

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.

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 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. 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. The frequency of wave heights 12 feet or higher has increased markedly as compared to the summer months. Frequencies of 10 percent or more extend from the Labrador Sea to the Norwegian Sea and as far south as 35°N. The highest frequency of these higher waves, 30 percent, appears along a band some 600 to 800 miles that leads north from near 50°N, 32°W to a point some 300 miles southeast of Iceland.

GALES: The frequency of gales increases in September, particularly over northern latitudes. Frequencies of 10 percent are found just off the south and southeast coast of Greenland while frequencies of 5 percent encompass a large portion of the central Atlantic north of 45°N. South of 40°N, winds of force 8 or greater are unlikely to be encountered except in storms of tropical origin.

EXTRATROPICAL CYCLONES: The frequency of extratropical cyclones has increased since August and occasional severe storms may be encountered. The primary area of cyclogenesis extends from some 300 miles off Cape Hatteras to Newfoundland and east-northeast to a point near 55°N, 25°W. Another area of major cyclogenesis is off the northeast coast of Iceland. Since August, the extratropical cyclone tracks have shifted slightly south with primary tracks leading off the northeast coast of the United States towards the Norwegian Sea. Other primary tracks lead from the Great Lakes to the Davis Strait and across northern Scandinavia. Secondary tracks cross the Bay of Biscay into the southern Mediterranean Sea and northwestern Canada.

AIR TEMPERATURE: The mean air temperatures over the North Atlantic have begun to cool off from the previous month. Means range from under 4°C in the Davis Strait to over 28°C in the Caribbean Sea and Gulf of Mexico. Along the 40°N parallel, the mean air temperatures range from 19°C off the U.S. and Portuguese coasts to 22°C at 40°W. Ninety-eight percent of the temperatures fall between 4°C and 8°C along coastal waters of Greenland to between 24°C and 32°C over the Gulf of Mexico and Caribbean Sea.

TROPICAL CYCLONES: September is the peak season for tropical storm activity. September will average between 4 and 5 tropical depressions that will reach tropical storm strength (34 knots or greater) with 2 to 3 of these reaching hurricane strength (64 knots or greater). For the period 1871-1975 the number of storms occurring in September has ranged from 1 to 8 per year.

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 seas where currents are generally weak and easily influenced by winds.

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.

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 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 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 percent, force 5; from W. 8 percent, force 5; from N.W. 5 percent, force 4; calms 3 percent.

WINDS: Westerly winds prevail between 40°N and 60°N, with the exception of more northerly winds over the Bay of Biscay, the Portuguese coastal waters, and the region south of Nova Scotia. Spreads across this latitude belt generally run force 3 to 5. South of 40°N, the prevailing winds, averaging force 2 to 4, are northeasterly over the eastern half and east and southeasterly over the western half. Winds are more variable north of 60°N, producing southwesterly winds over the Norwegian Sea and northerly winds over the surrounding waters of Iceland. At these higher latitudes the wind speeds force 3 to 5.

PRESSURE: Increased cyclonic activity begins to take place during September resulting from moderate intrusions of colder air. The Icelandic Low, centered southwest of Iceland, becomes more well defined as its mean central pressure decreases to 1004 millibars. The Azores High with a central pressure of 1021 millibars, centered near 35°N, 30°W, is slightly weaker than in August.

