

**Southeast Coastal Ocean Observing Regional Association (SECOORA):
Coordinated Monitoring, Prediction and Assessment to
Support Decision-Makers Needs for Coastal and Ocean Data and Tools**

Program Performance Report

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Project Summary

Southeast Coastal Ocean Observing Regional Association (SECOORA) and its members are integrating and augmenting existing observational, modeling, data management and education assets in the southeastern US domain to create an end-to-end Regional Coastal Ocean Observing System (RCOOS) in support of user-defined needs for improved coastal and ocean decision making.

With this grant funding SECOORA is:

1. Sustaining SECOORA as a Regional Information Coordination Entity (RICE). This will ensure that stakeholder needs are met through assessment and governance mechanisms that effectively prioritize the distribution of RCOOS-related funding, and coordination of projects and other resources that are required to meet critical regional needs;
2. Sustaining and expanding a coastal and ocean observing subsystem for the Southeast that provides coordinated monitoring, assessment and prediction, and includes moored and coastal stations, high frequency radars (HFR), gliders and storm event monitoring subcomponents;
3. Supporting a multi-scale modeling subsystem that includes regional ocean, shelf and estuarine circulation (nowcast/forecast); estuarine and surge/inundation prediction (nowcast/forecast); and user-defined modeling needs; and which uses the observing subsystem for verification, assimilation, and operation;
4. Supporting the Data Management and Communication (DMAC) subsystem to optimize operations, facilitate technology evolution / transfer, and address structural / project management complexities; and

5. Supporting an education and outreach subsystem partnered with other RAs and marine education efforts that engages diverse education and stakeholder audiences to understand the benefits of ocean observing to society.

Progress and Accomplishments

Official notification of this award was received from NOAA on August 15, 2011, two and one-half months after the initial start of the funding period. After the contractual review and account establishment for the award, funding for SECOORA subawards were disbursed by SECOORA (administrator of the award) in late August and early September 2011 to subaward institutions. Due to this delay, subawardees' are behind schedule in expending all of their Year One funding (SECOORA issues annual subcontracts). Because of this SECOORA granted one - two month, six - six month, and six - 12 month no cost extensions to subawardees.

Specific details regarding progress are in the tables below. For consistency, the goals and objectives numbering remains the same as the "Revised Scope of Work - Year 1" submitted on May 6, 2011.

Goal 1: Sustain SECOORA as a Regional Information Coordination Entity (RICE)

Milestones

The following milestones were met for this goal. Additional details are in the table that follows.

- A. Provide timely grant reports to NOAA: Completed as required for this reporting period.
- B. Hold Board Meeting Fall 2011 and Member Meeting 2012: Held September 7-9, 2011 Board meeting and Board, Member and RCOOS PI meetings May 7-9, 2012
- C. Host joint meeting with SAA in Fall 2011: Hosted September 7-9, 2011 in Savannah, GA.
- D. Publish e-newsletters and other outreach material: Bi-weekly distribution via email.
- E. Complete joint FL materials with GCOOS: Available on [web site](#).
- F. Release a new version of the SECOORA web site focused on data, maps, and SECOORA in the states: Accomplished and complete July 2011. Some additional upgrades to the data and maps portal are ongoing.
- G. Work with NFRA and IOOS office to effectively respond to NOAA and other National level requirements: Completed as required for this reporting period. Examples include participation in NFRA meeting, IOOS RA DMAC, and conference calls on various other items.
- H. Refine and maintain RCOOS Conceptual Operations Plan: Worked with Science committee to move this forward based on Build Out Plan. Staff are working with RCOOS PIs and members to further refine the plan.
- I. Support regional collaboration: Supported through monthly conference calls with NFRA, IOOS Program Office, IOOS RA DMAC, periodic calls with neighboring RAs, working with NERACOOS and MARACOOS on Oceans 2012, and participation in other NFRA activities.
- J. Evaluate mechanisms to track operational statistics, product usage, and outcome measures and metrics: Tracking website usage with Google Analytics.

