The Map Legend
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HOMELAND SECURITY, GIS, AND THE FGDC

How GIS and mapping technology can save lives and protect property in post-September 11th America

Introduction

Timely, accurate information, easily accessed and capable of being shared across federal, state, and local political jurisdictions is fundamental to the decision making capability of those tasked with the homeland security mission. But without the real-time ability to quickly visualize activity patterns, map locations, and understand the multi-layered geospatial context of emergency situations, homeland security will not be achieved.

The current state of geospatial information technology can provide decision-makers the data they need to confidently confront a wide variety of threats including natural disasters, terrorist attacks, sabotage, and similar crises. However, the current implementation of that technology, across all the federal, state, and local agencies and jurisdictions necessary to fully coordinate an effective response, is seriously lacking in specific areas.

As the concept of Homeland Security becomes infused into the work-a-day pattern of government and the everyday life of our citizens, decision makers will greatly profit from the crisis management "edge" that GIS provides. Homeland Security leaders should understand and implement the policy changes necessary to fully realize this technology's capability, and make the management decisions necessary to implement it on a national basis.

Background

As never before, in the aftermath of the terrorist attacks of September 11, it has become clear that in emergency situations of whatever origin our Nation is dependent on rapid access to and application of many types of current, accurate geospatial information. Critical information such as:

- Facilities and operations susceptible to attack.
- Critical infrastructure, including telecommunications; electrical power systems; gas and oil production, storage and distribution; banking and finance; water supply systems; emergency services.
- Accurate employment data tied to specific locations.
- Detailed and current "framework" data, including orthophotography, transportation, elevation, political boundaries, property ownership, hydrography and geodetic control.

Powerful geographic information systems are now available that quickly render one to several layers of digital geospatial data into map-like products. These systems can facilitate near-real time performance of a wide range of relevant geospatial analyses. and can be used to access and process digital geospatial data virtually anywhere because it, unlike analog data, can be instantly transmitted from wherever it's maintained and stored to any place where its needed. These characteristics make geographic information technologies, combined with appropriate sets of geospatial information, an invaluable tool for the handling, display, and analysis of information involved in every aspect of Homeland Security. For example:

Detection: Geospatial information provides the spatial and temporal backdrop upon which effective and efficient threat analysis is accomplished. By linking and analyzing temporally and spatially associated information in real time, patterns may be detected that lead to timely identification of likely modalities and targets.

Preparedness: Emergency planners and responders must often depend on geospatial information to accomplish their mission. Current, accurate information that is readily available is crucial to ensuring the readiness of teams to respond. Geospatial information access and interoperability standards are essential elements as they support the means for the Nation's response units to react to terrorist attacks, natural disasters, and other emergencies.

Prevention: Geospatial information provides a means to detect and analyze patterns regarding terrorist threats and possible attacks. This information, coupled with information about borders, waters, and airspace, in turn may lead to the disruption of their plans or the prevention or interdiction of their attacks.

Protection: Geospatial information is a very important component in the analysis of critical infrastructure vulnerabilities and in the use of decision support technologies such as visualization and simulation to anticipate and protect against cascading effects of an attack on one system as it relates to other interdependent systems.

Response and Recovery: Geospatial information has been used by many organizations in response to and recovery from natural disasters. Similarly, this information is invaluable for emergency response services of all kinds, as well as for carrying out long-term recovery operations. The Federal Response Plan, developed by 26 federal agencies and the Red Cross, identifies overall responsibilities and the concept of operations for presidential declared disasters. A number of emergency support functions are identified, with the Federal Emergency Management Agency (FEMA) having the lead for coordinating response

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Inside This Issue

The Map Legend

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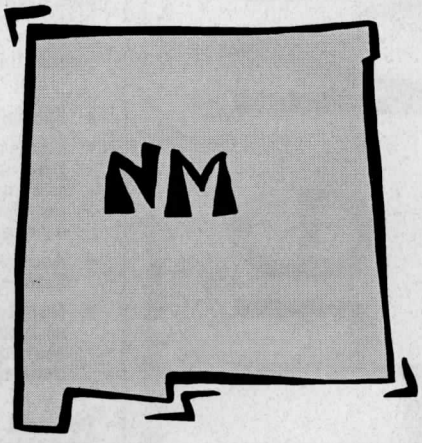


From the Outgoing President

Well, February is here already, and for a change, we are going to actually come close to making the prescribed publication date of 15 February for the Winter Issue of the *Map Legend*. This ordinarily would be a good thing, but in this case its not, because the printed word you are now holding in your hand actually started out to be material for the Fall Issue of 2001. I would imagine that most of you realize that you were shorted this issue, that in fact it never was published. It signifies the first time we actually had to let an entire issue slide, and for that we apologize. Besides the ever-ready excuse of a lack of time during the holidays, the simple truth of the matter is that we did not have enough material to actually put out an issue. So hey, its all your fault you were shorted an issue! Yeah, that's it. All your fault, each and every one of you members that pay your dues and demand geographical information entertainment. It's not my fault this President's Column was late, REAL late, now is it? Well. Humph, maybe it is. But NONE of this tardiness is the fault of our tireless Map Legend compilers. They (read especially Amy) worked very hard to get an informative, interesting newsletter out on time and on schedule. It's on the shoulders of the rest of us slackers where the blame truly lies. The REAL TRUTH OF THE MATTER IS we rely on **YOU** to provide us with news and we haven't received any lately. You all (or "ya'll" as my southern heritage dictates me to address the collective you) are the movers, shakers, users and abusers(?) of New Mexico geographical information, and truth be told, we here on the NMGIC Board demand more from you than just your annual dues... we want the low-down, the goods, the dirt. Come on, step up to the plate and hit us have your best shot. (I hope no one is clocking me right now on a cliché-o-meter)! So please accept our apology and help us. I am no longer the President of this organization (I leave the job in the good hands of Mr. Robert Bewley), instead I'm relieving Amy of Public Relations and the Map Legend editor. So I expect exciting news from ya'll. We need your input for a timely newsletter!

Now, off the soapbox, where was I? Oh yeah, introducing you to the new president and preparing to look back at last year. It is my (only slightly biased) opinion that 2001 was a very good year for NMGIC (if we ignore our failure discussed above). In the spring we put together an incredible FREE (thanks in part to a Western Governors' Association grant) seminar in remote sensing (RS), which we had to turn people away from (not that we wanted to, blame them fire code folks)! The seminar treated all in attendance with both incredibly informative and entertaining talks from top NASA brass, a leading RS academician, whose text is the RS bible and who has been called upon to enlighten the U.S. Congress in RS matters more than once, as well as numerous RS practitioners, who collectively presented all attendees with more than just a comprehensive crash RS 101 course, but free NM RS data to play with, as well as hands-on instruction. But wait! I'm not finished. The following day, our NMGIC Spring meeting continued in the RS theme with further practitioner presentations and cool demos from vendors like Space Imaging. And yet, wait! I'm still not finished! You told us you didn't get enough LIDAR in the spring, and so we brought back Mike Renslow from Spencer B. Gross, Inc. for a fall workshop just on LIDAR. Truly, you should feel pleasantly sensed, from afar, after those 3 great days!

