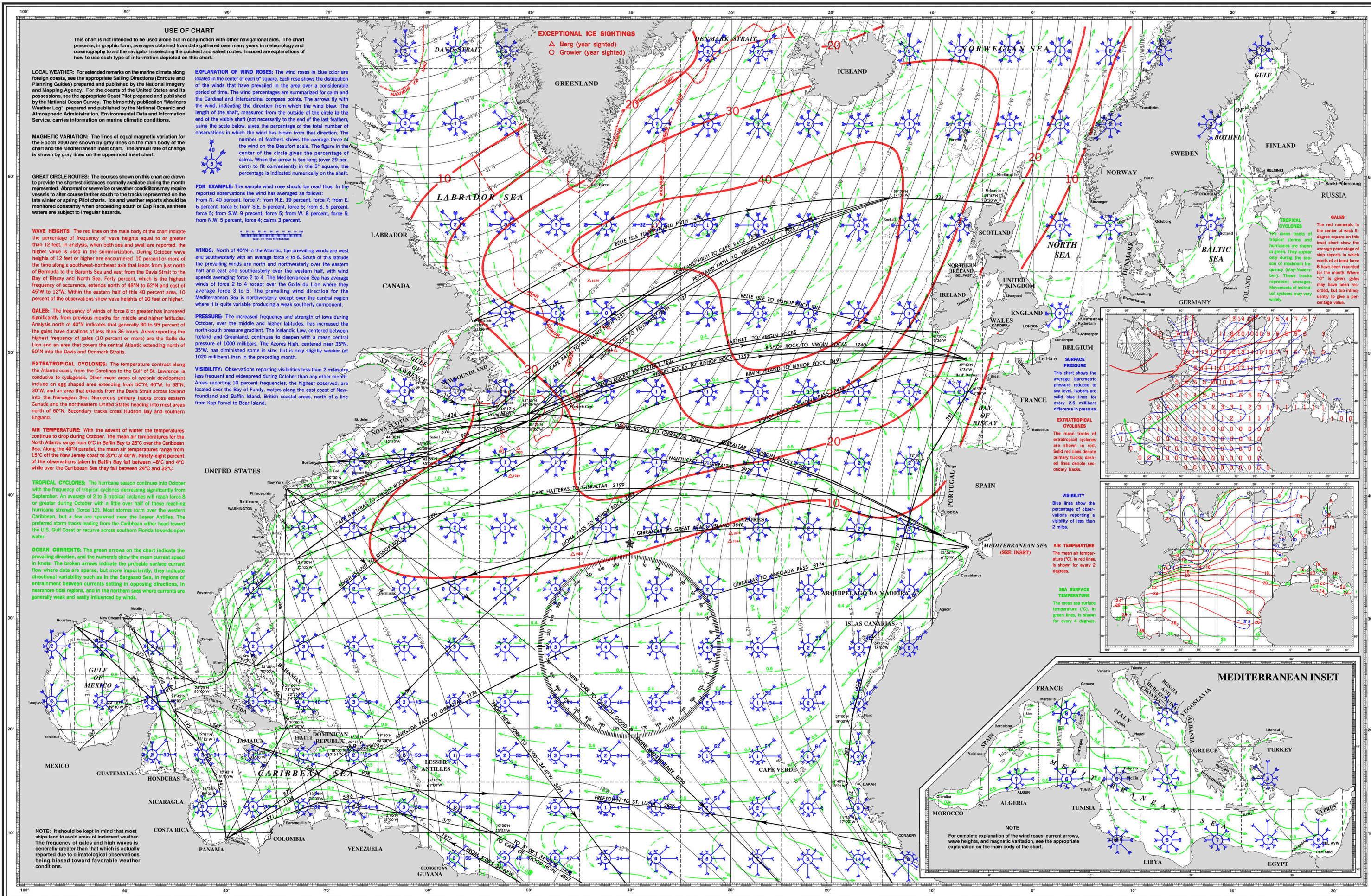


PILOT CHART OF THE NORTH ATLANTIC OCEAN

SEC. I - OCTOBER



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. During October wave heights of 12 feet or higher are encountered 10 percent or more of the time along a southwest-northeast axis that leads from just north of Bermuda to the Sargasso Sea and east from the Davis Strait to the Bay of Biscay and North Sea. Forty percent, which is the highest frequency of occurrence, extends north of 48°N to 62°N and east of 45°W to 12°W. Within the eastern half of this 40 percent area, 10 percent of the observations show wave heights of 20 feet or higher.

