OUTREACH EVENT REPORT AND RECOMMENDATIONS

Attendee's Name and Report Writer:
Joseph Kerski, Geographer: Education/GIS, USGS, Denver, Colorado.

Event:
National Council for Geographic Education Annual Meeting

Other USGS Participants: Mitch Addelson (Western Geographic Science Center ESIC Specialist), Leslie Gordon (Western Region Geologic Education Coordinator). Also attending was Lawrence Handley, BRD National Wetlands Research Center, who is on the NCGE Board.

Event Date(s): 1-4 August 2001

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My activities at conference:

1. Participate in panel on "The Status of GIS in Education."

2. Give presentation on "Exploring Historical Floodplains."

3. Conduct presentation on "The Implementation and Effectiveness of GIS Technology and Methods in Secondary Education."

4. Participate in geography education research round table "EMBARC" project with professors from around the country.

5. Attend educational sessions, such as "Mapping The Environment" from the Missouri Botanical Gardens, "MicroMSI Remote Sensing Software," and "Mapping with Microsoft Excel."

6. Help set up, tear down, and operate USGS exhibit with other USGS personnel.

7. Receive NCGE dissertation award.

Vancouver skyline from University of British Columbia, 4 August 2001. Note the "Marine West Coast" climate!

The Status of Geographic Education

The field of geographic education experienced a tremendous renaissance beginning in 1984 and ending around 1999. Some would argue that the renaissance has ended, but recent developments and setbacks have made me realize that we are now in a "reassess and regroup" phase.

The renaissance began with extensive media coverage of the lack of geographic knowledge by not only K-12 and college students in American schools, but by the American public. During the 1980s, geography was included in one of the five core subjects in the President's "Goals 2000: National Education Act."

In 1994, the National Geography Standards were published in a document entitled *Geography for Life*. The most recent advancement in geography education was the addition of geography as one of the secondary subjects in which students may take "Advanced Placement" or A.P. courses. The development of the A.P. curriculum continues to be one of the main accomplishments of the NCGE and its members.

Recently, geography has been cut from some secondary programs due to increased emphasis on standardized testing in math, reading, and science in different states. Subjects that are not rigorously tested tend to be crowded out of the curriculum as schools seek to demonstrate their test scores as required by their state boards of education.

Another disappointing recent development has been the reduction of National Geographic Society's funding of the state geography alliances. The alliances have trained thousands of teachers since their inception in 1986, and the USGS has participated in numerous institutes, conferences, and in other ways in alliance-sponsored events. I am familiar with ways we have participated in Colorado, Tennessee, Wyoming, New York, Arizona, and Nebraska, and I am sure that there are other examples. This funding reduction means that the alliances will need to seek other means of getting geography teachers trained in the discipline--a critical need for geography teachers, as they often have less discipline training than teachers of math or science. The reason is that geography, anchored in the social studies, tends to get crowded out by other social sciences such as history and economics.

The NCGE

Since 1915, the NCGE has been promoting and improving the effectiveness of education in geography. NCGE currently has over 6,500 members, including K-12 teachers, university faculty, students, government employees, representatives from private companies, and others interested in geographic education. The NCGE publishes the monthly *Journal of Geography*, and a newsletter entitled *Perspective*. Their web site is www.ncge.org and their headquarters are at the Indiana University of Pennsylvania, which I visited in July 2000 (ask me for report). This headquarters will be moving sometime during 2002 to another university, probably in Mississippi or Alabama. See "recommendations" section for the counterparts to the NCGE in Canada.

Five Themes of Geography

To specifically serve the teacher population, a publication entitled Guidelines for Geographic Education was published in 1984 and its contents became known popularly as the "Five Themes of Geography." These include:

1. Location
   - Relative Location
   - Absolute Location
2. Place
   - Human Characteristics
   - Physical Characteristics
3. Human-Environmental Interactions

Humans adapt to the environment
Humans modify the environment
Humans depend on the environment.

4. Movement
   People
   Goods
   Ideas
5. Regions
   Formal
   Functional
   Vernacular (perceptual)

The five themes served as a framework upon which the content of geography can be taught and served the K-12 population until the national geography standards were published in 1994. Since the six elements of the national standards embrace the five themes, they remain a valuable tool for students to use in developing a "geographic perspective," while the standards strengthen instructional planning.

