

OUTREACH EVENT REPORT AND RECOMMENDATIONS

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Event: **21st Annual ESRI User Conference, (ESRI UC), San Diego, California - 8-13 July 2001**

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My Activities at Conference

1. Conduct 1 paper presentation on GIS in Education.
2. Help set up, operate, and tear down USGS Exhibit at Conference.
3. Attend educational GIS sessions and ESRI software sessions, in particular:
 - (1) How to tell your GIS story to the newspaper.
 - (2) National Lewis and Clark Meeting.
 - (3) ArcGIS 8 sessions.



The ESRI Conference lives up to expectations as the largest and best GIS conference in the world.

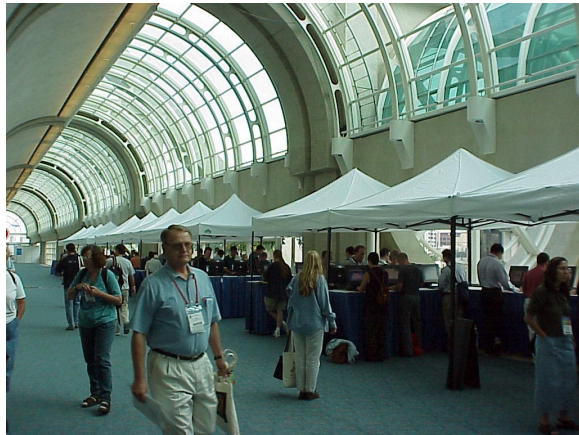
Private Chat with Jack Dangermond

Outside the Hyatt Hotel just after 6am one morning, I was surprised to see Jack and Laura Dangermond out for a walk. I had the opportunity to speak with them for several minutes. Our main topic of conversation was about the Education User Conference (see my report on this conference) held from 6-8 July 2001 that attracted 465 educators. The conversation confirmed that Mr. Dangermond truly does support GIS in education, which is my main area of interest. This was a fantastic privilege to speak to someone who has done so much for geography, spatial literacy, and GIS, and I thanked him for all he had done with the education conference in particular.

User Conference Overview

Where else can one pick up a CD describing the GIS of Thailand? The Thailand Mapping Showcase was excellent, highlighting a four-year effort to re-map the entire country, creating a National GIS along the way. Where else can you meet GIS professionals at the exhibit, in the map gallery, and in sessions from Nepal, South Africa, and Brazil? Such is the nature of the

ESRI UC – it is at once overwhelming, fascinating, and humbling.



*If you want to see how a conference **should** be conducted, go to the ESRI UC. Here are some of the computers where attendees could check their outside email, receive information about the conference tailored to their needs, as well as contact others who were at the UC via a sophisticated internal communications tool.*

This was the fourth ESRI User Conference at which I have had the privilege of representing the USGS. The USGS has exhibited at the conference during 1998, 1999, 2000, and 2001. Prior to that and continuing to the present day, the USGS has participated with paper presentations and maps in the map gallery since the conference's inception in 1980.

Last year's theme at the conference was "Creating the Geography Generation." A generation who uses GIS tools can have a significant effect on the future of the planet. This year's theme was "Creating Communities."



Main hall, San Diego Convention Center.

While the 2000 conference was a personal highlight when I and the USGS RMMC Education Outreach Program won a Special Achievement Award from Jack Dangermond, this year's conference, nevertheless, outshone the others in (1) the amount of USGS publicity, (2) the information gained at the conference; (3) networks formed and strengthened, and (4) the professionalism with which ESRI organizes and conducts this conference.

The ESRI UC lives up to its billing as the "largest GIS conference in the world", attracting over 10,500 people. It seems amazing that a short five years ago, only half that number attended. The over 110 countries represented this year underscore the international nature of this event.

USGS Publicity at Conference

Opening Day

Not 10 minutes into the first talk of the day, Jack Dangermond stated that the USGS is an "excellent partner," and that "our USGS is leading the world in publishing data online."

By participating in the conference, we sought to demonstrate the leadership that

the USGS has in geospatial standards, research, and in digital data such as NED and Aster that users can and have used in their work. We sought to further our partnerships on many levels.

Press Room

I visited the ESRI Press Room and told the people there about the USGS, its goals, and its presence at the conference. The National Atlas had press kits in that room as well.

User Conference Bags

Each person at the UC receives a bag with the agenda, proceedings, and other items. This year, thanks to the fine work from USGS staff, the USGS had several items in all 11,000 conference bags:

- (1) Bookmark: National Land Cover Dataset image on a bookmark highlighting the USGS web-mapping portal on the Geography Network: gisdata.usgs.net
- (2) National Atlas provided a portion of the new general reference map.
- (3) Web sites USGS fact sheet in the bags.
- (4) Partnership card about 5 x 11" with the with web sites on the back of federal agencies that work on the National Atlas.

