

EDUCATION EVENT REPORT

Attendee and Report Writer:
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Purpose of Event:

North Carolina School of Mathematics and Science, GIS Mini-Term, and Distance Learning Presentation

Location: Durham, North Carolina.

Dates: 16-22 February 2005

Summary

I was invited to return to the North Carolina School of Mathematics and Science (NCSSM). I conducted a colloquium and workshops there in September 2004; my report of that event is on:

<http://rockyweb.cr.usgs.gov/public/outreach/reports/ncssm04t.pdf>

For this February 2005, event, I:

1. Conducted a Distance Learning Session for several schools throughout the state, on "Spatial Thinking—Essential for 21st Century Society."
2. Taught a mini-term entitled "Geographic Information Systems." Mini-term is a 9-day intensive learning experience held between the school's winter and spring trimesters.
3. Met with three educators and professors active in this field in Virginia and North Carolina, to plan strategies for GIS in education work over the next year.

The first question I received from a student during the mini-term was: "What ethical considerations are involved with using GIS?" Wow!



Who says high school students cannot handle a geographic research project in which GIS and GPS play major roles? After two days of hands-on activities where they examined population, hurricanes, earthquakes, and other phenomena, these students began a week-long research project of their own choosing. Their projects were as diverse as mapping one's family as they dispersed from Vietnam all over the globe, interviewing students on campus and creating a social GIS set of layers, creating a retail price map of the neighborhood, and mapping hundreds of trees and infrastructure objects on campus.



Two students collecting location and attributes of trees on campus.

methods are truly all around us.



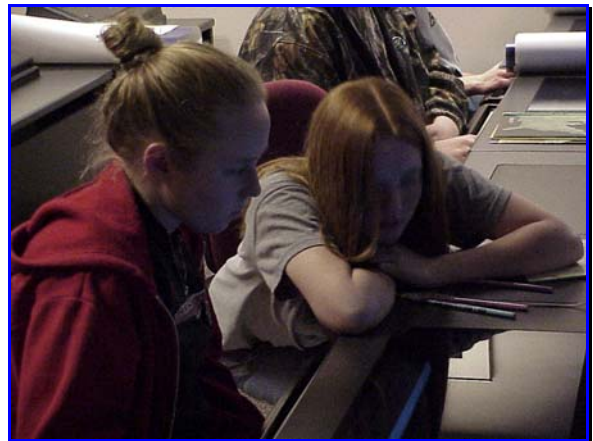
Distance Learning Coordinator Carole Stern; she invited me to NCSSM and provides continuing leadership and vision not only to spatial learning but also to many other programs on campus. The dedication and role that Ms Stern and educators like her have to continuing to improve education for students cannot be underestimated.



Students working on GIS during mini-term in one of the excellent computer labs on campus.



The pine woods on campus provided an excellent opportunity to get in the field on a site familiar to students and introduce them to GPS-GIS integration. We began the mini-term by examining web-based mapping sites, including the Durham County GIS, from where we downloaded spatial information about crimes, parcels, and much more. The students began to have a sense that spatial technologies and



I am confident that students using GIS, remote sensing, web mapping, GPS, and related technologies and methods will be well-served in their college years and will make important contributions to our society.

I sent some maps to a student who requested them and he responded:

I just wanted to let you know that I received my maps and thank you for all of them. I already have them hanging all over my walls. I feel very inspired to work with all of these maps around me. I really do appreciate all of them. Thanks so much!



There was stiff competition to the GIS mini-term, including field research in Belize, and I was grateful for a good turnout for GIS. After I left, Carol Stern set up field trips to NCSU campus for the students to visit Hugh Devine's GIS facility and to Durham County's GIS facility.



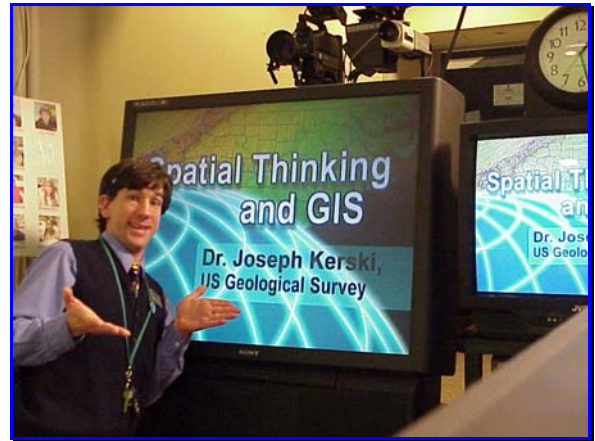
Location of the tree mapping activity, where ecology students will plant native vegetation and a garden. Ecology students analyze soil and water characteristics on the site as part of the GLOBE program (www.globe.gov). We hyperlinked ground photographs to the GPS-collected coordinates and analyzed attributes.

With nearby UNC, NCSU, Duke University, government, and private industry, there is much GIS in the area.

Distance Learning Presentation and School Workshop

NCSSM has a very active distance education program, involving hundreds of courses each year on a diverse set of subjects. In my opinion, the school is an innovator in this regard and we talked about how to use GIS in distance education, where there has been some success (through the EOS program at the University of Montana, for example), but much untapped potential.