GALES: The frequency of winds of force 8 or greater has increased significantly from previous months for middle and higher latitudes. Analysis north of 40°N indicates that generally 90 to 95 percent of the gales have durations of less than 36 hours. Areas reporting the highest frequency of gales (10 percent or more) are the Golfe du Lion and an area that covers the central Atlantic extending north of 50°N into the Davis and Denmark Straits.

EXTRATROPICAL CYCLONES: The temperature contrast along the Atlantic coast, from the Carolinas to the Gulf of St. Lawrence, is conducive to cyclogenesis. Other major areas of cyclonic development include an egg shaped area extending from 50°N, 40°W, to 58°N, 30°W, and an area that extends from the Davis Strait across Iceland into the Norwegian Sea. Numerous primary tracks cross eastern Canada and the northeastern United States heading into most areas north of 60°N. Secondary tracks cross Hudson Bay and southern England.

AIR TEMPERATURE: With the advent of winter the temperatures continue to drop during October. The mean air temperatures for the North Atlantic range from 0°C in Baffin Bay to 28°C over the Caribbean Sea. Along the 40°N parallel, the mean air temperatures range from 15°C off the New Jersey coast to 20°C at 40°W. Ninety-eight percent of the observations taken in Baffin Bay fall between -9°C and 4°C while over the Caribbean Sea they fall between 24°C and 32°C.

TROPICAL CYCLONES: The hurricane season continues into October with the frequency of tracking decreasing significantly from September. An average of 2 to 3 tropical cyclones will reach force 8 or greater during October with a little over half of these reaching hurricane strength (force 12). Most storms form over the western Caribbean, but a few are spawned near the Lesser Antilles. The preferred storm tracks leading from the Caribbean either head toward the U.S. Gulf Coast or recurve across southern Florida towards open water.

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: North of 40°N in the Atlantic, the prevailing winds are west and southwesterly with an average force 4 to 6. South of this latitude the prevailing winds are north and northeasterly over the eastern half and east and southeasterly over the western half, with wind speeds averaging force 2 to 4. The Mediterranean Sea has average winds of force 2 to 4 except over the Golfe du Lion where they average force 3 to 5. The prevailing wind direction for the Mediterranean Sea is northwesterly except over the central region where it is quite variable producing a weak southerly component.

PRESSURE: The increased frequency and strength of lows during October, over the middle and higher latitudes, has increased the north-south pressure gradient. The Icelandic Low, centered between Iceland and Greenland, continues to deepen with a mean central pressure of 1000 millibars. The Azores High, centered near 35°N, 35°W, has diminished some in size, but is only slightly weaker (at 1020 millibars) than in the preceding month.

VISIBILITY: Observations reporting visibilities less than 2 miles are less frequent and widespread during October than any other month. Areas reporting 10 percent frequencies, the highest observed, are located over the Bay of Fundy, waters along the east coast of Newfoundland and Baffin Island, British coastal areas, north of a line from Kap Farvel to Bear Island.

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" or a green gale 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.

