FAU's Southeast National Marine Renewable Energy Center Achieves Major Milestone

The Southeast National Marine Renewable Energy Center (SNMREC) at Florida Atlantic University recently accomplished a major milestone in the establishment of its testing capabilities. The Center successfully completed offshore testing of a key component of its small-scale ocean-current turbine test berth – a Mooring and Telemetry Buoy (MTB). The MTB test was the first step of a multi-phase strategy to create a real-time offshore energy test facility and scientific observatory.

A three dimensional rendering of fully instrumented Mooring and Telemetry Buoy (MTB).

The MTB was tow-tested offshore of Fort Pierce, where Harbor Branch Oceanographic Institute engineers and SNMREC engineers joined the crew of the M/V Thunderforce to verify buoy performance as designed.

"The test was a success because the predicted behavior of the buoy matched closely with the measured behavior during testing," said Bill Baxley, chief engineer at SNMREC. "The test showed that the buoy performs at it was designed for its eventual offshore deployment."

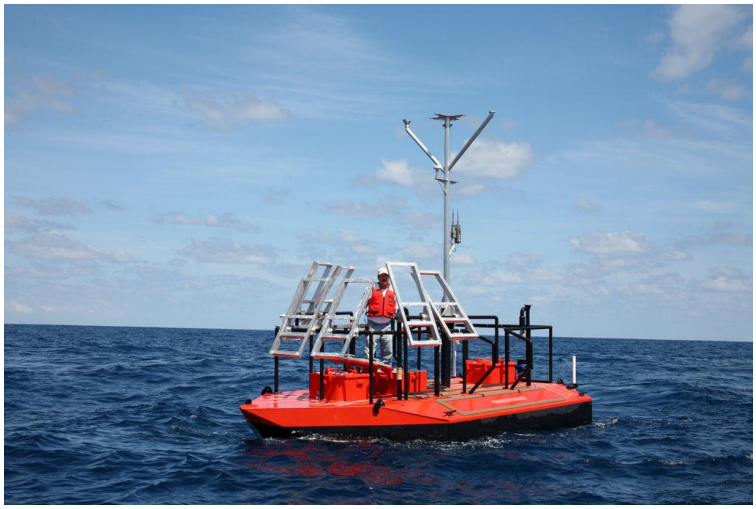
The steel-hulled buoy is approximately 21 feet long and 10 feet wide, and its unique hull design is shaped to survive strong currents. Onboard the buoy, there are a variety of renewable power sources such as solar panels, small wind turbines, and sailboat water turbines that provide power for onboard oceanographic instruments, safety and navigation systems, and wireless communication. The safety and navigation systems include active radar target enhancers and a Class "A" Automatic Identification System transmitter. Wireless communication systems also are included to relay collected data to shore and to provide the ability to monitor buoy health remotely.

The MTB was towed by the M/V Thunderforce with a drop weight to simulate its moored behavior.

The M/V Thunderforce, with support from a Boat U.S. vessel, towed and tested the buoy offshore. Upon reaching the predetermined location in the Gulf Stream about 18 miles east of Fort Pierce, the buoy attachment was reconfigured. The test configuration, which emulates how the buoy would be anchored offshore, was used to determine how the buoy would behave under various current speed and sea

heading conditions. The objectives of the MTB system tow tests were to verify buoy stability, tracking and wave response, as well as to verify onboard scientific instrument functionality and planned maintenance procedures.

"This success is an important step toward realizing the testing facility that we have been envisioning and to provide the nation with its first offshore ocean current generator test berth," said Susan Skemp, Executive director of the SNMREC at FAU.



Senior Engineer Geoff Beiser boards the MTB during testing to inspect a hatch compartment.

Engineers now plan to make minor modifications based upon test results to improve performance and will complete final integration of the measurement, communication and power systems. After this phase, the Center will be ready to anchor the buoy offshore this summer.

Video footage from the test is available online at http://www.eng.fau.edu/SNMREC/BuoyTowTest1.

For more information, call Susan Skemp at 561-297-2339, or sskemp@fau.edu.

***About the SNMREC at FAU**: In august 2010, the US DOE designated FAU's Center for Ocean Energy Technology as a national center for ocean energy research and development. The new Southeast National Marine Renewable Energy Center (SNMREC) at FAU joins centers in the Pacific Northwest and Hawaii that also work to advance the operational readiness of ocean energy technologies. DOE is funding the SNMREC to undertake research and development of technologies capable of generating renewable energy rom ocean currents and ocean thermal energy. The SNMREC is collaborating with industry partners to investigate, refine, fabricate, and test promising next-generation water power technologies to harness the ocean's vast energy potential. The Center's researchers have already begun this work by deploying ocean current observation systems, establishing the research on environmental baselines to determine the level of potential effects, and initiating the fabrication of support structures for ocean energy devices. The Center will ultimately perform full-scale testing of prototype devices.*