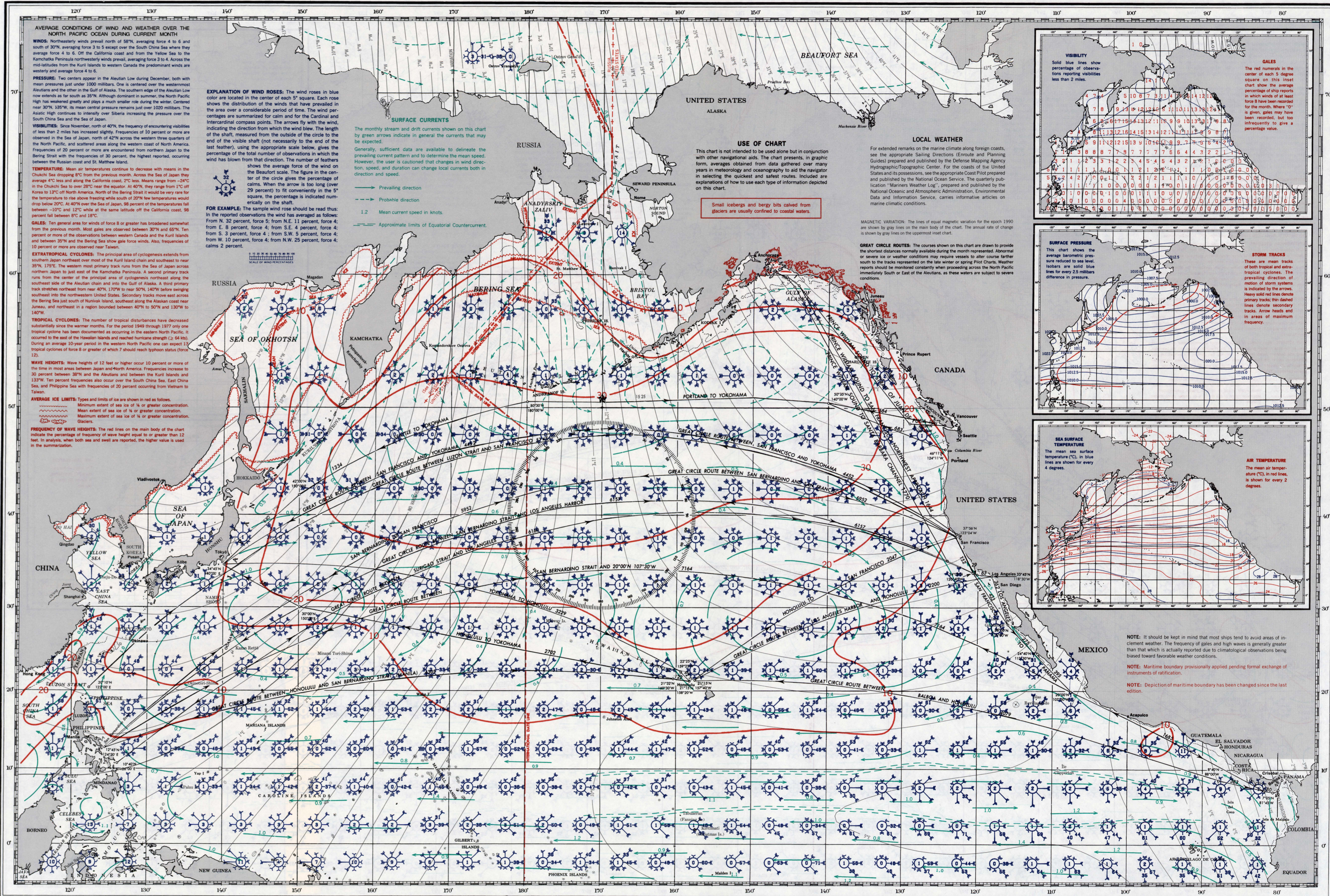




PILOT CHART OF THE NORTH PACIFIC OCEAN



AVERAGE CONDITIONS OF WIND AND WEATHER OVER THE NORTH PACIFIC OCEAN DURING CURRENT MONTH

WINDS: Northeasterly winds prevail north of 50°N, averaging force 4 to 6 and south of 30°N averaging force 3 to 5 except over the South China Sea where they average force 4 to 6. Off the California coast and from the Yellow Sea to the Kamchatka Peninsula northeasterly winds prevail, averaging force 3 to 4. Across the mid-latitudes from the Kuril Islands to western Canada the predominant winds are westerly and average force 4 to 6.