Map Gallery

This year, rather than posters scattered throughout the Map Gallery, ESRI asked the USGS to reproduce all of its posters that we displayed at the USGS GIS conference in Denver in April. In this section, we must have had at least 100 maps, as well as others throughout the Map Gallery. Barb Ray and Jennifer Sieverling were the main

forces making this happen, and it was an amazing site. The floor space for our "corner" of the map gallery must have measured 150 feet wide by 100 feet long-- 15,000 square feet!



Section of USGS area in Map Gallery.

USGS entries won 7 awards in the 13 categories of competition, including "the big one", Best Overall Presentation, won by the Central Region Earth Surface Processes Team for "Geologic Map of Colorado National Monument and Adjacent Areas, Mesa County, Colorado" (see July 16-20 Highlights).

For a list of all the award winners visit:
http://www.esri.com/events/uc/results/map_gallery_results.html

Best Data Integration: 2nd Place - U.S. Geological Survey
IFSAR Data Integration for the Morrison, CO Quadrangle
John Kosovich, John List.

Best Cartographic Design – Small Format:
3rd Place - US Geological Survey
The National Map
Stan Wilds, Jennifer Stefanacci

Best Software Integration: 1st Place -
USGS/EROS Data Center

An Integrated Topographic/Bathymetric
Elevation Model
Dean Gesch and Robby Wilson

The USGS has been invited, again, to have a special section of the Map Gallery to display our posters at the 2003 ESRI International User's Conference (corresponding with our USGS GIS Conference held every two years).



Here I am with my two posters in the Map Gallery--GIS Education for Mapping Professionals (with Alan Ward), and The Implementation and Effectiveness of GIS in Education.

Overall, the Map Gallery seems to reach new heights each year. This year, the Map Gallery held a special section of GIS in the Hindu-Kish Himalayan region. This is the home to the International Centre for Integrated Mountain Development, a special unit of the UN Environmental Programme (UNEP). The emphasis was applying GIS to achieving sustainable development in a fragile ecosystem.

ArcNews Article

Trent Hare and other USGS scientists in Flagstaff received a large write-up about "Mars Research Supported by Online GIS"

on page 40 of the ArcNews that was distributed at the conference (Summ 2001).

Exhibit Hall

Huge National Atlas maps (and I do mean huge--at least 30 feet wide and 30 feet tall) were displayed around the exhibit hall walls, as shown below. This was one of the best exposures that the National Atlas has ever had in any event, to my knowledge. It was fantastic!



National Atlas maps adorn exhibit hall walls.

USGS Paper Presentations

Antonio Martucci: Decision Support Tool for South Florida Hydrology Restoration Evaluation.

Joseph Kerski: Implementing GIS Technology and Methods in American Secondary Education.

Mike Mulligan: GAP Data: Making It More Accessible.

Robert Norheim: Vegetation Mapping for San Juan Island National Park.

Laura Margaret Brady: Critical US-Mexico Borderland Watershed Analysis.

Ken Rukstales: Un-contouring Your Data: Reading Between the Lines.

David Litke: ArcIMS Interface to Water Quality Data, Eagle River Watershed, Colorado.

Matthew Jones: The Hydrograph Analyst, An ArcView GIS Extension for Hydrologists.

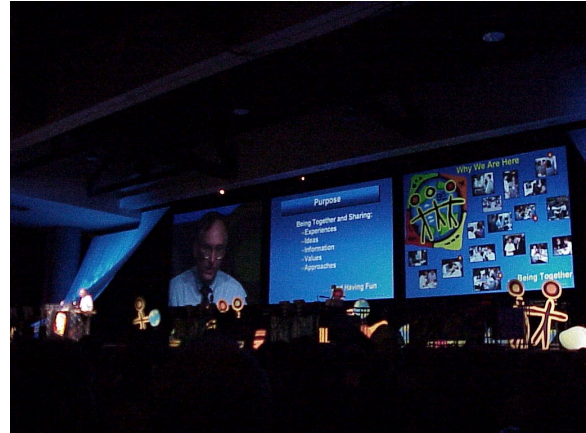
David Greenlee: USGS National Datasets on the Geography Network.

In addition, Susan Goodman of the BLM presented about wildfires and GeoMac.

Plenary Session – Opening Day

The two threads that ran through opening day this year were the conference theme “Creating Communities” and ArcGIS 8.1.

Opening Day is one of the few times when almost everyone at the conference is together in one room--probably close to 10,000 registrants. ESRI staff and others conduct professional presentations, with excellent graphics, lighting, and sound. It is an amazing event, and one gets the sense that instead of all of us working in cubicles around the world, that we're part of something global, something quite exciting, something that can help make the world a better place. Mr. Dangermond advocated that we need a unifying consciousness, to connect our GIS and geography community with the larger world. It is clear that he doesn't want this to be an “insiders-only” club.



Jack Dangermond speaks about “Creating Communities,” the conference theme.

Geography and GIS provide a framework for community consciousness, a set of theories, tools, methods, and technology that focus on integration.

Dangermond spoke of how we are part of a global society and form natural communities, how human communities are defined by communication. Geography is essential because we require a greater consciousness of other communities. Geography "is a sort of nervous system for our planet," says Dangermond, "a network that integrates our natural world with human needs and values." He said that the Internet created a technology that allows many collaborative organizations to move in this direction. We need standards and a network of standards providers, policy framework for dissemination of information, technology for easy deployment, people who know how to determine what people need or want, and enabling technologies.

