



## PRESS RELEASE

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### **UMass Hosts Atlantic Observation System Planners**

*SMAST to contribute radar, robotic vehicles, and modeling*

The School for Marine Science and Technology of UMass Dartmouth is hosting a consortium of 20 universities and organizations this week to plan the initial stages of a system to monitor the changing conditions and health of coastal waters from Massachusetts to North Carolina. The consortium is developing a sophisticated network of weather stations, satellites, coastal radars and robotic underwater vehicles to produce a three-dimensional view of conditions in the coastal Mid-Atlantic. The current, three-year phase of the project is funded with an \$8.7-million grant from the NOAA Coastal Services Center.

The Mid-Atlantic Regional Coastal Ocean Observing System, or MARCOOS, will provide decision-makers with information that will aid in search-and-rescue operations, hurricane track predictions, fisheries management, and the management of such emergencies as coastal flooding and pollutant spills. MARCOOS is one of eleven regional efforts comprising a national Integrated Ocean Observation System that NOAA is assembling.

“Our current weather forecasting and warning network does not really have many observations over the coastal ocean,” said SMAST Dean, Frank Muller-Karger.

“We need a system that provides mariners and resource managers with accurate information on coastal waters 24 hours a day, 7 days a week. What’s being planned here is a real-time ‘ocean weather’ system.”

Two scientists from the School for Marine Science and Technology have been awarded \$1.36 million for their part of the project. SMAST Professors Wendell Brown and Avijit Gangopadhyay will operate a trio of coastal radars, and launch underwater glider surveys between Massachusetts and New Jersey. They will incorporate the information provided by these devices into a computer model to help improve its forecasts.

SMAST will undertake underwater surveys in cooperation with Rutgers University, the leader of the consortium of research partners. Rutgers has been fine-tuning gliders as ocean observers for the past decade. The glider of choice, built by Webb Research Corporation of Falmouth, MA, looks like a miniature jet airplane. It moves through the water by gulping in a mouthful (about 1 cup) of water at the surface—which causes it to sink—and spitting it out again when it reaches a predetermined depth. But rather than rising and sinking in place, it uses its wings, like a swooping bird, to convert vertical motion into forward motion, and thus glide its way through the ocean.

This unique propulsion scheme enables the glider to expend a minimum of energy while traveling great distances—often hundreds of kilometers per mission. Its characteristic trajectory (like a roller coaster) and speed (less than one nautical mile per hour) are ideal for the glider’s task of collecting oceanographic data as it plumbs the upper water column.

In addition to glider surveys, SMAST will operate three coastal ocean radars, or CODARs, at Nauset, Nantucket, and Block Island. The trio is part of a 30-station CODAR array that will provide hourly maps of surface currents over the MARCOOS ocean domain out to about 100 nautical miles offshore.

A third component of the SMAST MARCOOS project involves adapting the Harvard Ocean Prediction System (HOPS), a computer model, to provide near-real-time maps of MARCOOS regional water temperature and other oceanographic properties. This is done, say the researchers, by integrating glider, CODAR and satellite surface temperature measurements into the model “on the fly.”

For further information on MARCOOS, visit [www.marcoos.us](http://www.marcoos.us).

