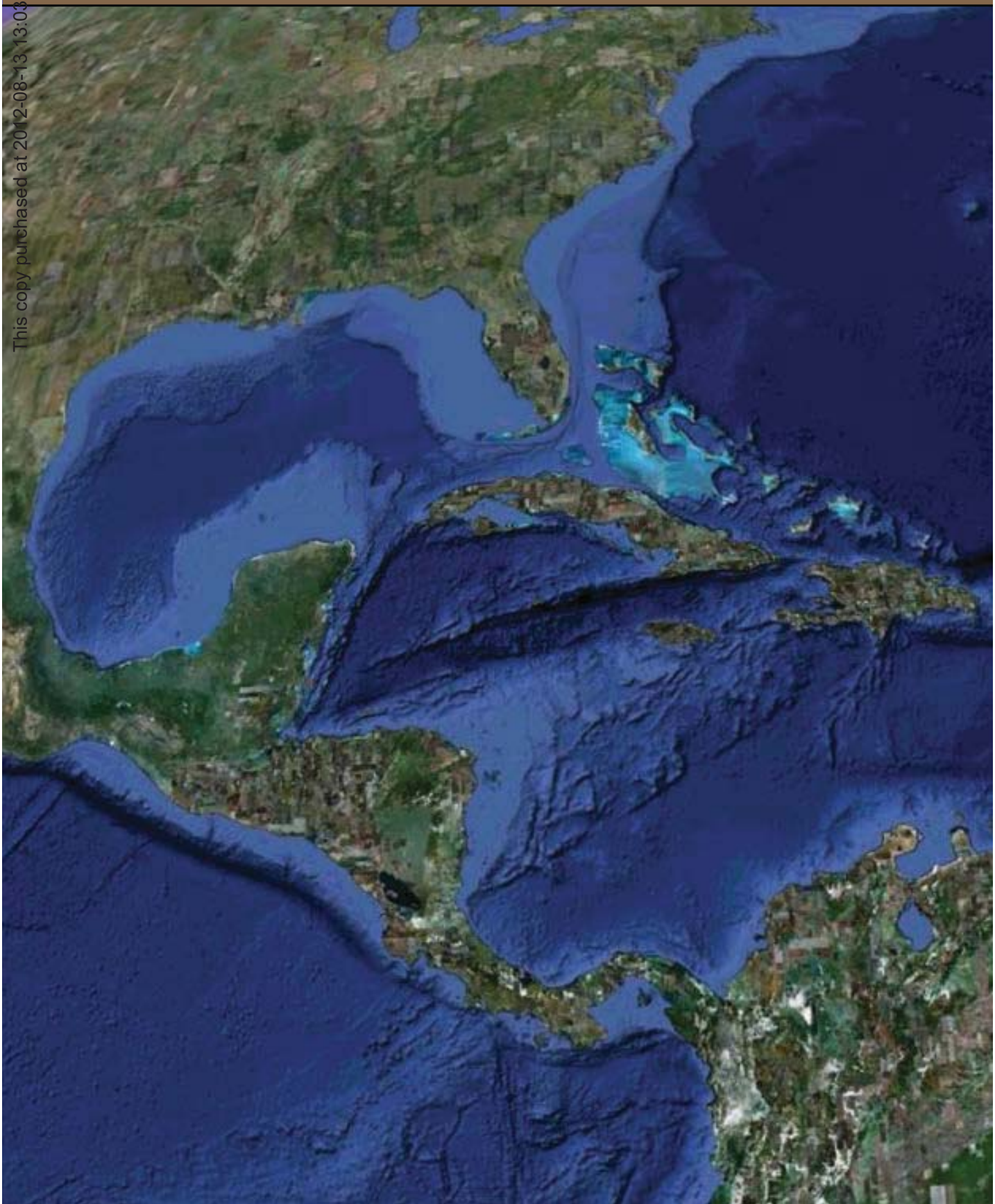
Tropical Connections

South Florida's marine environment

William L. Kruczynski and Pamela J. Fletcher, Editors

2. OCEANOGRAPHIC CONNECTIVITY



Oceanographic data are collected in many different ways

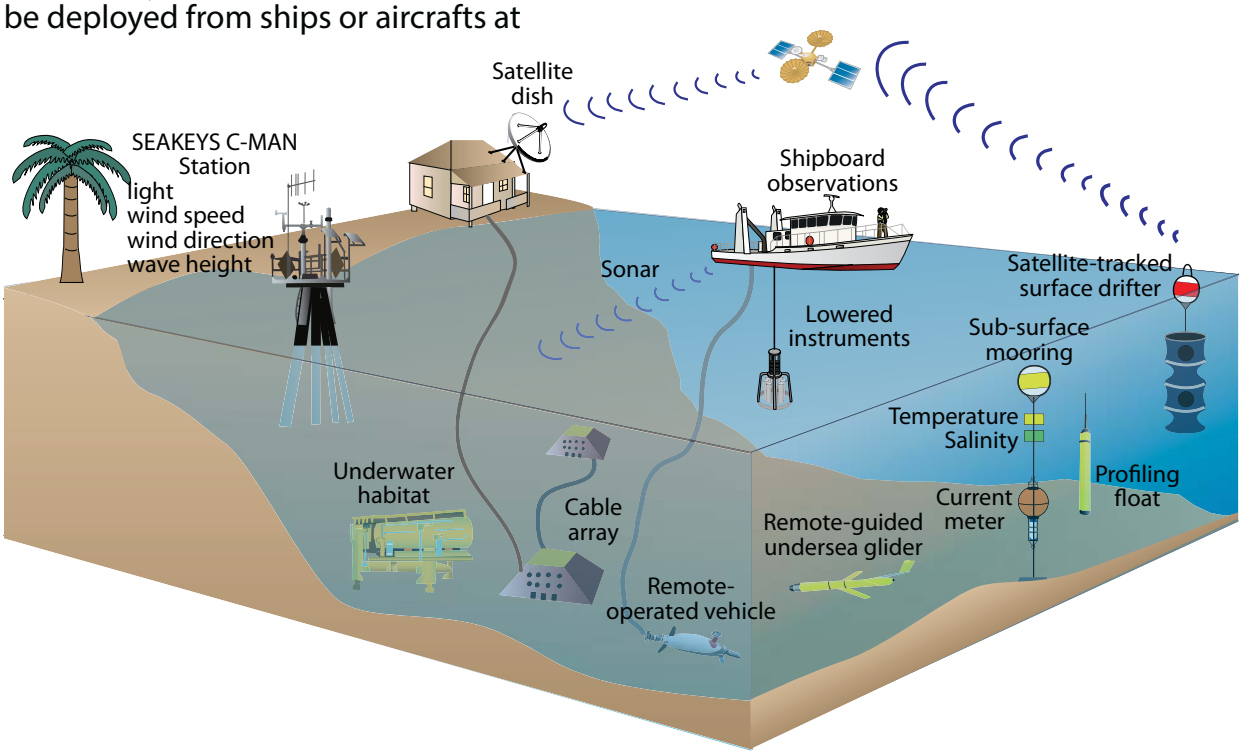
Ryan H. Smith and Elizabeth Johns

Scientists study the ocean in many ways. Seagoing oceanographers have historically conducted observations from research vessels. However, examining the physical, chemical, and biological properties of the ocean in that manner can be very expensive. Today, thanks in part to new technologies, scientists employ multiple tools to monitor our oceans. These methods are more economical and often provide greater coverage than traditional shipboard surveys. Although shipboard surveys are still important, they are one component in an ever increasing integrated ocean observing system.

Moored instrumentation arrays can provide long-term time series measurements at a fixed location. Other types of equipment designed to move freely through the ocean gathering data, such as surface drifters, Argo floats (i.e., broad-scale global array of temperature and salinity monitors), or gliders, can be deployed from ships or aircrafts at minimal cost. As these instruments gather data, they transmit this information back to scientists on land in real-time via satellite.

Scientists also gather data about the ocean remotely utilizing sensors affixed to orbiting satellites. Measurements such as sea surface temperature, ocean color, and sea surface height are collected continuously as these satellites pass over ocean regions.

Modeling is a very important component of modern oceanographic research. Scientists utilize computers to develop environmental models that mimic or reproduce the ocean conditions measured by the means just described. Accurate models, groundtruthed with real data, provide a tool for understanding ocean processes. Using these data (i.e., direct and remote measurements and model results), ocean scientists work to accurately describe the processes occurring in the marine environment and make predictions about the future.



Oceanographic data are collected in many different ways using instruments on the seafloor, throughout the water column, at the ocean surface, on land, and from space.