State Cartographer's Office

Reporting on Mapping and Land Information in Wisconsin

Wisconsin
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Federal Programs Compete for Attention

New directions yield confusion

by Bob Gurda

The National Map. Geo-Spatial One-Stop. National Spatial Data Infrastructure. 133 Cities Program. I-Teams. Circular A-16. Homeland Security Infrastructure Program.

Dizzy yet? Enough already? Don't worry—you're not the only one who is struggling to understand where federal government mapping is headed.

Are these activities essentially the same, or very different? Are they complementary or competitive? Are some on the decline and others about to blossom? Regardless of the answers to these questions (presuming anyone knows all the answers), the multiplicity of initiatives is causing confusion not only amongst federal government partners (e.g., states, local governments, et al) but amongst federal staff themselves.

However, there are signs that the dust is beginning to settle, revealing a new landscape of programs, direction, funding, and cooperative relationships in building national spatial information capabilities riding on the Internet. Since there is now a widespread realization that any robust system of this type will have to rely on locally generated spatial data, the evolution of federal programs in this arena is especially important to those of us who work at the state and local level.

"Mature" programs only 10 years old

While the NSDI (National Spatial Data Infrastructure) concept has been with us for about a decade and has been articulated particularly through the efforts of the Federal Geographic Data Committee (FGDC), the other initiatives are newer. They all do, however, build upon the NSDI concept of a series of layers of information that are key to carrying out a wide variety of activities in understanding, managing, and protecting the land, people, and physical infrastructure.

We have written about the I-Team concept here (see Summer, 2001) as well as the National Map (see Spring, 2001 and Winter, 2002). Basically, I-Teams are a process to bring together organizations interested in particular geo-spatial data, and craft a coordinated strategy for data collection, maintenance, and distribution.

By contrast, the National Map is conceived by the U.S. Geological Survey to be a new focus replacing its printed topographic map series with Internet-based delivery, and relying on data layers maintained with a 7-day currency by a variety of organizations all the way down to the local level.

Early work on the National Map is being done over the 120 largest cities/metro areas plus the remaining state capital cities. That's a total of 133 areas. So far, funding has limited work to less than half of those areas. In Wisconsin, only the Milwaukee and Madison metro areas are on the list.

Newest kids on the block

More recently the Office of Management and Budget (OMB) has spearheaded the Geo-Spatial One Stop. This initiative is heavily involved with standards but also is working on a web portal component. While these ideas aren't new, the fact that OMB is in the driver's seat is a significant change and may mean that the value of geo-spatial data (especially when standardized) has finally been seriously recognized at a higher level.

Clear as mud?

For those of us at charged with arranging collaboration at the state level, the number of named federal initiatives (some funded already and others hoping to be) is, on one hand, cause for alarm. Too many federal employees competing as groups represents a waste of resources and complicates our jobs.

On the other hand, the level of energy is encouraging. One outcome may be that one or a few federal programs will come out on top and command resources while others wither from

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Highlights of this issue....

WLIB News

by Ted Koch

The Wisconsin Land Information Board last met on October 3, in Wausau. The Board's next meeting will be held December 12 in Madison.

Board approves grants options and amounts

At its October 3 meeting, the Board put final approval on its 2002 local grants package totaling $1,918,446. The package includes four grant categories: Education and Training, County Base Budget, Strategic Initiative, and Contribution-Based (see the Summer 2002 issue of the *Bulletin* for specifics on each category). The only change made by the Board in its final approval action was to increase the funding available for developing data usable for flood-plain mapping. The original proposal was to make available $150,000 for this work. However, the Board added another $118,907 which was available as carryover from 2001 unspent grant funds.

Future in question

Under current State statute, the existence of the Land Information Board is scheduled to end ("sunset") on September 1, 2003. The board has existed since late 1989. At its October 3 meeting, the Board discussed the September sunset, and posed a number of budget-related questions in the event the sunset occurs.

Under provisions of the sunset law, the Board would cease to function along with the grants program it administers. Some of the current document recording fees collected at the County Register-of-Deeds Offices, as a provision of the Land Information Program, would continue to be collected following sunset; however, those fees ($4 for every transaction, compared to $7 at present) would stay in each respective county with no portion of the funds transferred to Madison as is now the case.

The "base budget" program, currently supported by board funds submitted by the counties, would end. The base budget program supplements the land information funds of those counties that collect less than $35,000 annually. About one-third of the state's 72 counties currently receive the supplementary base budget funds.

In addition to base-budget grants, all other Board grants would end with the sunset.

Since answers to some of the Board's sunset-related questions were unknown at that time, Office of Land Information Services staff was directed to research and respond to the issues raised at the upcoming December 12 Board meeting.