The 18 National Geography Standards were published in 1994:

The World in Spatial Terms

Geography studies the relationships between people, places and environments by mapping information about them into a spatial context. The geographically informed person knows and understands:

1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.
2. How to use mental maps (a person's internalized picture of a part of Earth's surface) to organize information about people places, and environments.
3. How to analyze the spatial organization of people places, and environments on Earth's surface.

Places and Regions

The identities and lives of individuals and peoples are rooted in particular places and in those human constructs called regions. The geographically informed person knows and understands:

4. The physical and human characteristics of places.
5. That people create regions to interpret Earth's complexity.
6. How culture and experience influence people's perceptions of places and regions.

Physical Systems

Physical processes shape Earth's surface and interact with plant and animal life to create, sustain, and modify the ecosystems. The geographically informed person knows and understands:

7. The physical processes that shape the patterns of Earth's surface.
8. The characteristics and distribution of ecosystems on Earth's surface.

Human Systems

People are central to geography in that human activities help shape Earth's surface, human settlements and structures are part of Earth's surface, and humans compete for control of Earth's surface. The geographically informed person knows and understands:

9. The characteristics, distribution and migration of human populations.
10. The characteristics, distribution and complexity of Earth's cultural mosaics.
11. The patterns and networks of economic interdependence.
12. The processes, patterns, and functions of human settlement.
13. How the forces of cooperation and conflict among people influence the division

and control of Earth's surface.

Environment and Society

The physical environment is modified by human activities largely as a consequence of the ways in which human societies value and use Earth's natural resources and human activities are also influenced by Earth's physical features and processes. The geographically informed person knows and understands:

14. How human actions modify the physical environment.
15. How physical systems affect human systems.
16. The changes that occur in the meaning, use, distribution, and importance of resources.

The Uses of Geography

Knowing geography enables people to understand the relationships between people, places, and environments over time. The geographically informed person knows and understands:

17. How to apply geography to interpret the past.
18. How to apply geography to interpret the present and plan for the future.

Recommendations

1) This is the 7th year in a row that I have attended the annual NCGE conference, and I have been a member of NCGE since 1995. As the nation's largest scientific organization, the USGS can and has provided great input to publications, data sets, software, and other items related to geographic education. This is particularly true in the area of bringing GIS to the classroom: the USGS could be a leader in generating data sets that teachers can easily use at all grade levels. In so doing, the publicity generated from teachers and students across the country for the USGS could be enormous, particularly with the amount of media on the need for geographic knowledge.

The NCGE conference is, as Leslie Gordon aptly put it, our bridge to the social studies. Because of geography's entrenchment for decades in the social studies, this conference (and that of the National Council for the Social Studies) is the primary means by which social studies teachers learn about the USGS. Very few of them attend the much larger NSTA (National Science Teachers Association) conference. The relative size of the NCGE conference compared to the NSTA shows how far that geography needs to go to have equal foothold in the foothold as the sciences. Still, it has made much progress since 1985. We need to be at NCGE each year!

2) The value-added in our involvement with the education focus area of outreach is that we work with educators to demonstrate *how* our products can be used in conjunction with national science and geography standards.

It is not enough to tell which products are available. Teachers already know how to find resources and they have a great deal of material. When we get involved with teachers--getting their input and working with them--we can understand how to best meet their needs. We have talked extensively about this over the past year in the Director's Education Team.

3) I recommend we increase involvement with the NCGE. This is an organization that regularly seeks guidance from us, and also tells us how appreciated we are, and wants to increase its involvement with us. In 1998 they initiated an educational project with NASA, which is bringing publicity to both the NCGE, and NASA, called "Mission

Geography." I believe the USGS is equally suited for such collaboration.

The USGS outreach program suffers from a chronic lack of funds and partnerships to assist us in our efforts. Professional societies are not large reservoirs of funds, but I believe the NCGE holds tremendous untapped potential for partnership opportunities with the USGS and I think we need to build on what Roger Barlow started to formalize this agreement with an MOA.

The NCGE has worked closely with the Association of American Geographers (AAG), the American Geographical Society, and the National Geographic Society. The USGS should not miss the opportunity to be another link in the cooperative efforts that have already been successful.

