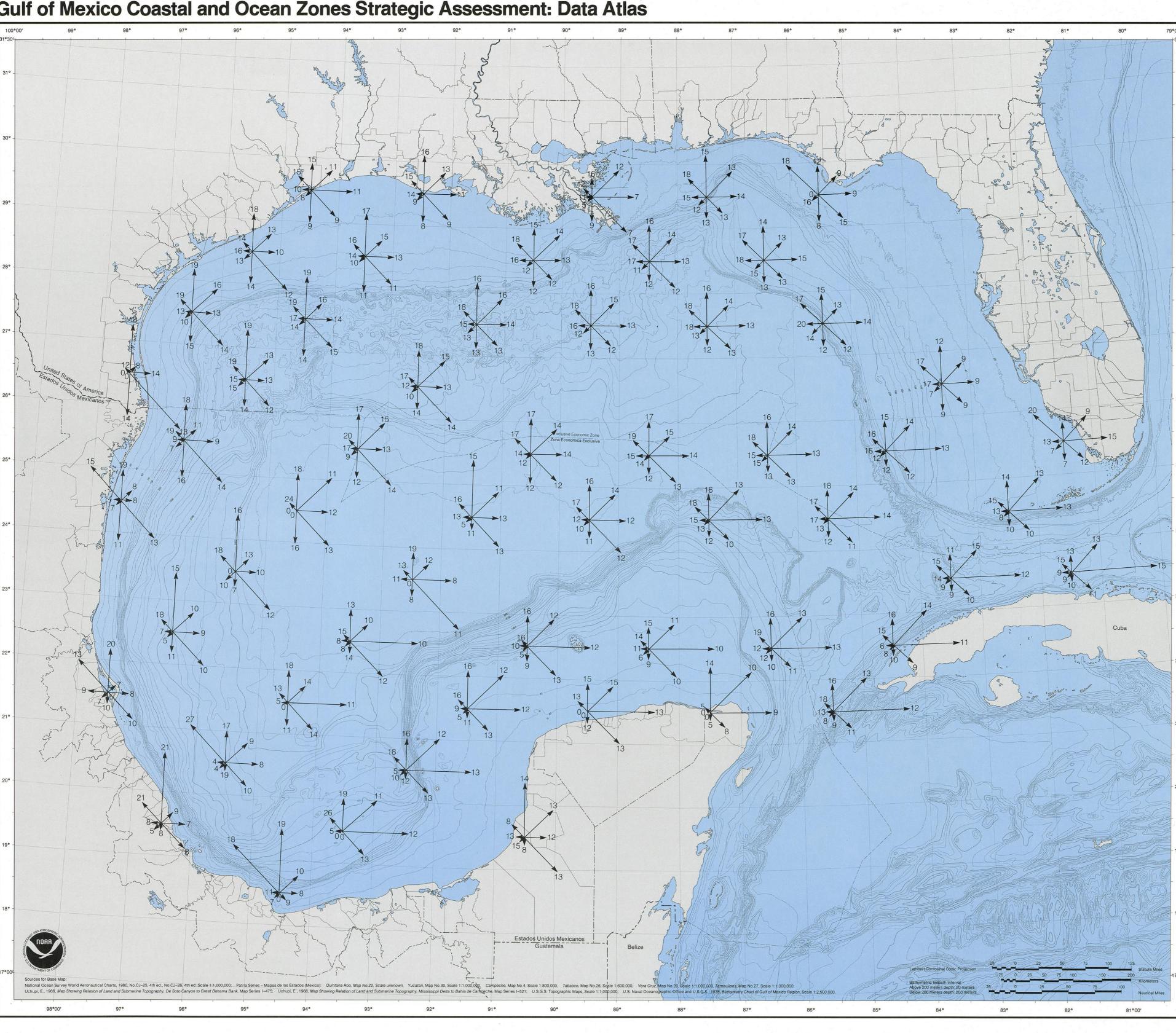
Gulf of Mexico Coastal and Ocean Zones Strategic Assessment: Data Atlas



Prevailing Winds: January

Description

This map and Map 1.12 form a set which use wind roses to depict prevailing winds for the region. Direction and velocity statistics for each wind rose, selected from onedegree data summaries generated at NOAA's National Climate Data Center, are based on shipboard wind data recorded prior to 1975. For most locations, each wind rose represents data from more than 100 observations.

The action of wind on the ocean surface induces currents in the water column, especially in upper, near-surface layers. Prevailing winds in concert with topography are the primary determinants of the oceanic circulation in the region. Local winds are also a major influence on surface drift. Because of their effect on surface currents and drift, prevailing winds are a major factor influencing the movement of pollutants in

Wind circulation in the Gulf of Mexico during the winter is primarily anticyclonic (clockwise around high-pressure areas), with mean speeds ranging from 8-18 kn. While trade winds dominate the southern Gulf, the northern Gulf is strongly influenced by polar continental air masses ("northers") moving southward over Texas and Louisiana. When these northerly air masses interact with the moist warm air of the Gulf, they have a tendency to stall and form low-pressure centers that move eastward producing low clouds, rain, and fog. As many as 30 "northers" have occurred during a single winter. Wind speeds in excess of 40 kn are associated with about 15% of these events. The frequency and severity of these "northers" determine winter water temperatures along the northern coast (Maps 1.07 and 1.09).

Percent Occurrence Mean Wind Speed in Knots

The length of the arrow corresponds to percent occurrence from a given direction, measured using the scale below:

Wind directions are in meteorological convention; arrow points to direction wind is

References

US DOC, NOAA, National Environmental Satellite, Data and Information Service, 1983.

Strategic Assessment Branch Ocean Assessments Division Office of Oceanography and Marine Assessment National Ocean Service/NOAA and the Southeast Fisheries Center National Marine Fisheries Service/NOAA