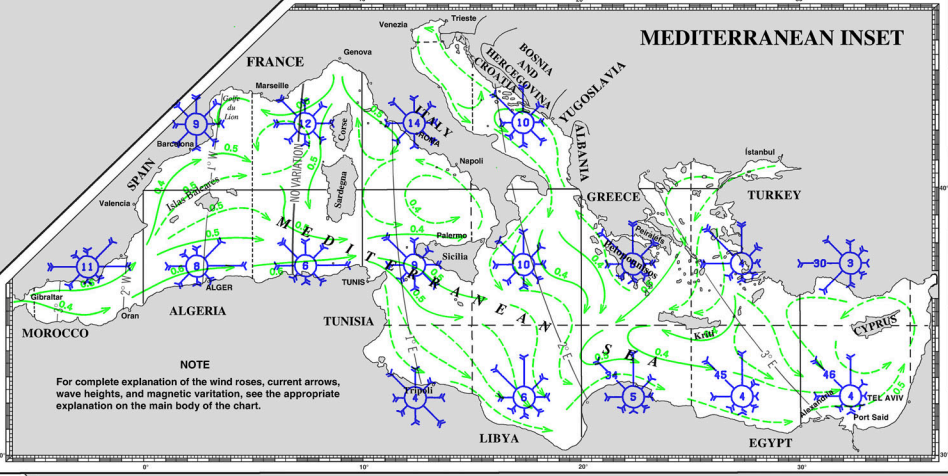
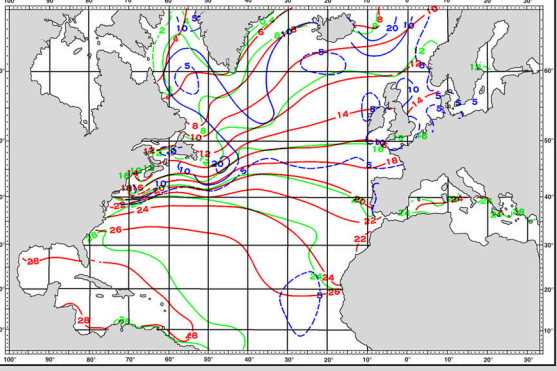
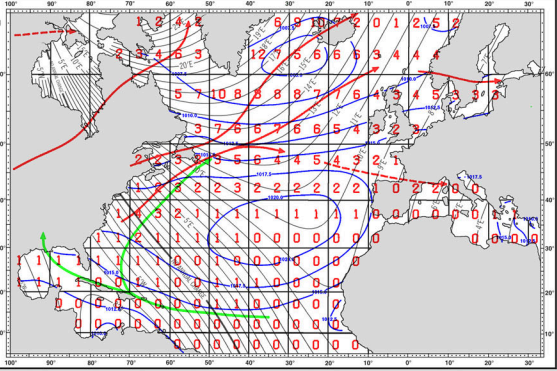
VISIBILITY: The frequency and intensity of poor visibilities have continued to decrease since August. Percent frequency of poor visibilities (those less than 2 miles) exceeds 10 percent over the Grand Banks and coastal regions of Newfoundland. Coastal regions of Greenland including an area that extends some 800 miles southeast of Kap Farvel, the Greenland Sea, northwestern Norwegian Sea, and British coastal waters. A region of the Grand Banks still maintains the highest frequency (20 percent) of observations with visibilities less than 2 miles.

EXCEPTIONAL ICE SIGHTINGS

△ Berg (year sighted)
○ Growler (year sighted)

TROPICAL CYCLONES: The mean tracks of tropical storms and hurricanes are shown in green. They appear only during the season of maximum frequency (May-November). These tracks represent averages. Movements of individual systems may vary widely.

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.