4) Despite the concerns I mentioned earlier, these are exciting times for geographic education. I believe that the USGS could play a role in this expansion of geographic education, by producing a modular CD-ROM and an expanded web presence that includes base and thematic spatial data sets, with one module for each of the national geography standards, and for different grade levels (primary, middle, and high school). Teachers lack the time to find sites for spatial data, and reformat that data to use in a GIS. They need easy-to-use data that can be imported into a GIS such as Idrisi or ArcView.

5) I met with Dr Bob Bednarz, NCGE President, to set up a meeting at Texas A&M in September when I am there to conduct a GIS training for educators. I also was invited by Dr Ruth Shirey in July 2001 to conduct a segment of her technology in geography institute for teachers. This indicates how well our organization is respected and viewed by the NCGE. In another example, our relationship with 1999 NCGE President Gail Hobbs began from our materials support of her courses at Pierce College, illustrating that our outreach activities have far-reaching effects.

6) The presentations worked well in tandem with the exhibit, where we could answer additional questions following the presentations as well as direct attendees toward the presentations from the exhibit. I recommend at least one USGS presentation at this and all other conferences that we attend. We have so much to contribute!

The next conference of NCGE is during FY 03 (none in FY 02), in Philadelphia, Pennsylvania, October 2002.

7) I am puzzled why the USGS is not doing more with our remote sensing, geographic, scientific, cartographic, and educational counterparts in Canada, See my note above about the excellent folks adjacent to our exhibit from Natural Resources Canada. We need to pursue these relationships, not just in outreach, but also in C&R, production, research, and throughout our organization! For example:

The Canadian counterpart to the NCGE is the Canadian Council for Geographic Education, at:
http://www.ccge.org/geosources/English.htm

The Royal Canadian Geographic Society is Canada's counterpart to the USA's National Geographic Society, at:
http://www.rcgs.org/English/English.htm.
Canadian Geographic is at :
http://www.cangeo.ca/.

The Canadian Cartographic Association; does excellent work, at:
http://www.geog.ubc.ca/cca/ . The NRC

Centre for Topographic Information is at maps.nrcan.gc.ca. The National Air Photo Library is at http://airphotos.nrcan.gc.ca. The GeoNames are on http://geonames.nrcan.gc.ca.

We should also be working with the Canadian Association of Geographers: http://venus.uwindsor.ca/cag/cagindex.html and the Canada Centre for Remote Sensing, at http://www.ccrs.nrcan.gc.ca

My Participation at the Conference

(1) I participated in geography education research round table "EMBARC" project. This stands for "Encouraging Our Members to Belong to a Research Community". I worked with the group who gave me valuable input to my planned research in educational GIS and standards. Larry Handley from the USGS also participated.

This group grew out of a special interest network (SI-Net) of the NCGE in which I have been a member since 1998, and we share ideas for current and future research in the field.

Dr Susan Hardwick from the University of Oregon facilitates the EMBARC research group.

I found out about an excellent resource entitled *Handbook of Research on Teacher Education, 2nd Edition.* This 1996 resource came from a project of the Association of teacher Educators. John Sikula, Thomas Buttery, and Edith Guyton.

Another good resource is the *Handbook on Research on Social Studies Teaching and Learning.* Macmillan, NY. 1991. Dr Joseph Stoltman, a geographer long active in education, wrote chapter 36 in the book. Editor is James P Shaver.

(2) I participated in a panel on "The Status of GIS in Education" with the community college and K-12 coordinators from the ESRI education staff. Approximately 30 people attended this session.

(3) I gave a presentation on "Exploring Historical Floodplains," a project I am working on with a high school teacher to use USGS and other current and historical photos, newspaper accounts, city and county GIS data layers, and other information to illustrate how the concepts of politics, land use, physical geography, and population geography can be used to explore historical floodplains in the curriculum.

(4) Next, I gave a presentation on "The Implementation and Effectiveness of GIS Technology and Methods in Secondary Education." This is the research I won the dissertation award for. I presented research results of a survey to 1,520 high school teachers who owned GIS software, 86 experiments that I conducted in 3 high schools, and case studies to discover the implementation and effectiveness of teaching geography using GIS. I illustrated lesson modules I developed with teachers for these experiments, described USGS digital data useful for education, and discussed challenges and benefits involved

with implementing GIS in the classroom.

