EDUCATION-COMMUNICATIONS EVENT REPORT AND RECOMMENDATIONS

Attendee's and Report Writer's Name:

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

Event:
GeoTech Colorado 2002

Location: Lewis-Palmer High School, Monument, Colorado.

Event Dates: 27 April 2002

Summary

To better enable Colorado social studies and science teachers to use geographic technology in the curriculum, the Colorado Geographic Alliance and the USGS co-sponsored "GeoTech Colorado" on 27 April 2002 at Lewis-Palmer High School in Monument, Colorado.

Participants conducted and attended workshops at the conference that incorporated geographic information systems (GIS), Global Positioning Systems (GPS), the Internet, and multimedia into instruction at the primary, secondary, and college levels. These technologies have been effectively used in interdiscplinary teaching of geography, environmental studies, mathematics, history, earth science, and chemistry.

GeoLIT was held in the same location on the same day. This conference highlighted the linkages between literacy and geography. The importance of highlighting these linkages stems in part from the prominence of literacy in the state aptitude tests in elementary through high schools in Colorado.

Conference Site for GeoTech Colorado--one of the best school facilities I have ever had the privilege of working in. Anita Palmer, Lorrie Stockwell, Sophia Linn, Joseph Kerski.

USGS Exhibit at GeoTech Conference. Pictured: Katie Reed (outreach intern from University of Colorado, Spring 2002) and Joseph Kerski.

Reasons for the Conference

The reasons for holding the conference can be summed up in the statement from the flyer for the conference, below. The convergence of educational issues with the scientific and GIS professional community has been increasingly evident in recent years.

Join us...

As the world becomes ever more connected, managed, and observed through the use of computers and other technologies, students have opportunities like never before to have the world at their fingertips – whether using the Internet, geographic information systems (GIS), the global positioning system (GPS) or satellite imagery. What better opportunity could classroom teachers have to instill in students a curiosity about geography, science and their world than by using these increasingly available tools?

Partnership between USGS and COGA

The USGS has had a longstanding relationship with the Colorado Geographic Alliance (COGA). Their web site is http://geography.unco.edu/COGA. We have participated in all COGA conferences with both exhibits and workshops since 1995. The state geographic alliances are organizations established during the 1980s. They were originally supported by the National Geographic Society for the furtherance of geographic education.

Colorado's alliance is one of the original groups begun in 1986 and includes over 6,000 teachers, professors, and others interested in geography education. We have also supported other state geographic alliances, such as with workshops that I have conducted in Iowa, Nebraska, Texas, Wyoming, Montana, and ones in Tennessee by Roger Barlow. Through the geography education list serve at the Association of American Geographers, I have worked online with other geography alliance members across the USA.

I have had the pleasure of working with Sophia Linn, COGA Program Manager, since 1996. Ms Linn conducted some of the first experiments to measure the effectiveness of geographic educational technology in her research at the University of Colorado. During 1999, we attended a summer GIS institute together at Southwest Texas State University. This institute brought together a group of educators interested in using GIS in the geography curriculum, most of whom are still considered the trailblazers in this effort.

Sophia Linn, Colorado Geographic Alliance Program Coordinator, hands out door prizes at the end of the conference.

During 2000, Ms Linn and I co-conducted a ESRI community atlas GIS training at Poudre School District in Fort Collins, and began planning the first GeoTech Colorado, held in May 2001. We sought to model it after a conference we had both attended in Dallas Texas, held annually, and also called "GeoTech (see my reports on GeoTech Texas). The USGS has presented and exhibited at GeoTech Texas each year since 1997 (Joseph Kerski and Pete Modreski, Central Regions Communications staff). This GeoTech 2002 conference was the second one held.

