

EDUCATION OUTREACH EVENT REPORT AND RECOMMENDATIONS

Attendee and Report Writer's Name:

Joseph J. Kerski - Denver
Geographer

Location: Dallas TX

Event Date(s): 2-5 March 2005

Purpose:

17th Annual Geo-Tech Texas Conference

Geosciences Educational Technology
Conference

Department of the Interior "Highlight" that
was approved for sending to the White
House, February 2005:

USGS Supports Technology in Education at GeoTech 17

The USGS will support educators at the 17th Annual GeoTech Conference in Dallas, Texas, 2-5 March 2005. The conference, which attracts several hundred science, history, and geography teachers from elementary to university level, provides a forum to inspire and motivate educators to teach about the Earth--its structure, societies, environments, and their connections--using a wide range of technologies. USGS Geographer Joseph Kerski will offer technology integration information, training, lessons, and new USGS maps including a Central Region Earthquake Map. (Joseph Kerski, Denver, Colorado, 303-202-4315, jjkerski@usgs.gov)

My Activities at the Event:

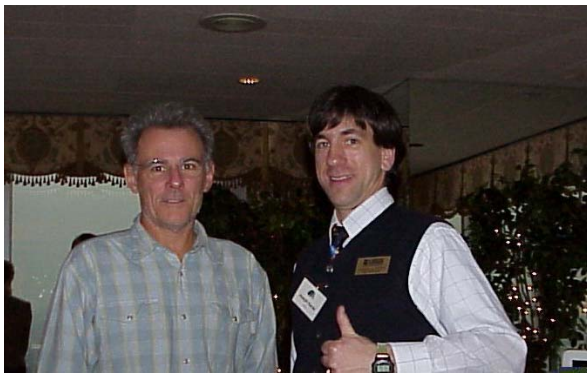
- (1) Saturday: Conduct workshop on coordinate systems, topographic mapping, and GPS – GIS integration.
- (2) Thursday-Friday: Assist with training teachers in GIS technology and tools, including the co-teaching of the GIS community-based strand with Dr Bob Coulter, Missouri Botanic Garden.
- (3) Wednesday: Participate in GIS Technology Session with ESRI staff and other GIS educators.
- (4) Friday: Conduct presentation to Metroplex Social Studies Supervisors Association.
- (5) Saturday: Operate USGS exhibit in exhibit hall.
- (6) Friday-Saturday. Meet and speak with Dr Michael Fay, archaeologist and conservationist.



Participants at the GeoTech conference represented educators and consultants from K-12 schools, community colleges, universities, private industry, government agencies, and nonprofit and informal educational organizations.



Where else can one have this much fun with Earth balloons but at a GeoTech conference?

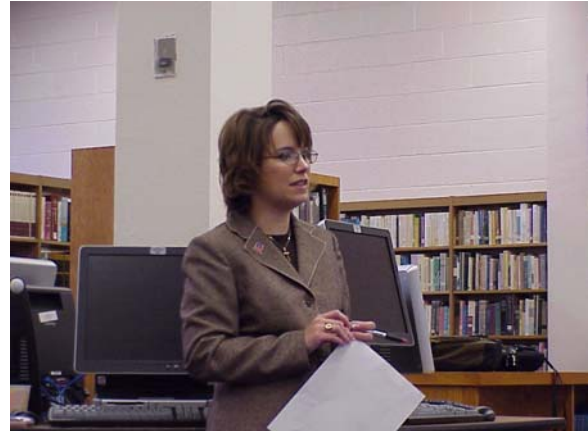


... and where else can one meet such people as this at GeoTech? Joseph Kerski with explorer, geographer, and conservationist Dr. Michael Fay (left).



GeoTech is held at Bishop Dunne Catholic

School in Dallas, Texas. This venue encourages teacher and student participation, ample time to prepare for the conference, and access to the GIS labs, and keeps the costs lower than holding the conference at a hotel or convention center. In 2004, the school was the only private school in the country to be named a 21st Century School of Distinction.



Conference organizer Christine Voigt, of Compass Educational Technologies. Ms Voigt promotes GIS in education through GeoTech and other events, and through her co-authorship of Mapping Our World and Community Geography from ESRI Press.

