Scarlett Knight at the Smithsonian
From: http://www.noaanews.noaa.gov/stories2010/20101208_glider.html
Photo courtesy of Eric Vowinkel

The first underwater robotic vehicle — or “glider” — to cross an ocean is the centerpiece of a new exhibit that opened in the Sant Ocean Hall at the Smithsonian National Museum of Natural History on Dec. 9. The U.S. Integrated Ocean Observing System (IOOS®) glider, operated by Rutgers University, carried out the trans-Atlantic journey last year, just months before the technology was used to help in the Deepwater Horizon BP response. Rutgers scientists and students launched the trans-Atlantic glider, dubbed “the Scarlet Knight” in honor of the school’s mascot, off the New Jersey coast in spring of last year. They and their Spanish colleagues from Puertos Del Estado (the Spanish Port Authority) recovered the glider off the Spanish coast after seven months at sea and brought it ashore in the small town of Baiona where Christopher Columbus’ ship, the Pinta, landed with news of the New World more than 500 years ago. The glider reached Baiona on Dec. 9, 2009 — one year to the day of the exhibit being launched within the Smithsonian’s Sant Ocean Hall.

“Gliders sample the ocean in places it is impractical to send people and at a fraction of the cost,” said Zdenka Willis, director of the U.S. IOOS Program. “Using robots to collect scientific data is the wave of the future in terms of ocean observing.” “New technologies give us greater insight into how the ocean works. The trans-Atlantic glider, in particular, helped reduce uncertainty in some of our climate models,” said Richard L. McCormick, Rutgers University president. “We are thrilled to work with IOOS to enhance this understanding at such a critical time for our planet.” "The Office of Naval Research is proud to join in celebrating this accomplishment," said Rear Adm. Nevin P. Carr Jr., chief of Naval Research. "We are always excited to see Navy basic research investments, such as this one in autonomous ocean sensing, pay off for the Navy and the ocean science community. These vehicles provide critical knowledge for naval operations as well as data that will assist in achieving a better understanding of the complex global marine environment."

“We are very pleased to showcase this milestone in ocean research and exploration here in the Sant Ocean Hall,” said Eva Pell, Smithsonian’s Under Secretary for Science. “The story of the glider and the undergraduate students who monitored its journey shines light on the mysteries of the oceans; it speaks to
the importance of technological creativity to mine those secrets and to education as a vehicle to achieve the goal of understanding the greatest resource of our planet.”

**Congratulations**

Scott Glenn, who led a team of faculty, students and staff in a successful effort to send the first submersible robot glider across an ocean, has been named the 2010 New Jersey Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education.

Matthew Oliver, assistant professor of oceanography in the University of Delaware's College of Earth, Ocean, and Environment (CEOE), has been selected to receive a Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the U.S. government on young professionals in the early stages of their independent research careers.

The state Board of Public Utilities (BPU) awarded a $1.87 million contract to Rutgers University’s Institute of Marine and Coastal Science to build a three-dimensional map to detail the offshore wind potential of the Jersey coast. The grant comes at a time when three developers of offshore wind farms are launching pilot studies to determine whether their projects are feasible based on how much electric capacity offshore wind farms can generate. The latest project will complement those efforts and will be provided to other offshore wind developers once completed. The Rutgers’ map could lower the cost of future offshore wind projects, according to Michael Winka, director of the BPU’s Office of Clean Energy. The grant will fund a two-year project by the institute, which has been in the forefront of efforts to assess offshore wind potential.

**Annual Conference and Exhibition**

165 participants from a diverse population of ocean observing professions registered for the annual conference, *From Observation to Forecast: Tools for Understanding a Changing World*. Participants from industry (business), non-government organizations, academia and state/local government as well as the federal government were evenly distributed, representing a heterogeneous population of users/interests. Fifty (50) percent of the MACOORA membership attended.

Themed on solutions and outcomes, the opening plenary panel discussion—*A Sea Change: Observations in Times of Need*—presented by Carolyn Thoroughgood, Chair, Board of Directors, MACOORA; Michael Bruno, Dean, Schaefer School of Engineering and Science, Stevens Institute; Radley Horton, NASA Goddard Institute for Space Studies; and Dana A. Goward, Marine Transportation Systems Management, US Coast Guard provided an overview of the value of observations. MACOORA themes were fully integrated into the one and one half day program, with three panels focusing on fisheries, maritime safety and security, and inundation, and an additional two themes—water quality and offshore energy—addressed during the five break-out sessions, comprising the full complement of MACOORA themes. There were presentations on IOOS, NFRA, and MARCOOS. Two roundtable discussions, Visualizations and Governance, completed the agenda.
Upcoming Workshops/Pilot Projects

Fisheries Workshop. MACOORA is currently planning a late spring or early summer, Mid-Atlantic Bight Fisheries Workshop to: define and develop a near-term demonstration on the utility of IOOS data in fisheries management. (i.e. scallop/yellowtail flounder and/or squid-butterfish by-catch); define and develop products related to the cold-pool variability research initiative as it relates to Marine Spatial Planning (MSP) and/or Integrated Ecosystem Assessment (IEA) national programs; define and develop fisheries related products based on longer term climatic signals in the Mid Atlantic Bight. This will be an invitation only workshop, including MACOORA members and stakeholders, members from other regional associations, and federal agencies.

