THE MAP LEGEND

NMGIC, Inc. PO Box 9445 Albuquerque, NM 87119-9445 Est. 1984

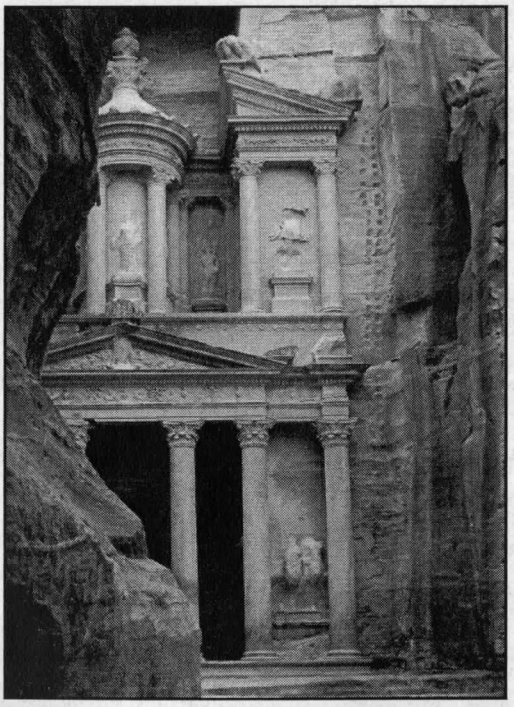
http://nmgic.unm.edu

Retired NPS Personnel Assist with National Park at Petra in Jordan

The following article was submitted by Dr. Milford Fletcher. Dr. Fletcher was the Chief Scientist of the Southwest Region of the National Park Service for 18 years. The last 6 years of his career he created and supervised the National Park Service Intermountain GIS Center at the University of New Mexico. As well as his work in Jordan, he has been a consultant to the government of India at Ajanta and Ellora, and has photographed rock art in France, Ukraine, South Africa, Turkey and North America. His next trip will be to Peru and the Galapagos Islands.

In August, 2003, I was invited to participate in a project in the Hashemite Kingdom of Jordan to assist their government in creating a National Park at Petra in west-central Jordan. Petra is the legacy of the Nabataeans, an industrious Arab people who settled in south Jordan more than 2,000 years ago. From a remote staging post, they dominated the trade routes of ancient Arabia, levying tolls and sheltering caravans laden with Indian spices and silks, African ivory and animal hides.

The Nabataean Kingdom endured for centuries, and Petra became widely admired for its refined culture, massive architecture and ingenious complex of dams and water channels. Ultimately, however, in 106 AD the Roman Emperor Trajan annexed the Kingdom. The area is currently listed as a UNESCO World Heritage Site.



The Treasury is one of Jordan's most famous monuments. After a 1200 meter walk through a canyon, this monument appears, carved in stone, and rose red from the color of the sandstone. Recent excavations in front of the monument yielded a 3 pound lump of frankensence

There were 4 retired National Park Service members on the 5 month mission, all of whom had been NPS Regional program administrators or had similar administrative responsibilities. Salaries, travel, and per diem were paid by the Jordanian government with funds from a World Bank loan.

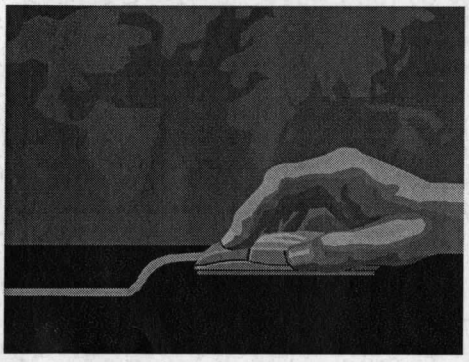
Our purpose was to write a development plan for the new park. Actually, Petra has been a formal archeological park for several years, but after the tragedy on 9/11/01 here in the U.S and the subsequent invasion of Iraq by forces led by the United States, tourism to Jordan has dropped off more than 90% and in a country were tourism provides a very significant portion of the annual income this was devastating to the entire economy. Most of the population relies on tourism in some way, from taxicabs, restaurants, curios, guide services, hotels and bottled water sales. So, when locals would ask "What are you doing here?" We first tried to explain about goals, management systems, infrastructure, etc. but finally settled on a stock response—"We're trying to find ways to bring more tourists to Petra." This immediately brought a smile and a hearty handshake.

We were stationed in a small community called Wadi Musa (Arabic for Valley of Moses) where both Christians and Arabs believe that the prophet Moses struck

Continued on Page 10

Inside This Issue

The Map Legend



Editor: Carol Earp
Public Relations

The Map Legend is published by the New Mexico Geographic Information Council and is a benefit of membership in NMGIC. The opinions expressed are those of the contributors and do not necessarily represent the views of the New Mexico Geographic Information Council, except where specifically noted. Use of trade names or products does not constitute an endorsement by the NMGIC. Members are invited to send articles and announcements of interest to Carol Earp. Please direct all correspondence to:

Carol Earp
NMGIC, Inc.
PO Box 9445
Albuquerque, NM 87119-9445

Voice: 505.724.3606
Fax: 505.247.1753
Email: *cearp@mrcog-nm.gov*

NMGIC Web Site:

http://nmgic.unm.edu

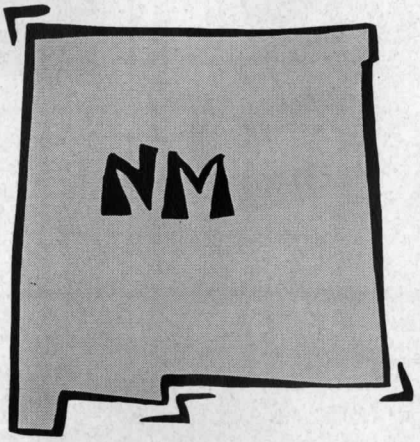
NMGIC Board of Directors

NMGIC Standing Committees

Geographic Names Committee
Bob Julyan, Chair

Global Positioning Systems Committee
Bill Stone, Chair

State Mapping Advisory Committee
Mike Inglis, Chair



A Note From the NMGIC President

Thanks one and all for participating in the NMGIC Fall 2004 Meeting on Conservation and Environmental GIS. Those who attended (about 75-80) got to hear about some mighty-fine GIS work on using various analytical techniques, modeling and visualization. We had a full slate of talks from people all over the state, ranging from the fairly technical to the simply fascinating. Especially memorable was Leland Pierce's talk on making good conservation maps; you'd never know that discussing "Beaver-Tailed Elk Snappers" could ever get a crowd fired up like that! We also had a good workshop on 3D modeling and visualization, with presentations by Bruce Daniels, Lou Rosenberg, Skip Pack, and Mike Price.