The fall NM users meeting was also a success I believe. We announced the results of our most successful (first time web-based and highest voter participation) board election, the first recipient of the Jessie Rossbach Memorial Scholarship, and we had an informative users program with presentations by Bernalillo County, MRGCD, and E-911 Rural Addressing. In addition to all these great NMGIC events, I must put in a word of congrats to Gar Clarke, who worked wild and wooly wonders with the state government's GISAC last year. Great job Gar! All-in-all, there is no doubt in my mind that the state of GIT in New Mexico grew stronger in 2001 and our professional society grew in size and success.

David J. McCraw
Former President, Public Relations

The Map Legend 2002-03 Publication Schedule and Deadlines

Spring/ Summer Issue

Deadline for articles: May 15, 2002
Publication date: June 15, 2002

Fall Issue

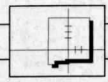
Deadline for articles: September 15, 2002
Publication date: October 15, 2002

Winter Issue

Deadline for articles: January 15, 2003
Publication date: February 15, 2003

Editors of *The Map Legend* are looking for articles describing ongoing, recently completed, or recently awarded projects. "Newsy" items on your organziations, accomplishments of your personnel, event/meeting announcements.....are all welcome. Your contributions should be sent to Dave McCraw either by fax (505-835-6333) or by email to *djmc@nmt.edu* by the deadlines.

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?



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to natural disasters and the federal wildland agencies responsible for coordinating response to wildland fires.

Current Status

Accurate and comprehensive data are the heart of information technology, and geographic location is a key feature of 80-90% of all government data. It is critical that as a Nation we take the steps necessary to assure that strategic information assets relative to Homeland Security -- particularly geospatial information assets -- are created, are maintained for currency and accuracy, are readily available to those who need them, and are interoperable. Although Homeland Security requires much of the same basic real-time spatial information needed for other uses and applications, we know from recent events that it must be immediately and comprehensively available.

In short, we need to assure:

- Implementation of a comprehensive national spatial data infrastructure,
- Interoperability of the systems that process this information, and
- Commonality of the processes that collect, manage, and disseminate geospatial information.

Fortunately the Nation already has a well-founded interagency effort under way to build such a National Spatial Data Infrastructure (NSDI) under the auspices of the Federal Geographic Data Committee (FGDC) which is chartered by the Office of Management and Budget. The NSDI provides crosscutting mechanisms for organizations of many types, affiliations, and responsibilities to be able to collaborate in assuring that geospatial data and systems are in-place, ready for use. The data, technology, and associated intergovernmental and government-private mechanisms forged in this effort will be invaluable to intelligence, law enforcement, and other national security-related elements, as well as to local communities, in dealing with terrorism and other major threats to public safety and welfare.

In collaboration with all levels of government, industry, and academia, the FGDC and its member federal agencies have in-place a wide variety of effective organizational relationships and processes that could readily be used and expanded upon as needed--given appropriate sanction and backing--to produce a nationally consistent framework of Homeland Security-related base data characterized by common data content standards and supported by interoperable technologies. Several examples already exist of how this process works well:

- The coordinated application and use of geospatial data in New York City in response and recovery to the World Trade Center attack.
- Development of geospatial data as a foundation for critical infrastructure protection and emergency preparedness/ response in the greater Chicago area.
- The use of geospatial information in wildfire suppression through the coordinated work of the Geospatial Multi-Agency Coordinating Group.

However, at present there are gaps that should be filled to achieve assurance of data and technology accessibility and interoperability. Examples are:

- National data standards still need to be developed for a number of framework and other data themes to provide data that is immediately useful in Homeland Security events.
- NSDI Framework Themes are not yet complete.
- E911 capabilities are limited by the lack of consistent, standardized road data across the Nation, preventing true interoperability between all levels of government.

Current and accurate information about the Nation's critical infrastructure is not consistently available or shareable among relevant agencies, leaving the Nation unable to effectively plan for modern terrorist activities.

The FGDC believes it is imperative that the Nation accelerate implementation of the NSDI. As we move forward to improve and support planning and management activities, the contribution of geospatial information and technologies in support of critical decision-making should be fully utilized. The NSDI has already established certain standards, processes, and relationships that serve to advance Homeland Security including:

- Well established relationships with Federal, State, Local and Tribal governments and ongoing coordination mechanisms such as I-Teams, an initiative to collect basic framework data collaboratively among all levels of government.
- A multi-node geospatial information Clearinghouse Network that can be extended to promote rapid discovery, sharing, and protection of critical geospatial information.
- Access to industry and international standards bodies and programs to advance standards that promote data consistency and interoperability of spatial technologies.

Recommendations

It is our opinion that more needs to be done to fully realize the potential this technology brings to decision making. To that end, we recommend that the Office of Homeland Security consider the following recommendations:

1) Address the gaps outlined above by supporting:
   a. National data standards
   b. Completion of all NSDI Framework Themes
   c. Nationwide geospatial data compatibility for E911 operations
   d. Compilation of comprehensive georeferenced information on Critical Infrastructure

2) Bring additional focus on these activities to elected officials at all levels of government across the Nation.

3) Promote, enhance, and provide sufficient resources for collaborative relationships between federal, state and local agencies and with the private sector.

4) Develop uniform approaches to planning for Homeland Security events while relying on standardized data and systems.

5) Develop sophisticated mobile GIS labs and trained staff that can be delivered to any site in the Nation within 12 hours of an event.

For more Information Contact:

Federal Geographic Data Committee
Reston, VA 20192
www.fgdc.gov
Phone 703-648-5752
Fax 703-648-5755

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MEET ME IN TAOS!!

The Southwest Users Group (SWUG) is happy to announce it will hold its Annual Conference in

TAOS, NEW MEXICO

this year. The tentative dates are October 23-25, 2002, with workshops on October 21, 22 & 25. For more information checkout the new SWUG website:

WWW.SWUGGIS.ORG

SWUG
ArcGIS Southwest Users Group

From ESRI...Introducing

Nancy Nelson Bohac,

ESRI New Mexico Sales Representative

This in from Nancy Bohac, ESRI's new New Mexico Sales Representative...

