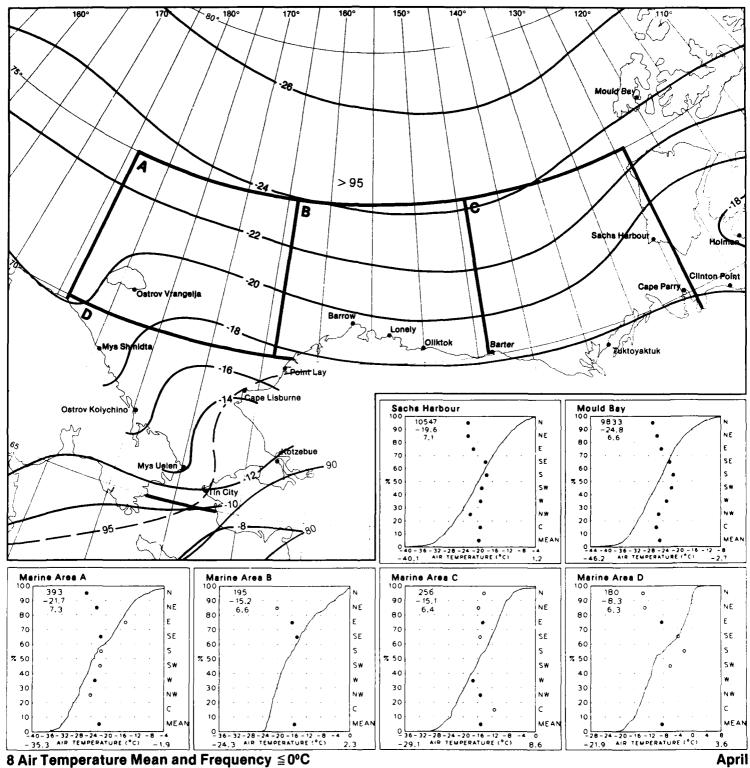
March



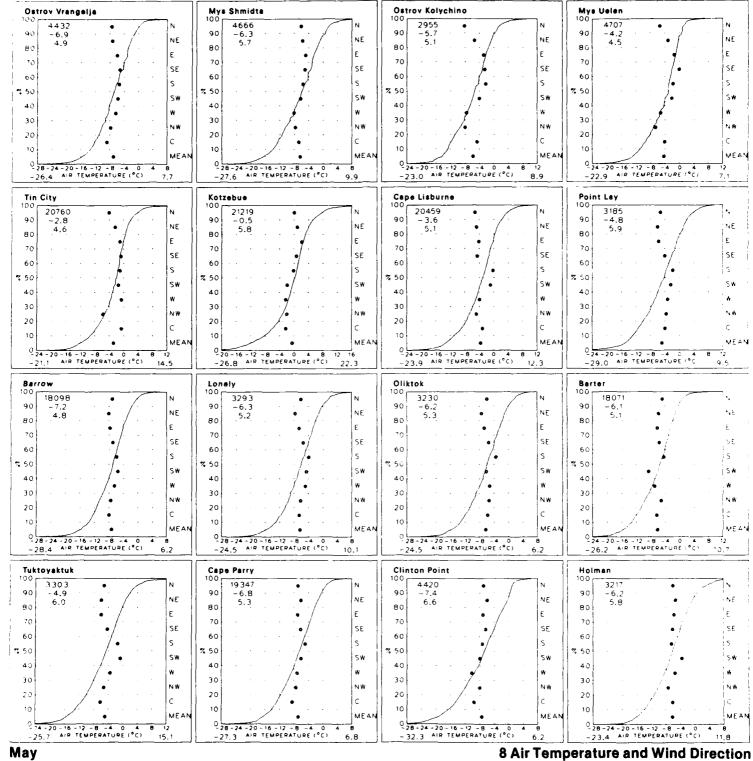
8 Air Temperature Mean and Frequency ≤0°C



8 Air Temperature and Wind Direction

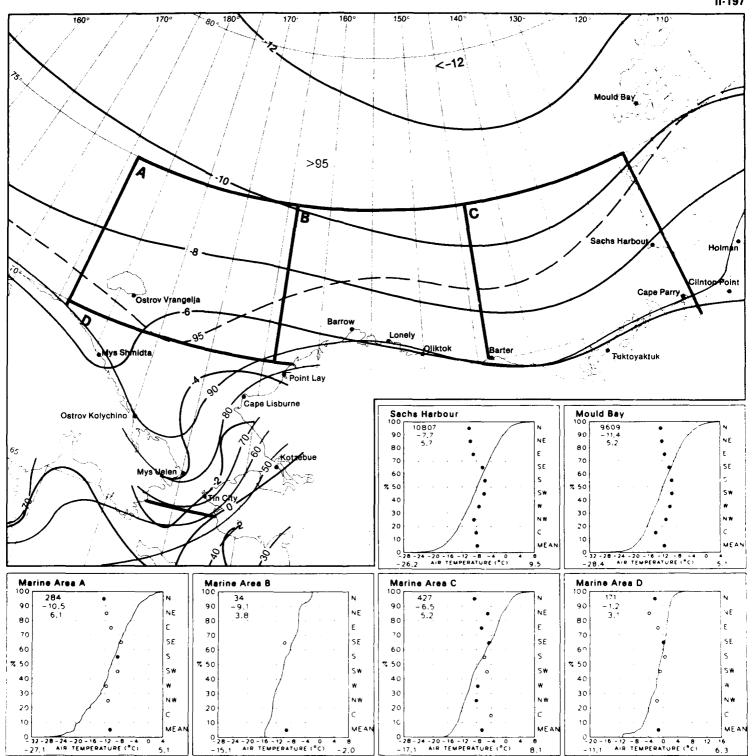


8 Air Temperature Mean and Frequency ≤ 0°C

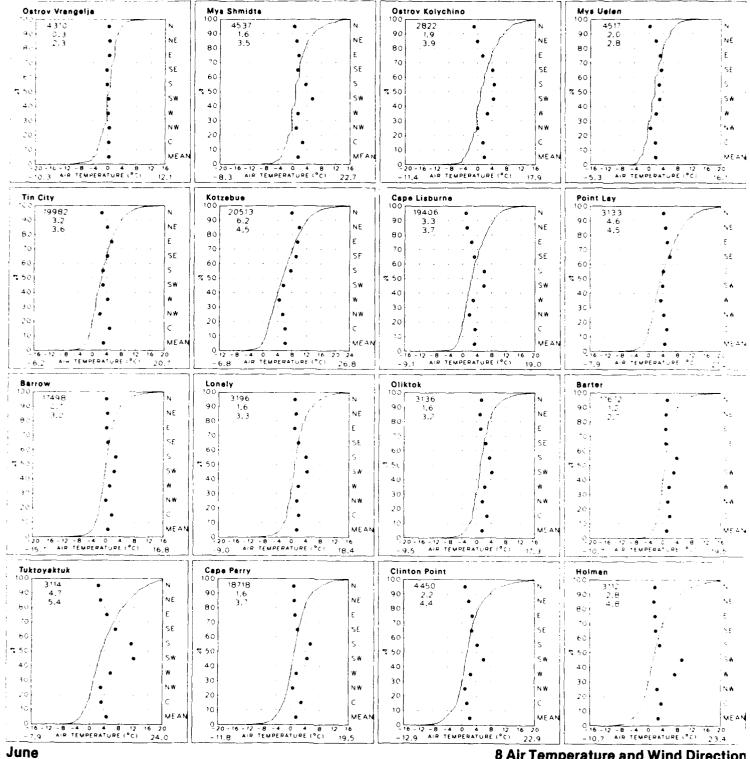


8 Air Temperature and Wind Direction

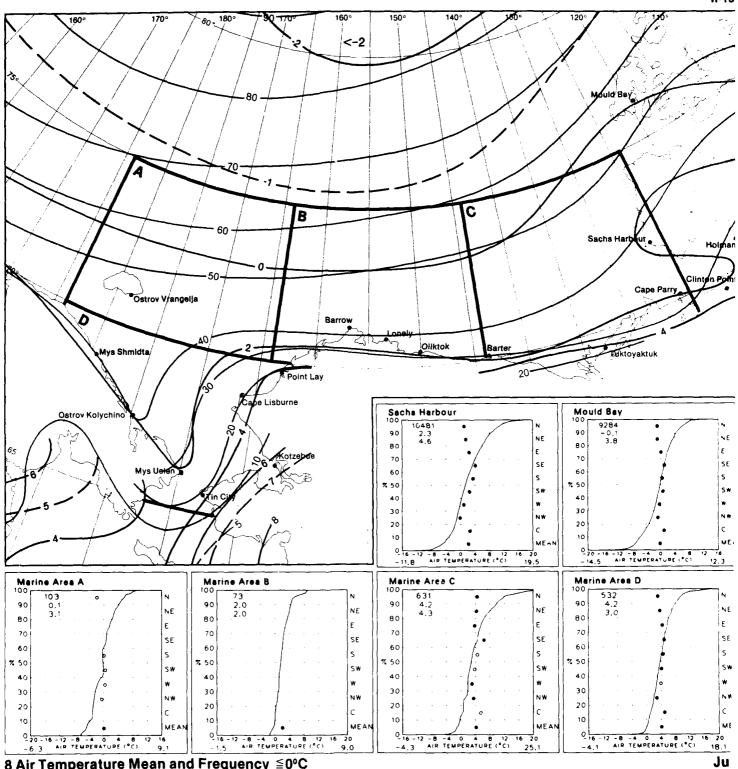
May



8 Air Temperature Mean and Frequency ≤ 0°C

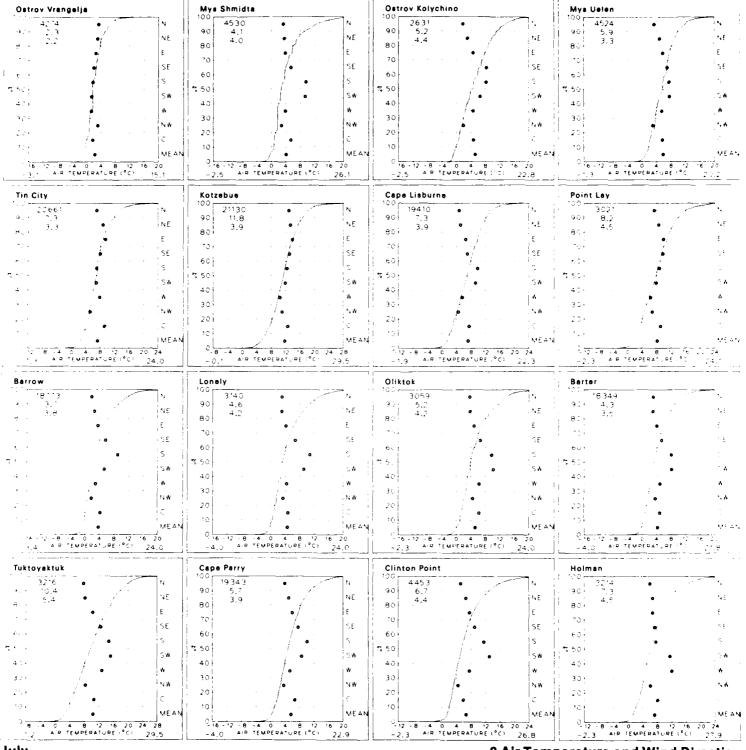


8 Air Temperature and Wind Direction



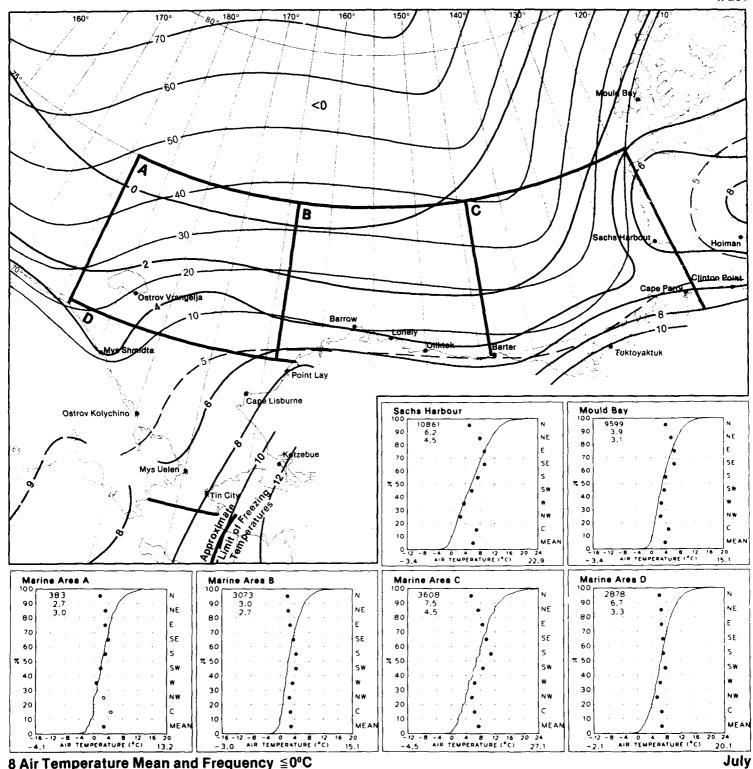
8 Air Temperature Mean and Frequency ≤0°C



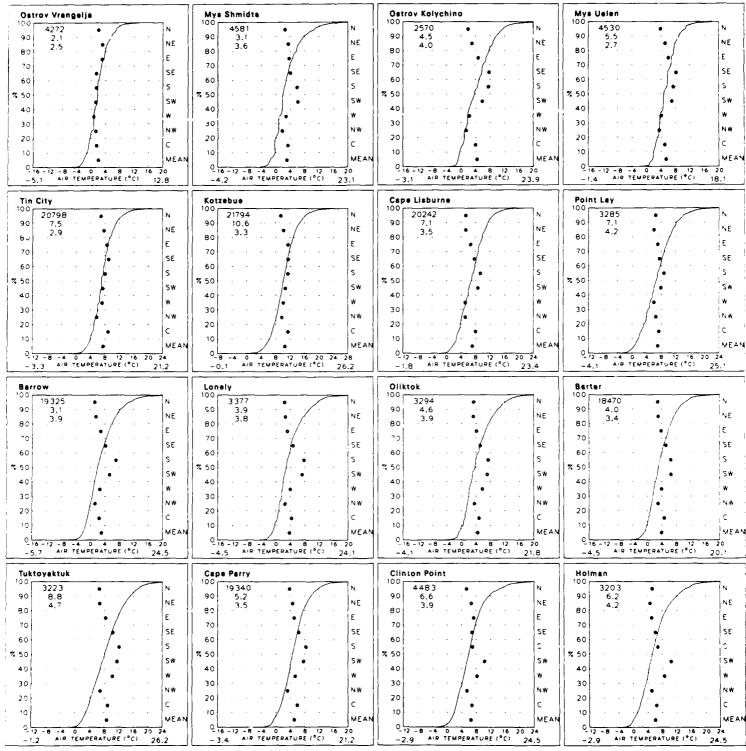


July

8 Air Temperature and Wind Direction

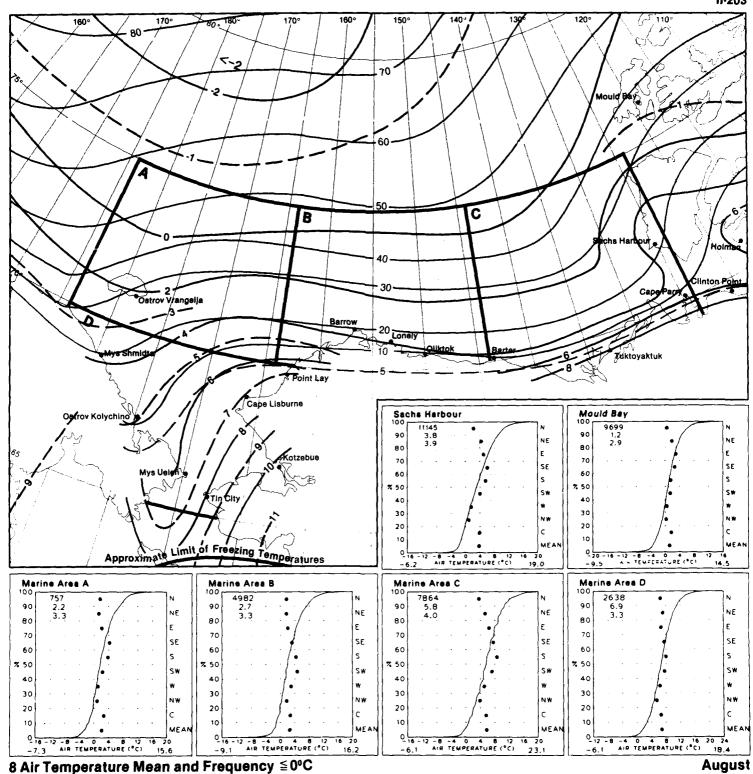


8 Air Temperature Mean and Frequency ≤0°C

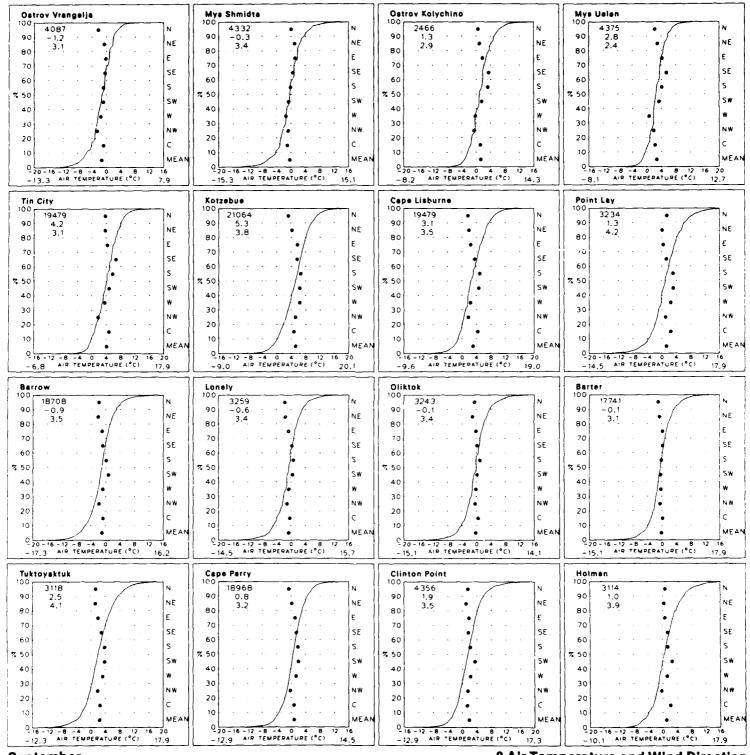


August

8 Air Temperature and Wind Direction

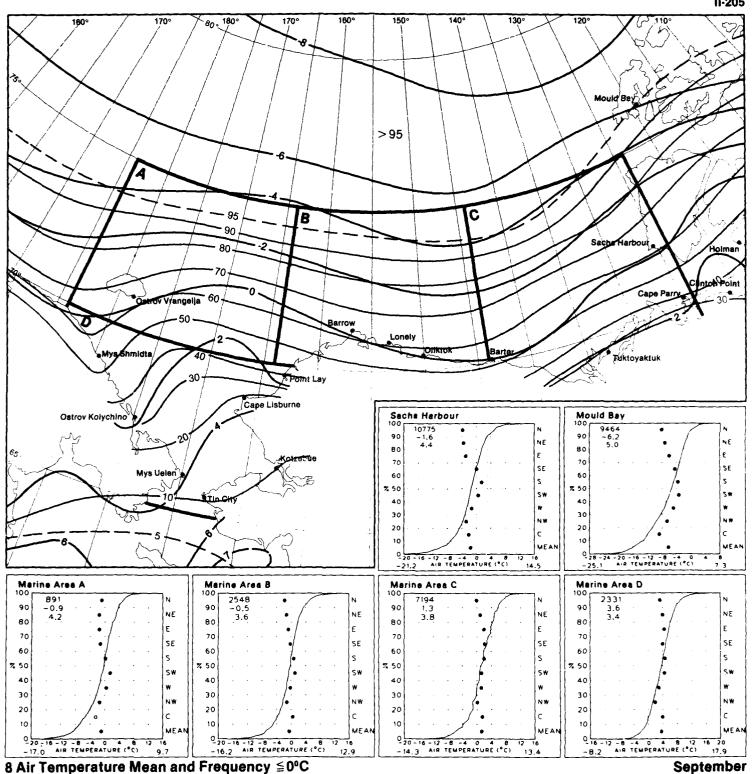


8 Air Temperature Mean and Frequency ≤ 0°C

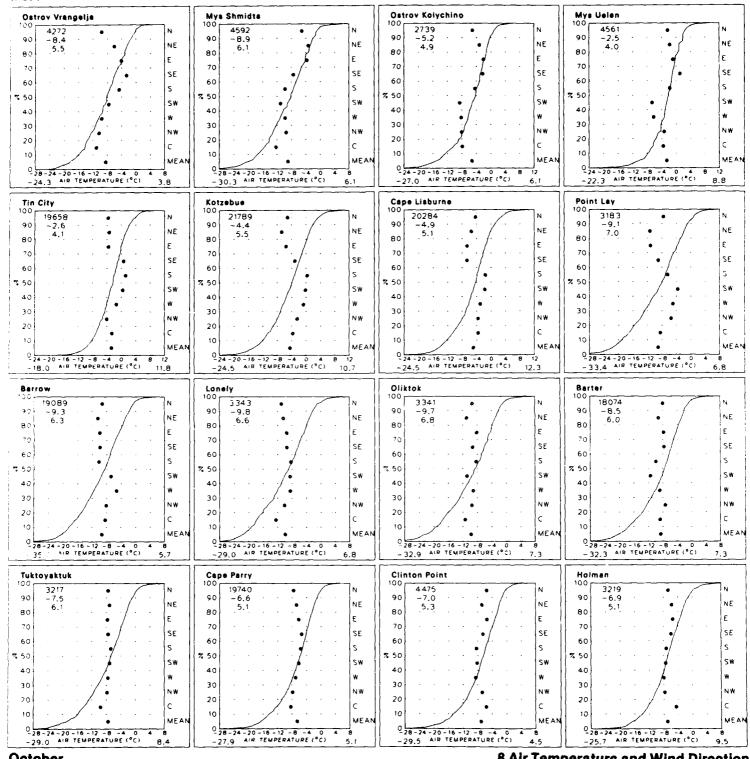


September

8 Air Temperature and Wind Direction

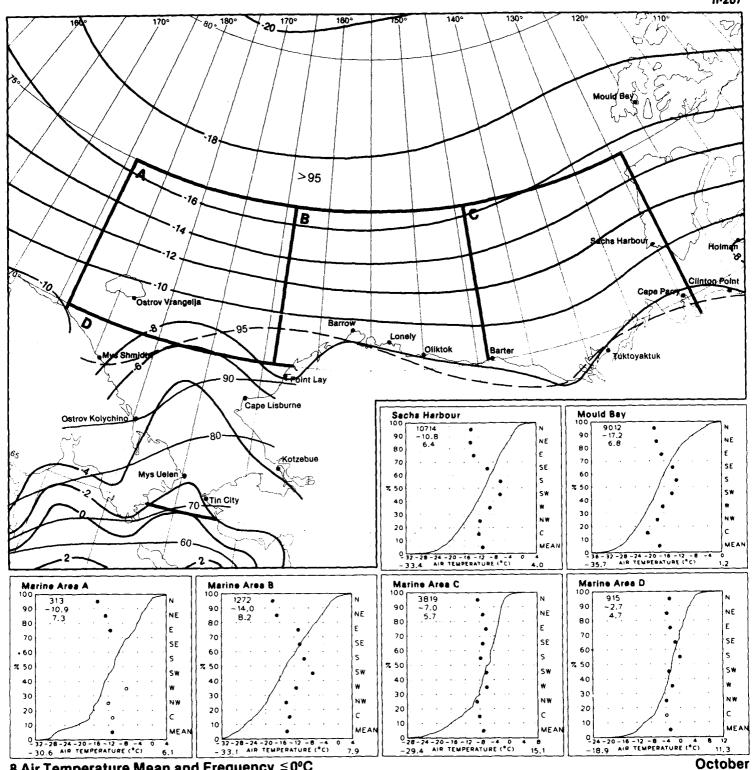


8 Air Temperature Mean and Frequency ≦0°C

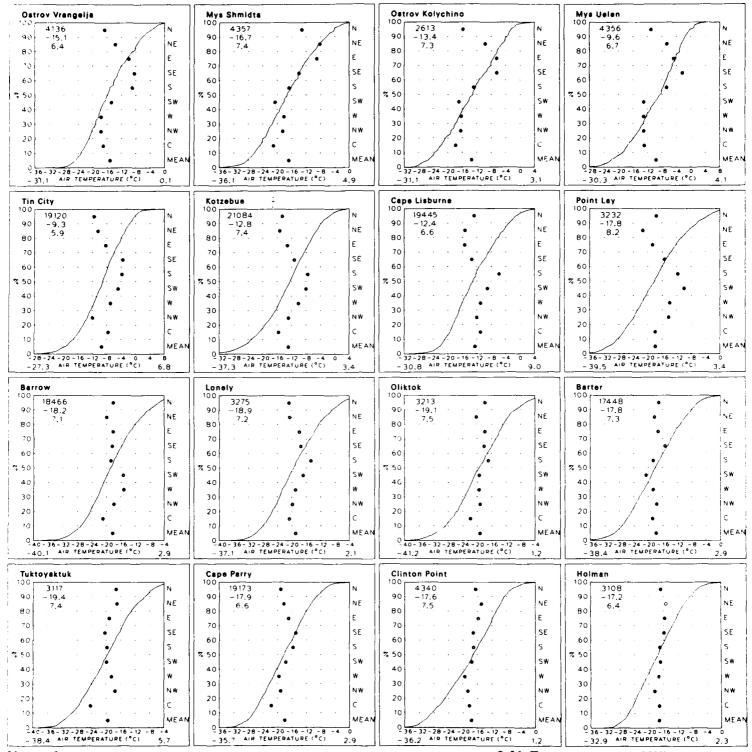


October

8 Air Temperature and Wind Direction

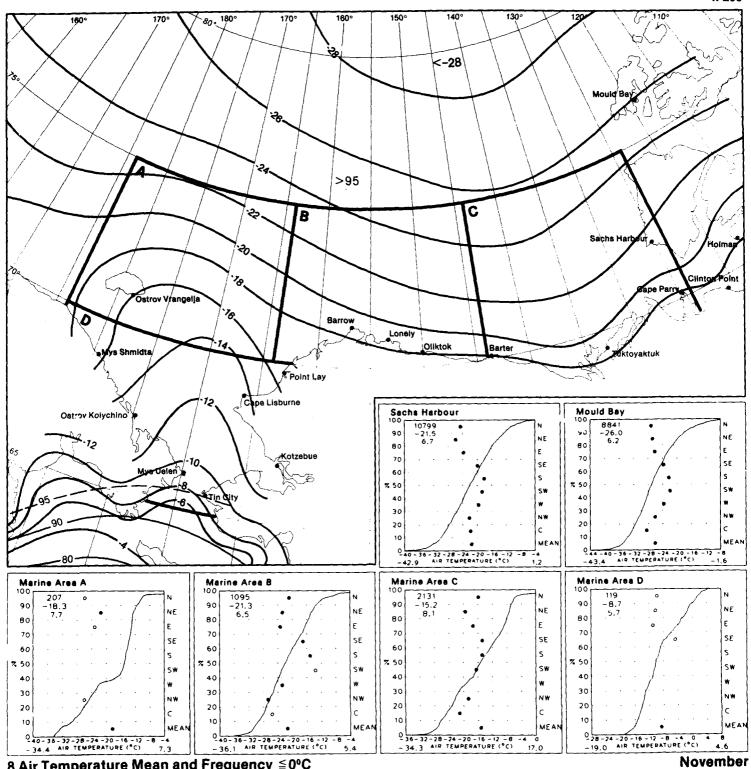


8 Air Temperature Mean and Frequency ≤0°C

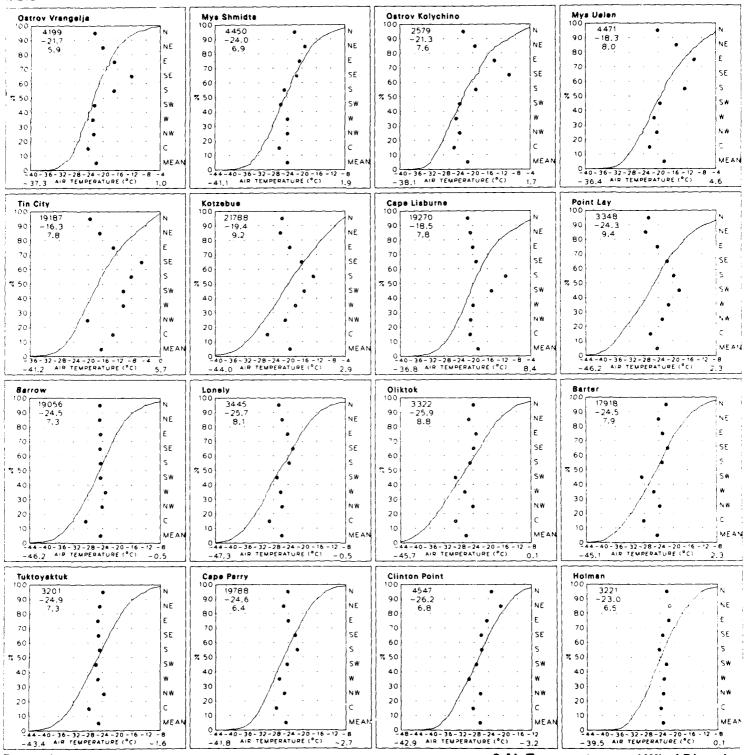


November

8 Air Temperature and Wind Direction

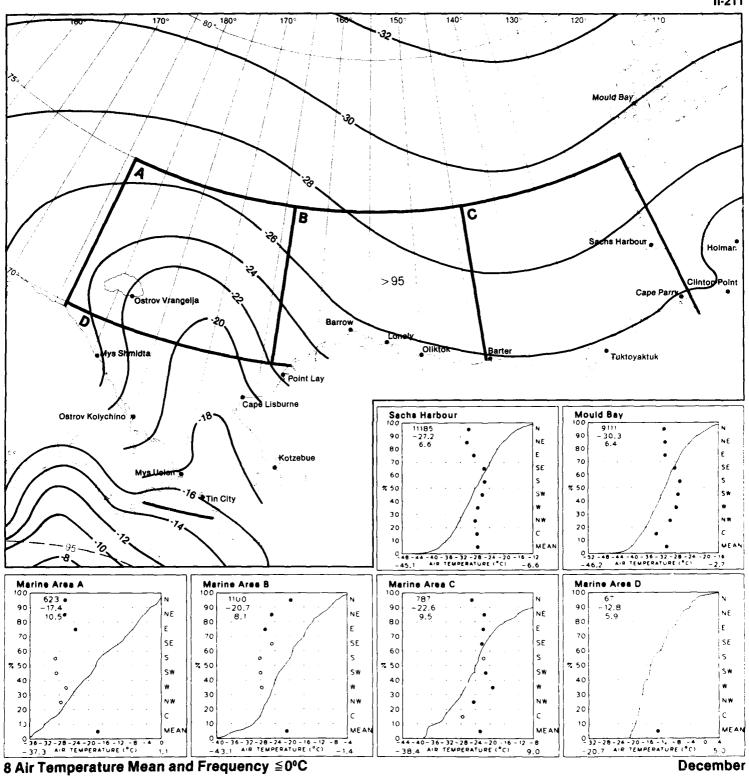


8 Air Temperature Mean and Frequency ≤ 0°C



December

8 Air Temperature and Wind Direction



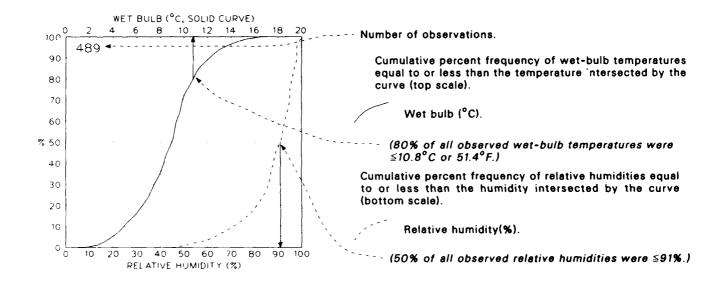
Map 9. Dew point temperature extremes (°C)

BLACK LINE — Maximum (99%) dew point temperature (1% of temperatures were greater than the given value).

BLUE LINE – Minimum (1%) dew point temperature (1% of temperatures were equal to or less than the given value).

Albers Equal-Area Conic Projection

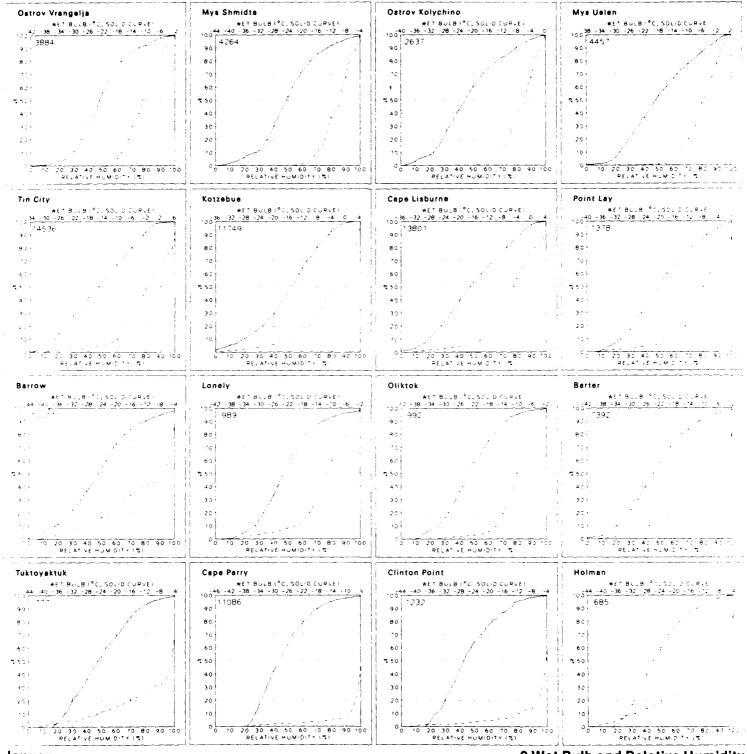
Graphs: Wet bulb/relative humidity



The observation count for the graph reflects those observations containing both dry 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 from the graph by subtracting the cumulative percent frequency of that value from 100%.