G.net, an architecture for loosely coupled systems, is ESRI's answer to the need for enabling technologies, for GIS data to grow GIS ready. G-net can be implemented at any scale, for any group - cities, counties, states, countries. Geography Network is an implementation of G-net.

Truly, one can, from this conference, see that what Mr. Dangermond speaks about concerning the evolution of GIS from projects to systems to networks, has come to fruition.

I have huge respect for Mr. Dangermond--he passionate not just about GIS, but about the earth, and moreover, about people. He is, like many of us, slightly nerdy, a very likeable person, and very humble about what has been a pivotal role in geographic information science since the 1960s.

ESRI now has more than 100,000 users and over 1 million licensed software seats. The virtual campus has 100,000 users. ESRI Press features 28 publications. ESRI is growing at 20% per year!

He argued that a global community requires creating standardized data sets, a network of providers, a policy framework for dissemination, leadership and organizations, and technology for easy deployment.

ESRI built ArcGIS 8.1 with a completely new architecture and user environment based on current IT standards. It includes Visual Basic Applications (VBA) for customization. ArcGIS 8.1's features include:

- 1) Integrated into one system
- 2) Single scalable platform
- 3) Common data model
- 4) Deployable in a number of configurations

ArcGIS 8.1 includes ArcView, ArcEditor, and ArcInfo. ArcView 8.1 maintains the functionality of 3.2 with improvements for browsing and managing data, on-the-fly coordinate and datum projection, metadata creation, new editor tools, better cartography, and access to data on the Internet.

Product development strategies for these products, as well as ArcIMS, the Geography Network, mobile GIS, distributed GIS, and ArcPad were outlined. ESRI announced ArcReader, an Arc-Objects based light viewer for dynamic maps authored in ArcView and ArcInfo. When introduced in the fall of 2001, it will provide GIS users with a method to publish and make available electronic maps locally and over networks. This is similar to the relationship between Acrobat and PDF files. One difference is that the electronic maps can contain live data access to any data source.

Dr Michael Goodchild received a special lifetime achievement award in GIS. Dr Goodchild's appearance on stage, with Dr Roger Tomlinson, was a highlight for me -- to see two such leaders at the same podium was an excellent sight to behold.



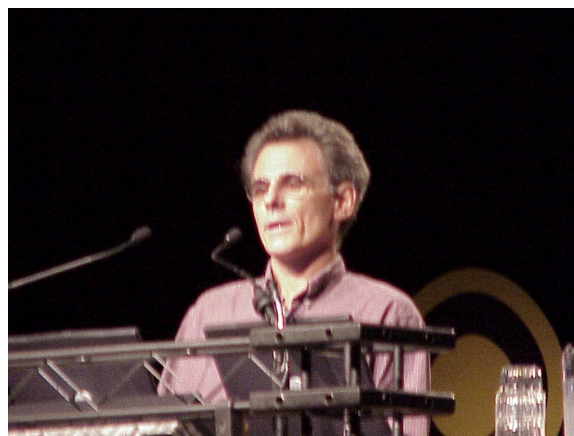
Dr Michael Goodchild and Dr Roger Tomlinson.

The President's Award was given to the International Centre for Integrated Mountain Development (ISIMOD) for their work using GIS for sustainable development in the countries of Nepal, India, Afghanistan, Tibet, India, Pakistan, Myanmar, Bangladesh, and Bhutan.

Star of CBS's The District TV Show, Lynne Thigpen, addressed the attendees. This show, which illustrates how GIS can be used in law enforcement, is probably the major way (in addition to GIS Day) in which the public is becoming aware of GIS. An ESRI staffperson has been assigned to work with her almost full time for many months, illustrating the importance that ESRI places on the accuracy of the GIS shown on the show, and also their support of innovative forms of education.

Keynote Address

The keynote was delivered by Dr. Michael Fay, who walked 2000 miles across Congo and Gabon over a 16-month period. He and his team surveyed the terrain, flora, fauna, and human impacts, using a digital video camera, audio recorder, GPS, and 50 rainproof notebooks. Besides documenting the area, Dr Fay sought to bring attention to the world to save one of the last wild places. This expedition was funded by NGS and the Wildlife Conservation Society. As a result of this expedition, the Congo government created 1.5 million acres of national parkland and is extending that protection to include more of the forest.



Dr. Michael Fay addresses ESRI UC attendees.

Educational GIS Recognition

Sara Damon from Stillwater Area High School and three of her students won this year's ESRI Community Atlas project. I was privileged to have Ms. Damon attend one of my workshops at the ESRI Education Conference (see my report on that conference). She and her students were most articulate and impressive.



