

## EDUCATION EVENT REPORT AND RECOMMENDATIONS

Attendee's Name:

Joseph J. Kerski - Geographer  
Denver

Location: Dallas Texas

Other USGS Attendees: none

Trip Date(s):

22-25 January 2003

Purpose of Travel:

**15<sup>th</sup> Annual Geo-Tech Texas Conference**

Purpose of Event:

Geography and Geosciences Educational Technology Conference

My Activities at Conference:

- (1) Conduct GPS workshop on geocaching and confluences.
- (2) Train teachers who signed up for "Advanced GIS" in the use of GIS in the curriculum, specifically emphasizing the downloading, formatting, and analysis of USGS and other base data sets.
- (3) Operate USGS informational exhibit in exhibit hall.
- (4) Discuss current research project that I am working on with Anita Palmer and Tom Baker to assess the implementation of GIS in the educational curriculum.
- (5) Discuss GIS in visualizing math concepts, a book chapter that I will be working on with Dr Bob Coulter.



*GeoTech conference participants represented elementary through university professors and educational consultants.*



*Joseph Kerski at the USGS exhibit.*



*Louisiana Childrens Museum's Earth Balloon.*



*Christine Voigt, conference coordinator, addresses educators gathered for the GIS training.*

### **Conference Overview**

The Geo-Tech conference is unique for several reasons. First, it is one of the few conferences that is specifically focused on geoscience and technology in education. Obviously, that is well suited for organizations like the USGS to be involved in, given our scientific mission and commitment to education and technology, specifically, GIS and remote sensing.

Secondly, GeoTech brings in well-known educators and associated publicity. In 2001, Dr Sally Ride from NASA keynoted the conference. During other years, Dayton Duncan, the biographer of a book on Lewis and Clark and the director of the PBS special on the explorers, Ann E. Bancroft, the first woman to ski to both the North and the South Poles, and Bob Ballard, the discoverer of the *Titanic* and the *Bismarck*, have spoken at the conference. I have had personal contact with many of these individuals after the conference has ended. I supplied Ann Bancroft with Antarctica maps for her historic trip across the continent during 2001.

Third, GeoTech not only provides us an

opportunity to share with other educators what our organization can offer, but by bringing the ESRI Education Team to the conference, we have the opportunity to gain experience with the latest ESRI products and tools. The main conference lasts one day, with GIS in education training offered in beginning, intermediate, and advanced strands during the day before and the day after the main conference. For the advanced GIS participants, I taught the following workshops:

- 1) Downloading and Using USGS DOQs and DRGs from Terraserver in ArcView and ArcGIS for the participants' own school neighborhood.
- 2) Downloading, formatting, and using USGS DEMs from [www.gisdatadepot.com](http://www.gisdatadepot.com) in ArcGIS in a fire tower analysis.
- 3) Downloading, constructing headers for, and using USGS National Land Cover Data (NLCD) and the National Elevation Dataset (NED) from [seamless.usgs.gov](http://seamless.usgs.gov).
- 4) Downloading and using TIGER data and demographics for each participants' county from [www.esri.com](http://www.esri.com).
- 5) Tornado analysis lesson.
- 6) Hurricane analysis lesson.
- 7) USA 1900-2000 historical population and detailed demographics by county in 2D and 3D modes.

In the other strands, lessons included those from the 2002 ESRI Press book, *Mapping Our World: GIS Lessons for Educators*. I was privileged to have the opportunity to provide editing assistance for this book and have used the lessons and the data in several training events. Several of the



lessons use USGS earthquake and spatial data. The next book in the series that I had an editing role in will be called *Community Geography—GIS In Action*. All of the authors for these textbooks taught workshops at the GeoTech conference and it was a pleasure to work with such fine individuals once again.



*Teachers gathering for GIS training traveled there from many parts of Texas and other states.*



*Teachers reviewing USGS materials, including the new GIS poster, GIS-based lessons, descriptions of USGS data sets, and guidelines on how to use those datasets.*

Fourth, this unique blend of geoscience, geography, technology, education, and

internationally renowned guests takes place at a high school! Bishop Dunne High School, Dallas, is where principal Kate Collins Dailey has become one of the foremost proponents of educational technology in geography. Her transformation of the school's performance, attendance, technology, and curriculum is a testament to what one principal with vision can accomplish.



### **GPS Workshop on Geocaching and Confluences**

I conducted a hands-on workshop on two rich resources for education—geocaching and confluences. Geocaching ([www.geocaching.com](http://www.geocaching.com)) is a high-tech treasure hunt involving hiding an object at GPS-identified locations and challenging others to find that location with their own GPS unit. The confluence project involves locating whole-degree intersections of latitude and longitude lines. The confluence site ([www.confluence.org](http://www.confluence.org)) represents a picture book of the globe, where students can learn what the flora, fauna, climate, landforms, vegetation, land cover, human impact, hazards, culture, and other human and physical geography characteristics of that particular location.

## **USGS Exhibit**

The emphasis of our exhibit was to feature USGS resources that support GIS in education and real-world scientific investigations in the classroom. Other exhibitors included the Texas Natural Resources Information System (TNRIS), the Texas Bureau of Economic Geography, ESRI, and the Texas Alliance for Geographic Education, plus several private companies. The Bureau of Economic Geology has an education outreach program as well, and we are working with them on The National Map effort and on interdisciplinary research projects.