SECOORA Activities	Progress
<ul style="list-style-type: none"> • Ensure Continued and Efficient Governance, Management and Operations of the RA. • Provide forums, i.e. workshops, meetings, that enable stakeholder assessment and 	<p>Staff fiscal activities:</p> <ul style="list-style-type: none"> • Provides fiscal and overall project management for this award, and continues to manage the 13 subawards from primary partner institutions. • Holds bi-monthly administration meetings to ensure efficient and effective fiscal operations. • A part time bookkeeper (Chiaki Kight) and new business manager (Megan Lee)

SECOORA Activities	Progress
<p>engagement.</p> <ul style="list-style-type: none"> • Coordinate with the Governor’s South Atlantic Alliance (GSAA). • Ensure SECOORA plans and gaps analysis align with NFRA and IOOS office guidance and/or requirements. • Refine and maintain RCOOS Conceptual Operations Plan. 	<p>manage the contracts and financials for this award.</p> <ul style="list-style-type: none"> • Submitted IOOS Year 2 descope proposal in March 5, 2012. • Richard Dodge, Board Chair, Vembu Subramanian, RCOOS Manager, and Megan Lee, Business Manager, were added to the proposal. <p>SECOORA Board and PI Coordination</p> <ul style="list-style-type: none"> • Hold monthly conference calls with 18 PIs to ensure coordination and collaboration within each RCOOS subcomponent and among PIs across the various RCOOS subcomponents. • Executive Committee continues to meet monthly. The Finance and Audit Committee met on 4/9/12, the Governance Committee met on 4/9/12, and the Board Development Committee met on 4/24/12. • Held annual Members meeting in Miami, FL May 7-9, 2012. Also during this time there was a 1/2 day Board meeting and a 1/2 day PI meeting. <p>External Coordination Activities:</p> <ul style="list-style-type: none"> • Coordinated with the GSAA on ocean planning funding and received a Year 1 award (\$352K) that started Jan. 1, 2012. Held a project kickoff meeting for team members (NCDENR, Duke, SCDHEC-OCRM, SCDNR, TNC, USC, GADNR, GA Tech, FLDEP, FWCC FWRI) in Columbia, SC on March 5-6, 2012. • Exec. Director participates on monthly “Partner Arm” calls of the GSAA. • Participates in monthly NFRA and IOOS conference, including Executive Director participation on the NFRA Executive Committee, and attended the NFRA/IOOS Annual Spring meeting in D.C., February 28-29, 2012. <p>Efforts to Leverage IOOS Funding:</p> <ul style="list-style-type: none"> • Continued partnership with the NERRS CDMO, which results in \$25,000 annually in support of DMAC activities. • Continued partnership with GSAA, which is anticipated to result in Year 2 funding to continue our development of an Information Management System for the GSAA. • Initiated glider project with GCOOS to improve access to glider data in our regions.

Goal 2: Sustain an Observing Subsystem for the SE

Milestones

The following milestones were met for this goal. Additional details are in the following table.

- A. Operate and maintain moored and coastal stations (COMPS, SEAKEYS, and Carolina RCOOS)
- B. Report moored and coastal stations data to secoora.org
- C. Maintain HFR operations
 - i. Hourly surface current maps from the various subregions via individual and SECOORA web sites: Ongoing
 - ii. Estimates of significant wave heights from the HF radar data: Estimates of significant wave heights from the HF radar data are provided on an experimental basis by WERA HF Radar operators within the region.
 - iii. Develop/report performance metrics of CODARs and WERAs throughout the SE including accuracy estimates of the surface currents: Presently, our HF Radar operators use either their in house developed metrics or use the National HFR Net developed metrics to report performance. SECOORA plan to work with HF Radar operators to streamline the performance metrics reporting to make it available in

future progress reports. The work on accuracy estimates of the surface currents is in progress.