I am very excited to have the opportunity to work with New Mexico's GIS Community as the New Mexico/ Southern Colorado Sales Representative. GIS users in New Mexico face a unique set of challenges and issues. I would like to get to know you individually as users so that I can help you optimally build and maintain your GIS.

I have two years of experience in working with. Since Aug. 2001, I have served as the NC Marketing Rep. at the Charlotte Regional Office. Prior to that, I worked in internal marketing, supporting users in Georgia, North Carolina, Tennessee, and the Utilities industry. I also completed two marketing internships with the company. This experience has given me the opportunity to work with and learn ESRI's products well.

I have a MA degree in Geography and Planning from Appalachian State University in Boone, NC, and a BA in Journalism and Mass Communication from UNC-Chapel Hill. Outside of work, I enjoy hiking, swimming, mountain biking, downhill skiing, and listening to live music.

Nancy can be reached at: Telephone (303) 449-7779 ext. 8230 or nbohac@esri.com.

We welcome you Nancy!

NMGIC Spring Workshop and Meeting.... April 4-5, 2002

PARCEL MAPPING IN NEW MEXICO

SPRING WORKSHOP—APRIL 4TH

"PARCEL MAPPING: WHAT YOU NEED TO DO, WHY, AND HOW YOU DO IT."

SPRING MEETING—APRIL 5TH—8:00 AM

"PARCEL MAPPING: PERSPECTIVES, RESOURCES, AND TOOLS"

UNM Science & Technology Park ✶ 801 University Blvd SE ✶ Albuquerque, NM

See the NMGIC web site at http://nmgic.unm.edu for program details.

GIT YERSELF ED-U-KATED!!!

NEW GIT DEGREE PROGRAMS COMING TO NM

Two new associate degrees in Geographic Information Technology (GIT) are being developed this spring in Albuquerque: the Geospatial Technologies Associates Degree at The Southwestern Indian Polytechnic Institute (SIPI) and the Geographic Information Technology Associates Degree at the Albuquerque Technical and Vocational Institute (TVI). SIPI is pleased to announce they are the recipients of a Packard Grant to develop their new GIT curriculum. TVI's Governing Board approved their new GIT program on February 12, 2002 with no TVI program funding involved. They are receiving federal Perkins Grant monies. The program will not become official however, until it is approved by the Commission on Higher Education, probably this summer.

According to TVI's Technologies Department, the GIT program takes the position that private industry and government agencies are looking for both a 1-year certificate trainee, in the short term, and a 2-year associate degree employee, in the long term. Therefore, both these options will be offered as stand alone choices for the student, with completion of the introductory certificate courses neatly becoming the foundation for the more rigorous associate degree curriculum.

Graduates are prepared for entry-level jobs as geographic information systems technicians that utilize a variety of hardware and software applications prevalent in industries such as civil engineering, landscape architecture, information technology, market research, health industry needs analysis, business development and analysis, disaster preparation, migration pattern interpretation, federal land management, cartography, mapping and surveying. Theoretical concepts will be effectively coupled into the lab exercises, where examples of realistic situations are conceived, designed, analyzed and evaluated for their applicability and effectiveness.

For more information on these new GIT associate degree programs contact Denise Chavez at SIPI (*dchavez@sipi.bia.edu* or 505.346.2378) or Larry Rose at TVI's Technology Department (*LRose@email.tvi.cc.nm.us).*

Attention Students in GIT Classes.....

NMGIC offers a scholarship worth up to $1000 to students working on GIT programs!!!

See the NMGIC web site at

http://nmgic.unm.edu

for details and application form.

NMGIC, GISAC, RGIS Invited to Participate In The Colorado Plateau "I-Team"

On Tuesday, February 19, representatives from NMGIC, GISAC, and RGIS met with members of the Colorado Plateau Data Coordination Group (CPDCG) in Albuquerque and were invited to participate as partners in the developing Colorado Plateau I-Team (CPIT). Modeled after the Utah GIT I-Team, the CP I-Team seeks to develop, maintain, and distribute a seamless database of the 7 FGDC National Spatial Data Infrastructure (NSDI) Framework layers and over 100 additional attribute layers, all centered on the Colorado Plateau, which extends from the 4 Corners into northwest and west-central NM. The ultimate goal of the CPIT is to make available a Resource Atlas of the Colorado Plateau, an integrated data network served on-line through several nodes.

The I-Team Initiative, as Doug Johnson of the U.S. Environmental Protection Agency's (EPA) Denver Office pointed out, is the new paradigm being implemented by the U.S. Office of Management & Budget (OMB) and the FGDC for NSDI. Instead of top-down mandates, it relies on locally formed, interdependent partnerships of federal, state, local, and tribal authorities, academia, and the private sector (I-Teams) to implement state and regional portions of the NSDI in accordance with national interoperability specifications and data standards as part of their ordinary business processes. The I-Teams are voluntary, open, flexible and adaptive collaborations for shared capital planning, building, using and financing spatial data.

The CPDCG was developed out of a workshop held in 1997 in Farmington, which brought together approximately 100 people from 9 Federal agencies, state agencies, tribal agencies, and academia. A Charter was drafted for the group, providing a structure for implementing the ideas, tenets, and spirit of the Farmington Conference. Its operating principles are:

- Promote and enhance data sharing.
- Freely make data available, but respect choice of individuals and organizations to protect sensitive and

proprietary data.

- Participation is open to everyone and diversity is encouraged.
- Leadership of the group is shared among the participants.
- Acknowledgment that data are not centralized under any single entity but are contributed and maintained by many distributed data providers linked across the network.
- CPDGC activities should complement not compete with other coordinating groups operating within the Colorado Plateau.
- Recognize that existing infrastructure of agencies, policies, agreements, and interests exist and must be respected.

Its purpose and responsibilities include:

- Data Access
- Coordination and data issue resolution
- Data development
- Content and Metadata (data documentation)

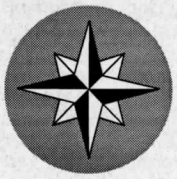
The Charter can be reviewed at the Colorado Plateau Data Sharing Test Site, hosted by the Southwest Data Center:

http://www.landuse.com/coplateau/index.html

Doug Johnson concluded his overview of the CPDCG by stating that its main interests were "data, not politics" and "applications, not interpretations." M. C. Baldwin of the Navajo Nation followed the overview with a presentation of the vision of the CPIT. This was then followed by an impressive demonstration of the CPIT's database in its current form by Karl Hermann of the EPA.