As always, if you have a hot concept for a workshop or meeting topic, please let us know; we're always glad to get fresh ideas.

Marc Bourdon, a graduate student at the NMSU Geography Department, was awarded the Jesse Rossbach Memorial Scholarship (in the amount of $1000) to put towards his project entitled "A Satellite Image Interpretation and Land Use Classification Method for use with the URBANSIM Land Use Model." We look forward to hearing about his research results next year.

The results of the 2004 Board elections were announced: current Board members Amy Budge and Kurt Menke retain their positions, and we welcome new Board members Janet Greenlee, Maggie Porter, and Rich Friedman (well, Rich is oldly new or newly old, or?). Thanks to all the capable folks who were nominated, and to the volunteers who tabulated the ballots.

The NMGIC By-Laws are in need of "freshening", since they've been untouched since the mid-1980s. Times change, technologies change, so it seemed appropriate to make sure we're up-to-date. The Board has established a small working group to review the By-Laws and suggest updates and edits; a draft of the revised By-Laws will made available for comments on the NMGIC website sometime later this year.

As was mentioned at the Fall Meeting, the NMGIC Board, together with the state Geographic Information System Advisory Committee (GISAC), have found it necessary to craft a joint position paper on the concept of a Southwest Users Group (SWUG) Executive Board. Earlier this year, a few people in each of the SWUG states were asked if they'd like to be a member of an Executive Board for SWUG. The Executive Board concept was proposed for a number of reasons, but the members of the NMGIC Board and GISAC felt that it would be more appropriate to address this issue at the October SWUG Meeting in Telluride, CO. We believe the folks who actually participate in SWUG meetings should determine whether or not an Executive Board was necessary, how it would be structured, and who should be on it, etc. This "New Mexico position" was conveyed to the people who proposed the idea, and was discussed at the SWUG get-together held during the ESRI User Conference in San Diego. By the time you read this, hopefully the issue will be resolved, since the SWUG Meeting is being held October 20th-22nd, 2004.

Thanks again for being a NMGIC member and joining together in the GIS community.

Rick Koehler

Rick Koehler
NMGIC President
rkoehler@state.nm.us
505-476-3417

Enterprise GIS: The US Air Force GeoBase Program

Beginning in July 2001, the United States Air Force GeoBase program has been creating a framework to consolidate base mapping efforts with a goal of eliminating fiscal waste and decision inferiority because of decentralized mapping processes across AF installations. With a vision of "One Installation...One Map," the GeoBase program was initiated to provide a standards-based "one map" that meets the diverse needs of the installation functional communities (i.e. weapons safety, civil engineers, environmental, security forces, etc.).

The GeoBase framework standardizes access to geospatial resources and identifies a common picture of geospatial data available at every installation. Providing standardized methods to access GeoBase functionality allows different groups and communities to simultaneously utilize and exploit GeoBase capabilities when performing geospatial analyses. Furthermore, functional users will have access to the most current data to include in their analyses, a problem that has plagued past users of AF geospatial data.

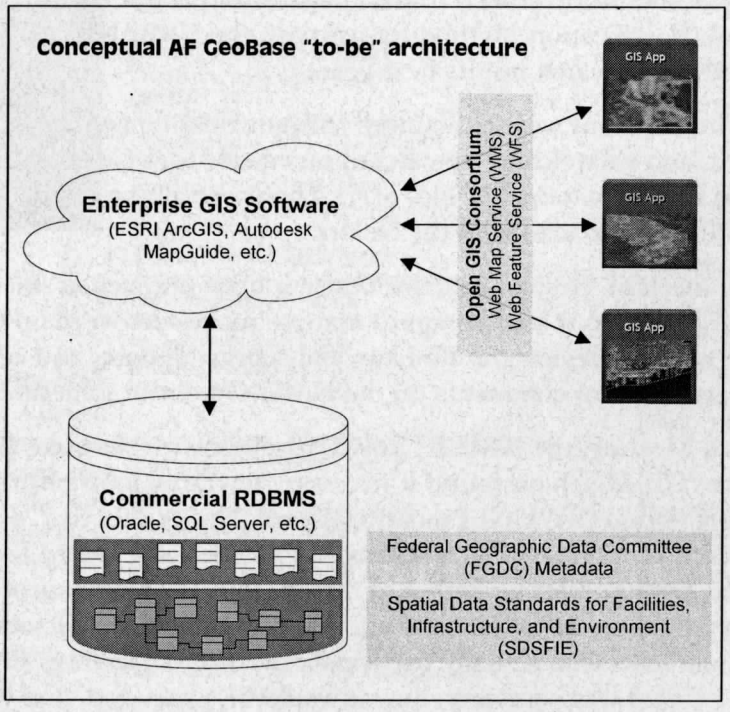
The GeoBase program provides support for the different AF decision support environments (HAF GIO, 2003a and 2003b). The Garrison GeoBase effort is the most complex GeoBase environment and in charge of consolidating mapping efforts across major and minor AF installations. A streamlined GeoBase infrastructure is implemented in an expeditionary environment to support the warfighter at forward operating locations. This Expeditionary GeoBase decision support environment implements the same architecture and standards that guide Garrison GeoBase, and is used to select, plan, and maintain forward operating bases.

USAF GeoBase Approach

The USAF GeoBase program foundations are being integrated into organization's systems and information architectures, people's habits and workflows, financial planning and management, education and training of users and management, and policy and guidance (Cullis and Tinsley, 2004). To coordinate these responsibilities, Geo Integration Offices (GIOs) were created and staffed to act as "change agents" embedded in key AF organizations with a goal leveraging the shared geospatial data infrastructure.

GIOs are currently located at Headquarters Air Force, all Major Commands, and over 70 AF installations worldwide. In addition, GIOs are established at seven headquarters-level functional organizations to incorporate the GeoBase infrastructure into different users' processes. These organizations manage and implement applications and policy that includes civil engineering, environmental, security forces, real property, communications, and safety communities. As an example, we staff the Headquarters USAF Safety Center Geo Integration Office which has the responsibility to incorporate the GeoBase infrastructure and standards into all Air Force Safety related programs.

