

Earth as a System is Essential- Seasons and the Seas (EaSiE- SS)

Abstract

National education standards have been established for more than a decade, yet national studies have shown the impact of standards has not sufficiently reached where it matters most- in the classroom. Concurrent with this challenge of translating standards into classroom practice is the requisite shift from a traditional view of earth science to an earth systems approach. Robust professional development combined with access to quality instructional resources and digital media, integral to the *Earth as a System is Essential- Seasons and the Seas (EaSiE- SS)* project will assertively address these challenges and impact student learning in earth system science at the middle school level. The project will fill the critical need for a relevant, contextual curricular theme for middle school learning. Its goal is to incorporate NOAA resources and virtual visits by NOAA scientists to integrate authentic earth systems science content into existing instructional units. Development of these materials -- in association with appropriate standards-based middle school learning goals and pedagogy, supported by substantive professional development, collegial networking, and supplied with the tools to meet this need, -- form the rationale for this proposal.

This project centers on the curricular theme of “Seasons and the Seas”. It builds on students’ prior knowledge of the changing seasons in New England—mountains dappled with colored leaves in fall, and budding apple leaves in spring. Connecting to these images, NOAA scientists create parallel images depicting the seasons in the seas. Once this bridge of shared seasonality is completed, students investigate the larger interactions of organisms, land, oceans and atmosphere that form the Earth system, and follow its changes throughout the seasonal year.

Dr. Francis Eberle, Executive Director of the Maine Mathematics and Science Alliance (MMSA) is Principal Investigator of the project, and Page Keeley, MMSA Science Program Director and recently elected President of the National Science Teacher’s Association is Co-Principal Investigator. They will work with Henrietta List, recent NSF Materials Development Principal Investigator and MMSA Science Specialist to complete this three year, \$566,467 project (FY1:\$175,075 FY2: \$217,692; FY3:\$173,701)

In EaSiE-SS, thirty middle school teachers from Maine, New Hampshire and Massachusetts will become Teacher Resource Agents. Working with state science supervisors, NOAA scientists, educators, and MMSA staff, these individuals will complete 120 hours of professional development over 24-months including two Summer Institutes, two Fall Conferences, one Spring Conference, two web conferences, two unit implementations, webinars, podcasts, and web discussion boards. They will gain content background, integrate MMSA staff reviewed and aligned materials into their instruction, conduct field tests of the materials, and share them with colleagues in their own states and across the country through state science supervisors, the project web site, marine science teachers, and state science teachers associations