

EDUCATION -COMMUNICATIONS EVENT REPORT

Purpose of Event

Denmark Ministry of
Education Visit to Colorado

Report Writer's Name

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Geographer: Education/GIS
Denver

Location Denver Colorado

Event Date(s)

7 – 9 May 2003

Purpose of Event

Meet with 10 educators from Danish schools and from the Denmark Ministry of Education to discuss GIS and remote sensing in education, and show them examples of these technologies in use in education in Colorado, including visits to:

- 1) USGS Rocky Mountain Mapping Center.
- 2) USGS National Ice Core Laboratory.
- 3) USGS Rock Core Laboratory.
- 4) USGS National Earthquake Information Center.
- 5) ESRI Denver.
- 6) National Center for Atmospheric Research, Boulder.
- 7) Emily Griffith Opportunity School.
- 8) Arvada High School.
- 9) Boulder High School.

Summary

I met two of the visitors (Torben Jensen and Peter Brøgger Sørensen) during an educational GIS meeting held preceding the 1999 ESRI User Conference. They so impressed me with their vision of what students could do with remote sensing and GIS that I have kept in touch with them ever since. When they and others received a grant from the Ministry of Education to visit the USA to observe and discuss GIS education implementation, I was very pleased that they decided to include Colorado in their visit.

The USGS, ESRI, the Colorado Geographic Alliance, and individual teachers have been successfully integrating GIS in education in the state, and it was a high honor to discuss these developments with the Danish educational community. I would like to point out that it was due to these educational partnerships that we have been building over the years that made Colorado the choice for the visit in the first place. We need to keep building these partnerships and create additional ones for the future.



Joseph Kerski (L) and the Denmark Ministry of Education team at the benchmark at the USGS Rocky Mountain Mapping Center. Torben Jensen, fourth from left, is one of the main educators I have been working

with for several years in GIS and remote sensing in education. It was fascinating to learn more about what the Denmark educators are doing and discuss areas of similar needs.

In my opinion, these Denmark educators have worked very diligently over the past several years to ensure that all the necessary pieces are in place for successful integration of remote sensing, GPS, and GIS in education, including:

--software license agreements with ESRI and other companies;

--data agreements with national mapping and other organizations in Denmark;

--support from the top education advisors at the national level in the country;

--interdisciplinary collaboration. The educators represented the disciplines of geography, biology, and physics.

--development of lessons that incorporate the technologies in meaningful and do-able ways for teachers to implement;

--hands-on training sessions for teachers;

--grant money for teachers to develop lessons and attend training sessions;

--close working relationships among the educators in Denmark and ties to educators around the world with similar interests.

The Denmark educators have been:

--developing lessons, online courses, and serving data on www.gogis.dk

--working with the European Space Agency to develop lessons and network with over

700 schools, on eduspace.esa.int.

and in many other projects, successfully integrating spatial analysis across the curriculum in innovative ways.

The web site for this USA visit is: www.gogis.dk/03/usa/.

After their visit to Colorado, the Denmark educators flew to San Francisco to meet with USGS staff in Menlo Park and to visit several science centers. From there, they visited ESRI in Redlands to work with the ESRI education team and to visit several schools and conduct field work in the area with their ArcPad software and other equipment.

This visit, and the work that led up to it, is aligned with two of the four recommendations by the National Academy of Sciences in their recently published report, *Research Opportunities in Geography at the USGS*. First, geographers at the USGS should engage in scientific research. Second, the Geography Discipline should develop partnerships with the field of geography outside the USGS.



Our visitors enjoyed their visit to the 50,000,000 maps at the USGS Rocky Mountain Mapping Center as they enjoy maps of all kinds—my kind of folks!



Liz Lile (RMMC Branch of Research, right, middle) explains the wildfire mapping development and support that she and others provide through Geomac. Following Liz' presentation was Mike Stier, who discussed collection that the USGS is conducting of land cover data.



John Minsch demonstrates the work and mission of the USGS National Earthquake Information Center, Golden.



Tour stop at the USGS National Ice Core Laboratory with Eric Cravens and Geoffrey Hargreaves. This was followed by another excellent tour of the Rock Core Research Lab by Tom Michalski.



