FY2008: Regional Integrated Ocean Observing System Development

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructures, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition, regional associations received planning grant awards designed to assist them in stakeholder engagement, education and outreach, and long-range planning activities.

CARIBBEAN REGION

The Caribbean Region is defined as Puerto Rico, the U.S. Virgin Islands, and the island of Navassa. The 2008 implementation award to this region is $499,999. The 2008 Regional Association Planning Grant award to this region is $399,699.

Project Title:

Implementation of the Caribbean Regional Integrated Coastal Ocean Observing System

Recipient/ Lead Principal Investigator:

University of Puerto Rico at Mayaguez/ Prof. Julio M. Morell (*jmorell@uprm.edu*)

Cost:

Funded: FY 2008 (Year 1) - $499,999
Proposed (subject to available funds): Year 2 - $1,069,393; Year 3 - $992,735

Performance:

This project will implement the initial stages of a Caribbean Integrated Coastal Ocean Observing System (CarICOOS) consistent with national IOOS development plans. Investigators will address stakeholder needs through 1) enhancement of existing and installation of essential in situ observational assets, 2) operational implementation of modeling tools, validated with the above observations, and 3) partnering with NOAA for the production of regionally focused remote sensing products. Achieving DMAC compliant data processing and archiving, and appropriate data and data product dissemination to agencies and stakeholders will assure initial implementation of a user-responsive, operational Caribbean Integrated Coastal Ocean Observing System.

Schedule:

1. Year 1
    - Install 5 hardened coastal meteorological stations, add telemetry capability to existing meteorological stations, make available data streams and graphical products, provide validated meteorological data to NWS-SJ for incorporation into their forecasting data suite
    - Deploy CarICOOS I buoy and Acoustic Doppler Current Profiler (ADCP) off the south coast of the region and make its currents, wave, sea level and meteo data available
    - Implement Simulating Waves Nearshore (SWAN) for the northern and southern coasts of the CaRA region

IOOS® INTEGRATED OCEAN OBSERVING SYSTEM

- Make available Intra-Americas Sea Ocean Nowcast/Forecast System graph products at full resolution
- Develop near coastal data assimilation schemes for use in Advanced Circulation (ADCIRC) model for coastal circulation products and validate initial simulations
- Run Regional Ocean Modeling System (ROMS) hindcast simulations and analyze results
- Complete and distribute tropical storm inundation maps
- Deploy temperature and salinity sensors aboard CarICOOS buoy
- Make available NOAA CoastWatch Caribbean and Gulf of Mexico Node turbidity and Sea Surface Temperature products

2. Year 2
   - Include regionally focused remote sensing products in CarICOOS web page
   - Continue delivery of data streams from first CarICOOS buoy
   - Contract construction of CarICOOS II buoy, acquire observational instrumentation (water quality, ADCP)
   - Replace CarICOOS I buoy with CarICOOS II buoy for maintenance
   - After reconditioning, deploy CarICOOS I buoy off the northern coast of the region.
   - Continue consultation regarding products and delivery strategies
   - Continue operational output and publication of wind and wave products
   - Continue development of DMAC and data access products
   - Complete and distribute category one hurricane inundation maps
   - Continue the meteorological station improvement program with WeatherFlow Inc.
   - Develop value-added visualization and distribution systems for tourism and marine commerce industries

3. Years 2 – 3
   - Continue validations for prototype ADCIRC surface tide and coastal circulation modeling using in situ observations
   - Continue validations for HYbrid Coordinate Ocean Model (HYCOM-ROMS) high resolution prototype western Puerto Rico and Virgin Islands grids using in situ observations
   - Continue calibration/validation for remotely sensed protocols

4. Year 3
   - Contract construction of CarICOOS III buoy, acquire observational instrumentation,
   - Recycle mooring off the north coast of the CaRA region with CarICOOS III third buoy
   - Integrate and optimize observational and modeling components through data assimilation
   - Identify WeatherFlow meteo station gap
   - Implement operational ADCIRC surface tide and coastal circulation modeling
   - Implement operational HYCOM-ROMS for the high resolution western PR and VI grids
   - Fully implement and publish DMAC and web-based tools and products

NOAA Contacts:

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