Keynote Address

I attended the keynote address, which featured Astronaut Mario Runco. He showed some excellent "remotely sensed" images that he took from several space shuttle missions he has been on. Leslie and I happily noted that he served with the USGS as a hydrologist!

Dr Margaret North of UBC, Dr Bob Bednarz of NCGE, and Astronaut Mario Runco, Jr.

Other Sessions Attended

I attended educational sessions on "The Health of the Discipline of Geography," "MicroMSI Remote Sensing Software," and "Mapping with Microsoft Excel."

I met with Sophia Linn of the Colorado Geographic Alliance to discuss plans for the 2002 GeoTech and summer institute.

I also attended "Mapping The Environment" and met with Dr Bob Coulter from Missouri Botanical Gardens to plan our November-December institutes in St Louis. I wrote a letter of support to Dr Coulter's funded grant that will bring mapping and GIS techniques to educators.

Award Received

I was very pleased to receive first place in the dissertation award from the NCGE, as my research focused on geographic education. This made the "highlights" in April 2001. I was also pleased to see that Lawrence Handley of the USGS received an award for his geography community service.

Lawrence is on the NCGE research and external relations board. I am on the ballot to the NCGE board this year and if elected I will join Lawrence and the other excellent people on the board in 2002.

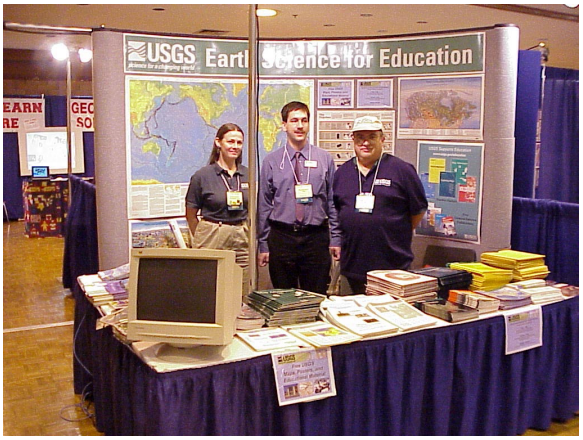
Associate Director Connie McCardle, President Dr Bob Bednarz, Joseph Kerski.

NCGE Board member Howard Johnson gives award to Joseph Kerski.

Before the ceremony, attendees were permitted access into the excellent UBC Museum of Anthropology, which featured many totems from the area.

USGS Exhibit

I always have a bit of trepidation when the exhibitors are in a different building from the paper sessions and conference registration that the traffic will be reduced. This might have happened a bit, but this could be more adequately assessed by Leslie Gordon and Mitch Addelson. Approximately 750 people attended the conference and we were quite busy, especially the first day.



Leslie Gordon, Joseph Kerski, and Mitch Addelson in our corner USGS exhibit.

Despite our separate location upstairs in the student union, we took advantage of our corner location quite well.

Leslie Gordon works with customers at our exhibit.

Our exhibit theme was natural hazards of the northwest, emphasizing earthquakes, given the location of the conference. We also featured a This Dynamic Planet map and a map projections poster. We displayed teachers packets, fact sheets, posters, and a variety of new circulars and professional papers. We also featured sample map products, DDS CDs, and DOQ, and DEM demos on our computer and monitor.

While we did display many new items, I don't feel badly about showing some of the things we have displayed in the past, as each NCGE conference attracts a strong regional component. Plus, at this conference, approximately 25% of the teachers were from Canada.

Other Exhibitors

So, you think you know how America received its name? Think again! Author Rodney Broome was signing copies of his

book *Terra Incognita: The true Story of How America Got Its Name* at the Educare Press book. Mr Broome maintains that it was named after an Englishman Richard Amerike. Don't laugh until you check out this evidence! This is just a sample of the interesting kinds of information that one receives from the NCGE conference.

The USGS exhibit was adjacent to Natural Resources Canada, an organization similar to DOI, which includes the Canadian Geological Survey and the Canada Centre for Remote Sensing. For example, the Canada Centre for Remote Sensing has a Quicklook Swath browser, at: http://ceocat.ccrs.nrcan.gc.ca/quicklook/quicklook.html. This allows users to examine very recent AVHRR, Landsat, and Radarsat imagery over North America.
Other exhibitors included ESRI, publishing companies, Population Reference Bureau, US Census Bureau, ESRI, National Geographic, Rand McNally, and Glencoe. I assisted in the set up and a bit of the operation of the USGS booth in the vendor exhibit area, which was staffed by the excellent Mitch Addelson and Leslie Gordon.