PRESSURE: Two centers appear in the Aleutian Low during December, both with mean pressures just under 1000 millibars. One is centered over the westernmost Aleutians and the other in the Gulf of Alaska. The southern edge of the Aleutian Low extends as far south as 35°N. Although dominant in summer, the North Pacific High has weakened greatly and plays a much smaller role during the winter. Centered near 30°N, 135°W, its mean central pressure remains just over 1020 millibars. The Asiatic High continues to intensify over Siberia increasing the pressure over the South China Sea and the Sea of Japan.

VISIBILITIES: Since November, north of 40°N, the frequency of encountering visibilities of less than 2 miles has increased slightly. Frequencies of 10 percent or more are observed in the Sea of Japan, north of 42°N across the western three quarters of the North Pacific, and scattered areas along the western coast of North America. Frequencies of 20 percent or more are encountered from northern Japan to the Bering Strait with the frequencies of 30 percent, the highest reported, occurring between the Russian coast and St. Matthew Island.

TEMPERATURE: Mean air temperatures continue to decrease with means in the Chukchi Sea to over 28°C near the equator. At 40°N, they range from 1°C off coasts to 12°C off the Aleutians. North of the Bering Strait it would be very rare for the temperature to rise above freezing while south of 20°N few temperatures would drop below 20°C. At 40°N over the Sea of Japan, 98 percent of the temperatures fall between -10°C and 12°C while at the same latitude off the California coast, 98 percent fall between 8°C and 18°C.

GALES: Ten general areas for winds of force 8 or greater have broadened somewhat from the previous month. Most gales are observed between 30°N and 65°N. Ten percent or more of the observations between western Canada and the Kuril Islands and between 35°N and the Bering Sea show gale force winds. Also, frequencies of 10 percent or more are observed near Taiwan.

EXTRATROPICAL CYCLONES: The principal area of cyclogenesis extends from southern Japan northeast over most of the Kuril Island chain and southeast to near 35°N, 175°E. The westernmost primary track runs from the Sea of Japan across northern Japan to just east of the Kamchatka Peninsula. A second primary track runs from the center of the principal area of cyclogenesis northeast along the southeast side of the Aleutian chain and into the Gulf of Alaska. A third primary track stretches northeast from near 40°N, 170°W to near 50°N, 140°W before swinging southeast into the northwestern United States. Secondary tracks move east across the Bering Sea just south of Nunivak Island, southeast along the Alaskan coast near Juneau, and northeast in a region bounded between 40°N to 50°N and 130°W to 140°W.

TROPICAL CYCLONES: The number of tropical disturbances has decreased substantially since the warmer months. For the period 1949 through 1977 only one tropical cyclone has been documented as occurring in the eastern North Pacific. It occurred to the east of the Hawaiian Islands and reached hurricane strength (≥ 64 kts). During an average 10-year period in the western North Pacific one can expect 13 tropical cyclones of force 8 or greater of which 7 should reach typhoon status (force 12).

WAVE HEIGHTS: Wave heights of 12 feet or higher occur 10 percent or more of the time in most areas between Japan and North America. Frequencies increase to 30 percent between 30°N and the Aleutians and between the Kuril Islands and 133°W. Ten percent frequencies also occur over the South China Sea, East China Sea, and Philippine Sea with frequencies of 20 percent occurring from Vietnam to Taiwan.