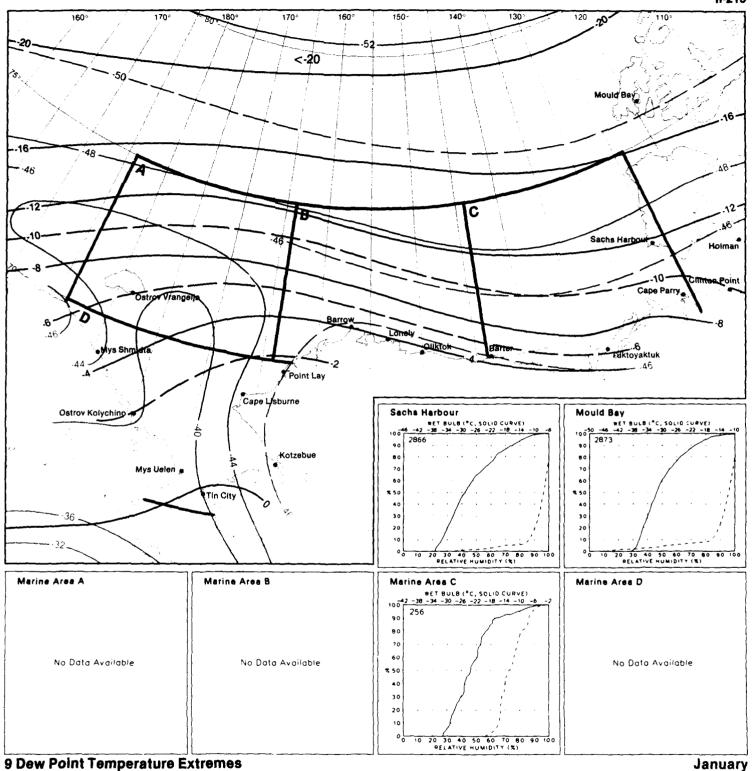
9 Legend

Legend 9



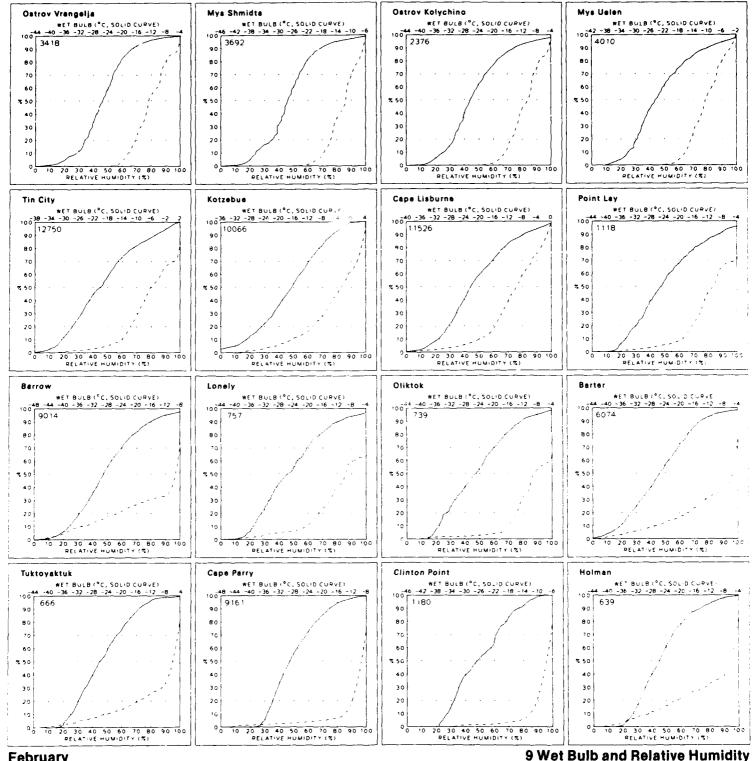
January

9 Wet Bulb and Relative Humidity



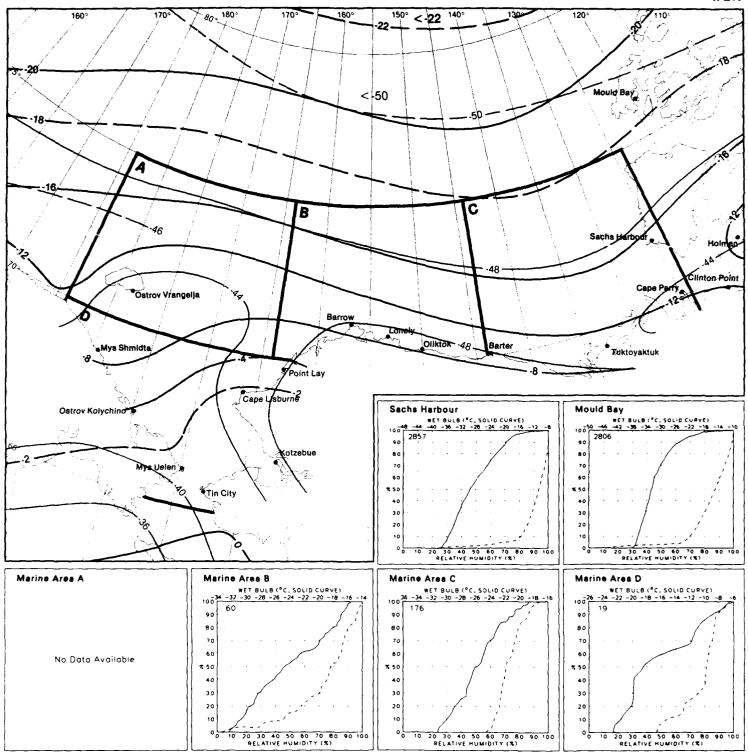
9 Dew Point Temperature Extremes

11-216

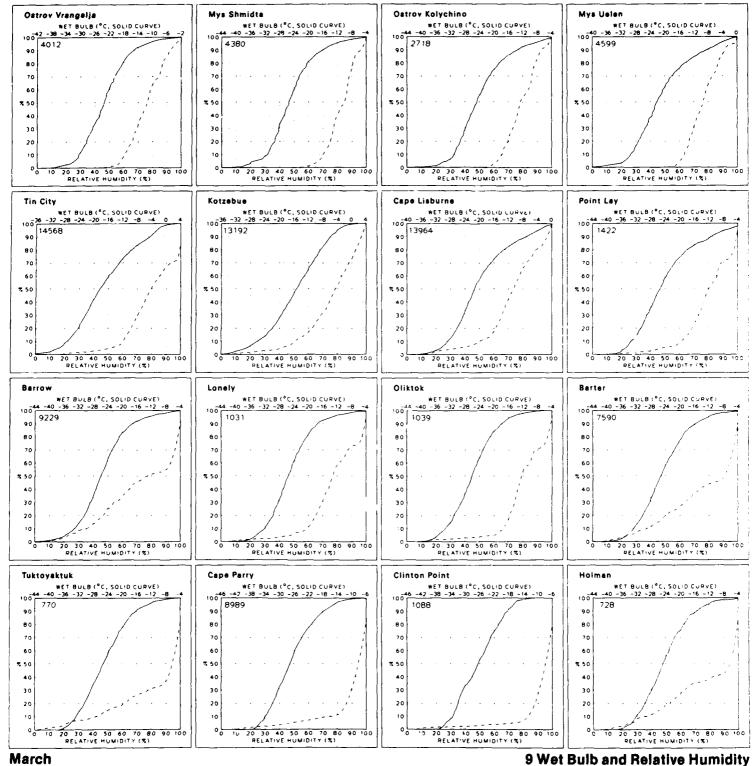


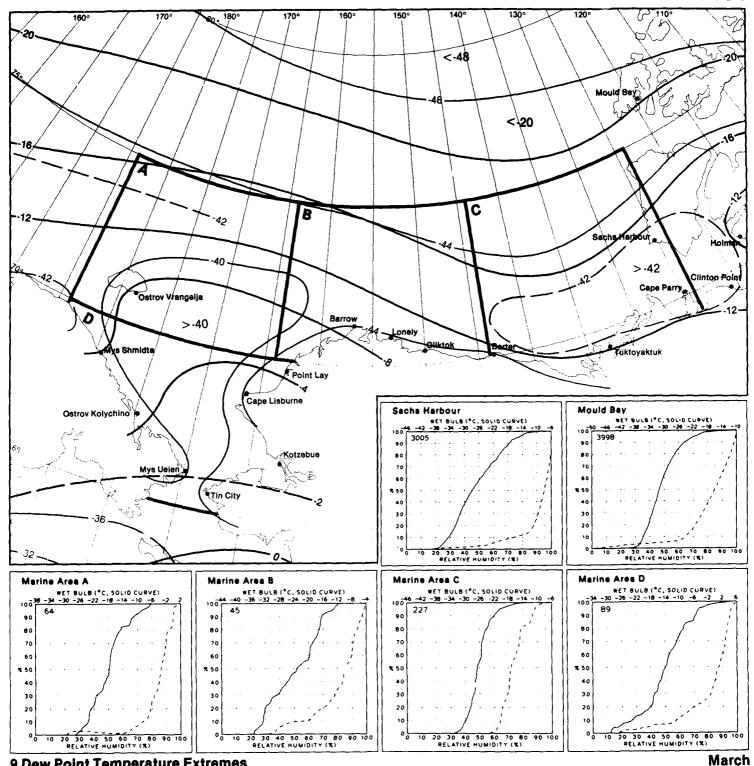
February

February

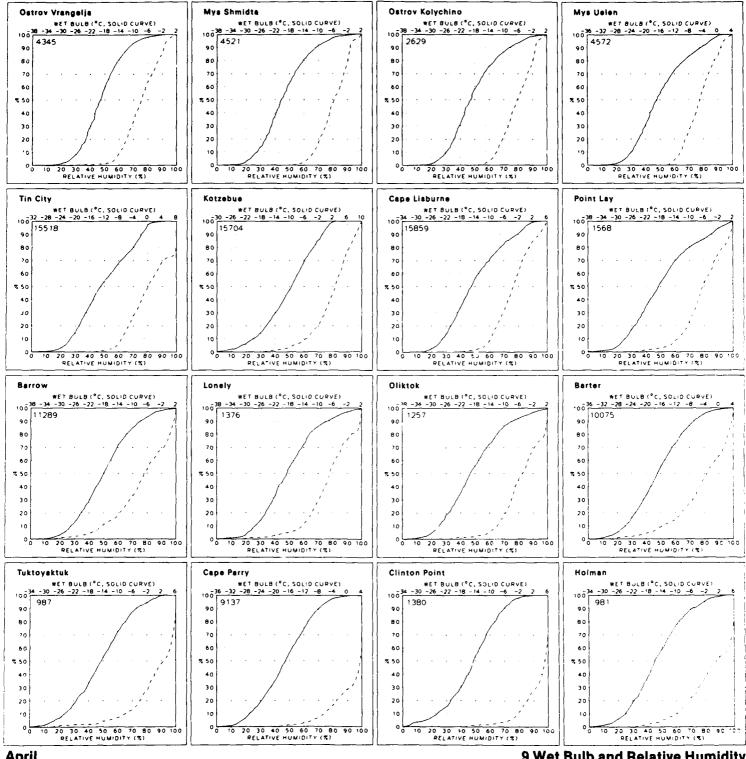


9 Dew Point Temperature Extremes



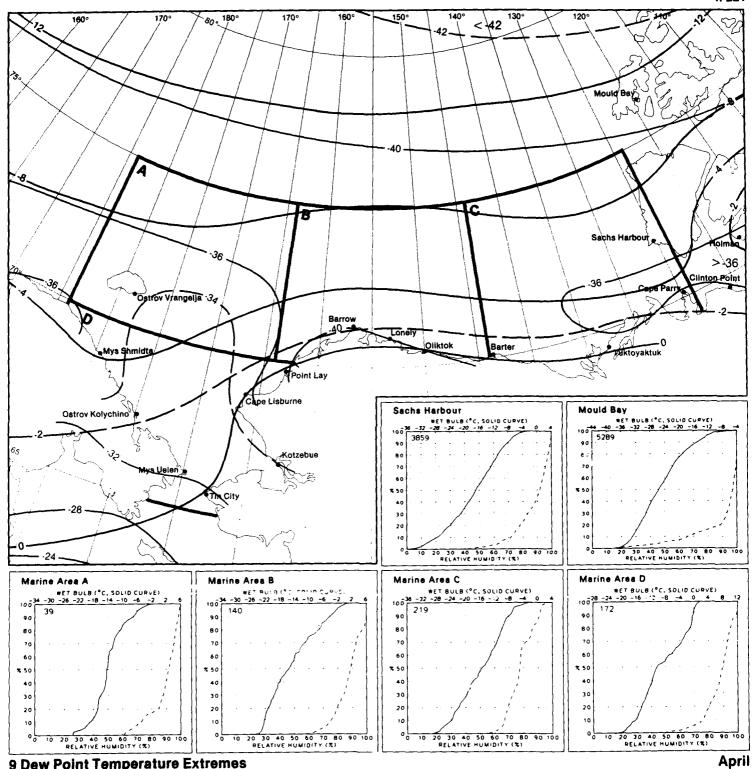


9 Dew Point Temperature Extremes

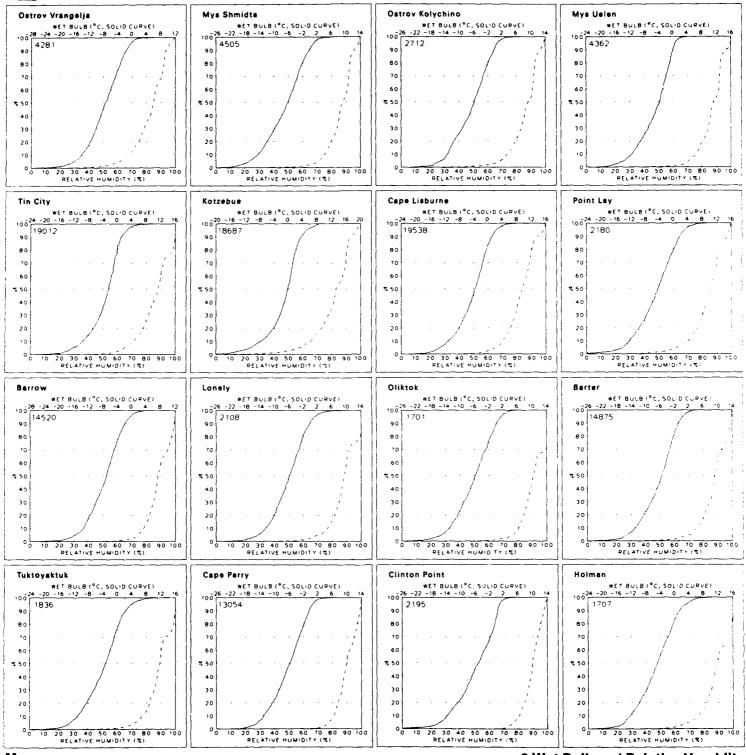


April

9 Wet Bulb and Relative Humidity

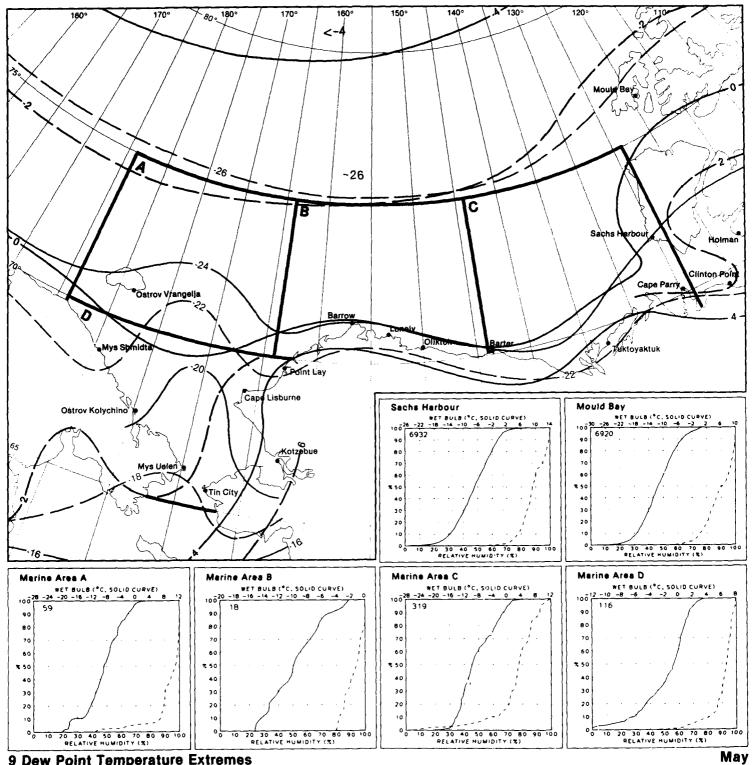


9 Dew Point Temperature Extremes

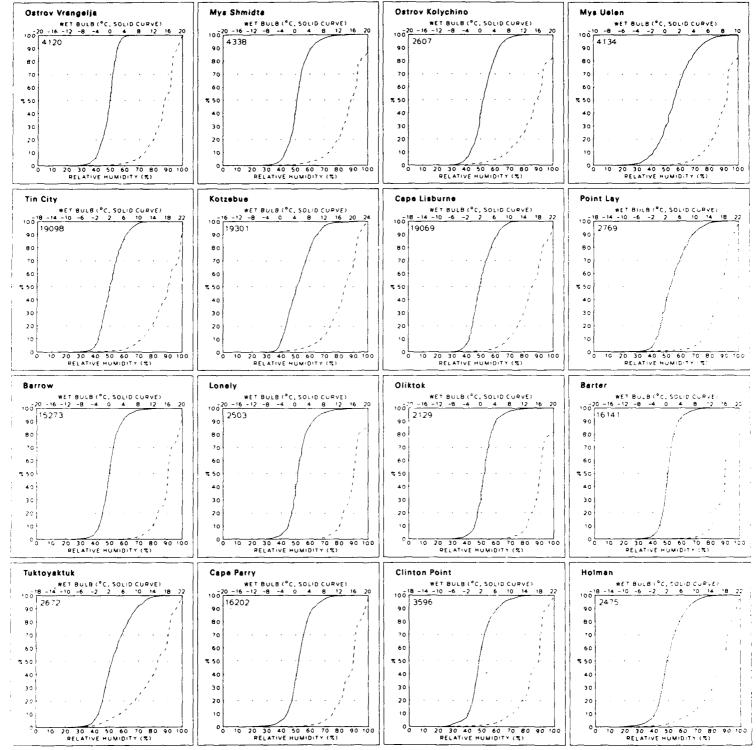


May

9 Wet Bulb and Relative Humidity

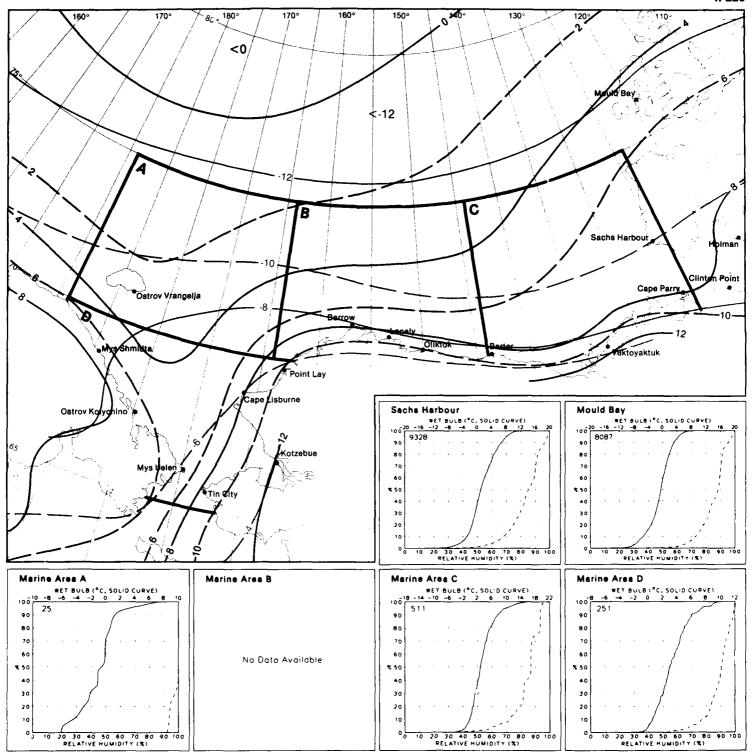


9 Dew Point Temperature Extremes



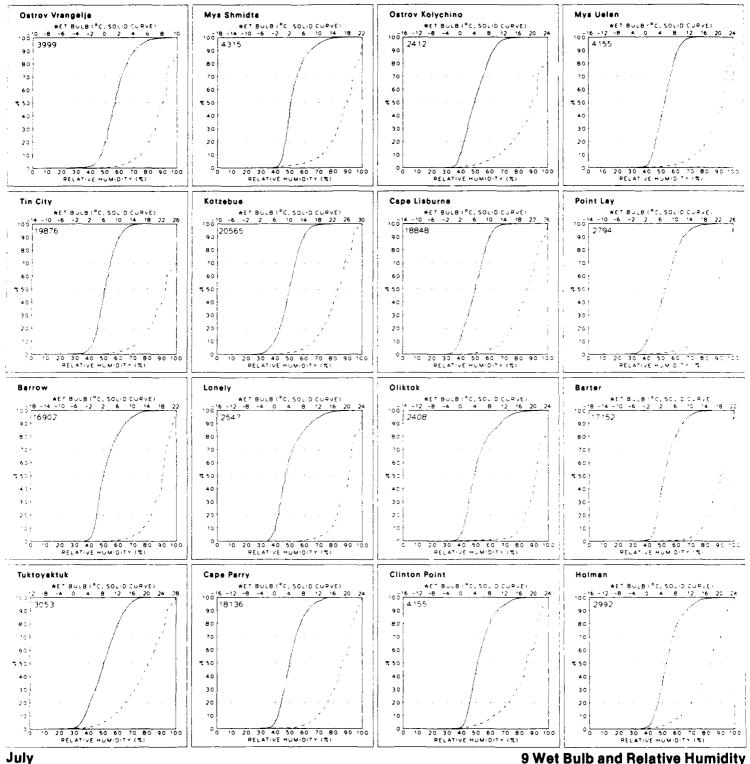
June

9 Wet Bulb and Relative Humidity

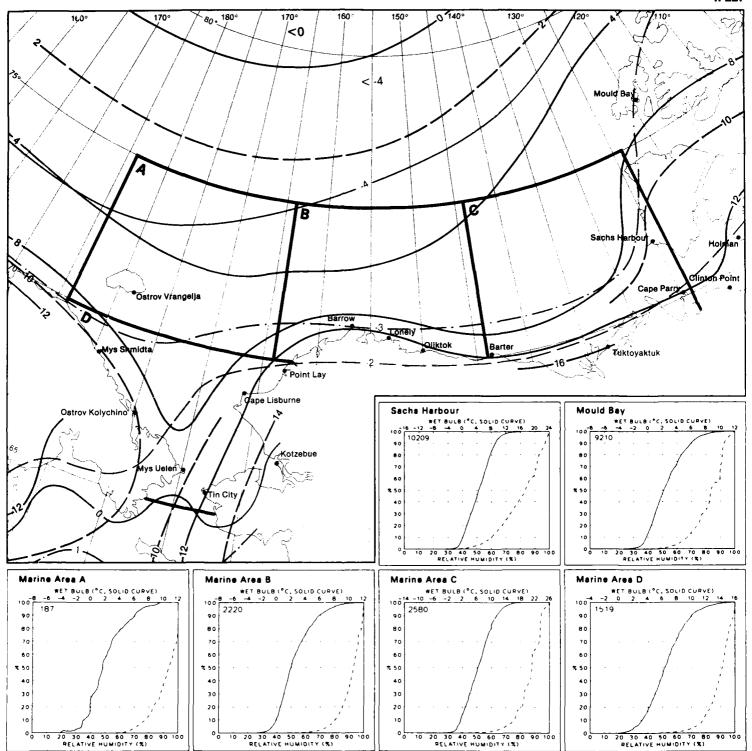


9 Dew Point Temperature Extremes

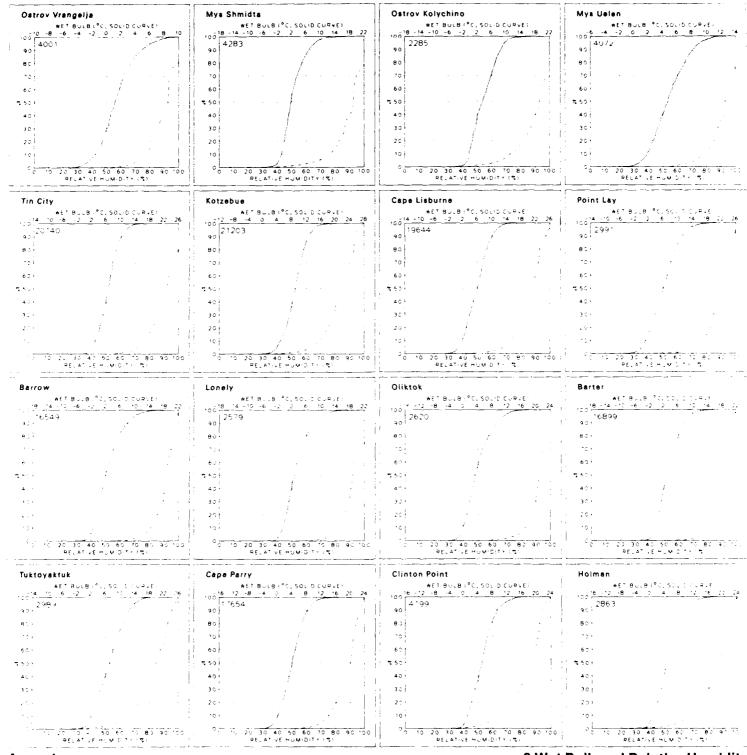
June



July

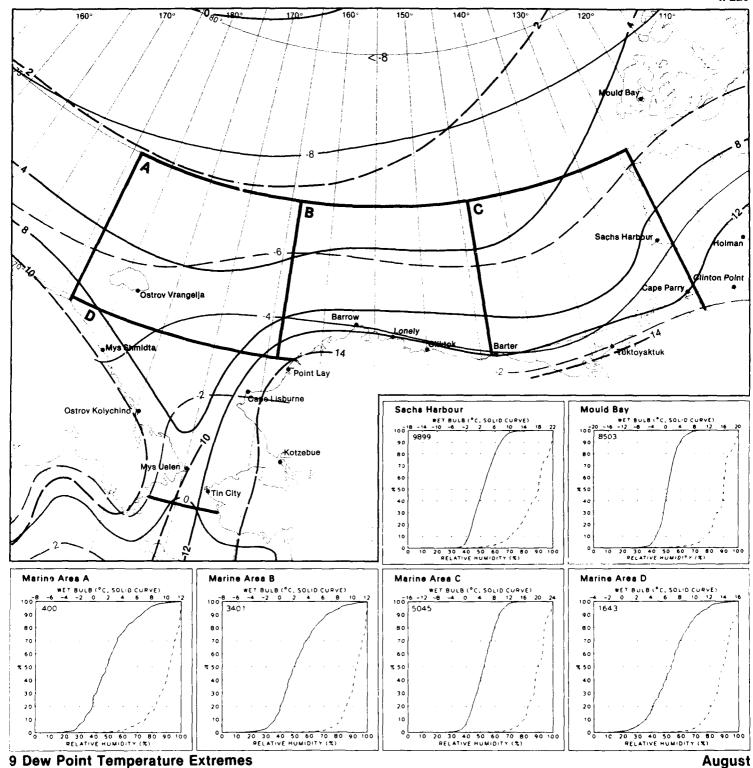


9 Dew Point Temperature Extremes

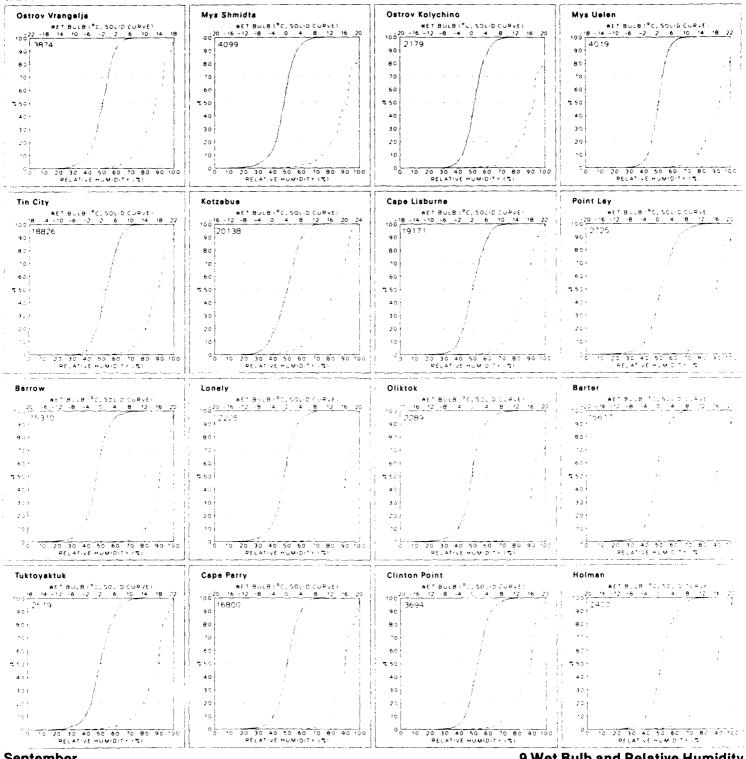


August

9 Wet Bulb and Relative Humidity

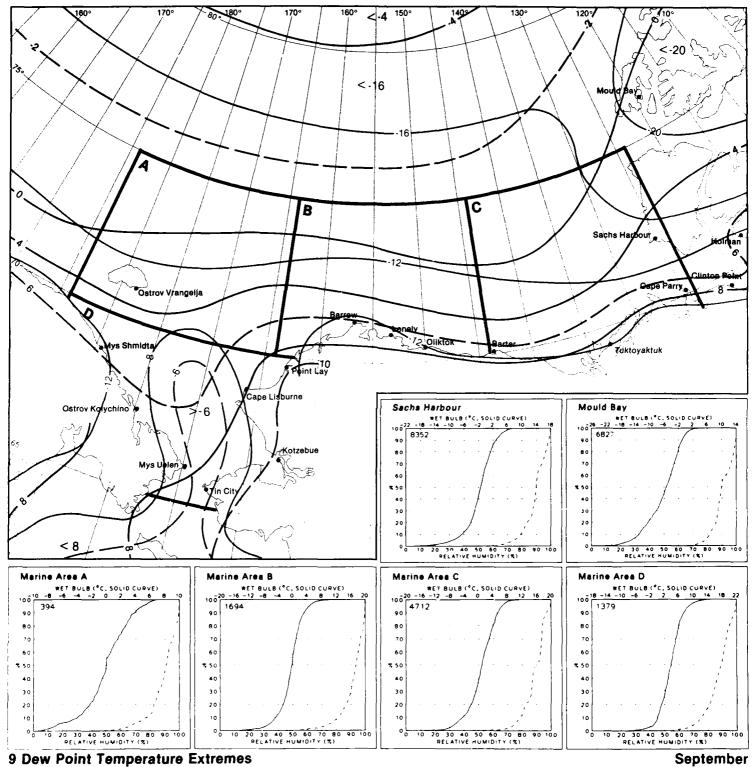


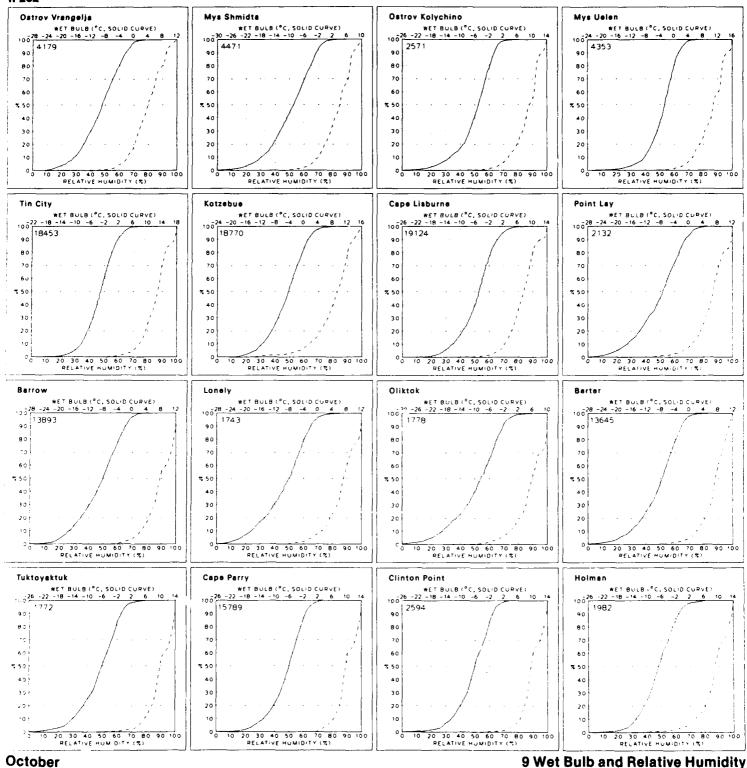
9 Dew Point Temperature Extremes

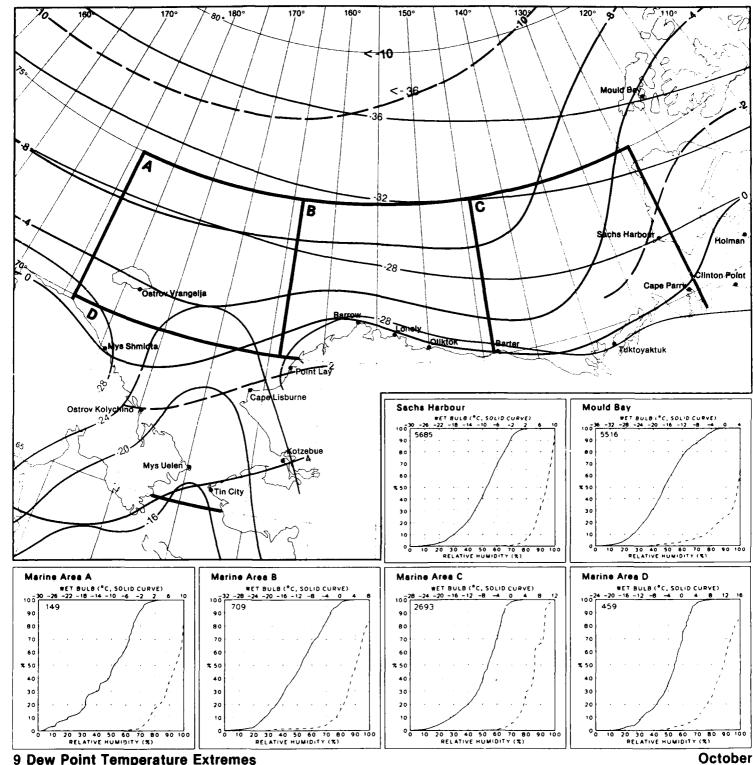


September

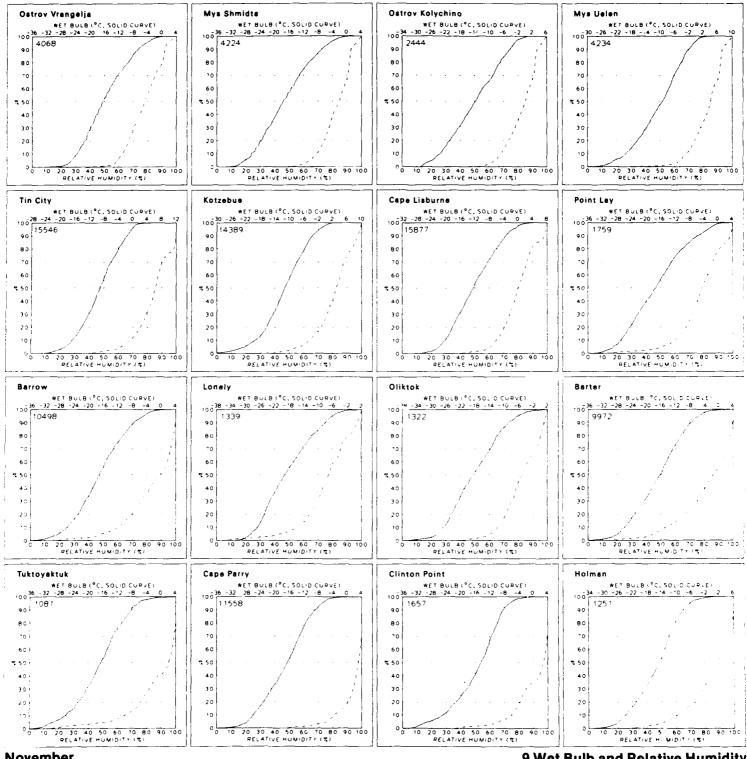
9 Wet Bulb and Relative Humidity





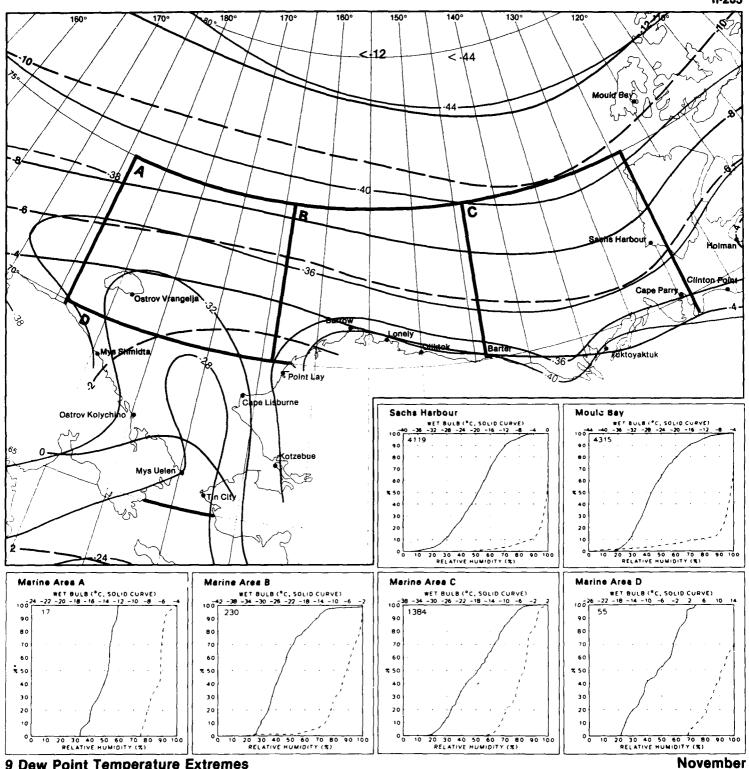


9 Dew Point Temperature Extremes

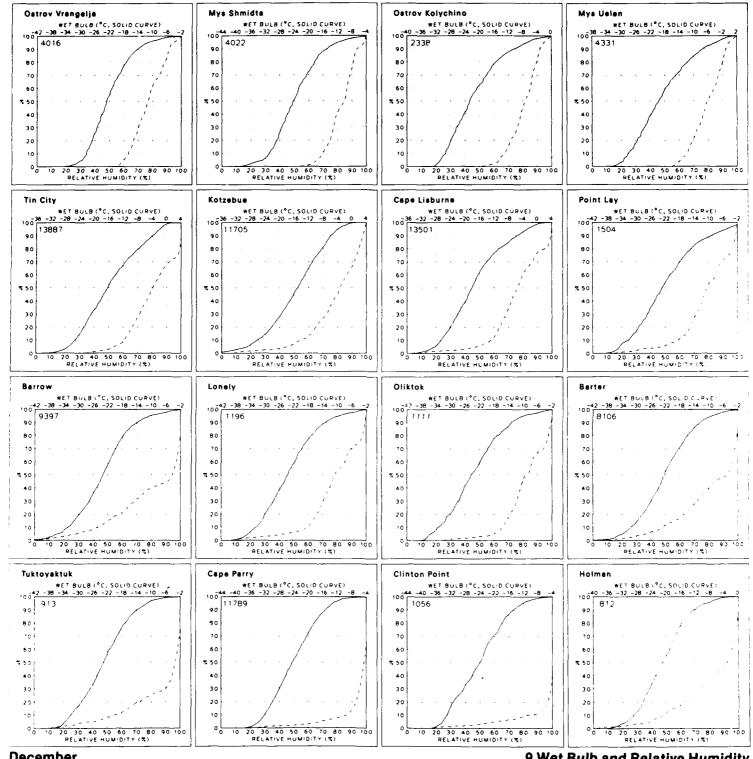


November

9 Wet Bulb and Relative Humidity

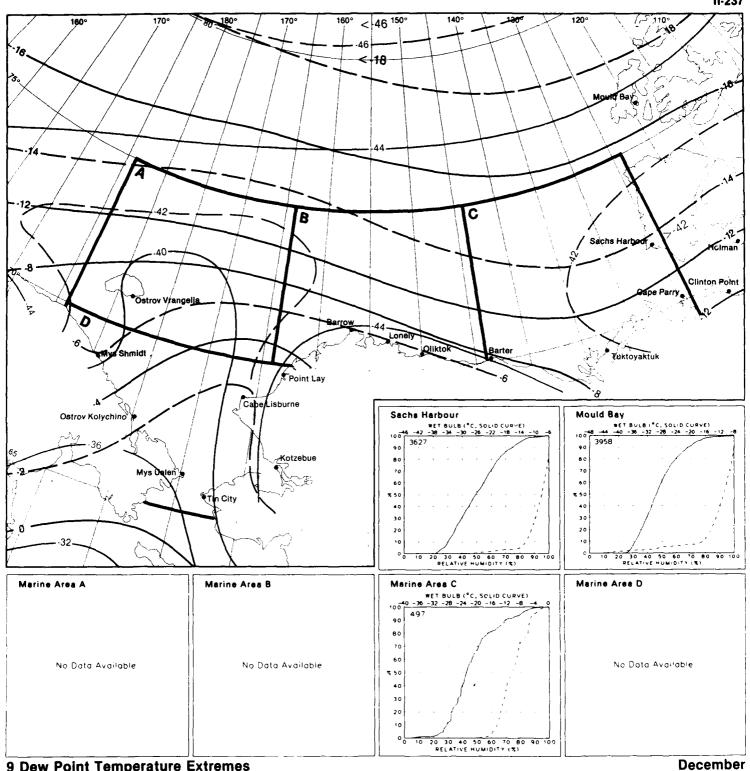


9 Dew Point Temperature Extremes



December

9 Wet Bulb and Relative Humidity



9 Dew Point Temperature Extremes

Map 10. Mean sea level pressure and vector mean wind

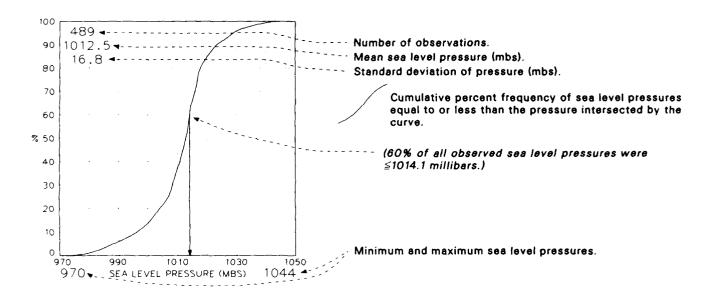
BLACK LINE - Mean sea level pressure (millibars).



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).

Albers Equal-Area Conic Projection

Graphs: Sea level pressure

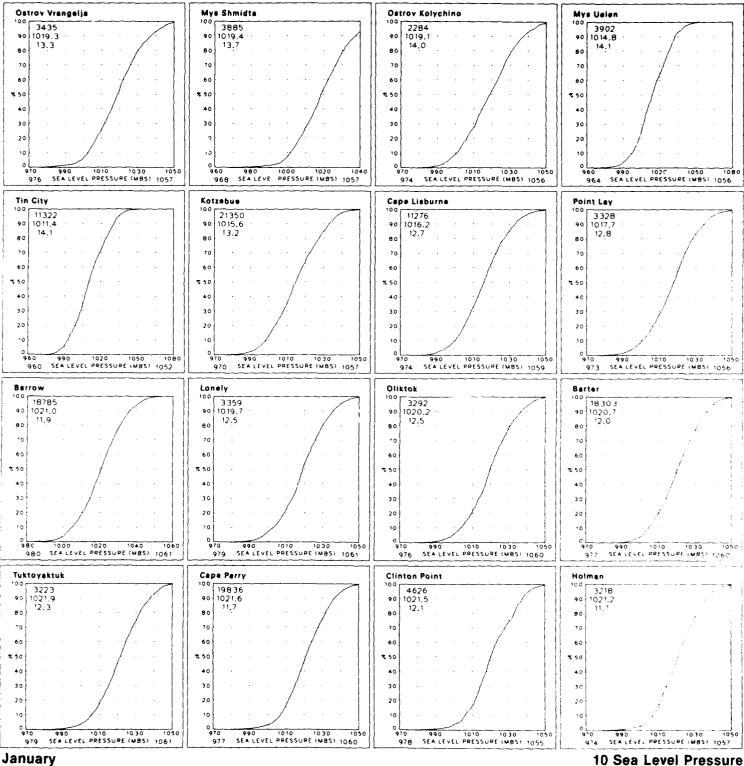


Sea level pressure is one of the most frequently recorded elements, but one of the least accurate because of instrument calibration and coding errors. Despite the inaccuracies of the individual readings, the large-scale patterns and mean gradients of the isopleth analyses are relatively accurate. The percentage of sea level pressure observations greater than a given value can be obtained from the graph by subtracting the cumulative percent frequency of that value from 100%.

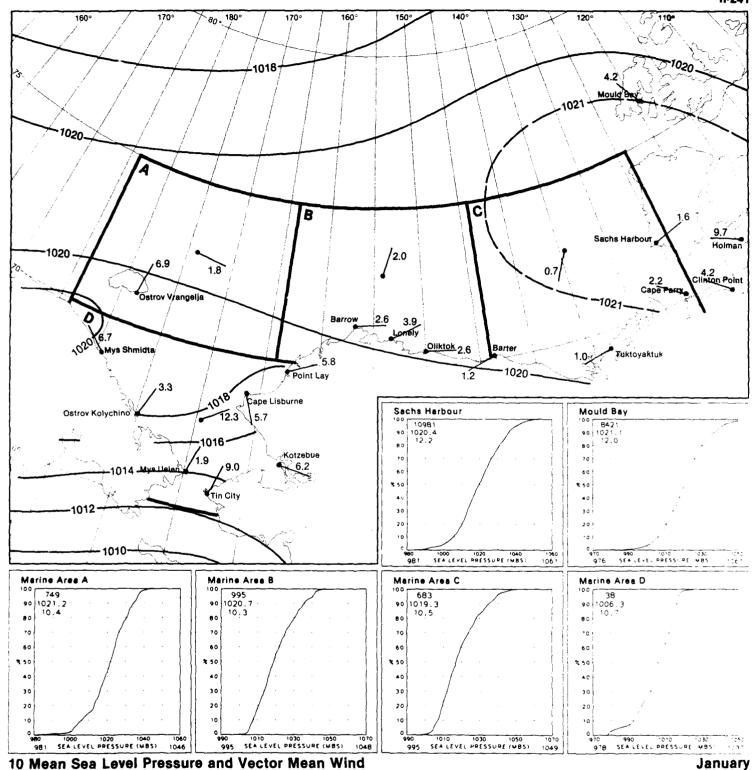
In areas of high persistence (also called constancy, steadiness) of direction, the magnitude of the vector mean wind (Set 10 should closely approach that of the scalar mean wind (Set 13).

10 Legend

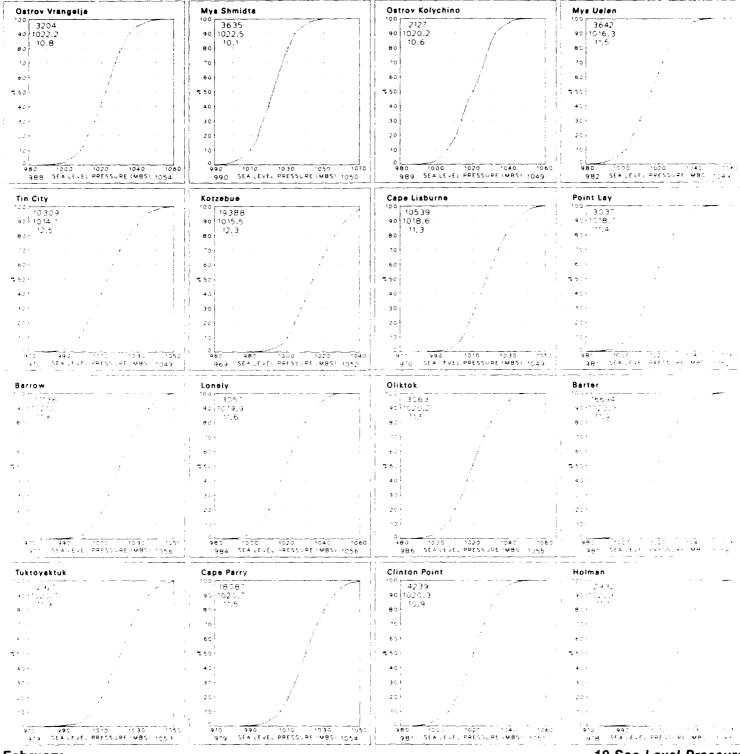
Legend 10





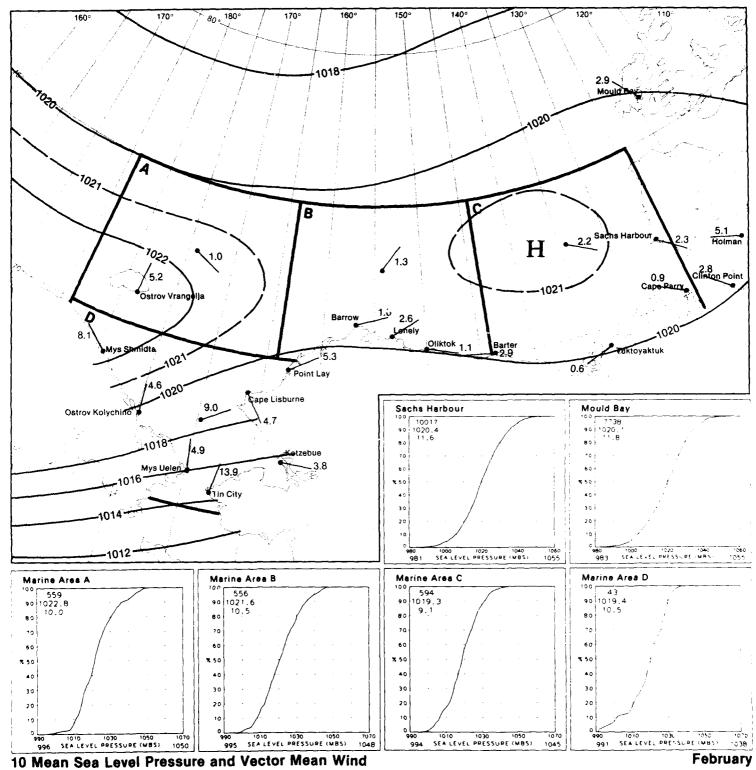


10 Mean Sea Level Pressure and Vector Mean Wind

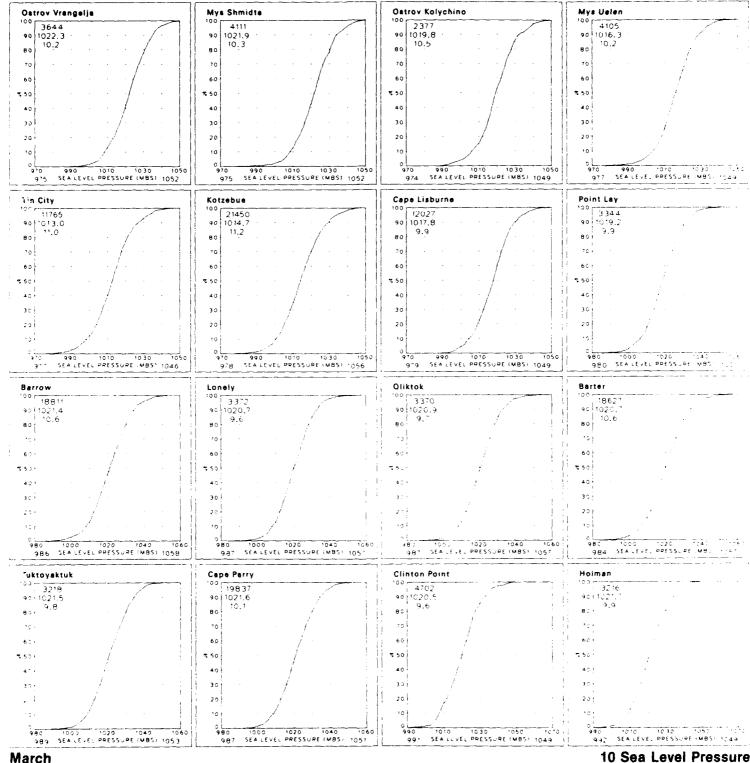


February

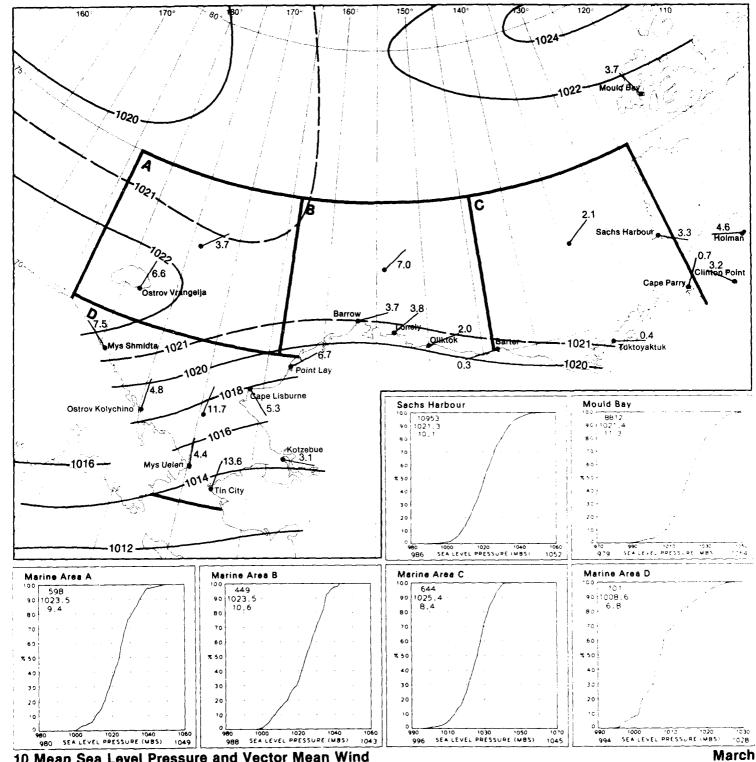
10 Sea Level Pressure





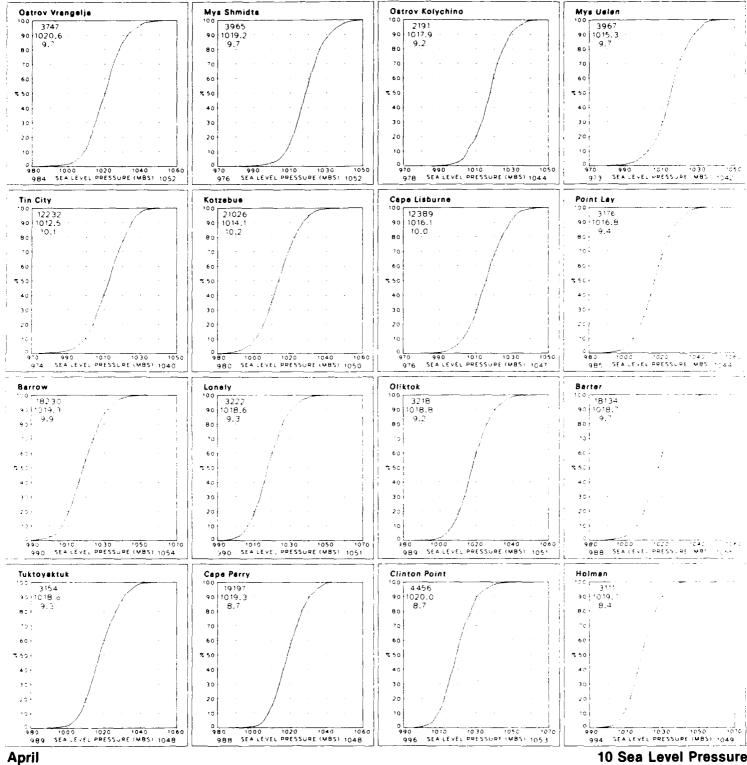


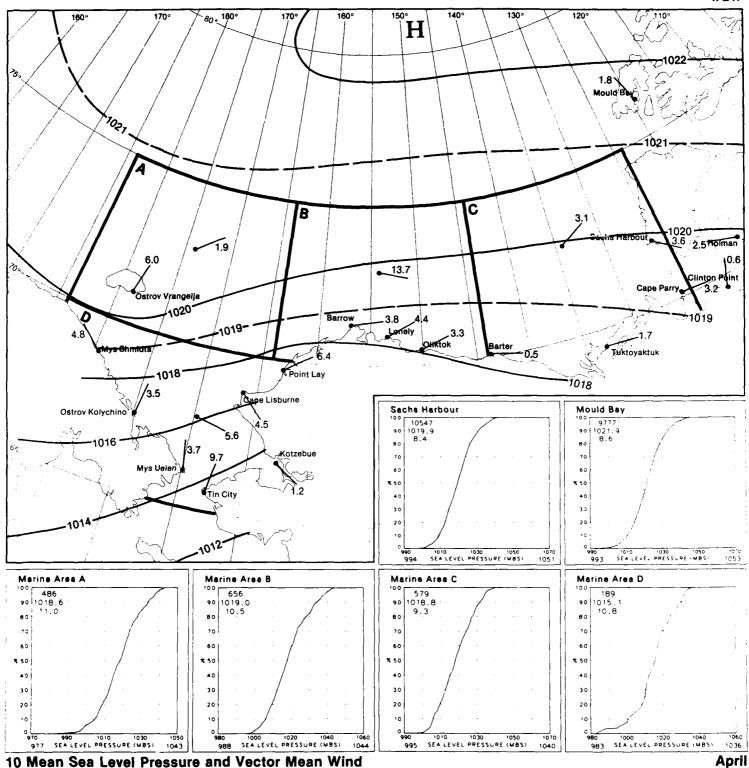
March



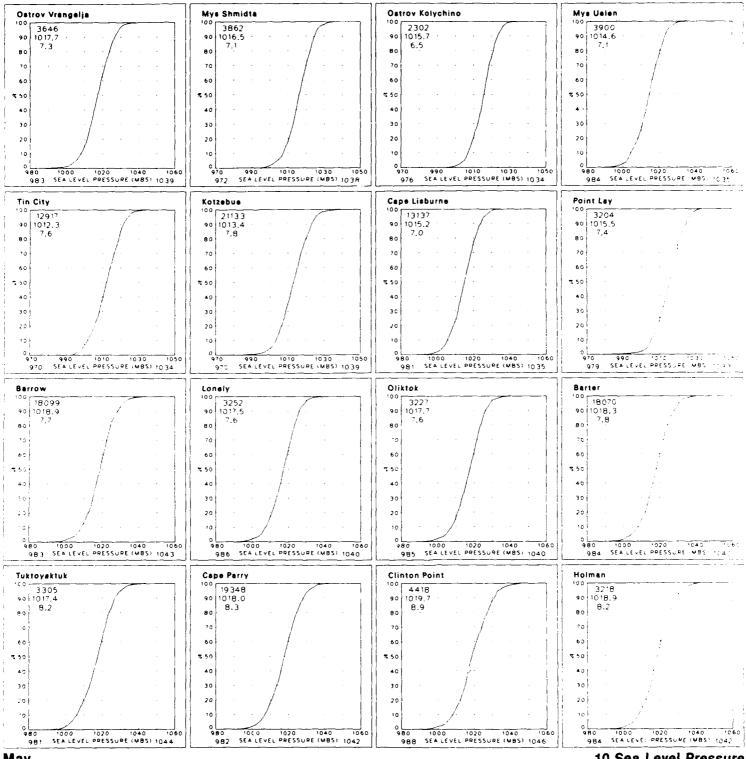
10 Mean Sea Level Pressure and Vector Mean Wind





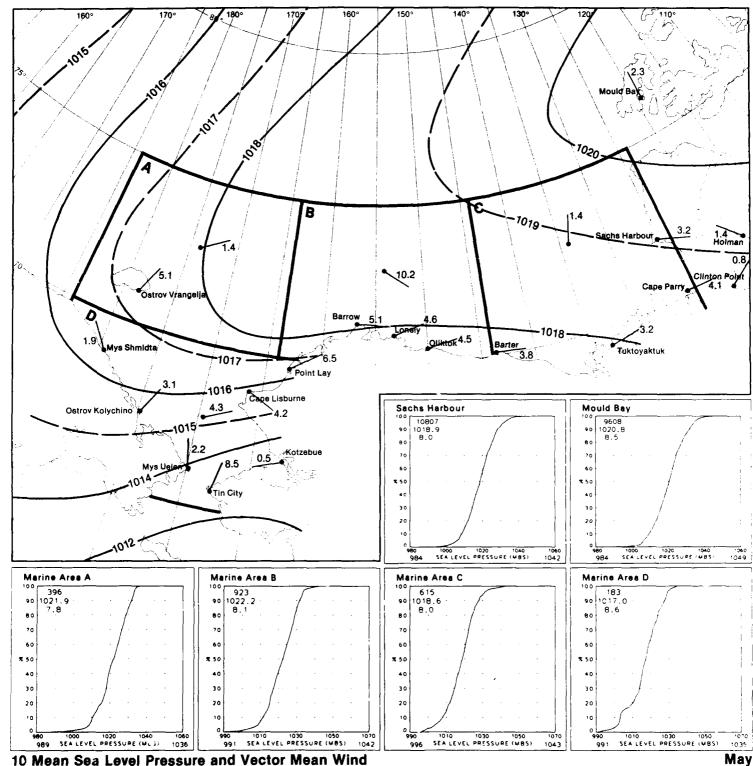


10 Mean Sea Level Pressure and Vector Mean Wind

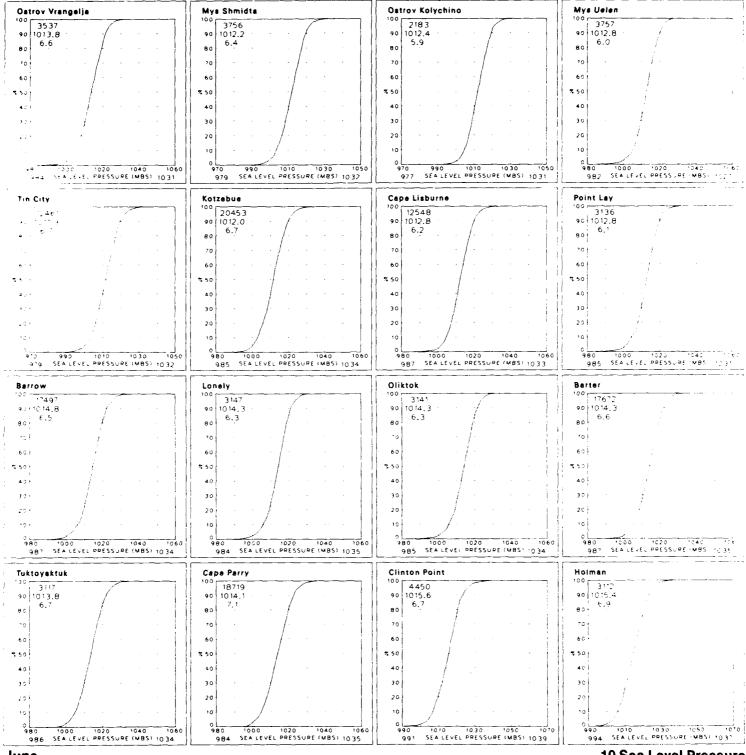


May

10 Sea Level Pressure

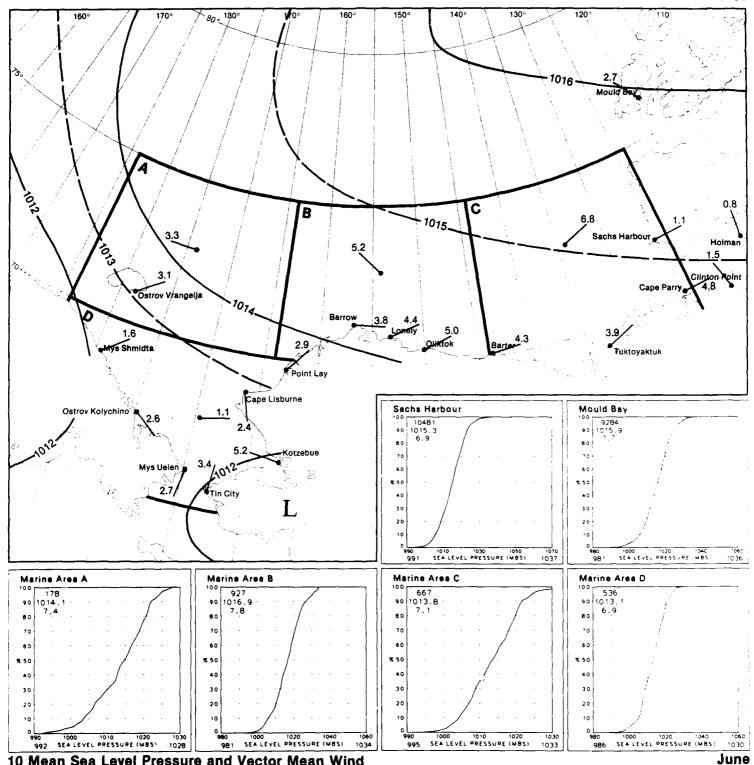


10 Mean Sea Level Pressure and Vector Mean Wind

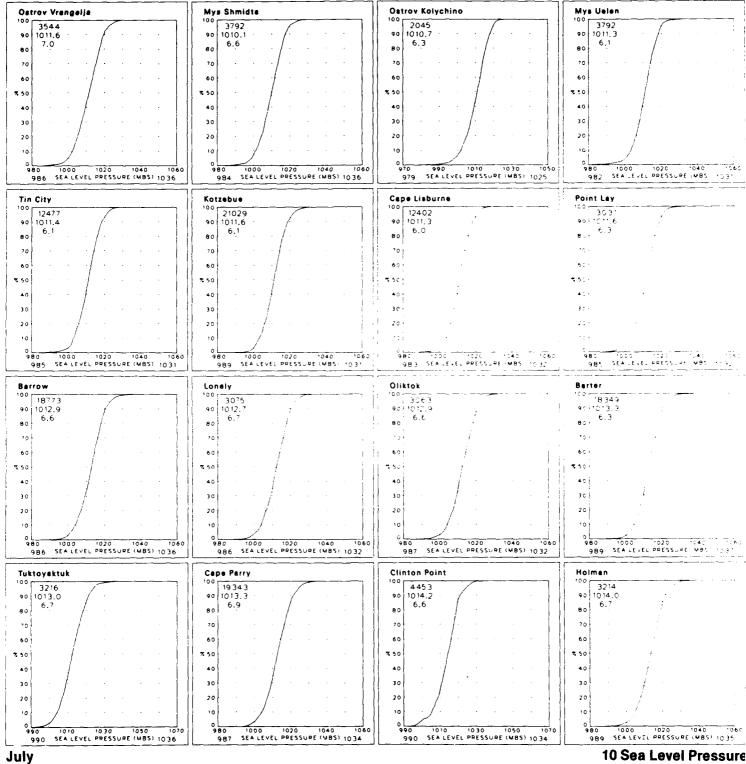


June

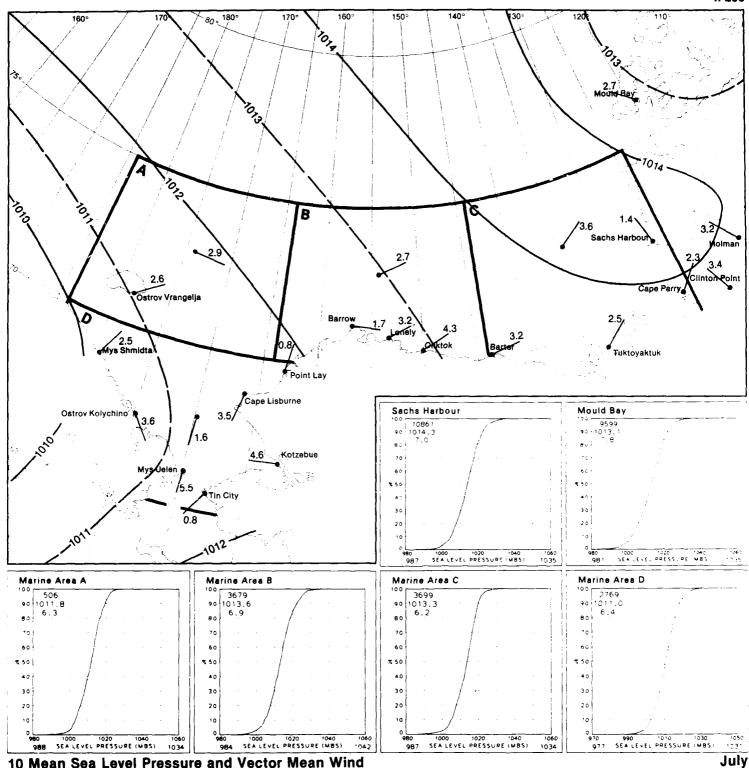
10 Sea Level Pressure



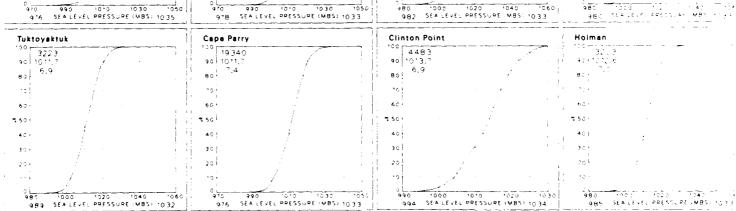
10 Mean Sea Level Pressure and Vector Mean Wind



10 Sea Level Pressure



10 Mean Sea Level Pressure and Vector Mean Wind



August 10 Sea Level Pressur

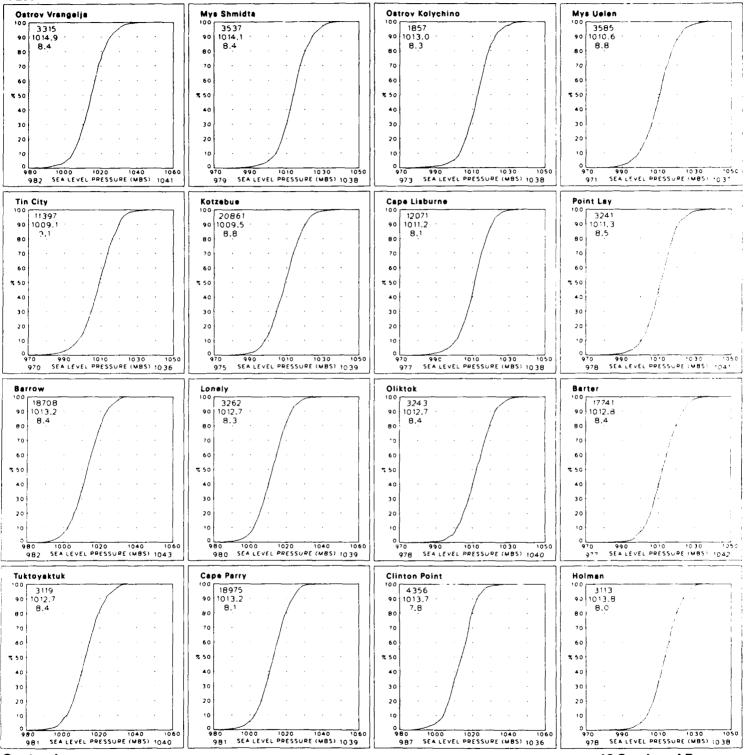
1000 1020 1040 SEA LEVEL PRESSURE (MBS)

August

10 Mean Sea Level Pressure and Vector Mean Wind

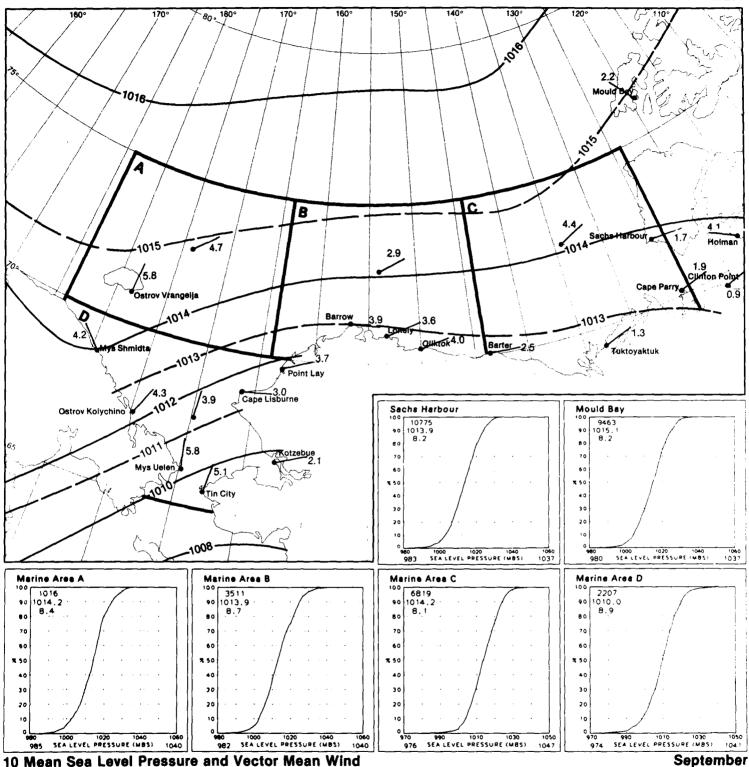
1000 1020 1040 SEA LEVEL PRESSURE (MBS)

1000 1020 1040 SEA LEVEL PRESSURE (MBS)



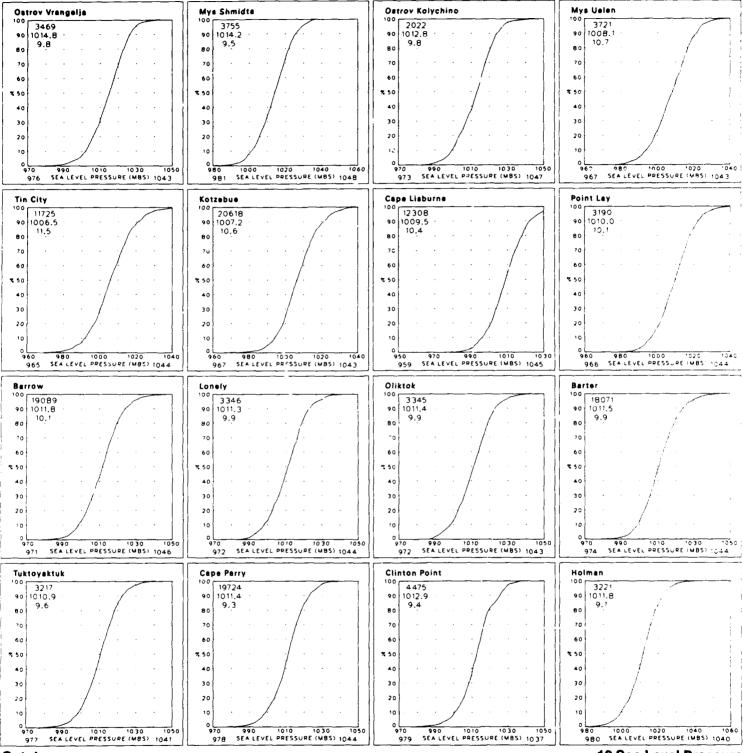
September

10 Sea Level Pressure



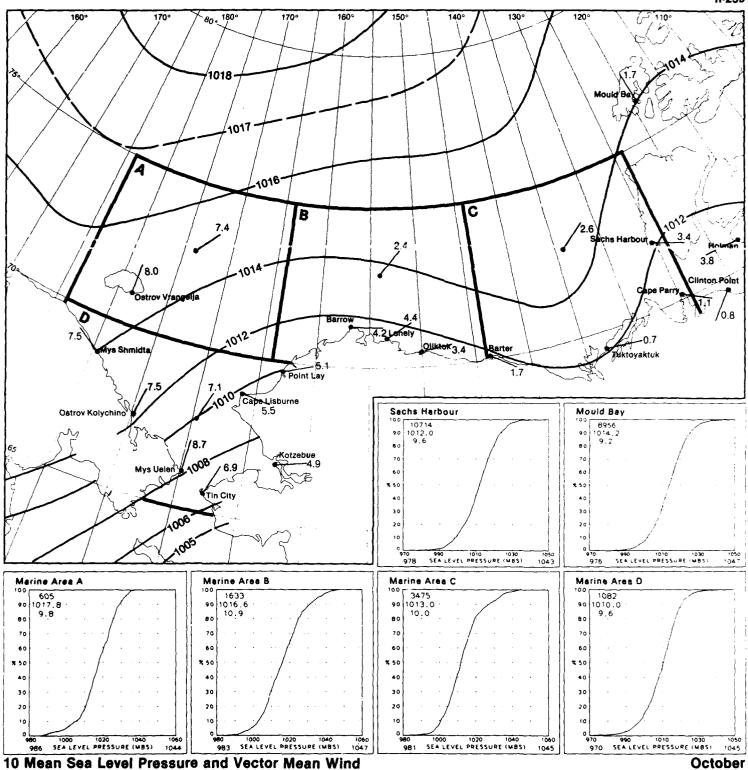
10 Mean Sea Level Pressure and Vector Mean Wind



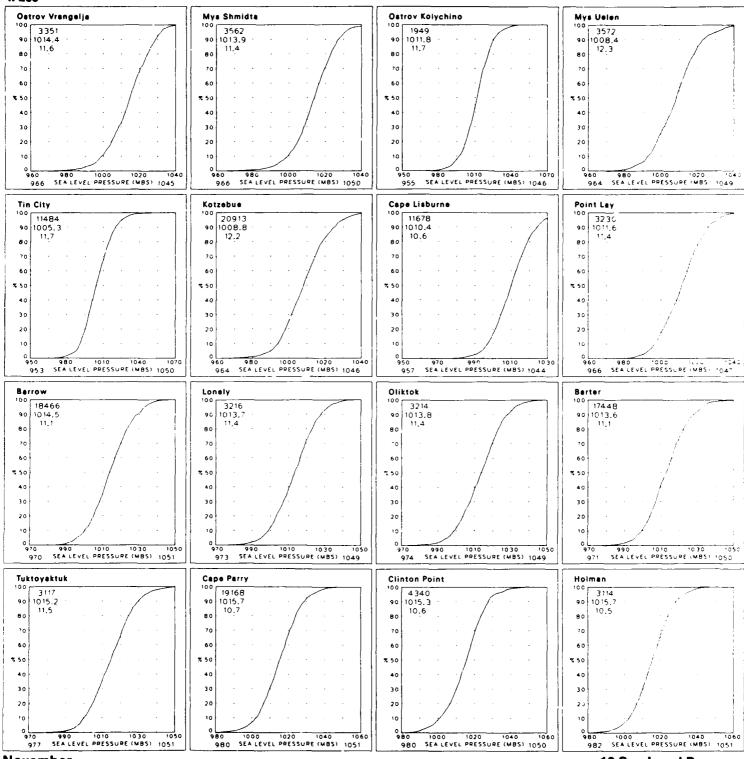


October

10 Sea Level Pressure

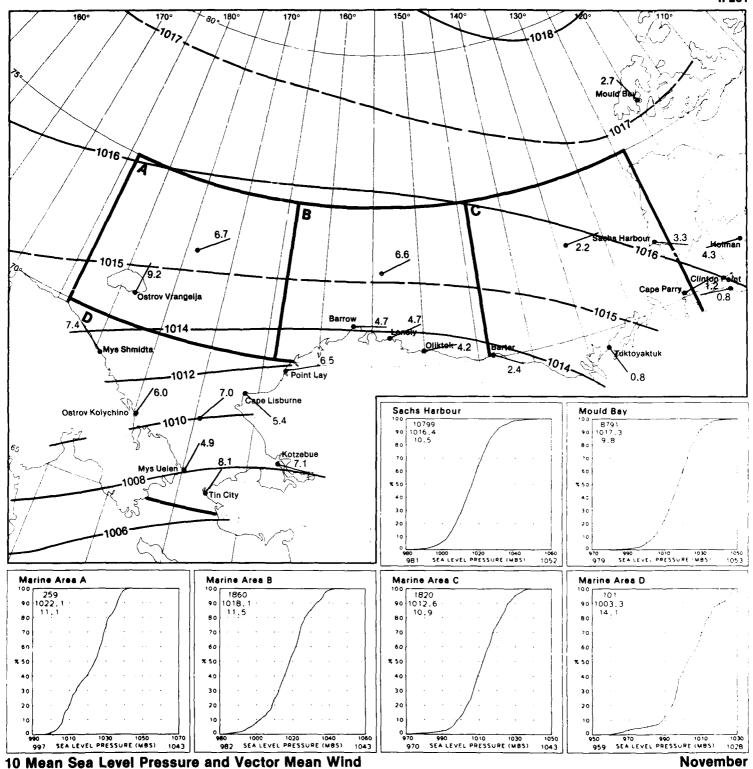


10 Mean Sea Level Pressure and Vector Mean Wind

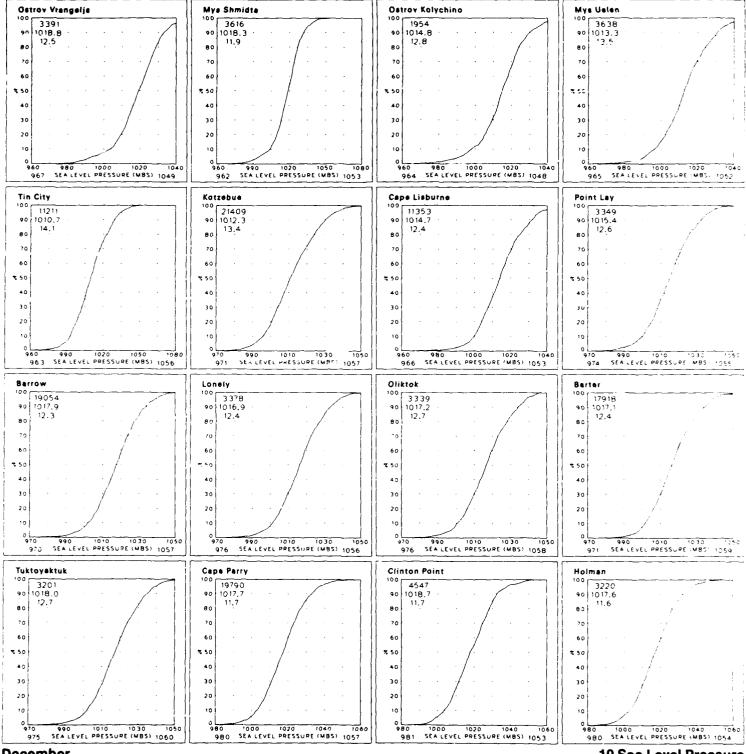


November

10 Sea Level Pressure

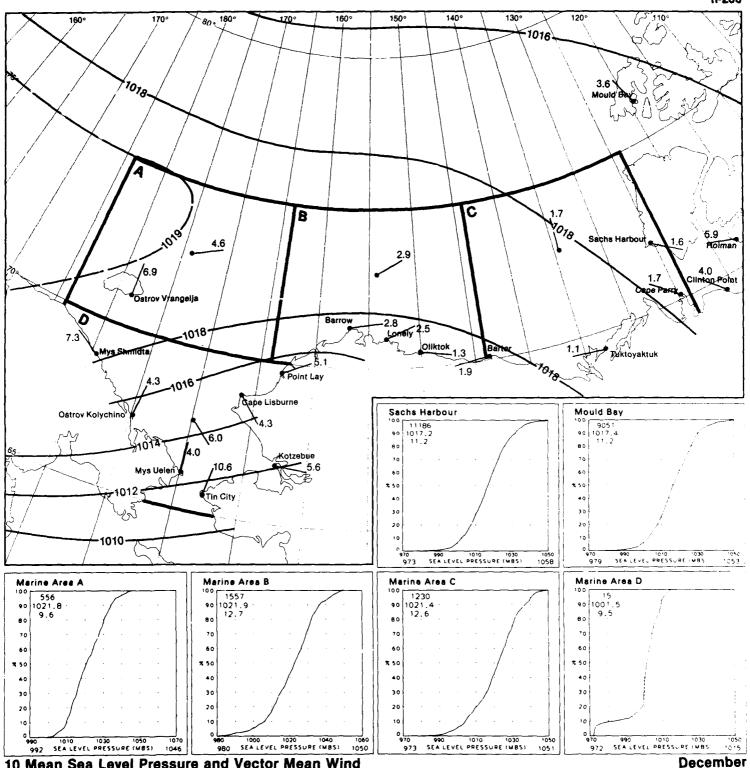


10 Mean Sea Level Pressure and Vector Mean Wind



December

10 Sea Level Pressure



10 Mean Sea Level Pressure and Vector Mean Wind

Map 11. Wind speed ≤10 and ≥34 knots

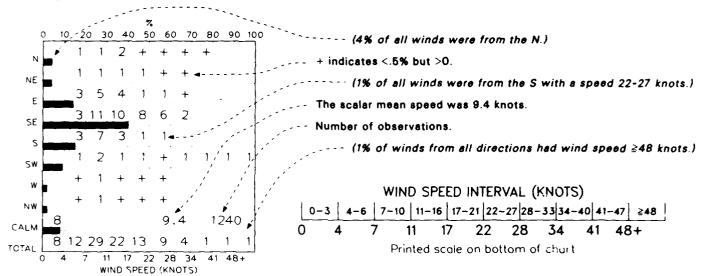
BLACK LINE - Percent frequency of wind speed ≤10 knots (≤12 mph).

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

Albers Equal-Area Conic Projection

Graphs: 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.

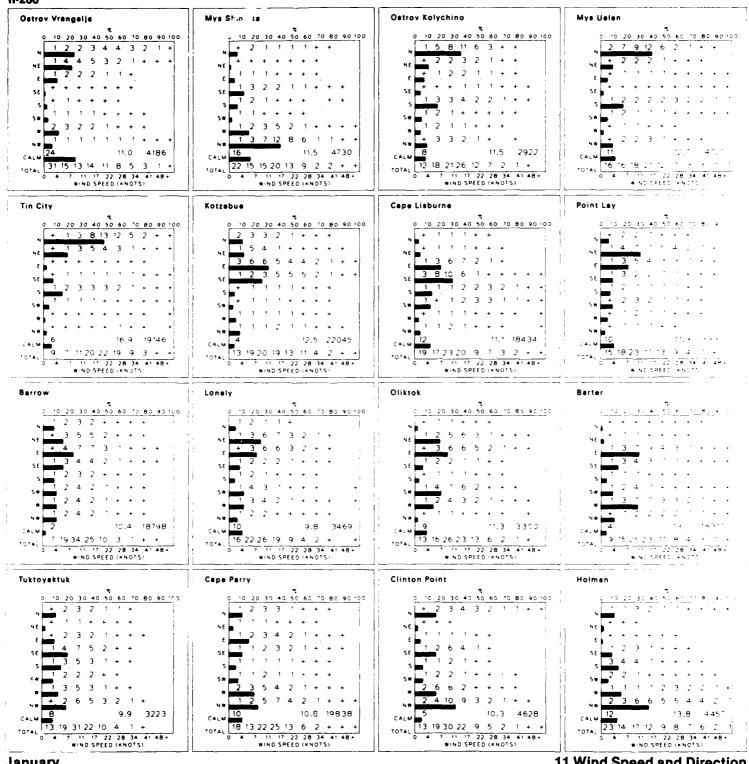


The scalar mean wind speed on the graph is based on the number of observations reporting a wind speed with direction. The sum of the TOTAL line provides the cumulative percent frequency of wind speed below a selected threshold value. In the legend graph, 71% of all winds were less than 17 knots (20 mph). The sum of the percent frequencies of the four wind speed isopleths for a given month and location on Map Sets 11 and 12 should equal 100%.

Surface wind is one of the most commonly observed elements. Many of the observations from the NCDC data base are visual observations based on the roughness of the sea (see table in text of Set 14). In recent years, more ships acquired anemometers and reported measured winds. Prior to 1963, many of the winds were recorded in the Beaufort scale; such estimates have proven to be quite reliable and can be used with a high degree of confidence.