Architecture Overview



The GeoBase architecture defines a single dataset for each installation that meets the general geospatial data user's needs. This Common Installation Picture or CIP contains a standard set of geospatial data layers that include features such as roads, buildings, runways, fences and barriers, vegetation cover, and a high-resolution aerial photograph. Because data in the CIP are not designed to support every potential task, the GeoBase architecture provides Mission Data Sets (MDS) to augment the CIP that are created and managed to meet specific missions and processes of different functional communities such as weapons safety, security forces, and environmental restoration. Functional data stewards are responsible for maintaining and controlling access to the Mission Data Sets.

The Headquarters Air Force GIO defined three architectures: an "as-is" architecture that captures the current implementation of geospatial technologies, a "transitional" architecture that identifies an intermediary architecture, and a "to-be" architecture which is the long-term target. The long-term "to-be" architecture identifies key capabilities such as data served via vender-neutral geospatial Web services, data available via the AF Wide Area Network and Global Information Grid, and the increased prevalence of GeoBase-enabled systems (Cullis, 2003). However, imperative to the success of the AF GeoBase architecture is the adoption, implementation, and adherence to geospatial standards.

Geospatial Standards

Due to the heterogeneous nature of AF computing environments and data needs, the GeoBase architecture utilizes open standards to create an interoperable solution to promote data sharing among the many different functional communities. The standards define the requirements for geospatial data access, data structure, naming and attribution, and data documentation. The standards-based architecture allows the AF to implement a vendor-neutral infrastructure allowing individual users to continue to use their GIS products of choice. For example, a GIO at one installation may implement and maintain their data using AutoDesk products while a GIO at a different installation may implement and maintain their data using ESRI products. The key standards are:

- The Open GIS Consortium's Web Map Service (WMS), Web Feature Service (WFS), and Geographic Markup Language (GML) standards. These standards define how data are exchanged and encoded using platform and software independent text-based protocols.
- The CADD/GIS Technology Center's Spatial Data Standards for Facilities, Infrastructure, and the Environment (SDSFIE). This ANSI standard provides a data model that identifies naming conventions, graphic representations, and structures. SDSFIE is a standard for GIS implementations throughout the Department of Defense, as well as the de facto standard for GIS implementations in other Federal, State, and local government organizations, public utilities, and private industry throughout the United States and the World (CADD/GIS Technology Center, 2002).
- Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata (FGDC CSDGM). This standard includes information on the data content, accuracy, condition, organization, and point of contact.

These standards ensure that the access to data, data characteristics, and metadata availability, will be uniform across all US Air Force installations.

Looking Ahead

While GeoBase is still in its early stages of maturity, the success of the USAF GeoBase "One Installation ... One Map" concept has been noticed by other Federal organizations, particularly during these times of increased national security concerns. This past July, the Office of the Secretary of Defense, Defense Installation Spatial Data Infrastructure (DISDI) was created which will provide a standards-based geospatial data infrastructure across the Department of Defense. Using the same standards implemented by the USAF GeoBase program, data can be shared with other organizations such as the Department of Homeland Security, US Geological Survey, and the Defense Threat Reduction Agency while working towards a goal of "one nation ... one map."

Literature Cited

CADD/GIS Technology Center. 2002. Spatial Data Standard for facilities, infrastructure, & environment (SDSFIE) and Facility Management Standard for facilities, infrastructure, & environment (FMSFIE): Data Model and Structure. http://tsc.wes.army.mil/products/tssds-tsfms/tssds/articles/papers/data_model/sdsfmsm220.htm <Accessed Sept 2004>.

Cullis, B. 2003. GeoBase Program Overview March 03. Available at https://www.il.hq.af.mil/geobase/library.cfm?osymbol=geo <Accessed Sept 2004>.

Cullis, B.J. and H. Tinsley. 2004. One Installation, One Map. GeoIntelligence Sept 2004. http://www.geointelmag.com/geointelligence/article/articleDetail.jsp?id=122452 <Accessed Sept 2004>.

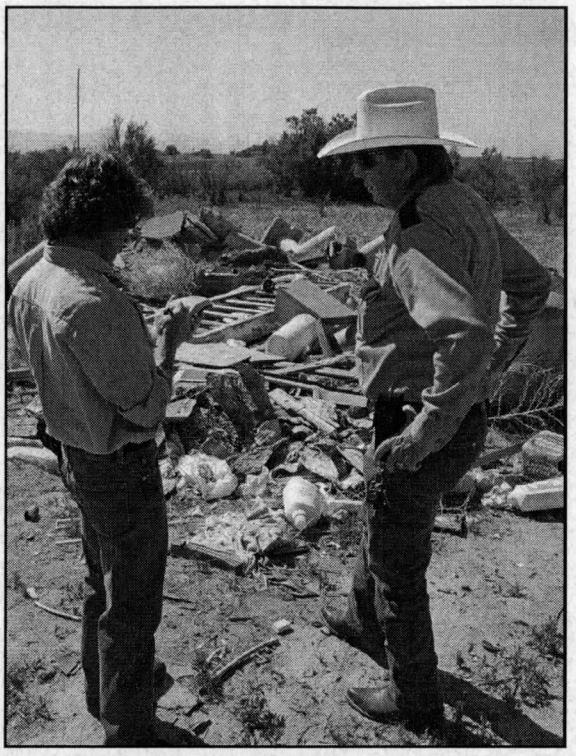
Headquarters Air Force Geo Integration Office (HAF GIO). 2003a. USAF Garrison Mapping Concept of Operations, Version 2.0. Available at https://www.il.hq.af.mil/download/1634161262003geo.pdf <Accessed Sept 2004>.

Headquarters Air Force Geo Integration Office (HAF GIO). 2003b. USAF GeoBase Enterprise Architecture, Version 1.0. Available at https://www.il.hq.af.mil/download/mil/3924141012003geo.pdf <Accessed Sept 2004>.

Ryan Miller, Ph.D. GeoBase Contractor (CH2MHill)
Headquarters USAF Safety Center Geo Integration Office
ryan.miller@kirtland.af.mil

Barton Clements, Chief
Headquarters USAF Safety Center Geo Integration Office
barton.clements@kirtland.af.mil

DOÑA ANA COUNTY MAKES USE OF GRANT TO TRACK ILLEGAL DUMPING



GIS Analyst Frank Dodd (left) and Environmental Code Enforcement Officer Jerry Ford field test a Trimble GeoXT as part of a Mobile GIS grant Dona Ana County received from ESRI and Trimble. Photo by Dennis Smith.

