

**STATEMENT OF THE
SOUTHEASTERN UNIVERSITIES RESEARCH ASSOCIATION (SURA)
TO THE *COMMISSION ON OCEAN POLICY* WITH RESPECT TO
COASTAL OCEAN OBSERVATIONS**

January 14, 2002

On November 13, 2001, Dr. Carolyn Thoroughgood, Chair of the Board of Governors of the Consortium for Oceanographic Research and Education (CORE) testified before the United States Commission on Ocean Policy with regard to the ocean issues that CORE considers most urgent. Among these, Dr. Thoroughgood emphasized the following: “*CORE supports immediate action to implement an integrated and sustained coastal and ocean observing system. Such a system is essential to improve our understanding and our ability to address a multitude of critical ocean issues including national security, health, homeland defense, weather and climate forecasts, and maritime safety.*”

The Southeastern Universities Research Association (SURA)¹ endorses this CORE position and urges the U.S. Commission on Ocean Policy to place a high priority on the implementation of an integrated and sustained coastal and ocean observing system. Further, SURA believes that, because of the extreme socioeconomic importance of America’s coastal seas, estuaries and ports, because of the high vulnerability of that coastal realm to natural and anthropogenic hazards and threats, and because of the acute need to better understand and model complex coastal processes, the establishment of a nationwide coastal observing program is a critical and immediate need. Such a coastal observing program must serve the ocean sciences community and a host of operational end users and stakeholders. Furthermore, it is probable that homeland security could be a priority application of this program. We submit that the effective pursuit of a functional, integrated and sustained coastal observing program will require that the following three principles be understood and embraced.

Principle 1. *A national coastal observing program will necessarily consist of regional and sub-regional components.* This basic tenet has been articulated by the Global Ocean Observing System (GOOS) Steering Committee and underpins key implementation strategies. Because of the diversity of U.S. coastal environments and issues, the specific needs of individual regions will differ. However, by establishing a

¹ SURA is a non-profit consortium of 59 leading research universities (including a dozen of the nation’s top oceanographic research-doctorate programs) in the southeastern region. SURA has been the contractor for the Department of Energy’s Jefferson Lab, a \$600 million nuclear physics research facility in Newport News, Virginia, since its inception in the early 1980’s. SURA’s expertise in information technology resulted in its development and transfer of its SURAnet technology to private industry in the mid 1990’s.

common set of baseline data requirements and management protocols, a coherent and nationally consistent program can emerge. We urge the Commission to support the creation of the essential regional programs and to promote the coordination and integration of those programs.

Principle 2. *National, regional and sub-regional observing systems must consist of three interconnected aspects: (i) spatially distributed sensor arrays; (ii) data management and dissemination hubs; and (iii) nowcasting and forecasting models that are fused with assimilated observational data.* Aspect (i) includes traditional observing technologies (e.g., moorings, shipboard measurements) as well as new technologies (e.g., active and passive remote sensing, autonomous underwater vehicles) and the information technology infrastructure that facilitates the rapid real-time transmission of data from sensors to the management hub. Aspect (ii), the management hub, is essential for the collection, processing, quality control, storage and dissemination of data. The true value of the observational data will manifest in the accuracy and reliability of the numerical models with which the data are assimilated. Aspect (iii), the timely delivery of model-derived products, is the crucial link to the user community. These models will provide short-term predictions of such things as storm hazards, oil spill trajectories, possible algal blooms and the movement of toxins and pathogens. We ask the Commission to foster support for all three aspects.

Principle 3. *The creation and long-term viability of nested integrated and sustained coastal observing systems will depend on a high level of interagency coordination, the identification of a lead agency to oversee and shepherd the effort, and the forging of substantive partnerships among federal, state and industry funding sources.* In her address to the Commission, Dr. Thoroughgood noted the need for improved interagency coordination in support of the ocean sciences generally. SURA believes that the comprehensive observing program we envision will materialize only if a different and improved approach at coordination is undertaken. We note also that the success of an integrated and sustained system will require that a lead agency be identified to shepherd the effort. In addition to agency coordination, states and industry will support regional and sub-regional efforts commensurate with the degree of immediate benefits they perceive. The voice of the Commission in encouraging novel approaches to program funding and oversight will help immensely.