Editor's note: efforts to remove the scheduled sunset are a key focus of the Wisconsin Land Information Association.

Comments on cooperation

Bringing us together around mapping

by Bob Gurda

Homeland Security is a hot topic these days. Not only has there just been a massive reorganization of federal government agencies under that banner, but the realization has come to many bureaucrats that the only logical path to truly improving domestic security is cooperation between our many levels of government.

To perennial critics of governments, or cynics more generally, it must seem absurd that it takes an attack on the homeland to bring the value of cooperation to the surface. Of course, it's easy to be critical looking in from the outside. Those of us who work in the trenches, trying to improve cooperation in the world of geo-spatial data, know that it will always be harder than it looks.

The nature of our organizations

Regardless of what level of government we consider, there are natural impediments to cooperation. In fact, the very existence of organization (divisions, departments, programs, et al) creates walls that challenge attempts to work together broadly. Budget lines that mirror the organizational chart strengthen the structure and further stifle cooperation.

Each organization, and its component parts, has a mission which can be used to deflect attempts at cooperating with other groups ("It's not our job, so we can't help"). In an opposite sense, multiple groups may compete for recognition in dealing with an issue — making it far too easy for duplicative and uncoordinated efforts to be funded where the groups are tussling over control of the "turf."

Actually, these characteristics of organizations aren't limited to government. Large private and non-profit organizations can be similarly clumsy.

Cooperation built on common needs

So, we start out with one strike against us: the nature of our organizations isn't an easy fit with cooperative efforts. Yet when we consider geo-spatial information, much of it is part of a common infrastructure. Especially in such cases, the taxpayers (including most of us) should expect cooperation.

In these times of very tough budget problems, there are even more reasons than usual to pool resources. Not only could this save money, but it could result in superior products.

Recognition and rewards

One final point. Cooperation can be forced by circumstance. It can be encouraged by targeting resources. But, to close the circle, the success stories of cooperation must be broadcast.

Not only does this give credit where it's due, but it encourages the cooperative spirit in general.

New Federal activity goes into overdrive

"One-Stop" accelerates geo-spatial work

by Ted Koch

Nearly nine years ago, then President Clinton signed Executive Order 12906 implementing the National Spatial Data Infrastructure (NSDI). The Order laid out activities regarding executive leadership, a national spatial data clearinghouse, data standards, and the identification of a data framework.

In the intervening years, most of the accomplishments toward the NSDI vision have resulted from coordination efforts of the Federal Geographic Data Committee (FGDC). Work toward nationally recognized data standards, to create national framework data, and to build a national clearinghouse network have all been coordinated and accelerated by the FGDC.

However, the broad goal of creating a nationally organized data creation and sharing infrastructure has been more elusive. As mentioned in the lead article in this issue, a confusing array of federal initiatives has popped-up in the last year or so. One of the most high profile is Geospatial One-Stop.

Specific goals; broader participation

One-Stop is one of 24 major E-government initiatives under the Bush Administration's "Expanding Electronic Government" reform programs. The One-Stop project is touted to accelerate the implementation of the NSDI, to move ahead more quickly and make measurable progress. One-Stop is focusing on building data to focus on specific applications, setting deadlines to accomplish certain activities, and creating a leadership structure involving others outside of the federal agencies. Its most significant goals are to establish data content standards for Framework data themes, and to launch a One-Stop Web portal.

The FGDC is led by a steering committee of Federal agency representatives. By contrast, One-Stop is being led by Scott Cameron, a Dept. of the Interior Deputy Assistant Secretary, and guided by a Board of Directors composed of representatives from four Federal agencies plus seven other representatives from state, local, and tribal organizations, such as the National Association of Counties, the InterTribal GIS Council, and the National States Geographic Information Council. Hiring of an Executive Director is expected soon.

Homeland security a focus

One-Stop aims to focus geo-spatial data for high profile applications such as homeland security. In a recent address to the FGDC Steering Committee, Steven Cooper, Special Assistant to the President and Chief Information Officer, Office of Homeland Security expressed that homeland security brings additional urgency and focus for the need for geo-spatial data. In the address, Cooper indicated that the proposed Office of Homeland Security will work with the federal Office of Management and Budget to develop efforts to provide a single access point for national geo-spatial data such as the One-Stop Initiative.

Distributed concept relies on standards

The One-Stop portal is intended to be an on-line access point for all variety of geo-spatial data. The portal will not store or maintain data, rather the data will be accessed from servers distributed in many locations nationwide.

Conceptually, the One-Stop portal, on a national scale, is very similar to the Wisconsin Land Information System (WLIS) project being started in Wisconsin (see the Summer, 2000 *Bulletin*).