COGA and I publicized this conference via a web page, flyers distributed at training events,

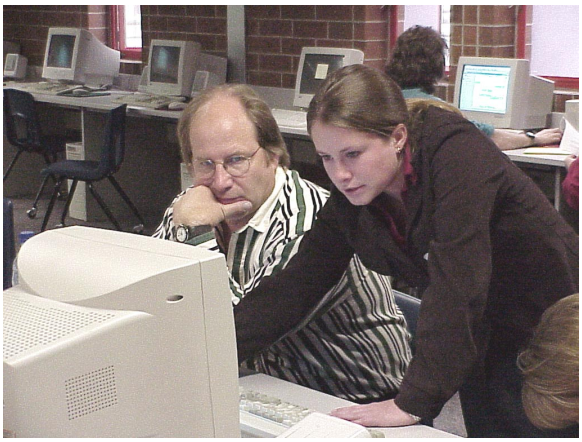
flyers mailed to many school districts and teachers, email announcements on list serves, and announcements in the COGA newsletter in the fall and winter.

Atrium for exhibitors at GeoTech conference, showing USGS exhibit near the windows.

GeoTech Organization

The structure of GeoTech Colorado was to run concurrent workshops during three morning time slots and two afternoon time slots. It also included an introductory session for all attendees, open lab times, discussion times, and a closing and door prizes. The hands-on workshops included: Introduction to GIS, Crime Analysis, GPS, Mission Geography, ARGUS, and others. Out-of-state speakers were flown in, including Anita Palmer of GIS ETC, and Tom Baker of the Kansas Collaborative Research Network.

GeoTech was attended by approximately 60 teachers, which was less than I had hoped for. However, those who attended responded to their questionnaires in a positive way and were committed to incorporating these technologies. It is a pleasure to be working with such a motivated, intelligent group of educators.



Almost all of the workshops during the conference were hands-on workshops held in computer labs.

Teachers in discussion session about the challenges of implementing GIS in the curriculum.

Participants at GeoTech definitely did not walk away empty handed!

Attendees at GeoTech are some of the finest educators in the country, in my opinion, seeking to expand their set of resources and tools and improve what and how they teach.

Geography Education Award

Each year, COGA awards a geography teacher a special award for achievements in education. Rick Gindele, this year's recipient of A David Hill-Cram award for geography education, pictured with friend from the Colorado Division of Wildlife.

USGS Workshops and Meetings at Conference

Three Workshops

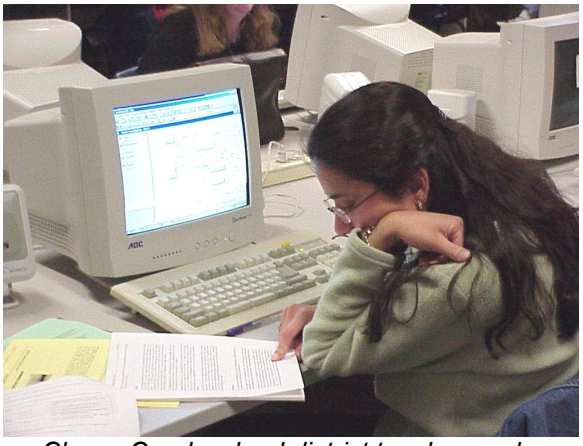
I conducted a morning workshop on an Introduction to GIS with Steve Wanner, teacher at Boulder High School. Mr. Wanner has been using GIS since 1986 in a neighborhood analysis lesson, an Africa regional geography lesson, an earthquakes lesson, and we are currently constructing a historical floodplains lesson using historical imagery. Approximately 15 teachers attended this workshop.

I also helped conduct a workshop on the project "Conserving Biodiversity in the Denver Metro Area," a project I have been involved in for 2 years. We received a National Geographic Society grant for the project, which brought together the USGS, universities, school districts, the Colorado Natural Heritage Program, and the Colorado Division of Wildlife to produce biodiversity spatial data and secondary-school lessons.

These lessons incorporate geography into environmental studies and biology courses.

Participants in the Biodiversity workshop examine conservation areas and population growth.

I also conducted a workshop on "Exploring the Titanic with GIS." The lessons I created for this project are designed to teach the concepts of climate, ocean currents, map projections, and scale, using the voyage, sinking, rescue, and discovery of the *Titanic*, a topic that would serve to interest students in examining an historical disaster.