AVERAGE ICE LIMITS: Types and limits of ice are shown in red as follows:
 - Medium extent of sea ice of 1/4 or greater concentration.
 - Maximum extent of sea ice of 1/4 or greater concentration.
 - Minimum extent of sea ice of 1/4 or greater concentration.
 - Maximum extent of sea ice of 1/4 or greater concentration.
 - Ice.

FREQUENCY OF WAVE HEIGHTS: The red lines on the main body of the chart indicate the percentage of frequency of wave height equal to or greater than 12 feet. In analysis, when both sea and swell are reported, the higher value is used in the summation.

EXPLANATION OF WIND ROSES: The wind roses in blue color are located in the center of each 5° square. Each rose shows the distribution of the winds that have prevailed in the area over a considerable period of time. The wind percentages are summarized for calm and for the Cardinal and Inter-cardinal compass points. The arrows fly with the wind, indicating the direction from which the wind blew. The length of the shaft, measured from the outside of the circle to the end of the visible shaft (not necessarily to the end of the last feather), using the appropriate scale below, gives the percentage of the total number of observations in which the wind has blown from that direction. The number of feathers shows the average force of the wind on the Beaufort scale. The figure in the center of the circle gives the percentage of calms. When the arrow is too long (over 29 percent) to fit conveniently in the 5° square, the percentage is indicated numerically on the shaft.

FOR EXAMPLE: The sample wind rose should be read thus: In the reported observations the wind has averaged as follows: From N. 32 percent, force 5; from N.E. 11 percent, force 4; from E. 8 percent, force 4; from S.E. 4 percent, force 4; from S. 3 percent, force 4; from S.W. 5 percent, force 4; from W. 10 percent, force 4; from N.W. 25 percent, force 4; calms 2 percent.

SURFACE CURRENTS

The monthly stream and drift currents shown on this chart by green arrows indicate in general the currents that may be expected.

Generally, sufficient data are available to delineate the prevailing current pattern and to determine the mean speed. However, the user is cautioned that changes in wind direction, speed, and duration can change local currents both in direction and speed.

→ Prevailing direction
 - - - Probable direction
 1.2 Mean current speed in knots.
 - - - Approximate limits of Equatorial Countercurrent.

USE OF CHART

This chart is not intended to be used alone but in conjunction with other navigational aids. The chart presents, in graphic form, averages obtained from data gathered over many years in meteorology and oceanography to aid the navigator in selecting the quickest and safest routes. Included are explanations of how to use each type of information depicted on this chart.