Following a discussion of possible ways for New Mexico to be involved in CPIT, Erik Aoboe, GISAC Chair, and Dave McCraw, NMGIC representative both offered the support of their organizations to the CPIT. If anyone is interested in learning more about the CPIT or the CPDCG, they can contact Doug Johnson (*Johnson.Douglas@epamail.epa.gov*) or plan on attending the CPDCG's next meeting April 24-25, 2002 at Dine College in Shiprock, which is open to all interested parties.

-Dave McCraw



GPS Height Modernization Effort

As geospatial practitioners are aware, the Global Positioning System (GPS) has literally revolutionized the positioning aspects of nearly all spatial disciplines. With GPS, we now have a tool that can provide horizontal positioning accuracies ranging from 10 meters down to the centimeter level, depending on the equipment and procedures utilized. GPS is, of course, a three-dimensional system, providing height (or elevation) information as well as horizontal position. However, in many applications, the height component has lagged a bit behind the horizontal position due, in part, to its somewhat lower accuracy (due to satellite geometry - satellites are visible above and on all sides from a location, but never below the horizon) and complications inherent in differing height systems (orthometric vs. ellipsoid vs. geoid heights).

In an effort to develop an enhanced utilization of GPS for deriving accurate heights, the Commerce Department's National Geodetic Survey (NGS) was tasked by Congress to perform a *National Height Modernization Study.* The rather voluminous *Report to Congress* of this study recently became available to the public - through the website of the American Congress on Surveying and Mapping (ACSM) at www.acsm.net. The study assessed the need for, and benefits of, modernization of the height component of the National Spatial Reference System (NSRS - the nation's geodetic coordinate system, provided by NGS). The study investigated the economic and legal aspects of this effort as well as the technical issues. The major goals for the study included close examination of regional case studies (in California and North Carolina), identification of the user community, documentation of user requirements, development of recommendations for the best and most cost-effective actions, and an evaluation the related costs/benefits.

Results of the study uncovered a number of recurring themes of GPS height applications important to the user community. These general themes include public safety, transportation management, infrastructure management, construction and mining, and agriculture and natural resources. By examining each of these categories and assessing existing and potential applications, the study attempted to quantify the benefit to the nation from an enhanced GPS-derived vertical capability. As can be read in the report, the benefits are many, with impressive benefit-to-cost ratios.

The study's recommendation for an enhanced vertical GPS capability include the development of technology guidelines/specifications, research into new technologies, the establishment of a sufficient number of GPS base stations to achieve 1 cm accuracy nationwide, and many others. Although it is not yet known what the mandate (and funding!) by Congress will be regarding the recommendations of the study, the information gathered and investigations performed should prove helpful as the NSRS evolves towards a more fully-realized three-dimensional utility.

There is far more information in the actual report than I have room to even summarize here. Please refer to it for more details and contact me if you have any questions (505-768-3606 or *stone-ngs@cabq.gov*).

Bill Stone, GPS Committee Chair,
National Geodetic Survey

GEOGRAPHIC NAMES AND SEPTEMBER 11

The events of September 11 continue to reverberate even in the obscure realm of geographic names. The US Board on Geographic Names (USBGN) has been informed of two potential proposals resulting from the disastrous events of 9/11. One proposes naming a feature in a California wilderness area "Spirit of America," while the other seeks to name a summit in Alaska Mount Saint Florian, specifically commemorating the fallen firefighters in New York, as Florian is their patron saint.

I suspect it would be difficult to find opposition to these names, certainly now. Given the magnitude of the event and the corresponding public sentiment, renaming Manhattan to War Against Terrorism Island probably would fly. But to the members and staff of the USBGN, the proposals carry complexities not apparent to most people. For example, are these "commemorative names"? BGN staff determined that Mount Saint Florian is indeed commemorative, and they requested that the proponent specifically state that the honor includes all fallen firefighters. But as a commemorative name, Mount Saint Florian falls under the Board's Commemorative Names Policy, setting forth criteria for acceptance. One is that the person honored should have had some personal connection to the place named, which the firefighters did not. Another is that the person honored must have been deceased at least five years before the proposal will be considered. It's unlikely the proponents—and their congressional representatives—will be willing to wait that long.

As for Spirit of America, European peoples—and especially English-speaking peoples—have a deep tradition of using names to honor people. But have we ever honored events with names? (Of course, naming features for events that occurred there is common, e.g., Massacre Peak.) Actually, we have. Challenger Point, it can be argued, honors not the shuttle itself so much as its tragic destruction.

But the Spirit of America proposal violates the Board's Wilderness Names Policy, which forbids new names in wilderness areas, unless some overriding safety or educational need exists for them. And that doesn't seem to be the case here.

I'll keep you posted.

Speaking of commemorative names... Alaska's lieutenant governor, who chairs that state's geographic names authority, has informed the BGN that Alaska will be reactivating the quest to change the name of Mount McKinley to Denali. We should wish Alaska well, but the odds of success are small.

Among toponymists, Mount McKinley is the classic exhibit of why commemorative names generally are to be discouraged. A disgruntled Sourdough during Alaska's Gold Rush bestowed the name to honor the US Senator from Ohio (not yet the president), simply because he liked the McKinley's stand on the issue of a gold standard. We're all familiar with that, right?

This grossly inappropriate name for North America's most sovereign mountain has been the object of numerous attempts to change it to Denali, a Native American word meaning "great one," but they all have been rebuffed in Congress by the delegation from Ohio.

"Given the magnitude of the event and the corresponding public sentiment, renaming Manhattan to War Against Terrorism Island probably would fly."

Sensitivity simmers on. As in previous years, the issue of ethnically offensive names pervaded the meeting of the Council of Geographic Names Authorities (COGNA) in Boise, ID, last September. The squaw issue continues smoldering. Native Americans are divided as to whether the term really is offensive; speakers of Algonkian languages, from which the term is derived, say no, whereas members of other groups say it yes. When the Arizona geographic names authority queried tribes there for their positions regarding Squaw Peak, neither the Navajos nor the Hopis (a Puebloan people) had any objection to the term squaw. As Navajos and Puebloans comprise the overwhelming majority of New Mexico's Native peoples, this may help explain why squaw has been a non-issue here.

Native Americans are not the only group to find some names offensive. In Boise, the USBGN voted to change the name of a mountain outside the city from Chink Mountain to Chinese Mountain. Many years ago, a despondent Chinese-American climbed the peak and committed suicide there. Supposedly the name dates from that incident, though no knows for sure. But Chinese-Americans in Idaho and Washington found the term chink an offensive epithet, and the Board agreed.

Finally, New Mexico not last on a list! The USBGN has announced that Massachusetts, Michigan, and Indiana now have established state names authorities. This leaves only Iowa, and U.S. Virgin Islands, America Samoa, and the Northern Marianas, without such an authority.