The Role of SURA's Southeastern Coastal Ocean Observing Program (SCOOP)

Consistent with these principles, SURA is promoting a **Southeastern Coastal Ocean Observing Program (SCOOP)**. The southeastern U.S. is home to roughly 80 million people and encompasses more than half of the nation's tidal shores. The region supports five naval bases, over a dozen major ports, essential commercial shipping and fishing enterprises, major oil and natural gas reserves, and thriving tourist industries.

However, environmental and ecological concerns threaten the health and safety of the region's inhabitants as well as the sustainability of its economies and marine resources. The southeast experiences significant inputs of sediments and nutrients from rivers and suffers from chronic deficiencies of dissolved oxygen. Storms, hurricanes and other extreme events regularly challenge and endanger the coastal communities.

More than a dozen local or sub-regional coastal observing initiatives are ongoing throughout the region extending from Delaware to Mexico. These efforts are supported by diverse funding sources and include: DBOS (Delaware Bay); CBOS (Chesapeake Bay); U.S. Army FRF (Duck, NC); SABSOON (SC & GA); SFOMC (FL); SEAKEYS (FL); COMPS (FL); COAPS (FL); NGLI (AL, MS & LA); WAVCIS (LA); TABS (TX); and TCOON (TX). A larger sub-regional initiative is SEA-COOS (NC, SC, GA, FL). In addition, there are several NOAA-sponsored PORTS programs in ports and harbors throughout the region.

While providing high quality time series data on selected parameters at specific sites or sub-regions, these programs are not yet integrated and the observations are not standardized with respect to the phenomena observed, sampling frequency or data formatting. They do not provide the spatially coherent time series needed to identify and understand important phenomena that operate on spatial scales of thousands of kilometers. Integration of observations over such space scales is essential not only to an understanding of the larger scale processes but also to deciphering the extent to which local phenomena may be manifestations of these larger scale processes.

The primary goal of SURA's SCOOP initiative is to raise to a new plateau the understanding of, and the ability to predict, critical processes that operate in the coastal seas and estuaries of the southeast. SCOOP will complement and support the local and sub-regional efforts and will not duplicate, replace or subsume any existing or planned initiatives. SCOOP will facilitate the observation of large-scale coastal processes that cannot be adequately captured by localized or site-specific observatories. The scale of this region enables SCOOP to offer prototype approaches to integrate emergent regional coastal observing efforts around the U.S. coastline.

SCOOP will differ from the existing observation systems in several important respects: (1) It will provide an integrating and unifying infrastructure for the entire southeastern region from the Middle Atlantic Bight to the western Gulf of Mexico; (2) It will serve an interdisciplinary and diverse scientific community as well as the routine day-to-day needs of numerous practical end users; and (3) It will serve as a prototype program in "operational coastal oceanography" by providing all three of the interconnected elements described above.

SCOOP will be the integrator and facilitator of simultaneous regional measurements and model projections of winds, waves, currents, water density, nutrients, water quality, biological indices and fish stocks under all conditions. Open access to basic and analyzed data and linked numerical models will be available in real time and at high speed. SURA's expertise in network development and technologies will underpin and complement the SCOOP agenda. Improved models of physical, chemical and biological phenomena will permit more accurate predictions of coastal hazards, threats to human health, and short- and long-term changes in coastal ecosystems. These predictions will guide coastal stewardship, enable planning for extreme events, facilitate safe and efficient maritime operations, and support coastal military security and homeland defense.

Summary

In summary, SURA urges the Commission to place a high priority on the implementation of SCOOP as a crucial and seminal component of the broader national agenda for integrated and sustained coastal observations. Specifically, SURA requests that the Commission (1) support the creation of essential regional programs and promote the coordination and integration of those programs, (2) foster the interconnection of sensor arrays, management hubs, and models fused with assimilated data, as essential elements of observing systems; and (3) encourage novel approaches to program funding and oversight for observing programs. After three years of study and analysis of the issues and focused interactions with the diverse coastal ocean community, SURA believes that the SCOOP initiative, when implemented for the southeastern region, will fill a regional and national need and be a crucial component of the national agenda for integrated and sustained coastal observations.

We appreciate the invitation to provide SURA's statement on coastal ocean observations and we are available to answer any questions. We look forward to your support for SCOOP.