EDUCATION EVENT REPORT AND RECOMMENDATIONS

Attendee and Report Writer:
Joseph Kerski, Geographer: Education/GIS

Other USGS Representatives:

Steve Vandas and Pete Modreski (Central Region Office of Communications)

Purpose of Event:

Conduct workshops and operate USGS Exhibit: Colorado Association of Science Teachers (CAST) Annual Conference

Location: Merchandise Mart, Denver, Colorado.

Date: 20 – 21 November 2003

Summary

The USGS will participate in the Colorado Science Teachers Convention with an exhibit showcasing USGS educational science resources, 20-21 November 2003, Denver, Colorado. USGS scientists will conduct workshops on "Exploring The Earth—Thousands of Geo-Registered Photographs" (Joseph Kerski), "Geographic Education Magazine of Science" (Steve Vandas), and "investigating the Chemistry of Rocks and Minerals" (Pete Modreski). The convention theme is "Science For All," and 500 or more Colorado educators are expected to attend. (Pete Modreski, 303-202-4766, Denver, Colorado).

The USGS participated in the 2003 Colorado Science (Teachers) Convention by operating an exhibit and conducting three workshops on science education. We have been privileged to be a part of this convention since the mid-1990s and involved with the science education in the state before that.

Denver Merchandise Mart, site of 2003 Colorado Science Convention.

L-to-R: Joseph Kerski, Pete Modreski, and Steve Vandas at the USGS information exhibit at the Colorado Science Convention.

USGS Highlight Submitted to the US Department of the Interior and the White House for this event:

Colorado Science Teachers Convention

Science education conventions are held in most states, acting as important venues for sharing information, techniques, tools, research, and for forming partnerships. In Colorado, the Colorado Science Teachers Convention is an annual event that most of us in the Colorado science education community look forward to each fall. It attracts between 500 and 700 teachers each year, including K-12 science teachers, personnel in county, state, and federal agencies, nonprofit, and private organizations who support science education, university science and education professors, graduate students in science and education, and the scientific instrument and education vendor community.

This year's convention featured keynote addresses by Dr Orwyn Sampson of NASA, Dr Carolyn Schooley of the Micro Project, Dr Kirk Johnson of the Denver Museum of Nature and Science, and nature photographer John Fielder. The convention is supported by the Colorado Association of Science Teachers, the Colorado Chemistry Teachers Association, the Colorado Biology Teachers Association, and the American Association of Physics Teachers.

Joseph Kerski, Steve Vandas, and Pete Modreski at the Colorado Science Convention. We took the opportunity of the convention to further our relationship with several of our educational partners.

Two students in the exhibit hall at the conference have fun with creating and 'zapping' bubbles.

The energy-science vehicles parked right in the exhibit hall were quite impressive.

One of the most popular exhibits at the conference from Steve Spangler Science featured a super-absorbent polymer that was dubbed "artificial snow." It even felt cold!

The Space Science Institute's exhibit featured a movable "robot" (left) and important information about teaching about space, planets, and future professional development opportunities in this field for educators.

One of my favorite exhibits was from Hubbard Scientific, because they featured globes, raised relief maps, and the excellent books "Aerial Stereo Photographs" and "Aerial Stereo Atlases" that are excellent for teaching about landforms and earth processes.

USGS geologist and communications specialist Pete Modreski (right) gave several sunspot explanations and viewings during the day with his binoculars fitted with welders' filters and lenses.

As sunspots have been quite active during November 2003, these viewings were a perfect addition to the convention. Fortunately, the snowstorm held off until the next day.

Workshops

USGS staff conducted three workshops at the convention:

(1) Joseph Kerski—Exploring the Earth Using Thousands of Earth-referenced photographs. I described how to use the World Confluence Project's resources (www.confluence.org) in science and geography education. I was pleased that approximately 18 people attended this workshop.

My lessons for using this resource are on: http://rockyweb.cr.usgs.gov/public/outreach/confluence.html

(2) Steve Vandas—Geographic Education Magazine of Science (GEMS). Steve described the format of GEMS, our electronic magazine, or E-zine, that resulted from a successful partnership between the USGS, the BLM, and the National Park Service.

Steve Vandas (left) received some feedback on GEMS from educators in the workshop.

This magazine has been published about 8 times during 2003 and is an excellent bridge

between geography and science. Issues this year have focused on water, national parks, aerial photographs, earthquakes, and more.

(3) Pete Modreski—Investigating the Chemistry of Rocks and Minerals.

Two views of Pete Modreski and the attendees at his geochemistry workshop.

I attended the GIS workshop by Chris Nichols, left, and Roger Felch. These two educators at Englewood High School have integrated the best of several different geographic information systems resources—the book *Mapping Our World*, Northwestern University's Worldwatcher Program, and ESRI's ArcView GIS. I have worked with them for years and they have my highest admiration for their innovation, energy, and expertise.

