

**SURA 2009 Coastal and Environmental Strategic Plan:
Prelude to Launching the Coastal and Ocean Modeling Testbed in 2010**

Executive Summary

SURA can, and should, play a vital role in helping the nation meet the needs for a robust coastal and environmental informatics infrastructure and the effective integration and unifying management of distributed, multi-scale and multi-disciplinary information, ideas and modeling results. The SURA Coastal Ocean Observing and Predicting Program (SCOOP), which began in 2003, has now terminated. The next phase of SURA's coastal activities should fall within the broader coastal and environmental science domains of oceanography, hydrology, ecology, meteorology and climatology. The overarching mission of SURA's coastal program should be to enable our primary constituency, SURA's member academic institutions, to achieve transformational scientific advances via a distributed community approach that transcends the resources and capabilities of any single institution. The overarching *scientific goals* that SURA intends to assist the community in addressing include the following:

Goal 1- Enable discovery of diverse and trans-disciplinary coastal and environmental phenomena;

Goal 2- Couple observation and modeling of processes across science domains;

Goal 3- Enable high-resolution studies of multi-scale coastal and environmental phenomena;

Goal 4- Advance information and predicting services for basic and applied scientific research and innovative education and outreach.

With SURA's facilitation and assistance, coastal and environmental science researchers from different sub disciplines should combine their discipline-specific modeling experience and capabilities to develop sets of coupled-model simulations to explore physical, biogeochemical, and ecological interactions. In this new post-SCOOP phase we are striving to add the following sub disciplinary foci:

- *Watershed and flood plain hydrologic modeling*
- *Mesoscale Atmospheric Modeling*
- *Baroclinic coastal circulation modeling and assimilation*
- *Ecosystem forecasting*
- *Management of Super-regional or Multi-regional Modeling Test Bed*

The three most critical strategic challenges are:

- *Team building and engaging potential users* includes workshops that enfranchise the participants in formulating specific interdisciplinary questions and establishing a compelling and interactive collaboration environment.
- *Effective coordination and leadership of scientific teams* requires identifying project leaders from within the broader community and within SURA to lead targeted thrusts and prepare competitive funding proposals.
- *Funding SURA's Coastal and Environmental Programs* at adequate levels for sustained periods of time is undeniably essential to the future of the programs. We must continue to pursue federal funding from multiple sources including competitive federal sources, private industry, foundations and states. We must ensure that such pursuits do not directly compete with member institutions. The possibility of partnering with, or gaining support from Department of Energy (DOE) laboratories should be seriously explored.

Assumptions Underlying SURA's FY 2010 Coastal and Environmental Strategic Plan

- 1.** The SURA Coastal Ocean Observing and Predicting Program (SCOOP), which began in 2003 with funding from ONR and NOAA and involved numerous academic partners from SURA institutions as well as non-SURA entities, has now terminated and final reports have been completed. The Coastal Research Committee, at its October 20 meeting voted to expand the scope of its activities to include non-coastal environmental science and to change the name of the committee to the Coastal and Environmental Research Committee (CERC). The next phase of CERC activities is expected to integrate across the domains of ecology, hydrology, meteorology, oceanography and climatology and will continue to utilize and build on the capabilities previously advanced by SCOOP.
- 2.** SURA's main constituency is its member academic institutions. Therefore, the primary customers (beneficiaries) of SURA's coastal program should be academic researchers and educators. Operational users, federal agencies, and industries should be considered as potential customers that add value, help support programmatic objectives and make SURA's pursuits relevant to national priorities.
- 3.** The overarching mission of SURA's coastal and environmental programs should be to enable our primary constituency to achieve transformational scientific advances via a distributed community approach that transcends the resources and capabilities of any single institution. New understandings that are truly transformational can be quickly followed by new solutions to societal problems. SURA can enable the dialogue that is essential to real interoperability.
- 4.** Coastal informatics has been the primary niche that SURA always intended for SCOOP to fill. With expansion to include environmental sciences in general, we should now regard our niche as being environmental informatics. SURA defines environmental informatics to include integrating observed data/ information, enabling improvements in the modeling and forecasting of environmental phenomena, and providing essential and accessible information services.
- 5.** Providing 24/7/365 data and model output for the purpose of making operational forecasts is not a priority for SURA's coastal programs. However, provisioning of versatile and robust cyber infrastructure capable of serving data on a 24/7 basis for research purposes is. This same infrastructure can be adapted by others, including RAs, to support operational activities. It is not, however, SURA's intent to be an operational entity but rather to assist our constituent scientists in transitioning their products from research to operations.
- 6.** SURA must agree on a set of underlying principles to guide our relationships with federal agencies, especially NOAA and its IOOS office. We will, of course, be directly accountable to federal agencies for contracted activities. However, contracted activities should not supersede allegiance to the SURA research community. SURA must find a synergistic balance among a diverse funding base that includes multiple agencies. Guidance from the CERC will be needed to achieve this vision.
- 8.** SURA can engage with and provide federal relations support for multi-institutional endeavors that are consistent with its mission.