

OCEAN OBSERVING & MONITORING

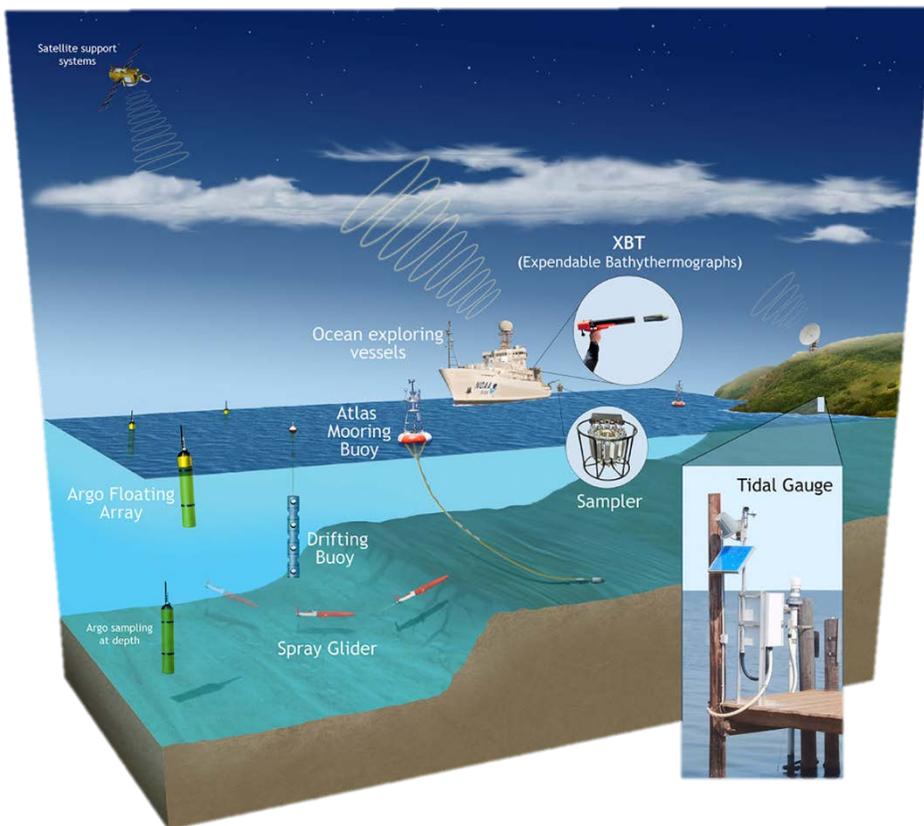
Observing the global ocean and the Arctic to build an environmentally-smart nation.

The ocean covers 71 percent of the Earth's surface. The **Ocean Observing and Monitoring Division (OOMD)** sponsors thousands of ocean observing platforms and land-based sites in the Arctic that gather data year round. NOAA's observations of the ocean improve our understanding of its role in driving environmental changes worldwide.

These observations serve as a foundation for the information our nation needs to reduce risks for its people, businesses, and assets.

OOMD maintains **50 percent** of the world's ocean observing platforms to:

- **Inform predictions of extremes** such as hurricanes and drought;
- **Reduce risks** for U.S. military, transportation, infrastructure, economy, and national security;
- **Contribute to improvements** in weather, marine, and ocean forecasts; and
- **Monitor ocean health and help protect** coastal communities and ecosystems.



▲ OOMD's wide range of observing platforms all contribute to the global ocean observing system used internationally. Credit: NOAA.



Photo Courtesy: CSIRO

WHAT WE OBSERVE

Using a wide range of observing platforms, OOMD monitors changes in temperature, sea level, currents, wide and weather over the ocean, ocean carbon uptake, and ocean acidification.

PARTNERSHIPS

Multiple NOAA laboratories, universities, research institutes, and other centers of excellence perform OOMD-sponsored observations. Our partnerships with over 50 countries are crucial for developing and sustaining the global ocean observing system.

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Learn more: CPO.NOAA.gov/OOMD



The oceans and the arctic influence environmental changes worldwide:

WHAT DOES THAT MEAN FOR THE U.S.?



TROPICAL CYCLONES

Since 1980, hurricanes have caused over \$550 billion in damage in the United States. Ocean and Arctic observations contribute to NOAA's goal of reducing average track and intensity error by 50 percent over the decade from 2009-19.

Without OOMD's observations, the ability of NOAA and the Department of Defense (as well as other international forecast centers) to improve forecasts and predict ocean and weather conditions would be limited.

SEA LEVEL

Nearly 25 million Americans live in coastal communities at risk of flooding due to sea level changes, which endanger critical infrastructure related to transportation, energy, trade, and military readiness.

OOMD's observations help experts determine sea level changes. With this data, vulnerable places such as New Orleans, Miami, and Norfolk can better plan for long-term coastal changes, including those impacting valuable Department of Defense installations.

EL NIÑO & LA NIÑA

Improving NOAA's El Niño-Southern Oscillation (ENSO) forecasts can increase agricultural production and benefits to the U.S. economy by up to \$300 million annually.

OOMD provides data and products from the entire tropical oceans. Experts use our data to track ENSO events and their impact on regional U.S. weather anomalies such as droughts. Drought cost the nation roughly \$3.5 billion in 2016.



OCEAN HEALTH

Marine ecosystems (coral reefs and fisheries) contribute about \$38 billion annually to the GDP. They offer food for millions of Americans, protect coastlines from erosion, and provide income and jobs from fishing, recreation, and tourism.

OOMD's ocean chemistry observations help monitor and forecast changes in marine ecosystems and ocean health, including increased acidity and the expansion of low oxygen "dead zones" that negatively impact living marine resources.

U.S. COASTS

Open oceans drive currents that influence weather and productivity along the coasts, affecting coastal communities and the broader U.S. economy. OOMD's observations help the nation understand, predict, and plan for changes in these currents.

In 2015, our scientists found surprisingly warm currents from the Pacific Ocean that impacted valuable West Coast fisheries. Our observations will enable NOAA to better predict future conditions in the global ocean affecting the U.S. coasts.

ARCTIC

Predictions of weather and sea ice conditions in the Arctic rely on our observations, which enable the U.S. to operate scientific, commercial, and military vessels and aircraft in the Arctic.

Alaskan subsistence and commercial communities such as the Eskimo Walrus Commission use our data as part of food security initiatives. Environmental changes in the Arctic can also lead to increased risks for infrastructure, public health, and commerce across the United States.