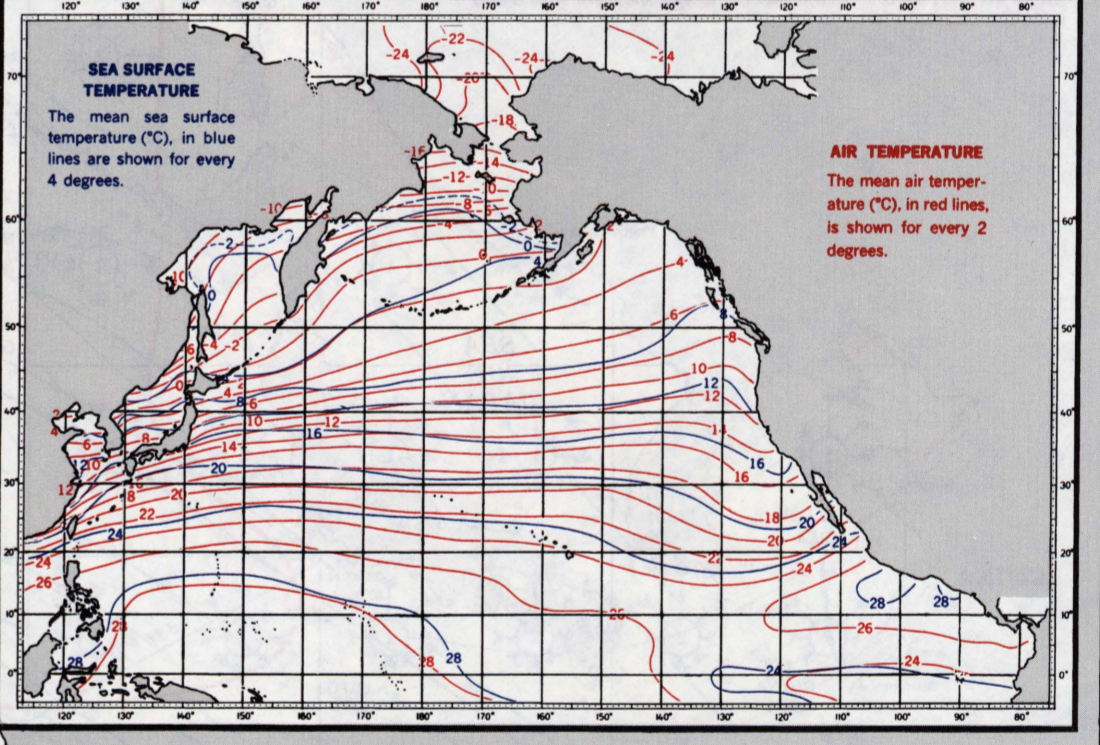
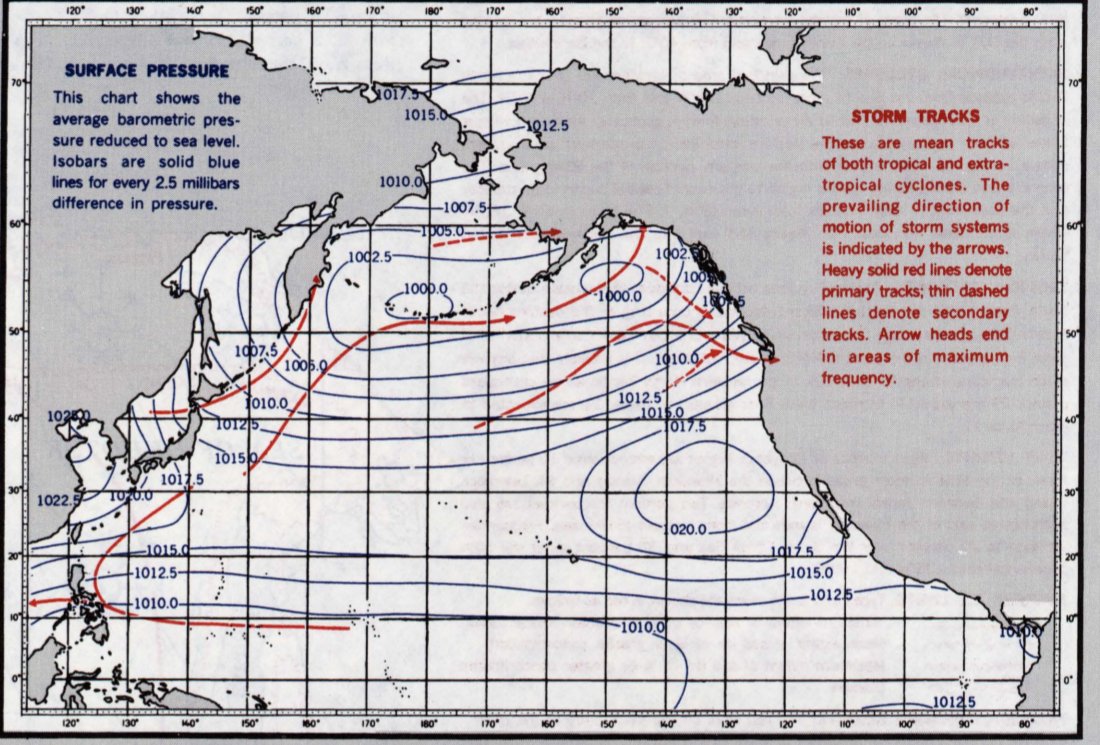
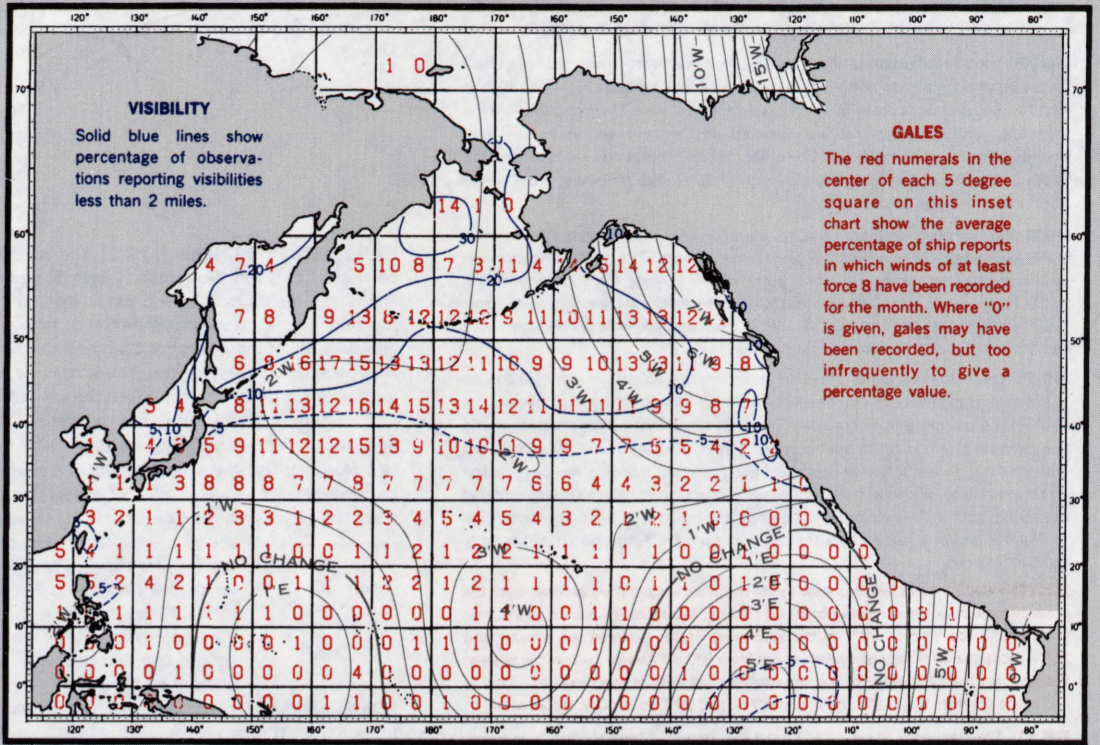
Small icebergs and bergy bits calved from glaciers are usually confined to coastal waters.