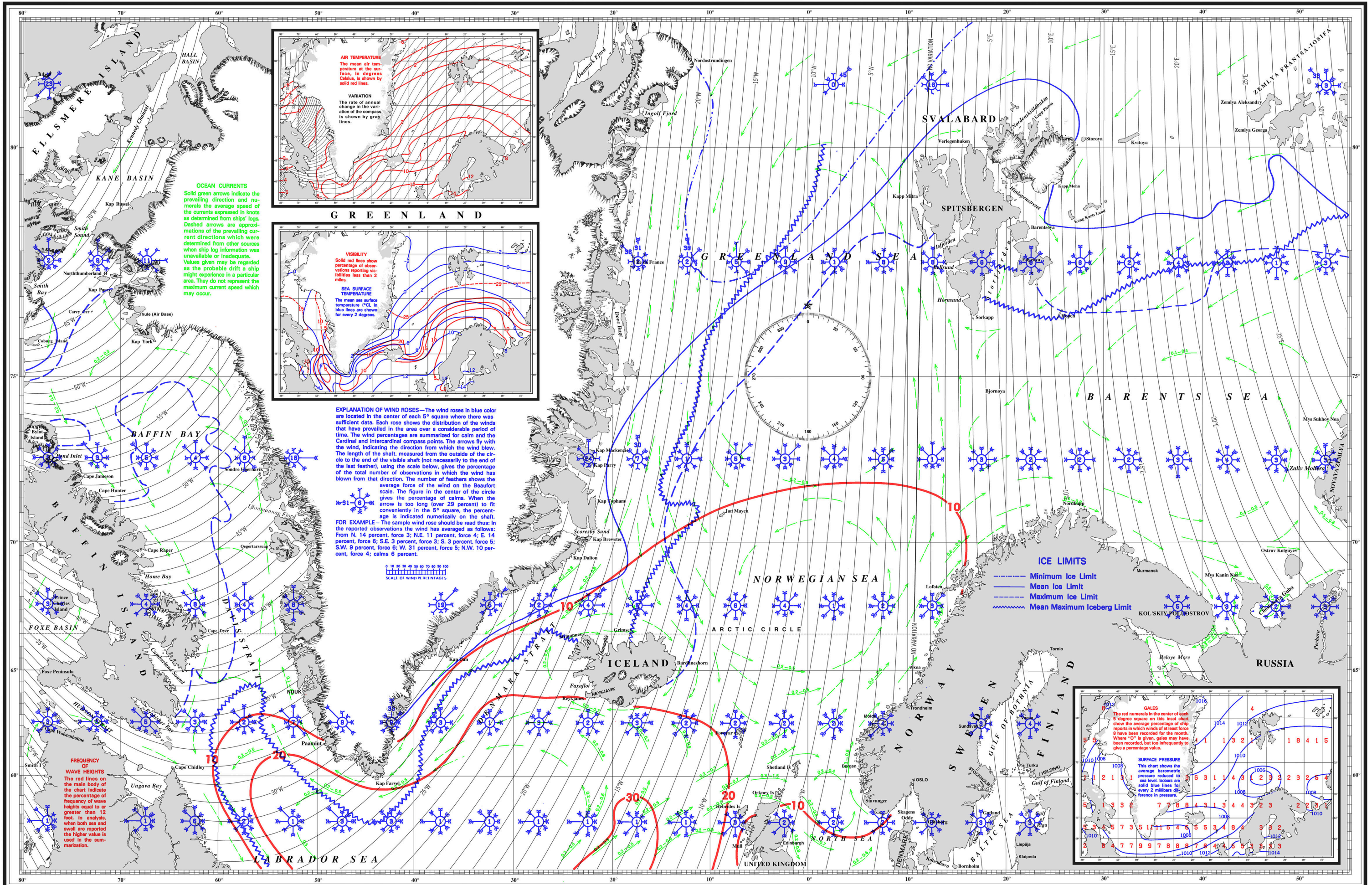


NOTE: For complete explanation of the wind roses, current arrows, wave heights, and magnetic variation, see the appropriate explanation on the main body of the chart.

