

PHYSICAL OCEANOGRAPHY DIVISION

The Physical Oceanography Division (PhOD) of the Atlantic Oceanographic and Meteorological Laboratory has a staff of approximately 35 research scientists and technicians. Its primary mission is to provide and interpret oceanographic data by conducting research relevant to the following NOAA Strategic Goals: Predict and Assess Decadal to Centennial Climate Change, Implement Seasonal to Interannual Climate Forecasts, and Sustain Healthy Coastal Ecosystems. PhOD manages the newly created Global Ocean Observing System (GOOS) Center and is responsible for coordinating NOAA's global and regional observing network efforts in order to maximize the quality and quantity of data available to users, among which are NOAA's weather and climate forecast groups. Included in the GOOS Center is the Global Drifter and Data Assembly Center, which manages the global collection, processing, and distribution of drifting buoy data, and the Upper Ocean Thermal Center which does the same for data collected from expendable bathythermographs (XBTs). GOOS Center data are critical to understanding and predicting seasonal to decadal shifts in weather patterns and are used in empirical and statistical studies to understand dynamical processes in the global ocean/atmosphere coupled system.

CURRENT RESEARCH PROJECTS

Predict and Assess Decadal to Centennial Climate Change

The Atlantic Ocean plays a critical role in determining local and global climate. The Meridional Overturning Cell (MOC) is one of the primary effects of the Atlantic Ocean on determining U.S. Climate. PhOD is currently involved, among others, in the Atlantic Circulation and Climate Experiment (ACCE), the Atlantic Climate Change Program (ACCP), the Windward Islands Passages Monitoring Program, and the Benguela Current Experiment. Research in these programs is conducted to increase our understanding of the interaction between the Atlantic Ocean and global climate, to understand seasonal to decadal climate variability, to assess ocean-atmospheric models with data, and to develop sampling strategies that will enable forecasting of climate.

Implement Seasonal to Interannual Climate Forecasts

While much is being learned about El Niño in the Pacific Ocean, there are other elements that play an important role in determining weather and climate in the seasonal to interannual time scale. There is a need to measure, understand, and predict heat exchanges and shifts in current systems that results in shifts in weather patterns. An example is the American monsoon, of critical importance to agriculture and several other economic factors. Programs directed to understand these effects are: Pan-American Climate Studies (PACS); High Density XBT lines; Ocean-Atmosphere Carbon Exchange Studies (OACES); Air-Sea Coupling Mechanisms in Tropical Cyclones; Oceanography of the Intra-Americas Sea, and Rings from the North Brazil Current.

Sustain Healthy Coastal Ecosystems

The Florida Bay Circulation and Exchange Study aims to describe and quantify the interaction and exchange of Florida Bay waters with the connecting coastal waters of the Gulf of Mexico and the Atlantic Ocean in order to better protect our coasts and the ecosystems.



Dr. Silvia L. Garzoli, Director
Phone: 305-361-4340; Fax: 305-361-4392
Email: garzoli@aoml.noaa.gov
<http://www.aoml.noaa.gov/phod>

