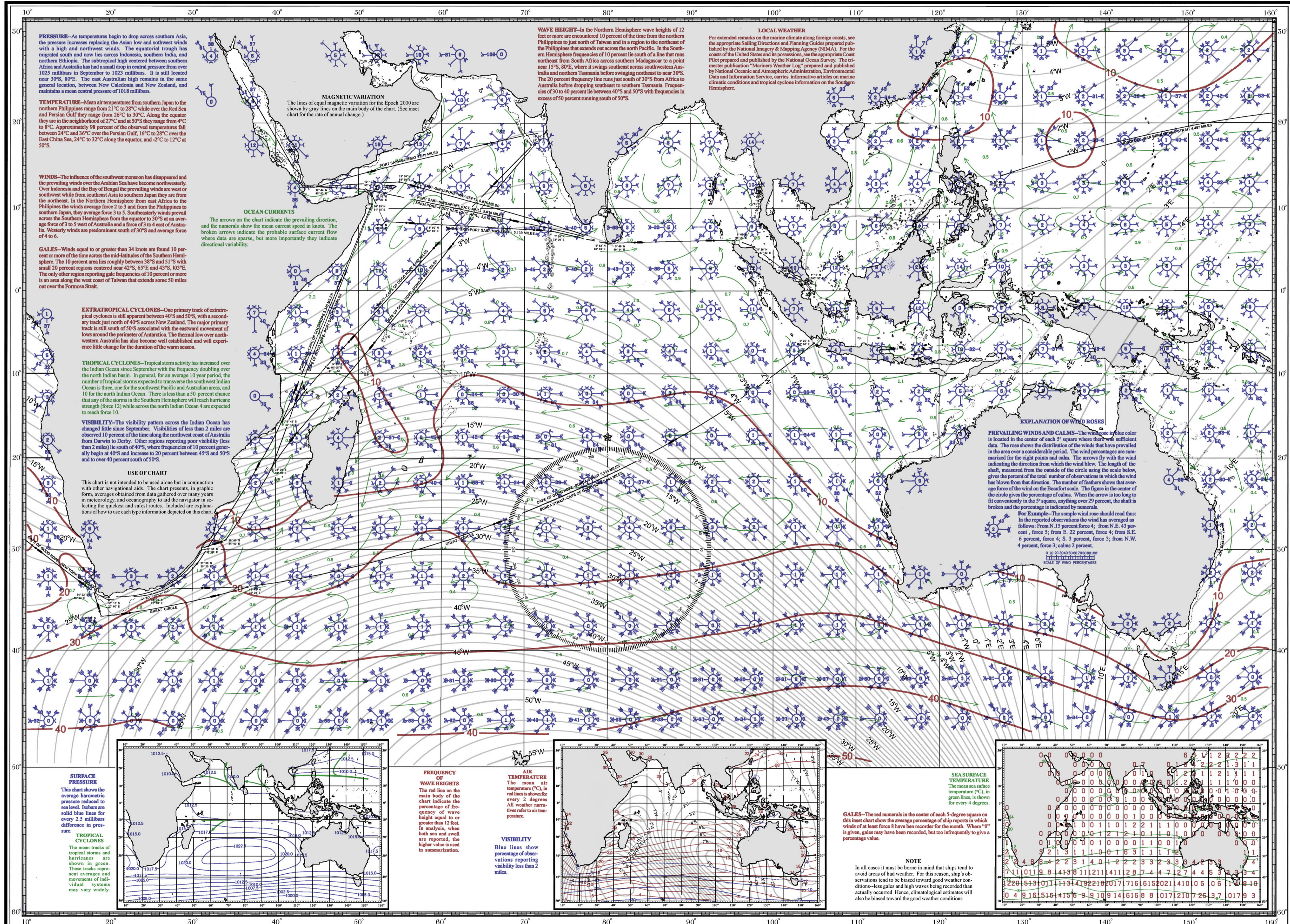




PILOT CHART OF THE INDIAN OCEAN

OCTOBER



PRESSURE—As temperatures begin to drop across southern Asia, the pressure increases replacing the Asian low and southwest winds with a high and northwest winds. The equatorial trough has migrated south and now lies across Indonesia, southern India, and northern Ethiopia. The subtropical high centered between southern Africa and Australia has had a small drop in central pressure from over 1025 millibars in September to 1023 millibars. It is still located near 30°S, 80°E. The east Australian high remains in the same general location, between New Zealand and New Zealand, and maintains a mean central pressure of 1018 millibars.