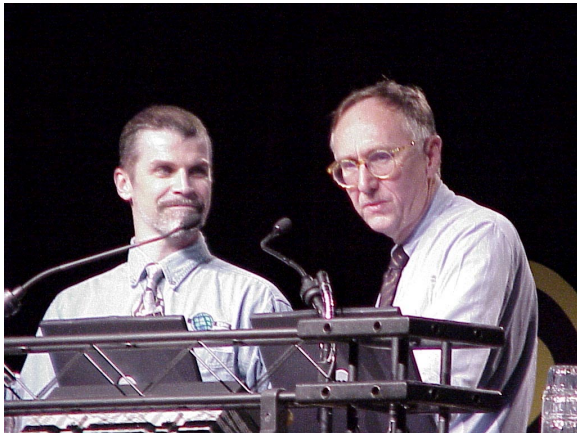
It was phenomenal to see Jack Dangermond, Roger Tomlinson (here), and other leaders of GIS waiting to shake the hands of this group after the presentation.

Imagine being a high school student, addressing 10,000 people, about your school project! Their project focused on

Smart Growth in the Twin Cities area, Minnesota. Students in the Community Atlas project use GIS and Internet technologies to tell others about their own communities.

I conducted a workshop in community atlas in August 2000 in Fort Collins, Colorado. For more information, go to <http://www.esri.com/communityatlas>.

Three educators I have been working with, including Larry Kendall, Lyn Malone, and Al Lewandowski, were mentioned on screen during the opening session. Another, Carl Addington, won an award for his GIS-based lesson on the Battle of Gettysburg at the education conference, which was listed on one of the daily conference newsletters. What a privilege to be working with such outstanding people!



Charlie Fitzpatrick of the ESRI Education Team receives supportive words from Jack Dangermond for his role in GIS in education.

Kids Camp

Each year, students from kindergarten through high school participate in a “Kids Camp” where they work through problems using GIS, and create maps.



Two of the younger participants in Kids Camp tackle a problem.

On the last day of the conference, the Kids camp maps were displayed in the foyer of the convention center, and were quite impressive!

Wednesday evening is “family night”, where friends and family of attendees can tour the exhibit hall and map gallery. This is a good model that brings GIS to the community at large, and one that I wish all GIS-related conferences included.

GIS Day 2000 introduced over 1.5 million people worldwide to GIS. This year’s event will be held 14 November 2001. I have signed up the USGS RMMC for this event and encourage others to participate as well. GIS Day is sponsored by NGS, AAG, USGS, the Library of Congress, UCGIS, and ESRI. See www.gisday.com for more information.

USGS Exhibit

A picture is worth 1,000 words. While we had an excellent exhibit in 2000, contrast this image of the USGS exhibit at the 2000 ESRI UC:



... and National Atlas on the right.

with the following from the 2001 ESRI UC. Thanks to Stephen LePage and others from HQ, we were able to obtain Jon Walkes, Cheryl O'Brien, Jeff Dietterle, and I worked with ESRI exhibits staff to ensure that (1) we obtained the exhibit space for free (saving us \$3500 x 3 = \$10,500 total), and (2) that we were all adjacent in the exhibit hall.

It wasn't empty for long! ...



Our exhibit featured the USGS on the left, EDC DAAC in the middle...



Our exhibit themes were:

- (1) National Map
- (2) Wildfire Research
- (3) Human Health and GIS

EDC DAACs themes were Aster, Modis, Terra, and Landsat data.

Trent Hare brought some of his excellent global CDs, which were very popular: <http://webgis.wr.usgs.gov/globalgis/>

Our goal at the conference is to reflect applications and use of GIS at the USGS,

rather than simply the base data we produce. We also seek cooperative research and development agreements, and production agreements with those we come into contact with.

The role of geographic data, partnerships, and research is central to the USGS. Our presence at this conference capitalized on this theme, and visitors crowded to our exhibit, sometimes standing 4 or 5 people deep.

I was able to convince ESRI to waive our exhibit booth fee of \$3,000, and the space was in the main exhibit hall. Our theme at the exhibit was "GIS at the USGS" and included demos and information on NED, research projects, partnerships, NHD, Mount St Helens, Abandoned Mine Lands, and other applications of USGS geodata. Our exhibit included one laptops and a monitor. Digital demonstrations included ArcView and PowerPoint demonstrations on NHD, partnerships, status graphics query, computer video of remote sensing data, digital data formats, and digital data applications. The most frequent questions were on how to format our data to use with ESRI software, NED, and NHD.

The digital demonstrations, backdrop posters, and handout materials with which we operated the USGS exhibit were excellent.

The exhibitors were well-equipped to handle the technical nature of this audience. They had experience in using and manipulating USGS data, were familiar with data and services from all disciplines, and were those who work well with the public. We have a great many of these types of individuals at the USGS, and I am proud to work with them. Furthermore, each person's "discipline depth" and experience in GIS to

their own projects creates a seamless presence and enhances our overall effectiveness.

This conference's exhibit was a joint venture between RMMC, HQ, and WGSC, and showed how effective a cross-center outreach effort can be. I am very pleased to report that the 2002 ESRI UC has been approved as an official NMD-sponsored event, which came out of our Reston event planning meeting in May 2001.

