

EDUCATION-PARTNERSHIP EVENT REPORT AND RECOMMENDATIONS

Event:

**Digital Library for Earth Systems
Education (DLESE) California Pilot Project
– Third Workshop**

Attendee and Report Writer's Name:

Joseph Kerski, Geographer:
Education/GIS, Denver, USGS.

Location: National Center for Atmospheric
Research, Boulder

Other USGS Attendees:

Robert Ridky—USGS Director of
Education, Reston VA

Event Dates: 14-16 June 2004

Purpose of Event:

To create earth systems educational
resources as part of the Digital Library in
Earth Systems Education.



*It's rather hard to beat the wonderful
location for this workshop—the National
Center for Atmospheric Research, Boulder
Colorado. DLESE is headquartered at the
University Corporation for Atmospheric
Research, which runs NCAR, here on Table
Mesa below Boulder's flatirons.*



*Mary Marlino, DLESE program director,
standing, addresses the educators gathered
for the workshop.*



*I first heard Mary Marlino speak about
DLESE at the Educational GIS Conference
at California State University-San
Bernardino in 2000. I have great respect for
what she has built with DLESE and for the
positive benefit she has brought to those
who contribute to it and use it.*

About DLESE

DLESE is an NSF-funded, multiyear, major project to improve the quality, quantity, and efficiency of teaching and learning about the Earth by developing, managing, and providing access to high-quality educational resources and supporting services through a community-based, distributed digital library. This is quite an ambitious task, but fortunately, the DLESE community brings

together some of the smartest, most enthusiastic educators and scientists in the world. The library at <http://www.dlese.org> has grown to thousands of resources contributed by educators, sophisticated search tools that allow searching by topic, standards, and much more, and detailed metadata about the resources. DLESE is much more than an online digital library, however. It is a community of learners who continually review the collection, and provide support and networking for issues and specific users.

Interested persons can participate in DLESE by contributing a resource to the library, creating a special collection in the library, reviewing a resource, joining a discussion group, attending the annual conference in July 2004 at the University of Wisconsin, acting on the recommendations from the strands in the 2003 meeting (see my report on <http://rockyweb.cr.usgs.gov/public/outreach/reports/dlese03t.pdf>), publicizing DLESE, and in other ways.

Summary of Event

The USGS worked with a group of San Francisco Bay Area science teachers with the Digital Library in Earth Systems Education project, the Berkeley Seismological Laboratory, San Francisco State University, and the University of California Museum of Paleontology. The educators met for the purpose of creating a collection of exemplary resources for Earth System Science topics at the middle and high school levels. The Boulder workshop followed two other workshops in April and May in California.

This project combines the creativity, energy, and experience of the teachers with the subject matter expertise, inquiry-based educational design, and technological know-how of the project partners to produce virtual *teaching boxes*. These *teaching boxes* will integrate student activities, teaching tips, assessment information, reviews, place-

based resource discovery, standards, and benchmarks. In short, a teaching box is a collection of everything a teacher needs to present a one-to-two week unit of instruction about the earth system, organized for immediate use as it is, but allowing teachers to tailor it to meet special needs. These teachers plan to report on the project at the [California Science Education Conference](#) in San Jose, California, in Fall 2004. The program is intended as a model for DLESE outreach activities with teachers in other states and regions.

The San Francisco Bay was selected as the pilot region for this project because it has a diverse student population, it has an immediate need for effective earth systems educational resources, teachers are already encouraged to use Internet resources, the earth systems education approach is aligned with the California Science Content Standards, and DLESE partners already exist within the community. The web site for this effort is on: <http://swiki.dlese.org/CA-Pilot/>.

Keynote Address



USGS Education Director Dr Bob Ridky gave the keynote address for the group, where he discussed the integration of education and research, the national science standards, educational trends, and recommendations for earth systems science educators. As usual, he was one of the highlights of the event and it was a great

pleasure to see him again.

Bob noted some alarming declining earth science enrollment trends at the university level and suggested strategies to increase science literacy in our country. Bob noted that one of NOAA's six crosscutting priorities is environmental literacy, outreach, and education. He also pointed to the importance of getting the word out about what we're doing, and brought up the fact that even the NRA knows how to do this effectively. Bob handed out an article he wrote for *Geotimes* about why we need a corps of earth science educators.

Bob included an excellent quote from Einstein that speaks to the role of education for scientists: "The general public must be given the opportunity to experience the efforts and results of scientific research. It is not sufficient that each result be taken up, elaborated, and applied by a few specialists in the field. Restricting the body of knowledge to a small group deadens the philosophical spirit of a people and leads to spiritual poverty."



I was very impressed with the educators' enthusiasm and hard work to create their teaching boxes. Each had use of a wireless laptop and the wonderful facility at NCAR. It was a true pleasure to hear these educators speaking about such things as latitude and longitude, plate tectonics, and the Coriolis Effect!

GIS Workshop



Joseph Kerski outside the institute site prior to the workshop I conducted on spatial thinking and GIS. The workshop began with an explanation of spatial thinking, GIS, and cautions and recommendations about using technologies in the curriculum. I then gave a demonstration of GIS, and then we had a hands-on session of web-based GIS on the wireless laptops that included The National Atlas, Terraserver, The National Map, and wildfire mapping with Geomac.

Acknowledgements

I thank the DLESE staff for inviting me to the institute, especially Hildy Kane, Shelley Olds, Mary Marlino, and Holly Devaul. They also invited me to be one of the keynote speakers at their annual conference at the University of Wisconsin, which was quite an honor.

Bob Ridky and I also spent several rare hours prior to this event discussing the USGS educational program's plans for the future. I definitely appreciated Bob taking the time to speak with me.

It was excellent to meet the California educators and I hope to work with them again someday. I thank the USGS for supporting

my attendance at this event. I continue to learn a great deal from the DLESE staff and community.

Recommendations

How can DLESE fit into the goals and mission of the USGS, and how can the USGS contribute to its agenda? The USGS "Future Science Directions" document and our USGS strategic plan indicate how GIS in education ties into our mission. Our emphasis is integrated information for societal needs. DLESE provides one of the best tools and science for integrating land-based information. Furthermore, the integrated, system study approach is supported by the standards and recommended by educators in K-12 and university education. This is exactly the kind of education that DLESE stands for.

Data from the USGS Customer Satisfaction-Outcome Survey showed that for 18 products, an average of 55% of the customers reported that they use our products for educational use. I believe we should support DLESE by continuing to participate in their annual meetings, by joining and contributing to their strand activities, by contributing our resources and lessons to their database, by publicizing DLESE in our travels and workshops, and by tapping into the DLESE expertise to help us organize and catalog some of our USGS web resources.

By participating in this workshop, we demonstrated the contribution that the USGS can make in earth systems science education. We are the one of the largest producers and one of the largest users of data that is fundamental to this effort. This wealth of data that we create at the USGS will be worthless unless we proactively create a scientifically literate populace, which is what DLESE is doing.

One reason for participating with DLESE is to continue to show the integration of science and education. DLESE presents an excellent opportunity for the USGS to get our data and

products into the hands of students and educators across the country. Let us continue to find ways to increase collaboration between the USGS and DLESE.



Deer about 10 meters outside the workshop room on 14 June 2004.

*** End of DLESE California Pilot 2004 Report ***