Conference Overview

The Geo-Tech conference is unique for several reasons:

(1) GeoTech is one of the few conferences that is specifically focused on geoscience and technology in education. This is well suited for organizations such as the USGS to be involved in, given our scientific mission and commitment to education and technology, specifically, GIS and remote sensing.

(2) GeoTech is one of the few conferences where students *and* teachers are both

welcomed and fully participate.

(3) GeoTech brings in well-known educators who share their vision with all of the participants. This report describes what National Geographic Society conservationist Dr Michael Fay discussed. In the past, Dr Sally Ride and Dr Kamlesh Lulla from NASA, 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 GeoTech. I have had personal contact with many of these individuals after the conference has ended. What a privilege to have met some of the top geographers, scientists, and explorers of our day, and it has all been because of GeoTech.

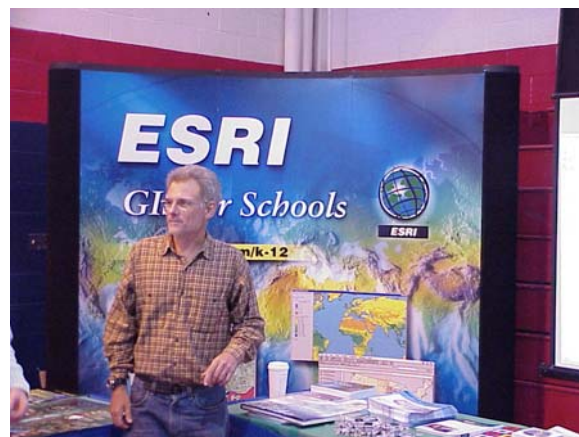
(4) GeoTech not only provides us an opportunity to share with other educators what our organization can offer, but by bringing many ESRI Education Staff and other professionals involved with GIS training to the conference, we have the opportunity to gain knowledge from many in the GIS education community. This professional development is very helpful to me and enhances all future training I will conduct.

The main GeoTech conference lasts one day, with GIS in education training offered in beginning, intermediate, and advanced strands during the two days before the main conference.

(5) 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 with a supportive team, resulting in the GeoTech conference, the school being named as a 21st Century School of Distinction, GIS labs and courses, and many other accomplishments.

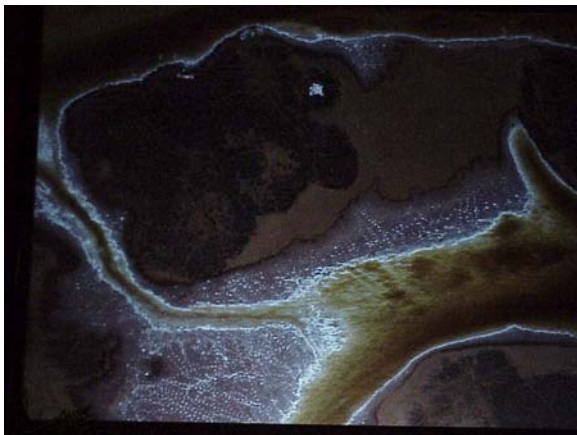
Special Guest—Dr Michael Fay



Dr. Michael Fay, above, is explorer, conservationist, and National Geographic scholar. His efforts from his trek across Central Africa resulted in many new national parks designated in Congo and Gabon. I first saw him a few years ago when he spoke at the ESRI User Conference. I was very impressed that Dr Fay chose to spend so much time with us—before and after his keynote presentation.



Dr Fay came to us just a week from returning to Africa to complete his “mega-flyover” of the continent. He is taking a photograph every kilometer (20 seconds) along his route, part of which is displayed above. He already has collected nearly 90,000 photographs and details of this trek will be featured in a Fall 2005 issue of National Geographic. Dr Fay commented that less than 1% of trees felled through logging actually make it to market.



One of Dr Fay’s amazing low-altitude photographs, all taken at just a few hundred feet above the surface, at a few centimeters resolution. I was especially encouraged that despite negative human impact on these ecosystems, Dr Fay remains optimistic about the future of Africa and about the future of humankind.



Dr Bob Coulter (Missouri Botanical Garden), Principal Kate Dailey (Bishop Dunne), George Dailey (ESRI) at the reception for Dr Fay. The reception was held on the 69th floor of BankAmerica, tallest building in Dallas, from where we had an excellent map-view of the city.