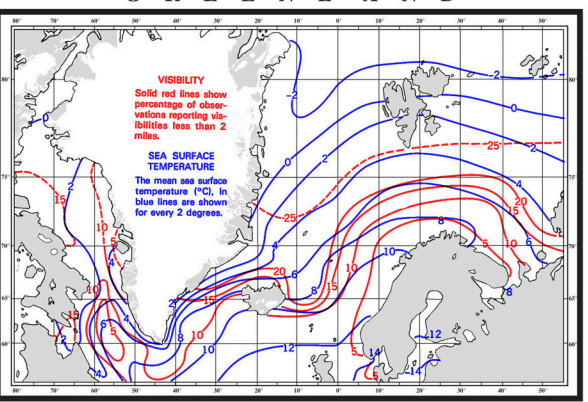
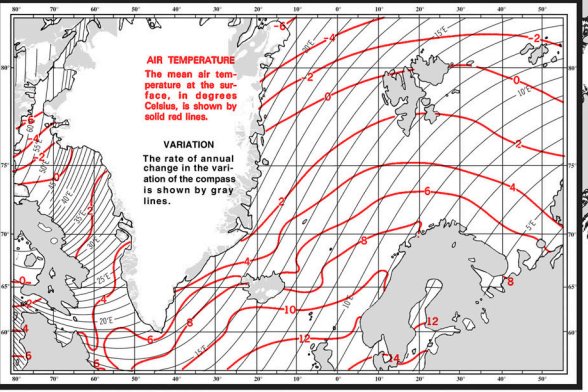
PILOT CHART OF THE NORTHERN NORTH ATLANTIC OCEAN

(THIS CHART SHOULD NOT BE USED FOR NAVIGATIONAL PURPOSES)

SEC. II - SEPTEMBER

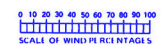


OCEAN CURRENTS
Solid green arrows indicate the prevailing direction and numerals the average speed of the currents expressed in knots as determined from ships' logs. Dashed arrows are approximations of the prevailing current directions which were determined from other sources when ship log information was unavailable or inadequate. Values given may be regarded as the probable drift a ship might experience in a particular area. They do not represent the maximum current speed which may occur.

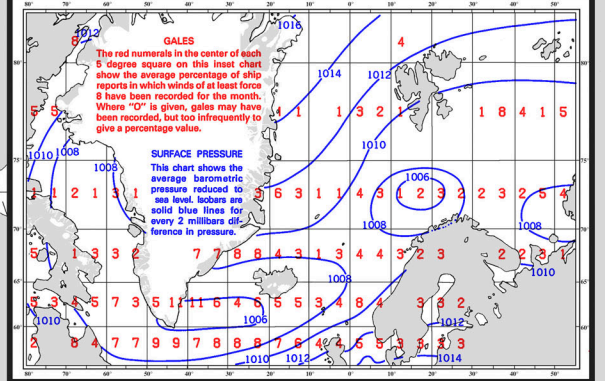


EXPLANATION OF WIND ROSES—The wind roses in blue color are located in the center of each 5° square where there was sufficient data. Each rose shows the distribution of the winds that have prevailed in the area over a considerable period of time. The wind percentages are summarized for calm and the Cardinal and 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 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 25 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, 14 percent, force 3; N.E. 11 percent, force 4; E, 14 percent, force 5; S.E. 3 percent, force 2; S, 3 percent, force 3; S.W. 9 percent, force 6; W, 31 percent, force 5; N.W. 10 percent, force 4; calms 6 percent.