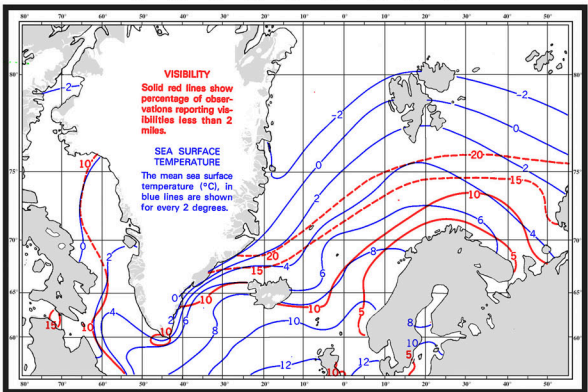
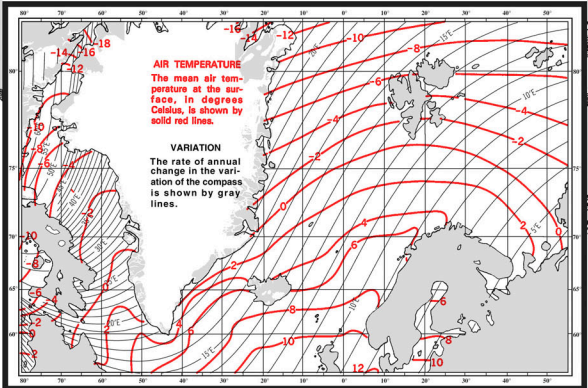
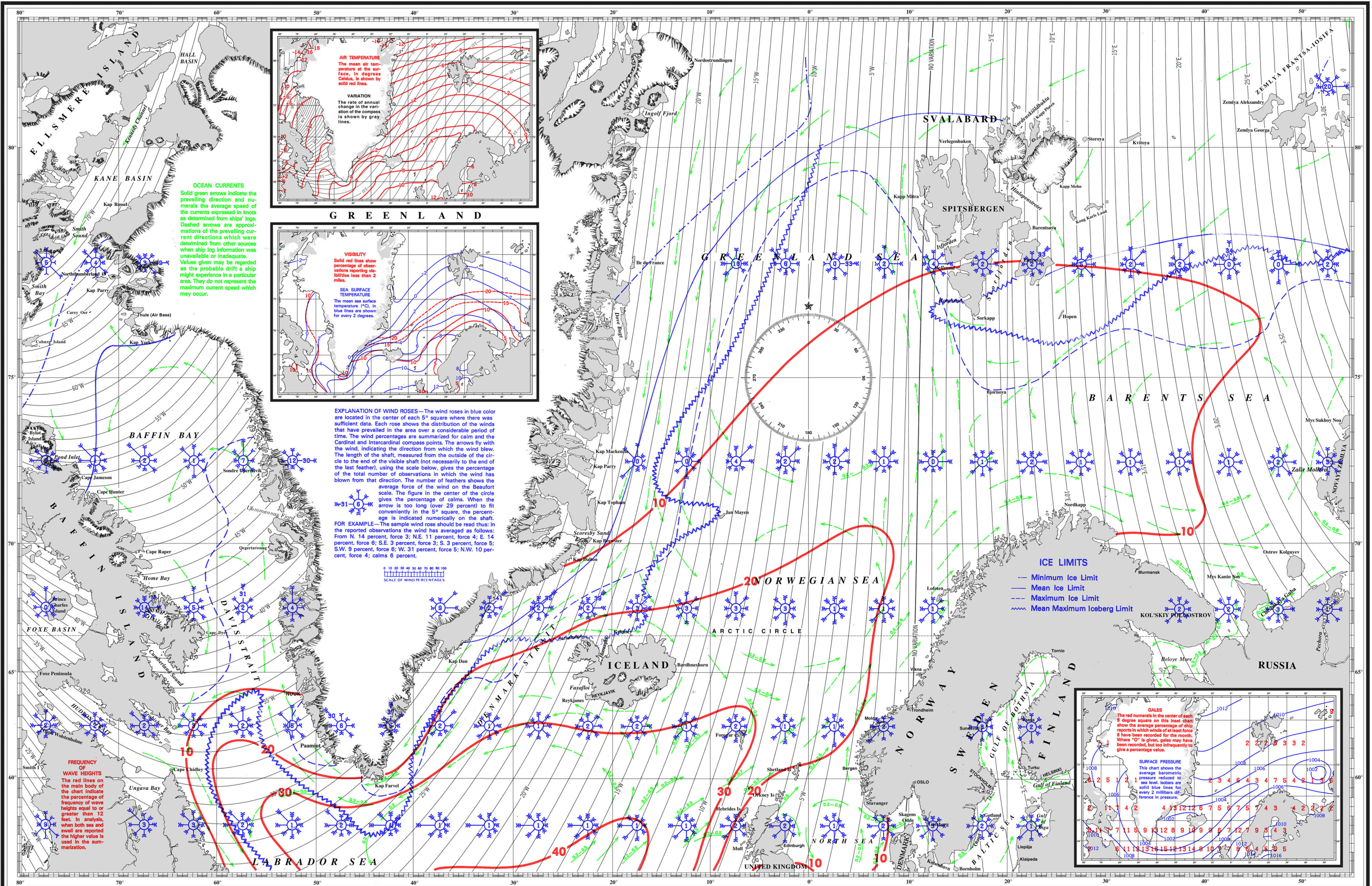
AIR TEMPERATURE
The mean air temperature (°C) in red lines, is shown for every 2 degrees.

