

Mid-Atlantic Center for Ocean Sciences Education Excellence

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The Mid-Atlantic Center for Ocean Sciences Education Excellence (COSEE) was recently established by the National Science Foundation as one of six regional centers to promote awareness of the ocean sciences among our youth and the general public. The collective science and educational strengths of Rutgers University, Stevens Institute of Technology, the University of Maryland, College of William and Mary, New York Aquarium, Chesapeake Bay Foundation, and a National Estuarine Research Reserve constitute the backbone of the Center. Existing research and education programs and resources, assembled and delivered via active partnerships among scientists and educators, will be featured as a means of improving public knowledge and understanding of how the ocean affects the daily lives of diverse audiences, especially underrepresented groups.

Technological advances in ocean observation, modeling, and data synthesis that have enabled the nation to enter a new era in oceanography (such as a combination of three regional observing systems operated by the partners), along with active NSF science programs underway in the Mid-Atlantic region, will be used to provide a source of data and information to scale up a variety of existing programs such as: professional development opportunities for middle and high school teachers (grades 5-9) that will lead to the creation of new Earth Sciences and other science teaching modules within the classroom; pre-service training programs that feature hands-on exposure to geoscience research, important teaching resources including audiovisual materials, and the internet technologies that can link active research programs to their future students; and; graduate training for students enrolled in geoscience graduate programs by offering fellowship support that combines knowledge creation with knowledge translation and transfer to K-12 teachers. Each of these programs will be delivered in relevant formats including face to face programs, internships, and emerging technologies such as video streaming and distance learning and the worldwide web. Results of the proposed effort are expected to

produce a pilot partnership that leverages the scientific and technical resources of the science community for a variety of educational outlets including the precollege classroom and informal learning centers. From the proposed effort, we expect to produce high quality educational products developed with the input of the science community and with the classroom expertise of seasoned K-12 educators. Activities resulting from the partnership also will be used to support an active learning environment in classroom settings in many school systems throughout the Mid-Atlantic region and the nation.

The partner institutions of the Mid-Atlantic COSEE recognize that education reform is a long-term proposition. Providing depth of content in earth sciences and long-term professional development opportunities are keys to stimulating change in teaching practices and improving student achievement. Through this COSEE Center, the partners seek to explore strategies for creating life-long learners including long-term improvements in the preparation of teachers by exposing them to the practice of science. Second, the partners strive to improve communication among the science-education community through graduate student assistantships and collaborative development of educational materials.

Finally, our short-term goal is to assist overburdened school districts with training opportunities and resources that contribute to the enrichment of the school community. The Center plans to use the results of the preliminary evaluation to ground-truth these goals and make mid-course corrections for a broader, more sustained effort. Key programs of the Center will be described including the scale-up of existing, Internet-based instructional modules, development of a course for middle school and high school students that relies on real-world science available through an emerging network of coastal ocean observing systems, and mechanisms to enrich the communication between the research and education communities.

