EDUCATION EVENT REPORT AND RECOMMENDATIONS

Purpose of Event: Colorado Science Olympiad, Northern and Southern Regional Finals

Attendee and Report Writer's Name:
Joseph Kerski, Geographer

Locations: University of Colorado - Colorado Springs and Fort Collins High School, Colorado

Other USGS Participants:

Pete Modreski – USGS Central Region Office of Communications

Ryan Huffman – USGS Geology Discipline, Energy Team

Catherine Costello – USGS Cartographer

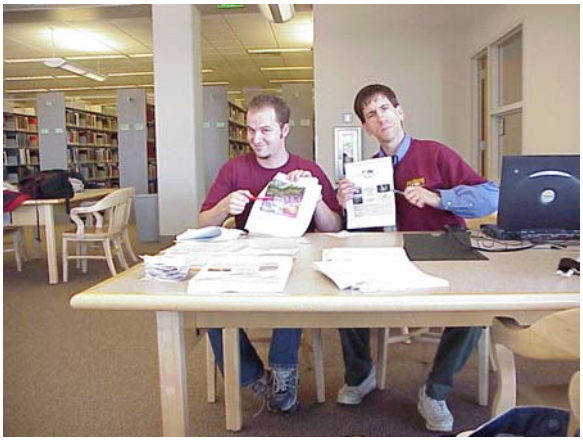
Tim Stangl – University of Colorado, Education-GIS Intern at USGS, Spring 2004

Date: 6 March 2004

Background:

The Science Olympiad is a national educational program in which junior and senior-high school students compete in geology, geography, cartography, hydrology, physics, chemistry, mechanical engineering, and other subjects. Students compete in each state, making it roughly analogous to the National Spelling Bee and the National Geography Bee. The USGS has participated in the Science Olympiad since its inception--over 13 years, making it one of our oldest educational activities. This includes participation in Colorado, in other states, and a few times at the national competition. The USGS Central Region has been a long-time participant in the Road Scholar (mapping) event, the Remote Sensing event, and the Dynamic Planet (earth processes--geology, geomorphology, physical geography) event.

Shirts sported by Cheyenne Mountain High School students say, "Nothing shocks me—I'm a scientist." Last year, their shirts read, "Be kind to science nerds—you might work for one someday!" The above team of students won the Remote Sensing event. I was not too surprised, as I had met one of the students last fall at the GIS in the Rockies Conference, where the student had demonstrated much interest in GIS and remote sensing. Below, UCCS campus.



Ryan Huffman, left, and Joseph Kerski supervise the Remote Sensing Event for high school students during the morning of the Science Olympiad Southern Regionals. Supervising an event requires the tests to be administered and graded. We also wrote the test for the event that we have posted on the web for other teachers and students to use across the country. We featured many types of USGS satellite imagery during this event, in which we asked students to interpret the landscape and the processes active on that landscape in places around the globe.

Pete Modreski, left, and Tim Stangl supervise the Dynamic Planet Event for high school and middle school students at the event. The dynamic planet event features earth processes with rotating themes; this year, the theme was on river systems.

Above and below, students in the Road Scholar event that Ryan and I supervised in the afternoon. The Road Scholar event focuses on map interpretation. Catherine Costello and Becky Bottlemy co-wrote the test, which was based in part on The Lord of the Rings and The Simpsons, focusing on an travelogue through Oregon. The test featured USGS and state maps of sections of Oregon.

While there, I discussed the possibility of running a GPS event next spring for high school students. Dr Dandapani gave his approval of operating this event in a geocaching setting, where we test the event in Colorado before

offering it nationally. This event could be an effective link between math, science, and geography.

While we were participating in the Southern Regionals, Catherine Costello and Becky Bottlemy were running the Road Scholar event at the Northern Regionals in Fort Collins, Colorado. They wrote the Road Scholar event for both Northern and Southern.

Students in Dynamic Planet event (above) that was offered at both the middle and high school levels, and Road Scholar event (below) for middle school students. The remote sensing event was for high school students.

Science Olympiad responsibilities include creating the "events", which are tests for competition, administering these events, and grading them. During a day of competition, approximately 45 high school teams and 45 junior high school teams compete in each event. Our events are based on USGS products, research, and data. This year, the Dynamic Planet event featured USGS data on river systems, the Road Scholar event featured USGS 100K and 24K topographic maps of Oregon with a state of Oregon DOT map, and the Remote Sensing event featured Landsat, thermal, radar, and other images of the planet.

Students in Remote Sensing event ponder the mysteries of the planet in Chad, Brazil, The Netherlands, Australia, the USA, and elsewhere (above and below).

Reasons for Participating

1) As one of the nation's largest scientific organizations, the USGS can and does provide much input to publications, data sets, software, and other education-related materials in geography, earth science, history, and other fields. Teachers then empower students to think critically about the Earth and make wise decisions.

"Train the Trainer" (in this case, teachers) is the emphasis of the "lifelong learning" aspect of outreach. Events such as this one distribute information about USGS products and services to some of the most active teachers in America. They will spread the word about these resources through their professional societies (such as the NEA, National Council for the Social Studies, National Council for Geographic Education, National Science Teachers Association), school districts, and by other means. Familiarity with USGS information will raise familiarity about our organization throughout society through thousands of school districts and educators throughout the nation.

2) To produce educational materials valuable and relevant to the educational community, the USGS needs to regularly interact with teachers.

3) Teachers will be shown through tangible lessons through the Science Olympiad how USGS resources can be used for education. The USGS outreach program needs to contribute *value-added* information--it is not enough to tell people about our data, but *demonstrate how* the data can be used. We create Science Olympiad events entirely based upon USGS resources, and thus it is a concrete demonstration of how our resources can be used for education.

4) Teachers purchase USGS products after seeing how they are used. One teacher from Woodland Park, Colorado, told me that he has purchased 3,000 maps over the past 6 years for the Science Olympiad.

5) The Science Olympiad is an excellent way to work with students and produce curricular materials of lasting value that we post on the Internet. All of this is done at very little cost, as we are all willing to donate development time and Saturdays to ensure its success.

Acknowledgments

I wish to acknowledge the excellent skills and enthusiasm of those who supported the Science Olympiad: Rusty Grout, Catherine Costello, Pete Modreski, Ryan Huffman, and Tim Stangl.

Some of us will also participate to a limited extent in the state finals during April 2004 in Golden, Colorado.

View of the Colorado Front Range from the UCCS library.

* End of 2004 Science Oly Report ***