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

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.

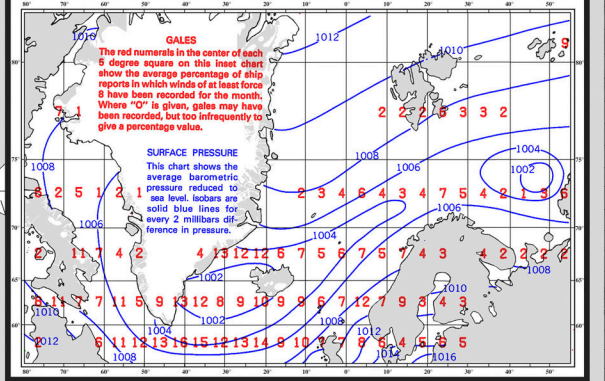
PILOT CHART OF THE NORTHERN NORTH ATLANTIC OCEAN

(THIS CHART SHOULD NOT BE USED FOR NAVIGATIONAL PURPOSES)



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 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: 14 percent, force 3; N.E: 11 percent, force 4; E: 14 percent, force 5; S.E: 3 percent, force 3; S: 3 percent, force 5; S.W: 9 percent, force 6; W: 31 percent, force 5; N.W: 10 percent, force 4; calms 6 percent.

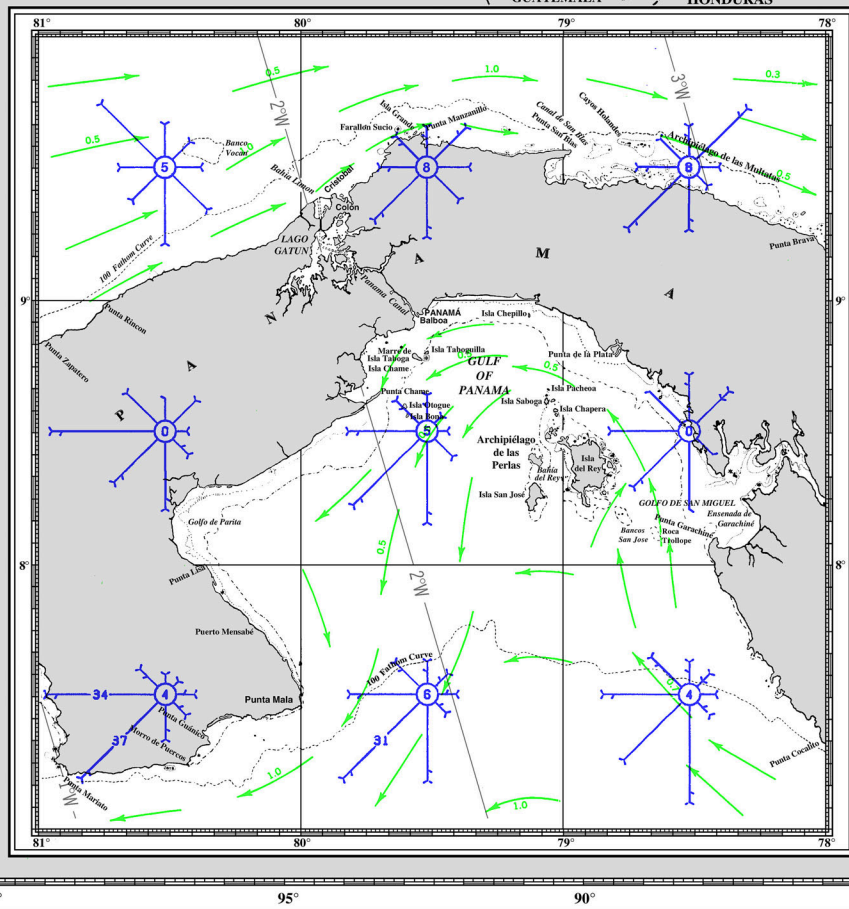
