PAL LTER partners DLESE in Developing a Classroom Curriculum

The Digital Library for Earth System Education (DLESE), with Palmer (PAL) LTER attending, held a Data Services Workshop April 18–20, 2005 to develop an online curriculum for grade 6–12 education. Since a hallmark of PAL education outreach has always been an interdisciplinary approach to community learning, PAL brought a strong cross-curricular team that focused on the use of LTER site long-term data.

During the workshop, participants worked with DLESE (http://www.dlese.org) members to develop a chapter in the Earth Exploration Toolbook (EET; http://serc.carleton.edu/eet/) by working as interdisciplinary teams drawing upon existing Earth system data sets and information management, data-analysis software development, and expertise in classroom teaching and curriculum development.

PAL’s Schoolyard LTER program was initiated by Karen Baker (PAL Information Manager), informed by the seminal LTER Workshop on Education Project Planning at Biosphere 2 in October 1998 that was led by Diane Ebert-May. Subsequent NSF/DEB Schoolyard grants allowed PAL education outreach to build toward partnerships with nationally coordinated programs such as TERC and DLESE, with which the PAL education team has been working since 2000.

The Summer DLESE workshop and EET project built upon education projects incorporating biotic approaches (Berkowitz et al., 2003) and appropriate data availability (Edelson, 1998). The workshop provided an opportunity to explore the development of curricula incorporating data sets from scientific data generating programs (termed “authentic data”) and to use contemporary software analysis tools in classroom science.

The workshop structure offered individuals the option to assemble an interdisciplinary team by joining with others during the workshop. However, Beth Simmons, the Education Coordinator for PAL and California Current Ecosystem, decided to form a team—mainly members of the PAL community—in advance of the workshop, thus tapping into LTER site knowledge about the research, data, and education outreach pertinent to the local data sets being used for the curriculum.

The team considered the experience of a classroom science teacher and curriculum developer as essential to crafting the most age-appropriate and effective online curriculum. Team members also realized that although using new software analysis tools could enhance student learning, such usage required tempering by awareness of the computer resources and the target audience’s prior knowledge.

Simmons, a curriculum developer and science educator, headed the team that included (Figure 1) Karen Baker, Alec Barron, science educator at The Preuss School, a charter school for grades 6–12 at the University of California, San Diego; Clay Hamilton (Stanford), an analysis tool developer, graphic designer and earth sciences interpreter; David Smith (Northwestern), the developer of the analysis tool My World (http://www.worldwatcher.northwestern.edu/myworld), and Sharon Stammmeijer (Lamont Doherty Earth Observatory), who has a long history with PAL and contributed satellite ice research expertise.

Baker observed that the resulting EET curriculum introduced the overarching theme of response to environmental change by...
PIE LTER facilitates Student-Teacher-Scientist Collaborations

It was a busy summer for several Plum Island Ecosystem (PIE) LTER scientists who, in addition to their regular research duties, added teaching responsibilities to their schedules. Their action has helped local teachers and students better understand PIE-LTER science and, in turn, helped the scientists better understand teachers and students. These groups were brought together thanks to the efforts of PIE-LTER education representative, Liz Duff, who is also education coordinator for Mass Audubon’s Salt Marsh Science Project. Duff has been engaging Middle and High School teachers and students in long-term research of the invasive reed Phragmites.

As PIE-LTER education representative, Duff has been working toward making PIE-LTER science more accessible to teachers, students, and the wider public. This effort has taken some creativity, since most PIE research sites are fragile and barely accessible.

Three events last spring and summer supported the goal of bringing teachers and students in contact with PIE-LTER scientists to gain an understanding of long-term ecosystem research.

See “Collaborations,” p.10

Gone fishing: PIE-LTER scientists hard at work.