11 Legend

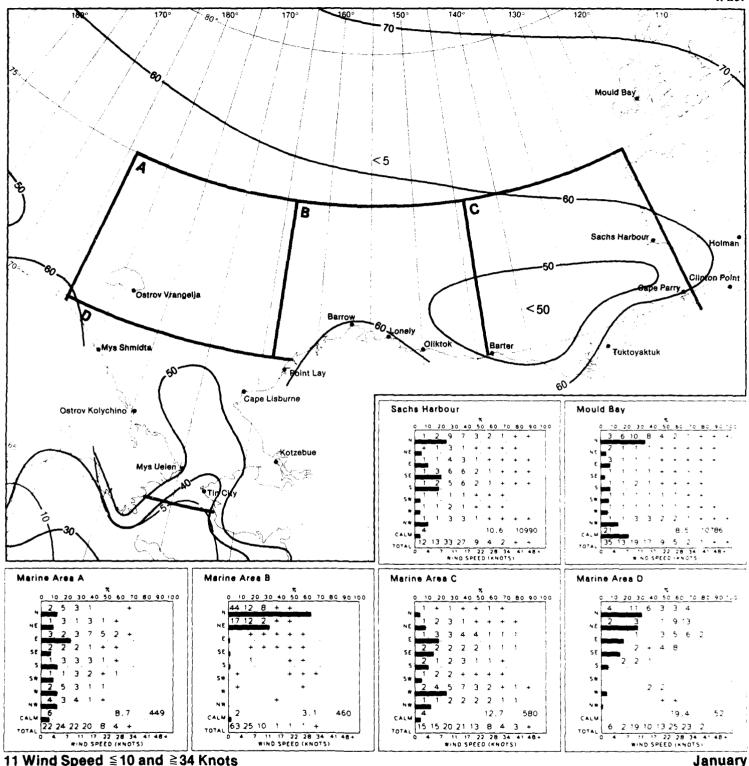
Legend 11



January

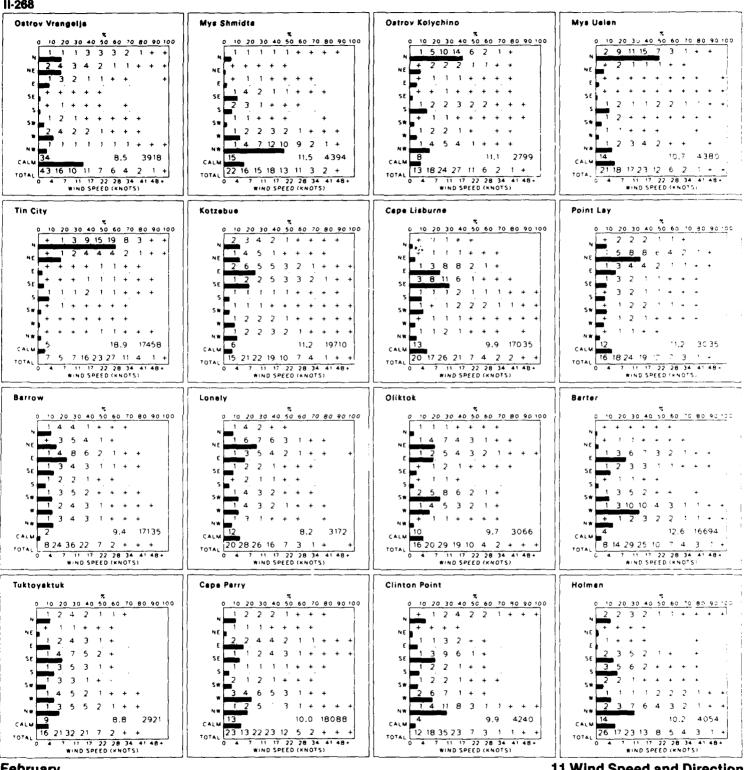
11 Wind Speed and Direction





11 Wind Speed ≦10 and ≧34 Knots

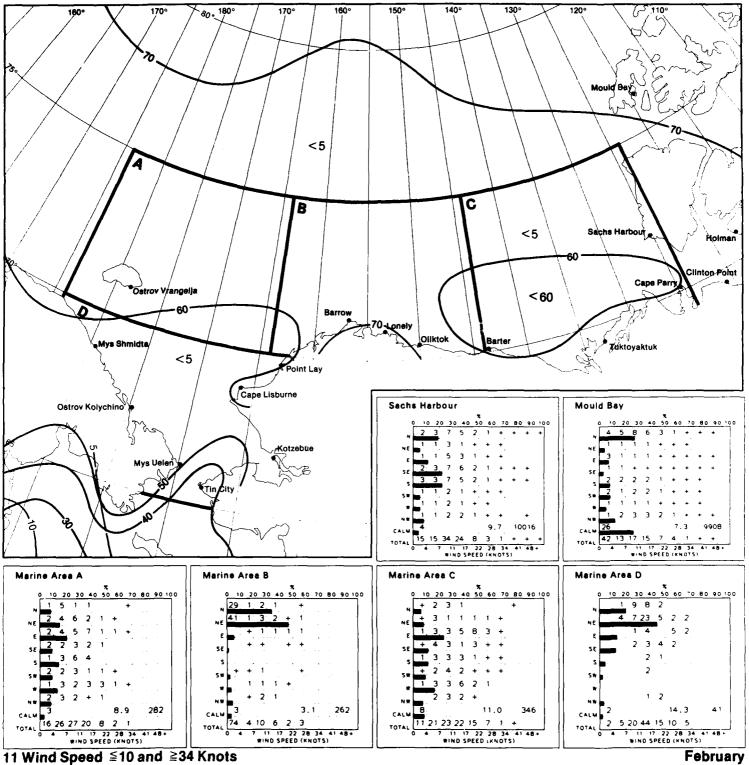
January



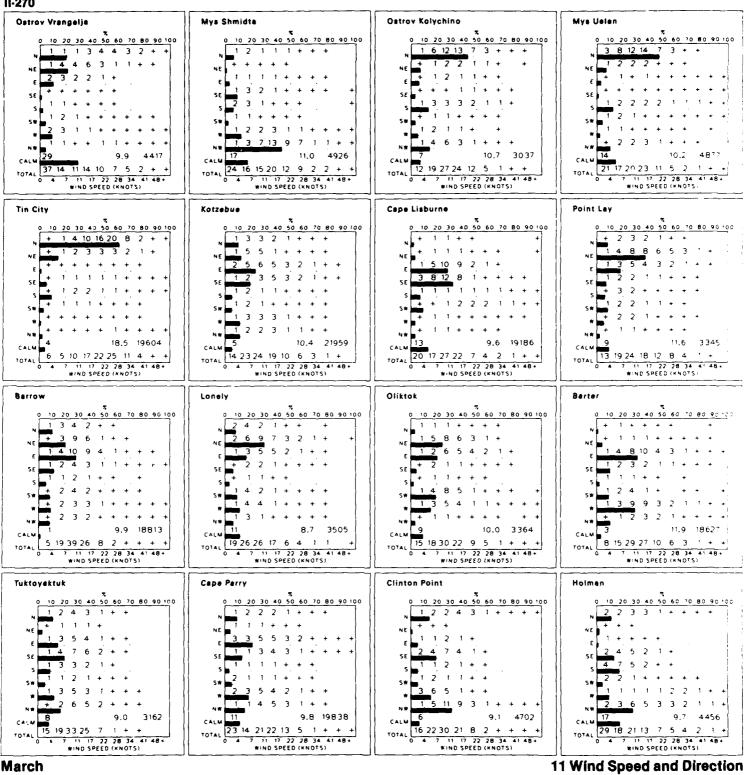
February

11 Wind Speed and Direction

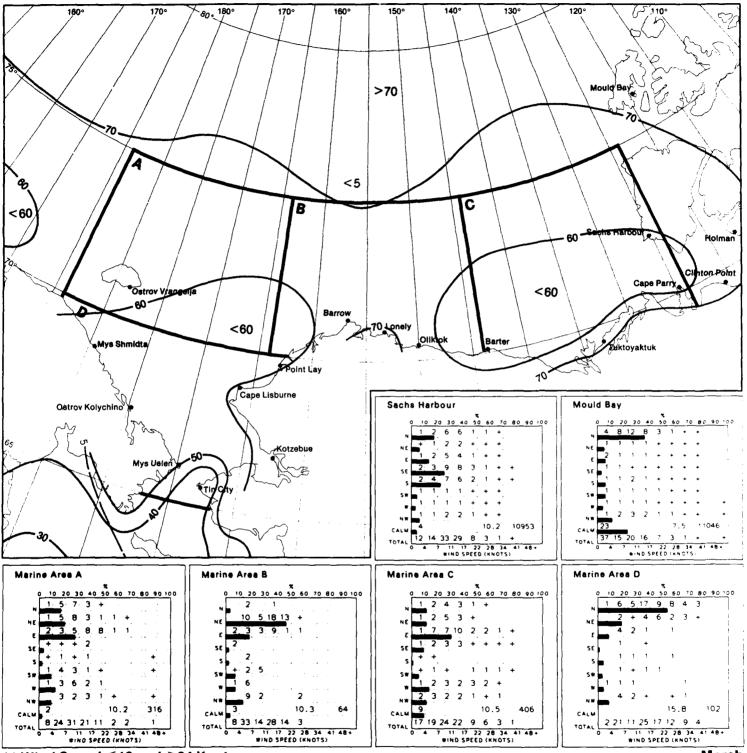




11 Wind Speed ≦10 and ≧34 Knots



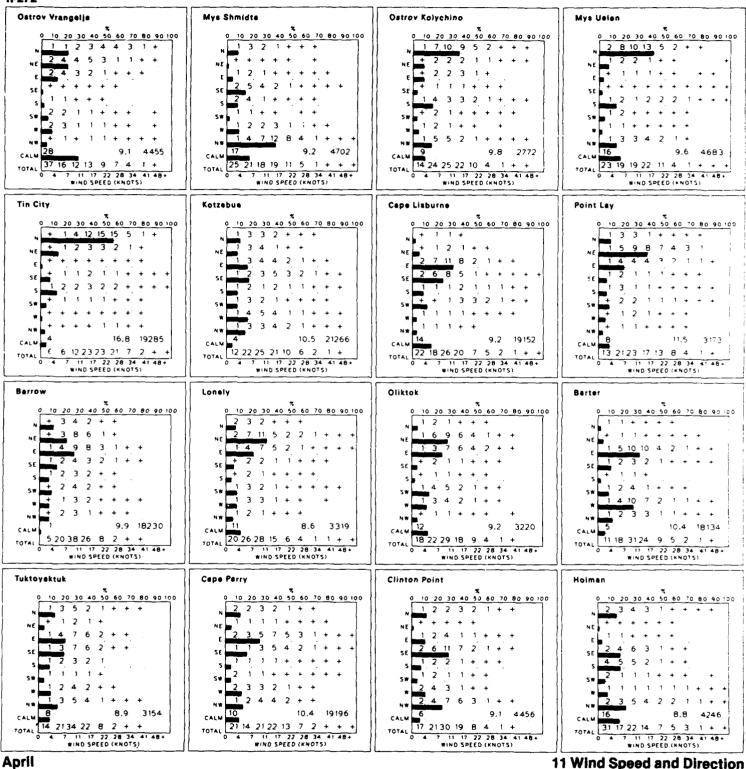


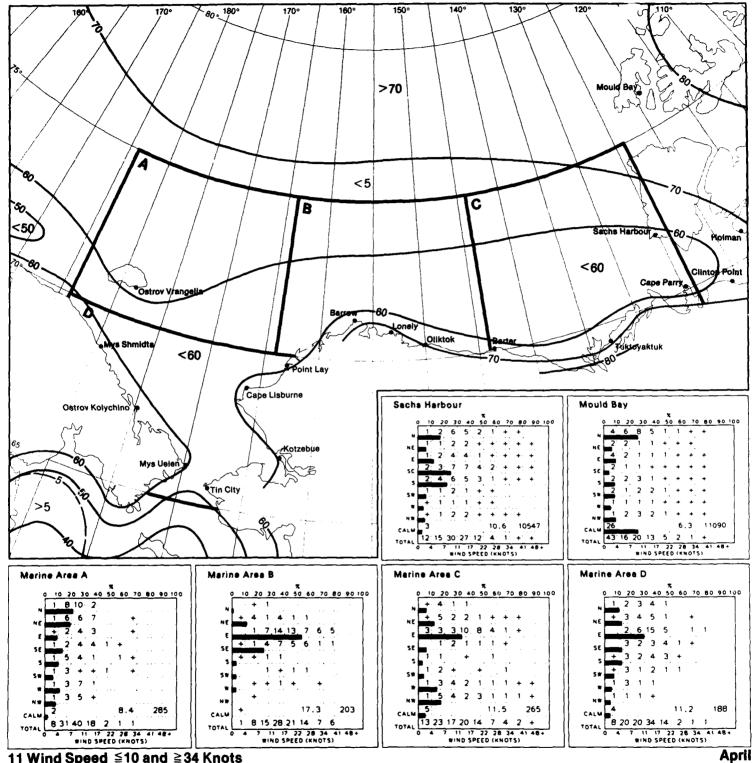


11 Wind Speed ≦10 and ≧34 Knots

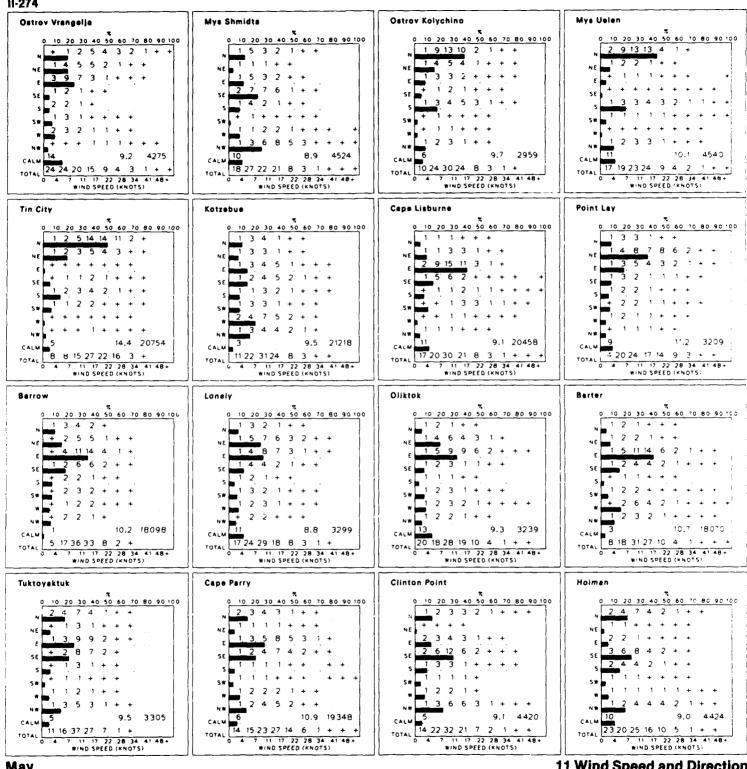
ļ

March



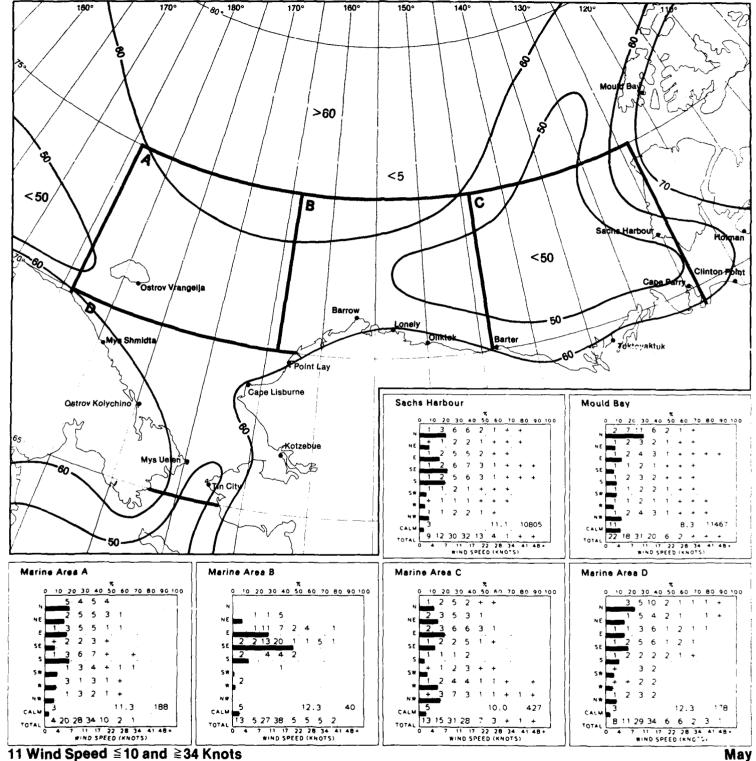


11 Wind Speed ≦10 and ≧34 Knots

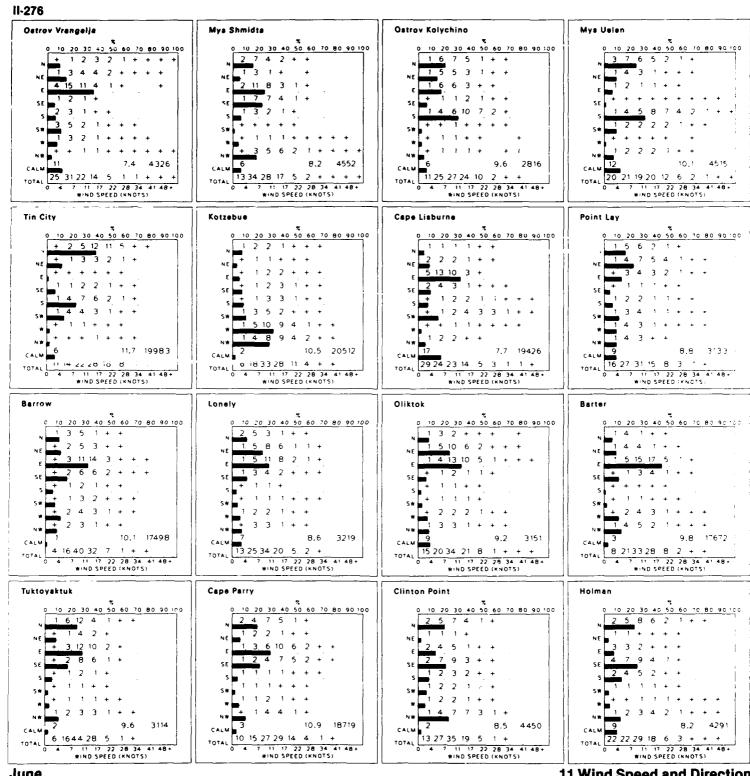


May

11 Wind Speed and Direction

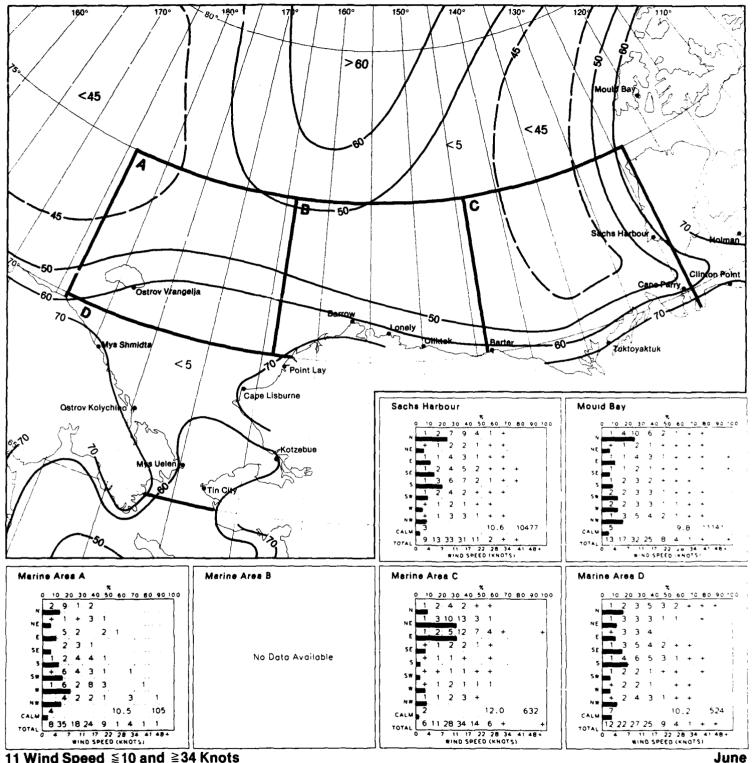


11 Wind Speed ≤10 and ≥34 Knots

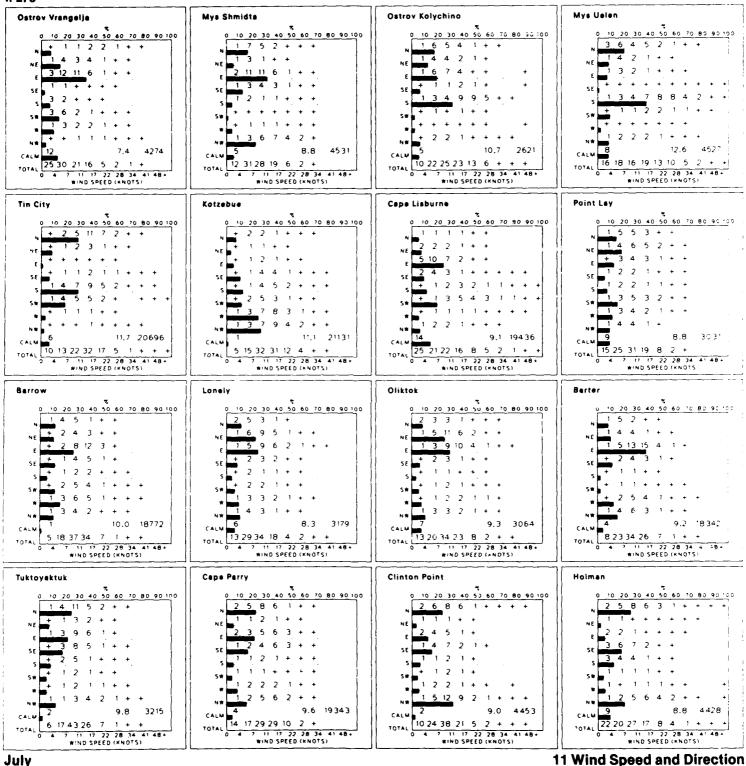


June

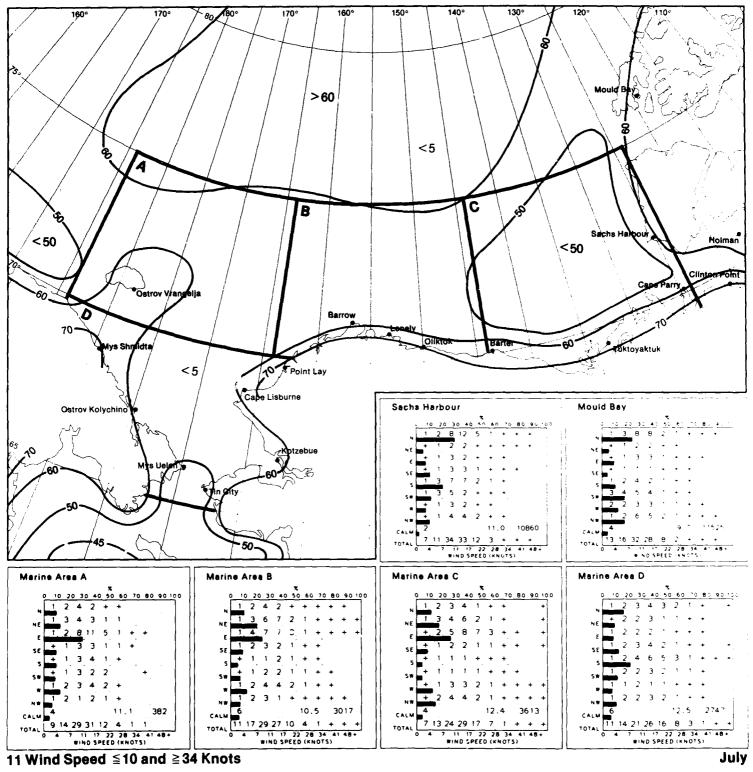
11 Wind Speed and Direction



11 Wind Speed ≨10 and ≧34 Knots



11 Wind Speed and Direction



11 Wind Speed ≦10 and ≧34 Knots

CALM 5 10.5 ... 10.5 ... 13 15 26 28 13 4 1 + wind speed (knots)

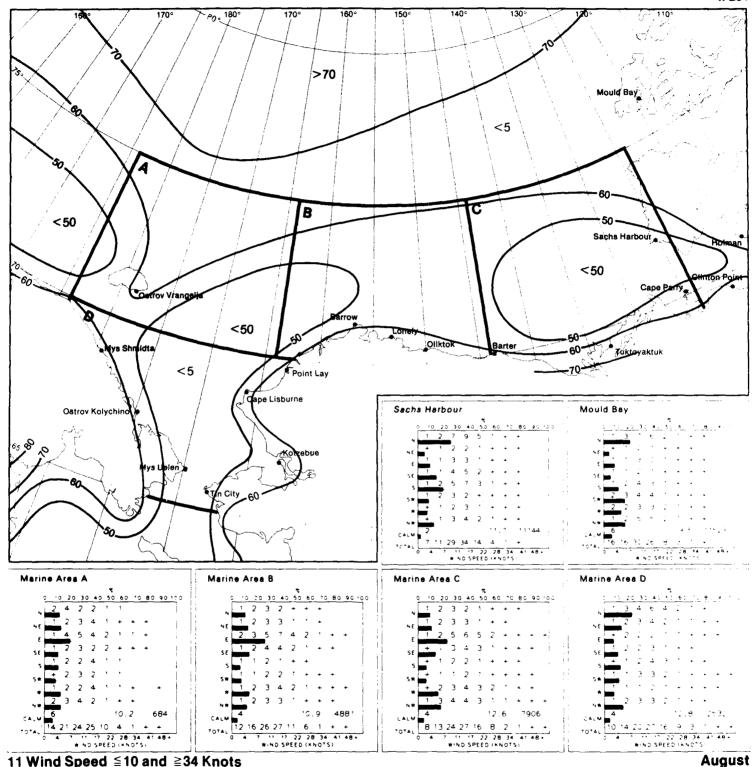
August

7 16 41 25 8 2 +

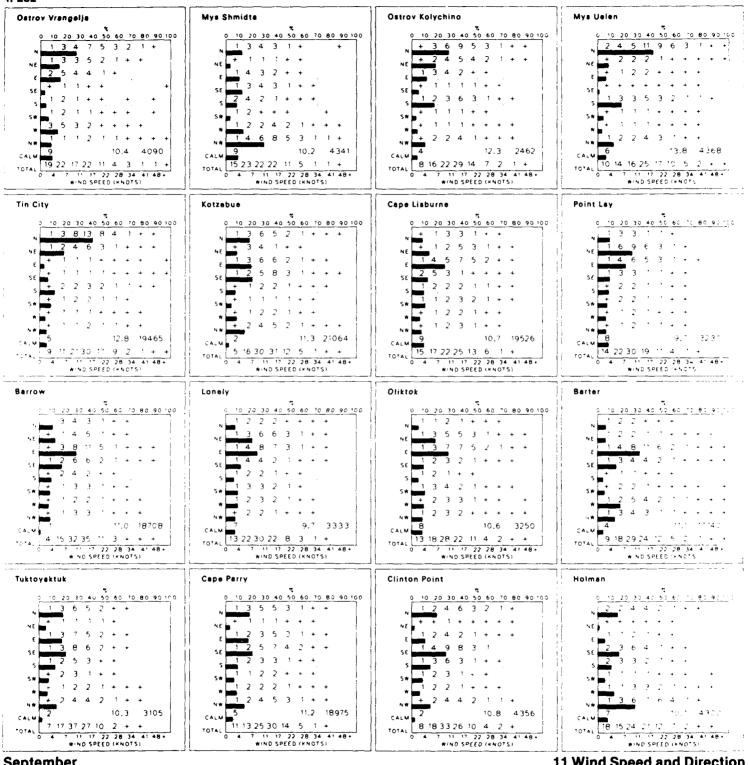
4 7 11 17 22 28 34 41 48+ #IND SPEED (HNOTS)

2 10,2 4483 B 22 33 24 9 4 1 +

4 7 11 17 22 28 34 41 48 4 WIND SPEED (KNOTS)

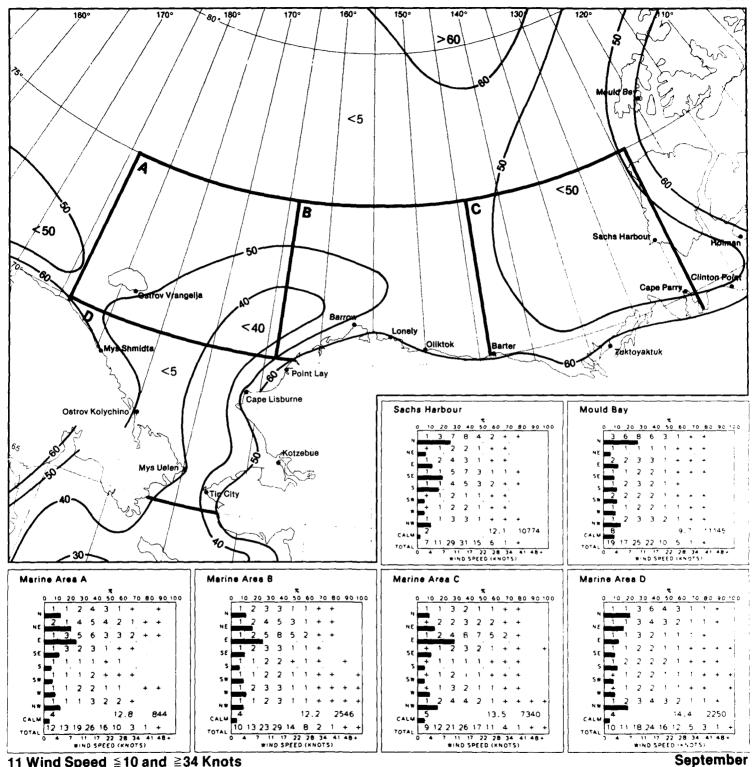


11 Wind Speed ≤10 and ≥34 Knots

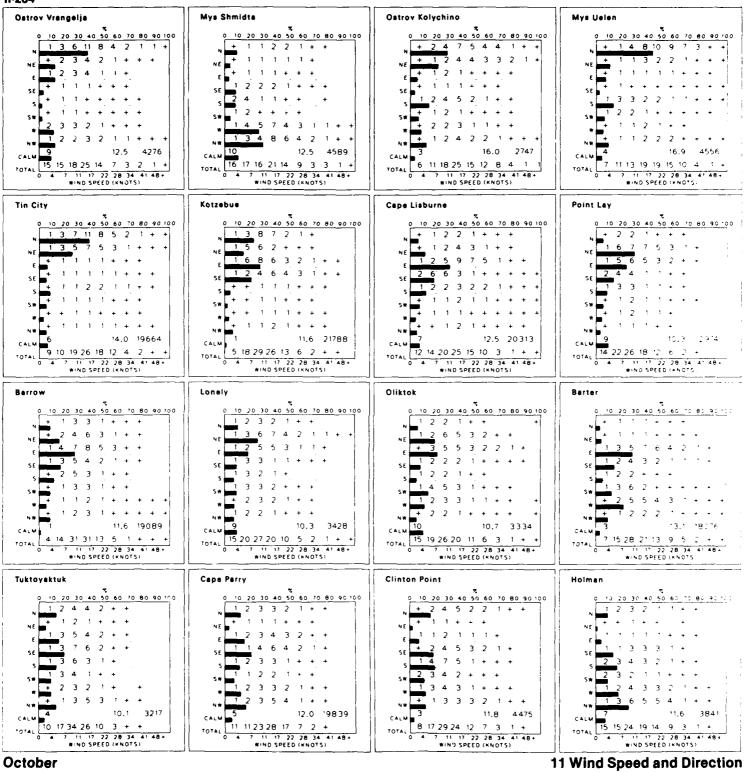


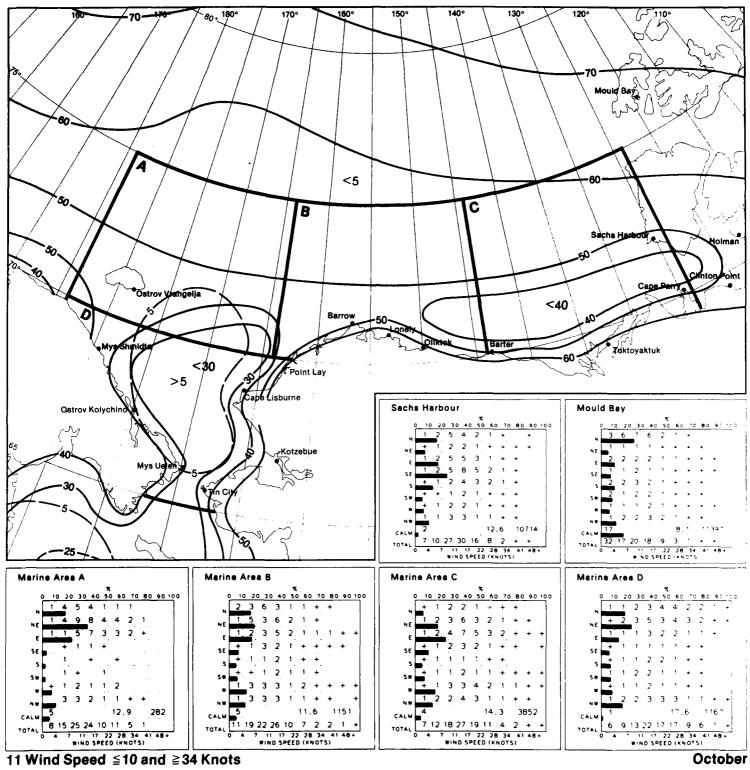
September

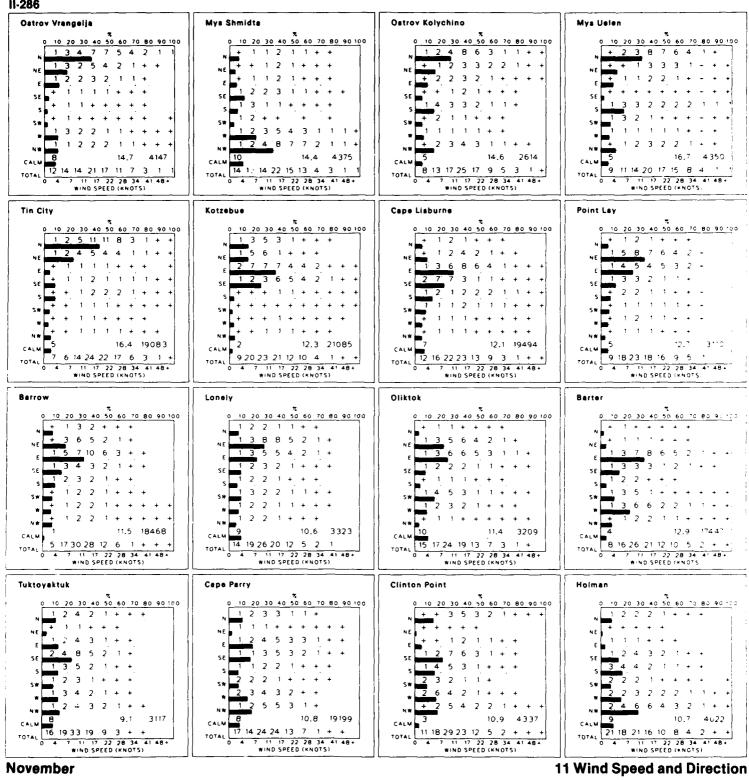
11 Wind Speed and Direction

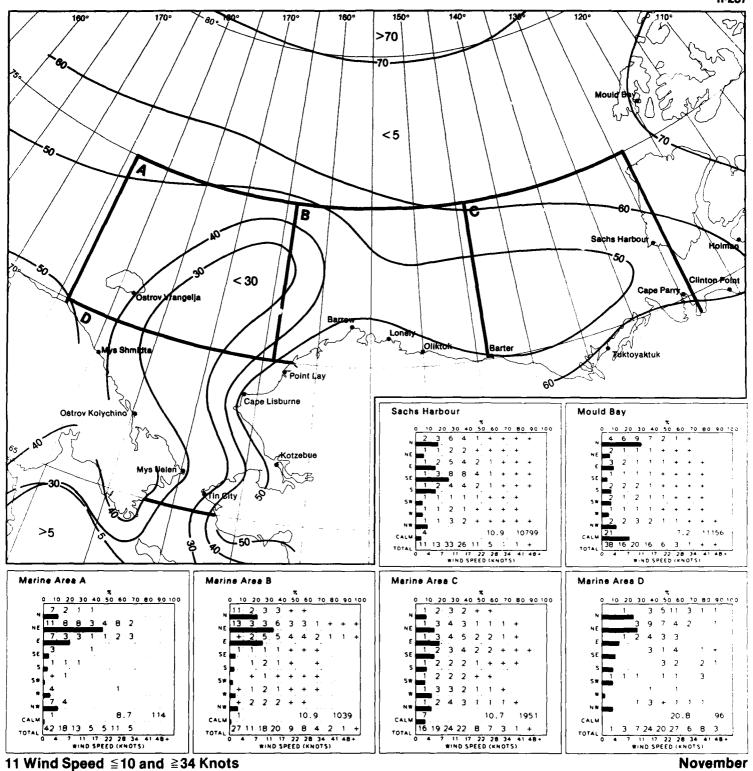


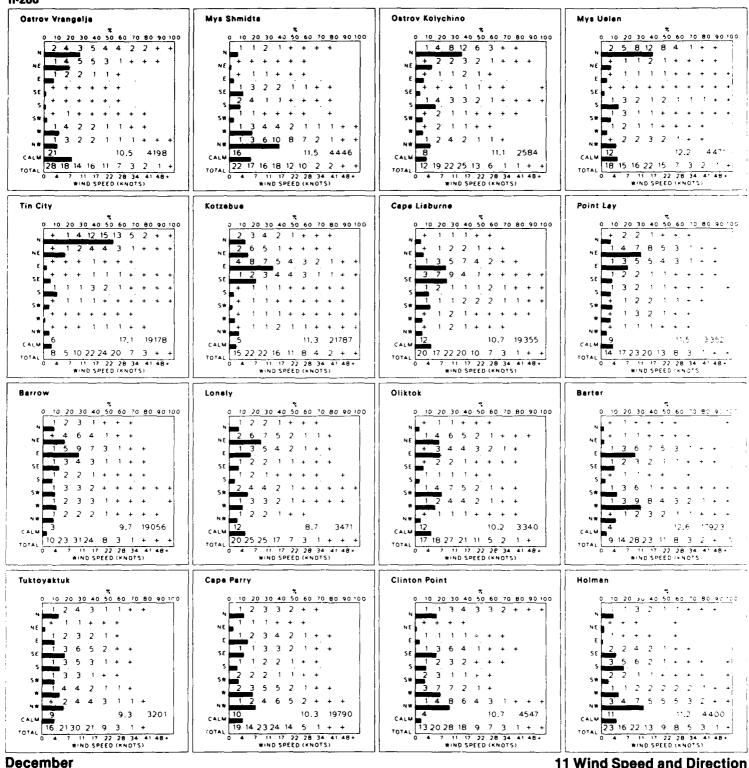
11 Wind Speed ≤10 and ≥34 Knots



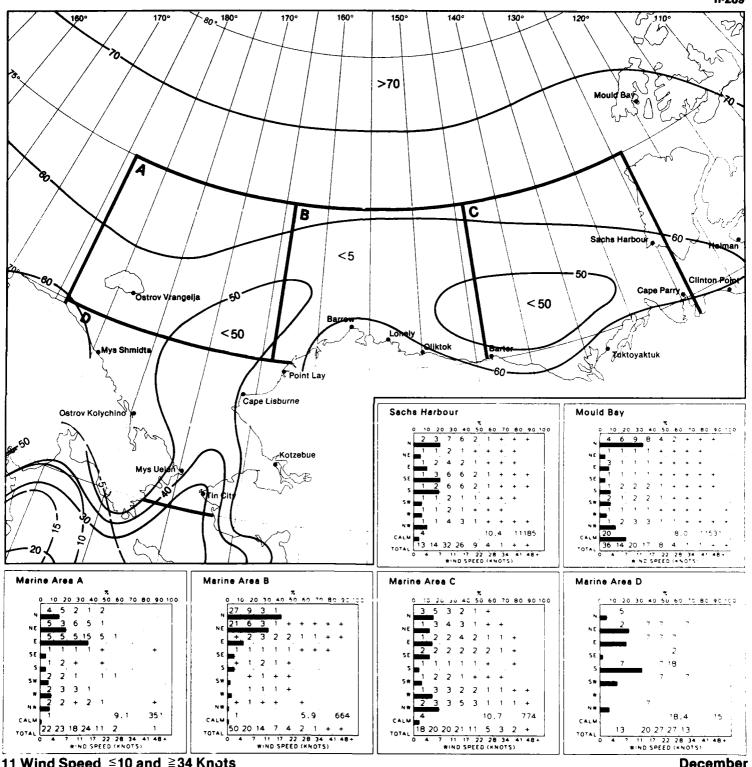








11 Wind Speed and Direction



11 Wind Speed ≦10 and ≧34 Knots

December

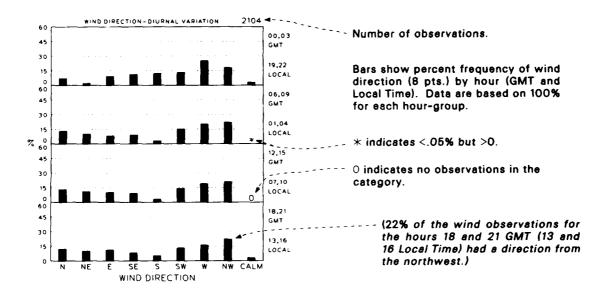
Map 12. Wind speed 11-21 and 22-33 knots

BLACK LINE - Percent frequency of wind speed 11-21 knots.

BLUE LINE - Percent frequency of wind speed 22-33 knots.

Albers Equal—Area Conic Projection

Graphs: Wind direction/diurnal variation



The historical marine data file at the NCDC is made up of data collected and recorded since 1854 in several different units of measurement. Wind direction has been recorded over the years in the 16-, 32-, and 36-point scale. A reduced biasing system was employed in converting wind direction to the 8-point scale used in this atlas. This method attached weighting values to observations which overlap two different 8-point sectors and treats them as "fractional observation counts."