Our laptops, which date (at RMMC) from 1996 to 1999, cause me increasing concern, particularly at a high-tech conference such as ESRI. We need more memory on new laptops if we want to run 3D Analyst, Image Analysis, and ArcGIS 8.1 in the future.

Distribution and Display Items in Exhibit:

Miscellaneous:	
Misc Postcards, Landsat cards	200
ASK USGS bookmarks	300
GIPs	
Topographic Map Symbols	100
Map Projections	400
California State Indexes	40
USGS GeoData (green booklet)	500
Aerial Photos and Satellite Images	400
Factsheets	
Digital	
local	Digital Price Sheet 300
FS-148-99	National Elevation Dataset
300	
FS-106-99	National Hydrography
Dataset	200
FS-123-99	A Global Digital Elevation
Model 200	
FS-108-00	National Land Cover
Dataset	200

Information

FS-083-00	Earth Explorer	400
FS-July2000	ASK-USGS	200
FS-034-01	USGS Info Services	300
FS-033-01	USGS WWW	300
FS-010-01	Science, Society, Solutions: An introduction to the USGS	200
FS-044-01	Educational Materials from the USGS	200
	National Map	400

Research

FS-045-99	Center for Integration of Natural Disaster Information	200
FS-188-99	Analyzing Land Use Change in Urban Environments	200
FS-138-00	Lake Tahoe Interagency Monitoring Program Sampling, Sites, Records	200
	LIDAR-IFSAR to enhance DEMs	50

National Atlas

	National Atlas of the US of A	500
	The National Atlas of the USA, Partnership Opportunities	
FS-67-0041	Atlas Promo	500
	National Atlas General Reference Map promo cards	500

Health

FS-054-01	The Environment and Human Health: USGS Science for Solutions	100
FS-189-97	Recent Highlights - Envir Effects on Humanand Wildlife Health	100
Cir 1225	Quality of Our Nation's Waters	40
Cir 1139	Ground Water: A Single Resource	40

Earthquake Hazards

FS-103-00	Shake Maps' - Instant Maps of Earthquake Shaking	50
FS-075-00	ANSS--Advanced National Seismic System	50

Flood Hazards

FS-024-00	Significant Floods in the United States During the 20th Century-- USGS Measures Floods	100
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Wildfires

FS-018-00	Fire ecology in the Southeastern United States	200
FS-125-98	USGS Wildland Fire Research & GeoMac	300

Biology Related Hazards

FS-096-97	Using remote sensing to monitor global change	050
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USGS Exhibitors: Many USGS staffpersons were there besides myself, including Ben Sleeter (USGS exhibit lead), Bob Pierce, Mark Negri, Kathryn Phelps, Vicki Lukas, Dario Garcia, C. Ostergren, C. Stevens, T. Fuller, B. Gates, John Vogel, D. Sorenson, Robert Lugo, C. O'Brien, L. Gass, C. Raumann, A. Vaughn, Len Gaydos (Acting Chief, WGSC), Bob Marinaro, Vicki Lukas, Tracy Fuller, Carol Ostergren, Debbie Cruse, Robert Lugo, Alan Vaughn, Sean Stone, Ben Sleeter, Christian Raumann, Dario Garcia, Leilia Gass, John Vogel, Kathy Phelps, Dan Sorenson, Chip Stevens, Bettye Gates, Terry Glass, Vivian Queija, and others. In addition, EDC DAAC brought Penny Weeks and others. Cheryl O'Brien led the National Atlas exhibitors.

Exhibit Hall

Each year, the exhibit hall gets bigger and better. Obviously, from the pictures below, one cannot call these "booths"

any longer--cities or islands seems more appropriate!



NavTech Island at ESRI Conference.



Space Imaging's island at the UC, complete with rotating globe.



However, some of the exhibits are small, but have a catchy theme to draw attention. Above, LandInfo's exhibit used a "movie" theme for an interesting look.

The only part of the exhibit hall I was not able to visit was the defense section; this was even larger than last year's.



Overview of the exhibit hall.

Unveiled in 2000, the Geography Network (geographynetwork.com) is a global network of geographic information users and providers. It provides the infrastructure needed to facilitate data sharing. This year, there was a geography network island in the exhibit hall, a showcase of geography network challenge winners, theater presentations, technical workshops, and entire user track sessions. Geography Network is an implementation of g.net--a network of systems supporting GIS communities on the Internet.

The USGS held an all-hands special interest group meeting, which was excellent. Another excellent session was "Earth Sciences and Governmental Agencies: Special Interests, Special Needs Discussion."

I believe the customer networking, ties to key organizations, and issues raised at this

conference are important to the future of the USGS, and it was important to be involved. I thank those who approved my attendance at this conference.

There is a site for starter templates for ArcIMS, which I thought was a great idea, at arconline.esri.com/arcims.

Highlights from ESRI

This report is compiled from my notes at the conference; possible gaps or misunderstandings may exist; visit www.esri.com for the latest information.