Names and Spatial Data

For the first time, geographic names have been designated a separate data layer in the National Spatial Data Infrastructure (NSDI). At the Seventh Regional Cartographic Conference of the Americas held in New York, January 22-26, 2001, delegates adopted a resolution indicating the need for and implementation of national spatial data infrastructures (NSDI). Two sections of this resolution addressed geographic names. Specifically, they noted that standardized geographic names are inherently part of any NSDI, and each member state was encouraged to assist the establishment of national geographic names authorities to establish principles, policies, and procedures for standardizing names. New Mexico is way ahead of the game there.

Maintaining GNIS

The bulk of geographic names data for NSDI will come from the Geographic Names Information System (GNIS) database, but as GNIS nears completion the need for ongoing maintenance is becoming urgent. Of all the Websites maintained by the federal government, only two receive more hits daily than GNIS, yet GNIS Phase II was completed more than 10 years ago in some states.

USBGN Executive Director Roger Payne described how the GNIS data maintenance program functions, and named the federal participants: US Geological Survey, US Forest Service, Office of Coast Survey, National Park Service, and Board on Geographic Names. He also announced that it is imperative that the various states join the program, and indicated that Florida and Delaware have agreed to participate in a pilot program for assisting in maintaining GNIS. In New Mexico, at least minimal maintenance can begin immediately, as I am authorized to make additions and corrections to the database. Any NMGIC member seeking to correct a GNIS entry should contact me.

Bob Julyan,
Geographic Names Committee Chair

The National Map

In late November 2001, U.S. Geological Survey (USGS) published the final report of the task force that defined *The National Map*, the agency's largest mapping endeavor to date, as well as a companion "Issues and Actions" document that summarizes reviews of the report and USGS answers to issues raised during the reviews. The documents, now available via the USGS World Wide Web site at:

http://www.nationalmap.usgs.gov

represent the latest developments in USGS' ambitious 10-year plan to develop a seamless, continuously maintained, nationally consistent set of online, public-domain, geographic base information for the entire United States.

The initial version of *The National Map* will stem from eight pilot projects in various stages of implementation around the United States. A pilot project in Texas, for example, expands on USGS' relationship with the Texas Natural Resource Information System (TNRIS) to use its statewide geographic database, StratMap, as the primary data source for The National Map in Texas. According to USGS, TNRIS' StratMap data holdings, such as its National Map of Texas (above), contain most of the data components envisioned as part of The National Map concept, including Web-accessible data and maintenance partnerships for acquiring data from other producers.

According to USGS, the most widely known form of geographic base information for the United States is the USGS primary series topographic map. The mapping agency has produced more than 55,000 unique map sheets and about 220,000 digital orthorectified aerial images to cover the United States. Although the maps and images continue to provide users with a valuable resource, the average primary series topographic map is 23 years old, and frequent changes on the landscape mean that many of the maps are no longer accurate and complete.

"What we're doing with the *The National Map* is bringing that infrastructure layer for the country into the 21st century," said Mark DeMulder, USGS' Cooperative Topographic Mapping Program coordinator and project chief for The National Map. "The National Map will provide a seamless digital representation of the country's landscape, rather than 55,000 individual pieces of paper."

The "Issues and Actions" document was compiled from a set of more than 130 responses to The National Map received after a public comment period that ended in June 2001. USGS reactions to the public comments were assessed in a second review that ended in October 2001. The document includes a range of comments--positive and negative--from other federal agencies; professional organizations; state, regional and local governments; private industry; and universities. Although several comments endorsed The National Map vision and its key components, other comments relayed cautions and concerns about the complexity and magnitude of the undertaking.

As a result, USGS modified the final report to better explain the goals and principal strategies of The National Map. The final report will serve as the foundation for strategic planning for the USGS Cooperative Topographic Mapping Program (the USGS program responsible for carrying out the agency's mapping mission). The report describes the vision in which USGS, working with partners, will provide the United States with current, accurate and nationally consistent basic spatial data. Issues discussed include the form USGS maps and spatial data will take, ways that lag time between changes on the ground and corresponding updates in data and maps can be reduced, and means by which USGS can create and maintain such data and maps.

In collaboration with other government agencies, the private sector, academia and volunteer groups, USGS will coordinate, integrate and--where needed--produce and maintain base geographic data for The National Map. The map will include digital orthorectified imagery; elevation data; vector data for hydrography; transportation, boundary and structure features; geographic names; and land-cover information.

Several technical and institutional issues must be resolved as USGS implements The National Map, and USGS developed a variety of pilot projects to identify and investigate such issues. A fact sheet explaining each pilot project is available via The National Map home page.

Said DeMulder, "For fiscal-year 2002, we're implementing eight pilot projects across the country so people will first see the initial version of The National Map coming out of these eight pilot activities, and then we'll build from there."

As the initial version is improved, USGS will shift its emphasis to maintaining current data via continuous updating. Potential data sources include state and local governments, private industry and local trained and certified volunteers.

"The National Map is our vision for the next decade, and it's our intent to implement this as quickly as we possibly can, recognizing that there are partnerships yet to be agreed to and many other factors to consider," added DeMulder. "Our goal is to have this vision implemented as quickly as we can within a 10-year time horizon."

Although the public comment period for *The National Map* officially is over, USGS still welcomes ideas and suggestions. Comments may be sent to USGS via e-mail at *nationalmap@usgs.gov* or conventional mail at USGS-National Map, MS-511 National Center, 12201 Sunrise Valley Drive, Reston, VA 20192.

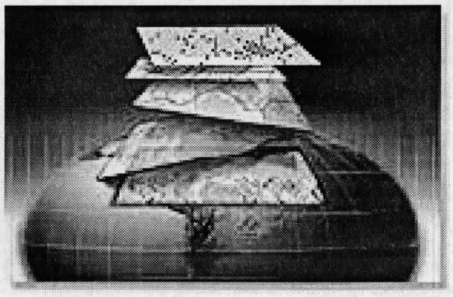
Department of Interior Forced Off the Internet

As a result of the Cobell litigation that accused Federal Agencies of mis-managing Individual Indian Allotment Trust accounts and destroying documentation, the DOI was directed on December 5, 2001 to temporarily terminate all incoming and outgoing connectivity to the Internet, including external access. In addition, use of dial in and dial out data services (via modems) within the BLM was temporarily prohibited regardless of any prior approvals. Permanent connections to dial in and dial out modems were also disabled by removing network connections.