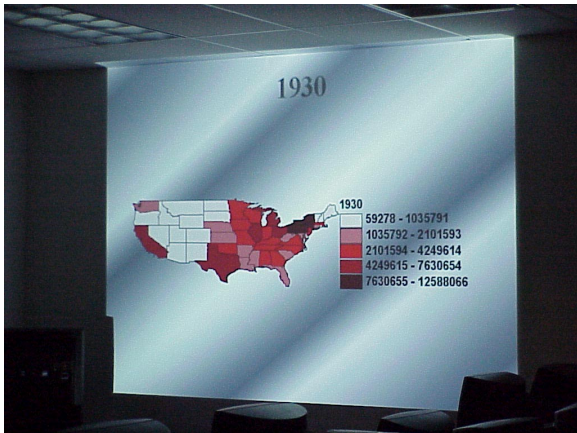
Joseph Kerski at the USGS National Earthquake Information Center. I appreciated the staff at the NEIC for fitting in the tour on short notice, which was not in the original plan, but it was a center that the Denmark educators wished to see, as they use data from NEIC in their tectonics/GIS lessons.



Phil Pendorf, Arvada High School geography and history teacher (seated, left of pole) and a few of his students as they conduct their final project presentations at the school. Mr Pendorf's advanced geography class spends a great deal of time doing spatial analysis using GIS. Mr Pendorf attended one of our GIS summer institutes years ago.



Our group leaving Arvada High School, Colorado. I plan to continue working with Mr Pendorf and the staff at the school on geography, history, and GIS educational projects. The school was selected as the site for two of our GIS institutes this semester for educators, funded by the National Geographic Society education foundation.



One of the slides from Phil Pendorf's students at Arvada High School, from a presentation about USA population growth from 1790 to present. These presentations, which at times exceeded 500 slides, included analysis results from ArcView, animation, and perfectly timed voice-overs.



Emily Griffith Opportunity School in Denver is beginning a GIS certificate program that fits in well with their Information Technology and CAD programs. I conducted two workshops, on 16 April and 9 May 2003, to kick off and attract interest in the program. I am confident that they have the right pieces in place to make it a success.



Cobi Chaney (Dean of Information Technologies, left) and Emily Griffith Opportunity School high school principal (right) greet the attendees of the second of two hands-on GIS workshops. We analyzed earthquakes around the world and demographics in Denver neighborhoods. The Denmark educators attended, as well as students in the IT program at the school, teachers from other Denver Public Schools, and from faculty at the school. It was a packed, full house!



Esther Worker (blue shirt, at right) escorts the visitors into ESRI's regional office in Denver (Broomfield). As usual, the ESRI staff treated us wonderfully and professionally. One of the ESRI staffers gave a presentation on GIS applications in business. We also met two representatives from the Swedish-American Chamber of Commerce in New York City.

The Denmark educators gave us a wonderful presentation of a sample of their educational initiatives.



Denmark educators gather at Boulder High School, where Geography instructor Steve Wanner has been using GIS and other innovative techniques in the curriculum for many years.



Steve Wanner, left, accepts appreciation gift from the Geography National Curriculum Advisor Grethe Heer from the Denmark Ministry of Education.



NCAR/UCAR staff for being willing to meet with the group.

I look forward to further work with the Denmark educators.

*** End of 2003 Denmark Ministry of Education Visit Report ***

Final Denver stop for the visitors, the National Center for Atmospheric Research, Boulder, during one of the rare rainy days on “the mesa.” The scheduled field trip the next day to Red Rocks, Dinosaur Ridge, and Green Mountain was largely snowed out. Olga Wilhelmi, Rene Munoz, and Susan Foster gave presentations on NCAR/UCAR’s educational initiatives, and on GIS in education. I am working with Susan Foster, Associate Director for UCAR’s Office of Education and Outreach, and Shannon McNeeley on a GIS-climate education project focused on Brownsville, Texas.

Acknowledgements

This successful visit was due to the coordination of many individuals, and I hope I am not leaving any of them out in these acknowledgements.

I thank my co-coordinators of the visit, Esther Worker, Nancy Bohac, and Marj Dougherty from ESRI.

I thank Richard Jimenez for coordinating our USGS RMMC tour, and Liz Lile, Mike Stier, Steve Reiter, Tom Michalski, Eric Cravens, and Geoffrey Hargreaves, the NCAR staff, and the ESRI staff for their explanations. I appreciated Steve Wanner and Phil Pendorf, the Emily Griffith staff, and the