- iv. Provide the radial currents to the National Servers (SIO/Rutgers) for the National HF radar network: Ongoing

D. Update Asset inventory and provide performance metrics: Work in progress.

Institution/Activities	Progress
Objective 2.1: Sustain Moored and Coastal Stations	
University of South Florida (Weisberg) Support COMPS moorings	Support is continued for four surface moorings (C10, C12, C13 and C14) and two sub-surface moorings (C11 and C15) and C21 near shore tower. Except C14 (power issue) all are reporting data to SECOORA and NDBC.
University of South Florida (Merz) Support in-shore tidal meteorological stations	Support is continued for seven USF COMPS Coastal Stations. Tide well survey was carried out for Aripeka and Big Carlos Pass Coastal stations. All coastal stations are reporting data to SECOORA and NDBC.
Florida Institute of Oceanography (Virmani) Support SEAKEYS moored network	FIO held a meeting at Keys Marine Lab in November 2011 to determine the future of the SEAKEYS network. Federal, State and non-profit agencies that uses this network attended the meeting. It was determined and decided to terminate the network in December 2012. FIO determined that is not possible to maintain and sustain the network with limited funding the network currently receives. Station status update: two stations reporting; one station only reporting met sensors; four stations not reporting. The award concluded in May 2012. PI has submitted support letters from stake holders as to the importance of the network that could be used for funding requests.
University of North Carolina - Wilmington (Leonard)- Support Carolina RCOOS network	Support of six oceanographic buoys, 2 wave buoys and one pier station is continued. The network is currently reporting data to SECOORA and NDBC.
Objective 2.2: Maintain High Frequency Radar Operations	
University of South FL (Weisberg) Support three CODAR and two WERA radar arrays on the West Florida Shelf	Support for USF CODAR and WERA arrays is continued. Data are provided to SECOORA and National HFR Net. USF will host the ROWG#6 meeting in November 2012 at St. Petersburg, FL. Evaluation and validation of data with buoy data is being carried out and an abstract has been submitted to Oceans 2012. Estimates of significant wave heights from the HF radar data are also provided on an experimental basis using USF WERA HF Radar sites.
Skidaway Institute of Oceanography (SKIO) (Savidge) Support two WERA radar arrays on St. Catherine's and Jekyll Island, GA	Skidaway Institute (SKIO) continued to operate two WERA HF-radars on St. Catherine's Island and Jekyll Island GA for the period December 1 through May 31, 2012. Data are provided to SECOORA and National HFR Net. Estimates of wave and wind parameters are also made, as experimental products. Support for the SKIO WERA network is continued.
University of Miami (Shay) Support three WERA radar arrays at Crandon, Virginia Key and Dania Beach	Support of UM HFR continues. UM is maintaining the three WERA sites and provide mean radials at hourly intervals to SECOORA and National HFR Net in real time. Estimating significant wave heights for the National Weather Service marine forecast models.
University of NC - Chapel Hill (Seim) Support two CODAR radar arrays on the Outer Banks of NC	Support of UNC HFR continues. UNC maintained and operated the two sites and provided data to SECOORA and National HFR Net. Duck: 4023 radials through 5/16/2012, no days down for the reporting period (99% uptime) Buxton: 2735 radials through 5/16/2012, ~ 2 months of down time due to cable damage (68% uptime)

Institution/Activities	Progress
Objective 2.1: Sustain Moored and Coastal Stations	
University of South Carolina (Voulgaris) Re-install, operate and maintain 1 HFR in SC (potentially Long Bay).	Support of HFR continues. The Pritchard' radar site (PRI) was relocated to a site at the Belle W. Baruch Foundation property. The site is near Georgetown, SC (south part of Long Bay) at 33o 21' 22" E and 79o 9' 10" W. The new station is identified as GTN and installation was completed during January 2012. Following a period of testing and adjustments the station went online transmitting data to the national network and to the SECOORA homepage on February 22, 2012. For the period, 96.7% uptime was achieved. Data interruption occurred only for a period of 3 days. Median latency in data delivery is 30 minutes while median range has been 183 km. Estimates of significant wave heights from the HF radar data are also provided on an experimental basis.

Goal 3: Support a Multi-Scale Multi-Resolution Modeling Subsystem

Milestones

The following milestones were met for this goal. See details in the table under each individual PI for more information.