TEMPERATURE—Mean air temperatures from southern Japan to the northern Philippines range from 21°C to 28°C while over the Red Sea and Persian Gulf they range from 26°C to 30°C. Along the equator they are in the neighborhood of 27°C and at 50°S they range from 4°C to 8°C. Approximately 98 percent of the observed temperatures fall between 24°C and 36°C over the Persian Gulf; 16°C to 28°C over the East China Sea, 24°C to 32°C along the equator, and -2°C to 12°C at 50°S.

WINDS—The influence of the southwest monsoon has disappeared and the prevailing winds over the Arabian Sea have become northerly. Over Indonesia and the Bay of Bengal the prevailing winds are west or southwest while from southern Asia to southern Japan they are from the northeast. In the Northern Hemisphere from east Africa to the Philippines the winds average force 2 to 3 and from the Philippines to southern Japan, they average force 3 to 5. Southeastery winds prevail across the Southern Hemisphere from the equator to 30°S at an average force of 3 to 5 west of Australia and a force of 3 to 4 east of Australia. Westerly winds are predominant south of 30°S and average force of 4 to 6.

GALES—Winds equal to or greater than 34 knots are found 10 percent or more of the time across the mid-latitudes of the Southern Hemisphere. The 10 percent area lies roughly between 38°S and 51°S with small 20 percent regions centered near 42°S, 65°E and 43°S, 103°E. The only other region reporting gale frequencies of 10 percent or more is an area along the west coast of Taiwan that extends some 50 miles out over the Formosa Strait.

EXTRATROPICAL CYCLONES—One primary track of extratropical cyclones is still apparent between 40°S and 50°S, with a secondary track just north of 40°S across New Zealand. The major primary track is still south of 50°S associated with the eastward movement of lows around the perimeter of Antarctica. The thermal low over northwestern Australia has also become well established and will experience little change for the duration of the warm season.

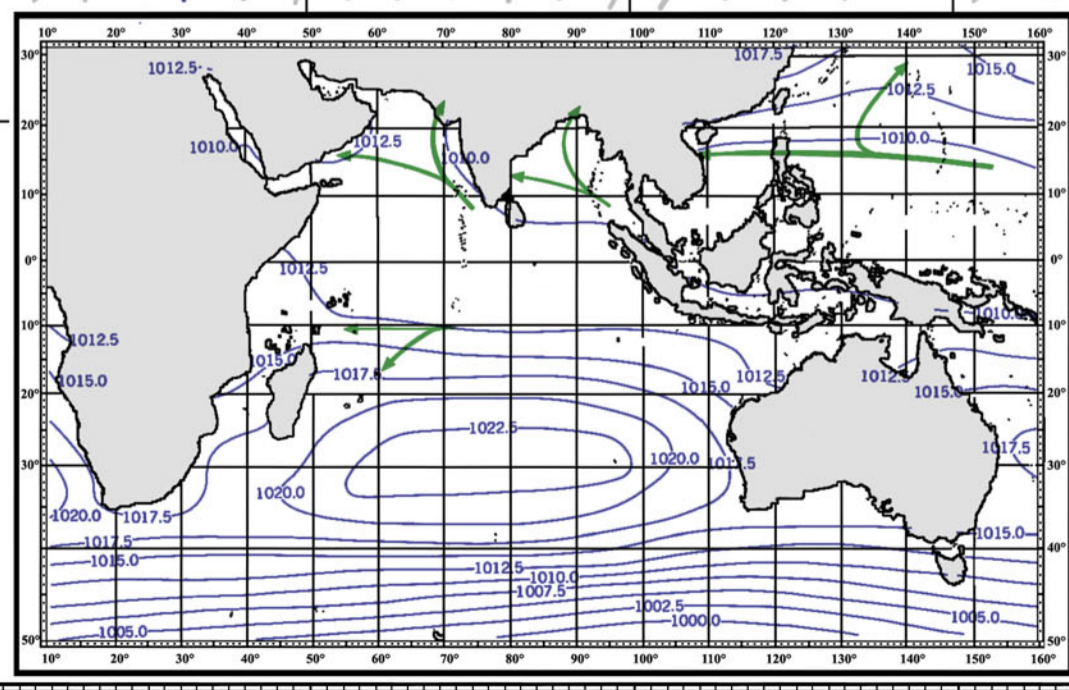
TROPICAL CYCLONES—Tropical storm activity has increased over the Indian Ocean since September with the frequency doubling over the north Indian basin. In general, for an average 10 year period, the number of tropical storms expected to transverse the southwest Indian Ocean is three, one for the southwest Pacific and Australian areas, and 10 for the north Indian Ocean. There is less than a 50 percent chance that any of the storms in the Southern Hemisphere will reach hurricane strength (force 12) while across the north Indian Ocean 4 are expected to reach force 10.