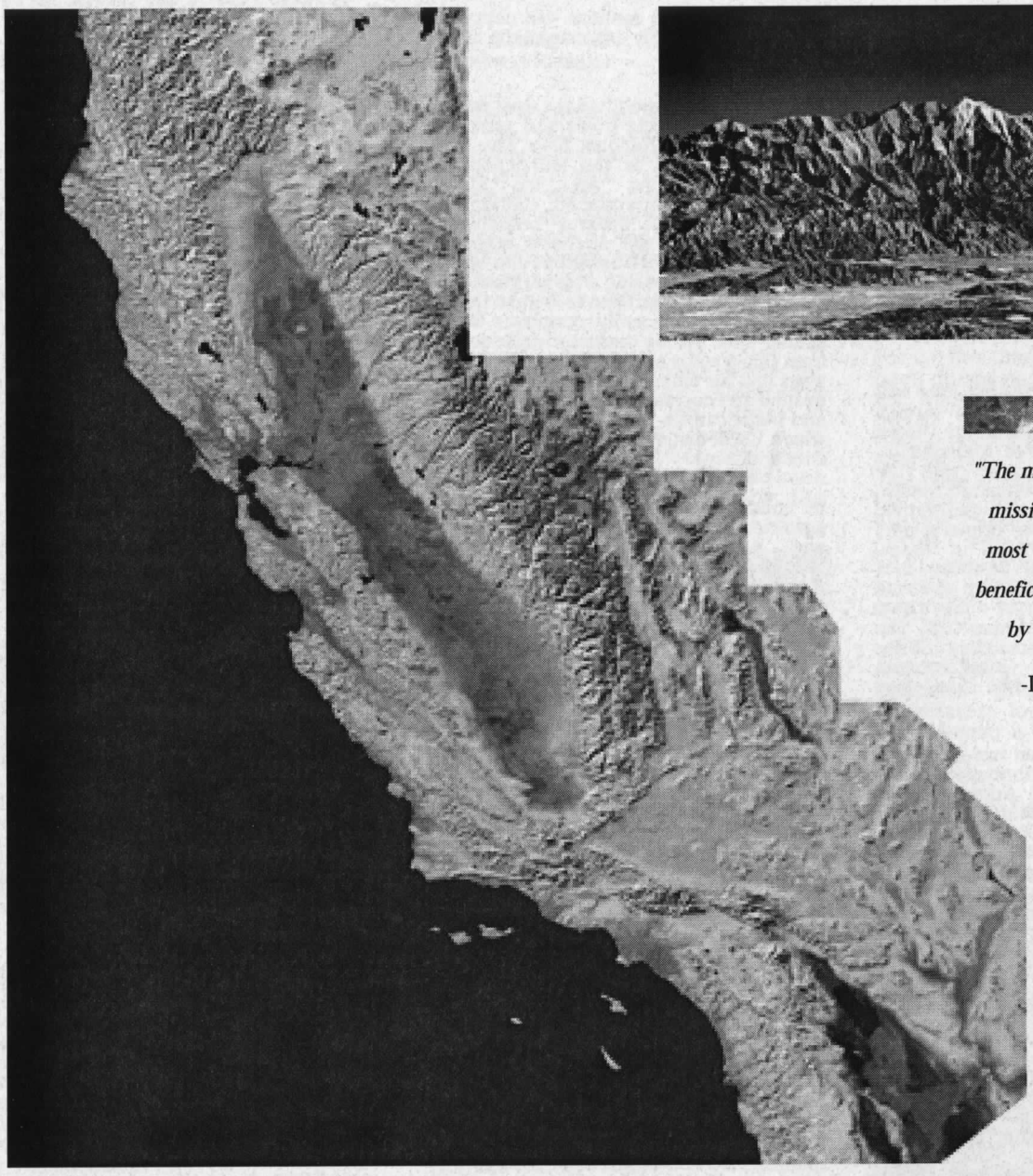
Additionally, due to the internet outage, Internet, Inter Agency, or external EMail sent after 7:00 PM MST on 12/5/2001 was not transmitted. This also means that there was no incoming email from the three areas noted above. Anyone who tried sending e-mail to Interior agencies had their mail 'bounced' back to them.

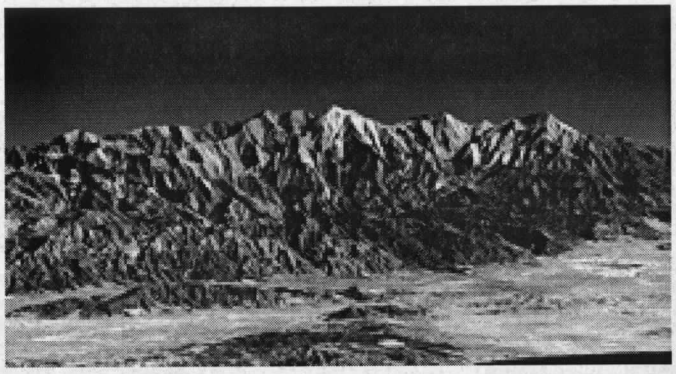
United States District Court Judge Royce C. Lamberth signed an "Order Providing Partial Relief From Temporary Restraining Order" on Saturday, December 8, 2001. In part, the Order states that "...Interior can reconnect to the Internet any information technology system that does not house individual Indian trust data and that does not provide access to individual Indian trust data." The Court's authorization is conditioned _ DOI must submit a notice to the Special Master and Plaintiffs' counsel, with appropriate documentation, 24 hours prior to reconnection.

This "Partial Relief" allowed USGS to reconnect to the Internet during the week of December 10, 2001, the National Park Service was allowed to reconnect to the Internet during the week of February 11, 2002. The Bureau of Land Management received initial permission to reconnect to the Internet on Tuesday, February 19, 2002. The Bureau of Indian Affairs, Office of Surface Mining, Fish and Wildlife Service, Bureau of Reclamation and Minerals Management Service have not yet (2/20/2002) been allowed to reconnect to the Internet.



PICTURES FROM THE REAL EDGE: NASA POSTS U.S. TOPOGRAPHY DATA





"The maps produced from the mission will be among the most valuable, universally beneficial data ever produced by a science mission."

-Dr. Yunjin Kim

Displaying spectacular new 3-D images and animations of California from space in late January, scientists from NASA's Jet Propulsion Laboratory (JPL) in Pasadena, CA, announced the release of high-resolution topographic data of the continental United States gathered during the February 2000 Shuttle Radar Topography Mission -- a mission that is creating the world's best topographic map.

"The release of the California mosaic and continental-U.S. Shuttle Radar Topography Mission data is a tantalizing preview of things to come from this program," said Dr. Michael Kobrick, mission project scientist at JPL. "We are processing data for the rest of the world on a continent-by-continent basis, mapping and exploring many relatively unknown regions where our maps will be far more precise than the best global maps in use today."

