

# Schoolyard Education of the Long-Term Ecological Research Program (SLTER)

## Report to the LTER Coordinating Committee – Spring 2001

### A. Background

Education programs at LTER sites have varied over the years, but have become more formalized through the "Schoolyard" LTER (SLTER) programs. An Education Committee was formed by Jim Gosz in 1998 and directed to oversee the development and implementation of Education Programs at the LTER sites. Nine of the 10 charges given by Jim Gosz to this committee reflected the LTER commitment to the K-12 community and to the newly developing SLTER programs. Under the direction of Diane Ebert-May, this committee provided broad suggestions to the LTER community on developing K-12 programs and secured funding for two LTER education meetings. The first meeting was held Oct 1998 at the Biosphere in Arizona and resulted in several reports with recommendations for LTER education, the second meeting was held in Spring 1999 at the Kellogg Biological Station and focused on grant writing to supplement LTER education funding.

People associated with and interested in the SLTER programs met during two workshops given at the recent LTER All Scientist Meetings in Snowbird (August 2000). It became clear at this meeting that the Education committee would benefit from incorporating new members, dropping members who were no longer active at LTER sites, focusing on new directions, and improving communication among SLTER programs. At the Snowbird meeting, Patty Sprott from the Network office also informed the SLTER community that the network office had obtained funding for a Schoolyard Web page that would incorporate multimedia technology. At this meeting, she requested input from the SLTER community to help develop the content of the Website. Since Patty was already working on the Web site, it became imperative that a SLTER working group meet to give her direction. Consequently, a small group of SLTER workshop participants requested and received funds for a follow-up meeting focusing on improving communication among SLTER programs and providing input on SLTER web content and design for the LTER network office. The meeting was held 1-2 December 2000 hosted by the San Diego Supercomputer Center (SDSC).

#### SLTER 2000 Meeting Participants

Representatives from eight LTER Sites (BES, BNZ, CAP, HBR, JRN, KBS, NET, PAL) were present. Participants included Karen Baker (PAL Information Manager and Education Coordinator), Alan Berkowitz (BES Research Scientist; by phone), Stephanie Bestelmeyer (JRN Education Coordinator), Rich Boone (BNZ Research Scientist), Betty Connor (BNZ high school teacher), Monica Elser (CAP LTER Education Coordinator), Marty Green (KBS LTER middle school teacher), Marianne Krasny (HBR Education Coordinator; by phone), Patty Sprott (NET LTER Education Liaison), John Vande Castle (NET LTER Advanced Technology) and Bob Waide (NET LTER; by phone).

Organizations represented included the San Diego Supercomputer Center (SDSC) at the University of California at San Diego and the EdCenter on Computational Science and Engineering at San Diego State University, both working as partners within the National Partnership for Advanced Computational Infrastructure (NPACI). Participants included Reagan Moore (SDSC, Data Intensive Computing), Ann Redelfs (SDSC, Education, Outreach and Training), Rozeanne Steckler (SDSC, Science Education), Ann O'Neil (SDSC, Science Education), Ilya Zaslavsky (SDSC, Data Intensive Computing), and Kris Stewart (SDSU, San Diego State University Education Center on Computational Science & Engineering).

### B. Current Status and Goals

Since 1998, the LTER network has offered \$15,000 per year supplements to support SLTER efforts. Twenty LTER sites have received this funding and have impacted more than 40 teachers and 1200 students in just two years. In addition to the LTER supplemental funding, some of the sites have secured other funding to expand their programs. Project description of each SLTER can be found at: <http://schoolyard.lternet.edu>. Programs developed by SLTER sites include: teacher training, web-site

development, schoolyard research, linkage to LTER data sets and classroom visits among other activities. Information on the variety of auxiliary funding sources currently used by sites will be gathered by survey.

Based on these past two years experience, the SLTER working group at the San Diego meeting developed SLTER goals. The SLTER programs should promote and enhance opportunities for the K-12 school community to:

1. Experience the nature of science with an emphasis on long-term ecological research (based on real-world science)
2. Describe the local environment through observation, data collection, analysis and synthesis
3. Interact with scientists to observe the research process, use of technology and communication of results
4. Acquire an understanding of ecosystem diversity through linkages with a network of LTER sites
5. Promote inquiry-based learning
6. Explore the greater social context of science

### **C. Proposed Action Items**

The SLTER working group also suggested several action items that they plan to carry out within the next 6 months. These suggestions include:

1. Establish better SLTER communication across sites. Communication among sites has not been a priority of the current Education Committee. The lack of follow-up from previous workshops by the current Education Committee has resulted in some confusion and duplication of efforts. Methods for creating an active community may include use of email aliases, document availability, working project web pages, surveys, phone conferences and meetings.
2. Update and maintain the SLTER Schoolyard web page in collaboration with the LTER Network Office.
3. Develop a "Biome Module" for the LTER network Schoolyard Web page using multimedia products (e.g., slide sets, panoramas, web cams, satellite imagery) and LTER data sets (initially climate). This module reflects suggestions from SLTER participants at the ASM meeting at Snowbird, the current SLTER working group and an informal teacher survey from CAP LTER. This module will
  - a. Focus on science content and concepts covered by K-12 teachers and linked to the National Science Education Standards
  - b. Focus on the scientific process as modeled by LTER scientists through their own biome and disturbance ecology research
  - c. Be expandable to include contributions from all SLTER sites including student and teacher projects as well as LTER projects
4. Investigate metadata standards to facilitate cross-site schoolyard interoperability. This will allow us to communicate more effectively among SLTER sites as well as with the larger science education community.
5. Develop a teacher survey to assess SLTER programs. This will allow us to see which types of SLTER programs are most effectively utilized by teachers.
6. Explore partnerships with organizations utilizing and publishing national data collections
7. Present SLTER concepts at a joint HER/DEB NSF seminar with invitations for NSTA participation.

## D. Recommendations

The SLTER Committee makes the following five recommendations:

1. Establish the Schoolyard Education Committee (SLTER) as an LTER Subcommittee in recognition of the importance of the Schoolyard Education goals and to ensure regular communications with the LTER Coordinating Committee. We plan a committee membership composed of one representative per site. We propose that an executive group from this committee communicate by conference call as needed and meet on an annual basis in order to create all site participation and maintain communications. We propose to maintain a membership composed of teachers, informal educators, scientists, information managers, and academic educators from LTER sites working in partnership.
2. Pursue support for Schoolyard LTER coordinators (half to full time) at each site.
3. Pursue support for a Schoolyard LTER network wide coordinator (half to full time).
4. Promote partnerships capitalizing on synergy with
  - National Centers (i.e. SDSC, NCEAS)
  - National/International Science Education Programs (i.e. GLOBE, TEA)
  - National Science Education Organizations (i.e. NSTA, NAAEE, NABT, ESA)
5. Ensure dataset availability through coordination with national metadata standards initiatives and the LTER Information Manager Committee.

It is noted that if there is interest in promoting the larger LTER education community agenda that includes undergraduate and graduate components, a Network level coordinator would be required for effective program integration and coordination.