VISIBILITY—The visibility pattern across the Indian Ocean has changed little since September. Visibilities of less than 2 miles are observed 10 percent of the time along the northwest coast of Australia from Darwin to Derby. Other regions reporting poor visibility (less than 2 miles) lie south of 40°S, where frequencies of 10 percent generally begin at 40°S and increase to 20 percent between 45°S and 50°S and to over 40 percent south of 50°S.

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.

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.

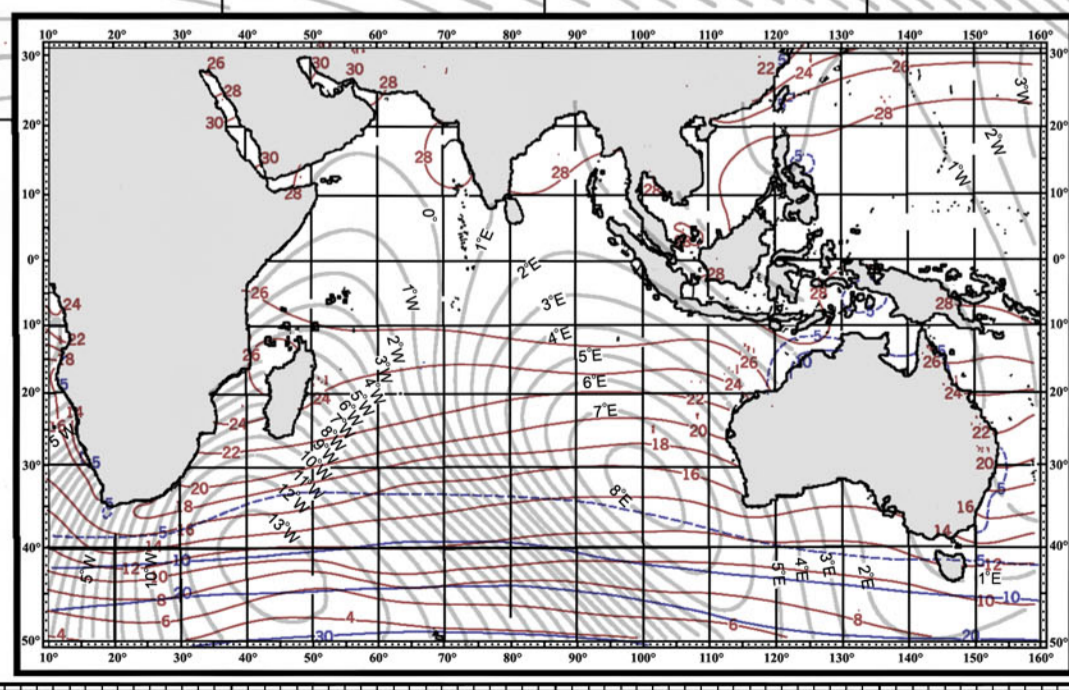
TROPICAL CYCLONES
The mean tracks of tropical storms and hurricanes are shown in green. These tracks represent averages and movements of individual systems may vary widely.



FREQUENCY OF WAVE HEIGHTS
The red line on the main body of the chart indicates 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 summarization.

AIR TEMPERATURE
The mean air temperature (°C), in red line is shown for every 2 degrees. All weather narratives refer to air temperature.