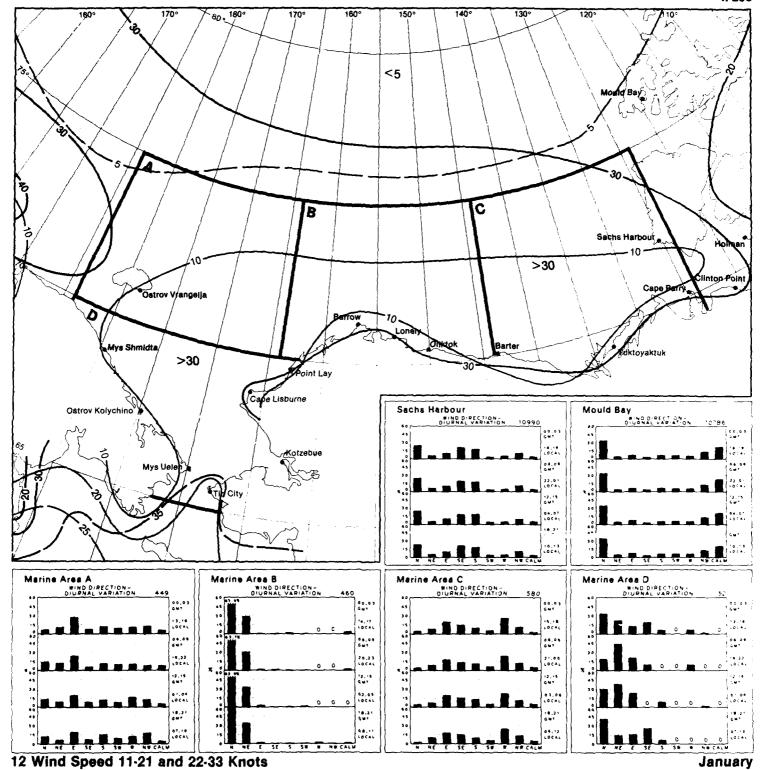
12 Legend Legend 12



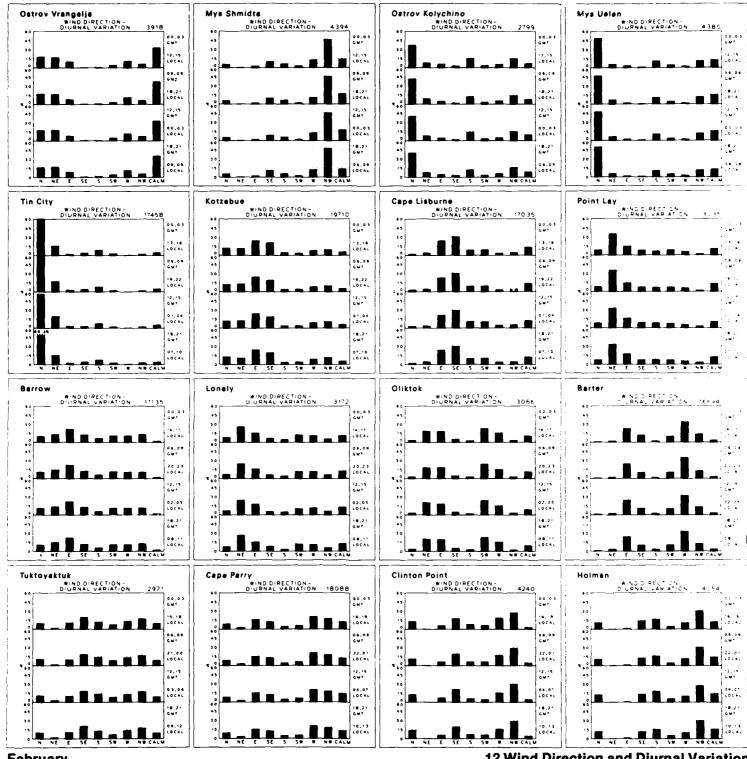
January

12 Wind Direction and Diurnal Variation



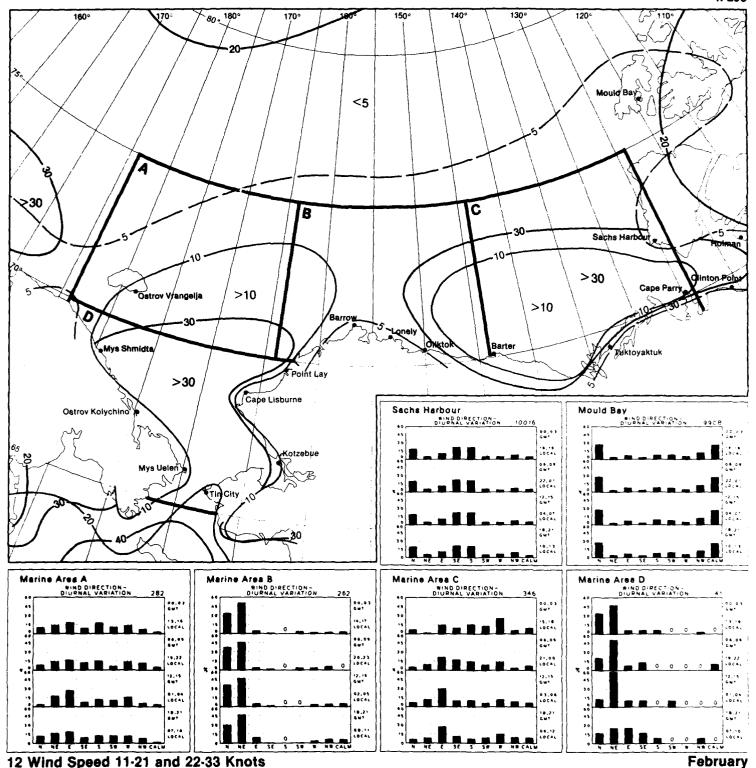




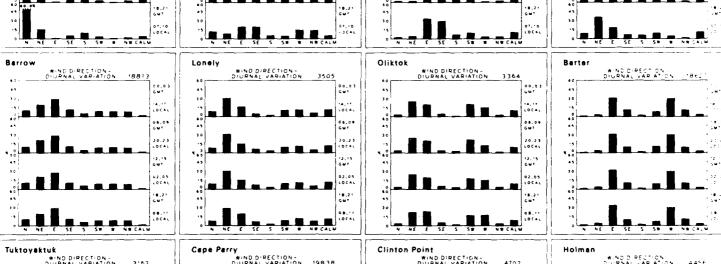


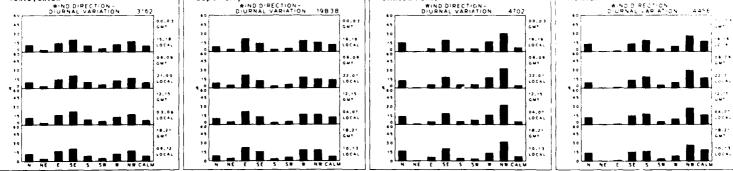
February

12 Wind Direction and Diurnal Variation



12 Wind Speed 11-21 and 22-33 Knots

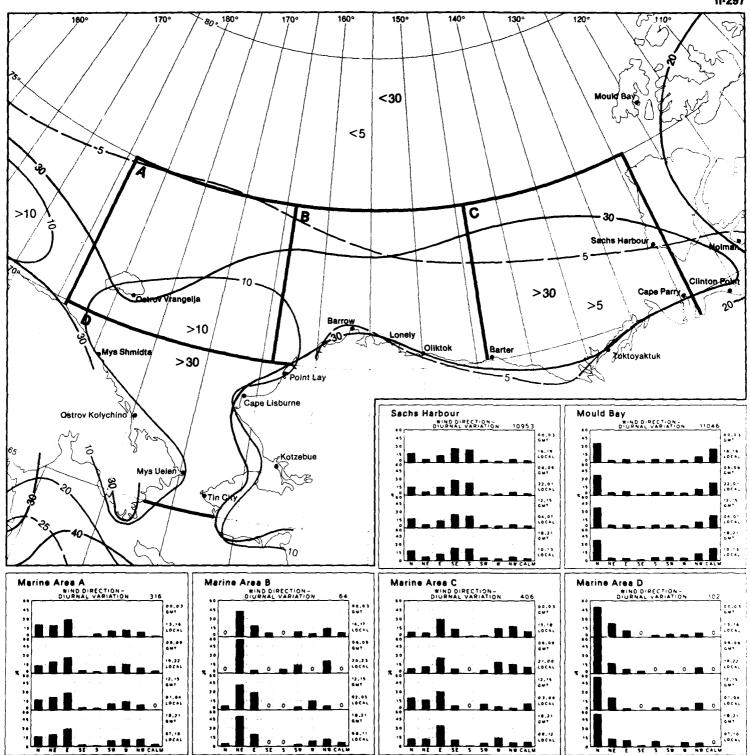




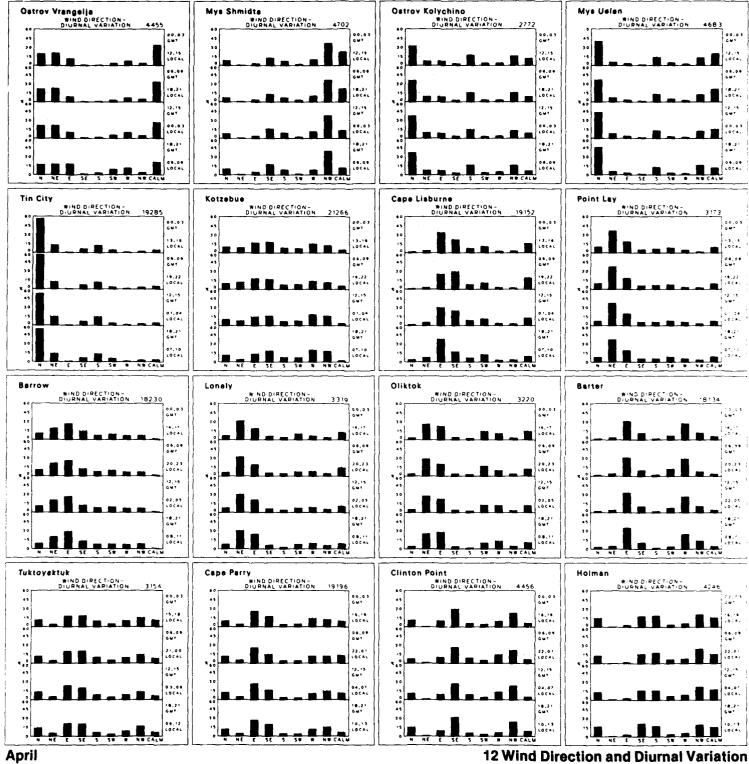
March

12 Wind Direction and Diurnal Variation

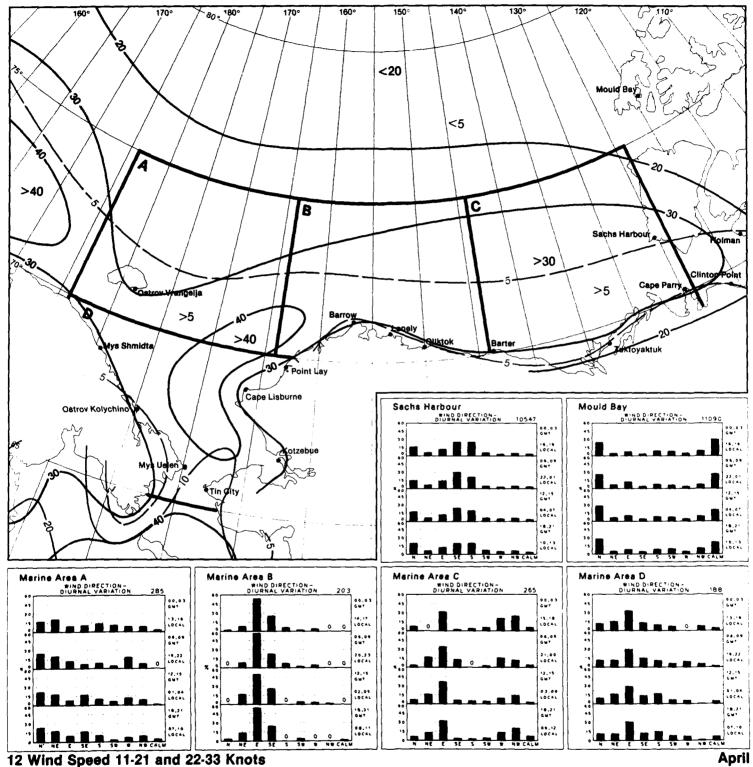
March



12 Wind Speed 11-21 and 22-33 Knots

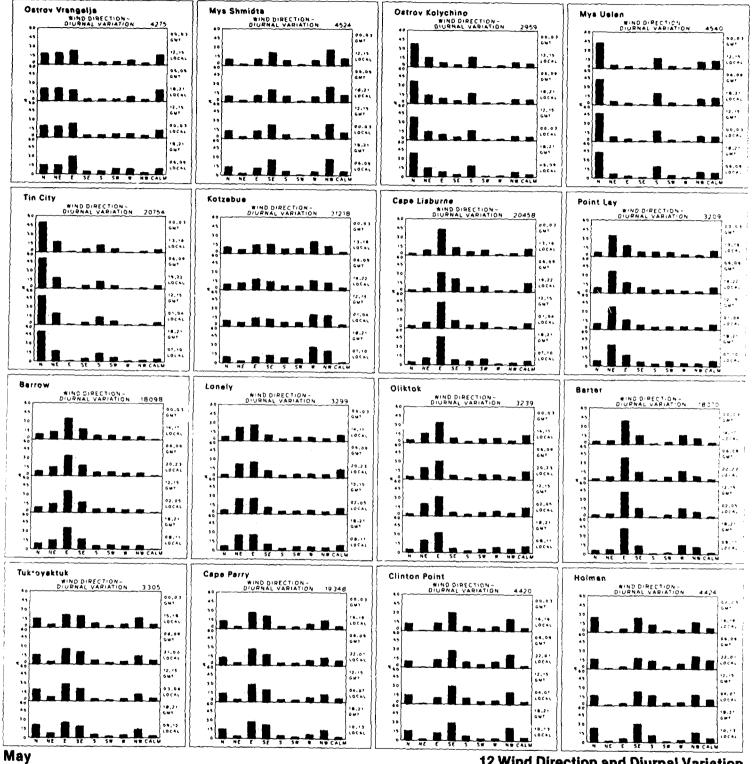


12 Wind Direction and Diurnal Variation



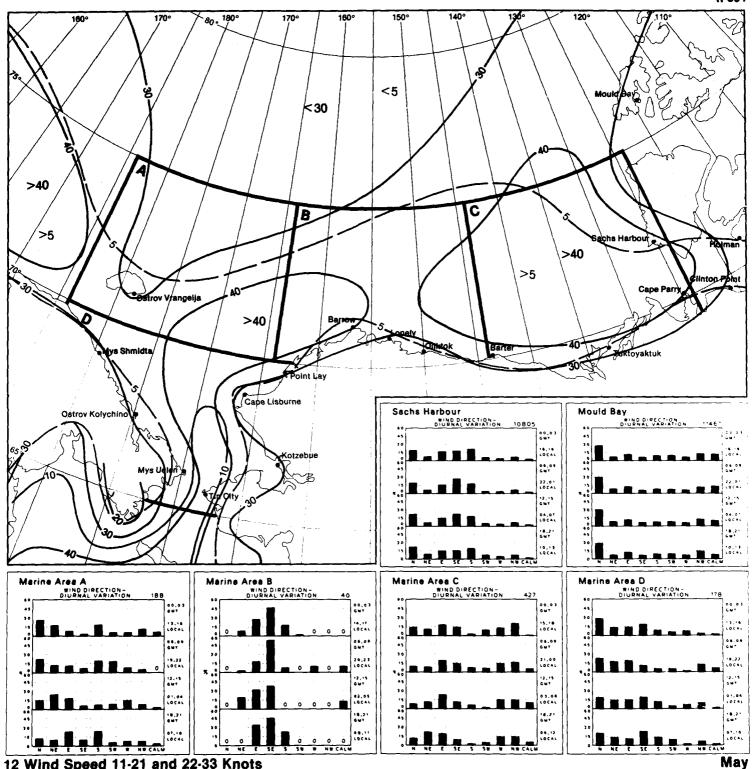
12 Wind Speed 11-21 and 22-33 Knots



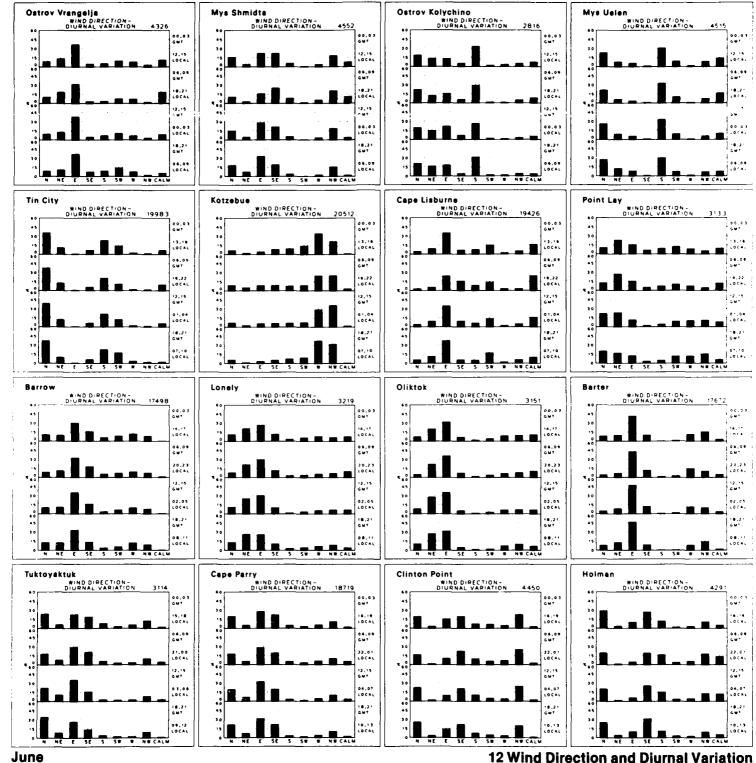


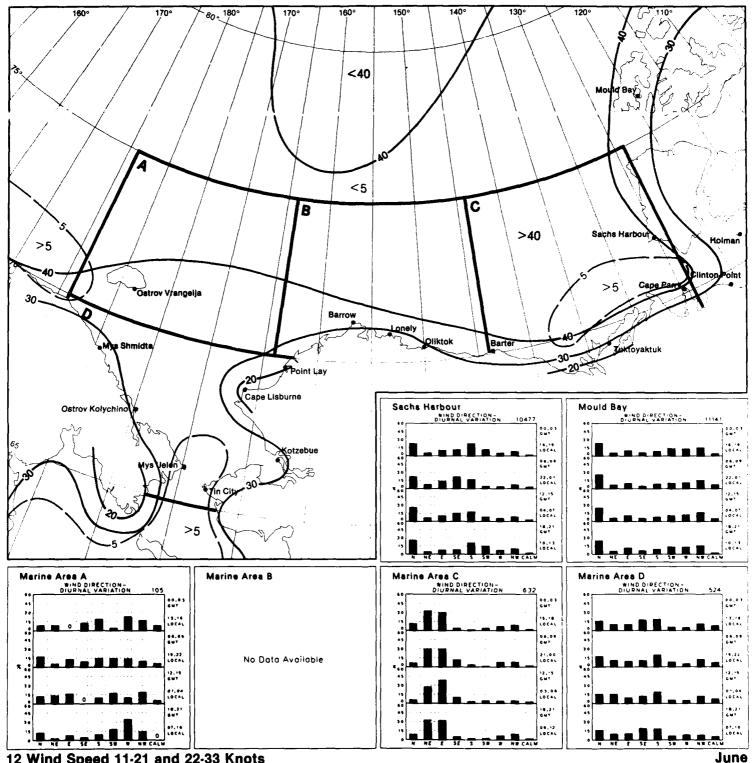
12 Wind Direction and Diurnal Variation





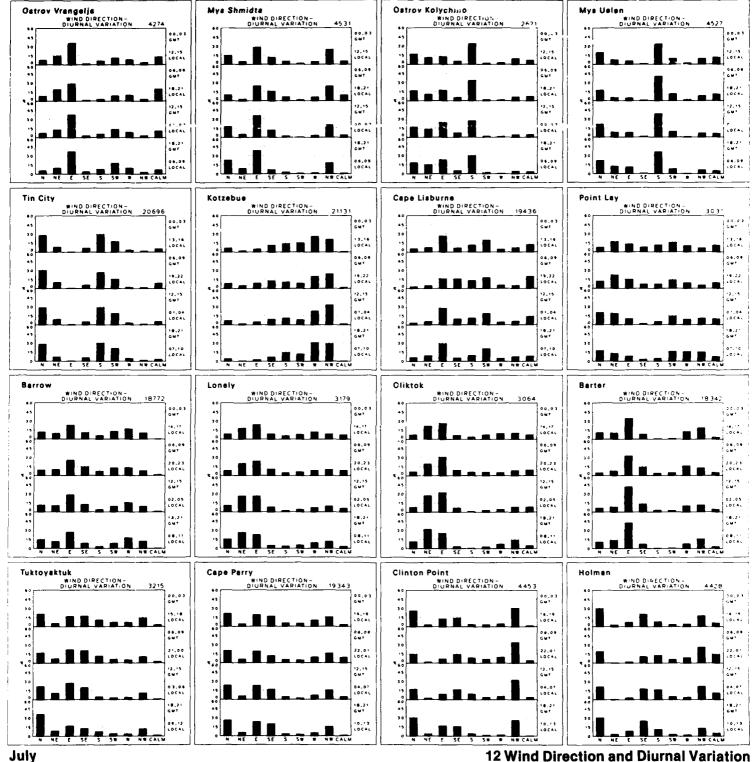
12 Wind Speed 11-21 and 22-33 Knots

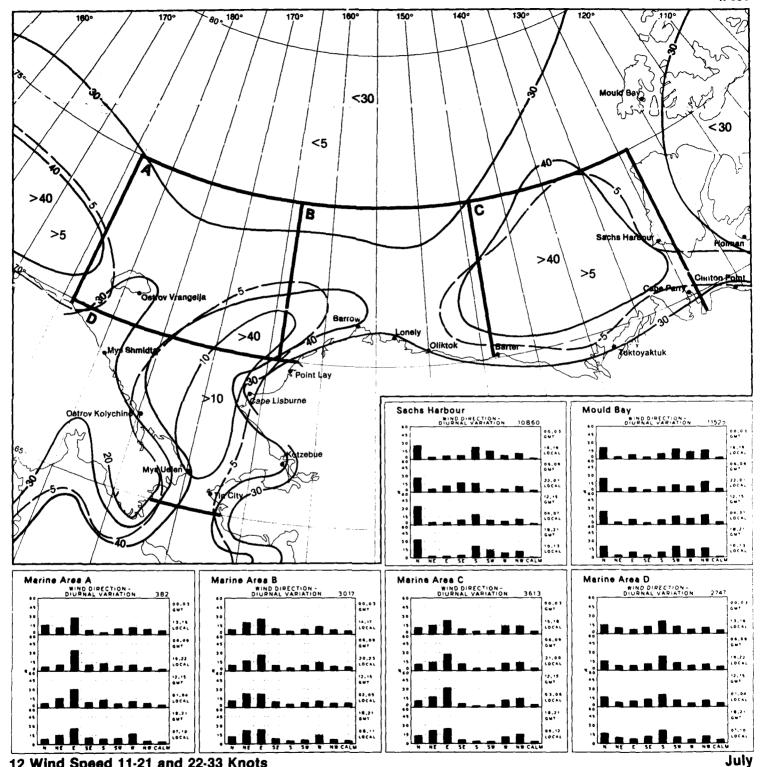




12 Wind Speed 11-21 and 22-33 Knots

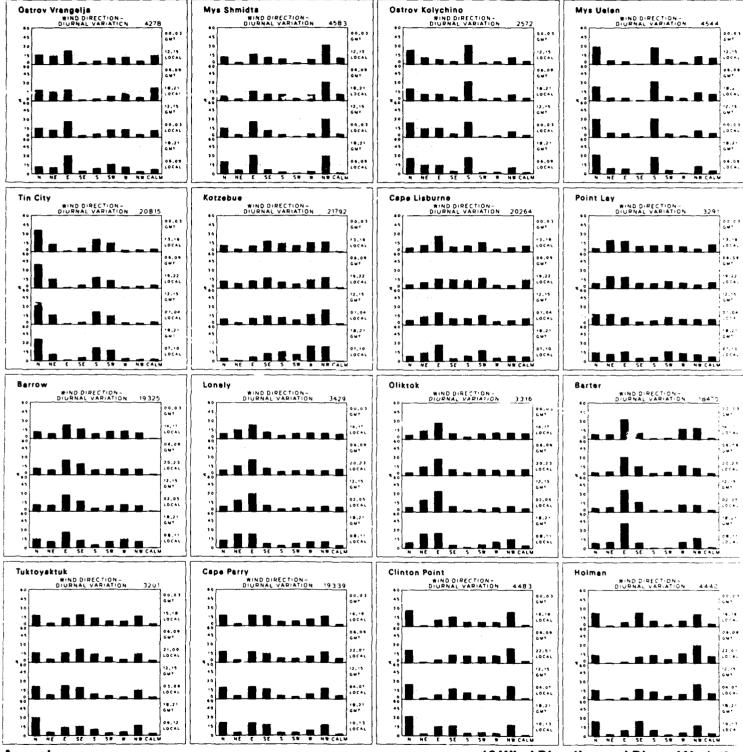






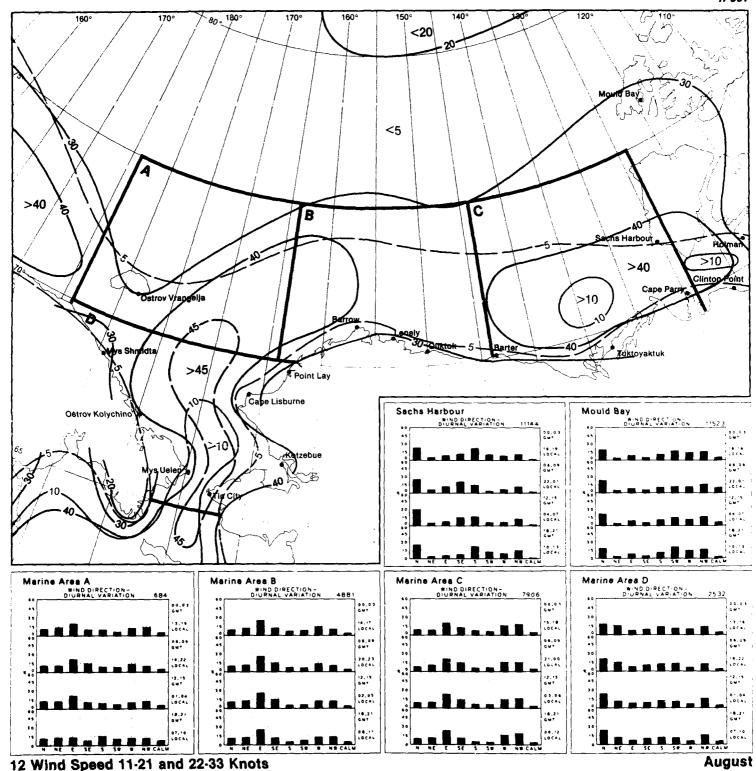
12 Wind Speed 11-21 and 22-33 Knots

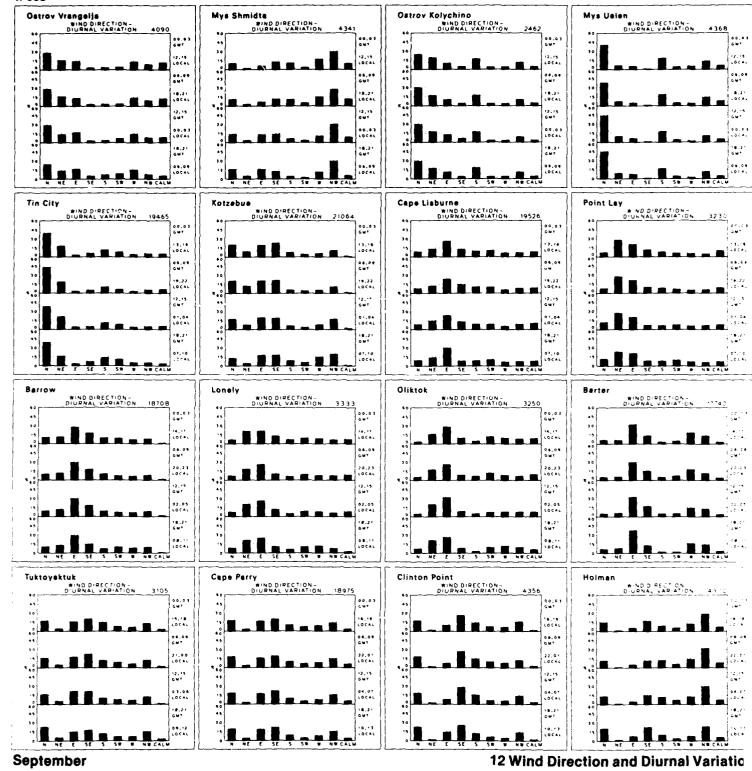


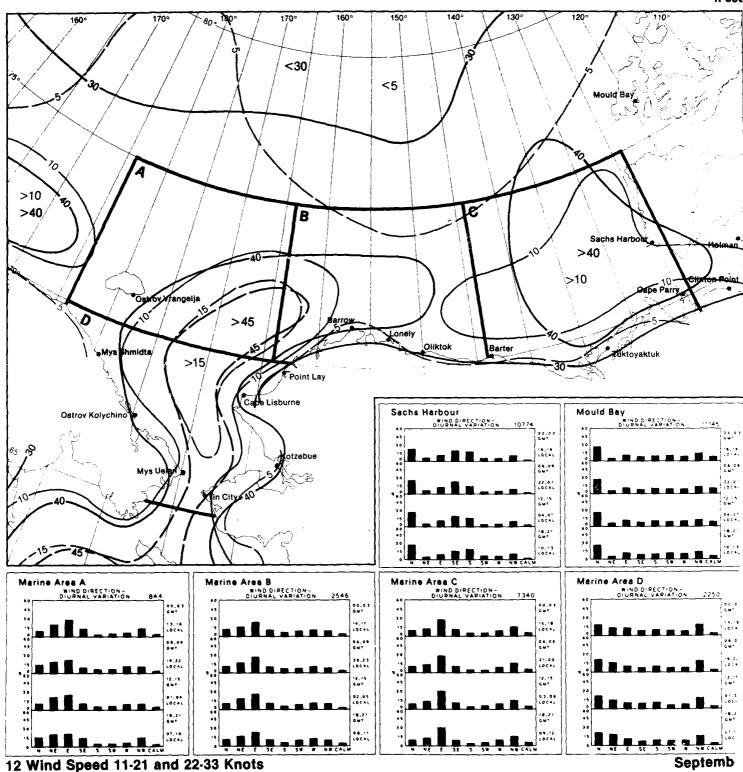


August

12 Wind Direction and Diurnal Variatio

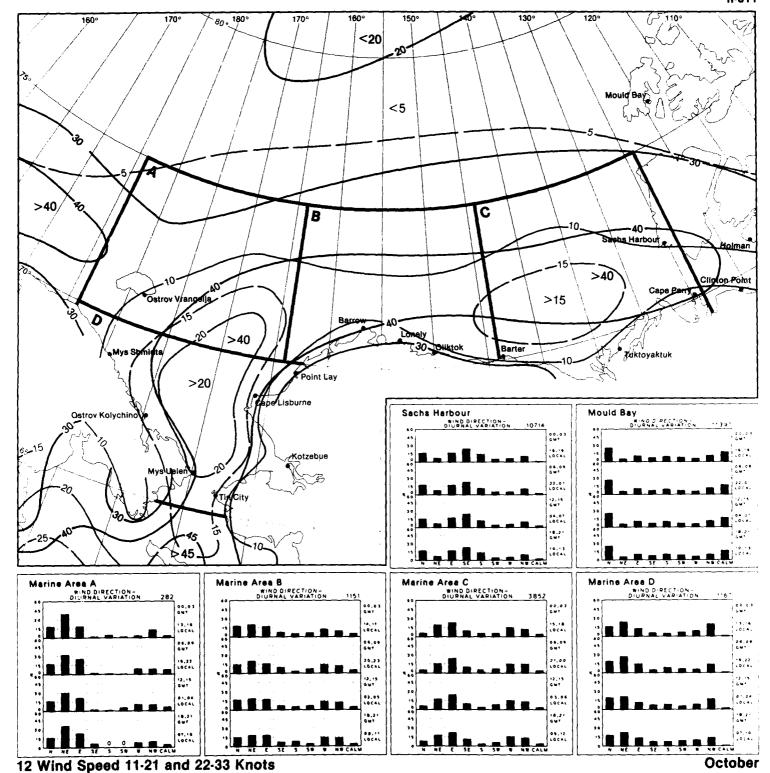


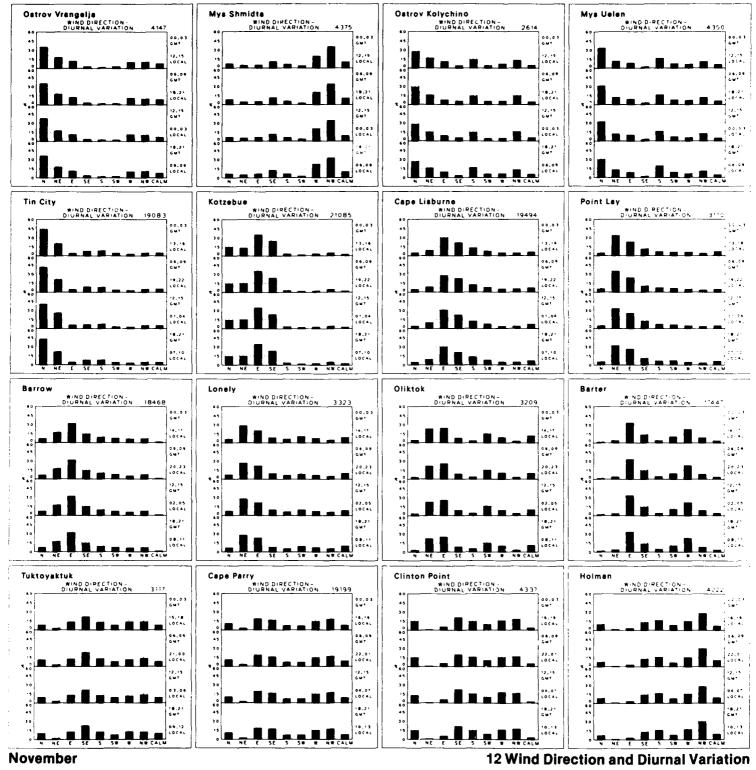


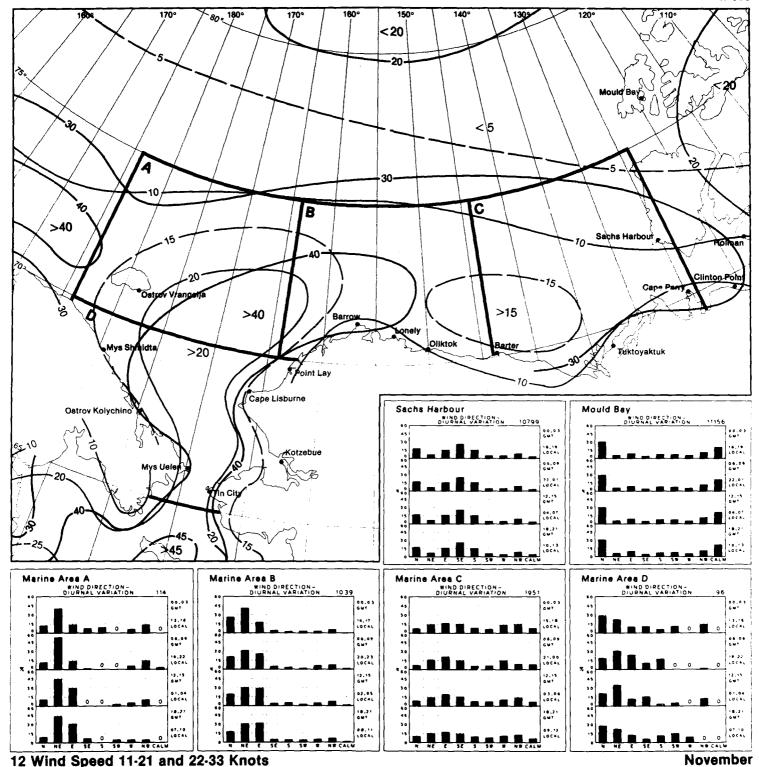


October

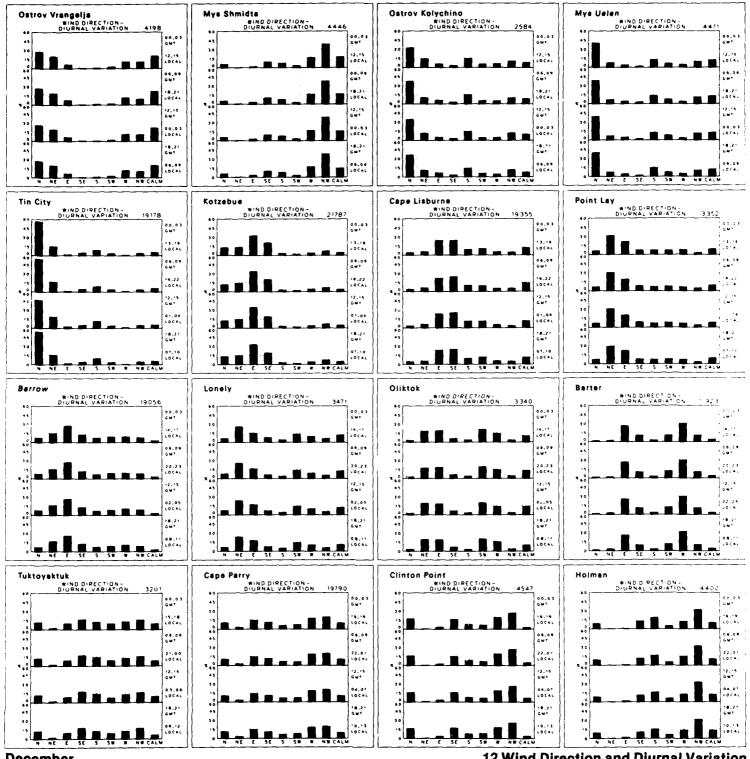
12 Wind Direction and Diurnal Variation





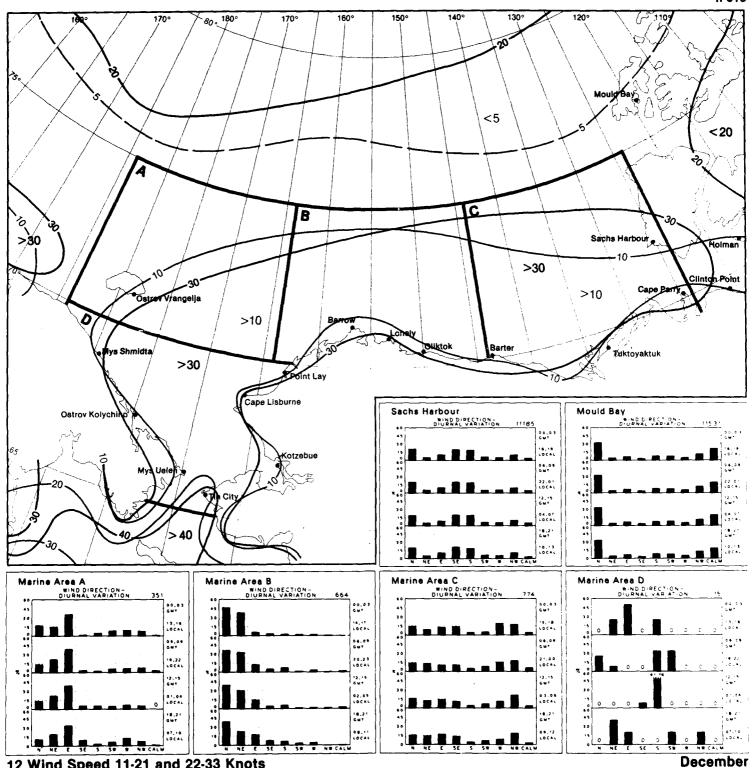


12 Wind Speed 11-21 and 22-33 Knots



December

12 Wind Direction and Diurnal Variation



12 Wind Speed 11-21 and 22-33 Knots

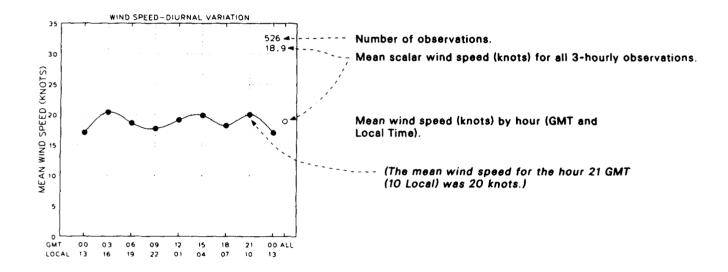
Map 13. Scalar mean wind speed and wind chill temperature ≤-30°C

BLACK LINE - Mean scalar wind speed (knots).

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

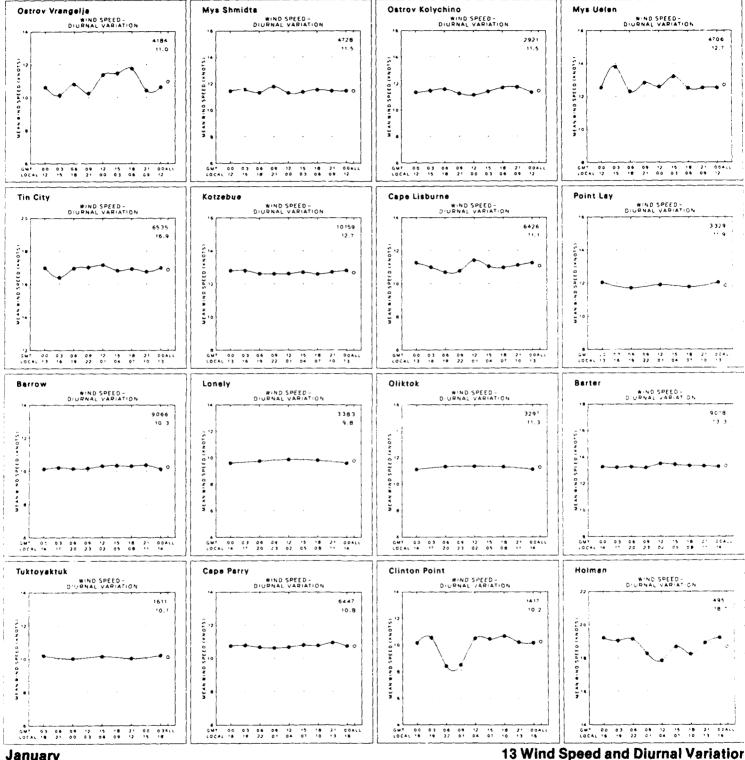
Albers Equal—Area Conic Projection

Graphs: Wind speed/diurnal variation



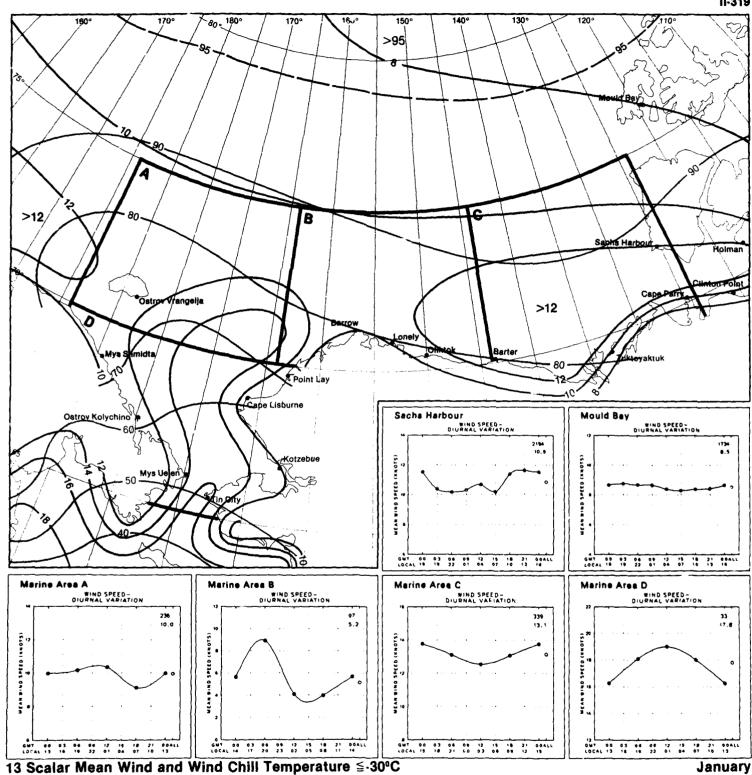
In areas of high persistence (also called constancy, steadiness) of direction, the magnitude of the vector mean wind (Set 10) should closely approach that of the scalar mean wind (set 13). As most of the marine observations are recorded at six-hour intervals (00, 06, 12, 18 GMT), intermediate hours (03, 09, 15, 21 GMT) were not plotted on the graphs for the marine areas. Intermediate hours were plotted for the stations, but users should use caution in interpreting plots for those few stations that reported less than eight observations per day—see the data inventory in the introductory text for Section II.

13 Legend 13

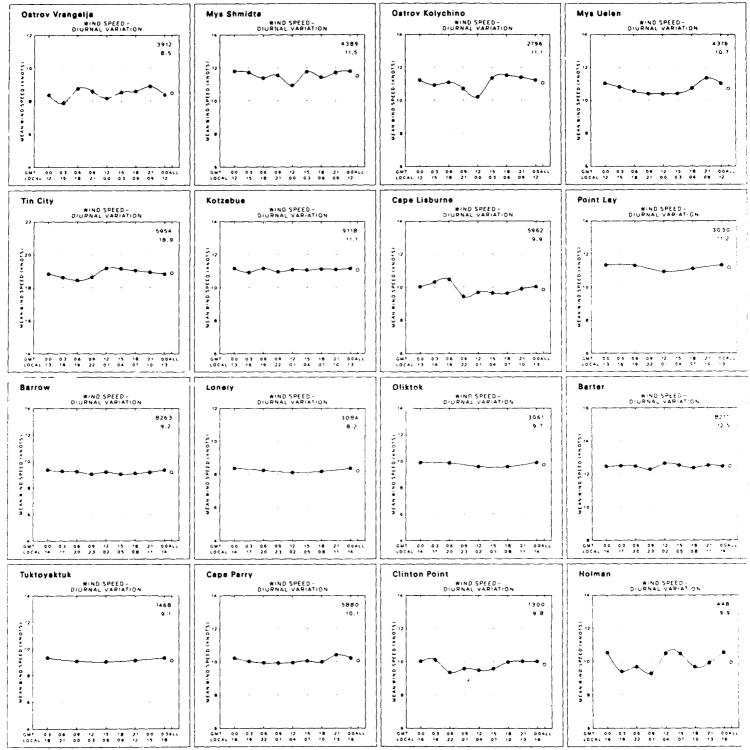


January







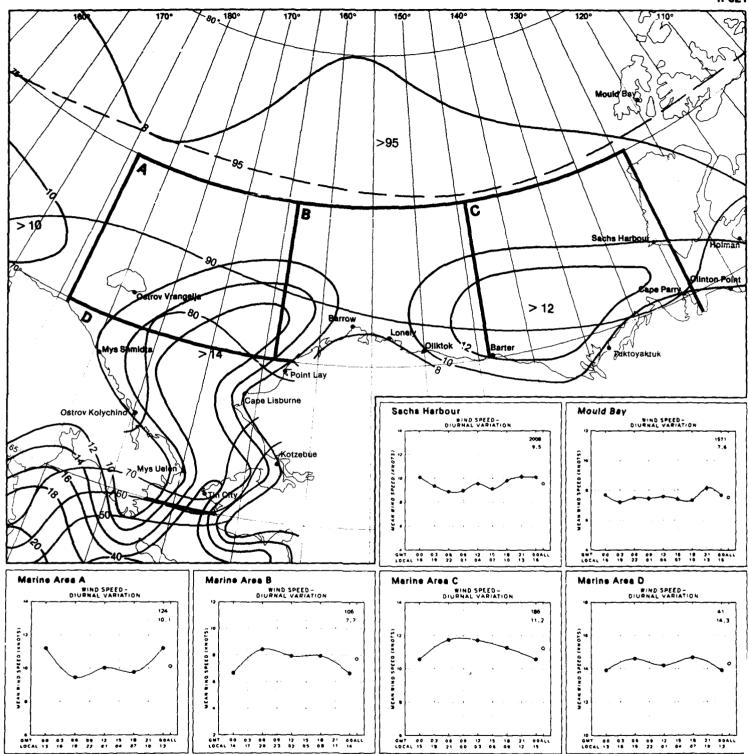


February

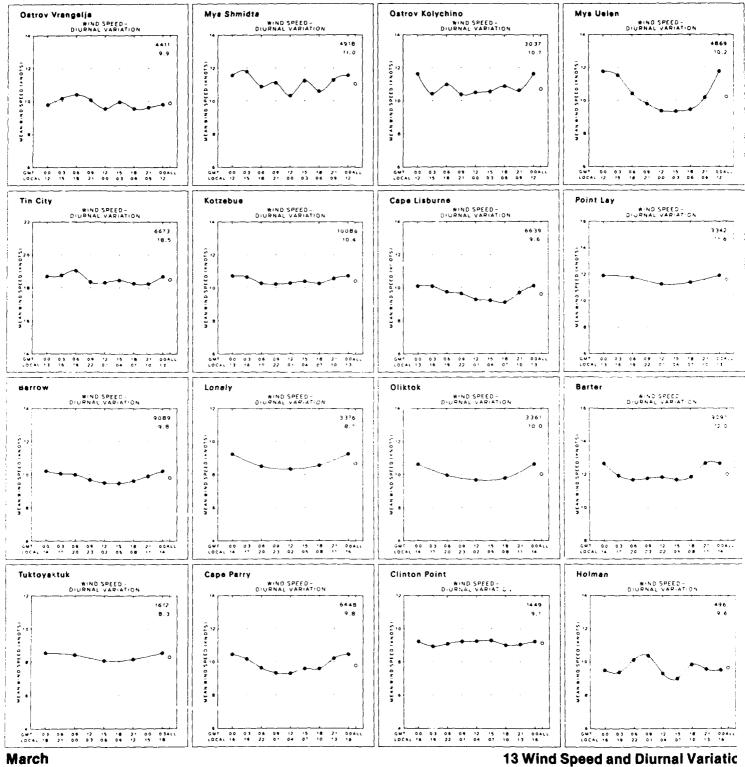
13 Wind Speed and Diurnai Variatio

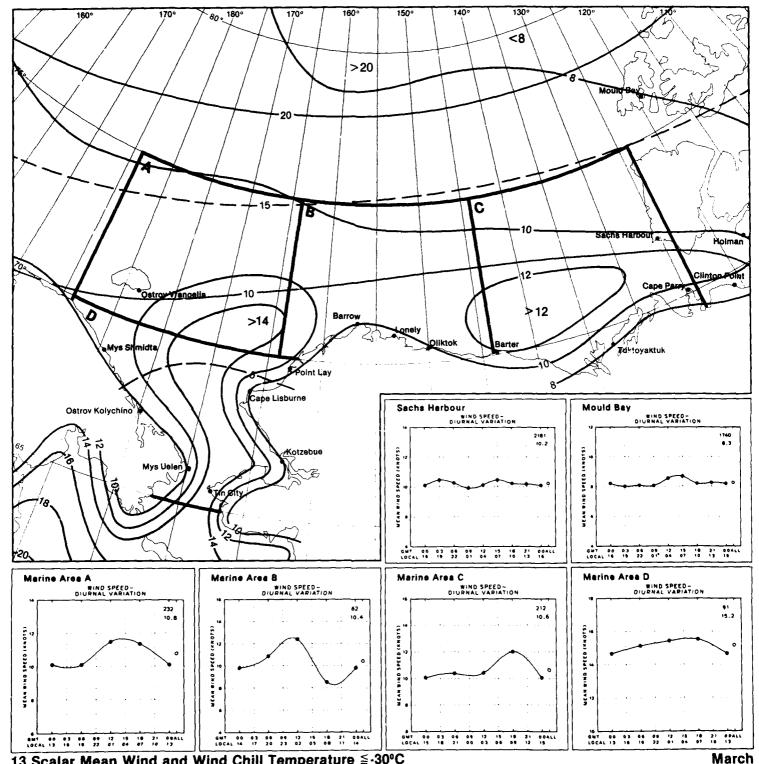


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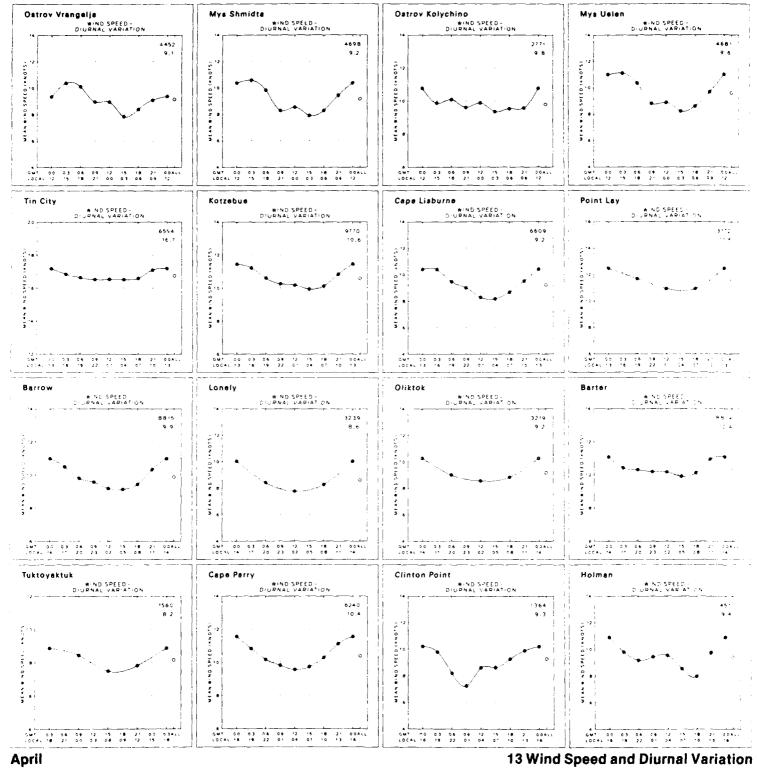


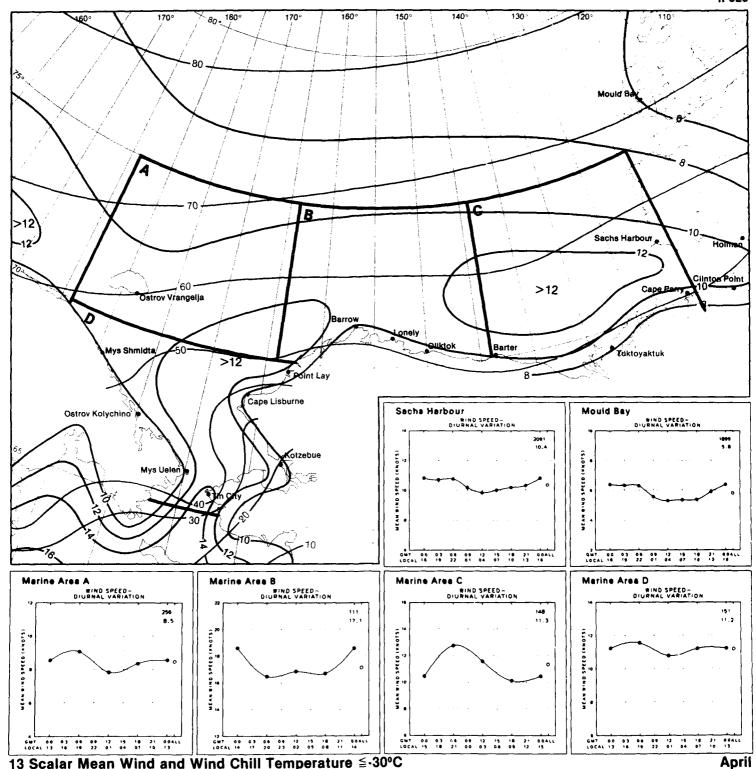
13 Scalar Mean Wind and Wind Chill Temperature ≤-30°C



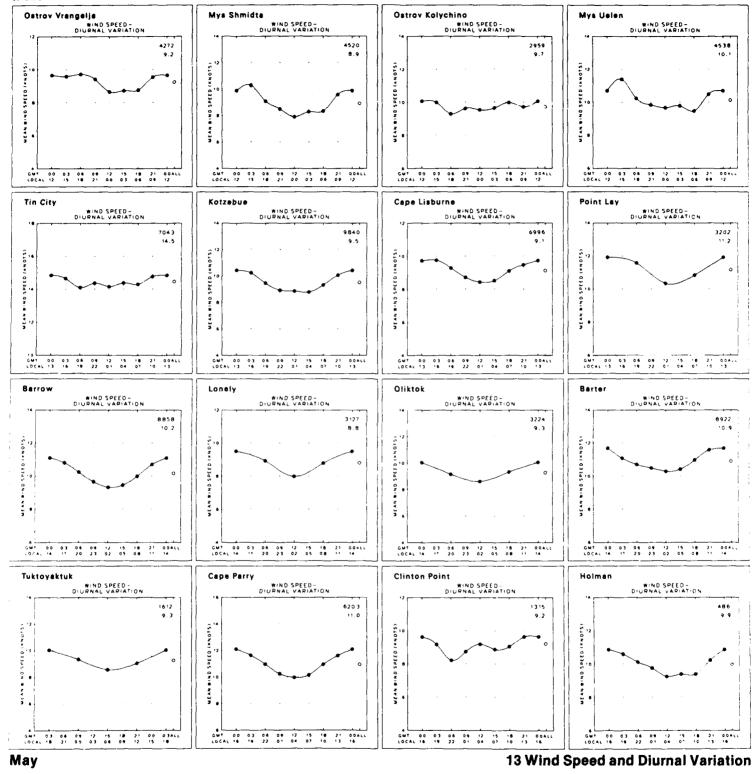


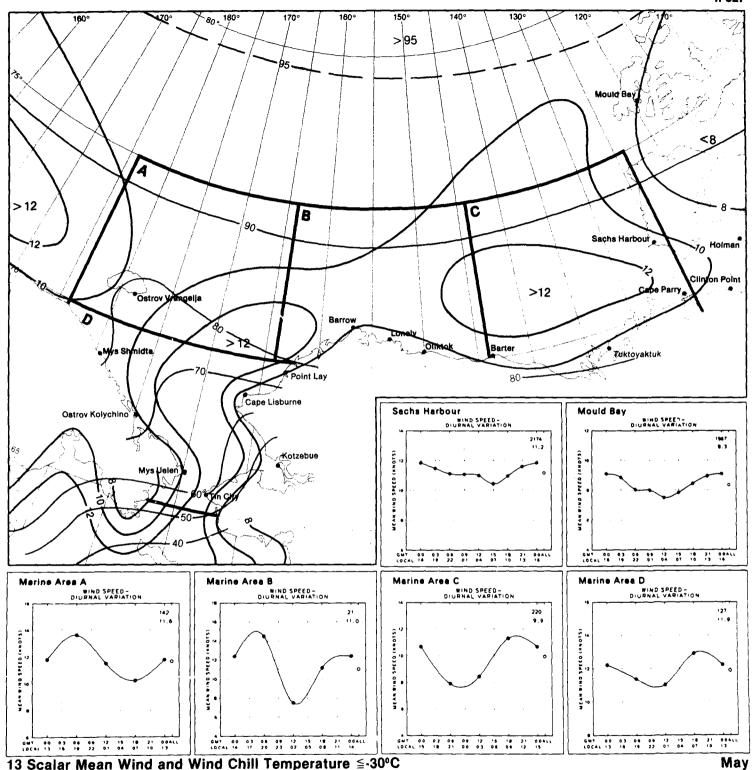
13 Scalar Mean Wind and Wind Chill Temperature ≦-30°C



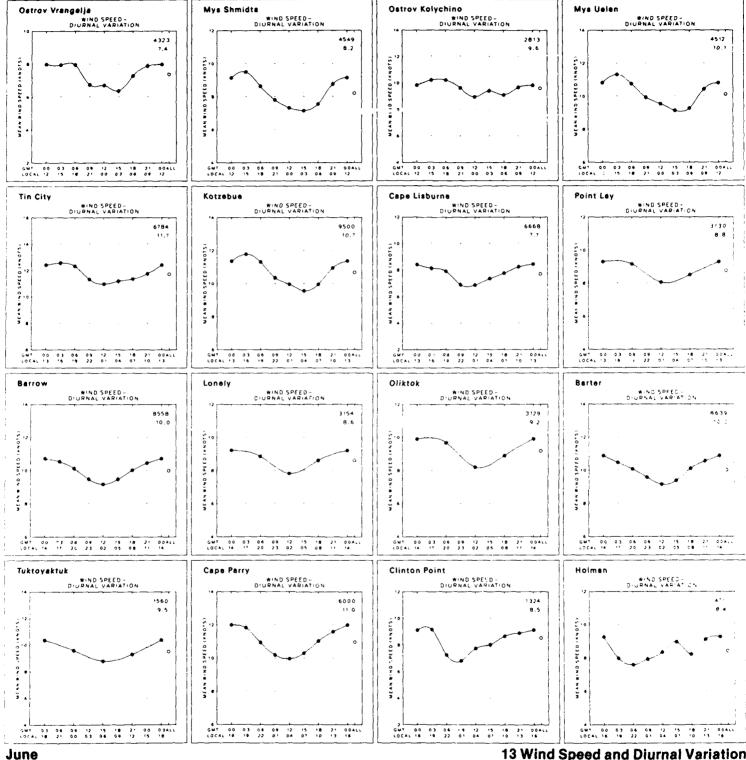


13 Scalar Mean Wind and Wind Chill Temperature ≦-30°C

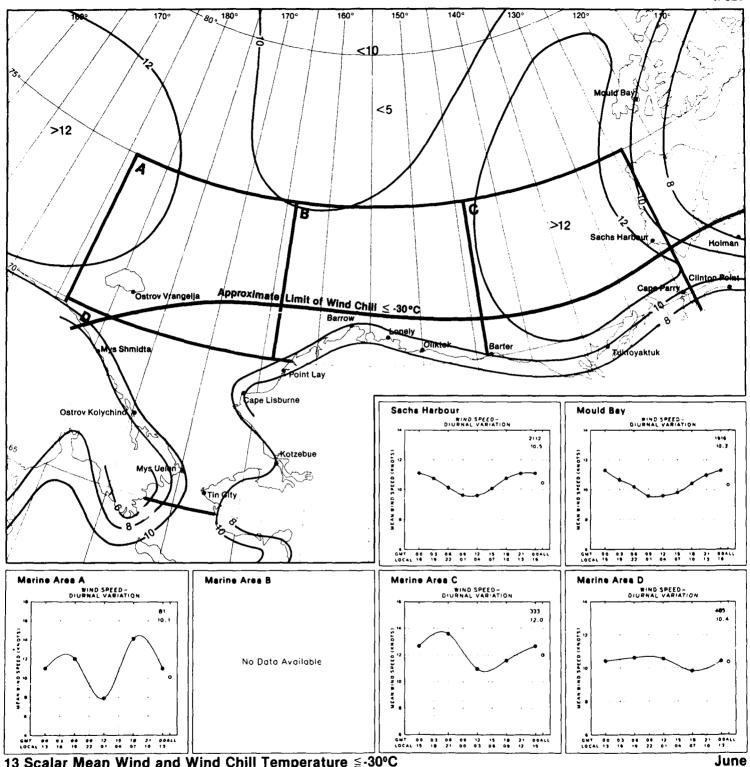




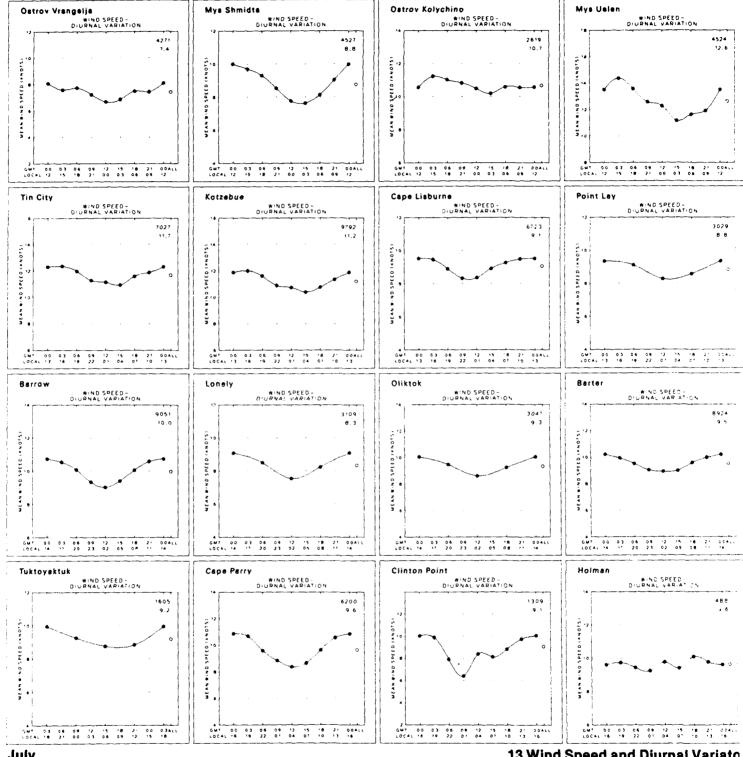
13 Scalar Mean Wind and Wind Chill Temperature ≤-30°C



13 Wind Speed and Diurnal Variation



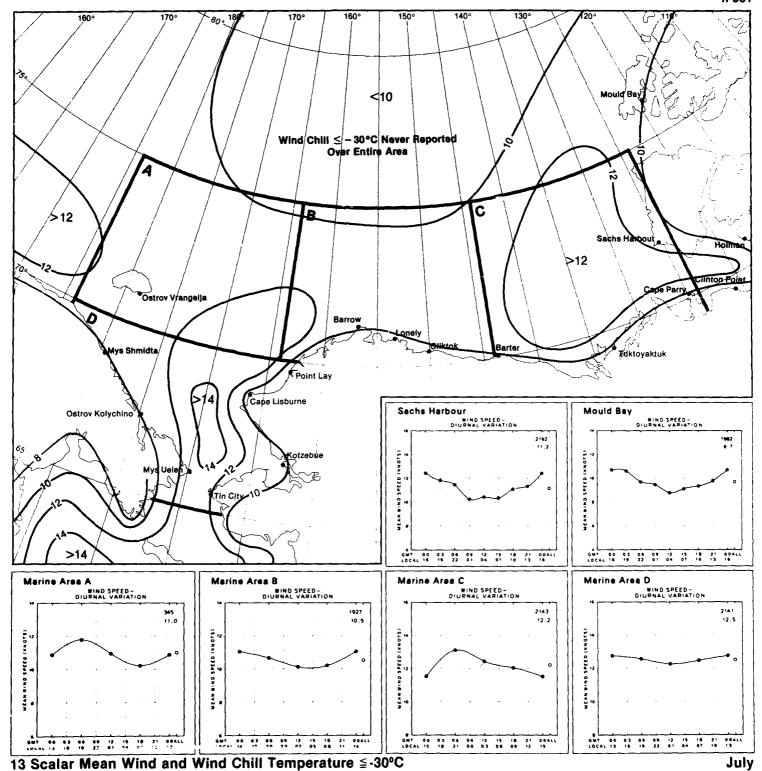
13 Scalar Mean Wind and Wind Chill Temperature ≤-30°C

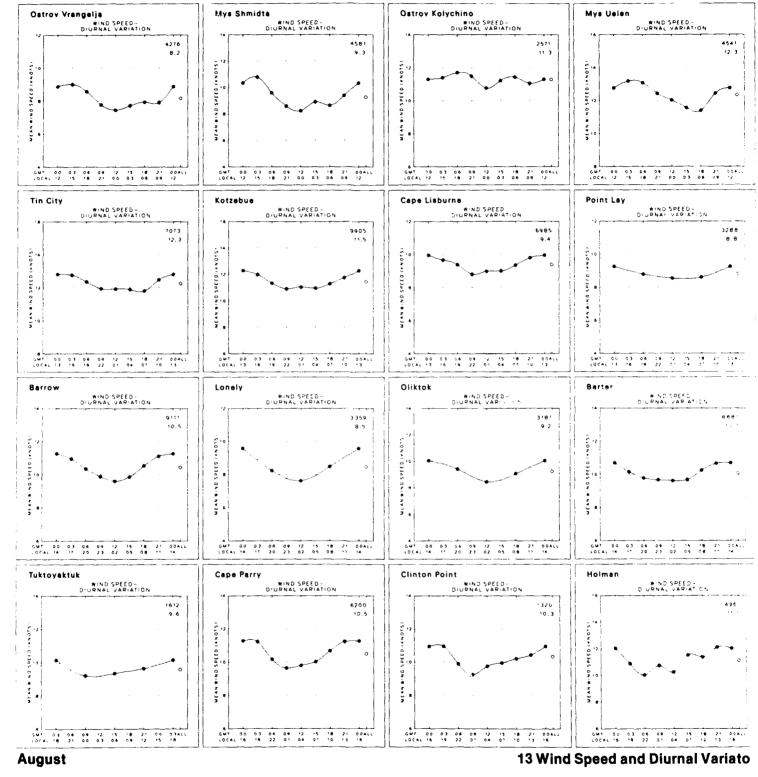


July

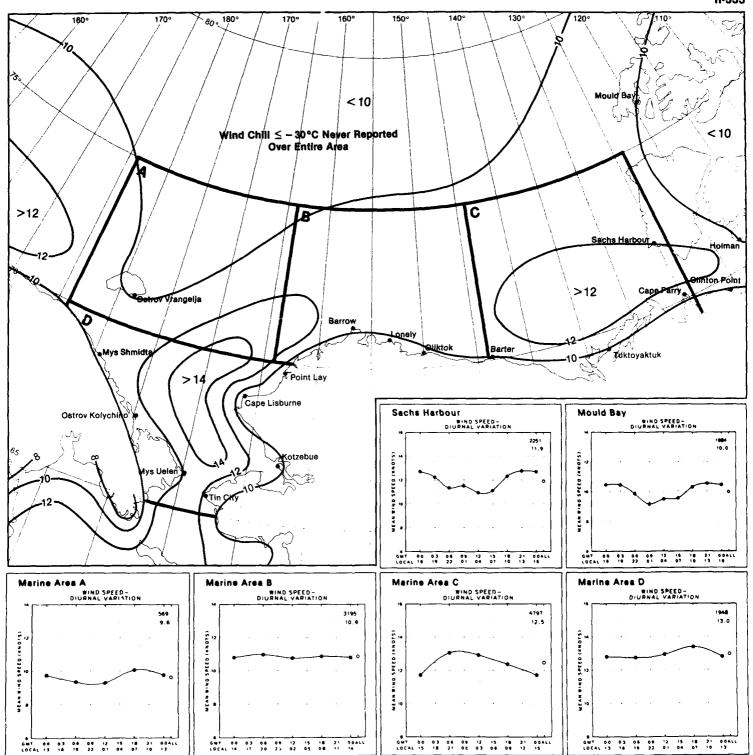
13 Wind Speed and Diurnal Variato



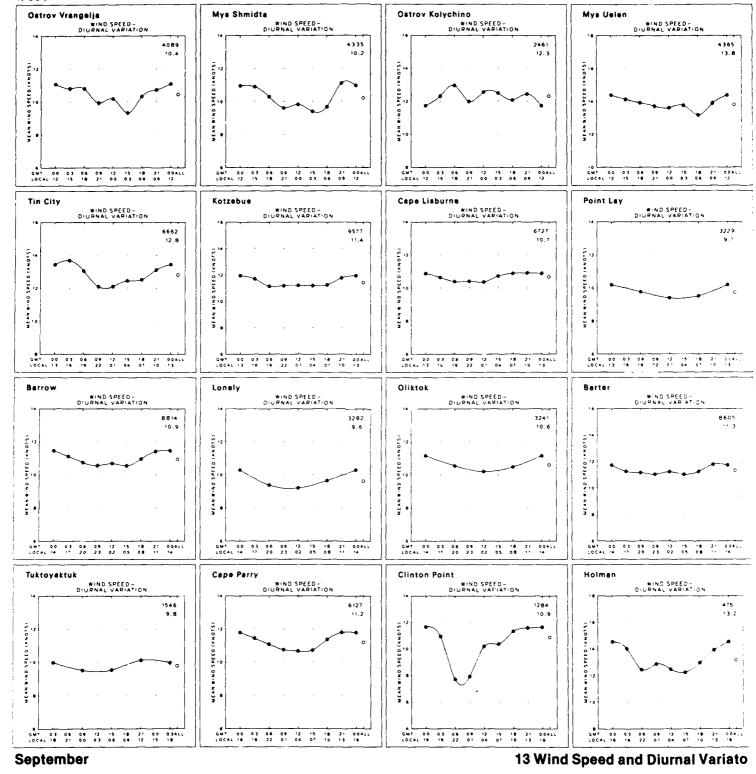


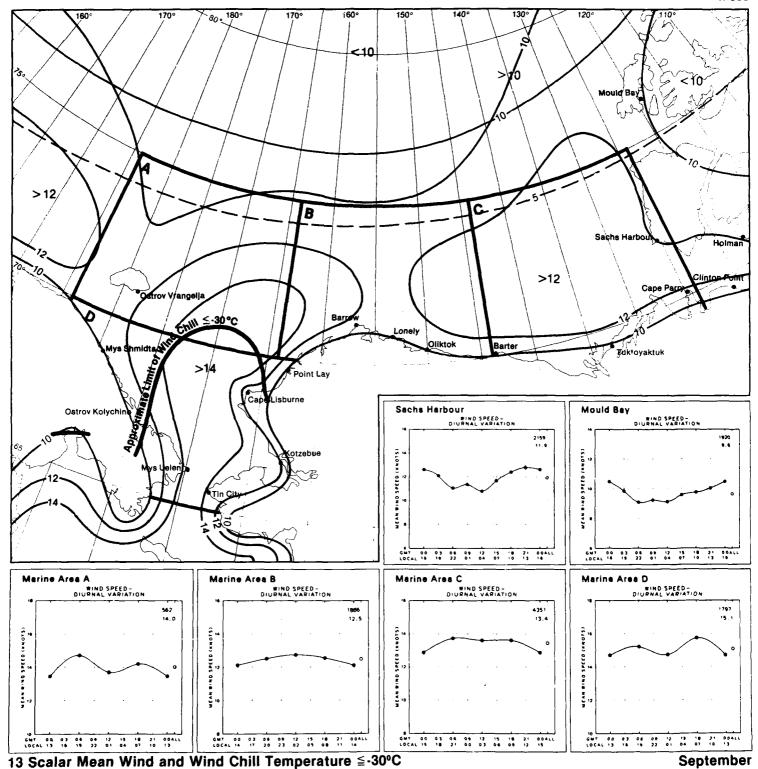


August

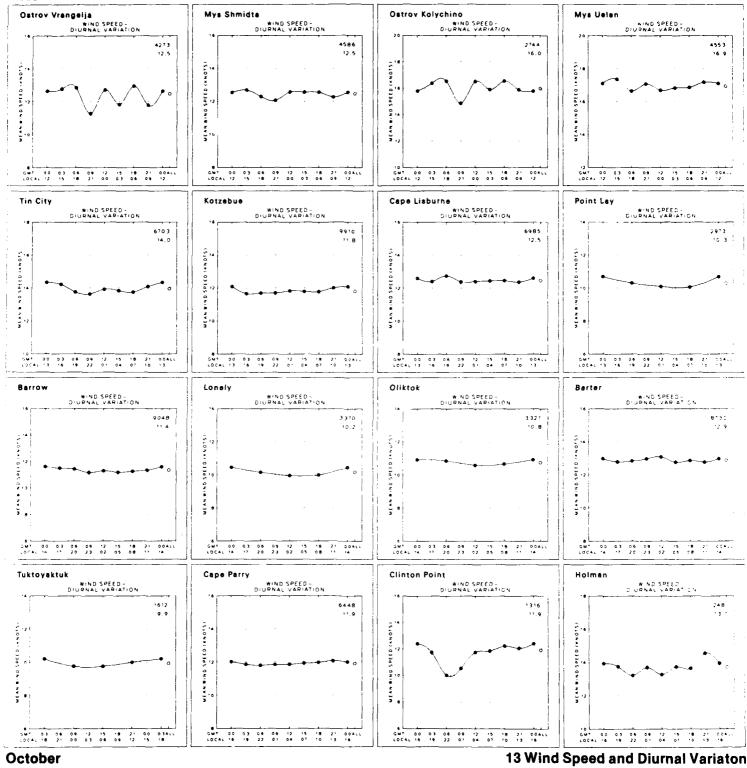


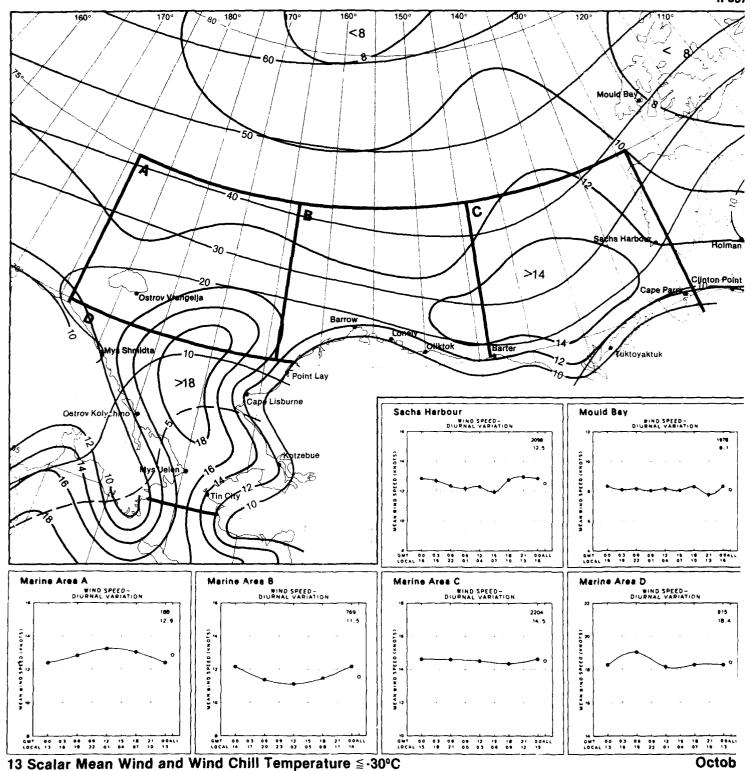
13 Scalar Mean Wind and Wind Chill Temperature ≤ -30°C

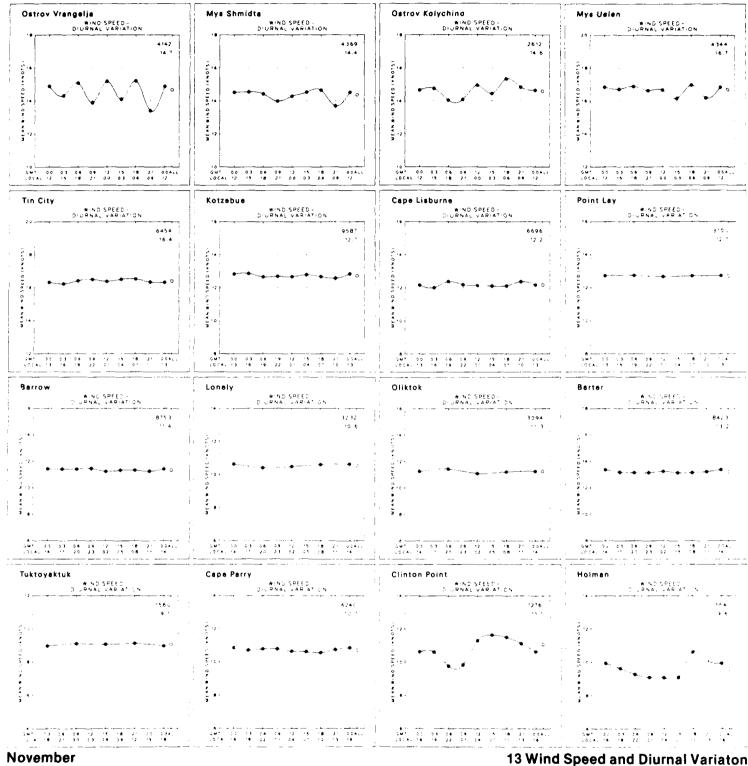




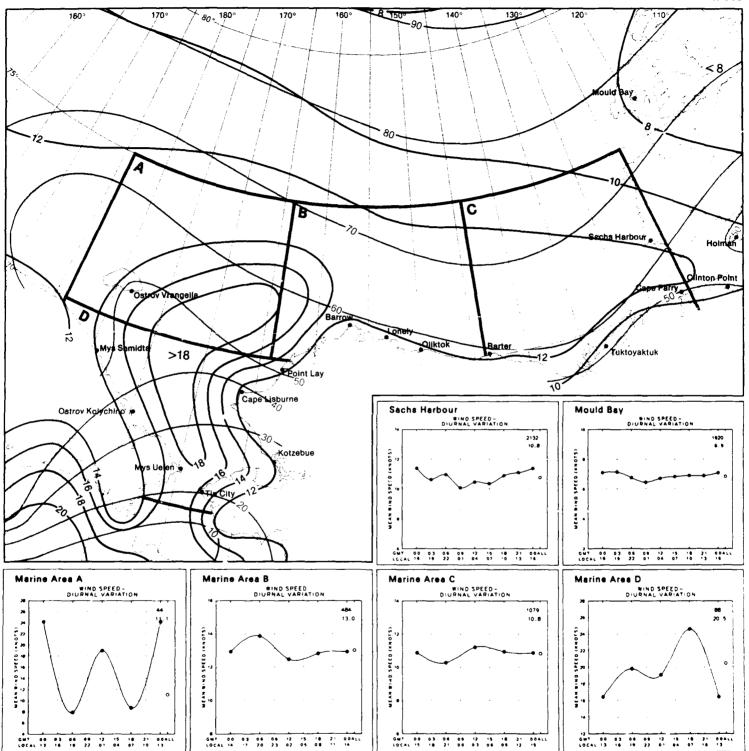






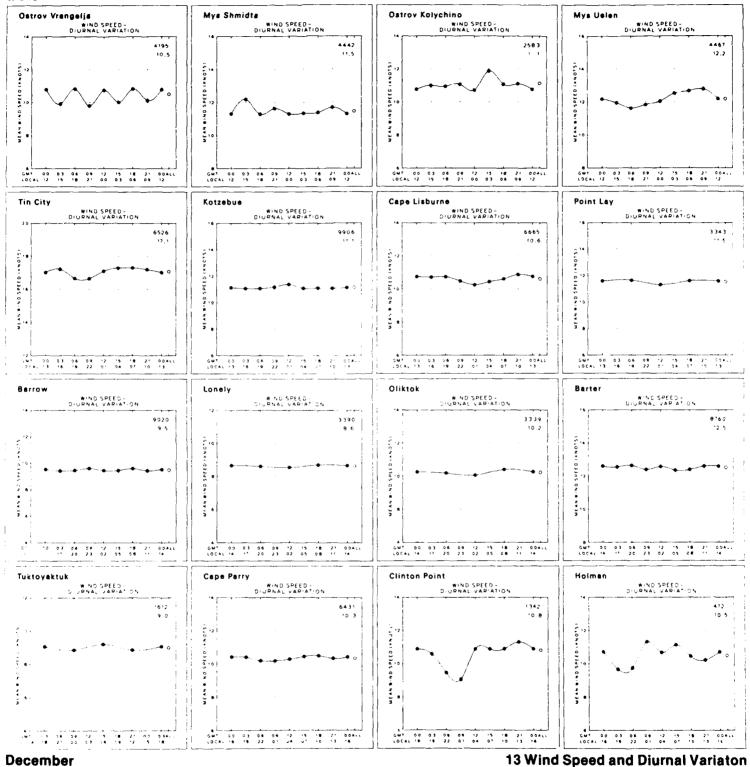


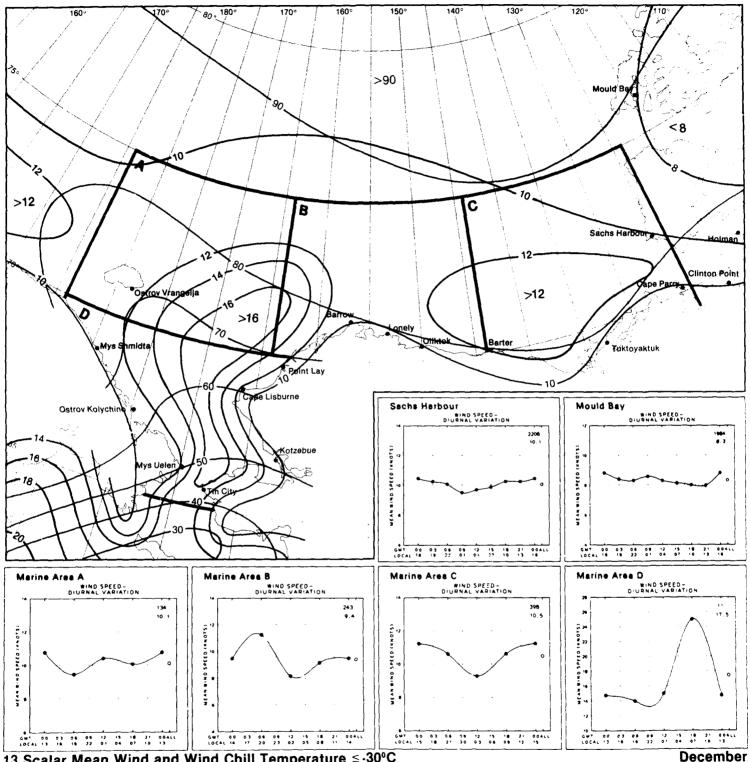
November



13 Scalar Mean Wind and Wind Chill Temperature ≦-30°C





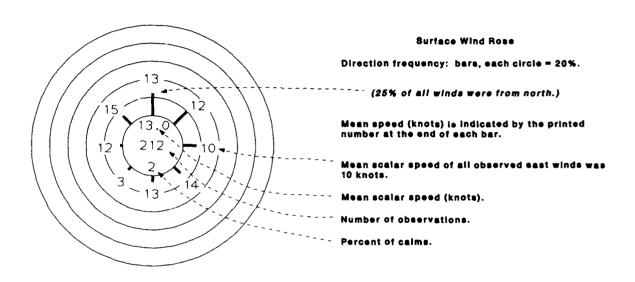


13 Scalar Mean Wind and Wind Chill Temperature ≤ -30°C

Map 14. Wind speed and direction

ROSE - Percent frequency of wind observations by direction (8-points).