LOCAL WEATHER

For extended remarks on the marine climate along foreign coasts, see the appropriate Sailing Directions (Exroute and Planning Guides) prepared and published by the Defense Mapping Agency Hydrographic/Topographic Center. For the coasts of the United States and its possessions, see the appropriate Coast Pilot prepared and published by the National Ocean Service. The quarterly publication "Mariners Weather Log", prepared and published by the National Oceanic and Atmospheric Administration, Environmental Data and Information Service, carries informative articles on marine climatic conditions.

MAGNETIC VARIATION: The lines of equal magnetic variation for the epoch 1990 are shown by gray lines on the main body of the chart. The annual rate of change is shown by gray lines on the uppermost inset chart.

GREAT CIRCLE ROUTES: The courses shown on this chart are drawn to provide the shortest distances normally available during the month represented. Abnormal or severe ice or weather conditions may require vessels to alter course farther south to the tracks represented on the late winter or spring Pilot Charts. Weather reports should be monitored constantly when proceeding across the North Pacific, immediately South or East of the Aleutians, as these waters are subject to severe conditions.



NOTE: It should be kept in mind that most ships tend to avoid areas of inclement weather. The frequency of gales and high waves is generally greater than that which is actually reported due to climatological observations being based toward favorable weather conditions.

NOTE: Maritime boundary provisionally applied pending formal exchange of instruments of ratification.

NOTE: Depiction of maritime boundary has been changed since the last edition.