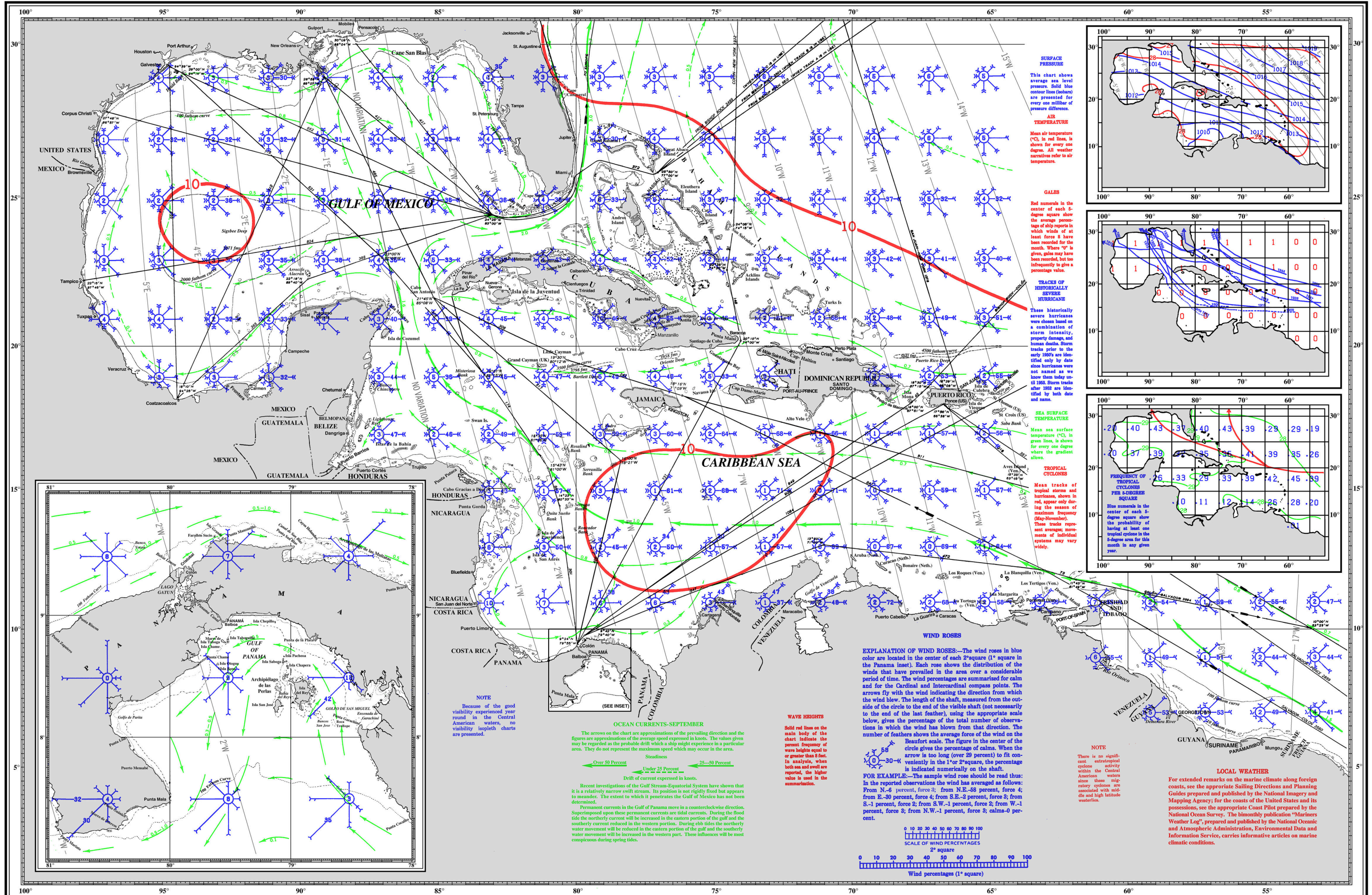


ICE LIMITS
--- Minimum Ice Limit
— Mean Ice Limit
- - - - Maximum Ice Limit
~ ~ ~ ~ Mean Maximum Iceberg Limit



PILOT CHART OF CARIBBEAN SEA AND GULF OF MEXICO

SEC. III - SEPTEMBER



SURFACE PRESSURE
This chart shows average sea level pressure. Solid blue contour lines (isobars) are presented for every one millibar of pressure difference.