Albers Equal—Area Conic Projection



Wind is measured in terms of velocity, a vector that gives both wind speed and direction. *True wind* is the wind that is experienced by an observer standing still. When the ship is moving, an observer experiences what is termed an *apparent wind*. The speed and course of the ship must be eliminated from the apparent wind to obtain the true wind, which is needed for meteorological purposes. Wind estimated from the appearance of the sea surface is a true wind, while wind determined by the appearance of the ship's rigging or by a shipboard anemometer is an apparent wind. True wind direction may be estimated by observing the direction from which ripples, small waves, and sea spray are coming, since they run with the wind. The direction from which the waves are coming is most easily found by sighting along the wave crests and then turning 90° to face the advancing waves. The observer is then facing the direction from which the waves are coming. The direction is determined to the nearest 10° with respect to true north. The true wind speed is the average speed of the wind blowing near the sea surface. Information in the following table is used to estimate the true wind speed based upon the condition of the sea surface. Refer to the text in Set 11 for additional descriptive information on winds.

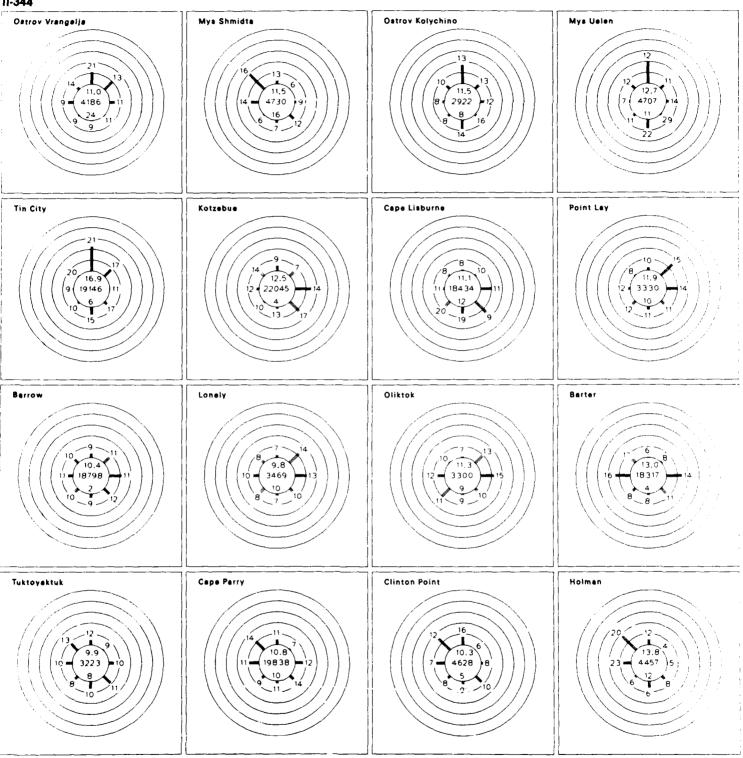
WIND SPEED IN KNOTS (WMO Code, 1982)

This table is based on sea conditions over deep water with a fully developed sea. There will be frequent cases where the sea will not be fully developed bacause the wind has not blown long enough over a sufficient distance (fetch). Other factors such as currents and water depth will also affect the lock of the sea.

Code figs. (Knots)	Beautort 0	Description Calm	Sea criterion when sea fully developed Sea like a mirror	Probable ht. of waves in m (ft)			
				Average		Maximum	
				-			-
01-03	1	Light air	Ripples with the appearance of scales are formed, but without foam crests	0.1	(**)	0.1	('4
04-06	2	Light breeze	Small wavelets, still short but more pronounced, crests have a glassy appearance and do not break	0.2	(%2)	0.3	(1
07-10	3	Gentle breeze	Large wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses	0.6	(2)	1	(3
11-16	4	Moderate breeze	Small waves, becoming longer; fairly frequent white horses	1	(31/2)	1.5	(5
17-21	5	Fresh breeze	Moderate waves, taking a more pronounced long form; many white horses are formed (chance of some spray).	2	(6)	2 5	۲8 ۱
22-27	6	Strong breeze	Large waves begin to form; white foam crests are more extensive everywhere (probably some spray)	3	(9 * 2)	4	(1
28-33	7	Near gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind	4	(1312)	5.5	(1
34-40	8	Gale	Moderately high waves of greater length; edges of crests begin to break into the spindrift; the foam is blown in well-marked streaks along the direction of the wind	5.5	(18)	7 5	(2
41-47	9	Strong gale	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble and roll over; spray may affect visibility	7	(23)	10	(3
48-5J	10	Storm	Very high waves with long overhanging crests: the resulting foam, in great patches, is blown in dense white streaks along the direction of the wind; on the whole, the surface of the sea takes on a white appearance; tumbling of the sea becomes heavy and shock-like; visibility affected	9	(29)	12 5	(4
58-63	11	Violent Storm	Exceptionally high waves (small and medium-sized ships might be for a time lost to view behind the waves); the sea is completely covered with long white patches of foam lying along the direction of the wind; everywhere the images of the wave crests are blown into froth, visibility affected.	115	(37)	16	: !
64 and over	12	Hurricane	The air is filled with foam and spray; sea completely white with driving spray; visibility very seriously affected	14	(45)		1

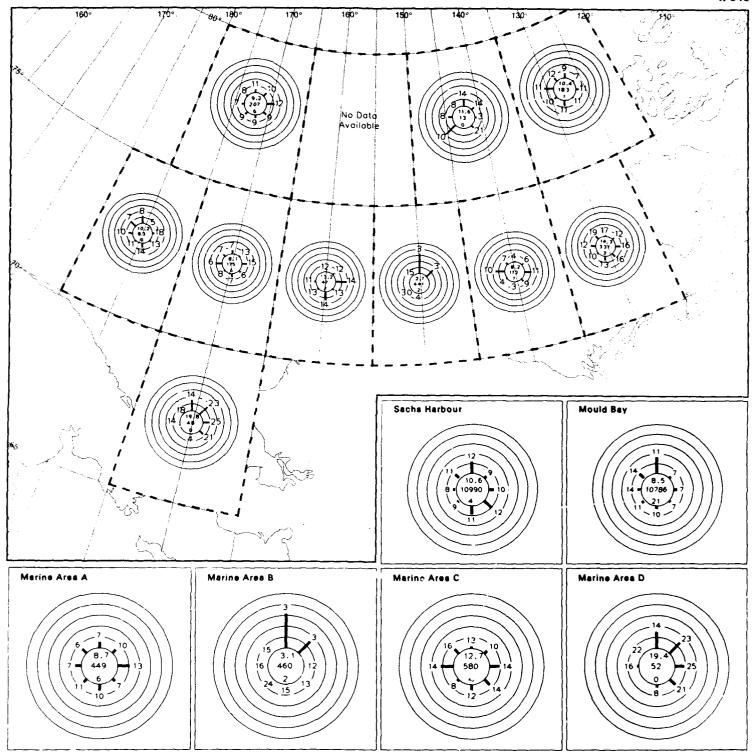
Note: For winds over 99 knots, add 50 to dd (direction) and enter the tens and units digits of the wind speed for ff: e.g. for a wind from 100° true at 125 knots, dd = 60, and ff = 25.

11-344



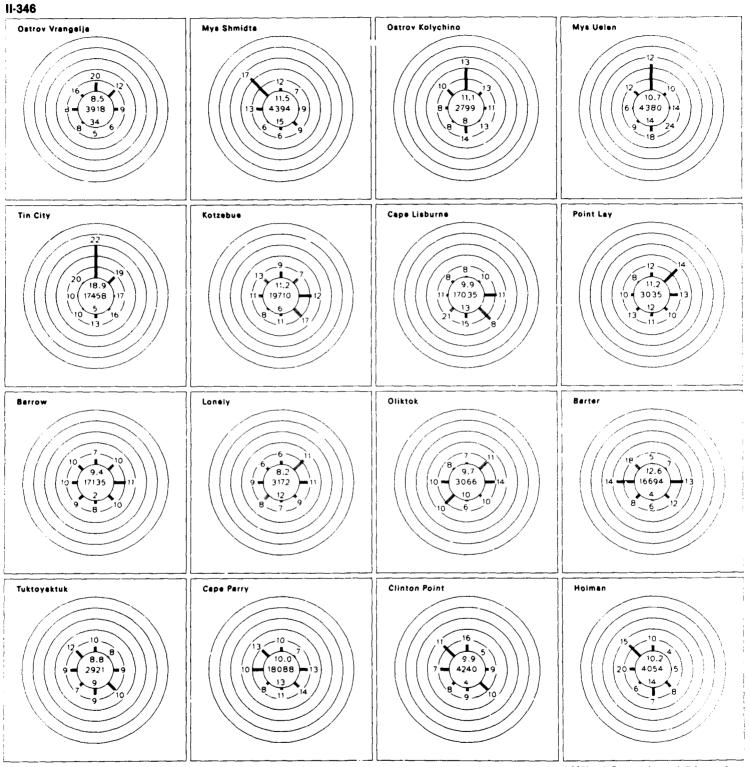
January

14 Wind Speed and Direction



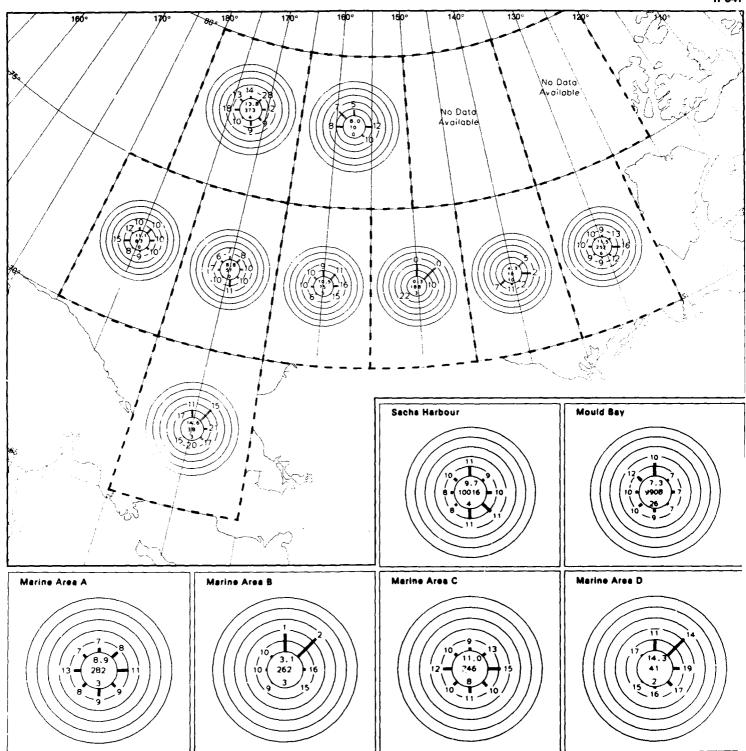
14 Wind Speed and Direction

January



February

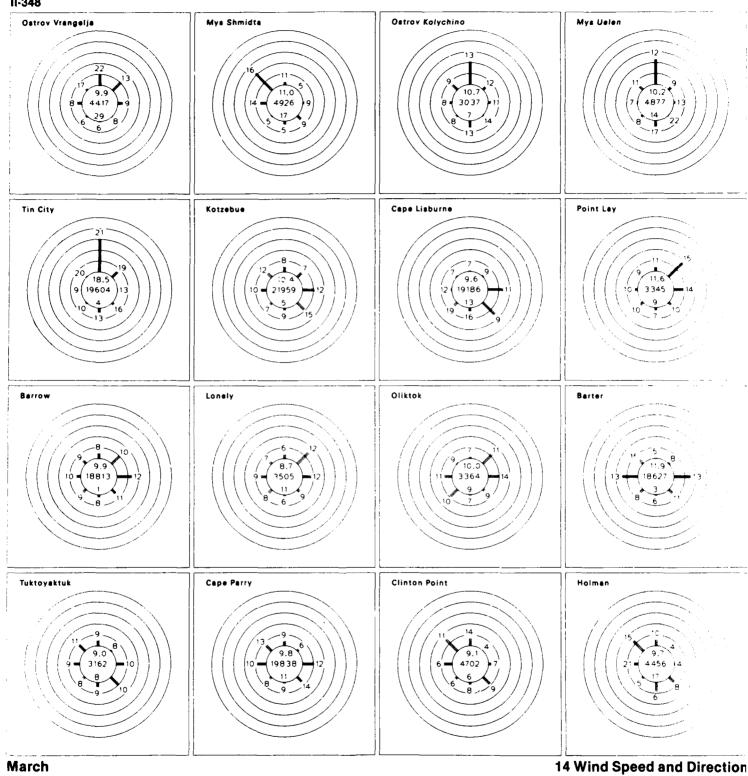
14 Wind Speed and Direction

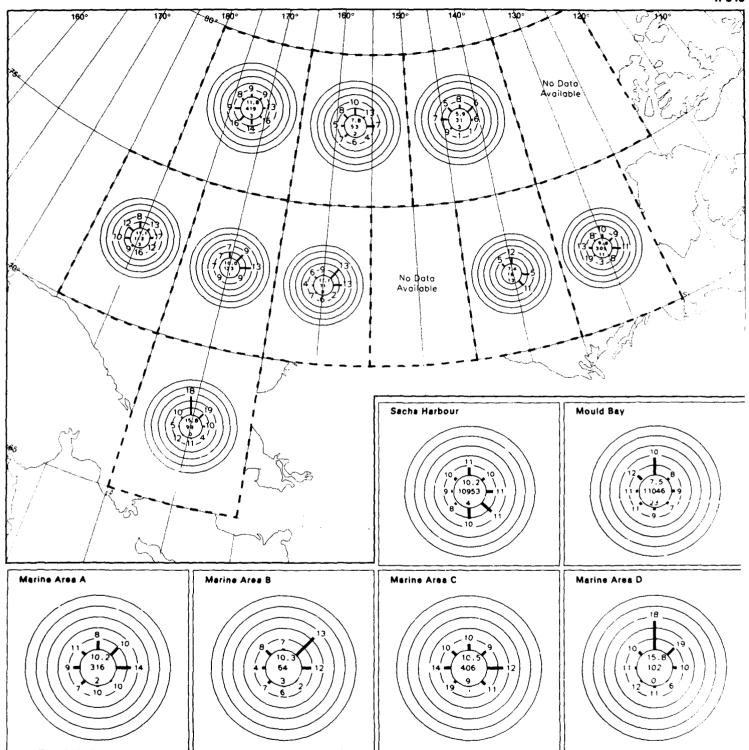


14 Wind Speed and Direction

Februar

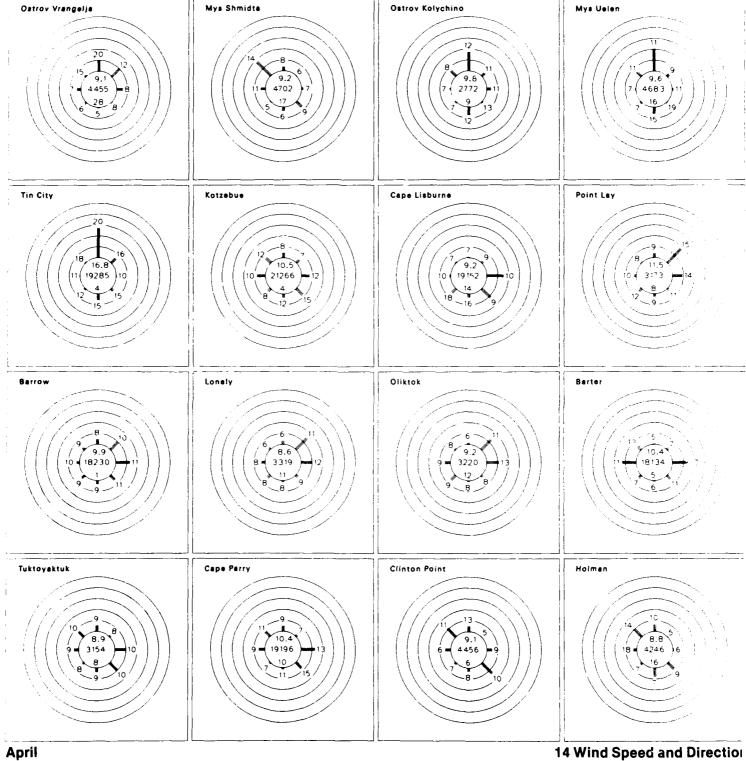
11-348



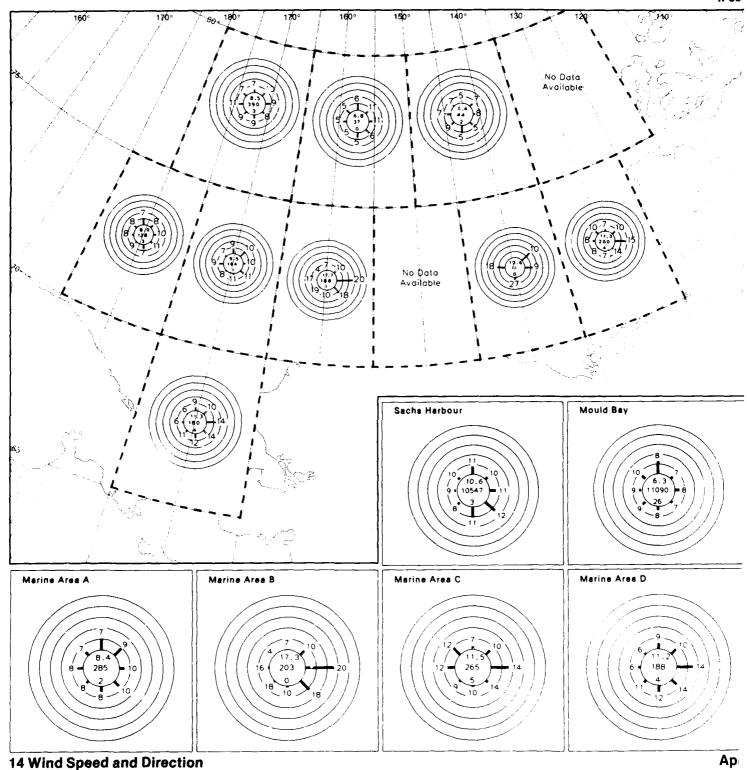


14 Wind Speed and Direction

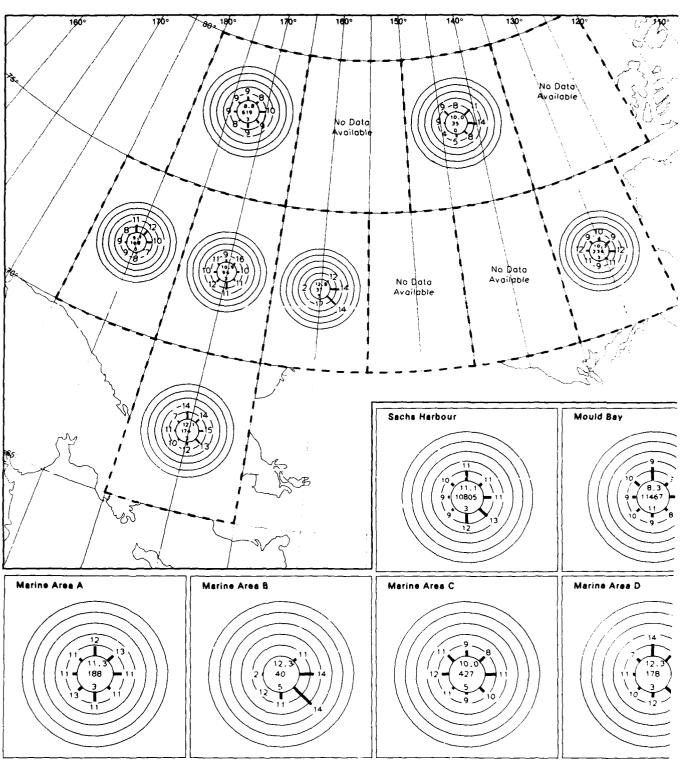
Marc



14 Wind Speed and Direction



14 Wind Speed and Direction



14 Wind Speed and Direction

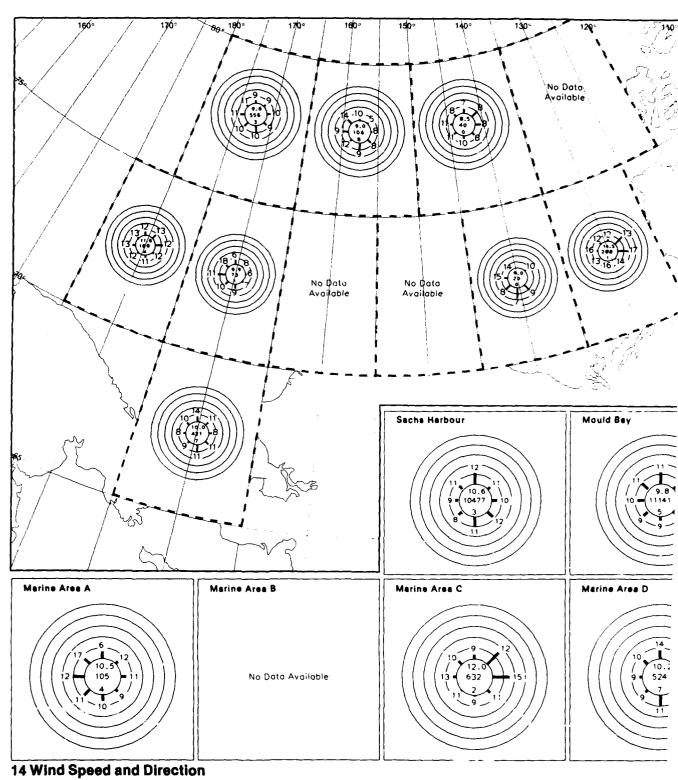
tion

Mys Uelen

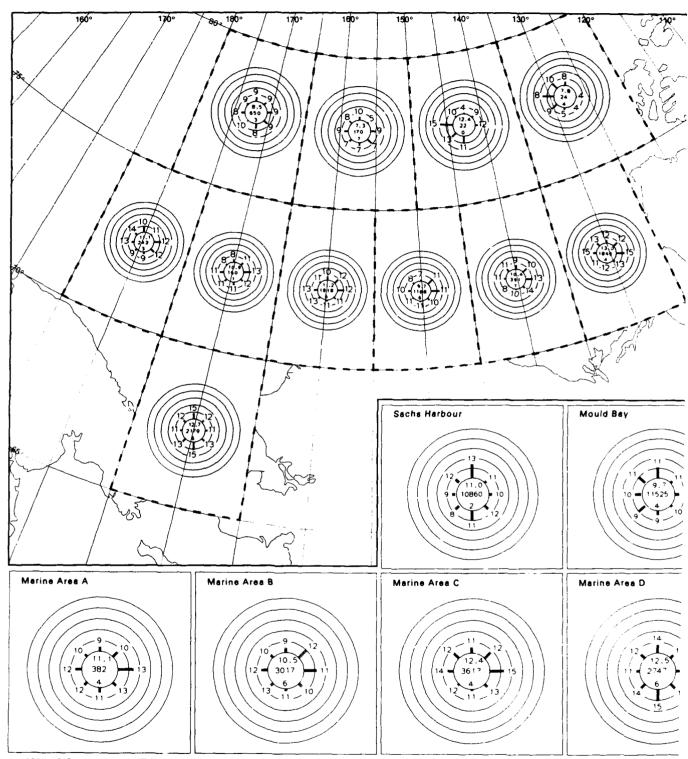
Point Lay

Barter

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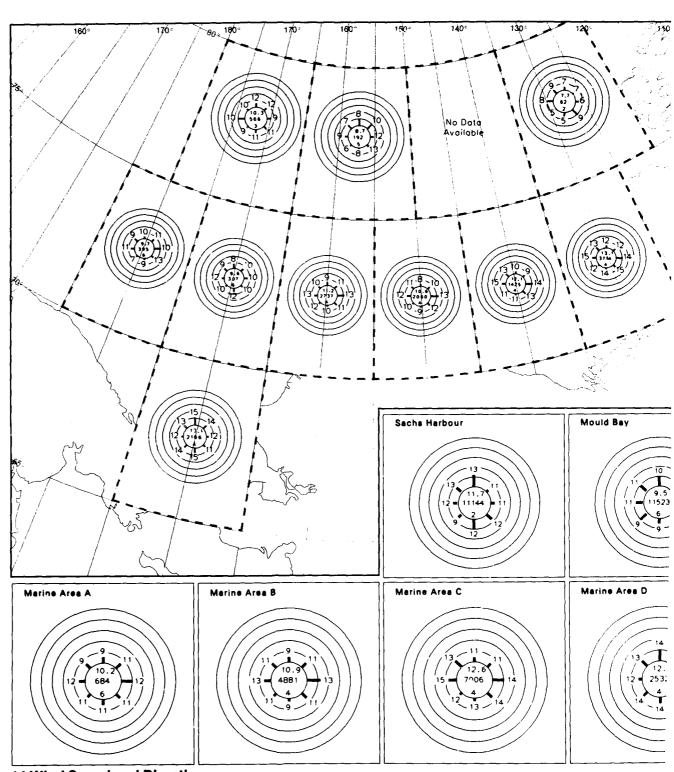


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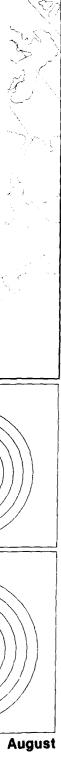
14 Wind Speed and Direction

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14 Wind Speed and Direction

Direction

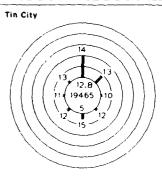


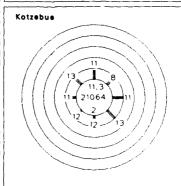
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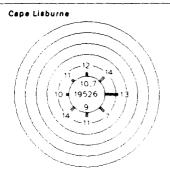
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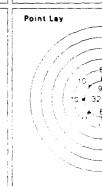


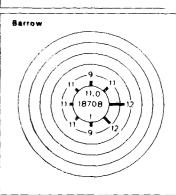


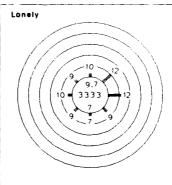


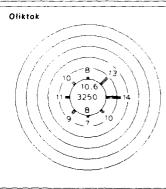




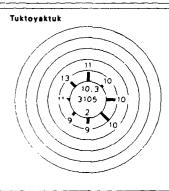


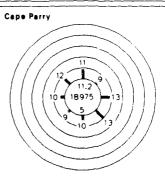


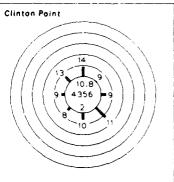


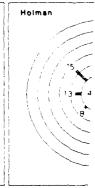






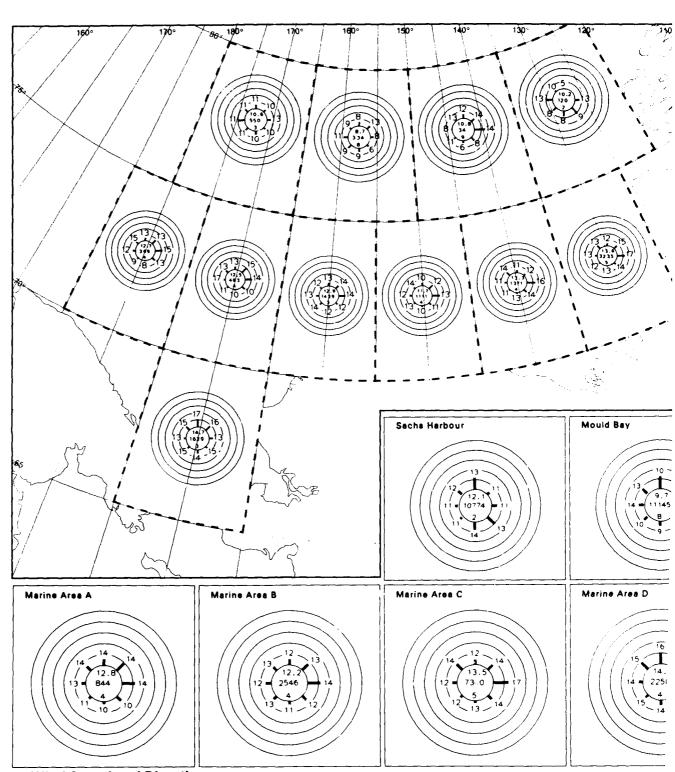






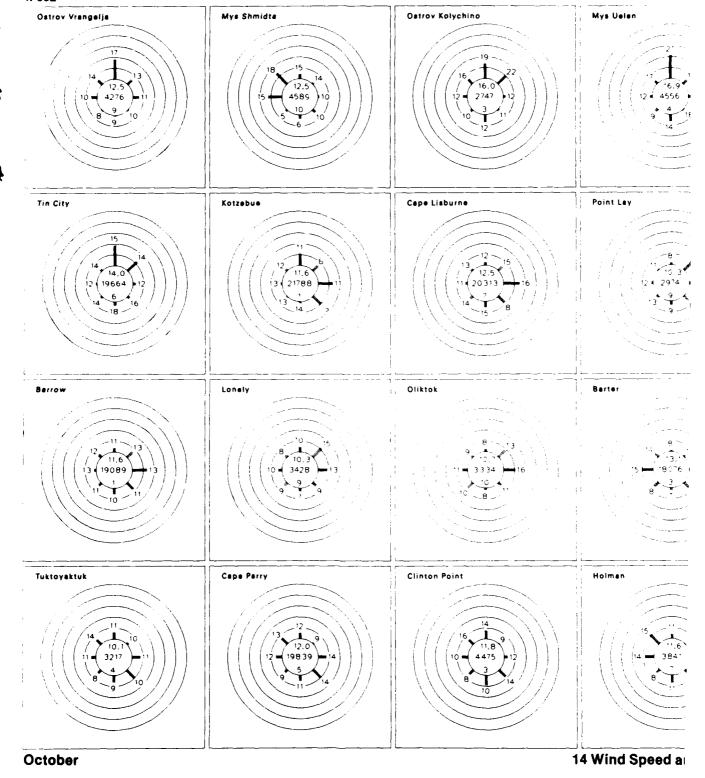
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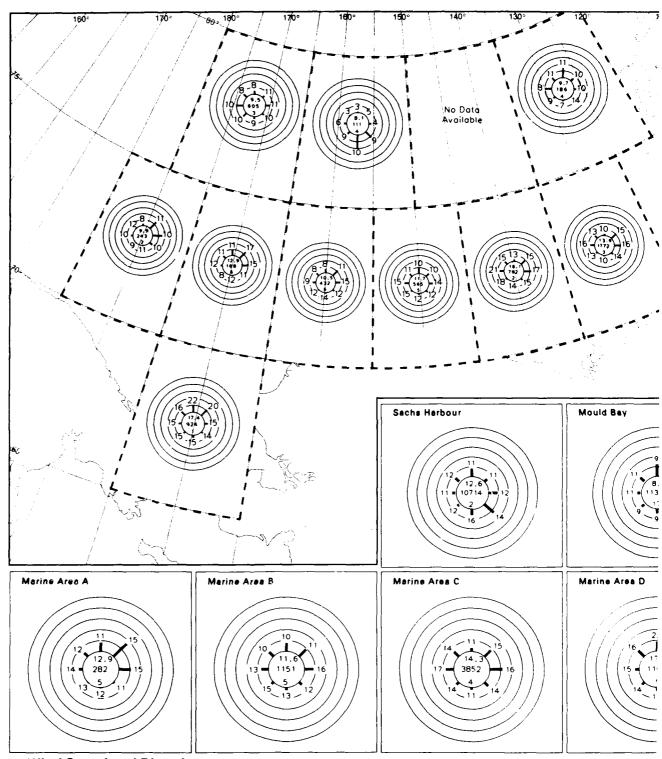
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14 Wind Speed and Direction

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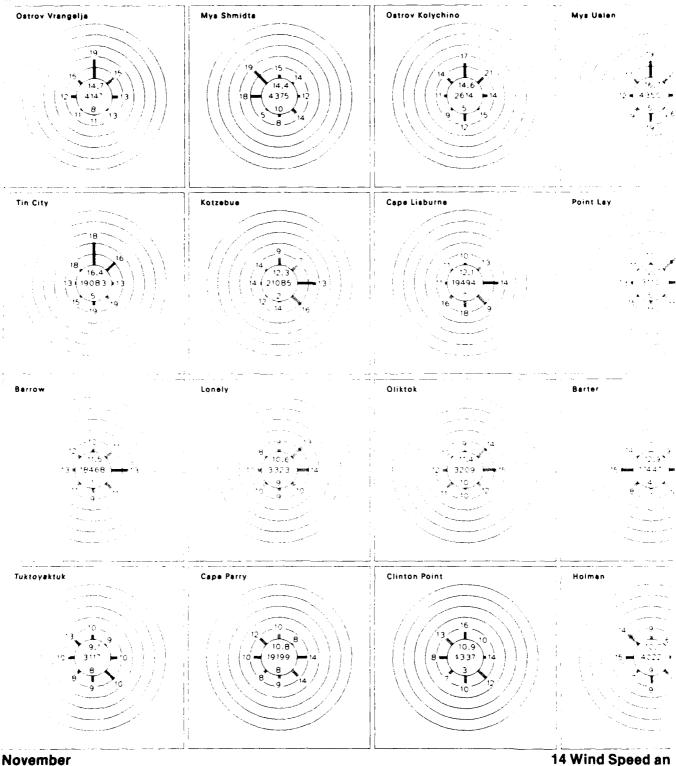


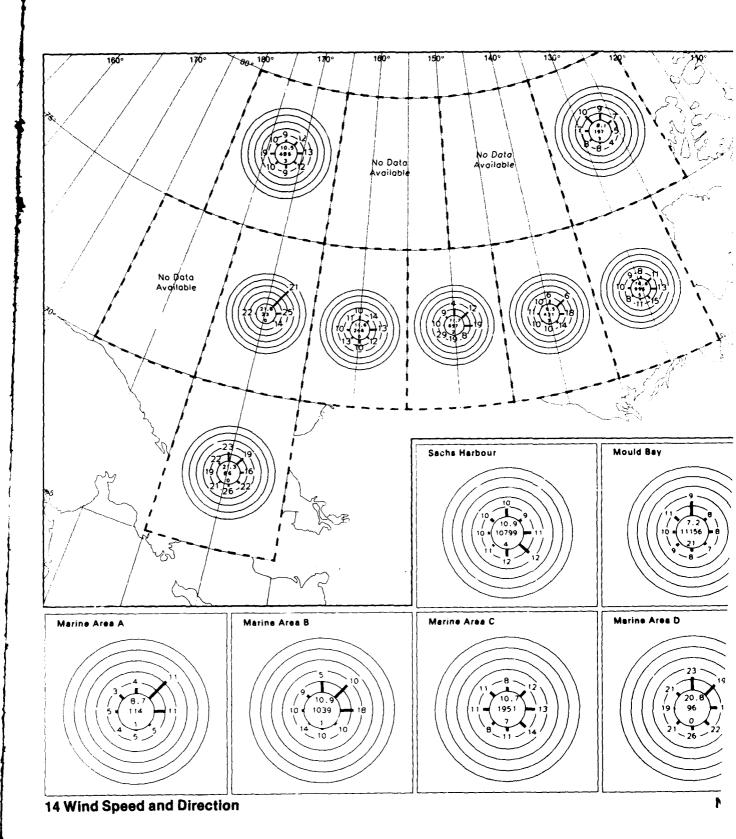


14 Wind Speed and Direction

Direction

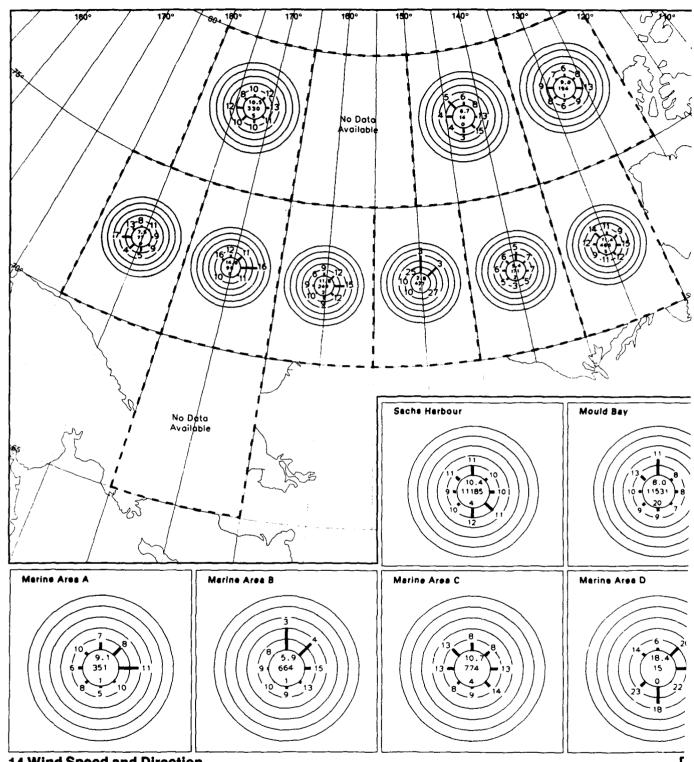
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14 Wind Speed and Direction

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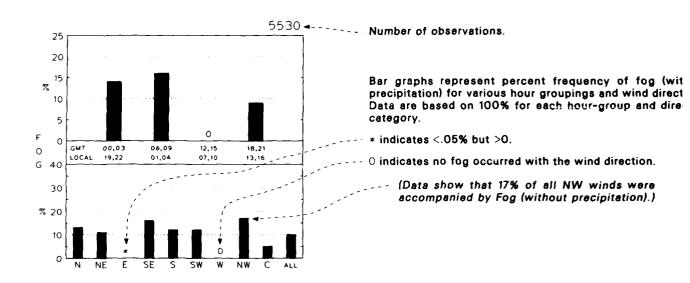
Map 15. Fog and poor visibility

BLACK LINE - Percent frequency of visibility <1/2 nautical mile.

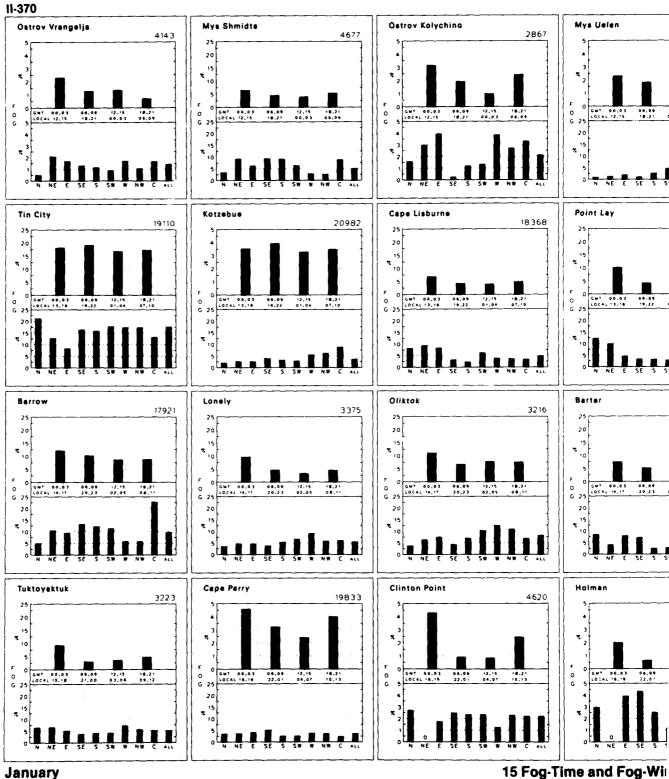
BLUE LINE - Percent frequency of fog occurring without precipitation.

Albers Equal-Area Conic Projection

Graphs: Fog/time and fog/wind direction



Fog is composed of minute droplets suspended in the atmosphere near the earth's surface which have no visible motion (fog is a stratus cloud on the surface). Fog is distinguished from haze (suspended dust or salt particles, yello in color) by its dampness and grey color; also its restriction of visibility (less than one-half nautical mile) if deeper th height considered average for the observer above the sea surface while standing on the bridge of a ship (WMO code exists when the difference between the air and dew point temperatures is more than 2.5 °C. Present weather coding marine observation is restricted to reporting of fog only when no precipitation is occurring at the time of observat sent weather code table in the text of Set 2). Therefore, determination of occurrences of either fog with precipitation not possible. The isopleth presentation (BLACK LINE) of visibility less than one-half nautical mile, includes revisibility due to any weather phenomena; i.e., fog, precipitation, dust, smoke, etc.



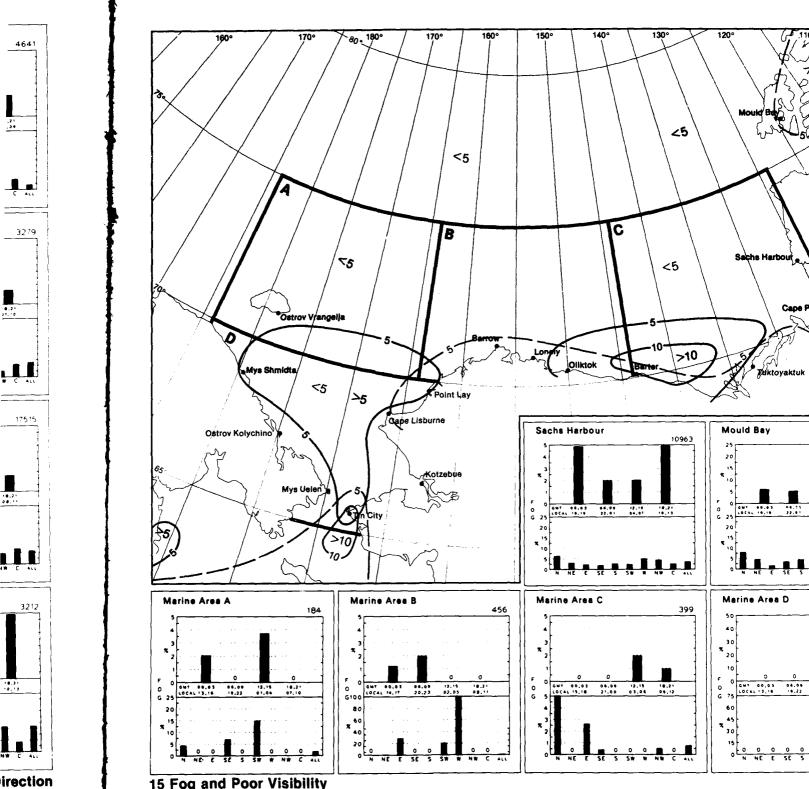
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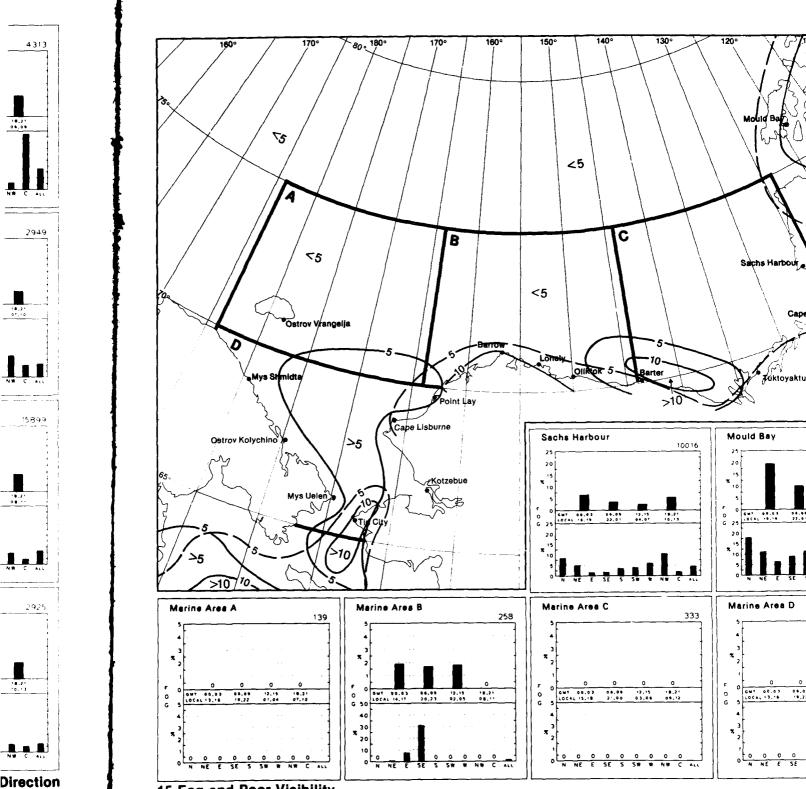
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15 Fog-Time and Fog-Wi

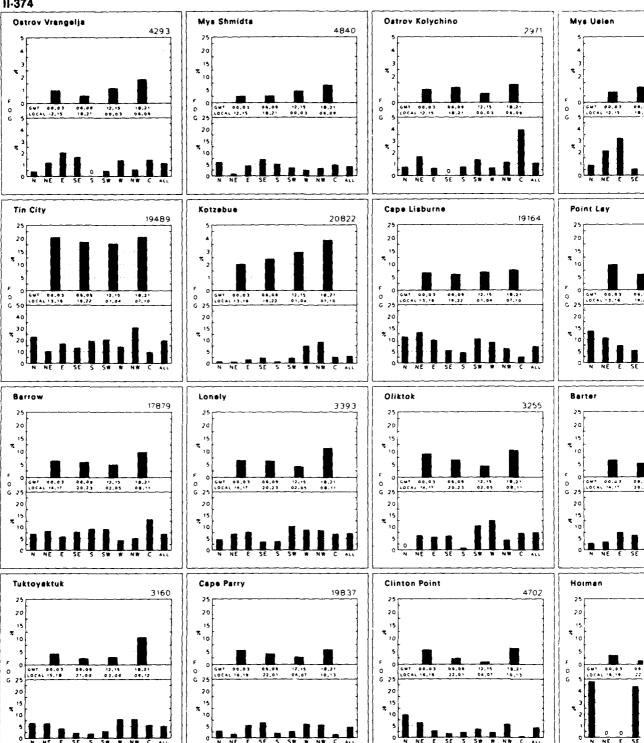


15 Fog and Poor Visibility

15 Fog-Time and Fog-Wi

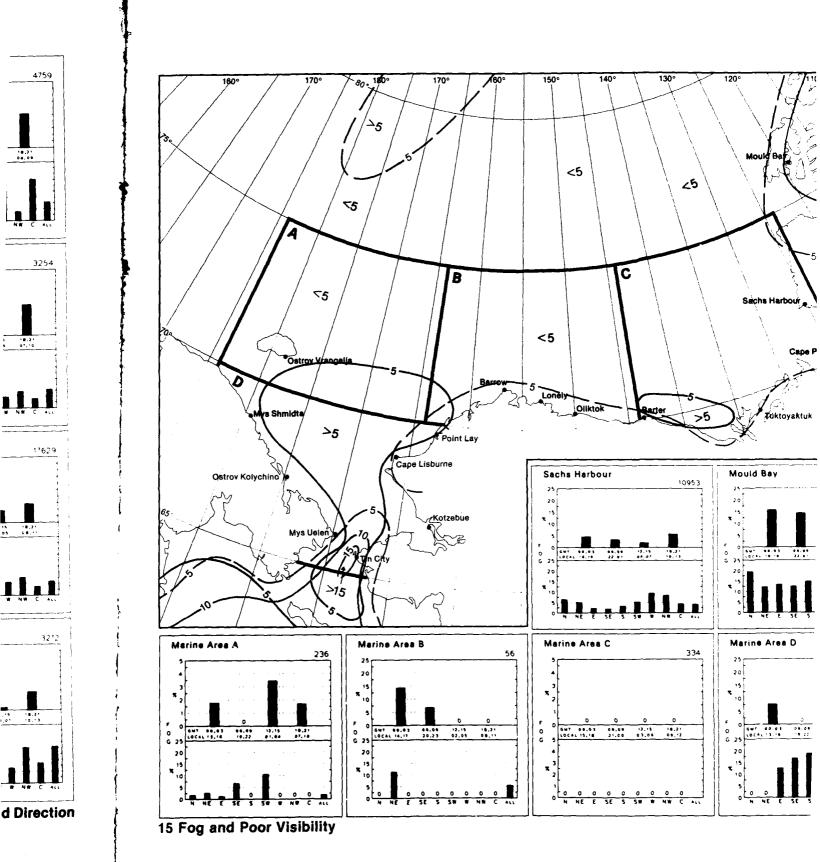


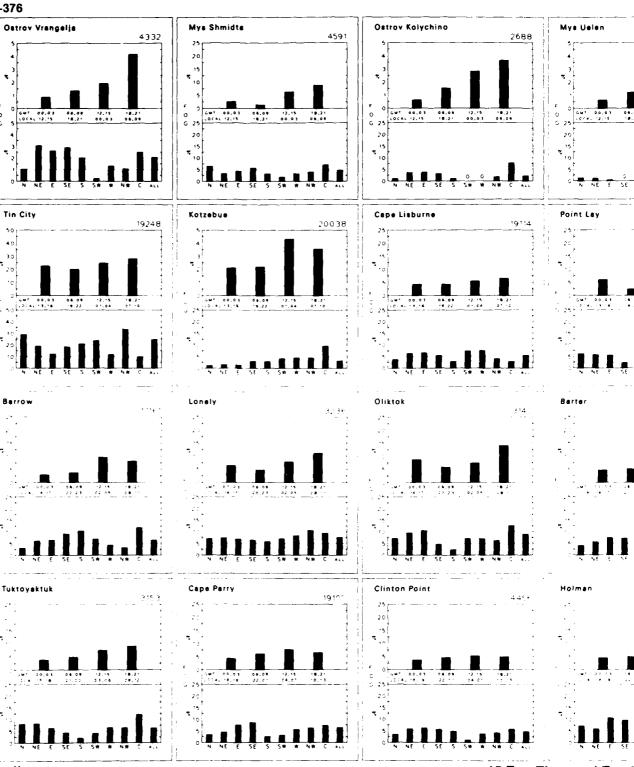
15 Fog and Poor Visibility



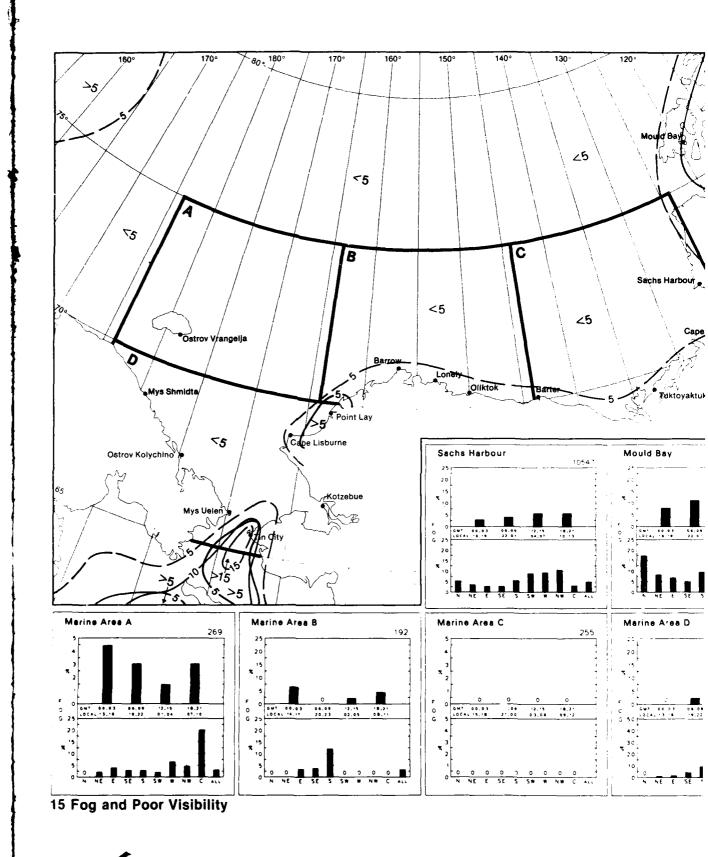
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15 Fog-Time and Fog-

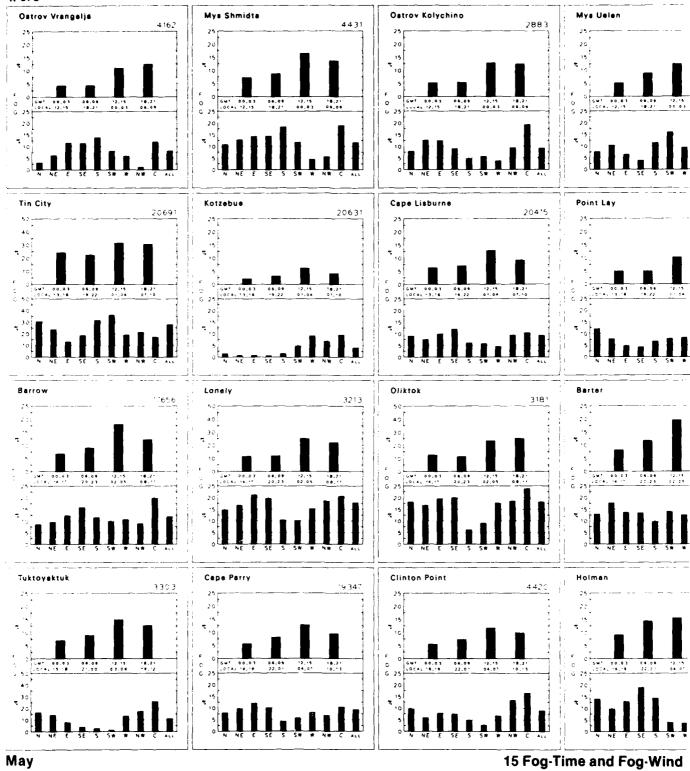


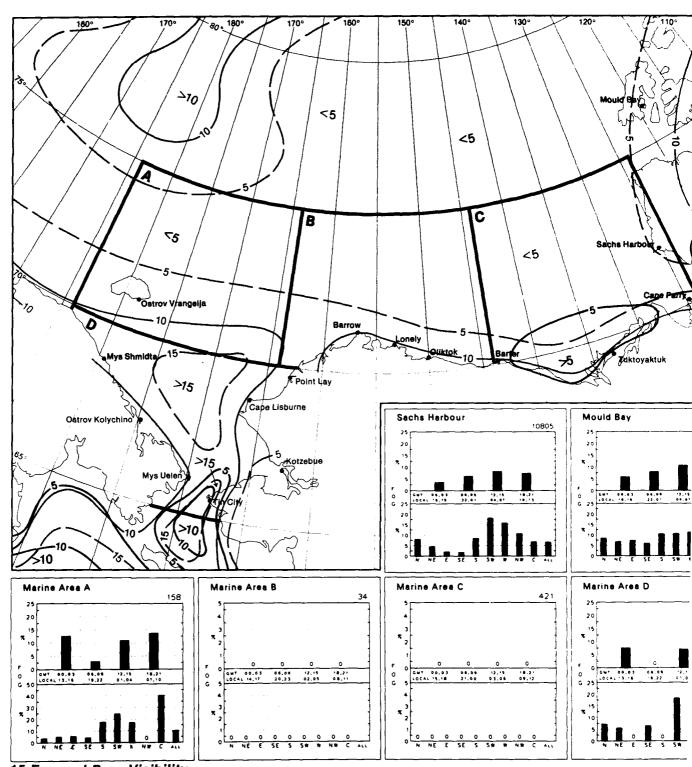


15 Fog-Time and Fog-V



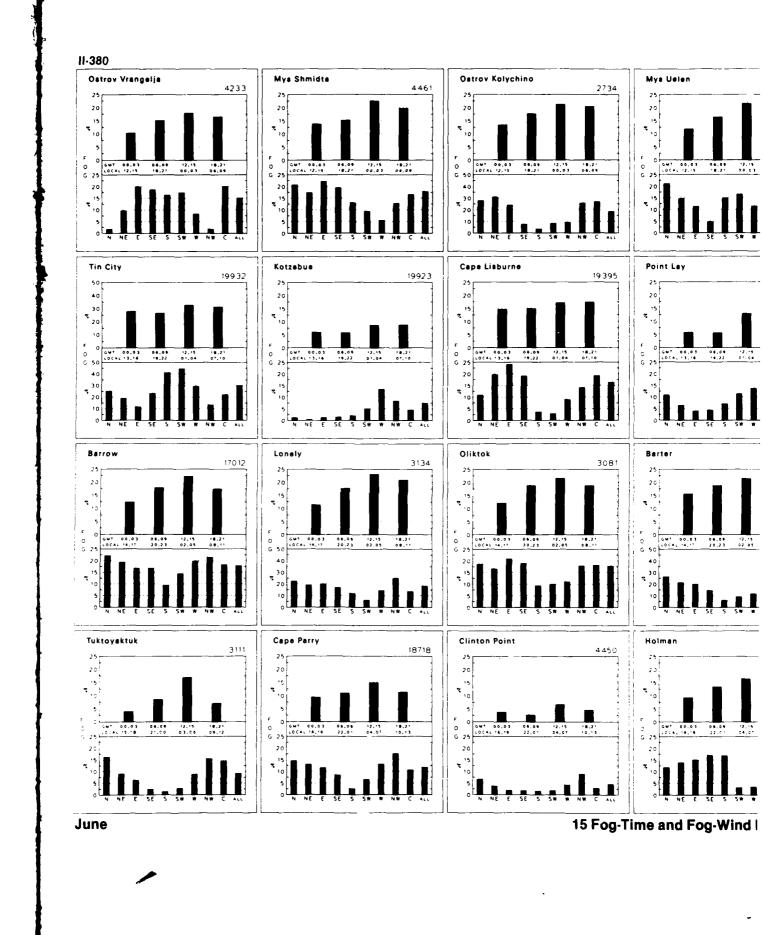
d Direction





15 Fog and Poor Visibility

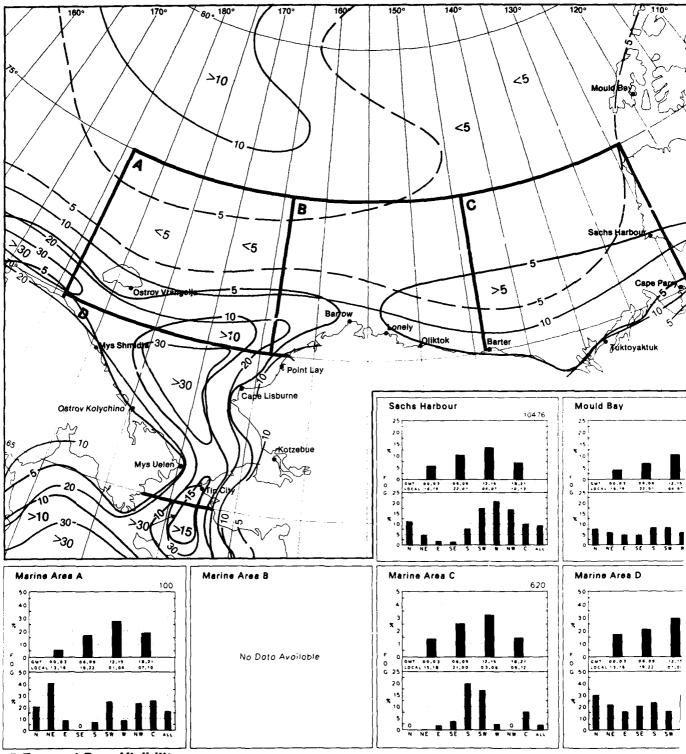
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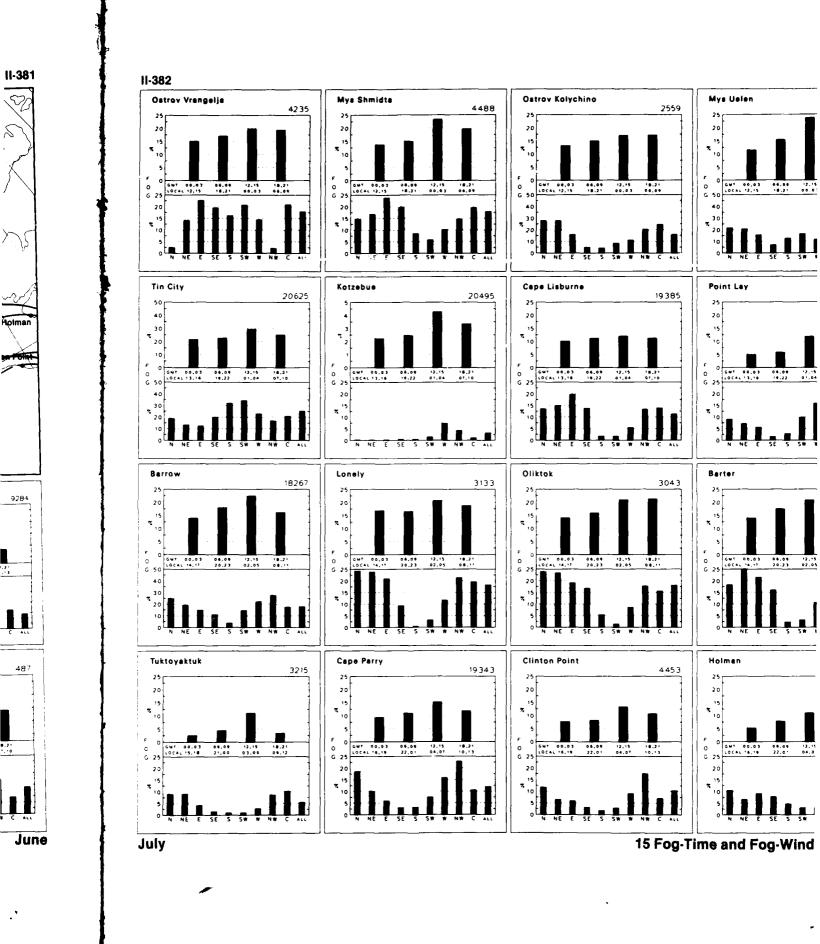
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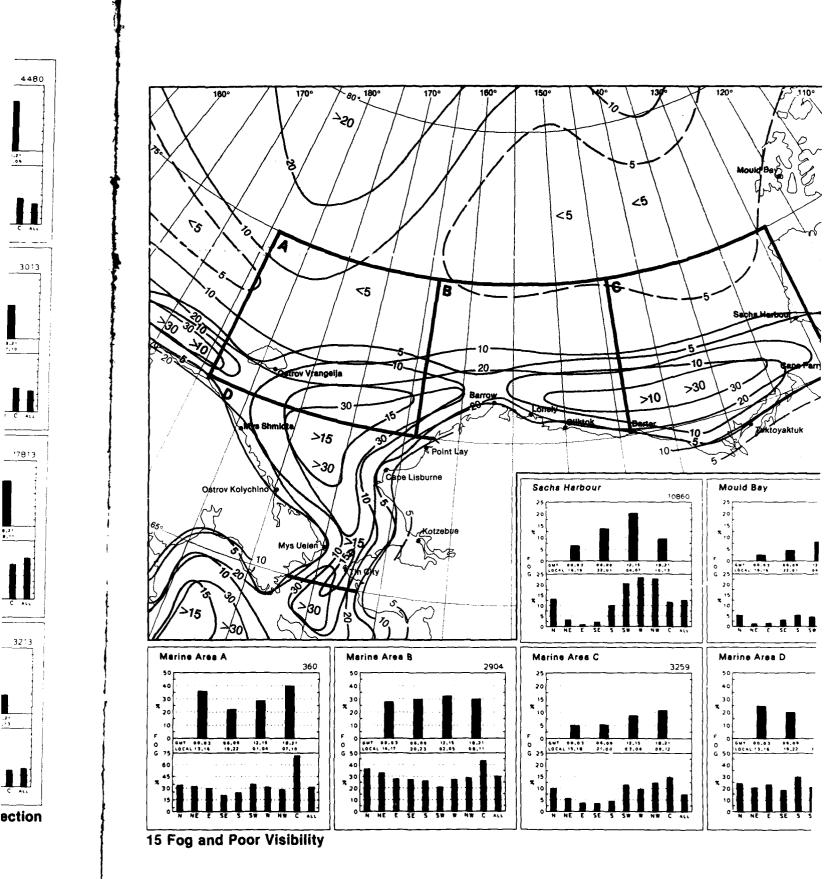
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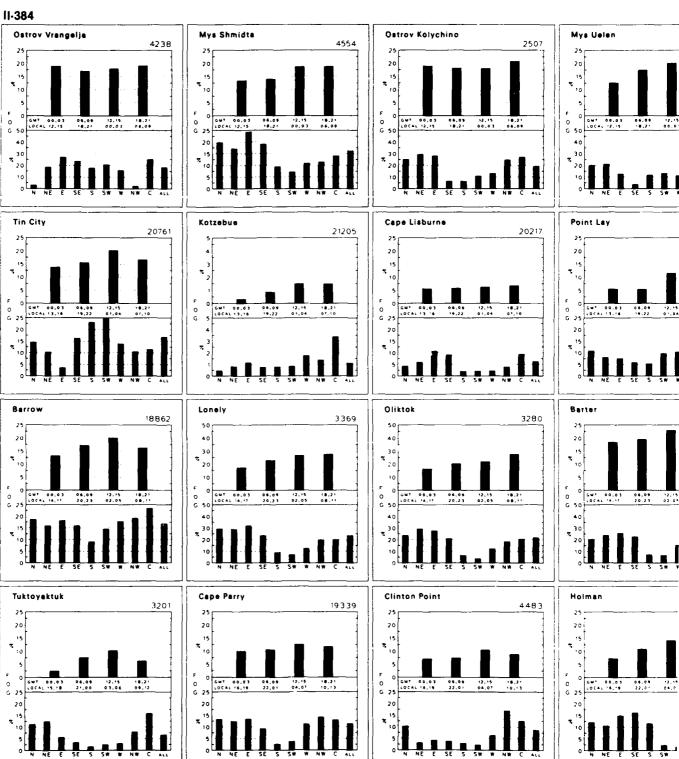
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15 Fog and Poor Visibility