Grant Received from ESRI and Trimble

In the fall of 2003, Doña Ana County received a mobile government grant from ESRI and Trimble. The grant included hardware, software, and training valued at $14,000. The goal of the program was to foster innovative approaches to solving problems common to government entities. The GIS Division and the county's Environmental Services Department used the grant to fight illegal dumping in the desert. The grant included a Trimble GeoXT handheld device with an integrated GPS receiver with sub-meter accuracy, loaded with ArcPad, ESRI's software for mobile GIS and field mapping.

The grant also included ArcPad Application Builder, the development framework software for creating custom input forms for use by ArcPad. GIS Analyst Frank Dodd developed custom input forms for the initial site visit and follow-up visits. He worked closely with environmental code enforcement officers Richard Guerra and Jerry Ford.

Project Featured in *ArcUser* Magazine

Doña Ana County had a mature desktop GIS in place; mobile GIS gave the county the ability to leverage that power in the field. The officers can determine property ownership and jurisdiction information in the field while collecting field data. The data they collect are uploaded to the desktop GIS when the GeoXT is placed in its charging cradle. The county considers the grant project a success, and is continuing to develop applications for the mobile technology. The county's Information Services Department and the county Assessor's Office provided support for the project. The project was featured in the July-September 2004 issue of *ArcUser* magazine.

The county Assessor's Office maintains the parcel basemap and uses GIS in assessment analysis and administration functions. Using network analysis to develop routing maps allowed the office to do a year's work in six months, and saved the county approximately $300,000 in operating costs. They have also generated approximately $130,000 per year by identifying lost value – using aerial photography to identify improved properties taxed as vacant land.

The county will soon be receiving new aerial data. The Doña Ana County Flood Commission contracted with Bohannan Huston, Inc., to provide aerial photography and a digital terrain model for 1,244 of the county's 3,804 square miles.

Special Achievement in GIS Awarded

In August 2004 at the annual International User's Conference in San Diego, ESRI presented a Special Achievement in GIS award to Doña Ana County. GIS Administrator Sally Baxter received the award on behalf of the county from ESRI president Jack Dangermond.

For more information, call county Public Information Director Jess Williams at (505) 647-7229. Residents calling from outside the Las Cruces area may call toll-free at 1-877-827-7200 and request extension 7229.

Sally Baxter
GIS Manager, Dona Ana County
sallyb@co.dona-ana.nm.us

GRIST FOR THE MILL –

Bailey Butte and Harmon Draw

Cibola County and Sandoval County Features Raise Interesting Naming Issues

The wheels of the official naming process grind slow, but they grind fine—and sometimes with some grit.

The U.S. Board on Geographic Names (USBGN) recently acted on the two New Mexico proposals before it. They approved the proposal to name an obscure butte in southeastern Cibola County Bailey Butte, to honor the father of the proponent, who owns some of the butte. The father had no personal connection with the butte, except through his son, but then that's how Roswell was named. Van C. Smith named the burgeoning settlement in Chaves County for his father, Roswell Smith.

The butte is difficult to find on maps and even more so on the land. No one responded to the NMGNC's requests for public input, including the two Native American tribes and two county commissions contacted. The name is of marginal utility to anyone, but because of the lack of opposition the NMGNC voted to recommend its approval, though Jerrold Widdison, NM Geographic Names Committee (NMGNC) member who actually saw the feature, questioned whether it deserved the label of "butte.

But the Board voted to reject the proposal to name a short draw in Sandoval County Harmon Draw. The feature, a tributary of Tonque Arroyo east of San Felipe Pueblo and one mile west of the ghost town of Hagan, is almost as obscure as Bailey Butte, but thereafter the circumstances vary widely.

The proponent, Spencer Lucas with the N.M. Museum of Natural History, needed to name the draw to be able to name an associated geological formation. The rules of geological naming require that a subsurface formation be named for a named surface feature. That's why the Morrison Formation bears the name of a Colorado community and the Chinle Formation is named for an Arizona settlement. Geologists routinely propose names for this reason. In fact, one of my five favorite place names in New Mexico—Beechatuda Draw (say it rapidly)—was named in this way.

Lucas chose to name the draw for a local person, Harmon Black, who had died recently. Lucas patiently observed the five-years-dead rule for commemorative names before resubmitting his proposal. Black was a good choice for an eponym, because he had lived and worked in Hagan and was well-known in the area. Seeking public input shook loose several letters of support.

But from San Felipe Pueblo, however. The proposed Harmon Draw is not within San Felipe Reservation, but it is nearby and certainly would have been within the traditional territory of the pueblo. They said they had names for all the features in the area and they preferred the draw simply be left as it is. They did not specify what their local name was, however.

The Board said their decision to reject the proposal was based upon the lack of a local connection between the eponym and the feature—patently incorrect—and the *possibility* (italics mine) of an indigenous name.

That raises some serious issues. Is it true that a tribe need do no more than raise the possibility of an indigenous name to have veto power over a names proposal? Especially as recent Board policy is that names authorities, such as the NMGNC, now must consult any tribe whose present, *or historical* lands are within 50 miles of the feature. That was one reason the Harmon Draw proposal was delayed. After receiving input from San Felipe Pueblo, the Board then had to seek input from Sandia, Isleta, Laguna, Santo Domingo, and Cochiti Pueblos, as well as Navajos and Apaches. Any one of them could suggest the "possibility" of a Native American name for the feature.

Actually, it is indeed possible that San Felipe Pueblo, at least, does have a name for the feature. Anyone who has studied Puebloan naming knows that they have names for almost everything, even features most Europeans would not think to name. In fact, in a state like New Mexico, the Native American names constitute an invisible substratum existing beneath the Spanish and English names.

But if Native Americans wish their names to be respected and recognized in name decisions, then they should at least be prepared to identify the names. To be sure, some Puebloan names have religious overtones that the Indians don't wish to be made public, but these names usually coexist with everyday names, that often are simply descriptive ("White Butte," "Nose-shaped rock").

The Board and the federal agencies that make it up are justified in their sensitivity to Native American names, especially as these have been ignored so often in the past. And we do need to consult broadly with Native American groups.