- A. Support and enhance SABGOM model
- B. Provide real-time forecasting of inundation and storm surge
 - i. Begin forecasting in Domain 1 and 2
 - ii. Establish Necessary Data Standards with DMAC
- C. Provide decision support tool for beach/shellfish WQ advisories
 - i. Develop Geographic Information Systems-based modules to extract and visualize radar derived rainfall data and modeled currents and salinity estimates over user specified boundaries (e.g. watershed boundaries)

Institution/Activities	Progress
North Carolina State University (He) Support Regional and SAB Subregional Circulation Modeling.	Support of SABGOM Regional model continues. SABGOM nowcast/forecast model running at North Carolina State University (NCSU), providing daily nowcast and 72 hour forecast of ocean circulation (sea level, temperature, salinity and 3d currents) for the entire Gulf of Mexico (GOM) and South Atlantic Bight (SAB). Model output is served via THREDDS server. Testing of data assimilation schemes within SABGOM is in progress. Assimilation observations include SST, SSH, HFR Surface currents and Glider data.
University of Florida (Sheng) and North Carolina State University (Xie) Provide real-time forecasting of inundation and storm surge.	Support of modeling continues. University of Florida: East Coast of Florida (ECF) domain model is now running in Nowcast/Forecast (3 days forecast) mode. Model output for the ECF domain is available via THREDDS server. The Southwest Florida domain computational grid has been updated with newest LIDAR data and is in the process of testing and validation. North Carolina State University: Transition into operation of NCSU Coastal Marine Environment Prediction System (CMEPS) for the Florida East Coast Domain has been completed. Establishing necessary data standards in collaboration with the team at University of Florida. The model output for the Florida East Coast Domain is available via THREDDS server.

Institution/Activities	Progress
ROFFS (Roffer), University of Miami CIMAS (Muhling), and SAFMC (Pugliese) Develop data products derived from satellite and in situ observations for fisheries stock assessment.	This modeling activity got underway during this reporting period. Identification and Evaluation of satellite imagery required for the project has been completed. Development of software to download and process the identified satellite data is in progress. Fisheries data acquisition from SCDNR has been completed. Working with DTREG software to perform habitat classification. Also, evaluation of generalized additive models and artificial neural network is in progress.
University of South Carolina (Porter) Provide a decision support tool for beach/shellfish water quality advisories.	Support of modeling continues. CART and Linear Regression Models were developed for the SCDHEC Beach Monitoring program. We have developed an automated system to take the new models, retrieve the data, and execute the prediction tests. The automated system consists of two main parts: 1) Data retrieval and calculation and 2) Product output. Model is run once a day and results on beach water quality are presented on the web site. The web and Mobile application design and development have been completed. The applications are under evaluation and will be integrated into SECOORA web site during the next reporting period.

Goal 4: Enhance the DMAC Subsystem

Milestones

The following milestones were met for this goal, primarily with previous grant funding.

- A. Develop data aggregation techniques for new data providers within one quarter (3 months) of data provider coming onboard: Complete for SUN2 Wave Buoy, Long Bay and USC HF Radar Data. Added Everglades Monitoring Network Marine Monitoring Network data by using the NDBC DIF service to get accessible and displayed via SECOORA website. Added glider track display capabilities to the website in near real-time using USF and NCSU deployments. Work is in progress to store and display glider data.
- B. Provide quarterly Google Analytics reports to analyze users and uses of data and web site: Ongoing.
- C. Attend IOOS bi-weekly conference calls with IOOS/RA representatives and review IOOS certification documents as needed: Ongoing.
- D. Enhance SECOORA data inventory to allow user maintenance: Ongoing.
- E. Improve “searchability” of information through enhancements to web site and interactive maps: Ongoing. THREDDS server is being added to provide access to model data.
- F. Provide alert capabilities for new providers and enhance alerts for ongoing datasets or applications as needed: Completed and available via SECOORA Data and Maps.
- G.