Dr. Yunjin Kim, mission project manager at JPL, said users in the United States and elsewhere would find wide applications for the data. "The maps produced from the mission will be among the most valuable, universally beneficial data ever produced by a science mission. National and local government organizations, scientists, commercial enterprises and civilians alike will find the data useful for applications as diverse as earthquake studies, flood control, transportation and urban planning, enhanced ground-collision warning systems for aircraft and better placement of cell phone towers," he explained.

With today's release, gigabytes of digital elevation-model data, sampled at an interval of one measurement every 30 meters (98 feet), are now available to selected science investigators, with 90-meter (295-foot) sample imagery available to the public. Processing and distribution of validated U.S. digital topographic data will continue on a regular basis, with completion expected this spring.

When completed in fall 2002, more than 12 terabytes of data encompassing nearly 1 trillion measurements will have been processed, representing the 80 percent of Earth's landmass between 60 degrees north and 56 degrees south of the equator. The areas mapped are home to approximately 95 percent of the world's population.

Thomas A. Hennig, mission program manager at the National Imaging and Mapping Agency, said, "The Shuttle Radar Topography Mission literally captured a snapshot of the Earth's surface at the beginning of the 21st century that will be of tremendous value for years to come. The data from this mission will provide the agency's customers a revolutionary leap forward in imaging information." The agency partnered with NASA, Germany and Italy in sponsorship of the mission.

The centerpiece of today's release is the California mosaic, a color-shaded relief elevation map. The image depicts California at a data-sample interval of 3 arc-seconds (approximately 90 meters or 295 feet). The map depicts changes in height as colors, with blues and greens at the lower elevations, rising through yellows and browns to white at the highest elevations.

As processing of each continent is finished, data will be sent to the National Imaging and Mapping Agency for final quality checking and copies sent to the United States Geological Survey's Earth Resources Observation Systems Data Center, Sioux Falls, S.D., for final archiving and distribution.

The Shuttle Radar Topography Mission was flown aboard Space Shuttle *Endeavour* February 11-22, 2000. It used modified versions of the same instruments that comprised the Space Shuttle Imaging Radar-C/X-Band Synthetic Aperture Radar that flew twice on *Endeavour* in 1994.

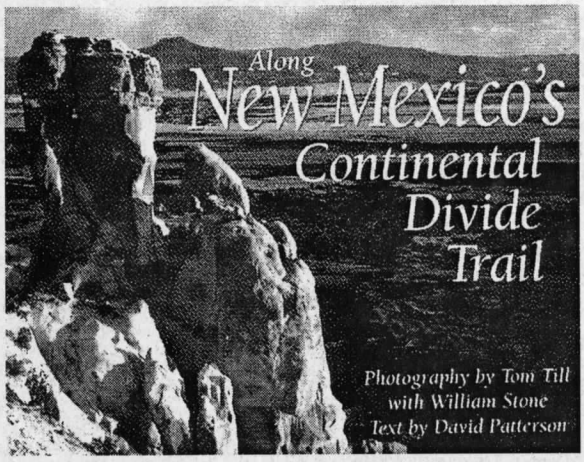
The mission collected 3-D measurements of Earth's land surface using radar interferometry, which compares two radar images taken at slightly different locations to obtain elevation or surface-change information. To collect the data, engineers added a 60-meter (approximately 200-foot) mast, installed additional C-band and X-band antennas, and improved tracking and navigation devices.

The Shuttle Radar Topography Mission supports NASA's Earth Science Enterprise, Washington, D.C., a long-term research and technology program designed to examine Earth's land, oceans, atmosphere, ice and life as a total integrated system.

The California mosaic image, 3-D images, and animations are available at:

http://www.jpl.nasa.gov/srtm/

Book Reviews



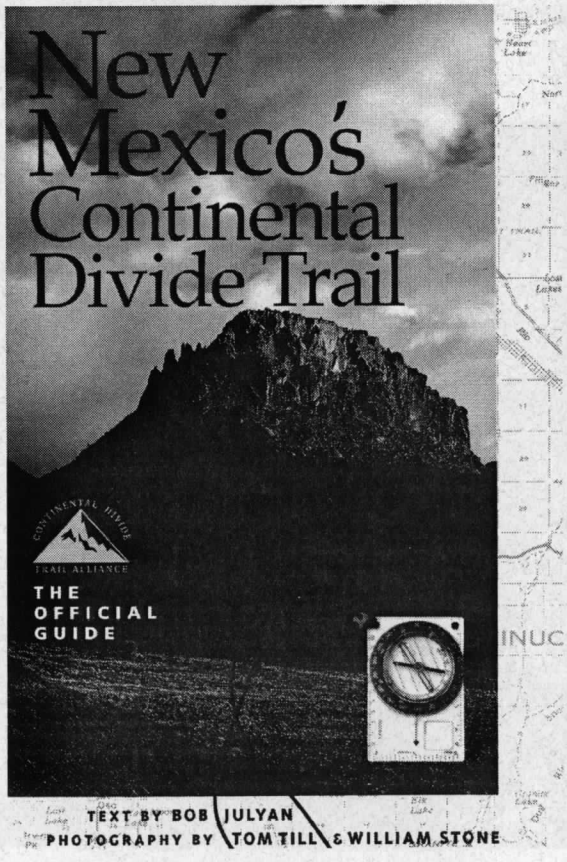
Bob Julyan and William "Bill" Stone. If you don't know them personally you at least know of them from past issues of *The Map Legend*. You know, Bob is the guy with the articles concerning geographic place names and Bill writes the GPS-related articles. If this is all you know of them then I am here to inform you that while toponomy and geodesy are certainly interesting subjects, these distinguished gentlemen do, in fact, have a life otherwise! Furthermore, they are both very talented in sharing this with the rest of us. I refer of course to their recently published books covering the new and beautiful New Mexican segment of the Continental Divide National Scenic Trail, or CDT for short.

New Mexico's Continental Divide Trail: The Official Guide, published by the superb Westcliffe Publishers of Englewood, CO, hit New Mexican bookstores this past December. Authored by Julyan and illustrated with 50 gorgeous color photographs by Tom Till and Bill Stone, the book undoubtedly must be placed on the top shelf reserved for the elite books dedicated to New Mexico's great outdoors. Meant to accompany the official guide, both alone and on that elite top shelf, is the "coffee table" book of color photos and on-the-trail adventure, *Along New Mexico's Continental Divide Trail*. The photos again are by Tom Till and Bill Stone, hiking narrative by David Patterson. Westcliffe describes it as a preview of the trail "through the eyes of two of America's foremost nature photographers!" We here at NMGIC are certainly fortunate and are proud to display some of Bill's photos on our webpage.