But the Board needs to reconsider the implications of accepting the mere possibility of a Native American name as a reason for rejecting a proposal, and I'll be raising this issue with the Board at the Council of Geographic Names Authorities conference in October. Watch this space for further developments.

Bob Julyan, Chair
NMGIC Geographic Names Committee

NSGIC 2004 Annual Conference - A Roaring Success!

The National States Geographic Information Council (NSGIC) held its 2004 Annual Conference in Austin, TX September 12-16. Dubbed the "Roundup of the States," it lived up to its name. Forty-eight of the 50 states were represented, with a total attendance of 325 persons, many who were attending their very first NSGIC meeting. Corporate sponsorship also reached an all-time high with 26 sponsors. The packed agenda netted valuable information ranging from state models for coordinating GIS to implementing GIS in homeland security initiatives to insights into several Federal programs.

A state caucus was held to allow state and local government members to meet in private (no vendors or Federal representatives allowed!) to discuss programs, initiatives, and concerns. Much of these discussions focused on refining the State Coordination Model and to begin work on a Federal Characteristics Model.

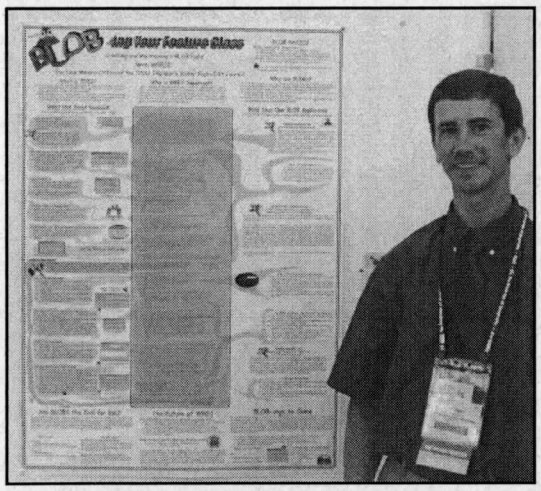
The "News from Washington" segment highlighted organizational changes at the U.S. Geological Survey. A new office was established by Charles Groat, Director of USGS called the National Geospatial Programs Office (NGPO). The aim of the NGPO is to align national geospatial activities and responsibilities within the USGS. These include the Federal Geographic Data Committee, Geospatial One-Stop, The National Map, and the Department of Interior's Enterprise GIS. NGPO has 90 days (until the end of the calendar year) to develop and deliver a plan for the new office and its contributions to future National Spatial Data Infrastructure directions. Included are plans for teaming with partners, coordination mechanisms, technology integration, partnership offices, measuring geospatial investments, communications, and a unified web presence.

Another Federal initiative underway is the Federal Emergency Management Agency's (FEMA) Multi-Hazard Flood Map Modernization Program. This program aims to update FEMA's Flood Insurance Rate Maps (FIRMs) so that by 2009 all states will have new, digital flood maps. To realize this goal, FEMA is forming partnerships and coordinating with representatives in states. Their "information technology" vision is to ensure standardized methods so that data are interoperable between states and agencies; establish a single repository of digital data for these maps; and to form a "virtual" flood hazard database wherein partners are stewards of their own data. FEMA's first step is to contact and visit states, asking for state business plans for the Modernization Program. The state plans then will be folded into regional plans, which in turn will become part of the national plan. A 5-year Multi-year Flood Hazard Identification Plan will define a "multi-hazard flood map" and will facilitate participation from various government sectors. New Mexico falls into FEMA Region VI which is headquartered in Denton, TX. The contact is Jim Owart (james.owart@dhs.gov).

Numerous presentations were made by states on topics ranging from state coordination models to centerline data, to image acquisition programs to homeland security. States that are leaders in GIS coordination include Utah, Montana, North Carolina, and New York. A range of successes were shared in context of GIS and homeland security by these and other states including Pennsylvania, New Jersey, Delaware, Michigan, and Indiana.

To compensate for the brutal agenda, NSGIC is very generous with the amenities. No one will go home hungry or "un-entertained." The social program is as aggressive as the technical program. These folks know how to work hard and play hard!

Amy Budge
New Mexico's NSGIC Representative
abudge@edac.unm.edu



Above: *Steve Hayes stands by the poster of the WREJ Application using BLOBS that he and other OSE staff developed.*

OSE GIS Staff Win Award

More New Mexico folk have been recognized for outstanding work at the 2004 ESRI International User Conference held in San Diego in August. Congratulations to Office of the State Engineer staff Steve Hayes (ITSB/Program Support), Christina Noftsker (HSB/LAP), and Liz Ayarbe (HSB/LAP now with NMSU) for winning second place in the Software Application Fair Venue. The OSE entry was a "Water Right Edit Journal" (WREJ) program written in ArcGIS Visual Basic. The need for the program came from tracking edit changes to POU, POD, and Conveyances during the course, sometimes a long course, of an adjudication and/or transaction. Using a Data Component affectionately called a BLOB or Binary Large Object they developed a customized program to track changes. In addition, to the submitting the application code, the team also presented a paper, and prepared an instructional poster. You can tell they had a great time BLOBBIFYING the world.

To read and know more about the world of BLOBS as Steve, Christina, and Liz see it; please hit the following sites:

Second Place... **http://www.esri.com/events/uc/results/app_fair.html**

Download site...Steve has been getting quite a bit of inquiry regarding the application. The first day of posting showed almost ten (10) downloads.

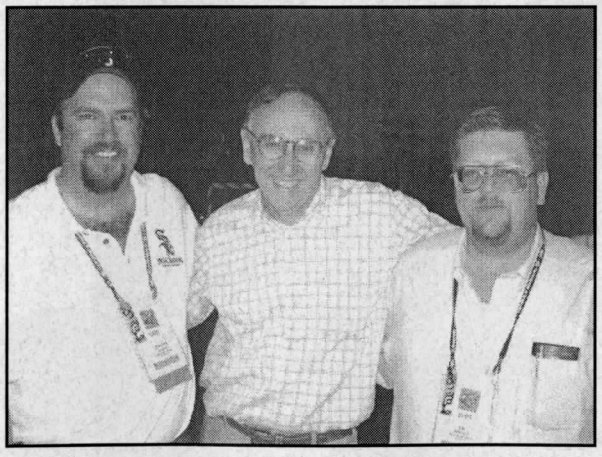
http://arcscripts.esri.com/scripts.asp?eLang=&eProd=&perPage=10&eQuery=WREJ

Also, this year the OSE staff orchestrated their Map Entries to reside in one spot which made for a fun event. In a team effort the Water Right Deming Folks with Tink Jackson & Tim Farmer leading the junket created a wonderful Map Poster illustrating the EGIS Process Used for Virden Valley. Joel Stone, Hydrographic Survey LAP, also created two map posters each illustrating the new digital camera technology used in San Juan, and an example of Hydrographic Survey Indexing. Lastly, we had two paper that were submitted and excepted. However, these folks could not attend due to budget constraints. Gary Storm with Dario Rodriquez was to present a paper comparing remote sensing with Monet's art, and Jalayne Spivey and Ray Sandoval were going to present a paper on the Water Right Process and GIS.