Institution	Progress
University of SC (Porter), University of NC – Chapel Hill (Seim), University of South Florida (Weisberg): <ul style="list-style-type: none"> • Enhance dissemination of data products. • Implement QA/QC flags. • Implement data/product/service usage statistics (metrics). • Document DMAC interruptions & identify operational remedies. • Coordination with IOOS DMAC and with other RAs. 	Support for data management continues. <ul style="list-style-type: none"> • THREDDS server work is in progress to enhance dissemination of data. • SECOORA is actively engaged working with newly formed QARTOD team on the implementation of QA/QC of biogeochemical parameters. • Added glider track display capabilities to SECOORA web site. • Working with IOOS RA DMAC on SOS Reference Implementation team. Attending the monthly IOOS RA DMAC calls. Helping to develop the agenda for upcoming Regional DMAC workshop. • IOOS Biological Data Project implementation is underway; ERRDAP server has been installed for IOOS Biological Data Project. Kickoff Web-Ex meeting was held April 20, 2012 with data providers and customers.

Institution	Progress
<ul style="list-style-type: none"> Optimize servers to address, within expected funding scenarios, issues of redundancy and uninterrupted operations. 	<ul style="list-style-type: none"> The SECOORA Governors South Atlantic Alliance (GSAA) Information Management System project is underway. Working with SECOORA RCOOS PIs to provide DMAC services on their data needs to carry out their projects. SECOORA has offered our Parameter Vocabulary effort for transition into the IOOS Parameter Vocabulary. Work is in progress in collaboration with other RAs to move this forward. Eye on Earth – SECOORA DMCC participate with other RAs and IOOS DMAC via conference calls to research feeding data into the Eye on Earth system. Development of Data Management Infrastructure document is in progress

Goal 5: Support a Targeted and Leveraged Education and Outreach Subsystem

Milestones

The following milestones were met for this goal. See table below for more information.

- A. Develop Aquatic Observatory Module for Master of Arts in Teaching (MAT) pre-service teachers at KSU: MAT pre-service teachers met at KSU on April 25, 2012 to take part in the Aquatic Observatory model developed by PI.
- B. Supporting Basic Observation Buoy Efforts: Ongoing through award of two mini-grants.
- C. Develop prototype STEM educational products focusing on Observatory/Modeling applications: This has not begun due to delay in funding.
- D. Plan and develop EARTH 2012, SECOORA Observatories and RTD in K-16 Summer 2012: Progress is ongoing. The announcement is available here: <http://secoora.org/node/343>
- E. Conduct community outreach highlighting the importance of observatories and SECOORA's products. Specific focus will be on the engagement of water quality agencies and decision makers related to the water quality modeling efforts: Ongoing.
- F. Develop success stories with PIs to highlight on Web site, newsletters, one-pagers, etc.: Ongoing

Institution	Progress
Kennesaw State University (Adams) Conduct EARTH / SECOORA Workshop. Develop aquatic observatory module for Master of Arts in Teaching pre-service teachers. Support existing BOB activities.	On April 25, 2012, the Masters of Arts in Teaching (MAT) for pre-service teachers at KSU met at the Chattahoochee River in Roswell, GA to take part in the aquatic observatory module that the PI developed. The students were able to aid in the deployment of the Basic Observation Buoy (BOB) and as a group collect data from the Chattahoochee River. The pre- service teachers learned about the importance of ocean observing and SECOORA's observing systems. Continued to sustain Hilton Head BOB Monitoring Station at Jarvis Creek, located at the Coastal Discovery Museum in Hilton Head Island. Currently revising a submitted manuscript that highlights BOB and community partnerships. Work is in progress on 2012 Education and Research: Testing Hypotheses (EARTH) workshop with MBARI and SECOORA.
University of North Florida (Welsh) Support advanced BOB activities.	Two versions of Advanced Realtime Basic Observation Buoys have been deployed to the GTMNERR at separate sites, one in the Guana River estuary and another in the Guana Lake Wildlife Management Area (WMA) which are managed with different ecological goals, namely conservation and wildlife habitat respectively. One of the buoys (RABOB) was removed for repair and will be replaced by a newer version of the RABOB, but slow progress has left a long data gap at the Guana Lake WMA