A critical element to the One-Stop portal is consistent standards and specifications. To achieve this goal, One-Stop is facilitating the development of Framework data standards. Their method, which has just begun to be implemented, is to convene voluntary development teams to review existing standards or create new ones for the eight framework data elements, which includes geodetic control networks, orthophotos, elevation, hydrography, transportation, administrative boundaries, land cover, and cadastral information. For more information on One-Stop, see *www.geo-one-stop.gov/*.

New Directions Yield Confusion, *continued from page 1*

fiscal malnutrition. As long as the outcome has positive long-term consequences, exactly where the dust settles is not so important.

The wild card: homeland security

The effects of Sept. 11, 2001 are continuing to be felt. The rise of "homeland security" to the top of many agendas has the promise of bringing needed resources to the development of high-quality geo-spatial data and tools. If so, many people and applications will benefit far beyond the security needs that are driving the interest.

The jury is still out on this one. We'll be watching to see what sorts of opportunities emerge. Federal programs have been presenting themselves as capable of contributing to the cause. The extent to which they can build effective mechanisms to work with geo-spatial organization's at the state and local level will have much to say about the value of federal investment when all is said and done.

Goal is to preserve large investment

DOT aims to preserve monuments

by Ted Koch

All accurate maps and many types of land surveys and GIS data are tied to a system of points which are permanent physical monuments placed in the ground and precisely marked, located, and documented. Possibly, many map and data users are not aware of this relatively invisible "control" monument network spread across the landscape.

Placing and accurately locating monuments to exacting and rigid specifications are time consuming and expensive. For these monuments to resist the rigors of frost heave each spring, and battering received from mowers, vehicles and feet, they require stable construction. Control monuments currently being placed by the Wisconsin Dept. of Transportation (WIDOT) as part of its Height Modernization Program (HMP) extend six feet deep and are constructed of poured concrete and construction-grade steel reinforcing bar, topped off with a brass cap of descriptive markings. The goal is to make the monuments as permanent as possible. However, they are not indestructible, and many become disturbed or destroyed due to highway and building construction and other alterations to the land surface.

This fact has recently lead the WIDOT to form a "Preservation of Geodetic Survey Monuments Committee." Since its inception in1998, the HMP has relied on more than 2,000 substantial monuments—some newly installed and others recovered from previous work. When statewide completion of HMP is completed some years from now, a total of 9,000 monuments will be part of the system. With an investment of millions of dollars, an effort to improve monument preservation methods has become crucial.

The committee—which thus far consists of members from WIDOT (Rodney Key, Chair), the State Cartographer's Office, the State's National Geodetic Survey Advisor, and representatives from the Wisconsin Society of Land Surveyors and the County Surveyors Association—has begun meeting to analyze and ultimately recommend changes in policies, procedures and legislation needed to protect geodetic monuments. The committee will continue to meet into next year producing a report on its recommendations.

In the interim, WIDOT has been installing orange-colored guard posts with informational plaques near many monuments for protection, and has established an 800-number to assist in promptly notifying WIDOT of endangered monuments.

Existing state statutory language appears to primarily protect Public Land Survey System corner monuments, so some additional language to cover geodetic control monuments similarly may be something the committee will recommend.

Dynamic, not same as Census

ZIP Code mapping...not easy

by Bob Gurda

Recently, I received a postcard at home alerting me that my ZIP Code would be changing in a month. In fact, a brand-new ZIP Code was created for a part of the city where I live. This illustrates that the ZIP Code system is a tool of the Postal Service and can change on short notice.

Trying to map the areas covered by ZIP Codes is challenging. Not only do boundaries change regularly based on delivery needs of the Postal Service, but these codes don't actually relate to areas of land; they primarily relate to delivery routes (e.g., roads). Some buildings have a unique ZIP Code, and some large buildings may even have a different ZIP Code for each floor! A Postal Service station, where post office boxes can be rented, may have its own ZIP Code.

Postal Service data

The Postal Service does not maintain ZIP Code maps, and the only related product available at this time is the TIGER/ZIP+4 File. This file relates ZIP+4 codes to Census Bureau data (e.g., latitude, longitude, tract, Standard Metropolitan Statistical Area (SMSA), etc.). See *www.usps.com/zip4/zipfaq.htm*.

Census ZCTAs

Another option is to rely on a product from the Census Bureau based on what are called Zip Code Tabulation Areas (ZCTAs). The ZCTAs use Census blocks as their areal basis to overcome the operational difficulties of creating a well-defined ZIP Code area. ZCTAs were developed for the first time in conjunction with the 2002 Census. See *www.census.gov/geo/ZCTA/zcta.html.*

There is no direct correlation between Postal Service ZIP Codes and Census Bureau geography. This is because individual Postal Service ZIP Codes can cross state, place, county, census tract, block group and census block boundaries (just to name a few). The geographic entities the Census Bureau uses to tabulate data by are relatively stable over time. For instance, census tracts are only defined every ten years.