For a look at their posters and some photo ops, please hit the following and click on the ..uc04.pdfs:

\\Gis-sf\EGIS\GIS_ADMIN\egis_support\image_mart\map_mart\ose_maps\map_posters.

Gar Clarke
GIT Coordinator
Information Technology Systems Bureau
Office of the State Engineer
gclarke@ose.state.nm.us



At left: *Charles Jackson and Tim Farmer, OSE WR Deming Office, meet Jack Dangermond, ESRI President at their first time out to the ESRI International User Conference in San Diego in August.*

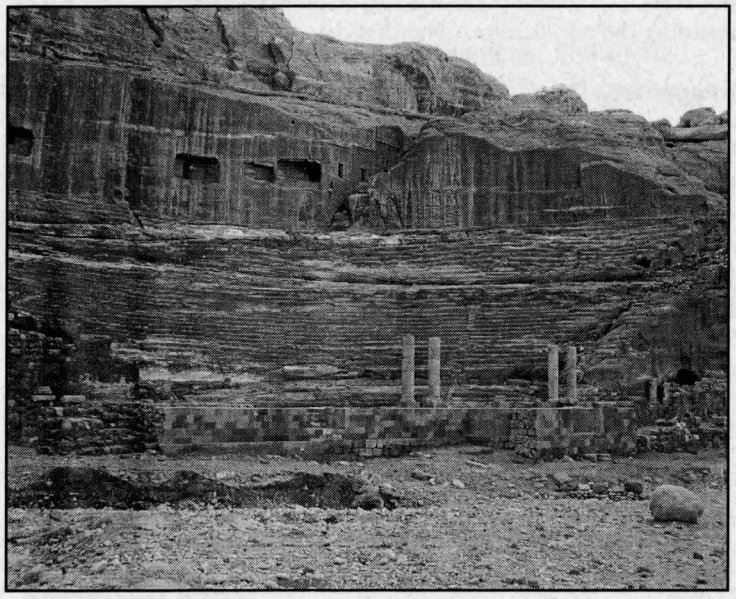
Continued from Page 1

the rock at Gods direction, and brought forth water (Numbers 20) for the people who followed him. About 15 miles west of Wadi Musa is the holy shrine of Aaron, brother of Moses, who is reputed to be buried there. Not 500 meters from my desk was a Crusader fort built in 1115AD and the landscape is literally covered with ruins, monuments, 3000 year old terraces and other antiquities. The Treasury, a breathtaking stone monument at the end of the Siq (a 1200 meter canyon leading to the city of Petra) was used in the final scenes of the movie Indiana Jones and the Last Crusade.

I have traveled a bit, and have worked for the governments of France (at Lascaux) and India (at Ajanta and Ellora) but can truthfully say the Arabs I met in Jordan were among the most friendly people I have ever encountered. We had access to a broad spectrum of society and this attitude was common everywhere. I had Christmas dinner with a Crown Prince, and many times squatted in the camel dung at a Bedouin camp and ate a communal dinner with my hands.

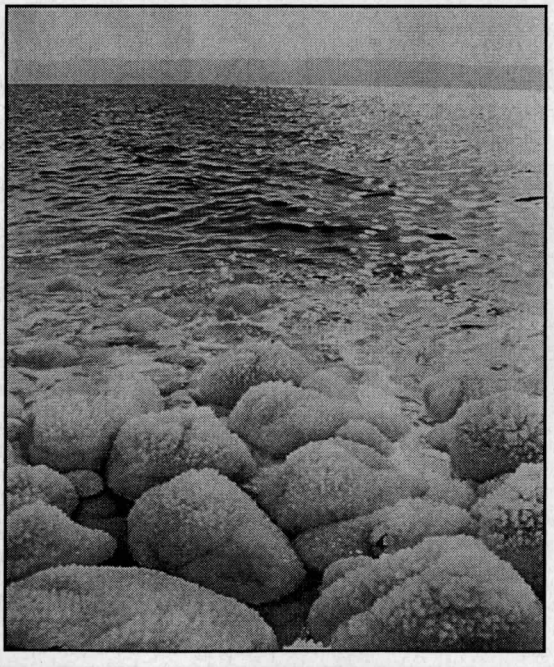
Although Amman is a modern city, and western dress is very common, the Bedouin way of life is at the heart of the culture. Even the rich try to have their children spend some time with the rural and semi-nomadic relatives to learn the virtues of the Bedouin way. First in their minds comes the family, second the tribe to which they belong, and finally to a nation-state.

The Jordanians, along with much of the Middle East, are a people who have been unceremoniously jerked from the 19th century to the 21st century without benefit of the lessons learned in the 20th. For example, with funds obtained from a World Bank loan, the Department of Antiquities, (which reports to the Ministry of Tourism and Environment,--go figure!) purchased a dozen or so new computers for Petra with software and all. One day while sitting at my laptop typing I realized that someone was standing behind me. I looked back and 4 secretaries were standing there watching me type. They couldn't figure out how I could look at a page and type without looking at the keyboard. They had new computers, with MS Word on them, but no one had taught them to type. In another example, I asked for visitor numbers for the last few years to graph them. When the budget officer of the park brought a handwritten copy to me I entered them into MS Access to plot graphs of them. He was astonished at the graphs, and he would not leave until I taught him how to use Access-not an easy task since Arabic reads from right to left, even in Access. The climax of this is my memory of a 12 year old Bedouin boy, on a donkey, herding goats and talking to his mother on a cell phone. Although there are some land lines in Jordan, most telephone use is cellular—they skipped the whole land line phone revolution. Although computers are expensive and rare in rural Jordan, internet cafes' are numerous and widely used.