Institution	Progress
	Station. Work is in progress on solving the data communication issues.
<p>University of North Carolina - Wilmington (Leonard)</p> <p>Conduct community outreach to formal and informal education centers.</p> <p>Develop and maintain web portal for BOB and other outreach activities.</p> <p>Develop prototype STEM Education products.</p>	<p>UNCW will host the EARTH educator's workshop from July 8-July 13. The focus of the 2012 workshop will be on ocean observatories and South East Coastal Research. During the reporting period, we assisted workshop organizers, George Matsumoto (MBARI), Lisa Adams (Kennesaw State University), with the following tasks: Soliciting applications for teacher participants, arranging logistical requirements (e.g. housing, food, transportation, research vessel scheduling) and scheduling speakers from the SECOORA region to work with the educators. Xiaoyan Qi (UNCW-data manager) continued to maintain the web portal for the SECOORA Basic Observation Buoy effort. We also prepared a HF Radar outreach poster.</p>
<p>COSSEE-SE (Spence)</p> <p>Develop BOB for elementary level students.</p> <p>Support EARTH / SECOORA workshop.</p>	<p>By May 2012, COSEE SE and UGA MAREX will have piloted the elementary basic observation buoy (eBOB) project in five schools: two Charleston County schools, Mitchell Elementary School and Murray LaSaine Elementary School, both currently involved with the COSEE SE's South Carolina Amazing Coast elementary project; two Savannah schools, St Andrews School and independent school; and two Athens-Clarke County schools, Whit Davis Elementary and Fowler Drive Elementary. Over 100 elementary students have constructed 22 buoys with at least 15 teachers observing and being engaged.</p>
<p>SECOORA (Hernandez/Treml)</p> <p>Manage regional BOB Sustainability Fund.</p> <p>Develop success stories and related outreach information.</p>	<p>To expend the BOB Sustainability Fund, a mini-grant opportunity was announced to SECOORA members on April 4, and recipients were notified May 22. Two projects were selected:</p> <p>1 - Funded Adams (KSU) at the \$5k level for developing a BOB Procedure Manual that will be posted on the SECOORA website. This manual would augment the current BOB manual, which strictly covers information for building and assembling BOB units.</p> <p>2 - Funded Welsh (UNF) at the \$5k level for Continuing Use and Deployment of RABOB in GTMNERR. This work engages the NERRS and also provides EPA quality data that can be integrated into decision-making at the state and local level.</p> <p>Marketing, outreach and engagement activities:</p> <ul style="list-style-type: none"> • See e-newsletters for stories and outreach information. • Outreach is underway with the WFO and Coast Guard districts in the region. Several representatives of these stakeholders participated in our Annual meeting, and collaboration ideas were identified. • See the list of publications and Presentations starting on Page 8 for additional outreach information. • SECOORA members and staff contacted NWS offices in NC, SC and FL to discuss ocean observing efforts in the region and specific products available on the SECOORA website. A general questionnaire was used to guide the conversations and ensure consistency in questions asked to each Weather Forecast Office (WFO). Several items were highlighted which SECOORA may be able to address: 1) the Key West WFO is working with NESDIS on a coral bleaching weather index and solar radiation data would be useful for this index. SECOORA PIs may be able to add solar radiation sensors to existing platforms in FL to assist with this work; 2) several WFO's mentioned that, while the NWS does not report on water quality, they do frequently receive questions from community members about water quality (e.g. causes of low dissolved oxygen or low salinity). In order to assist the NWS staff in answering these questions, there is a need for SECOORA to develop water quality fact sheets for the coastal WFOs with information specific to their coverage area.

Scope of Work

All the sub-awardees are executing their tasks and meeting their goals and objectives. Scope of work remains as proposed for Year One.