Day One—GIS Train-The-Trainer Workshop



On the first day of the conference, about a dozen people that I have been working with for nearly a decade gathered to share technical information about GIS. All of the participants are involved with GIS in education training, curriculum development, and research. Ann Johnson, Educational Program Manager at ESRI, above, right, led the demonstrations and discussion. Many of us have known Ann for years and we

respect her efforts in educational GIS all across the globe and her love for people, spatial technology, and geology.

These discussions included data management, spatial and 3D analyst extensions, and working with templates in ArcGIS. This workshop was very helpful and provided us, we who train others in a wide variety of settings, with a professional development opportunity of our own. This is critically needed in these days when Geographic Information Sciences and GIS software and applications are changing so rapidly.

GIS Training for Educators—Day 2 and 3



Above, Anita Palmer of GIS ETC works with teachers in one of the professional development strands of the conference. Ms Palmer is co-author of the books Mapping Our World and Community Geography, both from ESRI Press. These books have helped thousands of students analyze the world, the region, and their communities with GIS in just the past 3 years.



GeoTech includes two days of professional development for teachers in GIS technology and methods outside of the main conference day. Above, teachers in the advanced strand of the GIS training. We held three strands in which 30 teachers attended. Teachers could and did move a bit between strands as they so chose.



Above, Barbara DuFrain and Mike Price. I worked with them following the conference on an NSF-funded GIS education “GIS-TECH” project at Del Mar Community College in Corpus Christi. See my related report on:

<http://rockyweb.cr.usgs.gov/public/outreach/reports/delmar05t.pdf>



Dr Bob Coulter and I (at left) conducted the intermediate strand of the training, which focused on community-based projects. The strand included downloading and using TIGER and Census information, using GPS, examining crime patterns in a community, using data from TNRIS, self-directed projects, and more.



Above, DOQ of campus of Bishop Dunne. Bob Coulter and I discovered a 70-meter offset in the new 2002 images from Terraserver and I have submitted this problem for review.



Above, teachers work through a topographic map and GPS class that I taught during the main conference. It was an honor to have Miguel Pavon of TNRIS (above, right) attend this workshop! Miguel runs the Borderland Information Center and our Texas USGS mapping liaison Jean Parcher has worked with him on research, development, and partnerships for many years. We have a great deal of respect for his work and that of all the BIC and TNRIS.



Above, two views of teachers in our workshop recording the position of trees on

campus, measuring their heights with inclinometers that I made, and mapping the results on top of base topographic and orthophoto data in a GIS environment.

Presentation to Metroplex Social Studies Supervisors Association



George Dailey (ESRI), Christine Voigt (Compass), and I conducted presentations for the Metroplex Social Studies Supervisors Association meeting.



Above, George Dailey and Joseph Kerski. It was a pleasure to speak with these high-level coordinators of school social studies content about what we feel so passionately about—spatial learning.

Day 4: Main Conference



GeoTech provides excellent opportunities to network with others teaching about the Earth, its people, its environments, and spatial thinking and technology.



Teachers such as Eric Bowman (left) and Debra Heimbach demonstrate the difference in a school district that can occur when teachers and district officials become excited about the possibilities for spatial technologies, resulting in interdisciplinary, problem-based, inquiry-driven learning.



Above, Meg Garrett, with the help of three excellent students, sets contour lines in preparation for Meg's workshop on mapping and exploring the landscape. Meg's creative, outdoor activities were a perfect complement to the GeoTech conference.



It was good to see Ms Sunday of Bishop Dunne High School being her usual efficient self. Ms Sunday and the other BDHS staff help the conference run smoothly and make all of us visitors feel welcome.



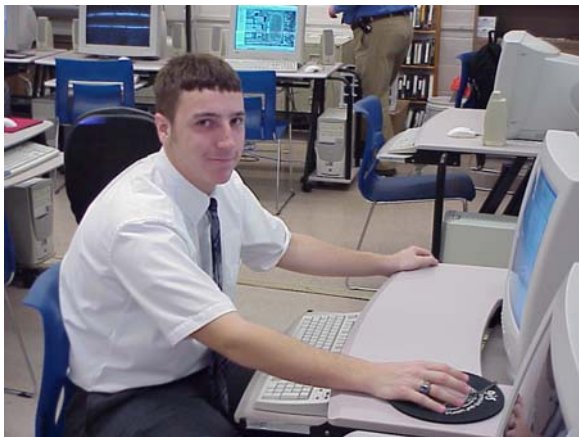
One of the best things about GeoTech is the participation of Bishop Dunne students. They introduce the speakers, participate in workshops, help with conference logistics, provide directions, help with the set up of workshops and exhibits, and help in other ways as well. Their professionalism and enthusiasm impresses me each year.