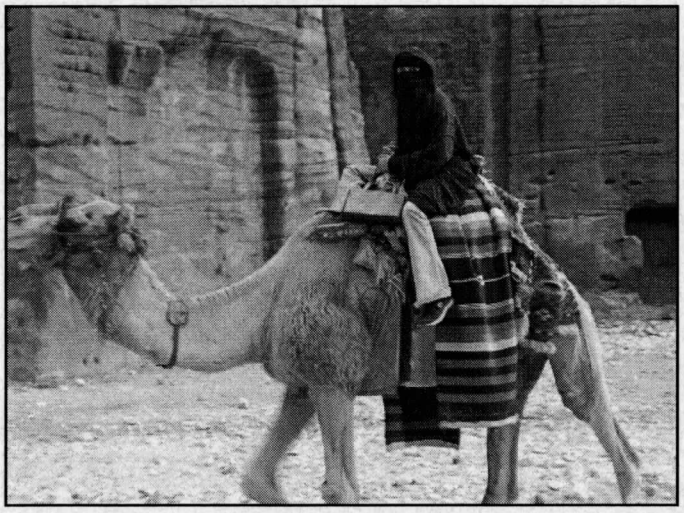


The Roman Amphitheater was built in the first century BC by the Nabateans. This theater has 45 rows of seats and could seat 6000 to 7000 people. It is misnamed, because the Romans did not enter Petra until 106 AD.

Since one of the things we really wanted for Petra was a functioning GIS system. Much to the amusement of my companions, I decided to offer a short GIS course to anyone on the staff who could get their supervisors permission to take it. I loaded Arcview 3.2 on 9 computers and sent a memo to all personnel that I would give a 15 hour course over 5 days in basics of GIS. I had an old TM scene of the



Crystals of magnesium chloride form on the shores of the Dead Sea. Mineral extraction from the Dead Sea by Israel and Jordan cause the dead sea level to drop an average of 3 feet per year. At 1348 feet below sea level, my hand-held GPS blinked a couple of times but came within 5 feet of the published elevation.



Ninjamos-a conservative Moslem lady riding a camel in Petra. The locals call these Moslems "Ninja" moslems. Notice the tennis shoes .

park, and DOQQ's for about ½ the park. I also had a couple of handheld GPS units which I ultimately left with the park. There were 19 people who attended the training, and all-in-all we had a good time. Apparently some it stuck, because we were able to get a grant from ICOMOS (International Convention on Monuments and Other Sites) to bring a Jordanian employee from Petra to the USA for 3 months of training—this time in ArcGIS—and at the same time arranged for an American to go to Jordan and set up a GIS lab.

At the professional level, GIS is alive and well in Jordan. Infograph has an office in Amman where ArcGis can be purchased for about 1100 Jordanian Dinars-approximately $1450 US dollars. Dr. Talal Akashah of Hashemite University has been working for 8 years on Petra, using sub-centimeter GIS total stations and Arcview. He and his staff have mapped some 2000 of 3000 sites at Petra, and the database is now approaching 4 gigabytes of data. Unfortunately, for a variety of reasons, none of the data have found their way into the hands of the staff of Petra and it may be years before the data are completed, checked, published, and copy written. Bureaucrats are the same all over the world. Finally, our experience in Jordan may be unique and I make no claim that others would find the people as we did, but I found that the Arabs there want pretty much the same thing all of us do—a decent job, a little freedom, and a better life for our children than we had. They have a great sense of humor, and I spent many evenings sitting around a fire and telling stories and jokes. My 5+ months in Jordan left me with many friends and a better understanding of a fascinating culture.

Dr. Milford Fletcher
Chief Scientist, Retired, Southwest Region,
National Park Service

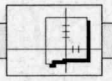
Soil Data Available Online

The Natural Resources Conservation Services has completed a number of digital soil surveys for New Mexico. Mr. Ken Scheffe, NRCS NM State Soil Scientist recently provided information on the Soil Data Mart to the NM Geographic Information Systems Advisory Committee (GISAC). The digital soil survey maps and attribute database are available in several geospatial formats and can be downloaded via the Internet at http:\\soildatamart.nrcs.usda.gov. Select New Mexico and then the Soil Survey Area of interest. The tabular soil information can be viewed online or downloaded for use in Microsoft Access or a geospatial database. The on-line data is now certified as the "Official Copy" Soil Survey Data for each area listed below. Prior to the Soil Data Mart, the primary source of on-line soil data was the National SSURGO Website. The Soil Data Mart supersedes the National SSURGO Website, but this transition will be ongoing for most of 2004.

Colfax County, NM (NM007)
De Baca County, NM (NM011)
Guadalupe County, NM (NM019)
Harding County, NM (NM021)
Hidalgo County, NM (NM023)
Luna County, NM (NM029)
Union County, NM (NM059)
Bernalillo County and Parts of Sandoval and Valencia Counties, NM (NM600)
Cabezon Area, NM (NM606)
Valencia County, NM (NM612)
Eddy Area, NM (NM614
San Miguel County Area, NM (NM630)
Chaves County, NM, Northern Part (NM644)
Sierra County, NM (NM660)
Grant County NM, Central and Southern Parts (NM662)
Chaves County, NM, Southern Part (NM666)
Taos County and Parts of Rio Arriba and Mora Counties, NM (NM670)
Cibola Area, NM, and Parts of Cibola, McKinley, and Valencia Counties (NM682)
McKinley County Area, NM, McKinley County and Parts of Cibola and San Juan Counties (NM692)
Jicarilla Apache Nation, Parts of Rio Arriba and Sandoval Counties, NM (NM698)
Shiprock Area, Parts of San Juan County, NM, and Apache County, AZ (NM 717)
Fort Bliss Military Reservation, NM and TX, (NM719)

Gar Clarke
GIT Coordinator
Information Technology Systems Bureau
Office of the State Engineer
gclarke@ose.state.nm.us

NMGIC 20th Anniversary Polo Shirts Available
Contact Bart Matthews at bmatthews@bhinc.com or 505-823-1000



Cool Websites: Map Projections

Compiled by Denise Bleakly

For this edition of Cool Websites, I've chosen to focus on websites that explain map projections, the mathematics of projections and resources for map projections. One of the things I do in my job is to explain what map projections are and why they are vital in working with geospatial data. This is especially true for application developers who are inserting maps in the applications being developed.