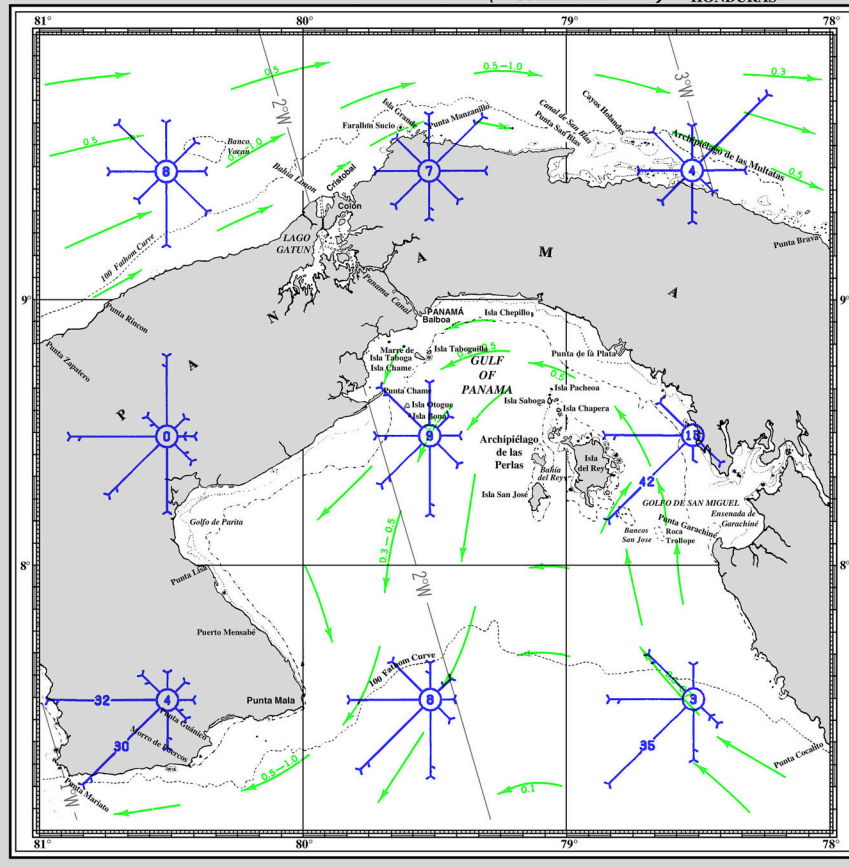
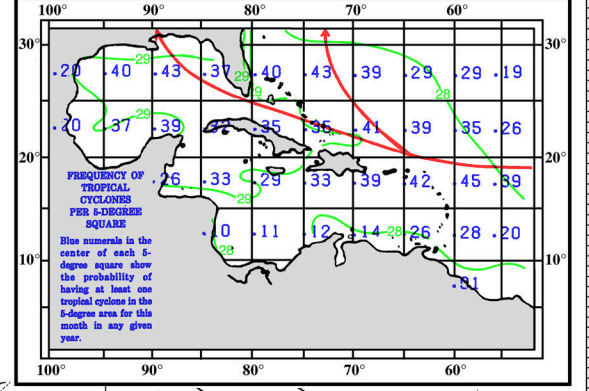
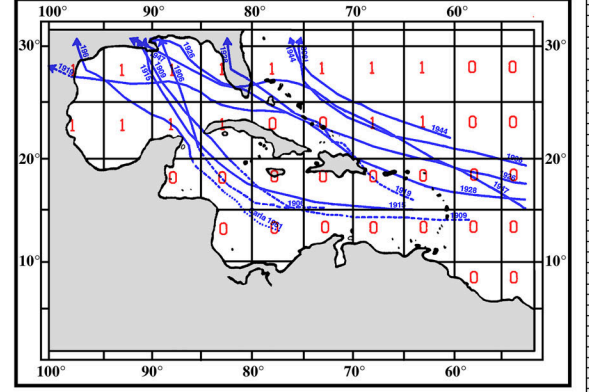
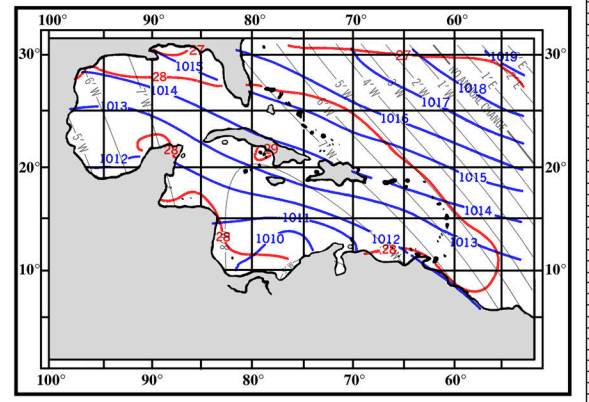
AIR TEMPERATURE
Mean air temperature (°C), in red lines, is shown for every one degree. All weather narratives refer to air temperature.