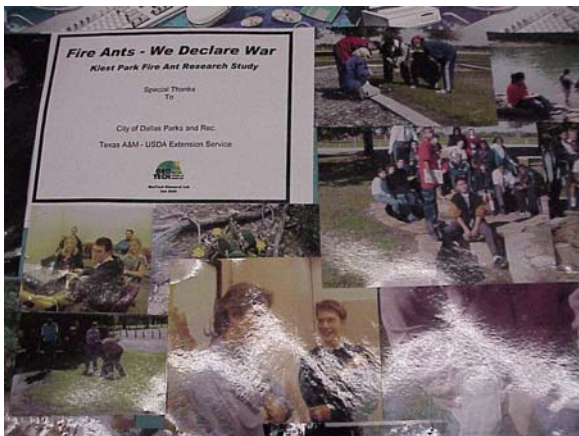
Teacher Brad Baker attended a GIS-for-educators institute that we co-conducted with the ESRI staff in 1998, and to witness what he, Teacher Roger Palmer, and their students are doing with GIS technology at Bishop Dunne is truly amazing.



Mr. Baker's students conducted demonstrations of their GIS-based investigations throughout the conference. We used Mr. Baker's computer lab for part of the training.



Student showing 3D mapping applications.



Poster that Brad Baker's students created as a result of their GIS-based analysis of fire ants.

USGS Information Exhibit and Materials



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



Joseph Kerski and George Dailey (ESRI) at USGS exhibit. Our exhibit focused on USGS resources to support GIS in education and real-world scientific investigations in the classroom. Other exhibitors included ESRI, the Texas Alliance for Geographic Education, Rand McNally, Glencoe, and others. One of the highlights was that Michael Fay set up a book signing in our exhibit!

I distributed the following materials: maps (US-Mexico orthoimages, Central Region Earthquakes, Texas state topographics, USA physical regions, and others), GIS-based lessons on using USGS spatial data, GIS-based lessons (*RMS Titanic*, hurricanes, tornadoes, USA historical population change, world earthquakes, world demographics, locating fire towers, site selection in riparian environments, Map Mysteries lessons, Teaching With Topographic Maps Lessons), papers on the Implementation and Effectiveness of GIS, USGS information on web sites, Lewis and Clark, our map catalog and map store, educational items, several water quality books on the Trinity River, water-related posters and circulars, map and GIS-related posters and booklets, and geologic information.



Above, George Dailey (ESRI) and Christine Voigt (Compass Educational Technologies) oversee the Door Prize Giveaway portion of the conference. I donated USGS maps to join with software, books, maps, and other items from other organizations.

Recommendations

GeoTech and events like it illustrate the impact that spatial analysis with GIS can have. It empowers students to investigate

the world using 3D fly-throughs, maps, images, and databases that they find interesting. A glance at the conference program illustrates the wide applications of GIS in education—history, math, geography, environmental studies, earth science, biology, and more.

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 events such as this.

I believe that the USGS and other federal organizations have a role to play in preparing teachers and students to use our data and products, and spatial data and technologies. I believe that it is also our responsibility to do so as a public service agency. Our relationship with the GeoTech conference organizers and participants are some of our longest and most fruitful of all of our educational relationships and needs to continue.

The reason we must conduct workshops at this and other conferences is to add value to our presence above and beyond our information 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 strength 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 attention generated from teachers and students across the country for the USGS and for science 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 audience types.

Acknowledgements

I appreciated USGS support of my attendance at this event and thank Sherry Jackson for her help with the materials. I thank the organizers of GeoTech, particularly Christine Voigt, for her support of our exhibit and workshops, Ann Johnson, Mike Price, Barbara DuFrain, George Dailey, Dr Bob Coulter, Anita and Roger Palmer, Brad Baker, and the others who made it so memorable. I also thank Kate Dailey, principal of Bishop Dunne High School, for hosting the conference.

I thank Dr Michael Fay for spending time with all of us and was very impressed that he did so. I thank all of the students for their enthusiasm and hope for the future.

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End of
GeoTech 17 Conference Report
