

Supporting the Blue Economy - SECOORA 2018 Annual Meeting

SECOORA Principal Investigator Abstracts May 22-24, 2018 | <u>Website</u>

SECOORA Regional Glider Observatory

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The SECOORA regional glider observatory was established in July 2016 as a cooperative effort among five institutions (SkIO/UGA, USF, UNC, NCSU, GIT) to use autonomous underwater vehicles called gliders to provide regional 4-D information about temperature, salinity and density structure, dissolved oxygen, chlorophyll concentration, and fisheries data to SECOORA stakeholders and partners. Field and shore-based responsibilities are pooled among the participants, taking to advantage of complementary assets.

Deployments in year 2 focused on basin-scale surveys to maximize the geographic range, with SECOORA mapping missions deployed from Cape Canaveral and a shakedown deployment for an older glider made available by UNCW for observatory use. The gliders were outfitted with acoustic telemetry and passive acoustic receivers provided by the Ocean Tracking Network and NOAA-NCCOS. The Kennedy Space Center Ecological Program and Gray's Reef National Marine Sanctuary provided vessel support at no cost, and the missions were coordinated with the Florida Atlantic Cooperative Telemetry. Students from UNC, UGA, and Georgia Tech have contributed to glider observatory efforts, and one journal paper and four conference papers have been published or are in press based on glider observations and path planning algorithms developed to optimize navigation.

SkIO and UNC also have developed and automated data visualization products to aid piloting. The codes detect which gliders are operational, automatically convert binary data into ASCII, make plots of engineering and science data, publish them to a website, and update a Google Maps-based app within minutes of glider data transmission. These codes have been modified to accept data from local and remote dockservers, including Webb's new Slocum Fleet Management Control software.

Year 2 marked an active hurricane season in the southeast. Deployed gliders are usually safe in-water during hurricane conditions, but Hurricane Irma caused significant power and network outages for the glider observatory's dockserver operations centers (SkIO and USF). In advance of Irma's landfall, the SECOORA glider observatory











discovered a new way to redirect the glider's calls and data transfer from the primary dockserver to another institution in real time and at no cost beyond normal satellite time. Texas A&M scientist Steve DiMarco and TAMU technician Karen Dreger provided invaluable assistance in making their resources available to the SECOORA guest pilots. The process of transferring calls within a provider network is new to the glider community and is a valuable tool for disaster planning at the intra-RA level. GCOOS and SECOORA have promoted this success story to IOOS and shared this success in the story of the day to all NOAA employees in October 2017. The process was documented and shared among UG2 glider community through a webinar in January 2018, through forum posts, and documentation with the manufacturers.