ArcGIS

ESRI unveiled ArcGIS at last year's conference, and highlighted 8.1 at this year's conference. This is a family architecture of software made up of clients and data servers. The clients include the new ArcView 8.1, ArcInfo editor, ArcInfo 8.1, clients on the Internet, and data servers through the Geography Network [see below]. Each desktop client has the same user interface and share parts of the same applications, and have the same development environment, extensions (such as Spatial Analyst [which will incorporate all of Arc GRID] and 3D Analyst, and data models. ArcInfo editor represents a mid-range functionality. The two GIS servers in ArcGIS are ArcIMS and ArcSDE. ArcIMS is the Internet Map Service, which incorporates more Java-oriented technology. ArcSDE is the Spatial Database Engine that provides a gateway to databases such as Oracle.

What does this mean for the ArcView 3.x users? ESRI will support ArcView 3.x and Avenue for years to come. They are working on 3.3 right now. However, I liked very much what I saw of 8.1 and what I

have had limited hands-on exposure to in the past few months. The only thing I don't like is the fact that each project can have only one layout. But this is minor when compared to the wealth of enhancements.

ArcView 8.1

As I stated above, ESRI is bringing ArcInfo and ArcView together on the same interface and development platform, and ArcView 8.1 will be the first AV release that accomplishes this, due out by the end of 2000. ArcView is a floating seat mapping application for ArcGIS, built on MapObjects, for Windows. Thus, the licensing is different from ArcView 3.x. ArcView 8.1 contains ArcMap [visualization, editing, mapping, queries], ArcCatalog [data management, browsing, metadata], and ArcToolbox [data conversion]. All 3 are similar to ArcInfo, but ArcView has fewer available functions than ArcInfo.

Get ready for new terms! ArcMap is like the "view" that ArcView users are accustomed to now, and has a layout view and a data view. A map is like a project, but instead of .apr's, there will be .mxds. These are not ascii files and cannot be edited, but ArcView 8.1 has a "save with relative pathname" function to allow for transportable projects. A data frame is like a "view." A layer is like a "theme," and they can be grouped into a "group layer."

All windows are tear-off-able and dockable. One can set named map extents as bookmarks. One really great thing is that one can load and save a query expression! In ArcMap, you can use Grids, TINs, and other things that previously only ArcInfo users could. Projections have been improved. Layers can be drawn in transparent mode! Annotations are supported. There are geoprocessing,

query, and cartography wizards. 3D charts and reports via Crystal Reports represent a big improvement. One can register images, and more formats are supported, such as .png. One can store data in a MS Access database. Developer tools such as Visual Basic and C++ will be included. One can use metadata to search for data by geographic extent, by banding a certain section on a world map.

One can access data directly from the Internet, such as the geography network, displaying the data in the map, without actually downloading it. This, to me, represents the way of the future.

In summary, ArcView 8.1 will take awhile to get used to, but the expanded functionality and analysis will be worth it. The main concern is not switching from 3 to 8, but that the small extensions that we've all been using for a myriad of items will no longer work, until we or someone else makes VBA versions of them.

ArcPad

ArcPad was highly visible at this conference. ArcPad is GIS for mobile computing and field collection. ArcPad on a Palmtop computer allows the collection of data that can be then directly imported into the master database in the office. It is amazing to see DOQs, DRGs, and vector data displayed on a palmtop computer, things that people dreamed about just a few years ago!

Several tools now exist to create 3D plots visible with special glasses. One vendor of 3D glasses is American Paper Optics of Memphis, at 800-767-8427.

What Journalists Need to Tell the GIS Story

Four newspaper journalists discussed what journalists look for when evaluating a story, and what ingredients are required for any GIS-related topic. They gave guidelines on how to submit GIS data to the press and how to know if they have a story. As Susan Smith from GIS Café wrote, "Because last year's election put maps so squarely "on the map," GIS data has become a primary source of information for newshounds. Journalists like maps and their data because they deliver the most information in a given space or time."

The speakers were from USA Today, The Record, Boston University, and Arizona State University. Paul Overberg, Database Editor for USA Today, spoke about GIS being used for personal stories, such as school test scores, crime, racial makeup, and community change. One of the biggest issues for these periodicals is sharing data. Journalists have a difficult time obtaining data, according to Bruno Tedeschi, State House Bureau Chief of The Record. Governments who want their story told should do the following: Contact the managing editor or city editor, find someone who covers the beat that covers that area, ensure that the story follows journalistic guidelines of who-what-when-where-and-how, send a map to catch attention, and present the data in digital data format.

Journalists ask themselves these questions when confronted with a new story angle: Who is it coming from? Is it a press release? What is their agenda?