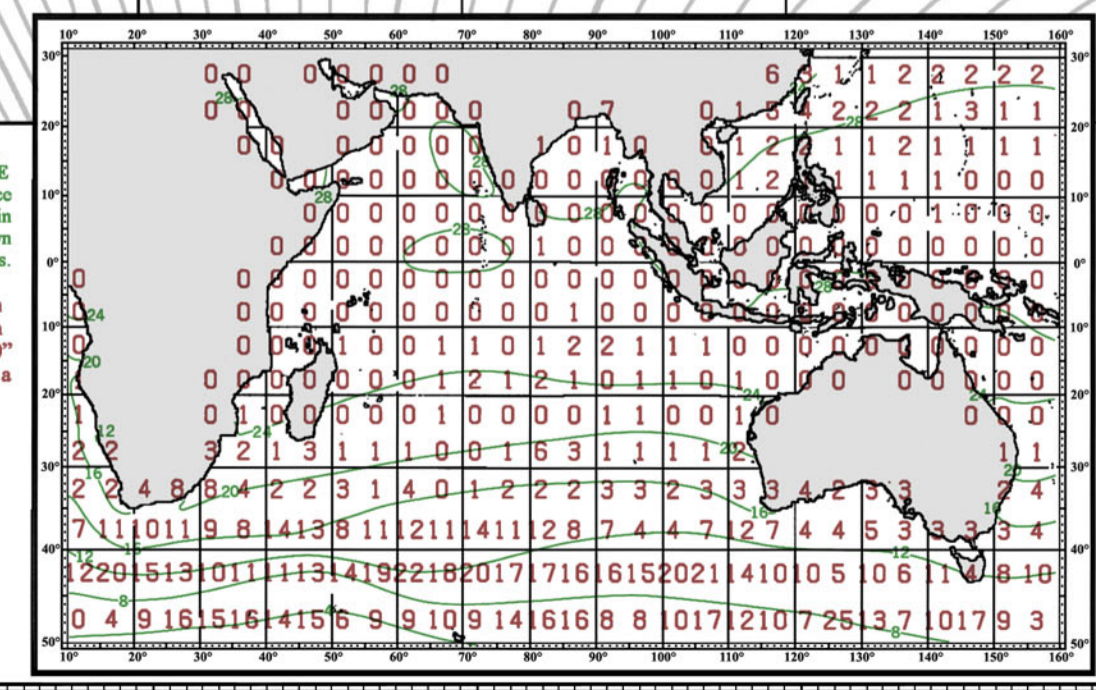
VISIBILITY
Blue lines show percentage of observations reporting visibility less than 2 miles.



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

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
In all cases it must be borne in mind that ships tend to avoid areas of bad weather. For this reason, ship's observations tend to be biased toward good weather conditions—less gales and high waves being recorded than actually occurred. Hence, climatological estimates will also be biased toward the good weather conditions.



WAVE HEIGHT—In the Northern Hemisphere wave heights of 12 feet or more are encountered 10 percent of the time from the northern Philippines to just north of Taiwan and in a region to the northeast of the Philippines that extends out across the north Pacific. In the Southern Hemisphere frequencies of 10 percent lie south of a line that runs northeast from South Africa across southern Madagascar to a point near 15°S, 80°E, where it swings southeast across southwestern Australia and northern Tasmania before swinging northeast to near 30°S. The 20 percent frequency line runs just south of 30°S from Africa to Australia before dropping southeast to southern Tasmania. Frequencies of 30 to 40 percent lie between 40°S and 50°S with frequencies in excess of 50 percent running south of 50°S.

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 & Mapping Agency (NIMA). For the coasts of the United States and its possessions, see the appropriate Coast Pilot prepared and published by the National Ocean Survey. The trimester publication "Mariners Weather Log" prepared and published by National Oceanic and Atmospheric Administration, Environmental Data and Information Service, carries informative articles on marine climatic conditions and tropical cyclone information on the Southern Hemisphere.

MAGNETIC VARIATION
The lines of equal magnetic variation for the Epoch 2000 are shown by gray lines on the main body of the chart. (See inset chart for the rate of annual change.)

OCEAN CURRENTS
The 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.

EXPLANATION OF WIND ROSES
PREVAILING WINDS AND CALMS—The wind rose in blue color is located in the center of each 5° square where there was sufficient data. The rose shows the distribution of the winds that have prevailed in the area over a considerable period. The wind percentages are summarized for the eight points and calms. The arrows fly with the wind indicating the direction from which the wind blow. The length of the shaft, measured from the outside of the circle using the scale below, gives the percent of the total number of observations in which the wind has blown from that direction. The number of feathers shows that 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 to fit conveniently in the 5° square, anything over 29 percent, the shaft is broken and the percentage is indicated by numerals.

For Example—The sample wind rose should read thus:
In the reported observations the wind has averaged as follows: From N. 15 percent force 4; from N.E. 43 percent, force 5; from E. 22 percent, force 4; from S.E. 6 percent, force 4; S. 3 percent, force 3; from S.W. 4 percent, force 3; calm 2 percent.

0 10 20 30 40 50 60 70 80 90 100
SCALE OF WIND PERCENTAGES