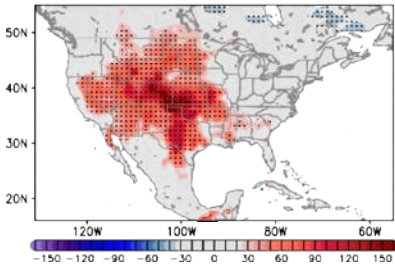




Physical Oceanography Studies at the NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML): the Foundation for Ocean Variability Studies

Leading efforts and partnering with other government and university researchers to monitor the global oceans with a suite of instrumentations geared to understand changes in ocean currents and water properties, which are used for:

Improving prediction of extreme weather events in the continental US



Together with national and international partners, AOML physical oceanographers lead efforts to investigate how the oceans transport heat and to assess its links with extreme weather events. Most recent research reveals the key role that the ocean currents play in determining the number of heat waves, hurricanes, tornados, severe coastal flooding, etc. in the US.

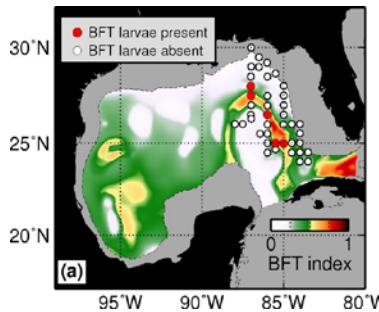
Improvement of tropical cyclone genesis and intensification forecasts



The ocean plays a critical role in the genesis, development, and intensification of Atlantic hurricanes. AOML physical oceanographers partner with the National Weather Service to lead sustained observations from moorings, research ships, and underwater gliders and to assess numerical model studies that have shown to improve hurricane seasonal and intensity forecasts.

Improve estimates of fish stock assessments of highly commercial species

AOML physical oceanographers partner with NOAA National Fisheries Service scientists to provide ocean environmental conditions critical for determining favorable conditions of species, such as the Atlantic bluefin tuna.



Provide rapid response in support of environmental emergencies

AOML carried out one of the only research cruises outside the oil spill region during the Deepwater Horizon incident. In partnership with NOAA/NESDIS, AOML physical oceanographers provide daily global ocean currents to the NOAA National Ocean Service Office of Response and Restoration for debris tracking, oil spills, search and rescue, etc.

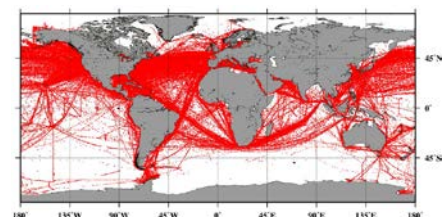
Research in Support of Service

In partnership with the NOAA National Fisheries Service AOML physical oceanographers lead the efforts to maintain the Mandatory Ship Reporting System to reduce the risk of ship strikes with northern Right Whales.



Crew of the M/V Cape Nelson and survivors from the fishing vessel Abound that sank 625 miles off the coast of San Francisco on October 26, 2005. This rescue was facilitated by a partnership project between AOML physical oceanographers and the National Weather Service and the United States Coast Guard.

Together with the National Weather Service, AOML physical oceanographers contribute with the acquisition and transmission of global marine weather observations from volunteer ships, the largest source of in situ marine weather conditions. These observations are routinely used by the Tropical Analysis and Forecasting Branch of the National Hurricane Center.





Physical Oceanography Studies at the NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML)

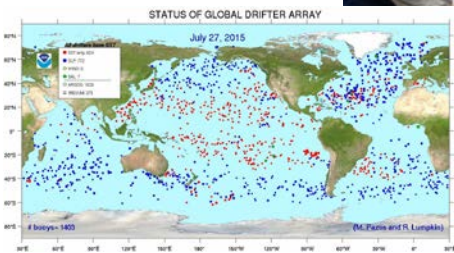
www.aoml.noaa.gov/PHOD

NOAA/AOML leads or is a critical partner in the design, implementation, and maintenance of the global ocean observing system. This system is composed of key instrumentation used to monitor and investigate changes in the ocean with the goal of improving our understanding of ecosystems, extreme weather events, sea level change, safety at sea, environment, etc. Following are some example of these instruments:

Surface Drifters



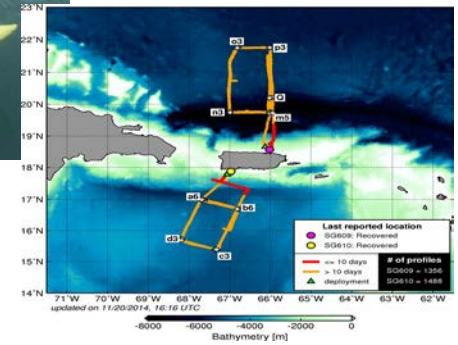
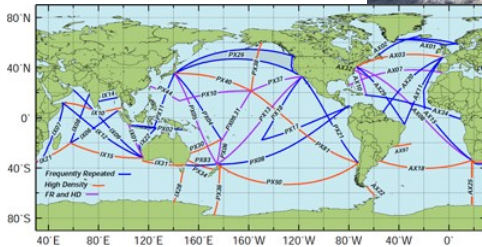
Argo Floats



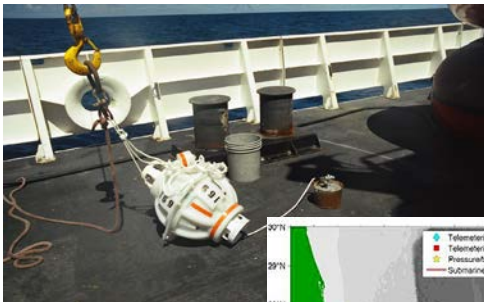
Expendable Bathythermographs



Underwater Gliders



Global Hydrographic Cruises



Cable and Moored Instruments