A video stream of the NCSSM presentation I conducted in Fall 2004 is online on: <http://www.dlt.ncssm.edu/streaming/GIS/>



As I did in Autumn 2004, I once again conducted a Distance Learning workshop focused on Spatial Thinking. This school's distance learning facilities are exceptional, offering two-way communications between the speaker and the participants who hail from many different parts of the state. I demonstrated ArcGlobe and several ArcGIS projects, including hurricanes in North Carolina, and emphasized the connections GIS has to the curriculum and to 21st Century problem-solving.

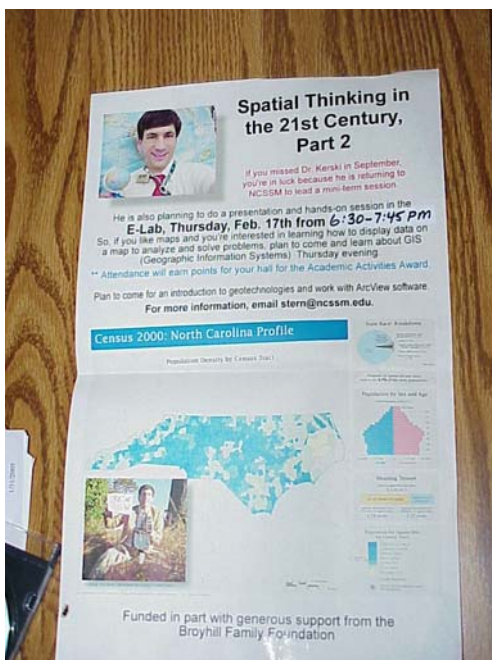


The distance learning facility includes the ability to show the presenter, a computer screen, maps on the web, objects through a document camera, and through the skill of the staff, all of the above at once!

careers to the workshops for the students to peruse after I had departed.



I conducted the workshops and distance learning presentation in this facility on campus.



Poster that the staff created for my workshop for all interested students during the first evening that I was on campus. We had many exceptional students from an ecology class participate.

About NCSSM

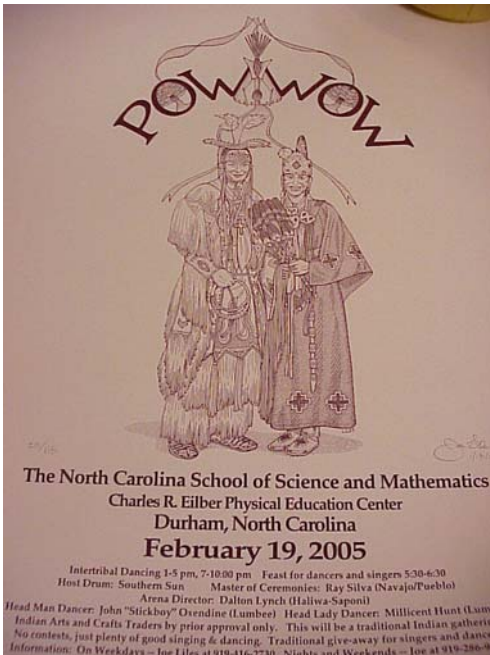


NCSSM is a state-funded school that opened in 1980. It recruits academically talented 11th and 12th grade students statewide who show promise of exceptional development and/or special interest in mathematics and science. Students accepted to NCSSM are required to live on the Durham Campus; and the school is the first in-residence math and science school in the state.

I brought research papers, GIS-based lessons, USGS posters, maps, and data on



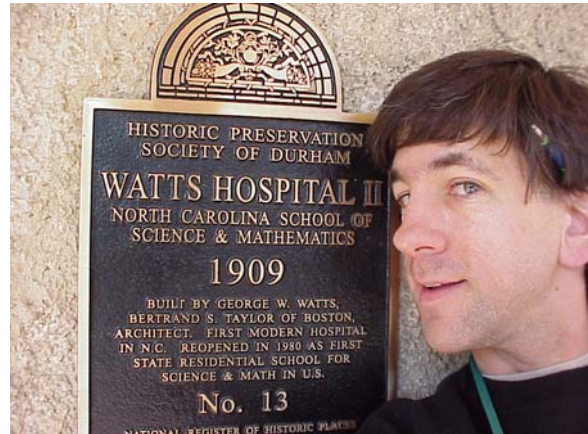
Approximately 560 juniors and seniors attend NCSSM, living in five residence halls on campus. In 2003, the North Carolina legislature approved a bill paying for the tuition for any university in the state to all graduates of NCSSM. The school's web site is www.ncssm.edu.



While I was on campus, the school held its annual Native American Pow-Wow, and it was quite interesting to see the enthusiasm, learning, and talent that this event generated.

Acknowledgements

It was a pleasure to return to NCSSM and work with the educators and students there. I thank the faculty for having me on campus and for their commitment to excellence in education. I thank the students for their enthusiasm, intelligence, and good-naturedness. I especially thank Carole Stern for inviting me to the campus and her personal attention that ensured the success of our goals there. The students and Ms Stern wrote me a very nice personalized card that I received after returning to the USGS. I acknowledge NCSSM President Jerry Boarman, and Steve Warshaw, Dean of Academic Programs, in supporting educators in their efforts to expand spatial analysis on campus to fully equip their students for grappling with modern-day issues and problems, and to provide them with very real employment skills.



Historical marker at the school. I hope to return someday.

End of report