For presentations from this session, visit these sites:

J.T. Johnson, Professor of Analytic Journalism, College of Communications, Boston University: "What Journalists Need

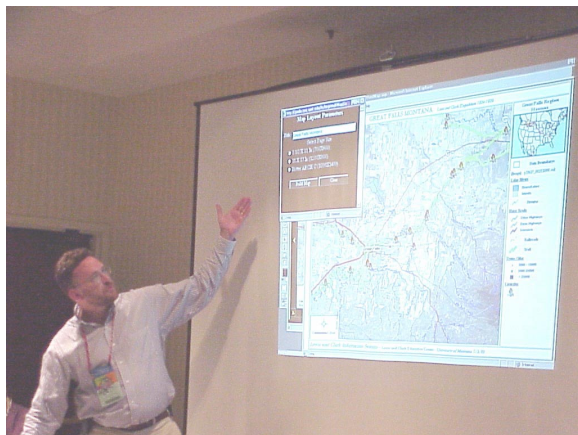
to Tell the GIS-Related Story"
<http://mmcom.bu.edu/tjohnson/Public/IAJ/Presentations/iaj-esri-intro.ppt> (304k file)

Steve Doig, Professor and Knight Chair in Journalism, Arizona State University: "What Makes a Good GIS Story?"
<http://mmcom.bu.edu/tjohnson/Public/IAJ/Presentations/esri-doig.ppt> (TKk file)

Bruno Tedeschi, State House Bureau Chief, The Record, Hackensack, N. J. "Data Acquisition & Reporting the GIS Story"
<http://mmcom.bu.edu/tjohnson/Public/IAJ/Presentations/esri-teseschi.ppt> (TKk file)

Paul Overberg, Database Editor, USA TODAY, Arlington, Va. "How We Do it: Creating Analytic & Publication Maps."
<http://mmcom.bu.edu/tjohnson/Public/IAJ/Presentations/esri-overberg.ppt> (2.5 Mgb file)

Lewis and Clark Special Interest Group Meeting



Alex Philp, leader of Lewis and Clark Project from Montana EOS.

I attended a meeting organized by George Dailey, ESRI, Alex Philp, Montana EOS, and Jimmy Johnston, USGS - NWRC, to learn about national efforts in preparation for the Lewis and Clark bicentennial.

As a follow-up to last year's first Lewis and Clark SIG, this year's event highlighted efforts over the past year to develop partnerships among private and public sector entities interested in Lewis and Clark geospatial questions and research, and progress toward data sharing for the development of a National Lewis and Clark Data Infrastructure. In addition, a working prototype of the "Lewis and Clark Information System" was shown for the first time, incorporating a variety of new technologies for interactive web-based delivery of Lewis and Clark geographical and multimedia information.

My Paper Abstract

The Implementation and Effectiveness of Geographic Information Systems Technology and Methods in Secondary Education

Joseph J. Kerski, Ph.D.

Geographic information systems (GIS) technology and methods have transformed decision-making in universities, government, and industry by bringing digital spatial data sets and geographic analysis to the desktop computer. Some educators consider GIS to be one of the most promising means for implementing educational reform. However, GIS technology has been adopted by only 1% of American high schools. The reasons behind the interest in GIS technology and methods, their slow implementation, their extent in the curriculum, and their effectiveness in teaching and learning are unclear.

To address these concerns, this research describes the geographic and curricular extent to which GIS technology and methods are being implemented in American secondary education, explains

why and how GIS is being implemented, and assesses the effects of GIS-based lesson modules on teaching and on the acquisition of standards-based geographic content and skills. A survey of 1,520 high school teachers owning GIS software, and a set of 86 pre- and post-test experiments and case studies in three high schools involving 300 students provided primary data. GIS aids issues-based, student-centered, standards-based, inquiry-oriented education, but its effectiveness is limited primarily by social and structural barriers. Technological barriers are less significant than time required to develop lesson modules, inadequate student access to computers, inadequate training, and pressure to teach a specified content. GIS is being implemented primarily by veteran science teachers at public high schools who perceive that GIS provides real-world relevance, interdisciplinary education, and increased student interest. Results of experiments with standardized and spatial analysis tests were mixed, although students using GIS performed significantly better on their assignments than those using traditional methods. Case studies showed that GIS changes teacher and student roles, communication, and methods of teaching and learning.

Map Gallery Abstract

GIS Education for Mapping Professionals
Alan Ward and Joseph Kerski

Improving employee GIS literacy is critical to support the missions of all cartographic organizations. The US Geological Survey (USGS) instituted a GIS training program at its Rocky

Mountain Mapping Center in Denver Colorado, USA. This program includes on-site classes, university coursework, and training in tools, analysis, and applications. Employees can be certified in three levels of GIS proficiency. The certification is internal to the Rocky Mountain Mapping Center and serves to motivate those employees who prefer to achieve increasingly higher levels of proficiency. This poster outlines considerations in designing a GIS training program within an organizational setting of a large mapping organization. This included a needs assessment, negotiations with management and personnel, implementing the program, organizing and offering courses, and certification assessment.

Other Conference Notes

At the ESRI conference I took quite a while to examine the book "Geographic Information Systems and Science" by Paul Longley, Michael Goodchild, David Maguire, and David Rhind. It is most excellent and I recommend this book should be purchased as it is one of the "essential readings" in GIS for our center. ISBN 0-471-89275. ESRI Press offers the book (since Maguire now works for ESRI). \$50. gisstore.esri.com

These authors are the same GIS leaders who wrote the 3-part book that has since been referred to as "The Big Book of GIS" back in 1990.