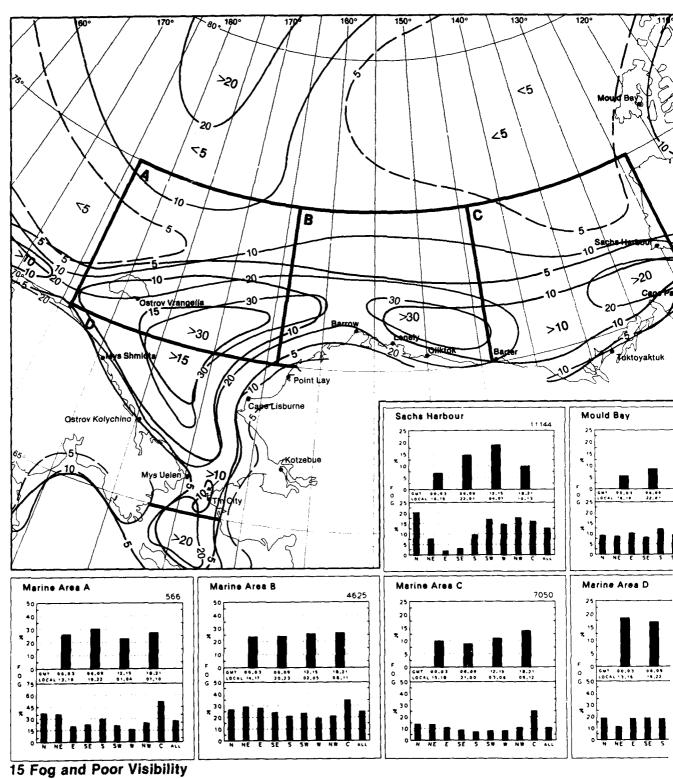




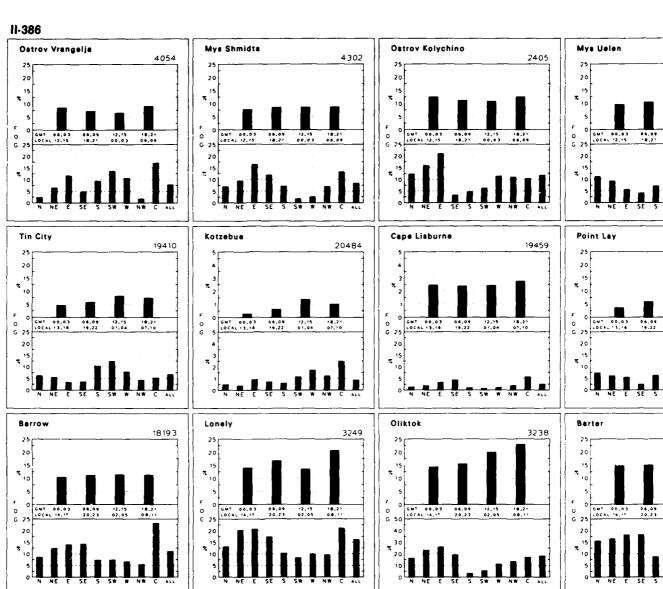


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15 Fog-Time and Fog-Wind

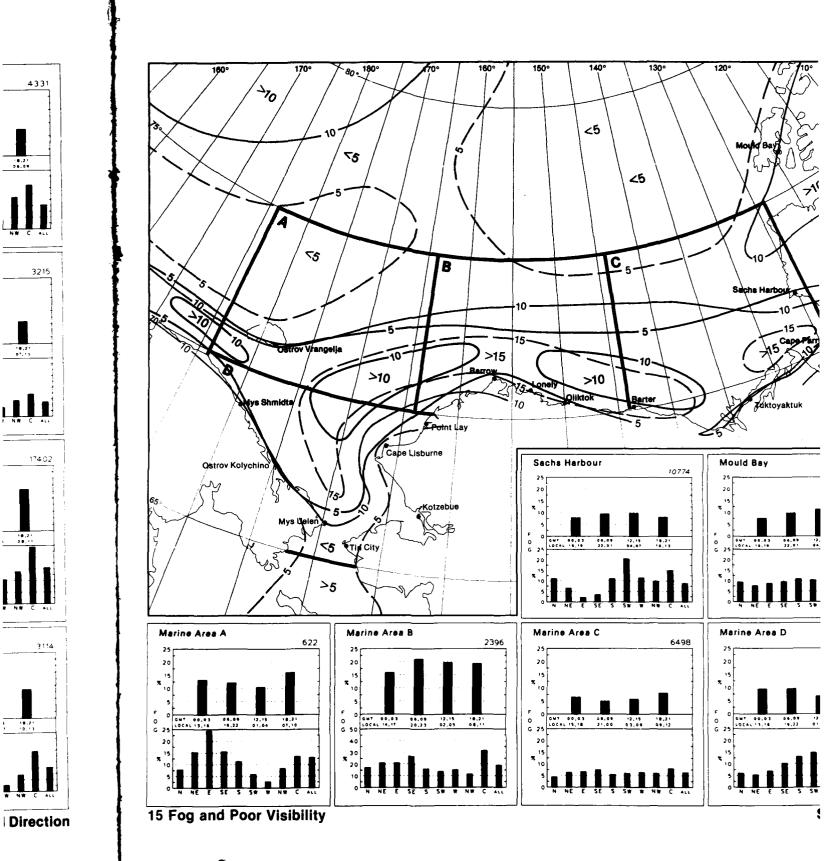


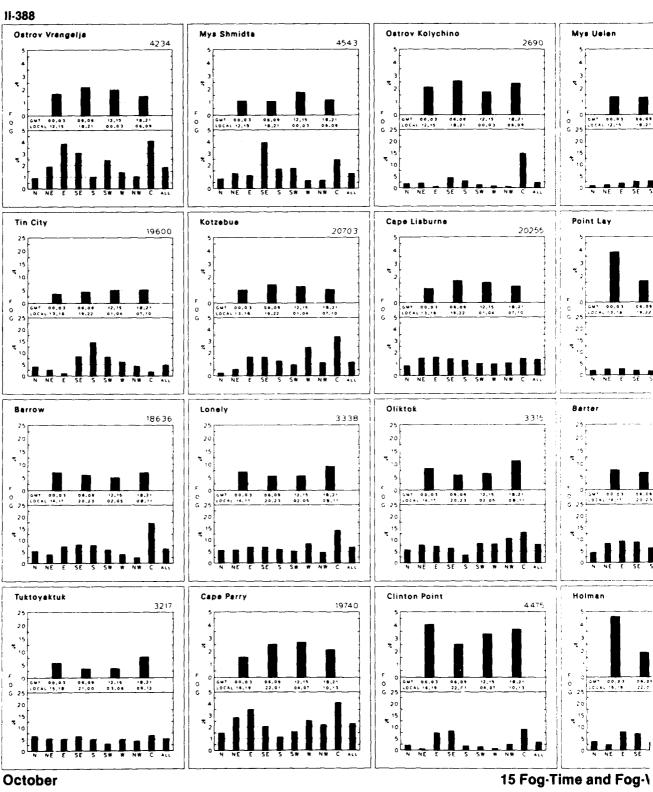
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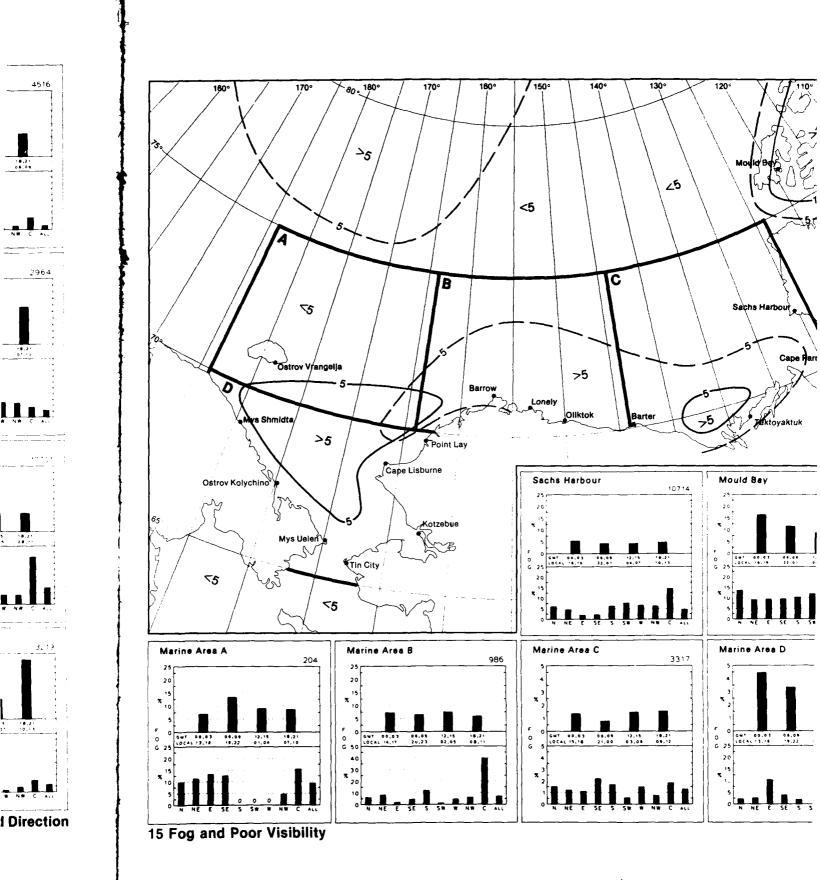


ember 15 Fog-Time and Fog-Wi

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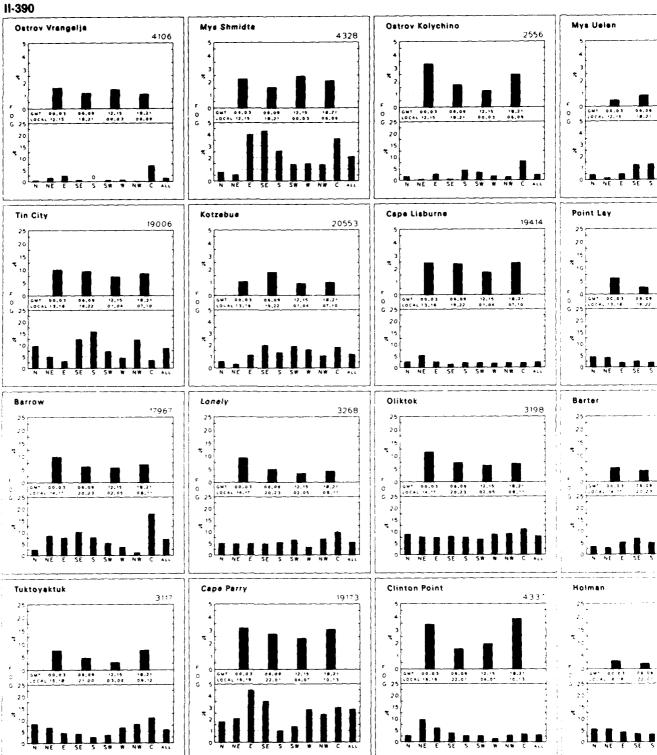






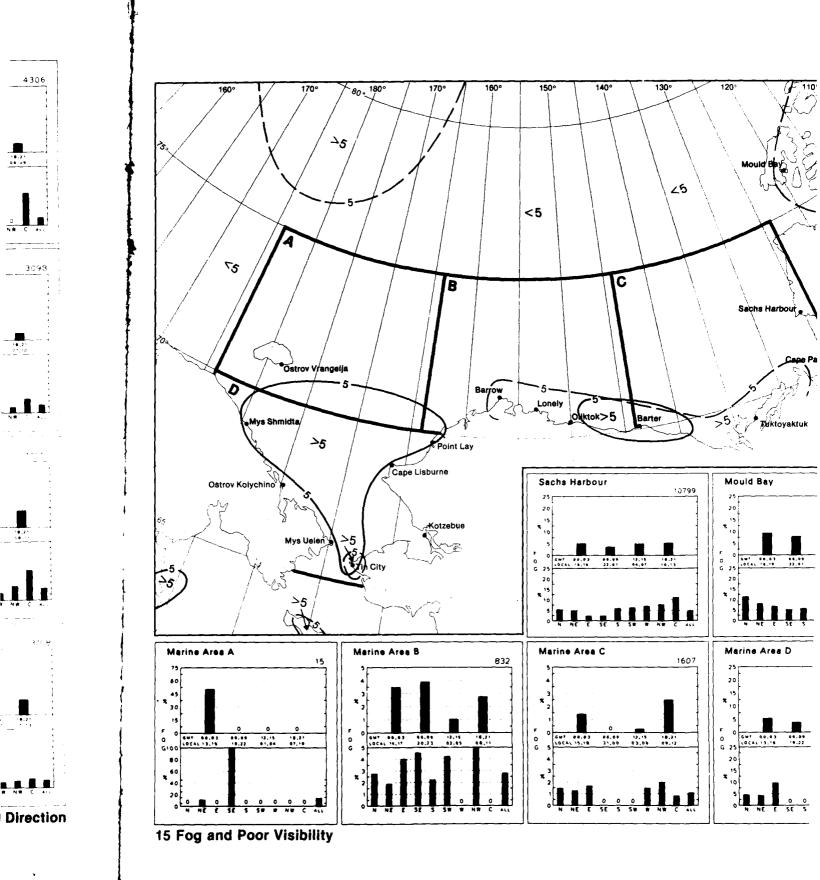
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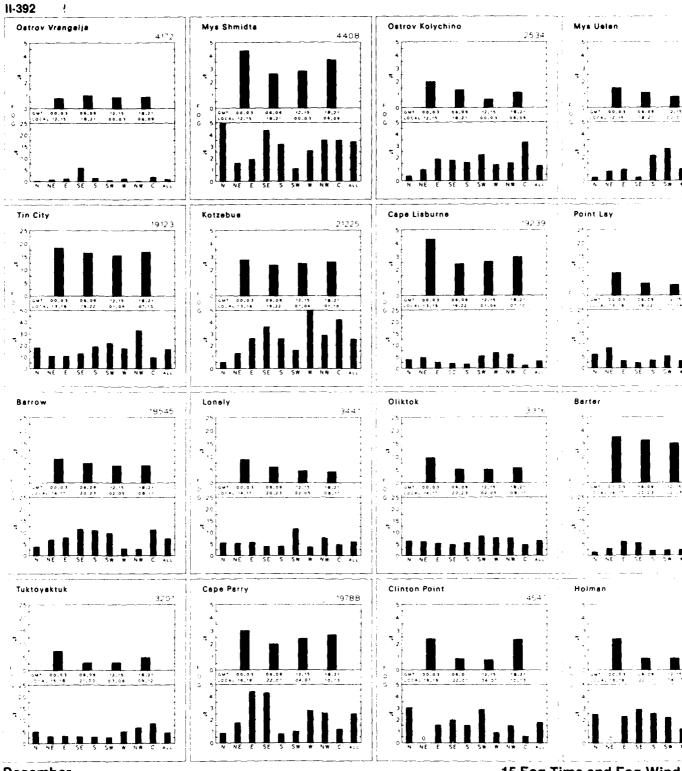




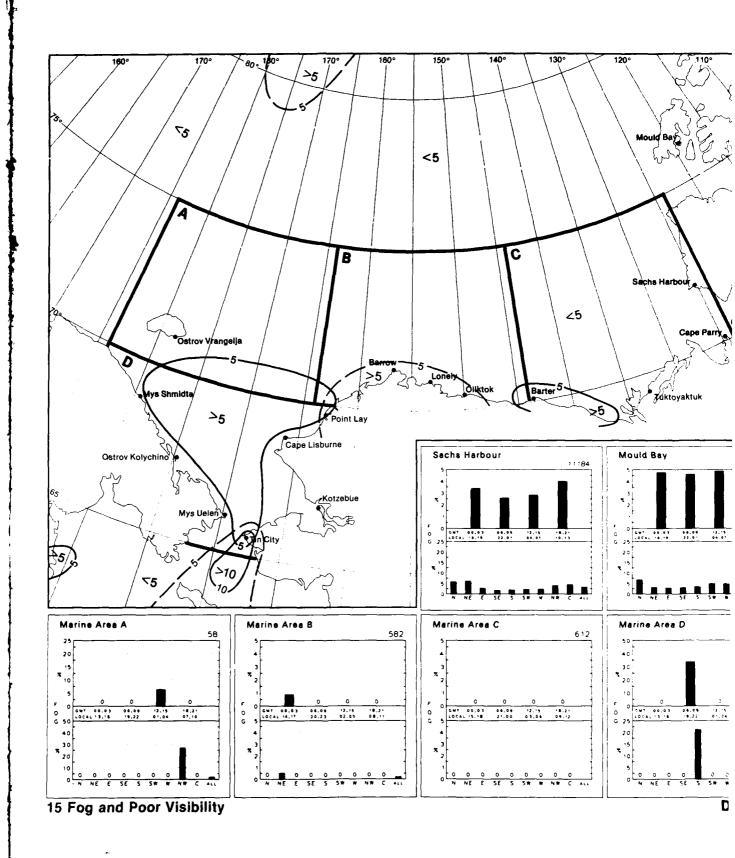
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15 Fog-Time and Fog-W





December 15 Fog-Time and Fog-Wind



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Map 16. Sea surface temperature extremes (°C)

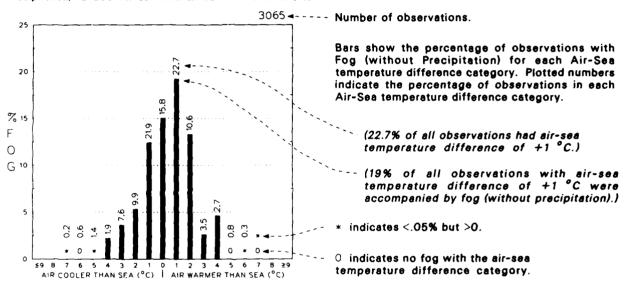
BLACK LINE – Maximum (99%) sea surface temperature (1% of the temperatures were great than the given value).

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

Albers Equal—Area Conic Projection

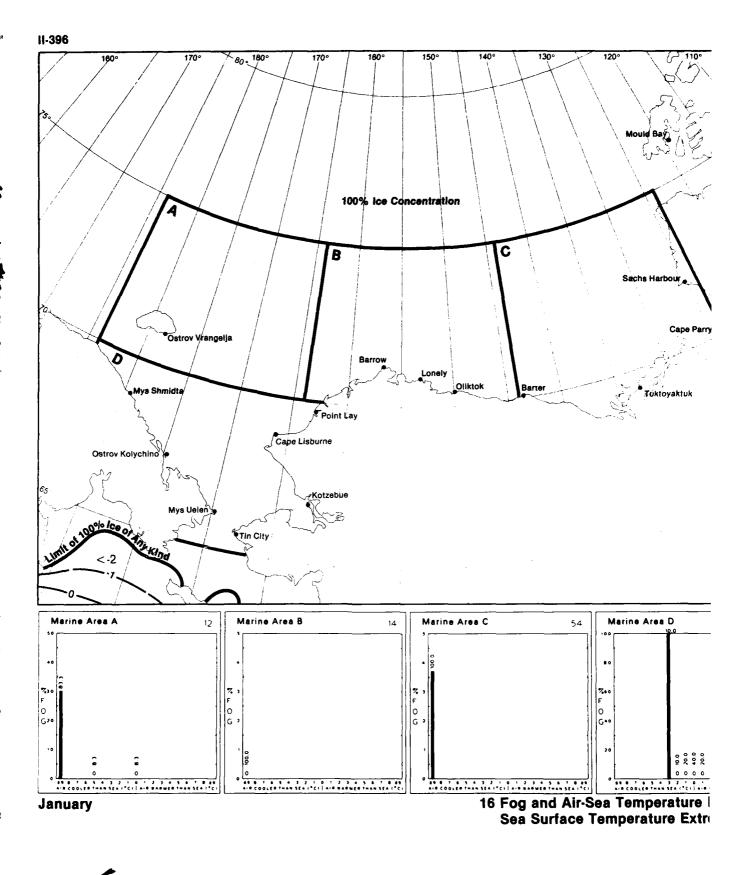
Graphs: Fog/air-sea temperature difference

PERCENT FREQUENCY OF THE OCCURRENCE OF FOG (Without Precipitation) VERSUS AIR-SEA TEMPERATURE DIFFERENCE (°C)



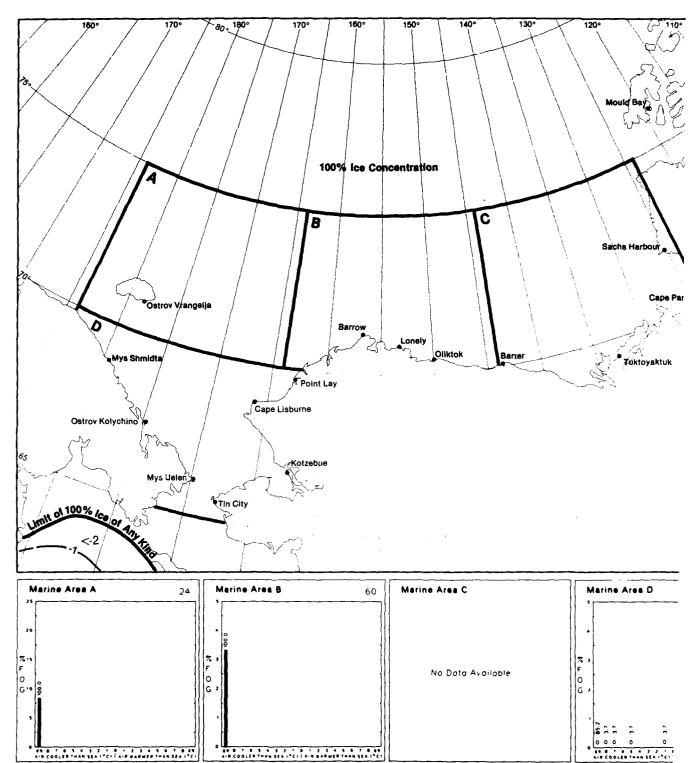
Sea surface temperatures are recorded with a fairly high frequency in marine observations. The principal method ving the temperature of the water surface on merchant ships are by either a fluid thermometer located in the condens the ship or a thermometer immersed in a freshly-drawn bucket of surface water. While the intake method is commor most merchant ships today, the bucket method was the most common a half century ago. Injection temperatures a sidered as representative of the surface temperature as bucket readings because the injectors are commonly located the water surface at depths of 5 to 20 meters depending on the size of the ship. Injection temperatures are also subjective to heating caused by the ship. Bucket temperatures can also be biased by the air temperature or the business.

Even though the two methods produce slightly different results, the data can be used with considerable confisopleths representing extreme conditions show the maximum (99%) and the minimum (1%) levels of sea surface to Gradients and relative values of the isopleths are considered reliable.



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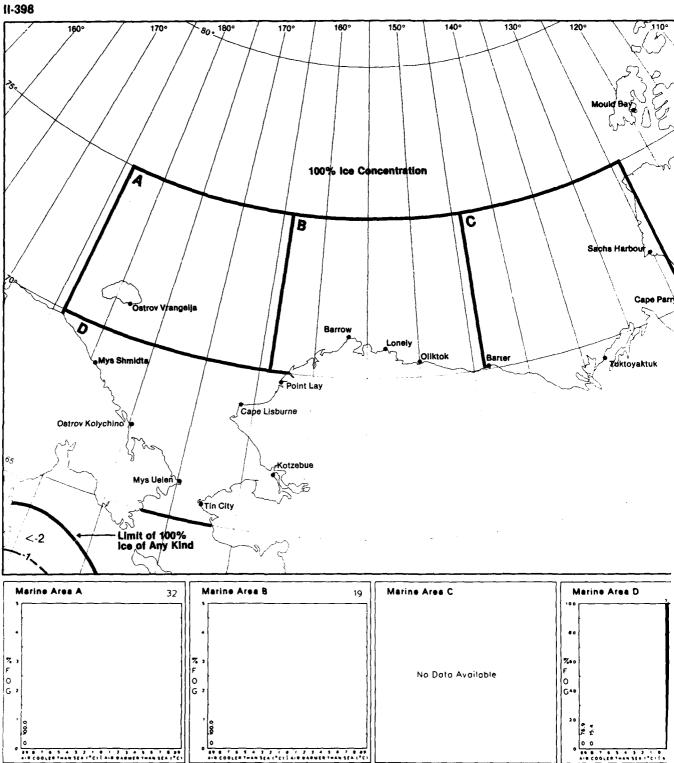


16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes

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16 Fog and Air-Sea Temperature Sea Surface Temperature Ext

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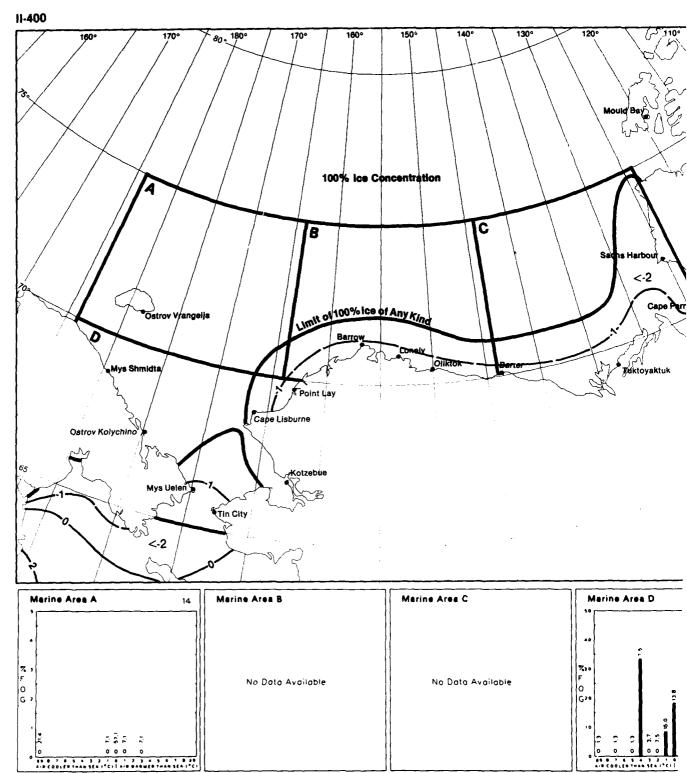
16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes

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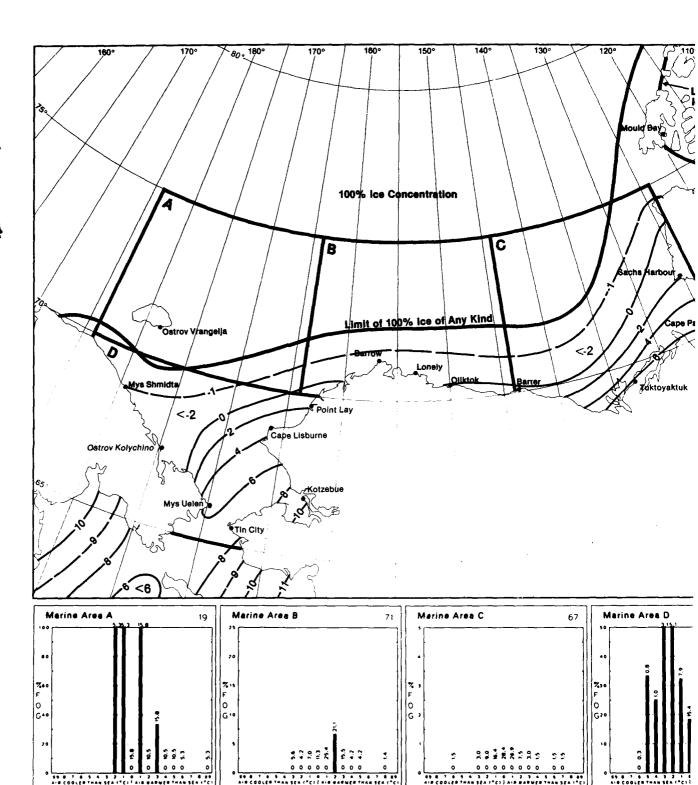
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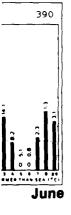
16 Fog and Air-Sea Temperatur Sea Surface Temperature Ex

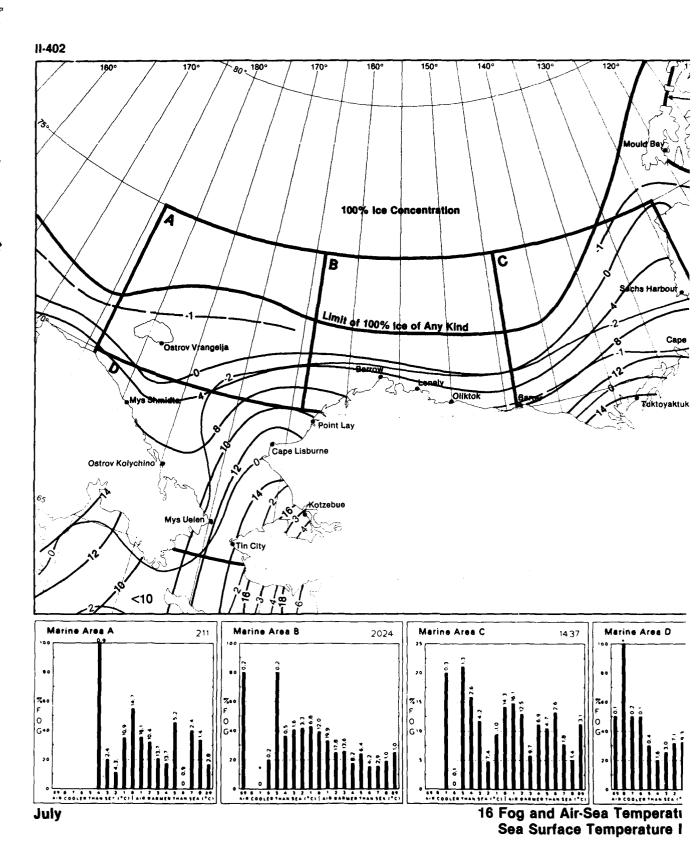
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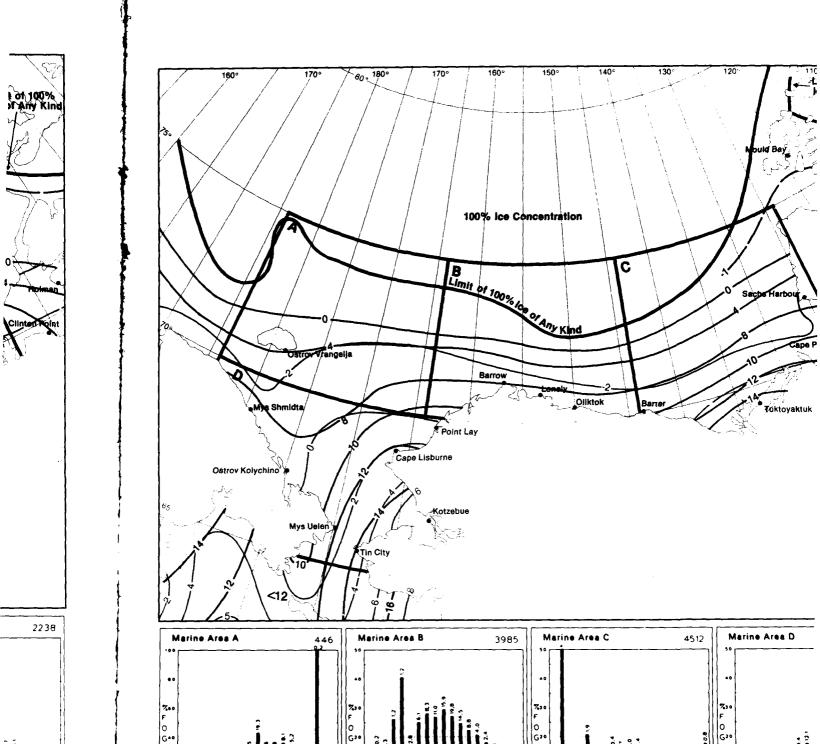
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16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes

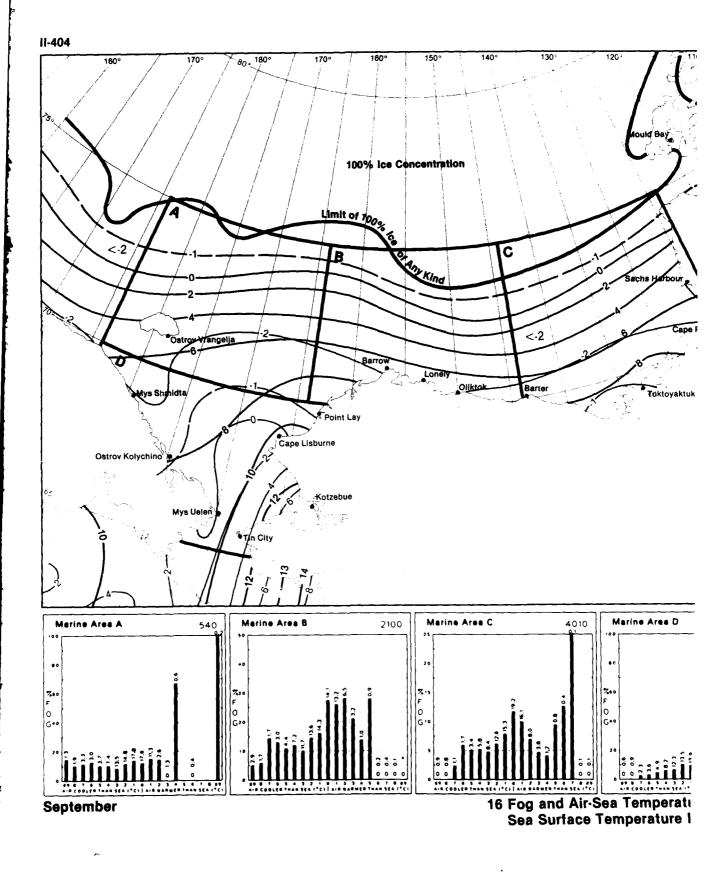


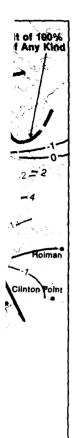




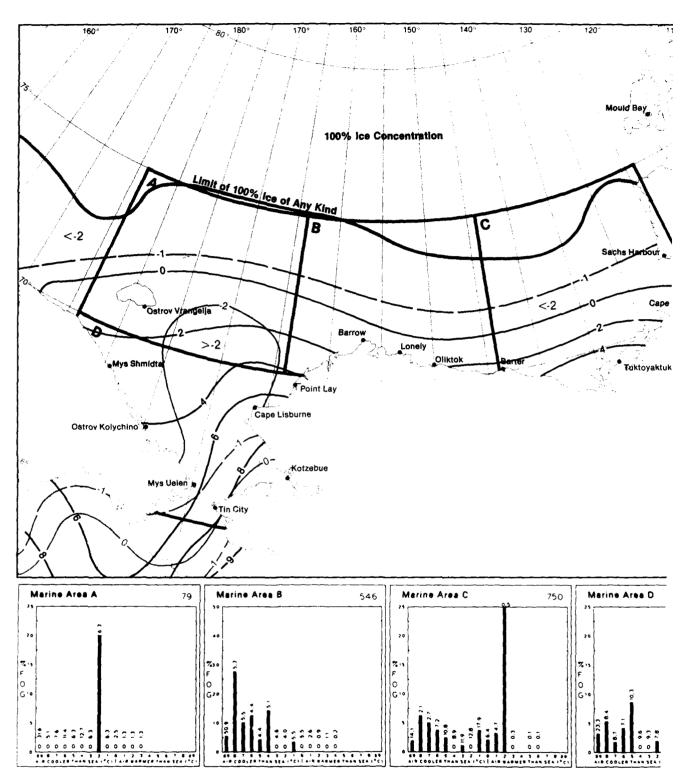
16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes

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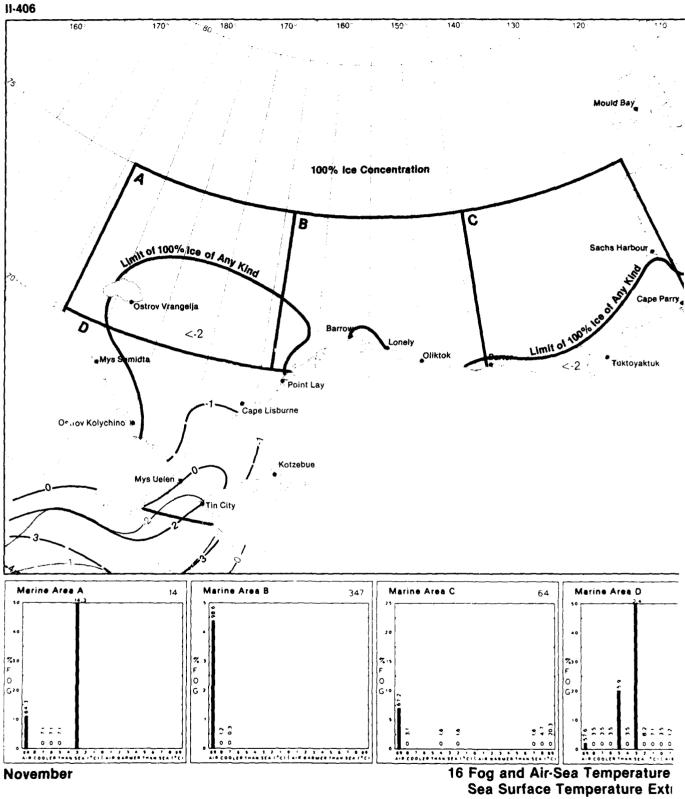








16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes



160° 100% Ice Concentration Sachs Harbour Oliktok Mys Shmidta Tuktoyaktuk Limit of 100% Ice of Any Kind Cape Lisburne Ostrov Kolychino Kotzebue <-2 *Tin City Limit of 100% Ice of Any Kind Marine Area A Marine Area B Marine Area C Marine Area D 43 No Data Available 0

16 Fog and Air-Sea Temperature Difference Sea Surface Temperature Extremes

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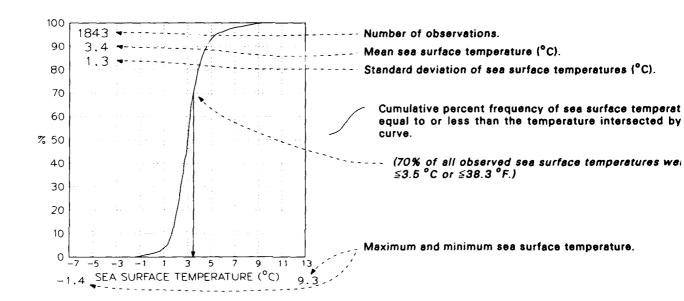
erence es Map 17. Mean sea surface temperature and ice concentration of any kind.

BLACK LINE – Mean sea surface temperature (°C).

BLUE LINE - Percent frequency of occurrence of ice of any kind.

Albers Equal—Area Conic Projection

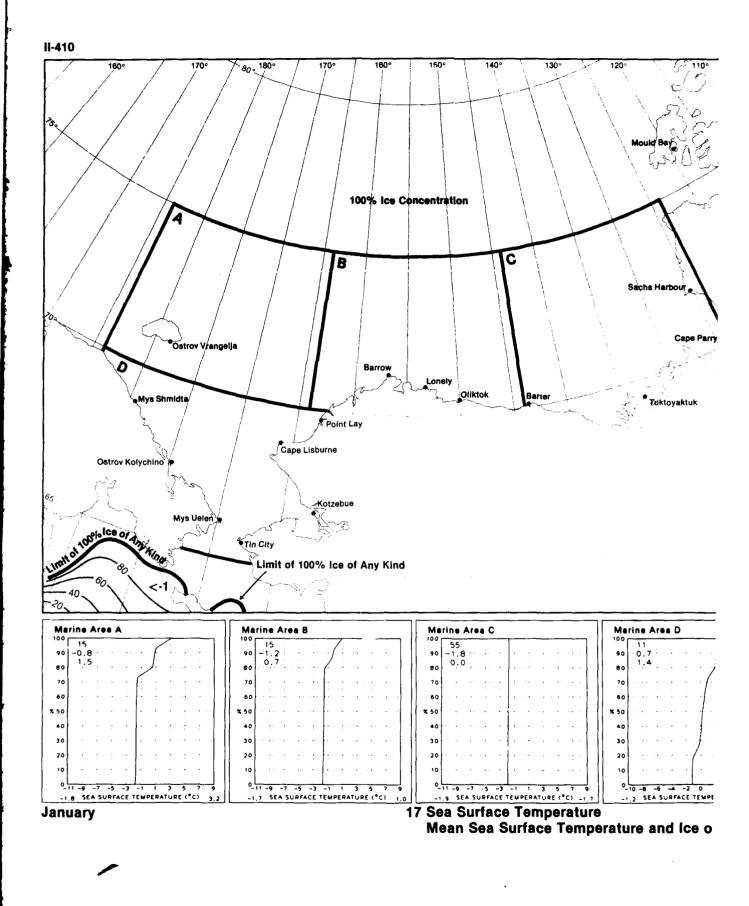
Graphs: Sea surface temperature

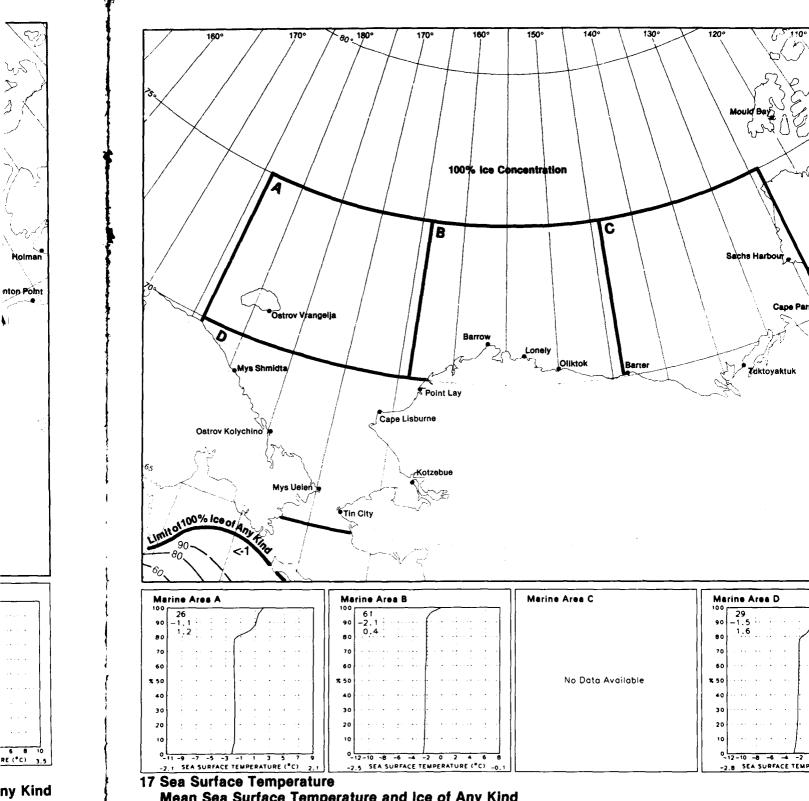


ecember

The percentage of temperatures greater than a given value can be obtained from the graph by subtracting the c frequency of that value from 100%. Sea surface temperatures may be used to estimate the length of time a person i clothes and life preserver may be expected to survive if washed overboard. The approximate survival time as a functic temperature is shown in the following table (refer to the text in Section I of the atlas for information on immersion hy; and to the introductory text in Section II for sea ice information).

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

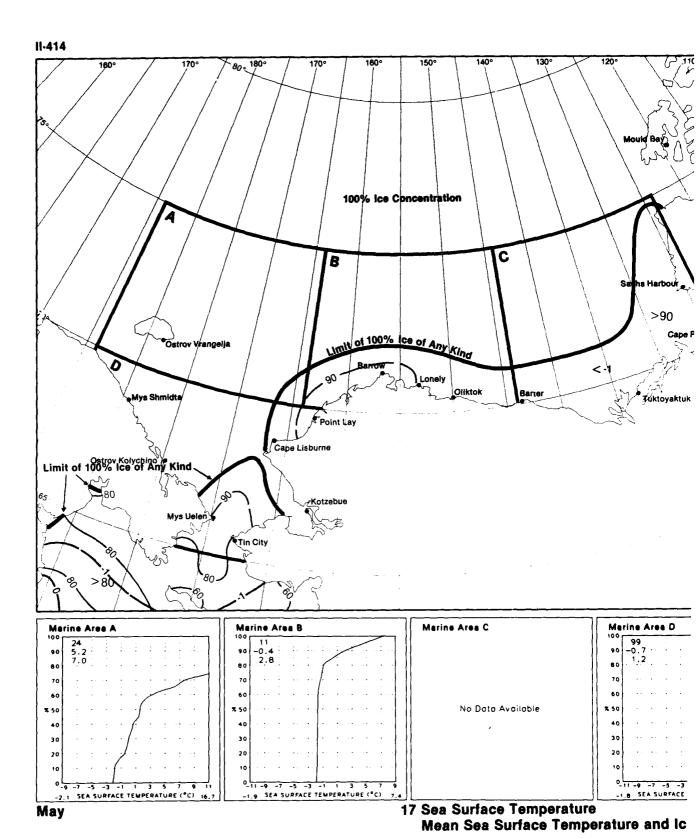


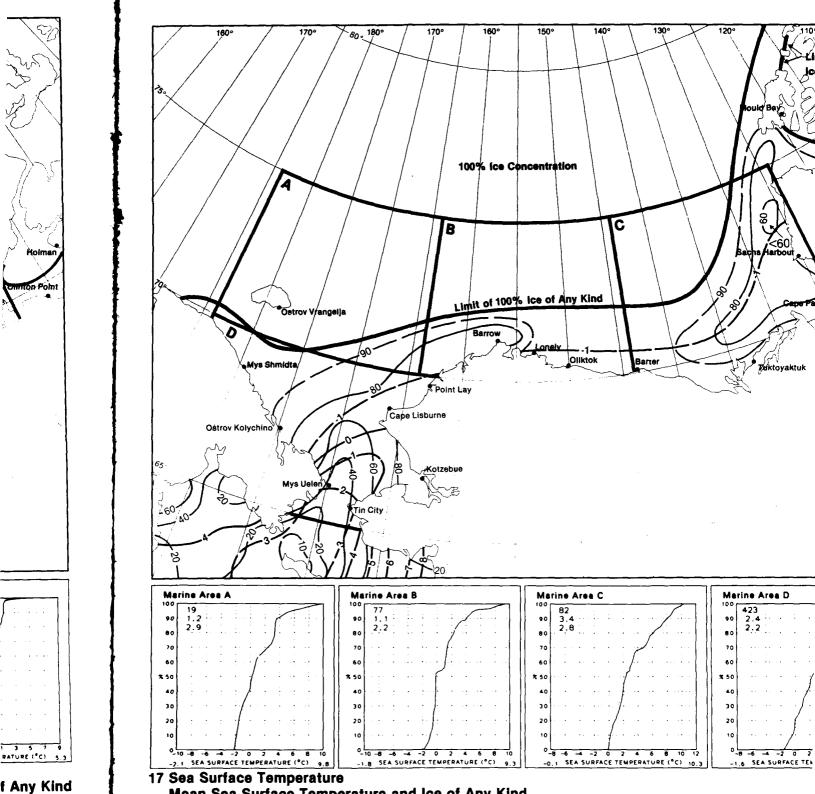


17 Sea Surface Temperature Mean Sea Surface Temperature and Ice of Any Kind

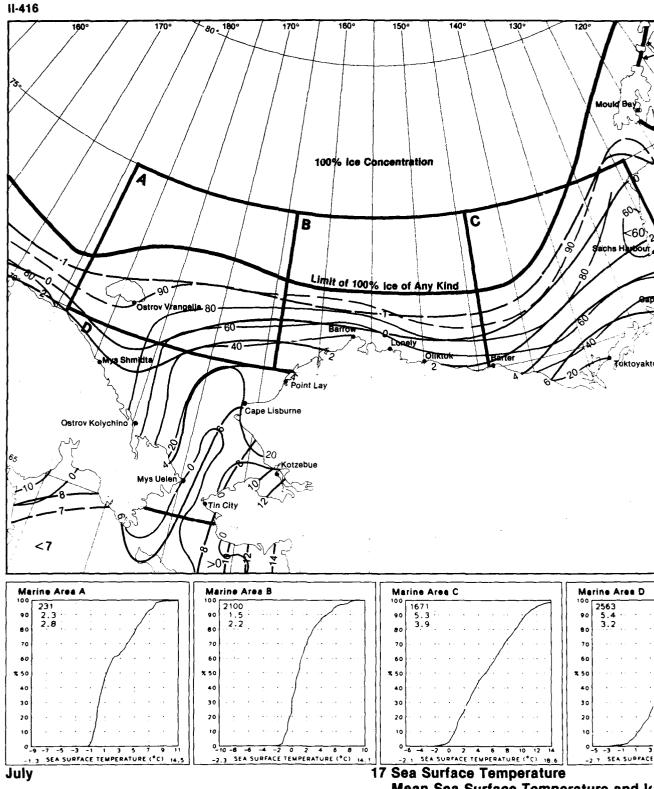
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17 Sea Surface Temperature
Mean Sea Surface Temperature and Ice of Any Kind

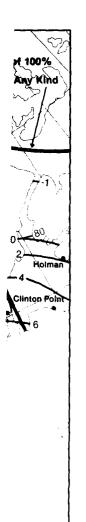




17 Sea Surface Temperature
Mean Sea Surface Temperature and Ice of Any Kind

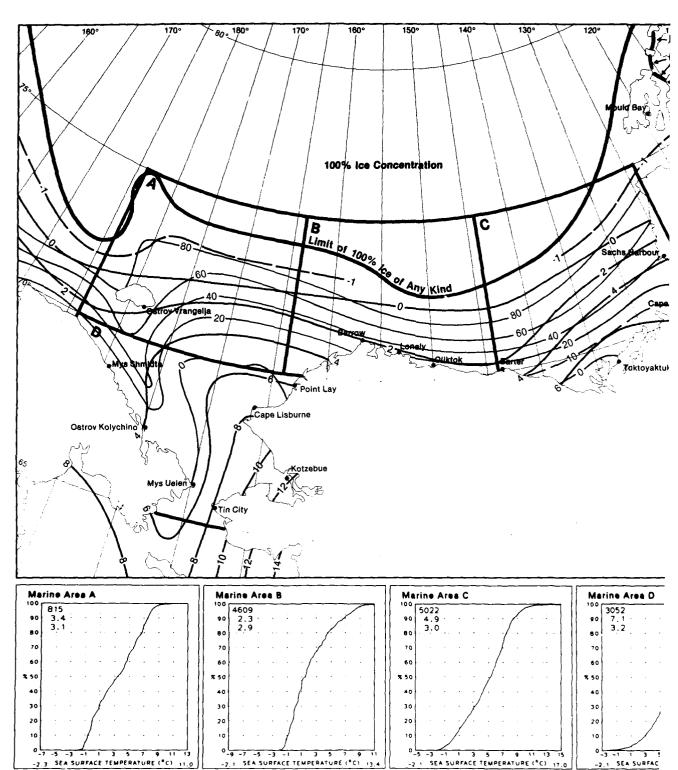


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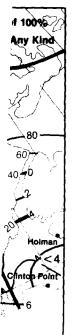


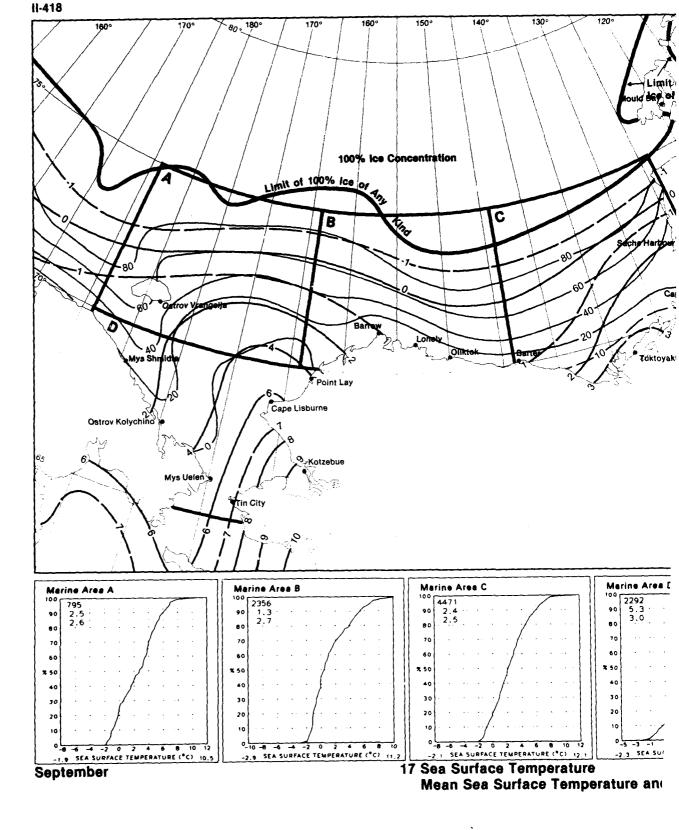


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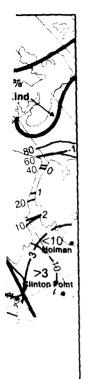


17 Sea Surface Temperature
Mean Sea Surface Temperature and Ice of Any Kind



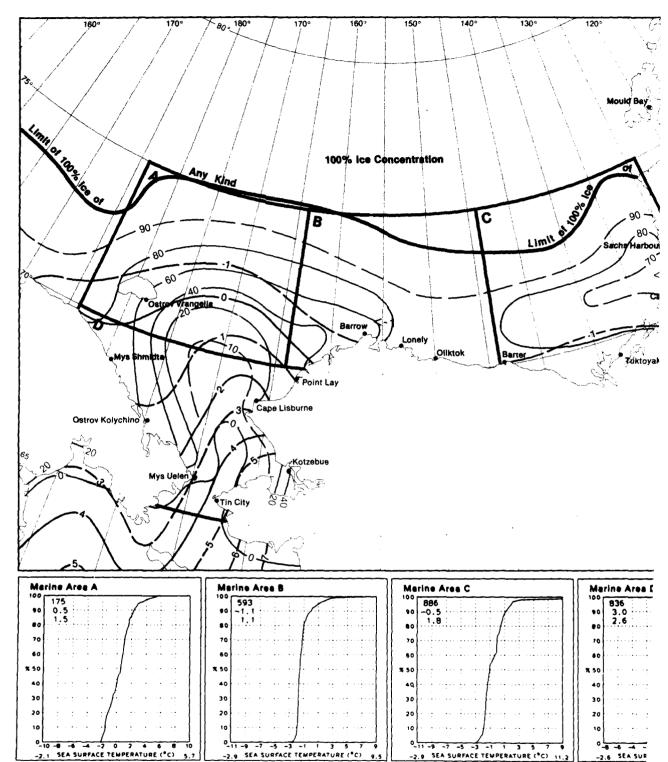


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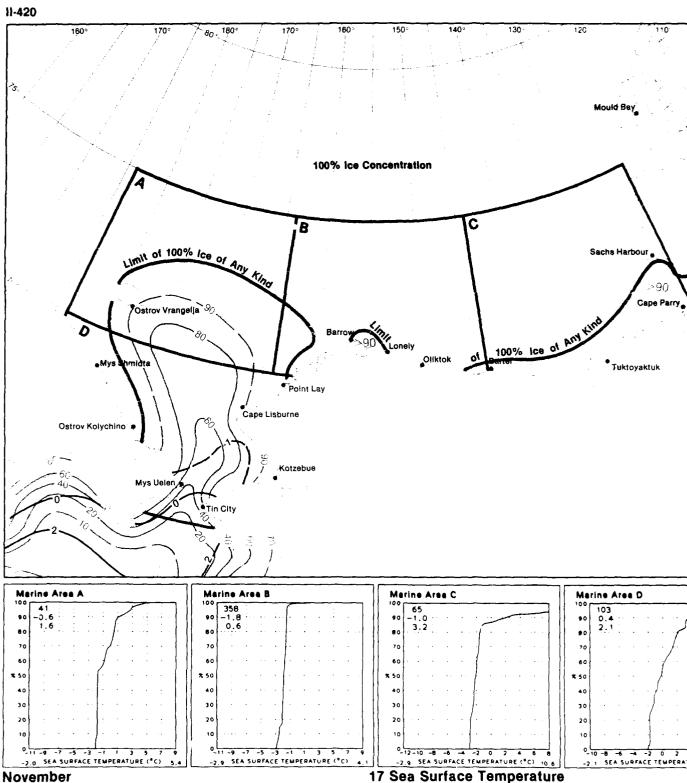




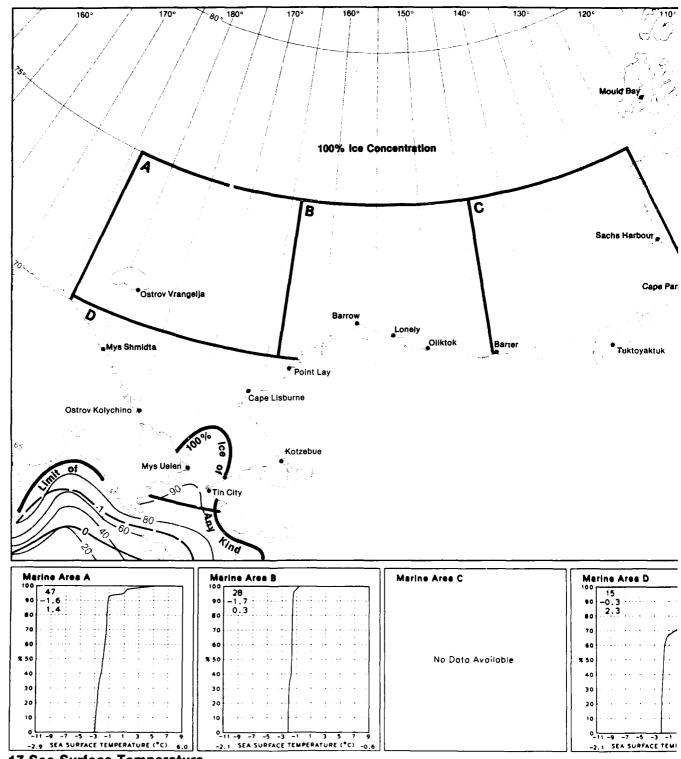
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17 Sea Surface Temperature
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Map 18. Wave height ≤3 feet and ice concentration ≥5/10ths

BLACK LINE - Percent frequency of wave height ≤3 feet (1 meter).