Personnel and Organizational Structure

SECOORA has undergone a very smooth staff transition. Effective December 2011, a part-time bookkeeper (Chiaki Knight) was hired to assist with financial management (10 hours per week). A Business Manager (Megan Lee) started full-time January 1, 2012 and is in charge of grant management and business development.

Annual Board elections were held as part of our May Members meeting. A listing of current Board and committee members is available on our [website](#). Board members elected at the May meeting begin their terms on July 1, 2012. Board members elected (or re-elected) to three-year terms include Rick DeVoe (SC-SCSGC), Dick Dodge (FL-NSU), Ruoying He (NC-NCSU), Mitch Roffer, (FL-ROFFS™), George Voulgaris (SC-USC), and Steve Woll (Weatherflow).

Budget Analysis

As noted earlier in this report, the delayed arrival of funding has impacted the expenditure of funds by SECOORA and our subawardees. Institutions are still playing catch up due to this delay and as mentioned previously SECOORA granted 2, 6, and 12 month no cost extensions. A total of \$442,371.32 expenditures have occurred for SECOORA as well as the 13 subawardees during this reporting period. We anticipate an increase in spending during the next reporting period.

Publications and Presentations

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- Weisberg, R.H., Y. Liu, C.R. Merz, J.I. Virmani, and L. Zheng (2012) Alternative Power Generation for Florida by Mechanical and Solar Means, submitted to *Mar. Tech. Soc. Jour.*
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- Archer, M., A. B. Parks, L. K. Shay, and J. Martinez-Pedraja, Resolving oceanic eddy variability in HF radar derived surface currents using Okubo-Weiss. *2012 Ocean Sciences Meeting*, Salt Lake City, Utah

(Abstract) **(Awarded one of the Best Ocean Science Student Papers)**

- Shay, L. K., J. Martinez-Pedraja, B. K. Haus, M. Archer, and A. Brad Parks, Submesoscale surface current Variability along the Florida Current, *2012 Ocean Sciences Meeting*, Salt Lake City, Utah (Abstract)
- North, E. W., Adams, E. E., Schlag, Z. Sherwood, C. R., **He, R.**, Socolofsky, S. A. (2011), Simulating Oil Droplet Dispersal from the Deepwater Horizon Spill with a Lagrangian Approach. *Monitoring and Modeling the Deepwater Horizon Oil Spill: A Record-Breaking Enterprise*, AGU Monographs. Y. Liu and A. McFadden, Eds. 217-226.
- Olabarieta, M., Warner, J., Armstrong, B., Zambon, J., and **He, R.** (2012), Ocean-Atmosphere Dynamics During Hurricane Ida and Nor'Ida: An Application of the Coupled Ocean-Atmosphere-Wave-Sediment Transport (COAWST) Modeling System, *Ocean Modelling*, 43, 112-137.
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- Debra Hernandez, Vembu Subramanian, Megan Lee: Regional Coastal Ocean Observing System (RCOOS) for the Southeast Region of the US. Poster presented at the Oceans 2012 Conference, Salt Lake City, UT, Feb 2012.
- Debra Hernandez, Josie Quintrell, Vembu Subramanian, Rick DeVoe: Mapping the Future of Coastal and Ocean Observing in the Southeast. Presentation at The Coastal Society Meeting, Miami, FL, June 4, 2012.

Outreach Materials (Non-Refereed)

USF Robert Weisberg

- Written and oral testimony before the US House of Representatives, Committee on Transportation and Infrastructure, Washington DC, December 7th 2011, as pertaining to H.R. 3096, the Restore Act.
- Weisberg, R.H. (2012). Cuba oil spill, the scenarios. Invited op-ed piece in the St. Petersburg Times 2/5/12
- Invited lecture at WFCAMS annual banquet at Tampa Yacht Club on 4/4/12
- Invited lecture at Useppa Is. Museum, Useppa, FL on 5/2/12
- Invited lecture to Springs/Nature Coast community group on 5/16/12.
- Invited lecture to UNESCO student group on 5/24/12

UNCW Lynn Leonard

- UNCW developed outreach materials for HF Radar (Poster and Flyers)