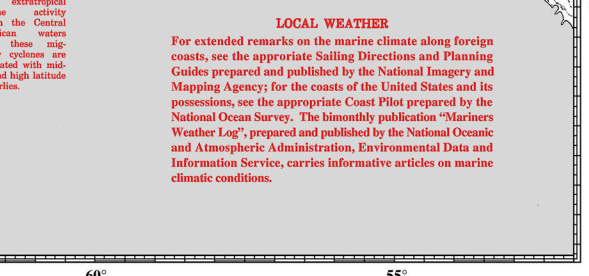
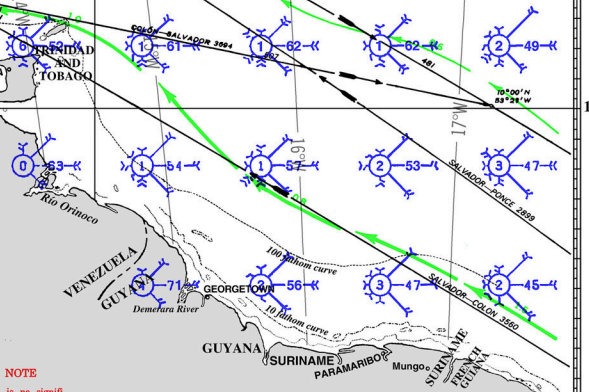
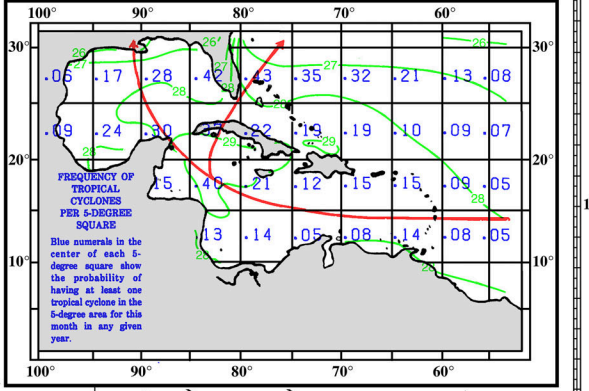
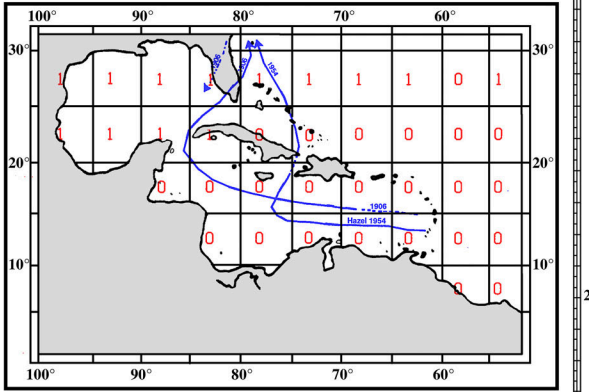
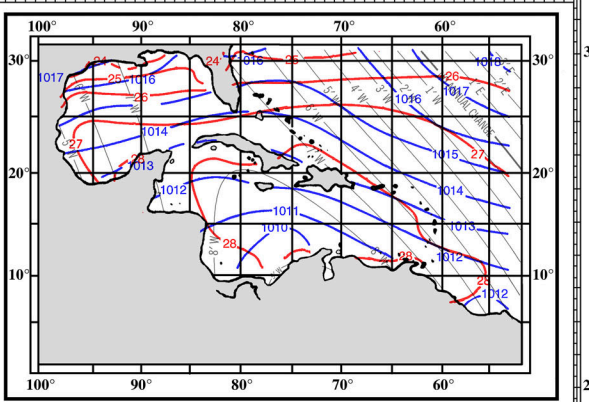
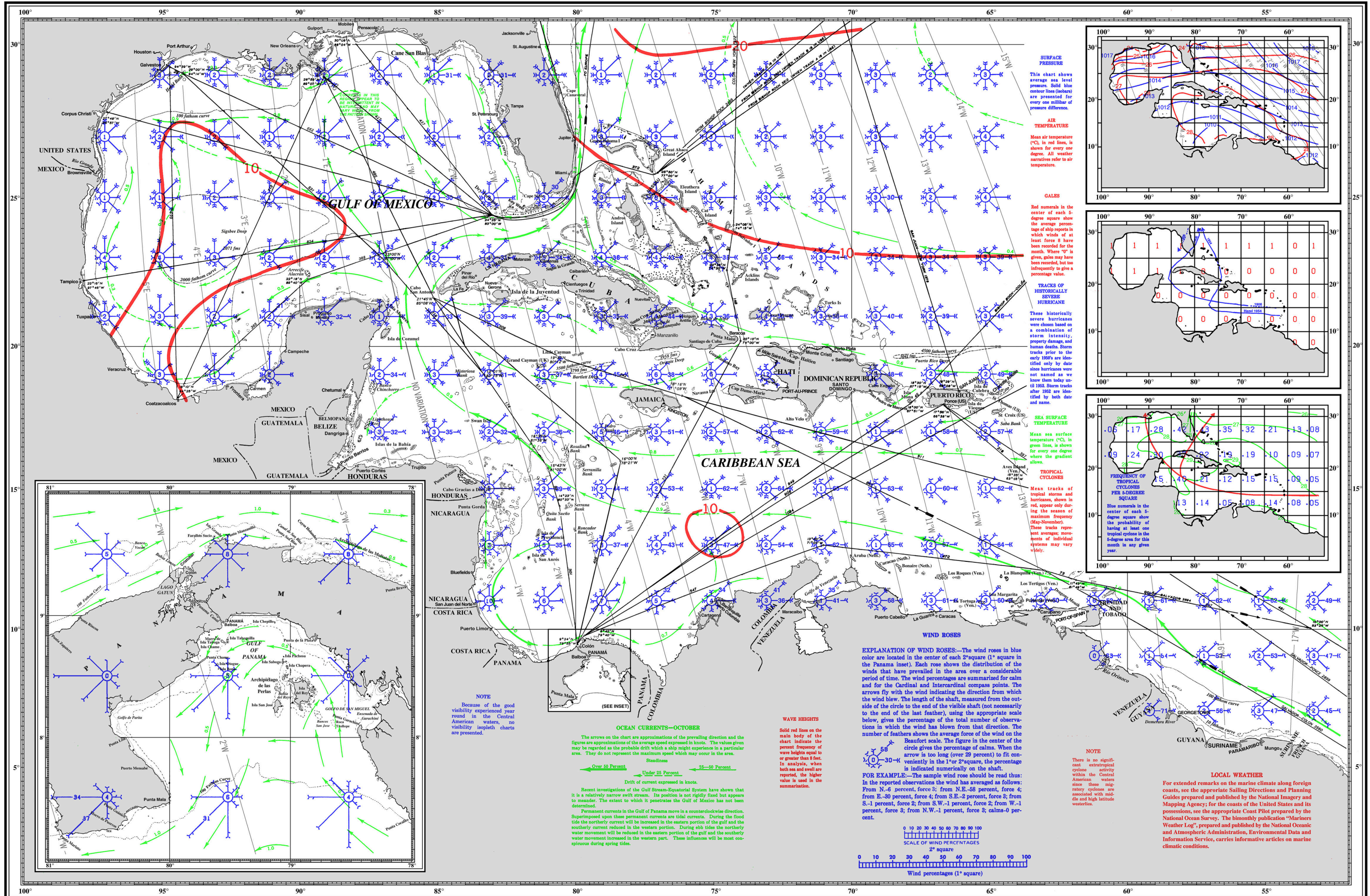


OCEAN CURRENTS
Solid green arrows indicate the prevailing direction and numerals the average speed of the currents expressed in knots as determined from ships' logs. Dashed arrows are approximations of the prevailing current directions which were determined from other sources when ship log information 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.

FREQUENCY OF 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.

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

PILOT CHART OF CARIBBEAN SEA AND GULF OF MEXICO



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

OCEAN CURRENTS—OCTOBER
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 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 6 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 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 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; calms-0 percent.

SCALE OF WIND PERCENTAGES
2° square
Wind percentages (1° square)