Water Quality Pilot Project. MACOORA has agreed to collaborate with SECOORA and NERACOOS and support NFRA’s interest in working with the IOOS National Office for a panel session on RA water quality efforts at CZ11 being held in Chicago, summer 2011.

A New MARACOOS Product Line. “Beach Basics”, our initial new product focus for years 1-5, will link strengthened observing and data management capabilities with new educational product development for improving beach safety – an issue that cross-cuts three existing regional themes including Maritime Safety, Water Quality, and Coastal Inundation. The E&O team will develop a series of data products including explanations of alongshore currents, waves, rip currents, weather (wind, rain & lighting) conditions, water quality (bacteria, floatables) and swimmer safety. Our production team consisting of a web & graphic designer, data translator, programmer, and educator will: 1) identify relevant data sets in collaboration with MARACOOS scientists, 2) develop middleware for on-demand data requests, 3) develop and test hand held apps with undergraduate students, 4) conduct needs assessments and usability testing with the User Council, and 5) revise and produce data apps for public user groups. E&O products may include but are not limited to: (a) educational data visualizations including applications for hand held devices, (b) supplemental content appropriate for end users, (c) instructor’s guides and lesson plans to help Extension professionals distribute the apps, (d) production of educational and/or promo materials (workbooks, CDs, bookmarks, posters etc), and (e) development of complementary video and multimedia pieces.

Website and Data Developments

The MACOORA website is in the process of being migrated to http://www.maracoos.org. The User Council is currently evaluating the website.

Assets are now on the map! They can be found on the maracoos website at: staging.asascience.com/sandbox/cgalvarino/marcoos/

Our data is in the cloud. Thanks to Alex and Kyle of ASA Inc., we got the Maracoos TDS server hosted on the Amazon Cloud and it is now publishing Matt Oliver’s [University of Delaware] Satellite data from NetCDF4. Now users of Matlab (see attached) and other tools that support NetCDF and Opendap can ingest this data. We can also connect this to the live asset map so we can see live
satellite data served via WMS from TDS in a web client. We will add some other products, probably espresso and codar next. See http://maracoos.mine.nu:8080/thredds/

**New Regional Products**
Stevens has developed a cooperative agreement with the NY Harbor PORTS. USGS is leveraging their data management and display system to provide real time river and estuarine data to MARCOOS partners and users. New satellite products include improved declouding of SST, and a new salinity product based on ocean colors. A new HF Radar product is the upwelling/downwelling trend used by the fisheries researchers. A new DO product is being delivered by the gliders.

**Membership**
Membership increased 11% over the past six months, from 37 to 41 organizational members. Membership diversity continued to grow with an influx from the industry sector.

**Leadership Changes**
New Board members were seated: James Manning, Northeast Fisheries Science Center, NMFS, was elected Sub-region Director; MA/RI. Genevieve Boehm-Clifton, NJDOT, Office of Maritime Resources, was re-elected Sub-region director; NY Bight. Daniel Leathers, University of Delaware, was elected Sub-region Director, Delaware. Wendell Brown, University of Ma, Dartmouth, was elected At-large Director.

**“Cool and New”**
One of the most important subsurface physical features that structure ecological decision support in the Mid Atlantic Bight is the Cold Pool, a summertime strip of bottom trapped water stretching between Georges Bank and Cape Hatteras. Observing System Simulation Experiments (OSSEs) indicate that cross shore triangular sampling patterns are the most cost-effective glider strategy for sampling the Cold Pool. We propose to simultaneously sample 5 cross-shelf triangles twice a year, one in June after the Cold Pool has set up, and the other in late August/September just before the Cold Pool’s stormy decay. These glider sampling times are bracketed by and thus complement the spring and fall NEFSC Fisheries cruises. Region-wide sampling will require new gliders to complement the existing glider fleet. These gliders will be maintained by 3 Glider Technology Centers (U. Massachusetts, Rutgers, U. Maryland), local centers of critical expertise modeled after the trio of HFR Technology Centers. During the early years, while the [MACOORA + MARCOOS =] MARACOOS IOOS glider fleet is being built, existing gliders at Rutgers, UNC, U. Delaware and U. Connecticut will be employed opportunistically to conduct the proposed sampling.