USGS Exhibit

USGS exhibit at the conference, showing the new Tapestry North America map and the This Dynamic Planet map. We replaced the dynamic planet map with a

Lewis and Clark map for variety midway through the conference. The photograph shows the two counters and the display rack on which we showcased maps, CDs, posters, educational packets, lessons, guidelines, information sheets, and booklets.

Steve Vandas, right, explains USGS materials to visitors to our exhibit.

The exhibit was popular, although perhaps a bit less than in years past, perhaps because of the "flu" that has been rampaging through Denver, and perhaps because it is becoming more difficult for teachers to obtain release time (the conference occurred during regular school hours).

In our exhibit, we emphasized the 2003 Earth Science Week packet, in which we had a Global GIS CD (Hare et al.), a lesson to accompany the CD (Kerski), and a minerals CD. We also showcased new products and new research, along with traditional science education materials (books, maps, CDs, posters, lesson packets).

Acknowledgements

It was a pleasure once again to work with the Central Region Communications Team's Steve Vandas and Pete Modreski at this event and applaud their "going the extra mile" by conducting workshops as well as operating the exhibit. This is a good example of the whole education team coming together for an event. I thank Lisa Scales for the use of the projector, and Mary Wadding for help with the materials.

Recommendations

1) We might want to use some of the ideas and materials from this conference, and those that my colleagues in other regions use in their own state science educational events, at the National Science Teachers Association conference in Spring 2004. I would recommend that the USGS

participate in the national NSTA conference each year, despite dwindling funds for educational events.

2) The 21st Century is an exciting time to be involved in science education, with the resurgence of public interest in the subject, and high attention to the national and state science content standards and high-stakes school testing. Education receives a great deal of publicity. The USGS should continue to pursue educational venues with both an exhibit and a series of workshops.

3) The very first visitor to our exhibit was a teacher who has used GIS in the classroom. GIS is being increasingly used in secondary and even primary schools. The USGS should continue to investigate the educational potential of GIS packages so that we can make informed answers to customers who seek to use our data in a GIS. Our lesson and CD in the 2003 Earth Science Week packet is one step in the right direction.

4) Once again, the use of workshops at a conference tied in well with our exhibit—generating interest at the exhibit and a the workshop—and I recommend that we continue this practice. We have no shortage of workshop topics!

5) I recommend we continue our participation at this event. One of the prime reasons for attending was to network with other Colorado organizations active in science education, including the:

1. Colorado Association of Science Teachers

2. Cooperative Institute in Research in Environmental Sciences (CIRES)

3. University of Colorado Education Outreach Program.

4. Denver Museum of Nature and Science.

5. Colorado Mountain Club.

6. Colorado Earth Science Teachers Network.

7. NOAA, Boulder.

8. UCAR, Boulder. We set up a meeting to discuss GIS in education, GLOBE, and GIS in mid-December 2003.

9. State of Colorado Department of Natural Resources.

10. MCREL—Mid-Continent Research and Education Lab.

6) We enjoy working at the Denver Merchandise Mart—the parking is free and the location is easy to reach. The lower cost for facility rental (versus at a hotel or downtown) is appreciated as well. We are also at the same convention center for the GIS in the Rockies conferences each year.

Event and Exhibit Planning

Focus areas covered by this event:

(1) Nongovernment/Industry Relations (10%)
(2) Government Relations (10%)
(3) Education (80%)

Materials

We distributed many items at this conference, including some that are no longer in stock, because the conference is local for us, and it is easy to transport materials here. We save many items during

the year specifically to distribute to the attendees at this event. We also donated items to the "door prizes" for the convention attendees. Distribution items included, but were not limited to, the following:

2002 Earth Science Week packet
2003 Earth Science Week packet
NWIS Real-Time Water Information
Water Quality in the South Platte
C1225 The Quality of Our Nation's Water--Nutrients and Pesticides
Circ 1139 Ground Water and Surface Water--A Single Resource
Global Change Teachers Packet
Land and People Teachers Packet
Oceans water poster
How to Get Info from the USGS
USGS Publications in CO and USA
USGS GeoData
Educational Materials from the USGS
FS-082-97 National Atlas Fact Sheet
FS-244-95 Pesticides in Ground Water
Colorado fact sheet
CO Catalog of Topographic and Other Published Maps
Colorado Map List
WWW Information Sheet FS 077-99
Collecting Rocks
Dinosaurs: Facts and Fiction
Finding Your Way With Map and Compass
Fossils, Rocks, and Time
Map Projections
Denver's Geologic Setting
Volcanoes of the United States

Pete's rocks and minerals information and identification sheets
Pete's sample rocks and minerals

Joseph's GIS in education information
Map Mysteries lessons
Teaching with Topographic Maps

Geographic Education Magazine of Science sample issues

Misc. 7.5' topographic maps of Colorado
Misc. thematic maps
Misc. professional papers

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