International Geography Olympiad

I attended a small part of the International Geography Olympiad in the hopes of telling host Alex Trebek (of Jeopardy fame) about the USGS. I did not have the opportunity to do so, but the competition was quite exciting and will be televised in September or October (see article excerpt from newspaper below).

Alex Trebek moderates International Geography Olympiad.

Maui Boy is on U.S. Team That Wins Geography Olympiad
By Gary T. Kubota - Honolulu Star-Bulletin

Name the gulf in the Ionian Sea that is southeast of Italy. Nicholas Jachowski answered: Gulf of Taranto. Name the bug in central and eastern Africa that spreads a lot of disease. The 14-year-old Maui boy replied: Tsetse fly.

The U.S. team at the Fifth International Geographic Olympiad in Vancouver, Canada, got all the questions correct until the seventh round when it was presented with a weather graph along with the names of four cities and asked to pick the city matching the diagram. The Canadian and Hungarian teams also selected the wrong answers, but the United States had an insurmountable lead going into the eighth and final round. "I was shaking a little bit during the competition. I felt nervous. I was just hoping to get questions that I knew and that happened," he said.

USA, Canada, and Hungary team at the final round of the International Geography Olympiad.

Nicholas and other members on the United States team took first place in the Olympiad, defeating teams from 11 other countries. "I feel like I'm on top of the world," said Nicholas of Pukalani, Maui. "It's cool to know you're on the team that was the best in the world." In the finals today, the United States team defeated Canada and Hungary.

Jachowski said he studied between two and five hours daily for two years and was grateful for the support given him by his parents and teachers. Jachowski said all the team members usually knew the answers to questions but there was one answer he knew that made a difference and came as a result of living in Hawaii. During a preliminary round, the U.S. team was shown a glass ball and asked what country made the glass ball as a fishing float. "I knew it was Japan and the rest of them weren't sure," he said. Jachowski, who will be in the ninth grade at Maui High School, said he and other team members received a gold medal "the size of a big cookie."

The final round is expected to be aired on the National Geographic channel in the United States in late September. Coincidentally, Jachowski, who graduated from the eighth grade at Kalama Intermediate School, said he wants to become a writer or photographer for National Geographic. He said while at the competition, he spoke with a National Geographic writer who had just done a story about Xian, China, and was going back to China next week.

"He gets to travel around the world a lot," Jachowski said. Jachowski said his family who attended the competition was happy with the outcome and he was excited about traveling today with them to Southern California on a vacation to Disneyland and rock climbing next week at Yosemite National Park.

"It was really really exciting,'" said Nicholas' mother Maile Jachowski, a Maui pediatrician. "They had such a great experience." Nicholas's father Doug Jachowski, an engineering consultant, said his family was cheering for all the teams and the U.S. team enjoyed meeting youths from other nations. "They were very lucky to be there," he said. "Our kids did really well."

For Nicholas, it's been an outstanding year in academic endeavors. In addition to the International Geographic Olympiad gold, he has placed third in the Hawaii State Spelling Bee, 10th in the state Math counts competition, first in the Hawaii State Geography Bee and second in the U.S. National Geographic Bee. Nicholas said when he returns to Maui, he plans to create a display case where he can put his gold medal next to his other medals.

He said under Olympiad rules, winners can't compete again. He doesn't know what he'll be doing in the coming year but he's game. "I'm looking for other competitions," he said.

Acknowledgements

I appreciate the USGS' support of my attendance at this event. I consider NCGE to be the single most important event to my position as educational outreach geographer of any conference during the year. If I had to choose four conferences that are the most valuable to me, I would choose: NCGE, ESRI Education and User conferences, AAG, and GeoTech Texas.

I have had the privilege of working with Leslie Gordon on such activities as the bureau education team and at prior Geological Society of America conferences. It was excellent to work with her again. Mitch Addelson was excellent to work with as well, and I thank him and Leslie Gordon for their professionalism and wealth of knowledge.

end of report