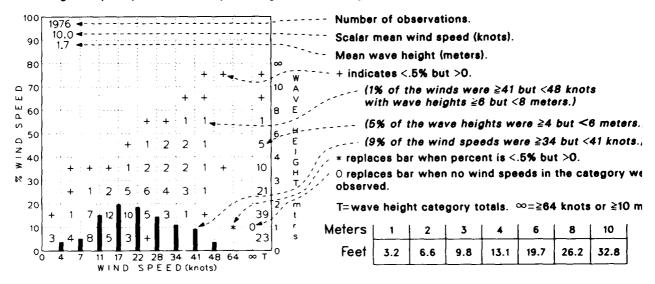
BLUE LINE - Percent frequency of ice concentration ≥5/10ths.

Albers Equal—Area Conic Projection

Graphs: Wave height/wind speed

Wind speed frequency: Bars are percentages for each wind speed category.

Wave height frequency: Numbers are percentages of wave height for various wind speeds.



Wave heights have been recorded in a consistent quantitative code only since the late 1940's. The reluctan observers to take wave observations in the earlier years and the difficulty in estimating waves, especially in con make wave observations one of the least commonly observed elements. The observations are also subject to bia characteristics. A correction factor of approximately 10% was suggested by Hogben and Lumb (1967) and has been preliminary work at NCDC where Quayle (1980) found that generally the heights are too low, the periods too short, are discrimination poor. The data in this study have not been adjusted for the suspected biases. The marine observation cessed through quality control procedure where an internal check was made between wind speed and sea height. swell data were then arrayed and suspicious outliers deleted. The higher of the sea wave or swell was selected for tion. If the heights were equal, the wave with the longer period was selected.

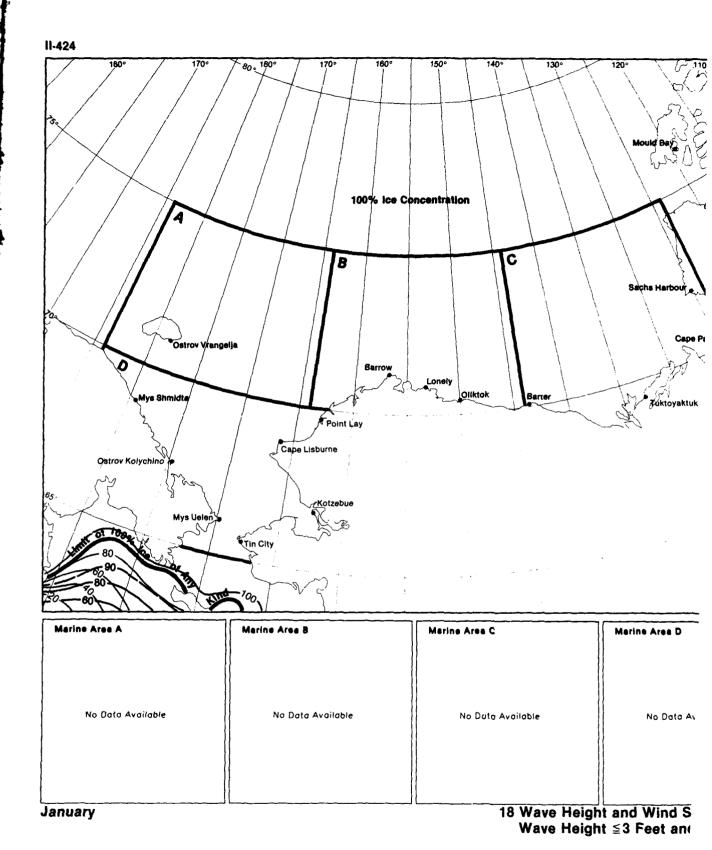
Wave height isopleth presentations in Sets 18 and 19 are for a generally nonhazardous sea condition; i.e., wave than 3 feet and 8 feet, respectively. Isopleth presentations in Set 20 define much more hazardous sea condition heights equal to or greater than 12 and 20 feet. Refer to the texts of Sets 14 and 18-21 for complete information on w the introductory text of Section II for sea ice information.

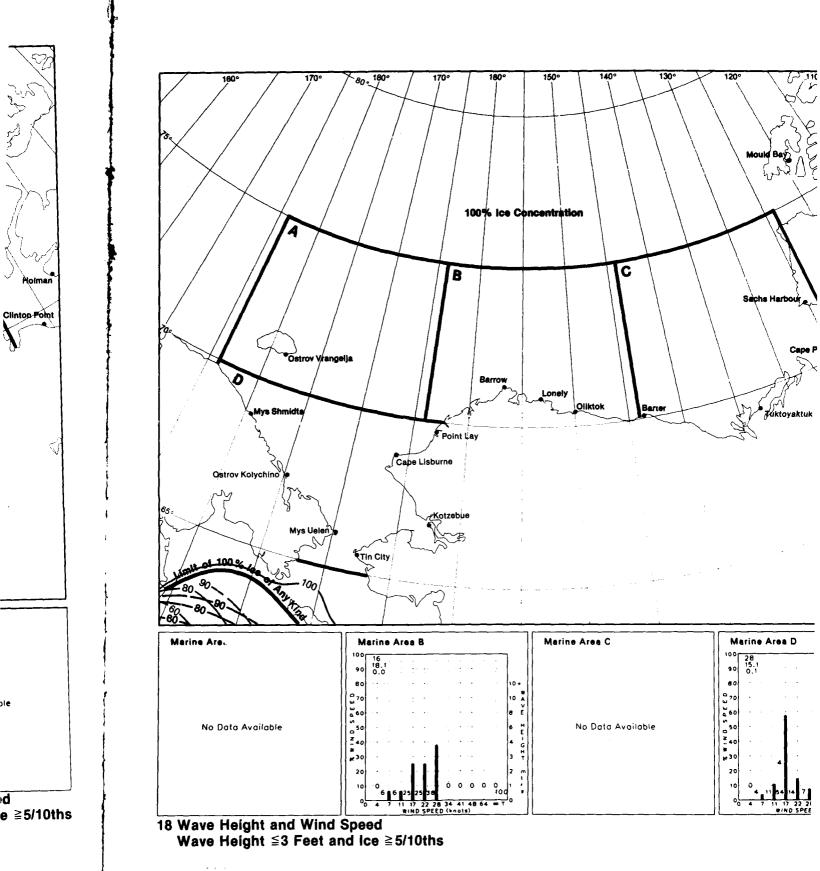
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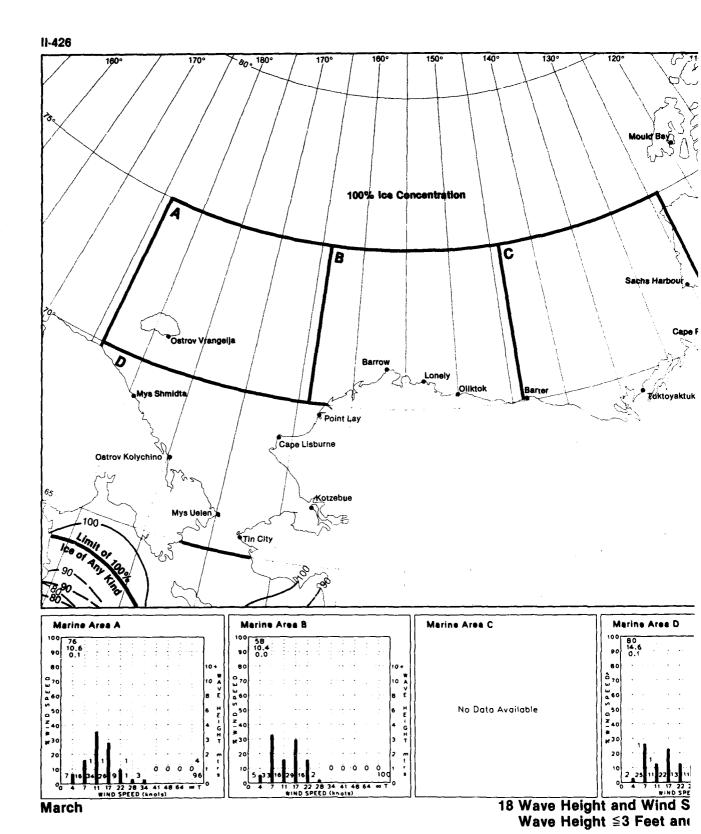
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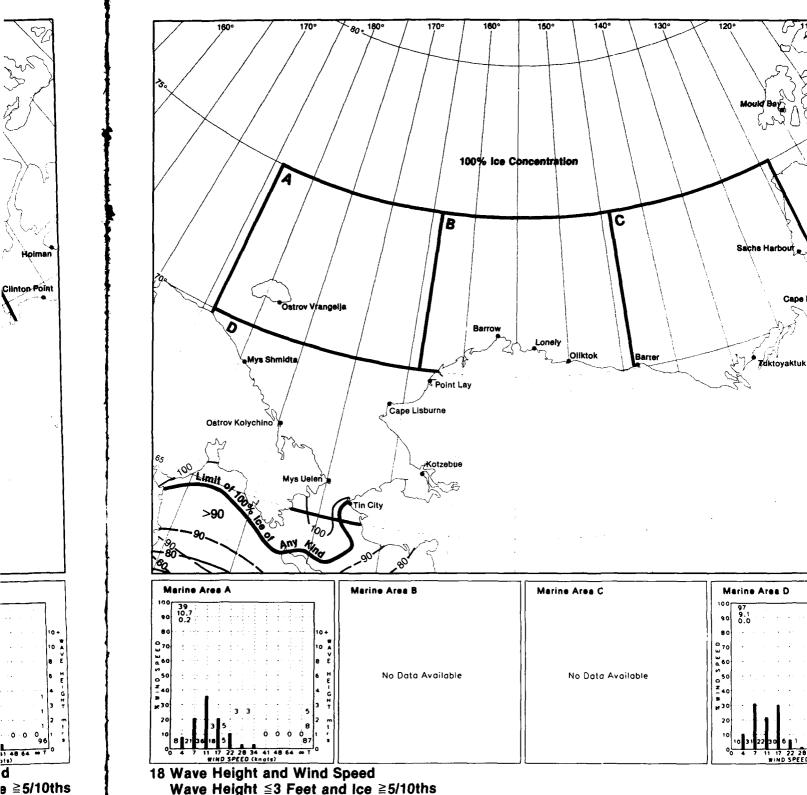
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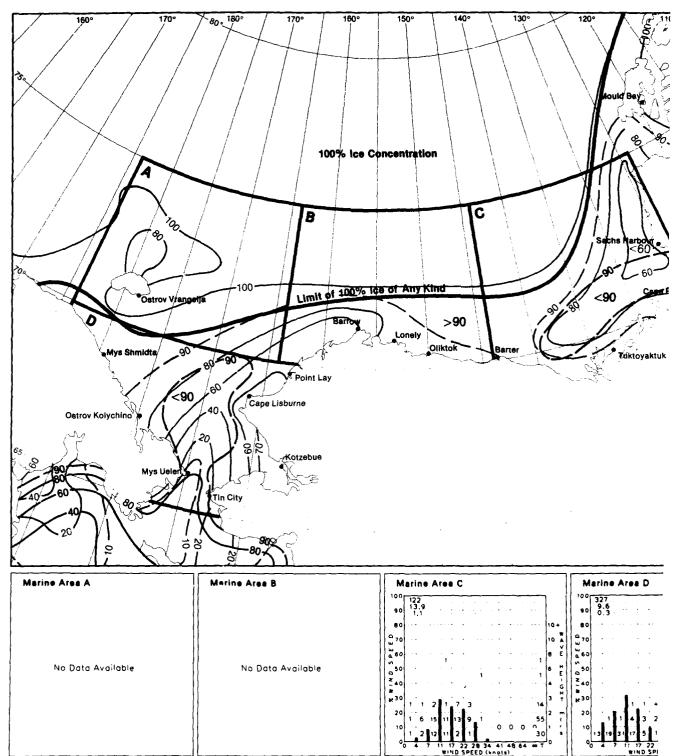




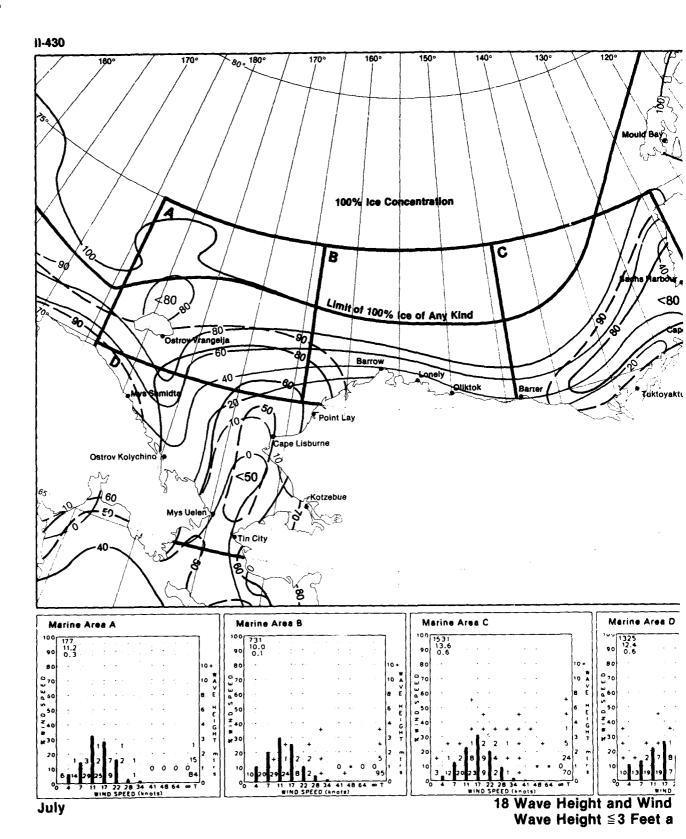
18 Wave Height and Wind Speed Wave Height ≦3 Feet and Ice ≧5/10ths

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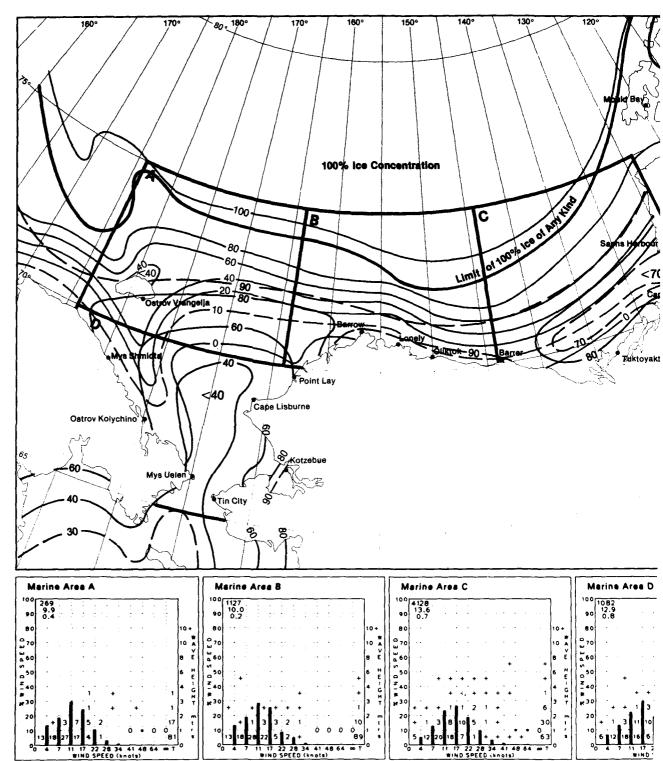
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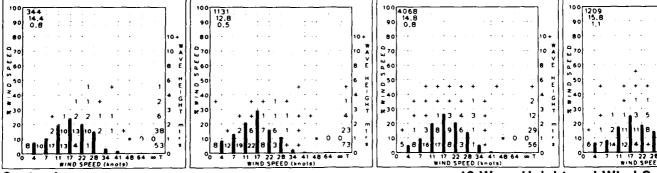
18 Wave Height and Wind Speed Wave Height ≦3 Feet and Ice ≧5/10ths



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18 Wave Height and Wind Speed Wave Height ≦3 Feet and Ice ≧5/10ths



18 Wave Height and Wind Sp Wave Height ≦3 Feet and September

100% Ice Concentration C Limit of 100% ice of Any Kind Cape Lisburne Ostrov Kolychino Marine Area D

18 Wave Height and Wind Speed
Wave Height ≦3 Feet and Ice ≧5/10ths

d

e ≥5/10ths

170° 150 130° 160° 100% Ice Concentration Ostrov Vrangelja Oliktok Barter Mys Shmidta Point Lay Cape Lisburne Ostrov Kolychino Kotzebue Marine Area A Marine Area C No Data Available No Data Available No Data Available

120°

Sachs Harbour

Tuktoyaktuk

Marine Area D

No Data Availa

18 Wave Height and Wind Speed
Wave Height ≦3 Feet and Ice ≧5/10ths

i/10ths

tolman

≥ 9Q on Point Holman

on Point

ember

Map 19. Wave height <8 feet and ice thickness ≥8 feet

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

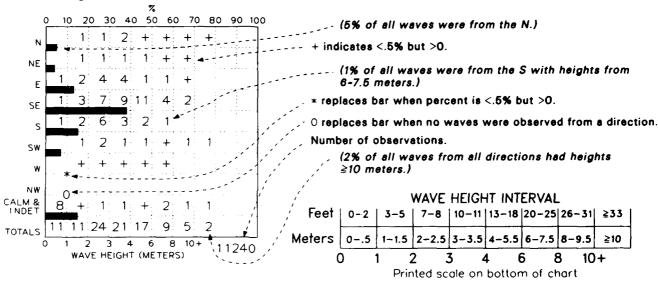
BLUE LINE - Percent frequency of ice thickness ≥8 feet (multi-year ice).

Albers Equal-Area Conic Projection

Graphs: 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.



The observer aboard ship determines and records the period and height of wind waves (sea); and the direction, pe height of swell waves. Sea waves are waves raised by the local wind and are assumed to have the same direction as t Swell waves are waves not raised by the local wind, but rather by distant wind systems or by winds that have sinced c blow. Swell waves characteristically exhibit more regular and longer periods, and have flatter crests than wind wave their generating area (fetch). Sea and swell waves occur singly or in manifold combination from which they can some separated only with difficulty.

Indeterminate directions are combined with calms in the direction scale of the graph (they can be distinguished sulting the sea height scale). The number of observations noted on the graphs is from the higher of sea or swell when reported; if the heights were equal, then the one with the longer period was selected. If only one wave was reported (sea then that value was used. Refer to the texts of Sets 14 and 18-21 for complete information on waves, and to the introduc section of Section II for sea ice information.

11-438

100% Ice Concentration C B Ostrov Vrangella Oliktok * Tuktoyaktuk Cape Lisburne Ostrov Kolychino Kotzebue Tin City Marine Area A Marine Area B Marine Area C Marine Area D

l, and wind. ed to vithin es be

conh are well), ' text

leuq

No Data Available No Data Available No Data Available No Data

January

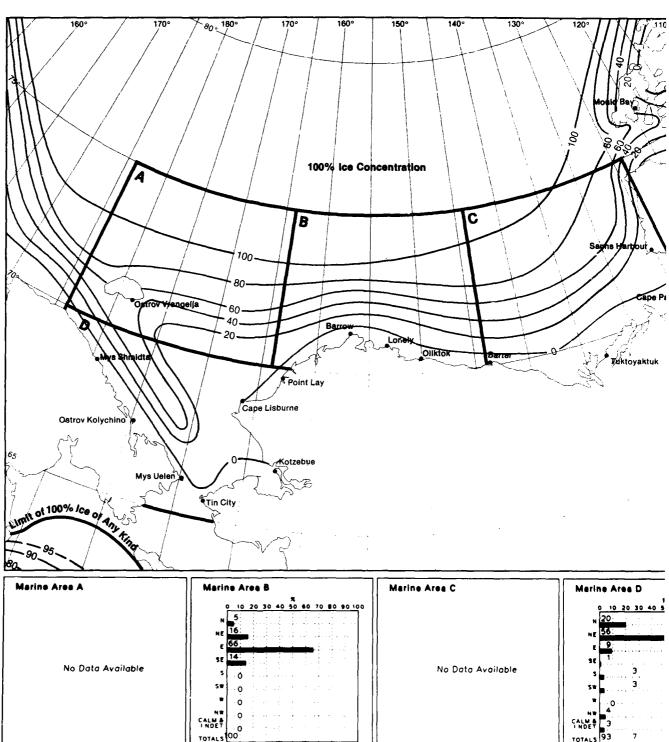
19 Wave Height and Direction

Wave Height <8 Feet and Ice Thickr

Holman Zlinton Point ilable

s ≧8 Feet

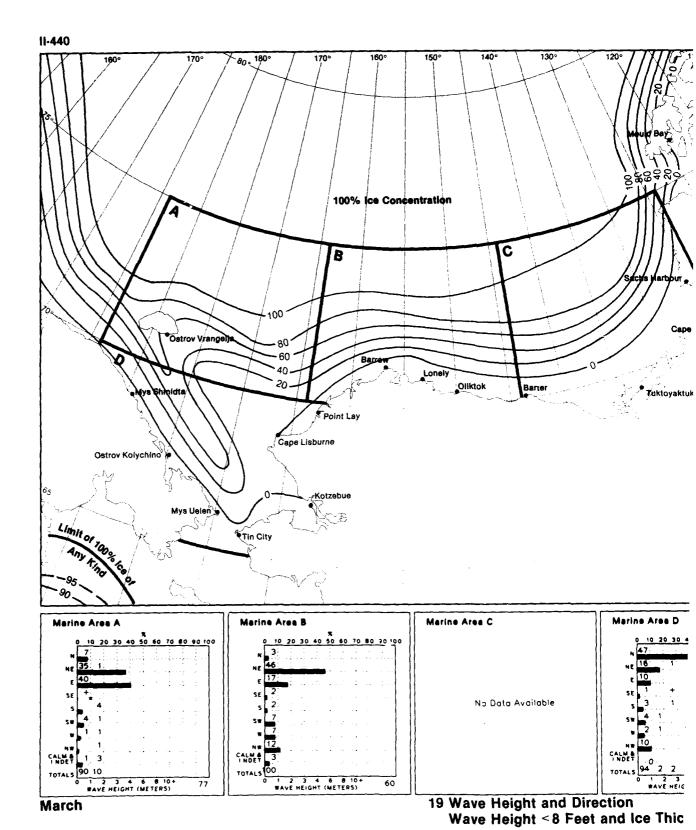




Holman
Clinton Point

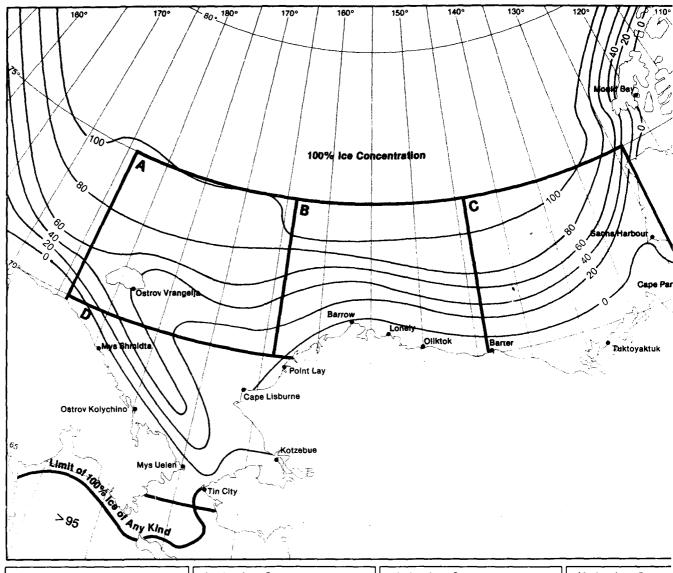
30

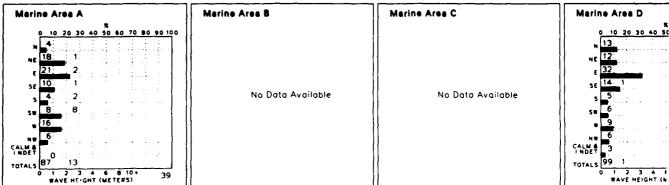
ebruary



Holman Clinton Point

ss ≧8 Feet





19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≥8 Feet

11-441

Holman

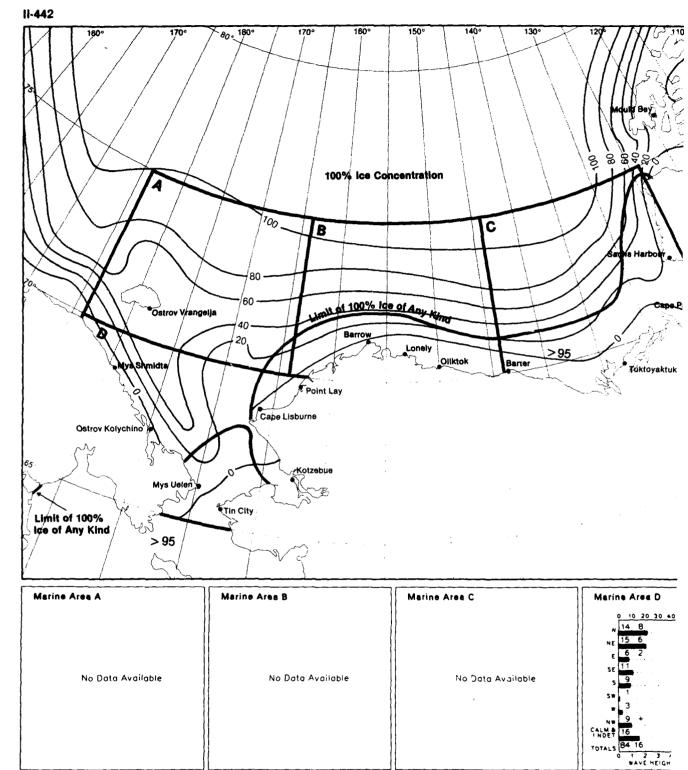
inton Point

90 90 100

98

April

May

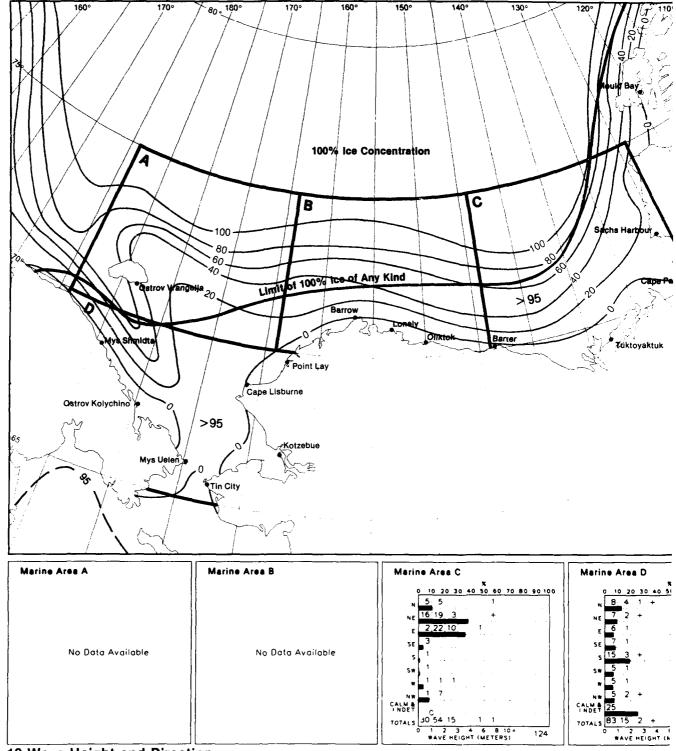


19 Wave Height and Direction
Wave Height < 8 Feet and Ice Thicl

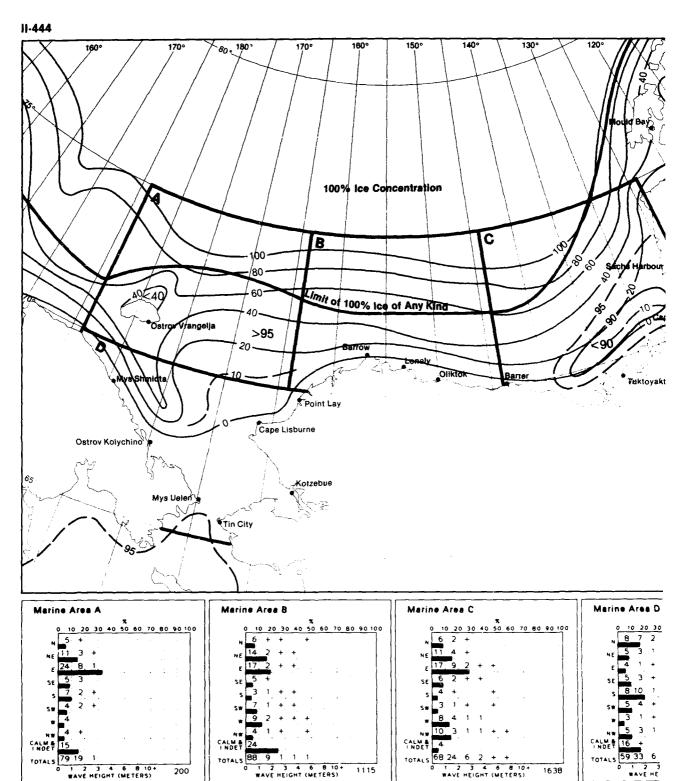


ss ≧8 Feet

122

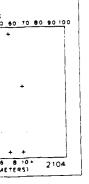


19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≧8 Feet

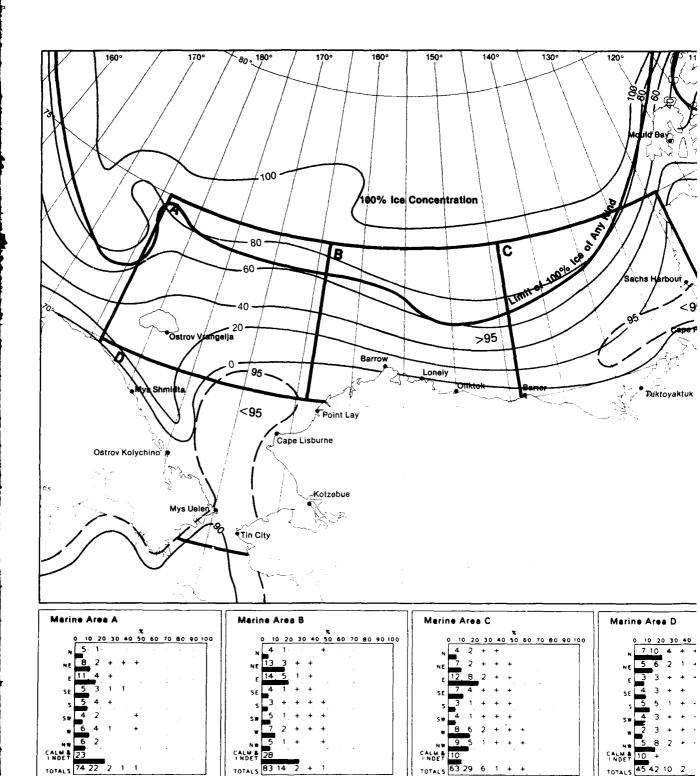


July 19 Wave Height and Direction Wave Height < 8 Feet and Ice Thi





ess ≧8 Feet



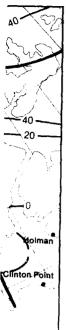
1 2 3 4 WAVE HEIGHT I

1 2 3 4 6 B 10+ WAVE HEIGHT (METERS) 4824

19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≧8 Feet

1 2 3 4 6 8 10+ WAVE HEIGHT (METERS)

1 2 3 4 6 8 10+ WAVE HEIGHT (METERS)



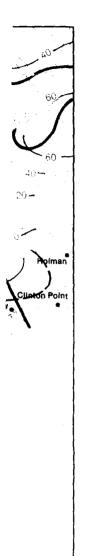


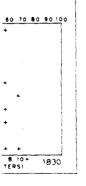
1 2 3 4 6 8 10+ WAVE HEIGHT (METERS)

516

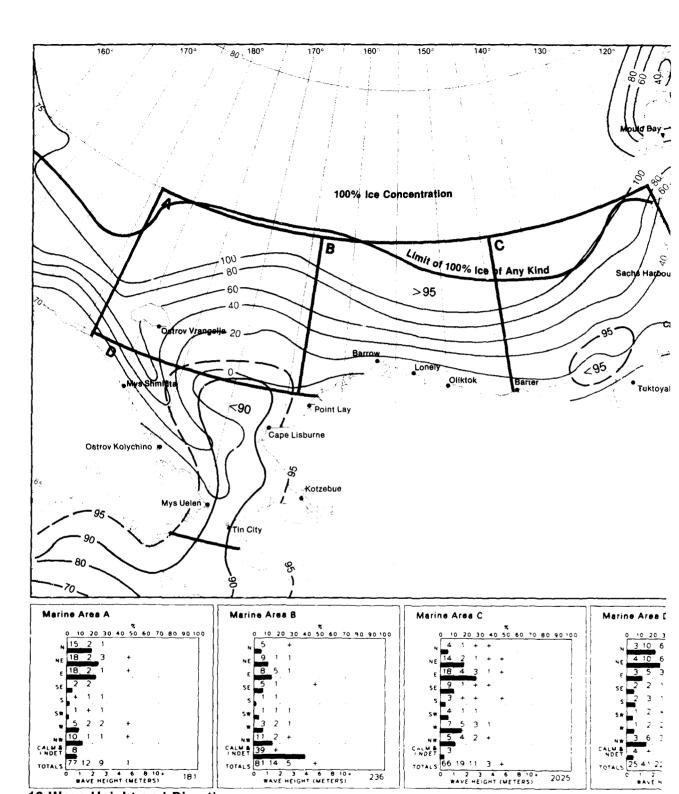
1 2 3 4 6 8 10+ WAVE HEIGHT (METERS) 19 Wave Height and Direction September Wave Height < 8 Feet and Ice Thic

1 2 3 4 6 8 10+ WAVE HEIGHT (METERS)

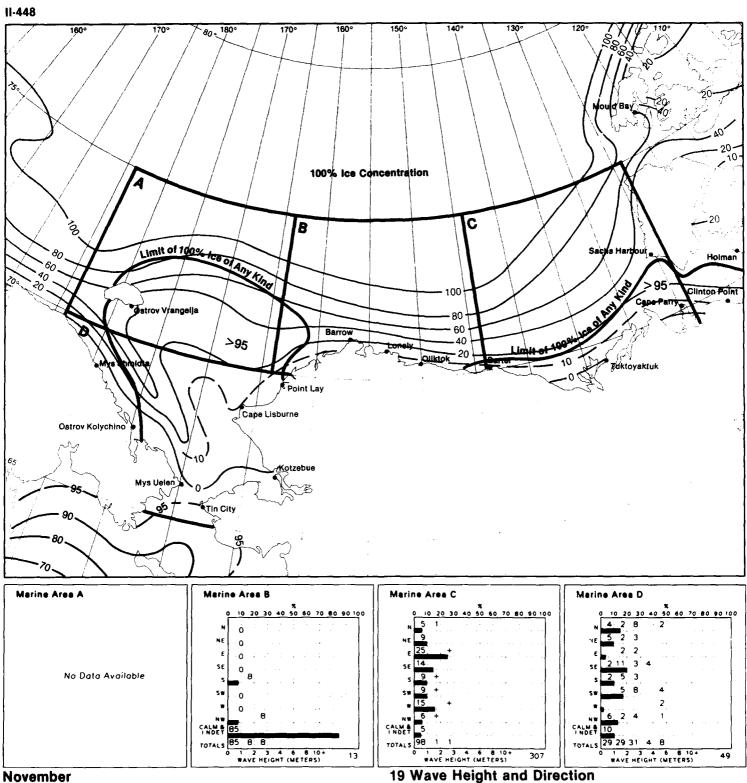




ss ≧8 Feet

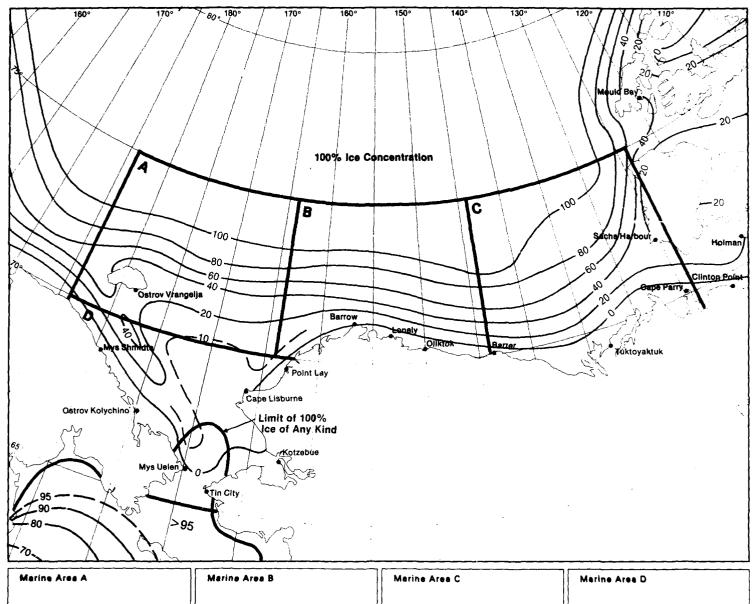


19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≧8 Feet



19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≧8 Feet





Merine Area A	Marine Area B	Marine Area C	Marine Area D
No Data Available	No Data Available	No Data Available	No Data Available
	33.0 770.000	No yold Available	No Date Avenuelle

19 Wave Height and Direction
Wave Height <8 Feet and Ice Thickness ≥8 Feet

December

Map 20. Wave height ≥12 and ≥20 feet

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

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

Albers Equal—Area Conic Projection

Graphs: Wave height/period

Percent frequency of occurrence of wave period and height.

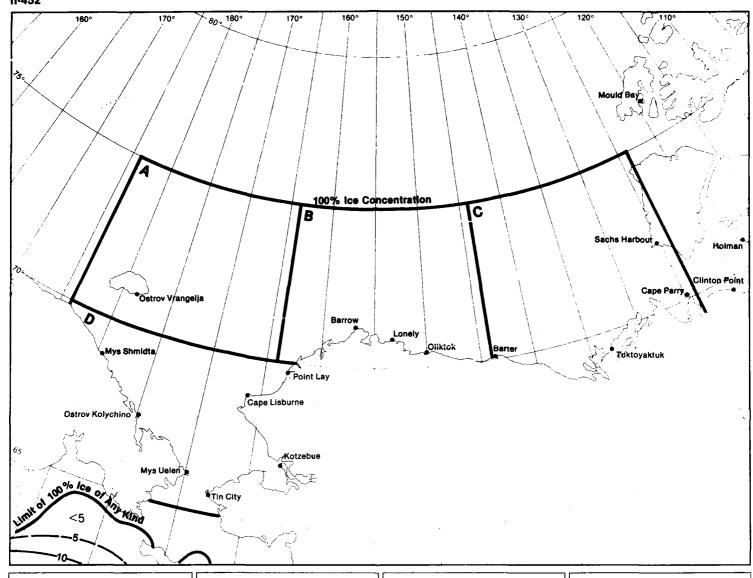
WAVE	}	F	PERI	OD ((sec)		
HEIGHT (MTRS)	<6	6-	8-	10 – 11	12- 13	>13	IND	
05	21	3	1	+	+	+	6	+ indicates <.5% but >0.
1-1.5	22	16	6	2	1-	+	+	(2% of observed waves had a height of 1-1.5 meters
2-2.5	3	6	4	3	1	+	+	and a nation of 10 stangered 1
3-3.5	+	1	1	1	1	+	+	Number of observations.
4-5.5	+	+	+	+	+	+	0	
6-7.5	0	+	+	0	0	+	0	Waves are selected on the basis of the higher of sea and swell
8-9.5	0	0	0	+	0	0	0	/ when both are reported. If both heights are equal, the wave with the longer period is selected.
≥10	0	0	0	0	0	+	0	/
						40	10	

Wave period is the interval in seconds between the passage of two successive crests or troughs of well-formed waves past a fixed point. Waves in the same system usually occur in a sequence of a few large, well-formed waves followed by an interval in which only small and poorly-formed waves occur, and another series of well-formed waves, etc. Observers aboard ship determine the values of wave height, period, and direction generally using only the well-formed waves and ignoring poorly-formed waves. To describe a similar sea state from a measured wave record, a statistical approach is used to describe the significant wave height (H 1/3) which is the average of the highest one-third of the measured waves. This roughly approximates the characteristic height observed visually from aboard ship. To determine the period of wind waves or swell, the observer needs only to select a distinctive patch of foam or a small floating object at some distance from the ship. As the object falls astern, a new one is selected. The elapsed time is determined to the nearest second between the instant when the object is on the crest of the first and of the last well-formed wave in the group. Noting the number of crests that pass under the object during the interval permits computation of the average period. An experienced observer needs only to observe a few representative wave "sets" to derive the average period.

The number of observations noted on the graphs is that of those observations reporting both wave height and period. The wave height isopleth presentations are for a generally hazardous sea condition (wave heights equal to or greater than 12 feet). Refer to the texts of Sets 14 and 18-21 for complete information on waves.

20 Legend

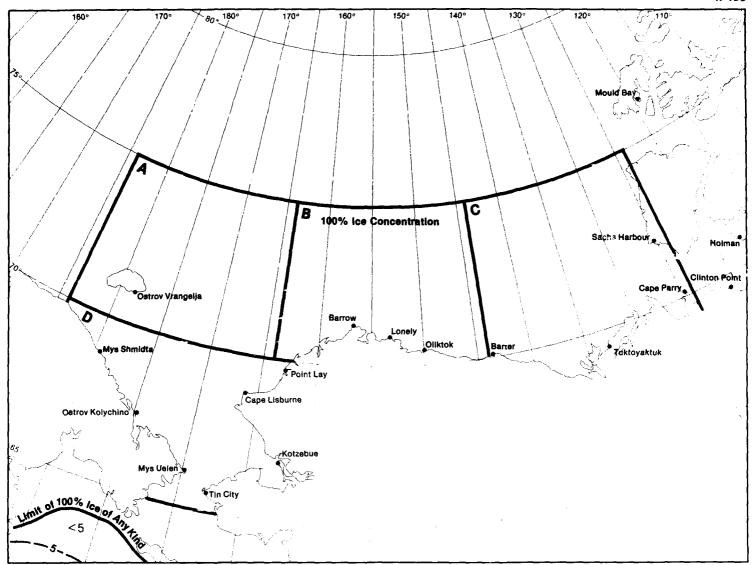
Legend 20



Marine Area A	Marine Area B	Marine Area C	Marine Area D
No Data Available	No Data Available	No Data Available	No Data Avoilable
tonuomi	J L	00 14/0	a Hainht and Daviad

January

20 Wave Height and Period Wave Height ≧12 and ≧20 Feet



Marin	e Area A	
	No Data Available	

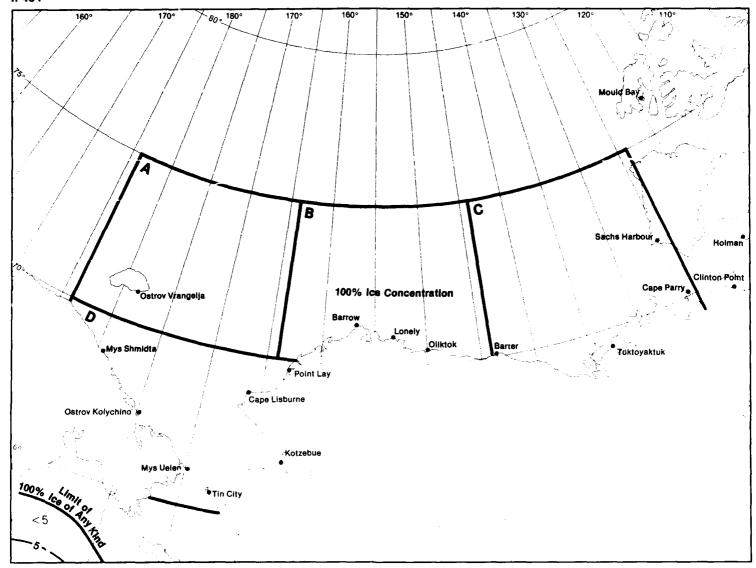
WAVE	[OD		2)	
HEIGHT (MTRS)	<6	6-	8-	10 -	12-	>13	
05	13						88
1-1.5							
2-2.5							
3-3.5							
4-5.5							
6-7.5							
B-9.5							Γ
≥10							Γ

Marine	Area C
	No Data Available

WAVE	ì	PERIOD (sec)								
HEIGHT	<6	6-	8-	10-	12-	>17	פאי			
05	7	_3					83			
1-1.5										
2-2.5		3		3						
3 - 3.5										
4-5.5										
6-7.5			Γ.							
8-9.5										
≩ 10			Γ		Ī					

20 Wave Height and Period Wave Height ≩12 and ≧20 Feet February





DAVE		PERIOD (sec)									
HEIGHT (MTRS)	<6	6-,	e - 9	10-	12- (,	>13	1 N C				
05	9						81				
1-1.5	5				1		4				
2-2.5											
3-3.5											
4-5.5											
6-7.5											
8-9.5											
₫10											

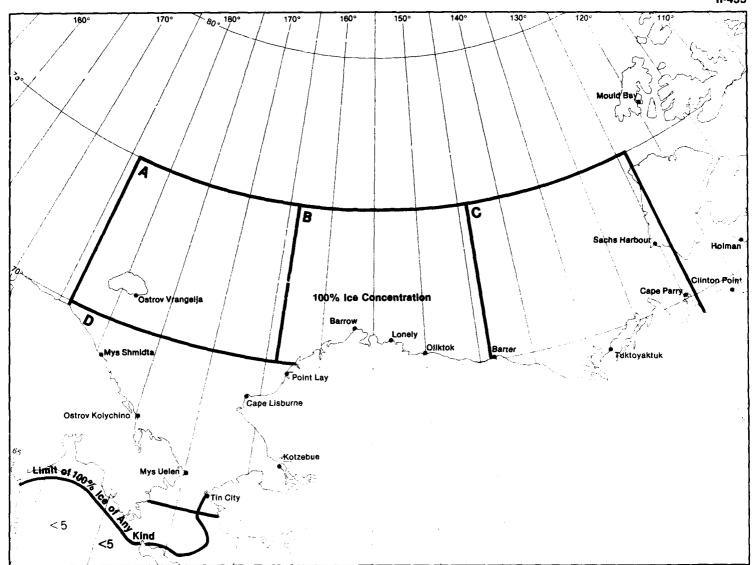
Marine Ar	Marine Area B										
WAVE	PERIOD (sec)										
HEIGHT (MTRS)	<6	6-,	6 - 9	10 -	12-	>13	. ND				
05	10						90				
1-1.5											
2-2.5											
3 - 3.5											
4-5.5											
6-7.5											
8-9.5											
≩10											
							60				

Marine Area C
No Data Available

Marine Ar	8 8	D						
WAVE	ı				(sec)			
HEIGHT (MTRS)	<6	6-,	8-	10-	12-	>13	I ND	
05							94	
1-1.5	1						1	
2-2.5		2						
3 - 3.5		1						
4-5.5								
6-7.5								
8-9.5								
≩10				Π			П	
							80	

March

20 Wave Height and Period Wave Height ≧ 12 and ≧20 Feet



Marine A	r ee	A	Marine Area B					
BAVE	ł		_	OD				ł
HEIGHT (MT#3)	<6		•-,	10-		IND		1
05	26				Γ	62		
1-1.5							' i	
2-2.5	5	5		3				
3-3.5							1	No Date
4-5.5							ŀ	1
6-7.5				Γ_			j	ļ
8-9.5							ļ	ì
≩10	Ι	-					ľ	
						39	- 1	
								ì

No Data Available	

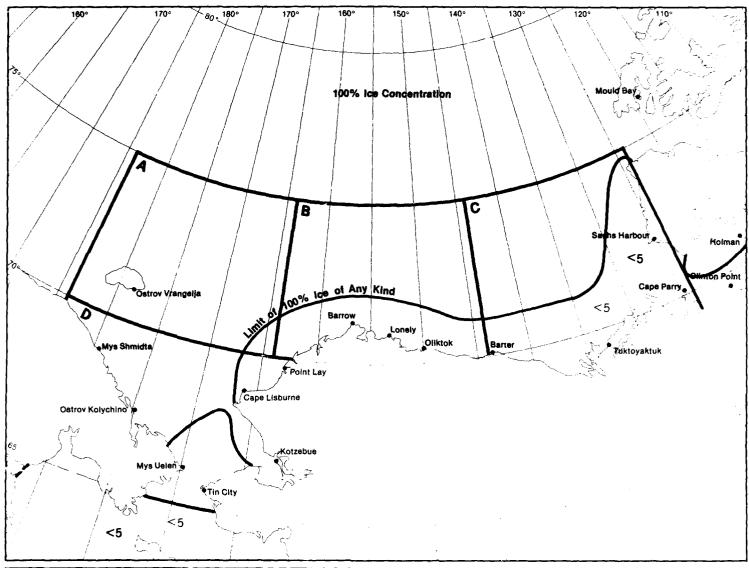
Marine Area C	
No Data Available	

WAVE	PERIOD (sec)						
HEIGHT (MT#5)	< 6	٠-,	•-	10-	12-	>13	. 40
05	11						88
1-1.5				1			
2-2.5	Γ						
3-3.5				Γ.			
4-5.5							
6-7.5							
8-9.5							
≩10	Γ	Г					Γ

20 Wave Height and Period Wave Height ≧12 and ≧20 Feet

April

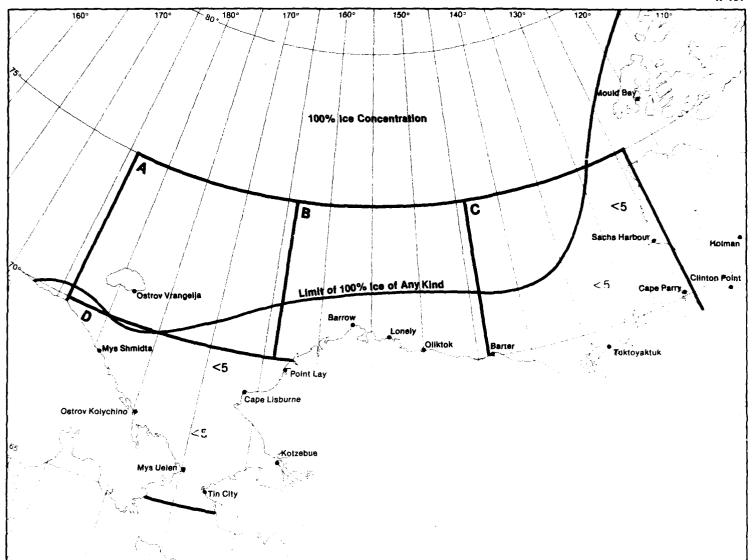




Marine Area A	Marine Area B	Marine Area C	Merine Area D
No Data Available	No Data Available	No Data Available	PERIOD (sec) HEIGHT 6- 8- 10- 12- O5 13 70 1-1.5 14 2 2-2.5 3-3.5
			4-5.5 6-7.5 8-9.5 310

May

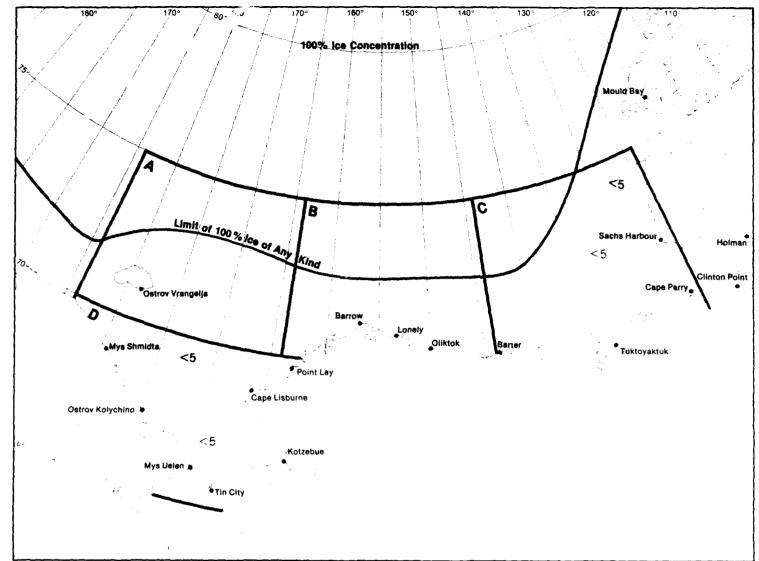
20 Wave Height and Period Wave Height ≧12 and ≧20 Feet



Marine Area A	Marine Area B	Merine Area C	Marine Area D
		#AVE PERIOD (sec)	PERIOD (sec) HEIGHT (6- 8- 10-12- (MTRS) (6 7 9 11 13 13 18 18
}	,	0 - 5 26 4	05 27 1 1 55
j		1-1.5 53 1	1-1.5 11 1 1 2
		2-2.5 14 1	2~2.5 1 + +
No Data Available	No Data Available	3-3.5	3-3.5 +
1	Í	4-5.5 1	4-5.5
(6-7.5 1	6-7.5
		8-9.5	8-9.5
}		210	≥10
		124	407

20 Wave Height and Period Wave Height ≧ 12 and ≧ 20 Feet June





Marine Ar	•	A					
BAVE	l	P	ERI	OD	(se	c)	
HEIGHT (MTRS)	< 6	6 -,	•	10-	17-	 >13	. 40
05	23	+		1			55
1-1.5	13	2	1				3
2-2.5	+	1					+
3 - 3.5							
4~5.5							+
6-7.5							
8~9.5			ĺ				
≩10							

Marine A	104	8					
DAVE	}	Р	ERI	OD	(se	c)	
HEIGHT (MT#S)	<6	6-	8 -	10-	12-	>13	
05	20	2	+	+			66
1-1.5	5	3	+	1			+
2-2.5	1	+	+	+			+
3 - 3.5	+	+		+			+
4-5.5				+			+
6-7.5							
8-9.5							
≩10							
						11	15

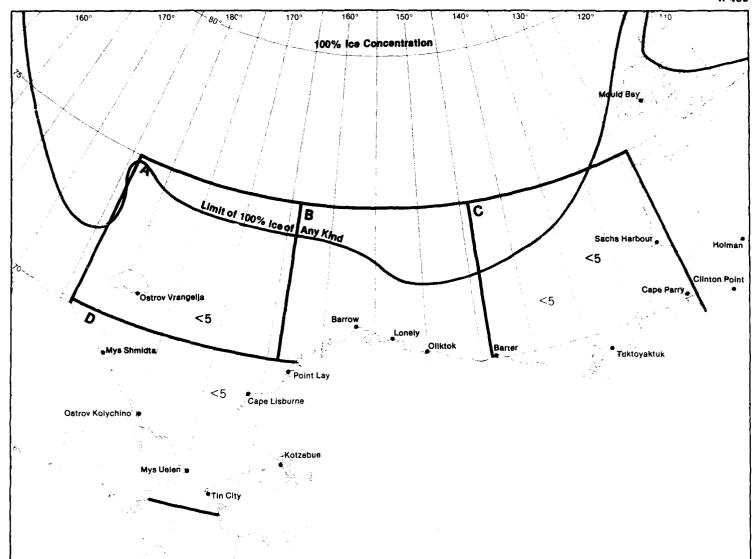
WAVE	İ	P	€R1	OD		c)	
HEIGHT (MTRS)	< 6	6-,	8-	10-	12-	>13	. NE
05	31		+				37
1-1.5	21	2		+			+
2-2.5	3	2	+		+		+
3 - 3.5	1	1		+			
4-5.5	+	+		+			+
6-7.5							+
8-9.5							
≩10							

Merine Area C

WAYE	}	P	ERII	00	(se	c)	
HEIGHT	< 6	6-,	8 - 9	10-	17 -	213	· * 0
05	30	2	+	+			25
1-1.5	22	6	1	+	+	+	4
2-2.5	2	2	1	+	+		_1
3 - 3.5	+	1	+	+			+
4-5.5	+	+		+		+	+
6-7.5						+	
8-9.5				+			
≩ 10						-	

July

20 Wave Height and Period Wave Height ≩12 and ≧20 Fee



Marine A	•	A					_
DAVE	i	P	ERI	OD	(se	c)	
HEIGHT (MTRS)	<6	6-,	8 -	10 -	12-	>13	פאנ
05	29	1	2				42
1-1.5	13	4	1				4
2-2.5		1	+				1
3 - 3.5		1					+
4-5.5				+			+
6-7.5							1
8-9.5							
≩10							
						3	63

Marine A	8.	8	-				_
WAVE HEIGHT	1	P		OD		c)	. 1
(MTRS)	< 6	٠,	,	11	17.	>13	I NO
05	27	1	1	+			54
1-1.5	10	3	+	+	+	+	+
2-2.5	1	_1	+				
3~3.5	+	+	+				+
4-5.5	+			+		+	
6-7.5							
8-9.5							
≩10							
					_	24	90

HEIGHT (MTRS)	< 6	6-,	8-	10-	12-	>13	1 N C
05	27	1	+				34
1-1.5	26	2	+	+	+	+	1
2-2.5	4	2	+			+	+
3-3.5	+	+	+	+			+
4-5.5	+	+		+			+
6-7.5	+						Г
8-9.5							
≩10							$\overline{}$

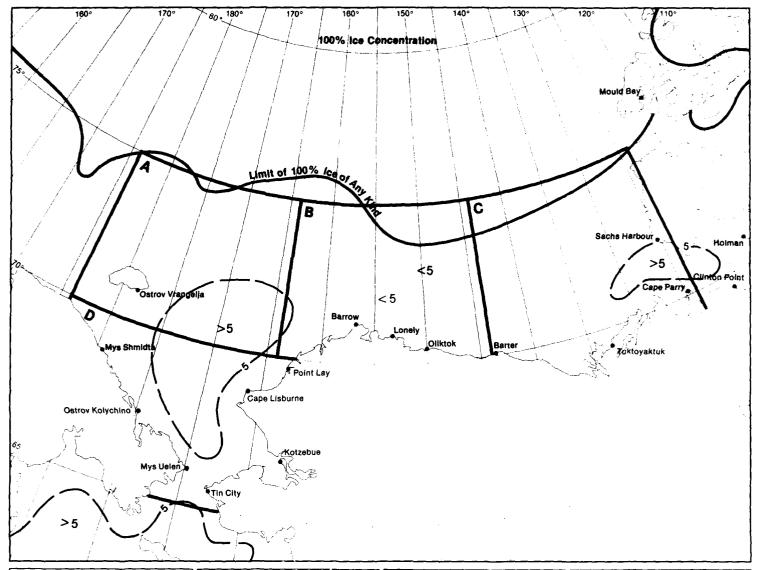
Marine Area C

Ma	Marine Area D												
	WAVE HEIGHT		PERIOD (sec)										
	(MTRS)	< 6	,		11	13	>13	. M D					
	0 ~ .5	26	2	+	+			17					
	1-1.5	25	7	2	+	+	+	7					
	2-2.5	4	3	1	+	+	+	1					
	3-3.5	-1	,	1		+	+	+					
	4-5.5	+	+		+		+	+					
	6-7.5		+				+	+					
	8-9.5												
	≩10												
							16	38					

20 Wave Height and Period Wave Height ≧12 and ≧20 Feet

August





WAVE	l	P	ERI	OD	(se	c)	
HEIGHT (MTRS)	< 6	٥-,	• ~	10-	17-	>13	. NE
05	19		-	1			29
1-1,5	22	4	2		1	+	3
2-2.5	3	7	1	+		+	Πī
3-3.5	1	2	+				
4-5.5		1	1				
6-7.5		+	+				
8-9.5							
₹10					_		

Marine Area B											
ĺ	ρ	ERI	00	(se	c)						
<6	4 -,	•-	10-	17-	>13	1 ND					
28	1	+	1			38					
18	4	1	+	+	1	+					
3	2	+		+							
1	+	+			+						
+	+	+			+						
	28 18	<6 7 28 1 18 4	28 1 + 18 4 1 3 2 + 1 + +	28 1 + 1 18 4 1 + 3 2 + 1 + +	28 1 + 1 18 4 1 + + 3 2 + +	28 1 + 1					

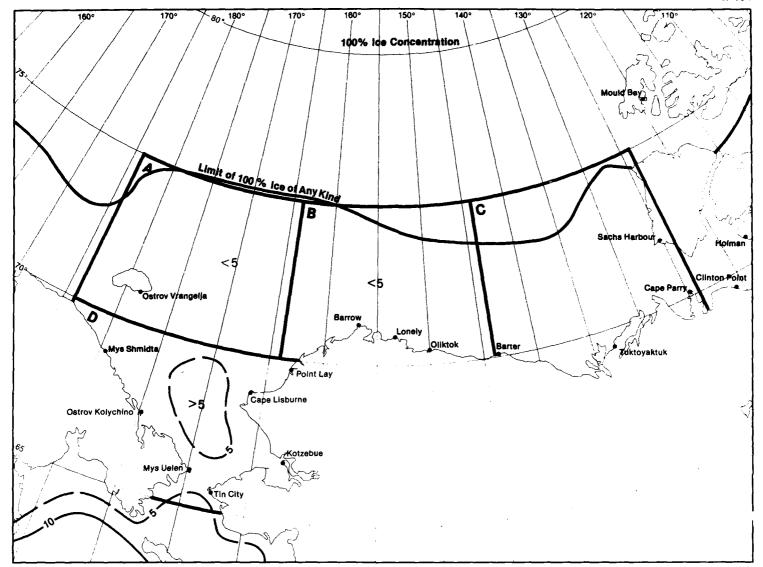
WAVE HEIGHT (MTRS)	<6	4-	9 -	10-	12-	>13	
0~.5	24	1	+	H	-		31
1-1.5	25	4	+	+	+	$\overline{}$	+
2-2.5	6	6	1				+
3 - 3.5	+	1	+		+	+	+
4-5.5	+	+	+	+			+
6-7.5							Г
8-9.5							Γ
≥10							

Marine Area C

BAVE	}	PERIOD (sec)									
HEIGHT (MTRS)	<6	٠-,	8 - 9	10-	12-	>13	, NO				
05	19	2	+	+			10				
7-1,5	28	9	2	+	+	+	4				
2-2.5	6	7	2	+	+	+	2				
3-3.5	1	3	1	1	+	+	+ ±				
4-5.5	+	1	+	+	+		+				
6-7.5		+	+	+							
8-9.5		+									
≩10											

September

20 Wave Height and Period Wave Height ≧ 12 and ≧ 20 Feet



Marine A	Marine Area A											
WAVE	l	Р	ERI	OD	(se	c)						
HEIGHT (MT#\$)	<8	6-,	0 - •	10 - 11	12-		ND					
05	7	1					70					
1-1.5	7	3	1				2					
2-2.5	4	1	1				3					
3-3.5												
4-5.5		1										
6-7.5												
8-9.5												
≥10												
						1	81					

WAVE	J	Р	ERI	OD	(se	c)	
HEIGHT (MTRS)	<6	6-	8-	10 -	12-	>13	1 40
05	22	+					58
1-1.5	12	2					+
2-2.5	2	3					
3-3.5							
4-5.5					+		
6-7.5							
8-9.5							
≩10							
						- 2	236

Marine Area B

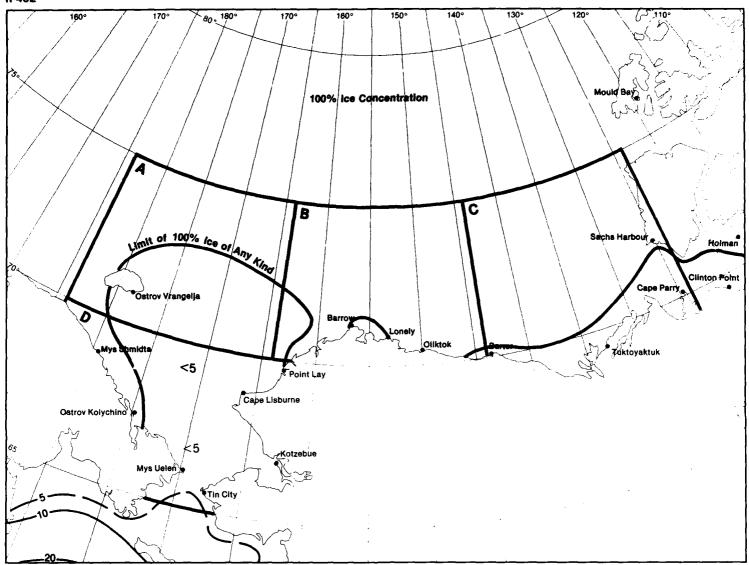
HEIGHT (WTRS)	<6	4-,	•-	10-	12-	>13	. NO
05	11	1					54
1-1.5	16	4	+				
2-2.5	5	5	1		+		+
3-3.5	+	2	1	+			
4-5.5		+	+				+
6-7.5							
8-9.5							
≩10							
						20	25

Merine Area C

Marine Area D												
1	PERIOD (sec)											
< 6	٠-,	• -	10-	13-	>13	I ND						
16	+	+				8						
29	4	1	+	+	+	7						
13	4	_2		1	+	2						
2	4	2	+	+	+	1						
+	+	_1			+							
	+		+		+							
		+		+								
	<6 16 29	P 16 + 29 4 13 4 2 4 + +	PERI 4 - 7 - 9 16 + + 29 4 1 13 4 2 2 4 2 + + 1	PERIOD (6 7 8 10 11 16 + + 29 4 1 + 13 4 2 2 4 2 + + + 1	PERIOD (see	PERIOD (sec) (a) 6- 10- 13 > 13 16 +						

20 Wave Height and Period Wave Height ≥12 and ≥20 Feet October





Merine	Area	A

No Data Available

WAVE	ŀ	PERIOD (sec)									
HEIGHT (MTRS)	<6	6- 7	B - 9	10-	12-	>13	1 20				
05							85				
1~1.5	8										
2-2.5	8										
3-3.5											
4-5.5											
6~7.5											
8-9.5											
≩10											

13

Marine Area B

M	81	ın	•	Αľ	••	•

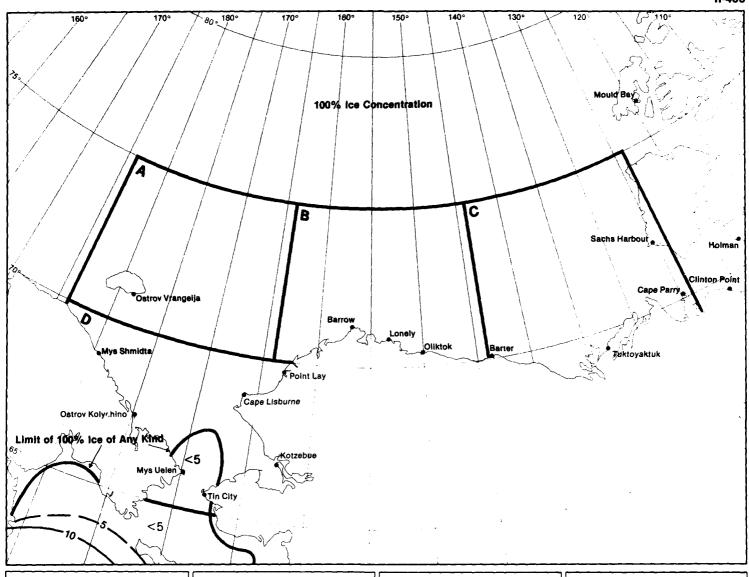
WAVE	PERIOD (sec)						
HEIGHT (MTRS)	<6	6-,	8-	10-	12-	>13	I ND
05						1	97
1-1.5	+	1					
2-2.5	+						+
3-3.5							
4-5.5	Г	Γ					
6-7.5			Γ.				
8-9.5				Г			
≩10							
						3	307

Marine A	Ares D
----------	--------

WAVE	PERIOD (sec)					c)	
HEIGHT (MTRS)	< 6	6- 7	١-,	10-	17-	>13	I ND
05	14						14
1-1.5	24	4					
2-2.5	12	18					2
3 - 3.5		2	2				
4-5.5			8				
6-7.5							
8-9.5							
≥10							
49							

November

20 Wave Height and Period Wave Height ≧12 and ≧20 Feet



Merine Aree A	Marine Area B	Merine Area C	Marine Area D
No Data Available	No Data Available	No Data Available	No Data Available
Na Data Avanable	No pato Avanobie	No Date Available	No Data Available

20 Wave Height and Period Wave Height ≧12 and ≧20 Feet

December

...