In addition to publishing the works of these talented photomechanical scribes of landscape, Westcliffe certainly knew what they were doing by accepting Julyan's manuscript as the official trail guide. A long time resident of Albuquerque and a down-to-earth all around great guy, Bob has probably traversed more New Mexican trail than most. His articles on hiking and the New Mexican outdoors are often featured in the *Albuquerque Journal's* Thursday's Go! outdoors section, and he is the author of *Best Hikes with Children in New Mexico*, *New Mexico Place Names*, and his previous well-selling, *New Mexico's Wilderness Areas: The Complete Guide*.

While this official guide of the Continental Divide Trail Alliance describes the 700-mile NM portion of the trail as a compliment to the other guides covering the trail in Colorado, Wyoming, and Montana, Bob has written it for both adventurous CDT thru-hikers as well as those of us who would never attempt such a feat, but enjoy overnight backpacking trips or day hikes. He has accomplished this by dividing the NM part of the trail into 28 segments, from south in the bootheel to north and Colorado. Each segment is described as "easy, moderate, or strenuous," has an overview, a full color topo map showing the trail segment, an elevational gain/loss profile graph, describes access conditions, water availiability, suitability for mountain biking or horseback riding, nearby or side hikes, possible trail variations in places, and locations of nearby services and accommodations. These conditions are quickly discernable by nice graphic icons. While these segments are described south to north, each segment has tips for southbound trekkers. It is an incredibly useful guide, a joy to read, and as mentioned, accompanied by beautiful photos. I would highly recommend it. Who knows, if you bring your copy to the Spring Meeting, you might even con a few autographs!

-Dave McCraw



Cool Internet Web Sites

For this issue of the Map Legend, the "Cool Internet Web Sites" focuses on where to find additional map symbol sets. For those using ESRI products, some of these sites may already be familiar places, for others using other products, perhaps not. One of the more interesting things I learned while doing research for this column, is that more and more graphic designers are working on maps and map symbols, and there are many websites that are starting to publish True Type fonts that can be used with pretty much any mapping system. I hope you will find these useful in your map making work!

As always, if you find a site you think is useful to the membership, please contact Denise Bleakly at 505-284-2535 or email to *drbleak@sandia.gov* to add it to our list.

Here are several sources for additional arcview symbol sets:

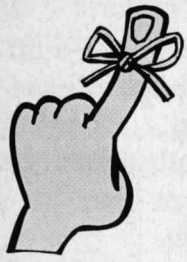
"The unofficial ArcInfo and ArcView Symbol Page"	*http://www.mapsymbols.com*
GIS Lounge "Symbol Sets for ArcView & ArcInfo"	*http://gislounge.com/ll/arcviewutilities.shtml*
ESRI Symbol sets from the UK	*http://moorstation.org/typoasis/designers/esri/index.htm*
Many different symbol sets	*http://cgm.cs.mcgill.ca/~luc/travel.html*
BLM related	*http://www.blm.gov/gis/narsc/faq-1.html*
Military related symbols	*http://tsc.wes.army.mil/products/tssds-tsfms/tssds/symbols/symbols.asp*
Tom Mouat's MapSymbs page, military and war game symbols	*http://ourworld.compuserve.com/homepages/TomMouat/Homepage.htm*
Geologic Map Symbol sets	*http://geomaps.geo.ukans.edu/html/kusymbols.html*
USGS mapping utilities and symbols	*http://dr.cr.usgs.gov/maps/software.html*

Status Of Geographic Coordinate Data Base

In March 2002, the New Mexico, Geographic Coordinate Data Base (GCDB) will finish collection of the Public Land Survey System (PLSS) for the following counties:

Union
Colfax
Mora
Harding
Quay

All other counties in New Mexico have complete GCDB coverage except for a few high complexity townships within these counties, which have not been collected yet.



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2002 MEMBERSHIP DUES!!!

THE MEMBERSHIP FORM CAN BE FOUND ON OUR WEBSITE

http://nmgic.unm.edu/membform.html

Calendar

NMGIC Parcel Mapping Workshop, April 4, 2002. UNM Science & Technology Park, 801 University Blvd SE, Albuquerque, NM. Contact: Rick Koehler, Workshop Coordinator, NMGIC, PO Box 9445, Albuquerque, NM 87119-9445. Phone: 505-476-3417. Fax: 505-476-3402. Email: rkoehler@state.nm.us. Web: http://nmgic.unm.edu.

NMGIC Spring Meeting: Parcel Mapping, April 5, 2002. UNM Science & Technology Park, 801 University Blvd SE, Albuquerque, NM. Contact: Rich Friedman, Meetings Coordinator, NMGIC, PO Box 9445, Albuquerque, NM 87119-9445. Phone: 505-863-9517. Fax: 505-863-6362. Email: gismc@cia-g.com. Web: http://nmgic.unm.edu.

GeoSpatial World 2002, The Intergraph GeoSpatial Users Community, June 10-12, 2002. Renaissance Waverly Hotel, Atlanta, GA. Contact: GeoSpatial World 2002, Intergraph Mapping and GIS Solutions, P.O. Box 6695, Dept 7617, Huntsville, AL 35824-6695. Phone: 256-730-7191. Fax: 256-730-2080. Email: iguc@intergraph.com. Web: http://www.intergraph.com/gis/community

EdUC 2002 ESRI: The 2nd Annual ESRI Education User Converence, July 5-7, 2002. San Diego Marriott and Marina, San Diego, CA. Contact: ESRI, 380 New York Street, Redlands, CA 92373-8100. Phone: 651-994-0823, ext 8321. Email: educ2002@esri.com. Web: http://www.esri.com/edu.

ESRI International User Conference 2002, July 8-12, 2002. San Diego Convention Center and Marriott Hotel and Marina, San Diego, CA. Contact: ESRI, 380 New York Street, Redlands, CA 92373-8100. Phone: 909-793-2853, ext. 1-1363. Email: uc2002@esri.com. Web: http://www.esri.com/events/uc/index.html.

40th Annual conference of URISA: Looking Back, Moving Forward, October 26-30, 2002. Hyatt Regency Chicago, Chicago, IL. Contact: URISA, 1460 Renaissance Drive, Suite 305, Park Ridge, IL 60068. Phone: 847-824-6300. Email: info@urisa.org

Call for Workshop Ideas

If you have a topic you would like to see offered as a workshop, please contact the NMGIC Workshop Coordinator, Rick Koehler using the online form on the NMGIC web site. The form can be accessed at *http://nmgic.unm.edu*.

NMGIC wants to respond to the needs of its members, so please share your desires concerning these workshops.

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