GALES
Red numerals in the center of each 5-degree square show the average percentage of ship reports in which winds of at least force 5 have been recorded for the month. Where "0" is given, gales may have been recorded, but too infrequently to give a percentage value.

TRACKS OF HISTORICALLY SEVERE HURRICANE
These historically severe hurricanes were chosen based on a combination of storm intensity, property damage, and human deaths. Storm tracks prior to the early 1900s are identified only by date since hurricanes were not named as we know them today until 1900. Storm tracks after 1900 are identified by both date and name.

SEA SURFACE TEMPERATURE
Mean sea surface temperature (°C), in green lines, is shown for every one degree where the gradient shows.

TROPICAL CYCLONES
Mean tracks of tropical storms and hurricanes, shown in red, appear only during the season of maximum frequency (May-November). Blue numerals in the center of each 5-degree square show the probability of having at least one tropical cyclone in the 5-degree area for this month in any given year. These tracks represent average movements of individual systems may vary widely.



NOTE
Because of the good visibility experienced year round in the Central American waters, no visibility isophath charts are presented.

OCEAN CURRENTS-SEPTEMBER
The arrows on the chart are approximations of the prevailing direction and the figures are approximations of the average speed expressed in knots. The values given may be regarded as the probable drift which a ship might experience in a particular area. They do not represent the maximum speed which may occur in the area.

Steadiness
 Over 50 Percent Under 25 Percent 25-50 Percent

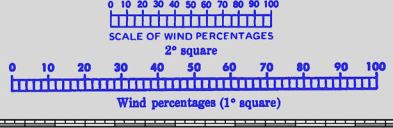
Drift of current expressed in knots.
 Recent investigations of the Gulf Stream-Equatorial System have shown that it is a relatively narrow swift stream. Its position is not rigidly fixed but appears to meander. The extent to which it penetrates the Gulf of Mexico has not been determined.

Permanent currents in the Gulf of Panama move in a counterclockwise direction. Superimposed upon these permanent currents are tidal currents. During the flood tide the northerly current will be increased in the eastern portion of the gulf and the southerly current reduced in the western portion. During ebb tides the northerly water movement will be reduced in the eastern portion of the gulf and the southerly water movement will be increased in the western part. These influences will be most conspicuous during spring tides.

WAVE HEIGHTS
Solid red lines on the main body of the chart indicate the percent frequency of wave heights equal to or greater than 9 feet. In analysis, when both sea and swell are reported, the higher value is used in the summarization.

WIND ROSES
EXPLANATION OF WIND ROSES—The wind roses in blue color are located in the center of each 2° square (1° square in the Panama inset). 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 vane, is 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 20 percent) to fit conveniently in the 1° or 2° 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.—6 percent, force 3; from N.E.—58 percent, force 4; from E.—30 percent, force 4; from S.E.—2 percent, force 3; from S.—1 percent, force 2; from S.W.—1 percent, force 2; from W.—1 percent, force 3; from N.W.—1 percent, force 3; calms—0 percent.



NOTE
There is no significant extratropical cyclone activity within the Central American waters since these migratory cyclones are associated with middle and high latitude westerlies.

LOCAL WEATHER
For extended remarks on the marine climate along foreign coasts, see the appropriate Sailing Directions 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 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 informative articles on marine climatic conditions.