This selection is based on several different web searches, and it focused on providing a broad overview of what map projections are, the math behind them, and where to go for more information. This is not an exhaustive list and as always, if you have any additions, please feel free to contact me at drbleak@sandia.gov or 284-2535 – Denise Bleakly.

Internet resources for explaining map projections:

The Geographer's Craft - Map Projection Overview (University of Colorado):
http://www.colorado.edu/geography/gcraft/notes/mapproj/mapproj_f.html
Hunter College Map Projection Home Page: http://www.geography.hunter.cuny.edu/mp/
Map Projection Essentials: http://www.mapthematics.com/Essentials/Essentials.html
Map Projections: http://www.fes.uwaterloo.ca/crs/geog165/mapproj.htm

Public domain software for map projections

USGS: http://www.pe.utexas.edu/Geosci/Software/USGS/Map_Projection/map.html
US Corps of Engineers: CorpScon Version 5.11.08—http://crunch.tec.army.mil/software/corpscon/corpscon.html
CORPSCON factsheet:
http://www.ehis.navy.mil/coe-london/factsheets/tec/CORPSCON%20Coordinate%20Conversion%20Software.pdf

Map projection tools / formulae

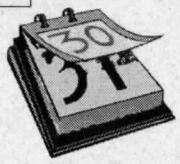
There are quite a few websites that get into the nitty-gritty of the mathematics behind map projections. This is a list of those websites that provided me a better understanding of the formula.
Math World: http://mathworld.wolfram.com/MapProjection.html
http://www.gpsy.com/gpsinfo/geotoutm/
http://www.uwgb.edu/dutchs/UsefulData/UTMFormulas.HTM
http://www.users.globalnet.co.uk/~arcus/mmps/
http://kartoweb.itc.nl/geometrics/Publications/KT20003CoordtransUK.pdf

Reference materials

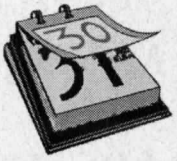
Bibliography of Map Projections (John P. Snyder)
http://www.ilstu.edu/microcam/map_projections/Reference/Bull1856.pdf
Bibliography of Map Projection Books
http://www.geography.hunter.cuny.edu/mp/mp_books.html

Books – links to Amazon.com descriptions of the most popular books on map projections

Understanding Map Projections
http://www.amazon.com/exec/obidos/ASIN/1589480031/ref=pd_sxp_elt_11/102-9734951-9267347
Datums and Map Projections
http://www.amazon.com/exec/obidos/tg/detail/-/0849308844/ref=pd_sim_books_1/102-9734951-9267347?v=glance&s=books
Map Projection Transformation: Principles and Application
Yang Qihe, John P. Snyder, Waldo Tobler.
ArcGIS9 Understanding Map Projections
http://store.esri.com/esri/showdetl.cfm?SID=2&Product_ID=99&Category_ID=28
Flattening the Earth: Two Thousand Years of Map Projections
http://www.amazon.com/exec/obidos/ASIN/0226767477/esristore-20/102-9734951-9267347



Calendar



The 42nd Annual Conference of the Urban and Regional Information Systems Association (URISA), November 7-10, 2004. Reno Hilton, Reno, NV. Contact website at: http://www.urisa.org/annual.htm.

AGIC 2004 GIS Education and Training Symposium, October 27-29, 2004. Prescott Resort and Conference Center, Prescott, AZ. Contact website at: http://agic.az.gov/agic2004.

Geography Awareness Week, November 15-19, 2004.

GIS Day, November 17, 2004. Contact website at: http://www.esri.com.

GITA Annual Conference & Exhibition, March 6-9, 2005. Colorado Convention Center, Denver, CO. Contact website at: http://www.gita.org.

ASPRS 2005 Annual Conference: Geospatial Goes Global – From Your Neighborhood to the Whole Planet, March 7-11, 2005. Baltimore Marriott Waterfront Hotel, Baltimore, MD. Contact website at: http://www.asprs.org.

Workshop on "Linking hydrological change and ecological response in streams and rivers of the eastern United States". February 8-10, 2005. Herndon, VA. Sponsored by the USGS Eastern Region. Who Should Attend: Participants will include scientists and aquatic resource managers with research interests or regulatory authority over water availability and use for human and ecological needs. Representatives from interested Federal, State and Local resource management agencies, universities, and nongovernmental organizations are encouraged to attend. Contact Gary Brewer (304-724-4507) gary_brewer@usgs.gov.

Attention Students and Educators in GIT . . .

NMGIC offers an award worth up to $1000 to students majoring in geographic information technologies (GIT) or to educators involved in GIT.

Through the Jessie Rossbach Memorial Scholarship, NMGIC annually awards a scholarship or an educational grant worth up to $1000. Scholarships are available to students in geographic information technologies who are attending institutions of higher education in New Mexico. The intent of the award is to support student or educational projects in geographic information technologies.

To be considered for the award, students or educators must submit an application, a brief description of a project for which they intend to use the award money, a detailed, itemized budget, resume, and two (2) letters of support to the NMGIC Scholarship Committee.

See the NMGIC web site at *http://nmgic.unm.edu* for details and application instructions.

The Map Legend 2005 Publication Schedule and Deadlines

Winter Issue
Deadline for articles: January 15, 2005
Publication date: February 15, 2005

Spring/ Summer Issue
Deadline for articles: May 15, 2005
Publication date: June 15, 2005

Fall Issue
Deadline for articles: September 15, 2005
Publication date: October 15, 2005

Editors of *The Map Legend* are looking for articles describing ongoing, recently completed, or recently awarded projects. "Newsworthy" items on your organziations, accomplishments of your personnel, or event/meeting anouncements....are all welcome. Contributions should be sent to Carol Earp (cearp@mrcog-nm.gov).

Do you have information about a project, new techniques, GIS and related issues, announcements, news, etc. that you would like published in the Map Legend?

2005 Membership Dues

New Mexico Geographic Information Council, Inc.
$25 Regular Dues; $10 Students (with ID); $100 Corporate Dues

Name: _____
Organization: _____
Business Address: _____
_____
City: _____ **State:** _____ **Zip:** _____

Phone: _____ **Fax:** _____
Email: _____

Enclosed is my: Check ☐ Purchase Order ☐

Please make check payable to: NMGIC Inc. Payment should be mailed to: NMGIC, Inc., P.O. Box 9445, Albuquerque, NM 87119-9445.

2004 Corporate Sponsors