Cherry Creek school district teacher works through the Titanic lesson.

During the conference, I met with Dr Wyckoff, who plans to present a proposal to the Colorado State Legislature on formally supporting a GIS K12 education initiative. Named "GIS 4 Colorado," the initiative is modeled after the successful program in Montana that brought GIS software to every school in Montana. The conference provided an excellent opportunity to learn from and meet with educators who are really making a difference not only in their classrooms, but also in the lives of people.

Observations and Recommendations:

(1) By participating in this meeting, we sought to:

1] Further our partnerships with educational organizations to increase science and geography literacy on a national and international level.

2] Highlight data, research, and tools for exploring digital data and real-world problems with GIS, GPS, and remote sensing.

The USGS has a wealth of data sets, programs, and research efforts that this audience was interested in, particularly our digital data sets, training that we conduct, and projects with the educational community (such as with the Conserving Biodiversity project).

I recommend that the USGS pursue education as integral to its mission. Education shows our relevance to Congress and the general public. Education affects future generations of scientists who will support our agency and work for the USGS. Education serves the needs of diversity, recruitment, and retention. Education ties into all six major outreach audiences. Education forms partnerships that are far-reaching.

Working with the geographic alliances and with the educational partnerships described here provide ideas to our own organization and contribute to the geographic and scientific

literacy of the nation, helping individuals make sound decisions that affect the future of our society.

USGS Exhibit at the Conference

Steve Wanner, Boulder High School geography teacher, at USGS exhibit.

The USGS exhibit featured a curved panel display with the theme "GIS In Education." This theme was conveyed with posters that I created: "Why use USGS Resources in Education?", plus a poster advertising for the National GIS institute to be held 24-28 June 2002 in Boulder, Colorado. I used two tables with the publications listed below. The publications were a combination of generated articles and flyers with USGS information for educators. There was also an emphasis on spatial data resources, since most of the attendees were well grounded or interested in using GIS and other geographic technologies.

The location of the exhibitors in the main atrium of the school was well positioned for receiving all of the conference attendees.

Other exhibitors included the US Census Bureau, ESRI, GIS ETC, the Digital Data Services, the Colorado Natural Heritage Program, Cram, Mesa State College, and others.

Publications Displayed at Conference:

GIS In Education USGS information sheet

GPS education article.

GIS: Fits and Starts article

GIS in Everyday Life article

Kerski's "Implementation and Effectiveness of GIS in Education" research article.

Kerski/Wanner's Effectiveness of GIS article.

Flyers about June 2002 National GIS Institute.

USGS Science, Society, Solutions

Aerial Photographs and Satellite Images

USGS Maps (surplus, including Denver 250K topo and Grand Canyon topographic map)

USGS GeoData

USGS World Wide Web Information from Earth Science Week flyers.

How To Get Info from the USGS info sheet

The New Educational Resources from the USGS

Scientists in Action

Exploring Maps

What Do Maps Show

Land and People

I donated some USGS maps for the door prizes at the end of the day, including the new Colorado shaded relief map from NED data, the 1894 Colorado map, and the digital landforms map of the USA.

Acknowledgements:

I would like to thank the following individuals:

Sophia Linn of COGA for her excellence during the past year in organizing and planning this event.

Katie Reed, University of Colorado, for her assistance with the workshops, exhibit, and materials.

Our out-of-state presenters for contributing so much of themselves to make this a success, particularly Anita Palmer of GIS ETC and Tom Baker of the Kansas Collaborative Research Network.

Lewis-Palmer High School Teacher for hosting the event and providing such a top-notch facility.

The attendees who made the conference a success.

Setting for GeoTech Colorado along the Front Range, a beautiful area but also one under an extreme amount of population growth pressure. The conference site was at the boundary of El Paso and Douglas Counties, two of the fastest growing counties in the United States. Douglas was THE fastest growing county in the country from about 1980 to 1997.

*** End of GeoTech Colorado 2002 report ***