*Teachers examine materials at the USGS exhibit at GeoTech Texas. As in the past, our presence at the conference was much appreciated.*

I created and/or handed out the following materials: Map Mysteries lessons, Teaching With Topographic Maps Lessons, paper on the Implementation and Effectiveness of GIS, my *Titanic* lesson, my teachers guide to the *Titanic* lesson, and the answer key to the *Titanic* lesson, my new GIS in education information sheet, how to use USGS data in ArcView and ArcGIS, the new GIS poster, USGS GeoData, Map Projections poster, as well as free watersheds maps of the USA and free

miscellaneous topographic maps along with Leslie Gordon's Topo Bingo activity.

I shipped and distributed teachers packets, GIPs, water education posters, maps for the Orton Foundation's GPS workshop, maps for the door prizes, fact sheets, GPS setup and issues handouts, water resources circulars, posters, and Texas map indexes.



*The Earth Balloon allowed participants to be inside the planet to get a unique geographic perspective, in reverse, from the inside.*

## **GIS In Education at Conference**

When one is involved with a program for many years, it is rewarding to see some of the fruits of that effort. Teacher Brad Baker attended a GIS-for-educators institute that we co-conducted with the ESRI staff in 1998 at Southwest Texas State University. To see what he and his students have done with GIS technology just a few years later at Bishop Dunne is truly amazing. It is extra special to know that we had at least a small part in helping Mr. Baker to realize his dreams of conducting real-world spatial analysis with his students. He acknowledges that Principal Kate Dailey's support of his efforts have been critical. Mr. Baker's students conducted demonstrations of their GIS-based investigations throughout the conference.



We used Mr. Baker's computer lab during the Advanced GIS training. The lab was dedicated during the 2002 conference.



*Student in Mr. Baker's GIS course demonstrates the many real-world problems to which she has applied GIS technology and methods. It was remarkable!*



*Students at Bishop Dunne School impress me each year with their professionalism, pride in their work, and vision for the future. Two of the students working at the ESRI exhibit.*



*Students showing one of their projects from Mr. Baker's GIS class, indicating the location of their school in relationship to downtown Dallas, with a DOQ and 3D Analyst.*

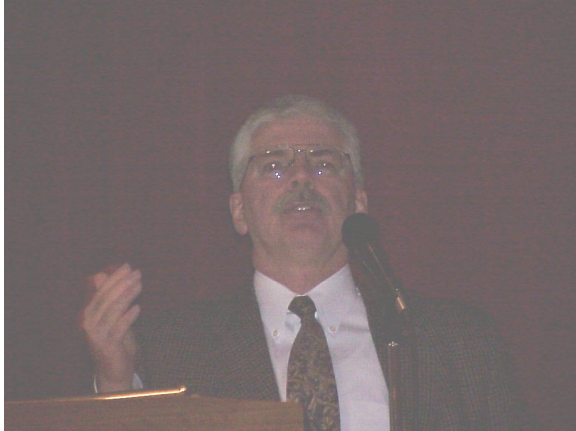
### **Keynote Address**



*George Dailey from the ESRI education team introduces John Kuglin, keynote speaker.*

John Kuglin was the keynote speaker at the conference. I have heard him speak before, at the 2001 ESRI Education User Conference in California. I have also spoken with him about an initiative to support GIS in all K-12 schools across the state of Colorado. John is based in Denver now but was formerly the assistant dean for

continuing education at the University of Montana. He was also the director of the NASA EOS education project there. Now he is the vice president for education and training programs at ComChoice Corporation.



*The message of John Kuglin's presentation was on the fact that geographic technology and data is becoming widespread in society, and educators need to be using these technologies and data with their students.*

### **Observations and Recommendations**

The GeoTech conference emphasizes interdisciplinary linkages between geography and science. It also emphasizes examining real-world issues in education and standards-based education. Therefore, it is important that we remain involved with this conference.

I believe that the USGS should play a major role in preparing teachers and students to use our data and products, and spatial data and technologies. Our relationship with the GeoTech conference is longstanding, dating back to 1997, and needs to continue.

The reason for conducting workshops at the conference is to add value to our presence above and beyond our exhibit. The traffic at

the exhibit is, as is the case during many of the conferences we attend, is lighter than during break times. By conducting workshops, we have the opportunity of working one-on-one with the teachers. We have the opportunity of obtaining their feedback on curricular materials that we develop. We work with educators to demonstrate **how** our products and spatial data in general can be used in conjunction with national science and geography standards. It does more than telling folks **what** products are available.

I attempted to emphasize USGS strengths in real-world data and technology in education, particularly geospatial and scientific information. Both the growth in educational technology and the curricular content standards present excellent opportunities for us to introduce our data and products to students and educators across the country. Educators who are trained in the types and applications of our data are a powerful lobby for the USGS. Students familiar with our data will form a geospatially-literate society. Another objective was to "train the trainers"--teachers--to magnify our effectiveness and maximize our limited resources. These trainers will themselves network with and train other teachers, administrators, and students.

By participating in this event, the publicity generated from teachers and students across the country for the USGS could be enormous, given current concern with teaching about globalization and technology.

We need to remain involved in education as an agency. Education shows our relevance to Congress and the general public. Education serves the needs of diversity, recruitment, and retention. Education ties

into all six major outreach audiences.

The only disappointing thing about GeoTech 15 was that the attendance was lower than in some past conferences. This could reflect the fact that teachers have more difficulty obtaining release time in the past, particularly with the emphasis in recent years on standards-based tests.

### **Acknowledgements**

I appreciated USGS support of the time and travel for my attendance at this event. I thank the organizers of GeoTech, particularly Christine Voigt, for her support of our exhibit and workshops, to Kate Dailey, principal of Bishop Dunne High School, for hosting the conference, and to the students for their enthusiasm and hope for the future.

\*\*\* End of GeoTech Texas 2003  
Conference Report \*\*\*

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