Many companies are adding value to USGS products, such as MapTech's Terrain Navigator Pro, that features seamless topographic maps and export software.

Baird Software has produced a movie map tool for ArcGIS called MapAnimator 3D, at www.mapanimator.com

BLM is taking advantage of the Geography Network with their National Integrated Land System Project, at www.geocommunicator.gov

In education outreach, I was impressed by the Mississippi Space Commerce Initiative, at msview.spacecommerce.com, a partnership among NASA, the state of Mississippi, the University of Mississippi, and high-tech businesses.

Pixxures has a new product, WebPix, an Internet portal and hosting solution that makes possible the viewing, management and delivery of high-resolution imagery and mapping information online. Organizations can choose web hosting from Pixxures, which allows access to an organization's own imagery as well as to the DataPix library. Their image library has over 20 TB of imagery available in real-time. See www.pixxures.com for more information.



IBM/Informix staff doing what we're

always advocating should be done-- holding a pre-event meeting so that everyone's on the same page.

<http://glovis.usgs.gov/> is something new I learned about. This is the Landsat 7 data viewer and is quite easy to use.

Our USGS site geode.usgs.gov was featured by Informix in the exhibit hall.

A URL to find more than a hundred SRTM images for possible use: <http://photojournal.jpl.nasa.gov/cgi-bin/uncgi/PIADBSearch.pl>

I found out about an excellent NASA depot for images: See: grin.hq.nasa.gov

I-Cubed showcased EarthViewer. This allows delivery of I-cubed products over the Internet via EarthViewer, a streaming geospatial Internet browser. See www.i3.com and www.earthviewer.com. This was the most amazing thing I saw at the conference.

I investigated a tool called dlg2shp from www.gistools.com and will write a follow-up report on how it can take SDTS DLGs into ArcView.

I found out about tools to plot stereo-viewable maps at integralgis.com/stereo and www.stereojet.com. POCs are Patrick Moore at www.tec.army.mil at 206 782 7600 and Linda Wagner (StereoJet) at 310 374-8282.

ArcUser - - See Article in April-June 2001 issue about datums. Article in July-Sept 2001 issue about assembling DEM files for watershed analysis, tracking West Nile Virus using ArcPad, and migrating ArcView

3.2 projects into ArcGIS.

I learned about LizardTech's Djvu technology. This does to existing paper documents what MrSID does to image files--supercompresses them for ease of access. It reduces the file size of high-resolution scanned documents by up to 1000 to 1. See www.lizardtech.com for more information.

The folks at Skylinesoft.com - Terraexplorer - draped satellite images over DEMs, which was quite impressive.

www.gisdevelopment.net is the Asian GIS monthly magazine.

There is an interview in "GI News" a magazine from the UK, with an interview with Jack Dangermond, in their July-August 2001 issue. <http://www.ginews.co.uk>

I talked with the President of Voice Insight, from Belgium; he also came to the USGS GIS conference in Denver in April. Their voice-activated GIS is truly amazing:
www.voice-insight.com

I found that Trimble's Media Mapper is an easy way to add photographic images to a GIS database. Geographically-referenced (with GPS) images are exported to the GIS without the need to describe a feature with notes. Each time-stamped image is matched with the time-stamped data in the GPS file to determine the position for the photograph.

Recommendations

We might in the future opt for a high-

speed internet connection rather than the dial-up option. This would make it possible to show some of the features of the USGS web and be able to download digital data as needed. Still, the dial-up connection was not bad, although we at times had to use my own personal account. I could not get the WMC or RMMC Earthlink connections to work, and I need to investigate that.

We had inquiries into the availability of a seamless elevation data set (NED). Currently data sets less than 10Mb are available for free ftp download and any data set larger is available at a cost through the NED site. We need to find out if larger data sets will be available in the future? Many would like to see this happen.

There was also a concern about the recent transfer of USGS SDTS DEMs to Geocomm. This needs to be investigated. (www.gisdatadepot.com) SDTS DEMs have been transferred to the GIS Datadepot were they will continue to be served free of charge. Some revisions have been made to various quads and those revisions have a different format than optional files. All conversion tools tried (including ARC Toolbox's SDTS Importer), failed to convert the elevation files. A week later these files were removed from the servers (due to the response at the conference).

Earthexplorer was used throughout the conference to access Landsat 7 data covering regions across the globe. There were several great posters and images of Landsat 7 data as well as the new TERRA products, ASTER and MODIS. These drew a lot of attention from visitors from

all disciplines. I have a concern that some of these data sets require very specific software, and are not accessible to the bulk of the GIS and remote sensing community. I will follow up on this.

Acknowledgments

Many people at the USGS combined to make this a success. I thank all those who provided materials, demos, exhibit help, and posters. I especially thank Barb Ray and Jennifer Sieverling for organizing and taking advantage of the USGS area in the Map Gallery. Once again, the WRD San Diego office helped with shipping materials back to Sioux Falls and Denver. If I have neglected anyone from this report, know that I am appreciative of all help for this worthwhile event.



My favorite picture from the ESRI user conference!

**** end of report ****