Map 21. Wave height thresholds

TABLE - Wave height frequencies.

Albers Equal—Area Conic Projection

Graphs: Wave height thresholds

Wave height frequencies.

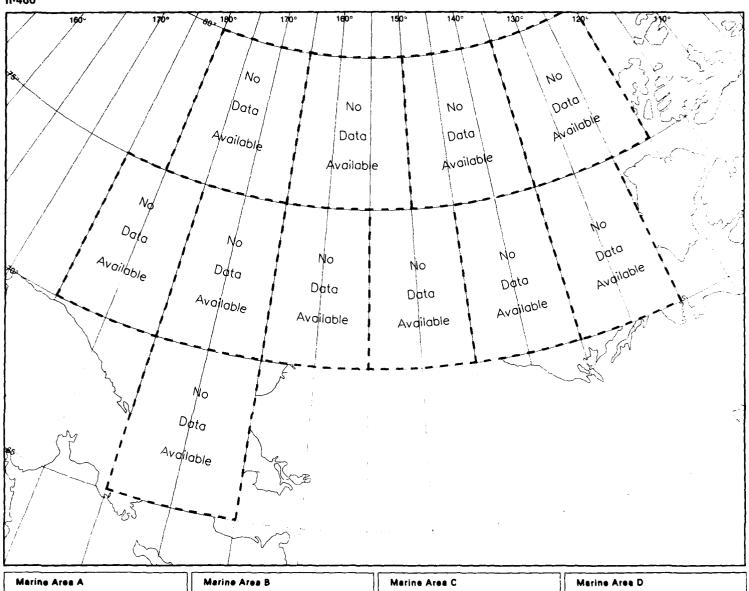
WAVE HEIGHT (M)	<u>%</u>	
0-0.5	10.0	Percent frequency of various ranges within the area.
1-1.5	20.0	(30.0% of all observed wave heights were in the range 2 to 2.5 meters.)
2-2.5	30.0	, > the range 2 to 2.9 meters.)
3-3.5	20.0	N = Observation count.
4-5.5	10.0	
≥6.0	10.0 /	Wave data for these tables were selected from the higher of sea or swell when both were reported.
N=	1363	•

The wave height should be estimated from the best available point on the ship that permits the height of the waves to be compared to the height of the ship. The point of observation should be chosen amidships where the pitching of the vessel is at a minimum, and the wave height should be estimated when the ship is on an even keel. In general, it has been found by comparing instrument measurements to "eyeball" estimates that small wave heights are underestimated while large wave heights are overestimated. Theoretically, the wave height cannot exceed 1/13 of the wave length, measured from trough to trough. When both sea and swell, or two systems of swell, are present at the same time, the observer first estimates the higher system of waves and then repeats the process for the lower system.

Swell direction may be determined by "eyeball" or by sighting from a compass along wave crests and adding or subtracting 90°. Ship's true heading can also be used to determine the direction from which swells are approaching. The higher the observation point, the easier it is to determine swell direction. The average of several observations, rounded to the nearest 10°, should be used as the observed swell direction. Refer to the texts for Sets 14 and 18-21 for complete information on waves.

21 Legend

Legend 21



	Marine Area A	Marine Area B	Marine Area C	Marine Area D
	No Data Available	No Data Available	No Data Available	No Data Availabl e
L	lantant	·		14 Ways Height Throsholds

January

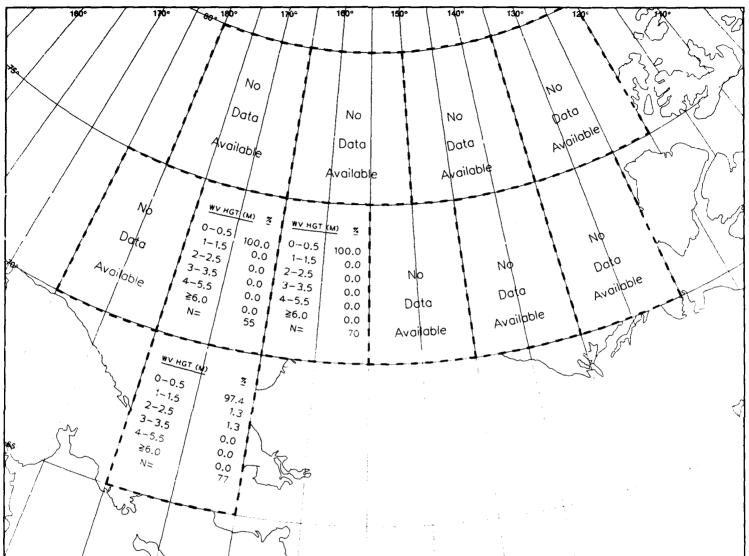
21 Wave Height Thresholds

	11'407
196° 196° 176° 18	00 1300 1300 1300
/ / / Data	No No Data Nailoble Noiloble
Avo	pilable Available
Available Data 1-1.5 2-2.5 3-3.5	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Available 4-5.5	0.0 Data 0.0 Available Available
0-0.5 1-1.5 2-2.5 3-3.5 96.3 0.0 3-3.7	
≥6.0 N= 0.0 27	
Sept 1	

Marine Area A	Marine Area B		Marine Area C	Marine Area D	
	WAVE HEIGHT (M)	3		WAVE HEIGHT (M)	5
	0-0.5	100.0		0-0.5	93.3
1	1-1.5	0.0		1-1.5	0.0
No Data Available	2-2.5	0.0	No Data Available	2-2.5	6.7
į į	3-3.5	0.0		3-3.5	0.0
{	4-5.5	0.0		4-5.5	0.0
1	≥6.0	0.0		≥6.0	0.0
	N≃	16	}	N=	30
(L	. <u></u>			

21 Wave Height Thresholds

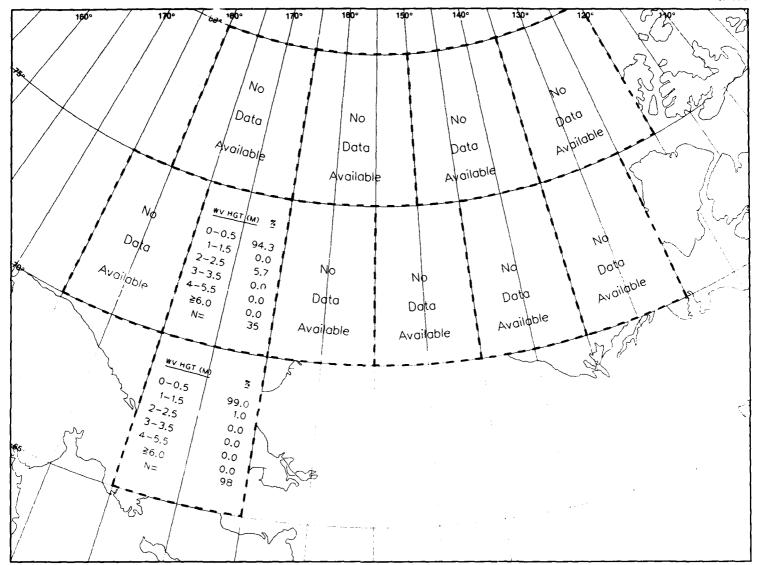
February



Marine Area A		Marine Area B		Marine Area C	Marine Area D	-
WAVE HEIGHT (M)	ž	WAVE HEIGHT (M)	ž		WAVE HEIGHT (M)	š
0-0.5	89.6	0-0.5	100.0	[[0-0.5	93.8
1-1.5	10.4	1-1.5	0.0		1-1.5	2.5
2-2.5	0.0	2-2.5	0.0	No Data Available	2-2.5	2.5
3-3.5	0.0	3-3.5	0.0		3-3.5	1.3
4-5.5	0.0	4-5.5	0.0		4-5.5	0.0
≥6.0	0.0	≧6.0	0.0		≥6.0	0.0
N=	77	N=	60		N=	80
		L				

March

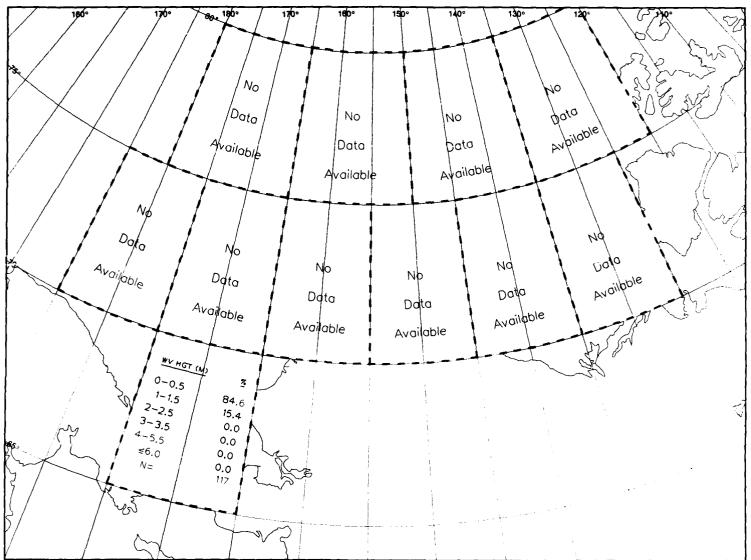
21 Wave Height Thresholds



Marine Area A		Marine Area B	Marine Area C	Marine Area D	
WAVE HEIGHT (M)	ž			WAVE HEIGHT (M)	3
0-0.5	87.2			0-0.5	99.0
1-1.5	0.0			1-1.5	1.0
2-2.5	12.8	No Data Available	No Data Available	2-2.5	0.0
3-3.5	0.0	{		3-3.5	0.0
4-5.5	0.0			4-5.5	0.0
≥6.0	0.0			≧6.0	0.0
N=	39	}		N=	98
j		1			

21 Wave Height Thresholds

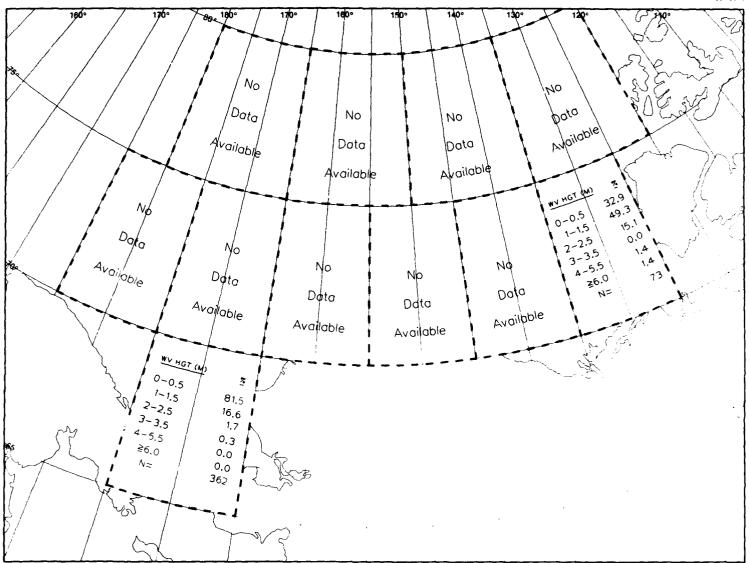
April



Marine Area A	Marine Area B	Marine Area C	Marine Area D	
			WAVE HEIGHT (M)	ž
			0-0.5	83.6
			1-1.5	16.4
No Data Available	No Data Available	No Data Available	2-2.5	0.0
		ii	3-3.5	0.0
		ii	4-5.5	0.0
		((≧6.0	0.0
		11	N=	122

May

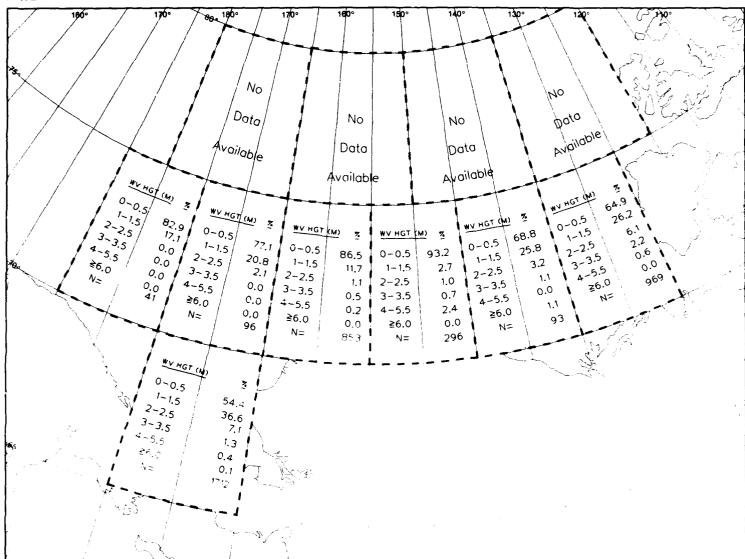
21 Wave Height Thresholds



Marine Area A	Marine Area B	Marine Area C		Marine Area D	
		WAVE HEIGHT (M)	<u>z</u>	WAVE HEIGHT (M)	<u>*</u>
		0-0.5	29.8	0-0.5	83.0
No Data Available		1-1.5	54.0	1~1.5	15.0
	No Data Available	2-2.5	-1.5 54.0 1-1.5 -2.5 14.5 2-2.5 3.5 0.0 3-3.5	1.7	
		3-3.5	0.0	3-3.5	0.2
		4-5.5	0.8	4~5.5	0.0
		≥6.0	0.8	≥6.0	0.0
		N=	124	N=	407

21 Wave Height Thresholds

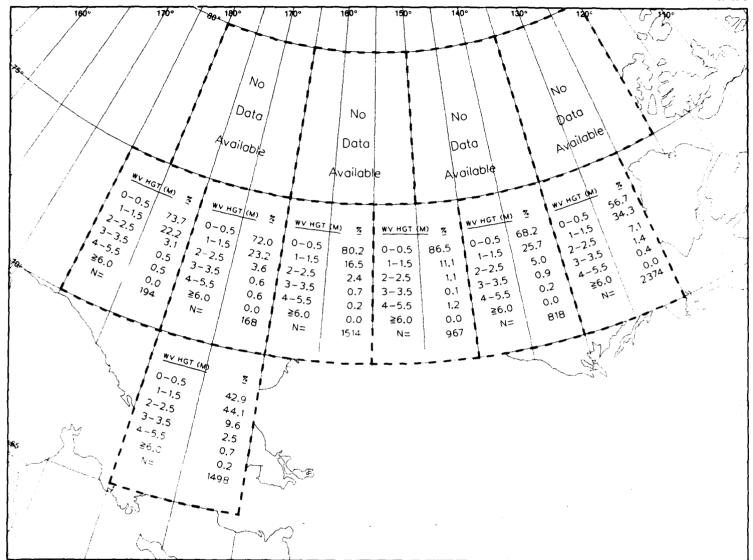
June



Marine Area A		Marine Area B		Marine Area C		Marine Area D	
WAVE HEIGHT (M)	ž	WAVE HEIGHT (M)	<u>*</u>	WAVE HEIGHT (M)	×	WAVE HEIGHT (M)	ž
0-0.5	79.5	0-0.5	88.4	0-0.5	68.5	0-0.5	58.9
1-1.5	19.0	1-1,5	9.2	1-1.5	23.7	1-1.5	33.1
2-2.5	1.5	2-2.5	1.0	2-2.5	5.6	2-2.5	6.3
3-3.5	0.0	3-3.5	0.5	3-3.5	1.7	3-3.5	1.2
4-5.5	0.0	4-5.5	0.8	4-5.5	0.4	4-5.5	0.3
≥6.0	0.0	≧6.0	0.0	≥6.0	0.1	≧6.0	0.1
N=	200	N=	1115	14-	1638	N=	2104
<u> </u>							- :

July

21 Wave Height Thresholds



Marine Area A		Marine Area B		Merine Area C		Merine Area D	
WAVE HEIGHT (M)	2.	WAVE HEIGHT (M)	<u>*</u>	WAVE HEIGHT (M)	%	WAVE HEIGHT (M)	ž
0-0.5	74.4	0-0.5	82.9	0-0.5	63.1	0-0.5	45.4
1-1.5	21.8	1-1.5	14.1	1-1.5	29.2	1-1.5	41.8
2-2.5	2.5	2-2.5	1.9	2-2.5	6.4	2-2.5	9.6
3-3.5	0.8	3-3.5	0.4	3-3.5	1.0	3-3.5	2.3
4-5.5	0.6	4-5.5	0.6	4-5.5	0.4	4-5.5	0.8
≥6.0	0.0	≥6.0	0.0	≧6.0	0.0	≥6.0	0.2
N=	363	\ N=	2490	N=	4824	N=	1838
L		` <u></u>					

21 Wave Height Thresholds

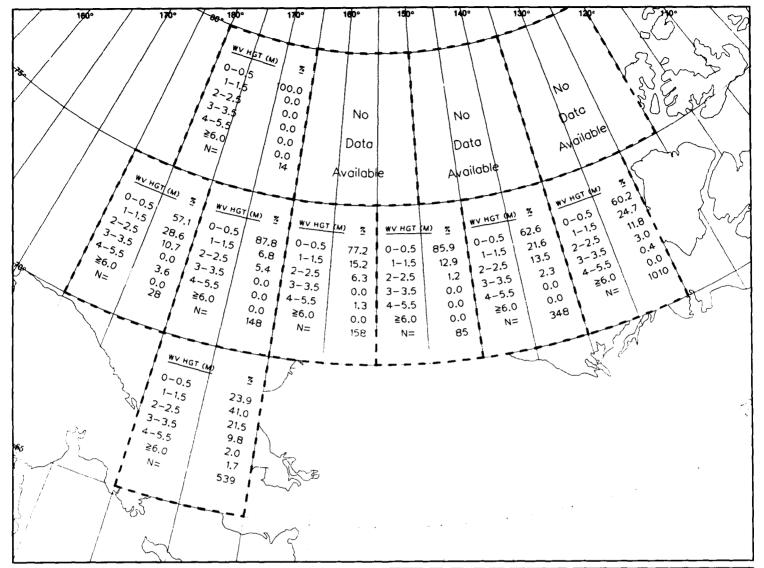
August

186° 176°	80. 180° 170° 160° 0-0/5 1-1/5 98.5 0-0.5 1-1.5 3-3.5 4-5.5 0.0 2-2.5 0.0 3-3.5 0.0 4-5.5 0.0 66 N=	150° 10° 130° 120°	
MV MG7 (M) 0-0.5 1-1.5 55. 2-2.5 3-3.5 8.6 4-5.5 1.3 232 MV MG7 (M) 0-0.0 0-	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	WV HGT (M) X WV HGT (M) X 0-0.5 0-0.5 1-1.5 27.8 2-2.5 1-1.5 20.3 2-2.5 2.7 3-3.5 1.4 4-5.5 20.3 2-6.5 1.4 4-5.5 2.6 2.7 3-3.5	
0-0. 1-1.5 2-2.5 3-3.5 4-5.5 ≥6.0 V=	5 / 7 /		

Merine Area A		Marine Area B		Merine Area C		Marine Area D	
WAVE HEIGHT (M)	ž (WAVE HEIGHT (M)	<u>z</u>	WAVE HEIGHT (M)	ž	WAVE HEIGHT (M)	3
0-0.5	50.8	0-0.5	68.4	0-0.5	55.5	0-0.5	30.4
1-1.5	30.6	1-1.5	23.8	1-1.5	30.2	1-1.5	42.4
2-2.5	12.2	2-2.5	5.6	2-2.5	12.1	2-2.5	18.1
3-3.5	3.3	3-3.5	1.6	3-3.5	1.8	3-3.5	6.2
4-5.5	1.9	4-5.5	0.6	4-5.5	0.4	4-5.5	2.5
≥6.0	1.2	≥6.0	0.0	≥6.0	0.0	≥6.0	0.4
N=	516	N=	1591	N=	4450	N=	1830
				<u></u>		L	

September

21 Wave Height Thresholds



Marine Area A	
WAVE HEIGHT (M)	2
0-0.5	77.3
1-1.5	12.2
2-2.5	9.4
3-3.5	0.0
4-5.5	1.1
≥6.0	0.0
N=	181

	Marine Area B	
	WAVE HEIGHT (M)	Z.
	0-0.5	80.5
	1-1.5	14.4
	2-2.5	4.7
	3-3.5	0.0
	4-5.5	0.4
	≥6.0	0.0
	N=	236
_		

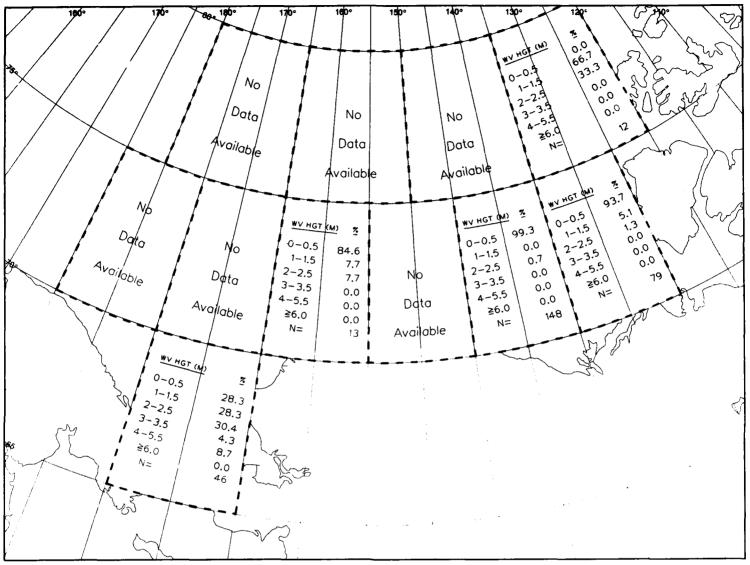
Merine Area C	
WAVE HEIGHT (M)	ž
0-0.5	66.1
1-1.5	19.5
2-2.5	11.0
3-3.5	3.2
4-5.5	0.3
≧6.0	0.0
N=	2025

Marine Area D	
WAVE HEIGHT (M)	ž
0-0.5	24.7
1-1.5	41.0
2-2.5	22.0
3-3.5	9.0
4-5.5	2.0
≧6.0	1.3
N=	700

21 Wave Height Thresholds

October





Marin	e Area A
	No Data Available

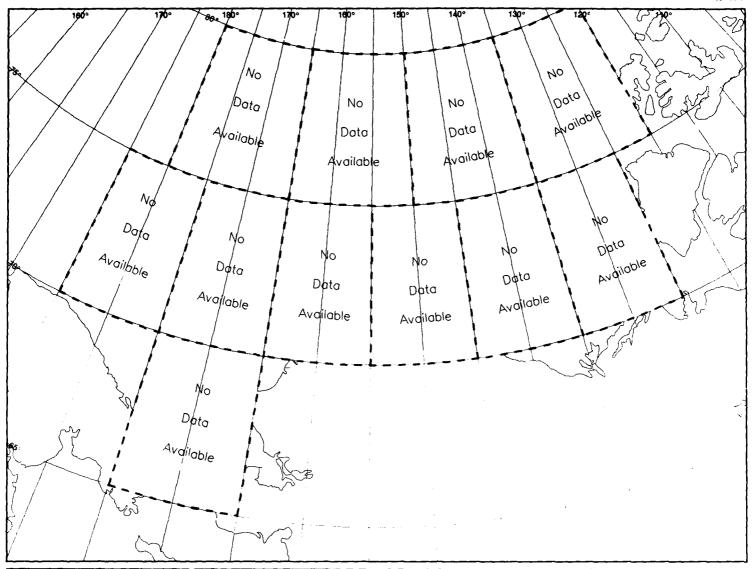
Merine Area B	
WAVE HEIGHT (M)	3
0-0.5	84.6
1-1.5	7.7
2-2.5	7.7
3-3.5	0.0
4-5.5	0.0
≥6.0	0.0
N=	13

Marine Area C	
WAVE HEIGHT (M)	<u>z</u>
0-0.5	98.0
1-1.5	1.3
2-2.5	0.7
3-3.5	0.0
4-5.5	0.0
≥6.0	0.0
N=	307
14—	

Marine Area D	
WAVE HEIGHT (M)	3
0-0.5	28.6
1-1.5	28.6
2-2.5	30.6
3-3.5	4.1
4-5.5	8.2
≥6.0	0.0
N=	49

November

21 Wave Height Thresholds



Marine Area A	Marine Area B	Marine Area C	Marine Area D	
No Data Available	No Data Available	No Data Available	No Data Available	
Od Mary Height Throphole			December 1	

21 Wave Height Thresholds

December

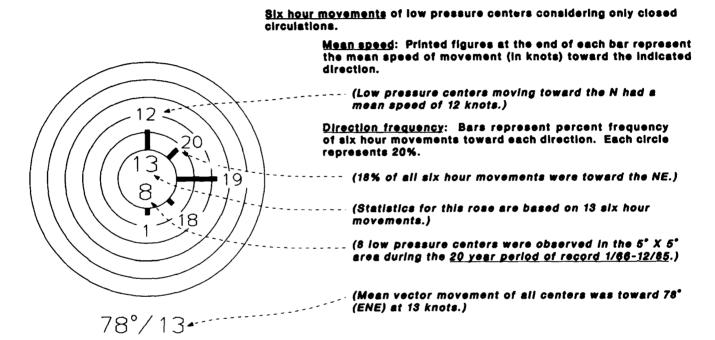
22 Legend Legend 22

Map 22. Low pressure center movement

ROSE - Percent frequency of low pressure center movement.

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

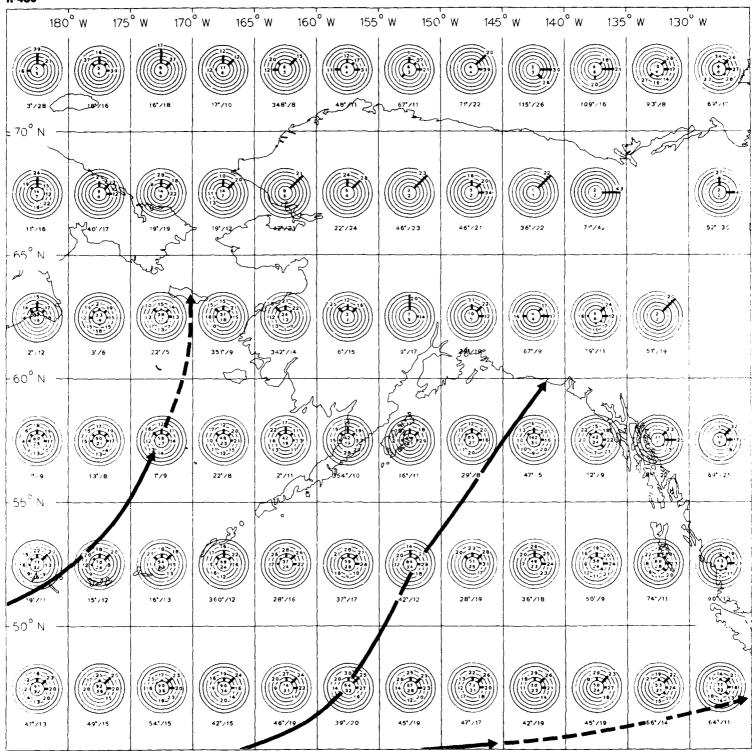
Exact Cylindrical Equidistant Projection



Refer to the introductory text for Section II for more information on low pressure center movement and preferred storm tracks.

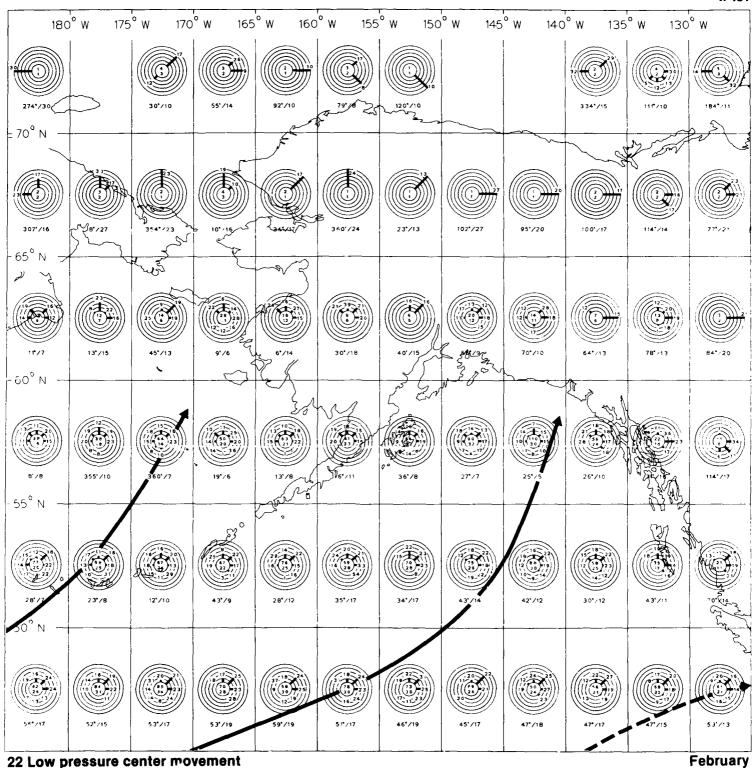
22 Legend

Legend 22

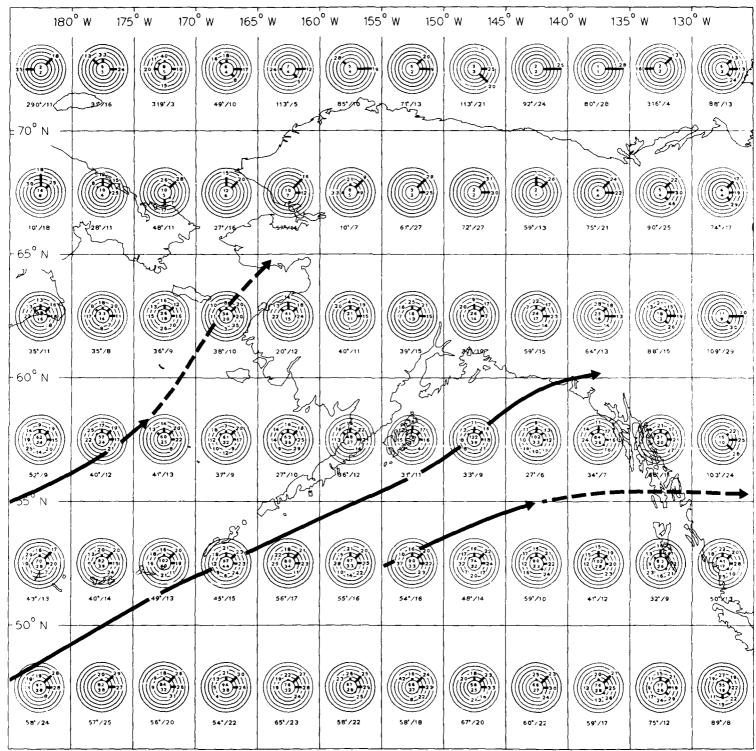


January

22 Low pressure center movement

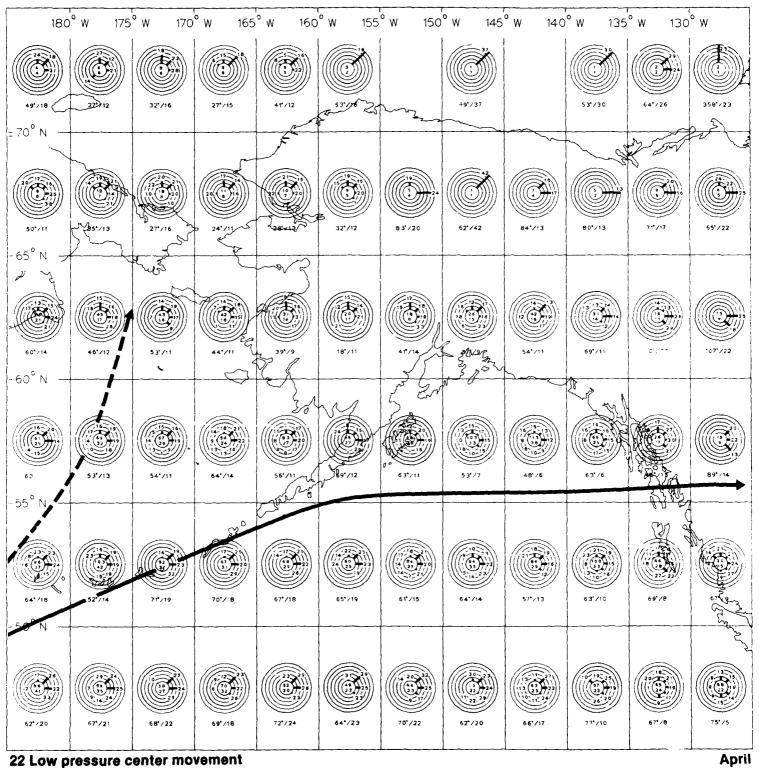


22 Low pressure center movement

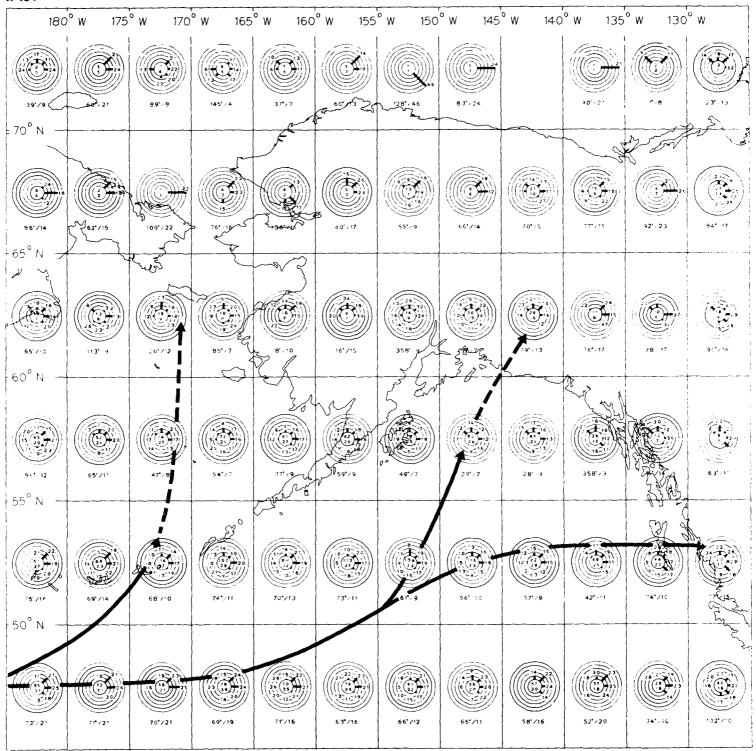


March

22 Low pressure center movement

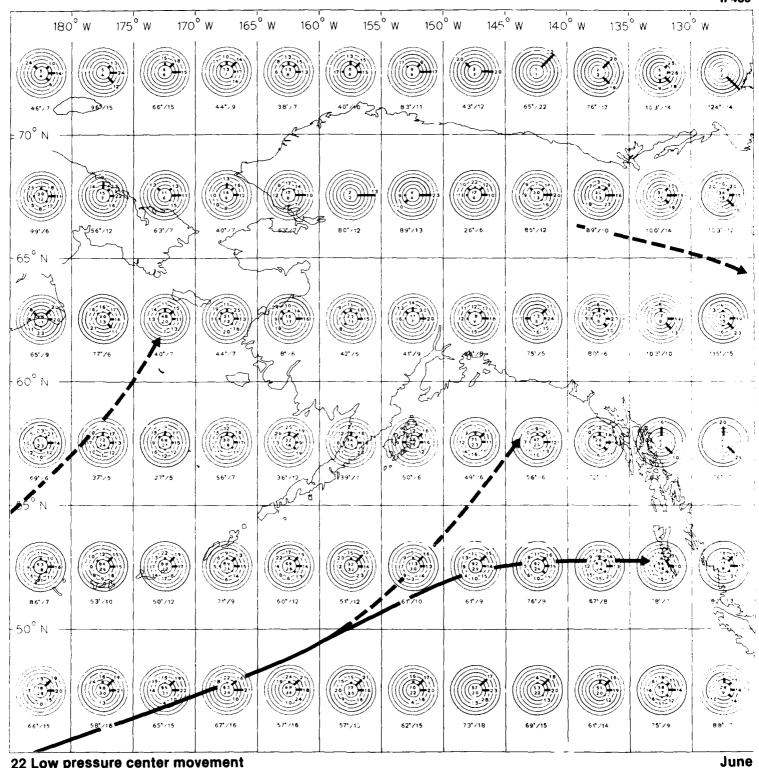


22 Low pressure center movement

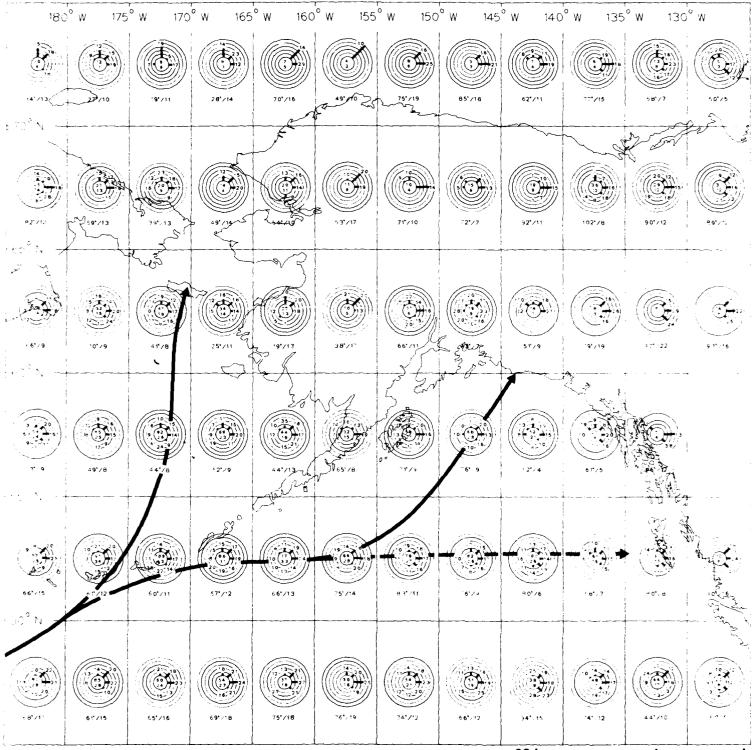


May

22 Low pressure center movement

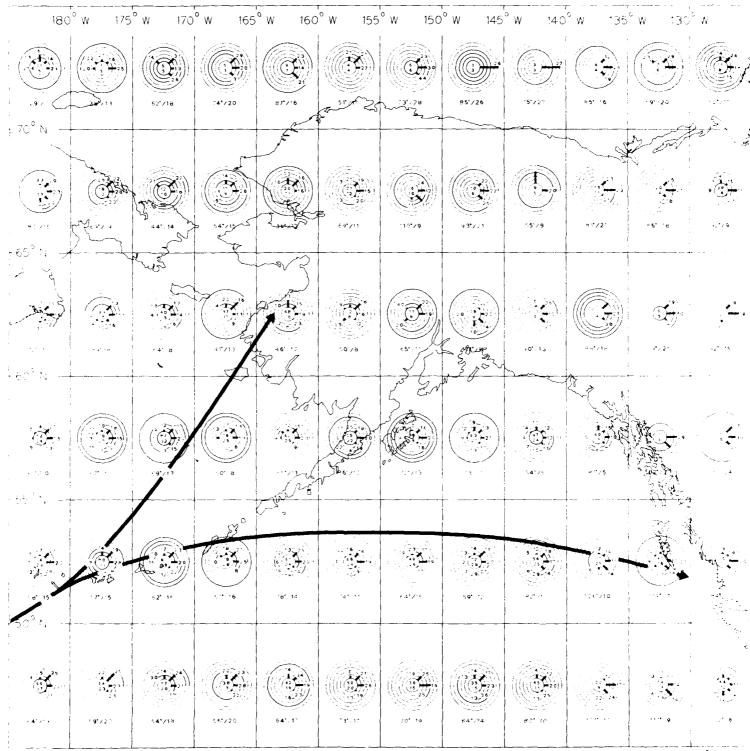


22 Low pressure center movement



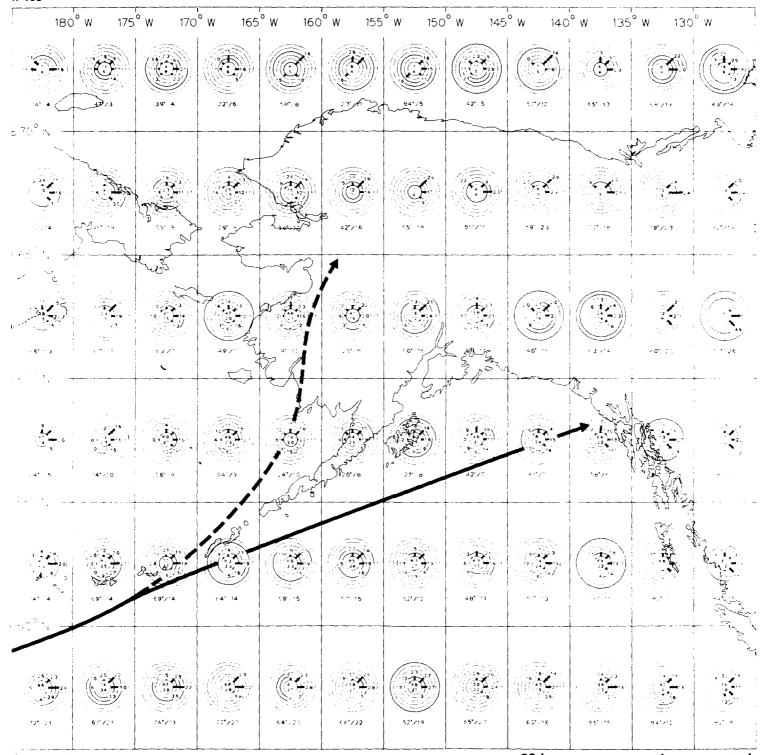
July

22 Low pressure center movement



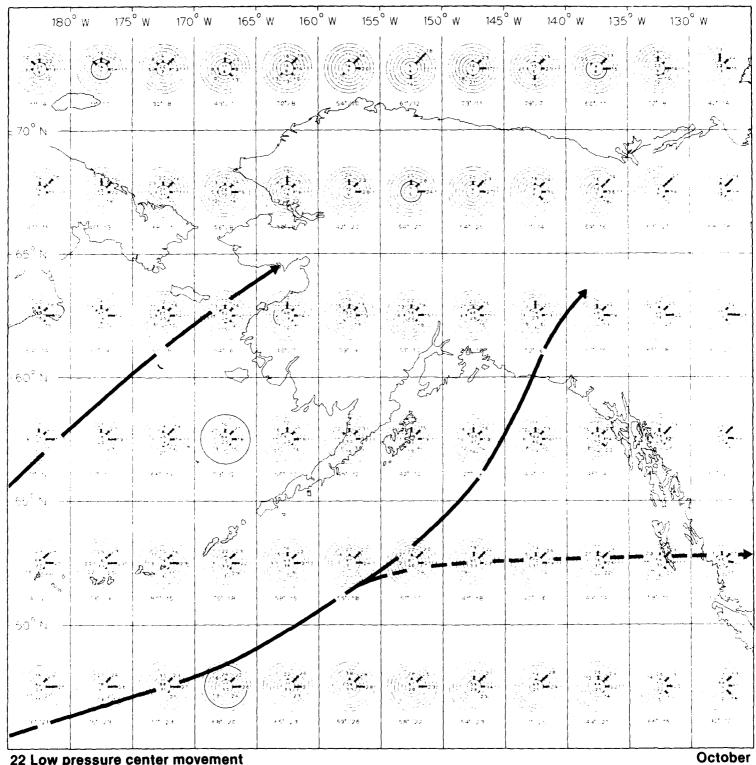
22 Low pressure center movement

Augus

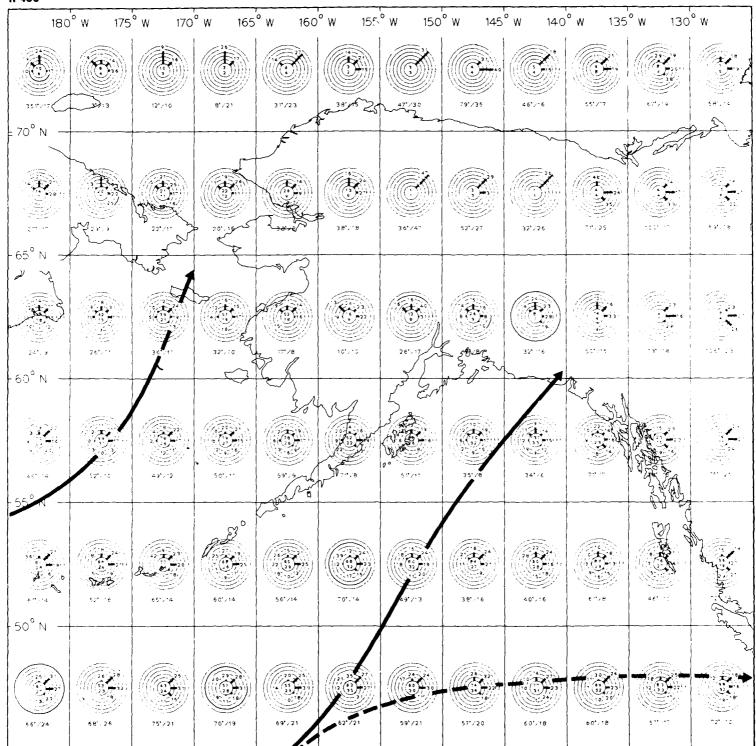


September

22 Low pressure center movement

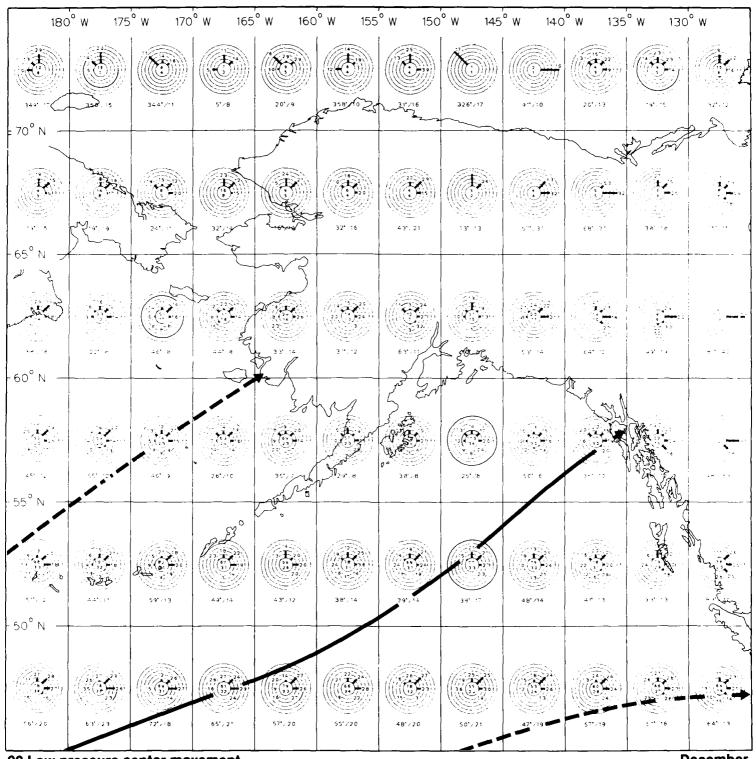


22 Low pressure center movement



November

22 Low pressure center movement



22 Low pressure center movement

December

Set 23. Annual maximum wind for selected return periods (Refer to introductory text of Section II for additional information.)

Annual Maximum Winds for Selected Return Periods

Values oif the annual maximum sustained wind speeds for selected return periods are presented in the table below for selected coastal stations. These tabular values may be used to construct a graphical analysis of the data similar to the one in Figure 1. The procedure is as follows:

- 1. Use Fisher-Tippett, Type 1 extreme value probability paper with a natural logarithmic ordinate scale and a probability scaled abscissa. A linear reduced variate scale is also useful in locating intermediate probabilities.
- 2. Select and plot the annual maximum wind speeds at their corresponding probability values from Table.
- 3. Draw a straight line connecting those points. This is the line of best fit from which wind speed estimates for intermediate probabilities can be obtained.
- 4. A one standard error confidence band may be drawn by computing the upper and lowert bound according to Gumbel (1958). The computational procedure is as follows:

```
a. S9 - √(1/P-1)/(-tn(P))
b. TP - S9 × A1/ N , A1 - 1/β
c. Upper Bound (P) - Exp(tn(x(P))) + TP
d. Lower Bound (P) - Exp(tn(x(P))) - TP
```

where S9 = α probability term, TP = standard error at probability P, A1 = scale term 1/ β , x [P] is the wind speed at probability [P] in knots, and [N] = sample size. This will give an envelope of the 68-percent confidence band for the estimates.

Graphs similar to Figure 1 have been drawn for each station's annual and monthly values and are available on microfiche from the National Climatic Data Center, Federal Building, Asheville, NC, 28801. Any questions regarding the application of the extreme value model should be addressed to Larry Nicodemus, telephone number (704) 259-0366.

ANNUAL MAXIMUM SUSTAINED WINDS (KNOTS) FOR SELECTED RETURN PERIODS

STATION NAME	RETURN PERIO				OD (YEARS)		PARAMETERS	
	2	5	10	25	50	100	MODE BETA N	
OSTROV VRANGELJA, RA	51.7	59.8	65.9	72.4	81.6	89.3	49.3 .1291 .24 46.4 .1788 .25 41.9 .1975 .19 55.0 .1211 .25 47.0 .1130 .32	
MYS SHMIDTA, RA	49.5	60.7	69.4	78.9	93.2	105.6		
OSTROV KOLYCHINO, RA	45.0	56.3	65.3	75.3	90.5	103.9		
MYS UELEN, RA	57.5	66.0	72.2	78.8	88.2	96.0		
TIN CITY, AK	49.0	55.7	60.7	65.8	73.1	79.1		
KOTZEBUE, AK	43.0	49.3	53.9	58.7	65.7	71.4	41.2 .1195 41	
CAPE LIZBURNE, AK	48.7	55.3	60.2	65.2	72.4	78.3	46.8 .1120 33	
POINT LAY, AK	39.7	43.5	46.3	49.0	52.9	56.0	38.6 .0810 29	
BARROW, AK	35.2	42.3	47.9	53.9	62.7	70.3	33.1 .1637 38	
LONELY, AK	36.5	41.9	45.9	50.0	55.9	60.8	35.0 .1204 28	
OLIKTOK, AK	39.1	46.9	52.8	59.2	68.7	76.8	36.9 .1592 28	
BARTER, AK	52.1	61.7	69.0	76.8	88.2	97.9	49.3 .1490 37	
TUKTOYAKTUK, CN	32.9	36.3	38.8	41.3	44.8	47.6	31.8 .0876 26	
CAPE PARRY, CN	37.5	43.4	47.9	52.5	59.3	64.9	35.8 .1293 28	
CLINTON POINT, CN	40.1	46.7	51.7	56.9	64.5	70.9	38.2 .1345 10	
HOLMAN, CN	48.8	55.9	61.2	66.7	74.6	81.1	46.7 .1203 26	
SACHS HARBOUR, CN	39.7	44.4	47.9	51.5	56.5	60.6	38.2 .1003 29	
MOULD BAY, CN	37.9	48.5	57.2	66.9	81.9	95.4	35.0 .2179 32	

NOTE: SOME OF THE HIGHER RETURN PERIOD VALUES MAY BE UNREALISTIC BECAUSE OF THE SMALL SAMPLE SIZE. THE CONFIDENCE BANDS AT THESE VALUES MAY BE UNUSUALLY WIDE, WHICH INDICATES A HIGH LEVEL OF UNCERTAINTY.

Annual 23 Return period winds

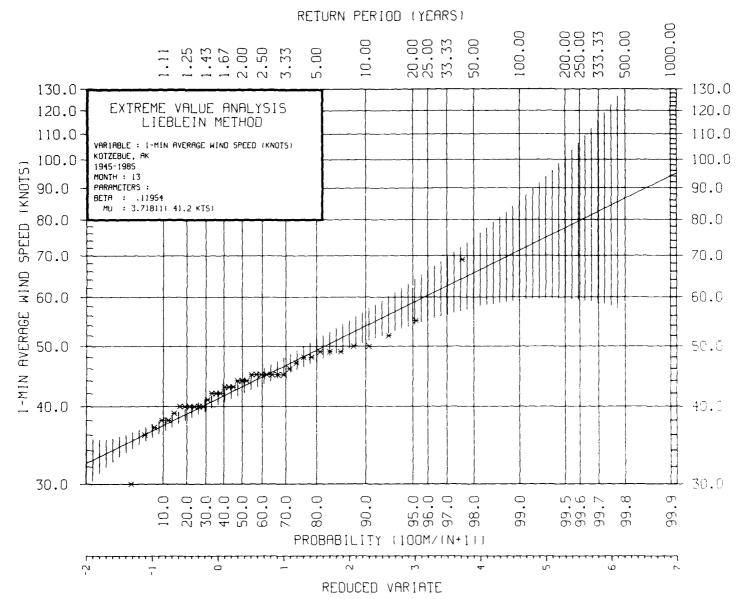


Figure 1. Graphical analysis of annual extreme sustained wind speeds for Kotzebue, AK

23 Return period winds

Annual

References

Aagaard, K. 1979. Current measurements in possible dispersal regions of the Beaufort Sea. Pages 208-231 In Environmental assessment of the Alaskan continental shelf. Annual reports of principal investigators. Vol. 7. USNOAA OCSEAP.

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