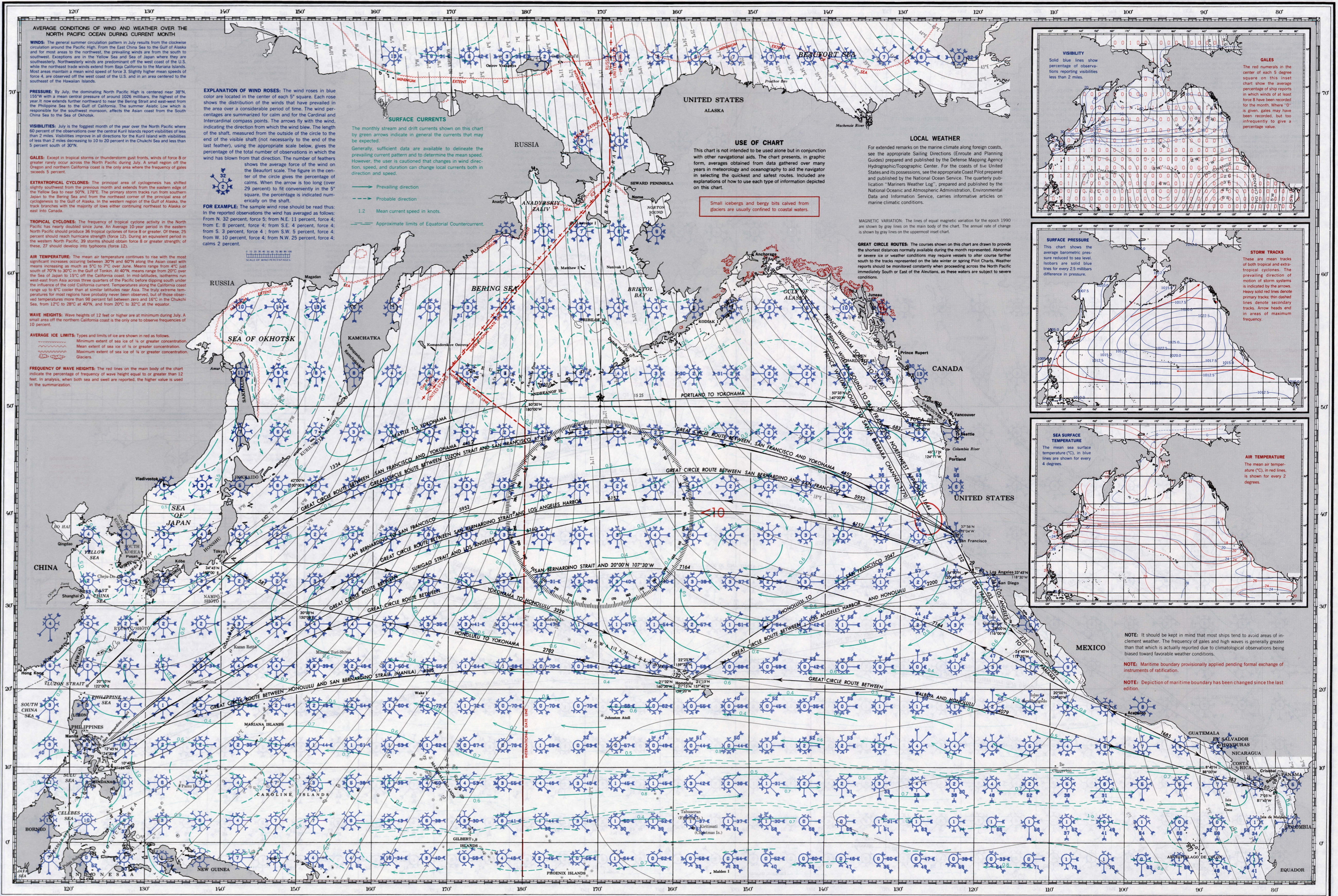




PILOT CHART OF THE NORTH PACIFIC OCEAN



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

WINDS: The general summer circulation pattern in July results from the clockwise circulation around the Pacific High. From the East China Sea to the Gulf of Alaska and for most areas to the northwest, the prevailing winds are from the south to southwest. Exceptions are in the Yellow Sea and Sea of Japan where they are southeasterly. Northwesterly winds are predominant off the west coast of the U.S. while the northeast trade winds extend from Baja California to the Mariana Islands. Most areas maintain a mean wind speed of force 3. Slightly higher mean speeds of force 4, are observed off the west coast of the U.S. and in an area centered to the southeast of the Hawaiian Islands.

