PILOT CHART OF THE NORTH ATLANTIC OCEAN

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. Incuded are explanations of how to use each type of information depicted on this chart.

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 National Imagery and Mapping Agency. For the coasts of the United States and its possessions, see the appropriate Coast Pilot prepared and published by the National Ocean Survey. The bimonthly publication "Mariners Weather Log", prepared and published by the National Oceanic and Atmospheric Administration, Environmental Data and Information Service, carries information on marine climatic conditions.

MAGNETIC VARIATION: The lines of equal magnetic variation for the Epoch 2000 are shown by gray lines on the main body of the chart and the Mediterranean inset 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 availebe 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. Ice and weather reports should be monitored constantly when proceeding south of Cap Race, as these waters are subject to irregular hazards.

WAVE HEIGHTS: The red lines on the main body of the chart indicate the percentage of frequency of wave heights equal to or greater than 12 feet. In analysis, when both sea and swell are reported, the higher value is used in the summarization. Wave heights of 12 feet or more are less frequent during July except over the Caribbean Sea. Frequencies of 10 percent or more are found in an area that extends from Kap Farvel southeast to near 50°N, 20°W and northward to just east of Iceland. A small area in the southern Caribbean Sea just north of Colombia also reports wave heights equal to or greater than 12 feet 10 percent of the time.

GALES: The frequency of gales is at a minimum for the year in July. Only off the southern tip of Greenland is the frequency of force 8 or higher winds greater than 5 percent.

EXTRATROPICAL CYCLONES: From June to July, a marked northward shift of cyclonic activity occurs over the North Atlantic. A major area of cyclogenesis extends along the North American coast from the Carolines into the southern Denmark Strait. Another principal area of cyclonic development occurs over the northeastern North Sea. One primary cyclone track leads from the southern Hudson Bay region into the Davis Strait and east across southern Iceland. Another runs from off Cape Hatteras northeastward into the Central Atlantic. Secondary tracks cross the northern Hudson Bay, Norwegian Sea, and also cross Great Britain and southern Scandinavia.

AIR TEMPERATURE: The mean air temperature continues to rise with the most significant increases occuring in the higher latitudes. The mean temperature ranges from 4°C in the Davis Strait to 28°C over the Gulf of Mexico and Caribbean Sea. Ninety-eight percent of the temperature observations over the Davis Strait fall between 0°C and 12°C while over the Gulf of Mexico and Caribbean Sea 98 percent fall between 24°C and 32°C. At 40°N, cooler mean temperatures exist along the Iberian peninsula than along the east coast of the United States—a reversal of previous months. The mean temperatures at 40°N run from 19°C off Portugal to over 22°C at 40°W.

TROPICAL CYCLONES: The frequency of tropical cyclones increases only slightly from June. On the average for a 10-year period, 8 tropical cyclones with winds of 34 knots or greater can be expected, and 4 of these will reach hurricane strength (64 knots or greater). The primary storm tracks either cross the Caribbean and Gulf of Mexico to the Texas coast or run northward, paralleling the U.S. east coast.

OCEAN CURRENTS: The green arrows on the chart indicate the prevailing direction, and the numerals show the mean current speed in knots. The broken arrows indicate the probable surface current flow where data are sparse, but more importantly, they indicate directional variability such as in the Sargasso Sea, in regions of entrainment between currents setting in opposing directions, in nearshore tidal regions, and in the northern sea where currents are generally weak and easily influenced by winds.

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 the Cardinal and Intercardinal 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 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. 40 percent, force 7; from N.E. 19 percent, force 7; from E. 6 percent, force 5; from S.E. 5 percent, force 5; from S. 5 percent, force 5; from S.W. 9 precent, force 5; from W. 8 percent, force 5; from N.W. 5 percent, force 4; calms 3 percent.

WINDS: The largest portion of the July wind pattern across the North Atlantic is due to the clockwise circulation around the Azores High. North of a line from Savannah, Georgia to southern Norway, and south of 63°N, prevailing winds are west to southwest. South of this region to 10°N, the flow is north to northeasterly over the eastern Atlantic and east to southeasterly over the western Atlantic. North of 63°N, the winds are more variable producing a weak northerly component. South of 10°N they are southerly. Prevailing winds over the Mediterranean are northwesterly with an average force 2 to 4 while over most of the North Atlantic the average force is 3 to 5. The strongest winds occur over the Caribbean with an average force 4 to 6.

PRESSURE: By July the well established Azores High extends from the Gulf of Mexico to the North Sea. It is centered near 35°N, 35°W, with a mean central pressure of 1029 millibars, the highest for the year. The Icelandic low remains an ill-defined east-west trough extending from Hudson Bay to near North Cape, Norway with a mean pressure of 1009 millibars.

VISIBILITY: July is the foggiest month of the year over the Grand Banks of Newfoundland where 50 percent of the observations report less than 2 miles visibility. For the rest of the North Atlantic the July analysis resembles that of June, with the 10 percent frequency line running from Long Island northeastward to just west of the Irish Coast where it swings northwest towards the Greenland coast and then east through northern Iceland and the Norwegian Sea. The coastal areas surrounding the British Isles also show poor visibilities (less than 2 miles) 10 percent of the time. The 20 percent line parallels the 10 percent line to the North while frequencies of 30 percent or more are confined to between Cape Cod and Kap Farvel.

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.

EXCEPTIONAL ICE SIGHTINGS
△ Berg (year sighted)
○ Growler (year sighted)

TROPICAL CYCLONES The tracks shown on this inset chart show the average percentages 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.

GALES The red numerals in the center of each 5-degree square on this inset chart show the average percentages 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.

EXTRATROPICAL CYCLONES The mean tracks of extratropical cyclones are shown in red. Solid red lines denote primary tracks; dashed lines denote secondary tracks.

VISIBILITY Blue lines show the percentage of observations reporting a visibility of less than 2 miles.

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

SEA SURFACE TEMPERATURE The mean sea surface temperatures (°C), in green lines, is shown for every 4 degrees.

MEDITERRANEAN INSET

NOTE
For complete explanation of the wind roses, current arrows, wave heights, and magnetic varitation, see the appropriate explanation on the main body of the chart.