Ocean Observations

CONSORTIUM FOR Ocean Leadership

Understanding how the ocean works enables us to better predict weather, strengthen economies, increase public safety, and protect the health of people and natural resources. Greater knowledge of the ocean's interrelated systems is also vital for understanding marine biodiversity, ocean and coastal ecosystems, and climate change.

Scientists learn about the sea through ocean observing, which is comprised of coordinated networks of people and tools, including buoys, gliders, satellites, ships, sensors, drones, AUVs, super computers, and more. These monitoring activities take place from the sea surface to the seafloor, collecting and integrating data and information. Scientists, decision-makers, and citizens use this information to predict changing ocean and atmospheric conditions, ensure maritime safety and efficient operations, diminish adverse effects of natural hazards, improve national and homeland security, reduce public health risks, enhance protection and restoration of healthy coastal ecosystems, sustain use of ocean and coastal resources, and implement effective policy and marine management.

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Long-term, sustained global ocean observations serve as the foundation for both scientific discovery and sound ocean management for current and future generations. The Consortium for Ocean Leadership advances ocean observations by managing the U.S. Interagency Ocean Observing Committee (IOOC), supporting the Ocean Observatories Initiative (OOI), and hosting the U.S. project office for the Global Ocean Observing System (GOOS) and its Deep Ocean Observing Strategy (DOOS).

- **IOOC**
  The IOOC connects observing systems across agencies, institutions, and nations to optimize how we understand and apply our knowledge of the ocean. The committee works to enhance the efficiency of and motivation for multi-agency contributions to the U.S. Integrated Ocean Observing System (IOOS®) for societal applications, education, stewardship, and scientific understanding. *www.iooc.us*

- **OOI**
  The OOI is a National Science Foundation (NSF) major research facility operated as a community resource, providing continuous delivery of ocean and seafloor data from coastal to open ocean areas in the Atlantic and Pacific. The OOI is composed of an integrated infrastructure spread across its seven arrays (one cabled, two coastal, and four global) consisting of science driven platforms and sensors measuring physical, chemical, geological, and biological properties of the ocean, seafloor, and near-ocean atmosphere. Using moorings, fiber-optic cables, and autonomous vehicles, the OOI combines advanced technology and engineering capabilities with a cyberinfrastructure to bring ocean observing data to a diverse global user community. Data from the OOI are freely available. *www.oceanobservatories.org*

- **GOOS**
  GOOS is an international program that ensures long-term, continuous ocean observations by coordinating global monitoring for sustainable development of ocean resources, protection from ocean hazards, and a greater understanding of climate processes. *www.goosocean.org*

- **DOOS**
  Established under the auspices of GOOS, DOOS emphasizes sustained global deep-ocean observations, including the development and implementation of a collective statement of requirements and an initial strategy for the next 10-50 years. *www.deepoceanobserving.org*