PRESSURE: By July, the dominating North Pacific High is centered near 38°N, 155°W with a mean center pressure of around 1026 millibars, the highest of the year. It now extends further northward to near the Bering Strait and east-west from the Philippine Sea to the Gulf of California. The summer Asiatic Low which is responsible for the southwest monsoon, affects the Asian coast from the South China Sea to the Sea of Okhotsk.

VISIBILITIES: July is the foggiest month of the year over the North Pacific where 60 percent of the observations over the central Kuril Islands report visibilities of less than 2 miles. Visibilities improve in all directions for the Kuril Islands with visibilities of less than 2 miles decreasing to 10 to 20 percent in the Chukchi Sea and less than 5 percent south of 30°N.

GALES: Except in tropical storms or thunderstorm gust fronts, winds of force 8 or greater rarely occur across the North Pacific during July. A small region off the Oregon and northern California coast is the only area where the frequency of gales exceeds 5 percent.

EXTRATROPICAL CYCLONES: The principal area of cyclogenesis has shifted slightly southwest from the previous month and extends from the eastern edge of the Yellow Sea to near 50°N, 178°E. The primary storm tracks run from southern Japan to the Bering Sea and from the northeast corner of the principal area of cyclogenesis to the Gulf of Alaska. In the western region of the Gulf of Alaska, the track branches with the majority of lows either continuing northeast to Alaska or east into Canada.

TROPICAL CYCLONES: The frequency of tropical cyclone activity in the North Pacific has nearly doubled since June. An average 10-year period in the eastern North Pacific should produce 36 tropical cyclones of force 8 or greater. Of these, 25 percent should reach hurricane strength (force 12). During an equivalent period in the western North Pacific, 39 storms should obtain force 8 or greater strength; of these, 27 should develop into typhoons (force 12).

AIR TEMPERATURE: The mean air temperature continues to rise with the most significant increases occurring between 30°N and 50°N along the Asian coast with means increasing as much as 5°C to 7°C over June. Means range from 6°C just south of 70°N to 30°C in the Gulf of Tonkin. At 40°N, means range from 20°C over the Sea of Japan to 15°C off the California coast. In mid-latitudes, isotherms run west-east from Asia across three quarters of the Pacific before dipping south under the influence of the cold California current. Temperatures along the California coast range up to 6°C cooler than at similar latitudes near Asia. The truly extreme temperatures for most regions have probably never been observed, but of those observed temperatures more than 98 percent fall between zero and 16°C in the Chukchi Sea, from 12°C to 28°C at 40°N, and from 20°C to 32°C at the equator.

WAVE HEIGHTS: Wave heights of 12 feet or higher are at a minimum during July. A small area off the northern California coast is the only one to observe frequencies of 10 percent.

AVERAGE ICE LIMITS: Types and limits of ice are shown in red as follows:
 Minimum extent of sea ice of 1/4 or greater concentration
 Mean extent of sea ice of 1/2 or greater concentration
 Maximum extent of sea ice of 3/4 or greater concentration
 Glaciers

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 summarization.

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 (Enroute 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, especially South or East of the Aleutians, as these waters are subject to severe conditions.

VISIBILITY

Solid blue lines show percentage of observations reporting visibilities less than 2 miles.

GALES
 The red numerals in the center of each 5 degree square on this inset chart show the average percentage of ship reports in which winds of at least force 8 have been recorded for the month. Where '0' is given, gales may have been recorded, but too infrequently to give a percentage value.

SURFACE PRESSURE

This chart shows the average barometric pressure reduced to sea level. Isobars are solid blue lines for every 2.5 millibars difference in pressure.

STORM TRACKS
 These are mean tracks of both tropical and extratropical cyclones. The prevailing direction of motion of storm systems is indicated by the arrows. Heavy solid red lines denote primary tracks; thin dashed lines denote secondary tracks. Arrow heads and in areas of maximum frequency.

SEA SURFACE TEMPERATURE

The mean sea surface temperature (°C), in blue lines are shown for every 4 degrees.

AIR TEMPERATURE
 The mean air temperature (°C), in red lines, is shown for every 2 degrees.

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 biased 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.