In contrast, U.S. Postal Service ZIP Codes are designed to meet the day-to-day operational needs of the U.S. Postal Service and tend to change more frequently than every ten years. Because of the ill-defined nature of ZIP Code boundaries, the Census Bureau does not have a file (crosswalk) showing the relationship between U.S. Census Bureau geography and U.S. Postal Service ZIP Codes.

(sources: Census Bureau & Postal Service web sites)

Wisconsin coverage to begin in 2003

FSA plans national aerial image program

by Ted Koch

The amount of fresh aerial photography coverage, potentially in the form of orthophotos, over much of Wisconsin could increase substantially in the coming years. This change could occur as the result of a program currently under development by the Farm Services Agency (FSA), a branch of the US Department of Agriculture.

FSA administers national farm policies

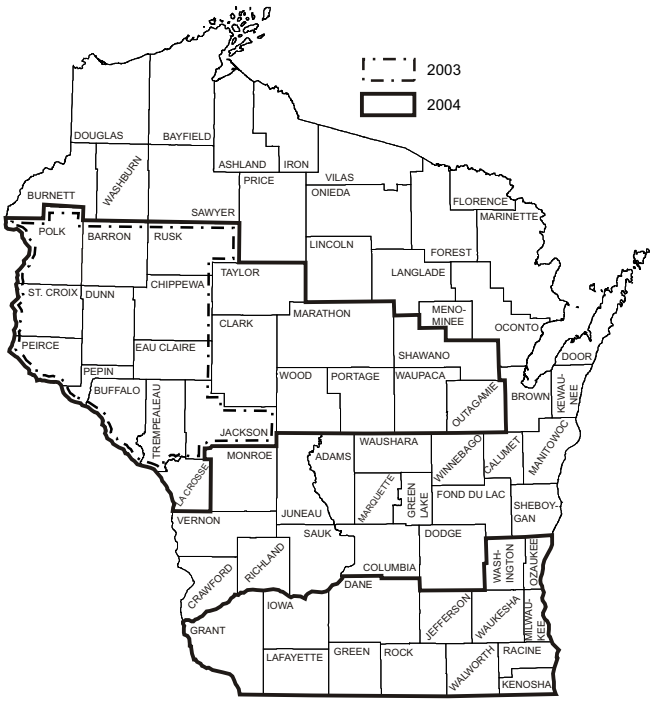
As an agricultural agency, the FSA administers a wide variety of programs to aid farmers, including commodity loans and Conservation Reserve Enhancement Program payments. For years the FSA has had to ensure that land owners meet the performance requirements of a particular program as specified by Congress or the Secretary of Agriculture. Producers agreeing to FSA program provisions are subject to random inspection to assess compliance with rules. Over the past decades, compliance was accomplished using field inspections or reviewing 35mm color aerial photographs acquired each summer.

In order to achieve more effective program administration, FSA has over the past several years been developing plans to convert its compliance activities from manual to automated processes using GIS. In this conversion effort, field boundaries have been digitized as a base for accurate measurement and recording of attributes. However, the field boundaries in digital form cannot be overlaid accurately on copies of the 35mm photos which have a variety of geometric distortions. Thus, FSA has begun the process of collecting scale-corrected images as a base for the digital field boundaries. This provides the capability to perform measurements and store related information in an entirely digital environment.

The NAIP is a new program

The plan to adopt GIS in all of its offices nationally has led FSA to lay out a plan for the National Agricultural Imagery Program (NAIP). Under the umbrella of NAIP, FSA will acquire one of two different products annually. These will be either a 2-meter (ground resolution) geo-referenced image, or a 1-meter ortho-rectified image. The geo-referenced image is made by digitally scanning an image, and then transforming that image to match common control points on it to the same identifiable points on a previously corrected image. The ortho-rectified image, on the other hand, is made by adjusting the scanned photo to ground control points, and then digitally adjusting the image to fit over a terrain model. The ortho-rectified image has greater scale accuracy than the geo-rectified image, but takes more time and money to produce.

The type of image that FSA obtains over an area will be based on the age of existing orthophotos, and the overall cost of either product. Generally, orthophotos will be acquired on a



Areas planned to be covered by the new NAIP photography project over the next two summers.

5-year cycle. On an annual schedule, the flight specifications call for 1:40,000-scale, color photos of entire counties to be flown during the peak agricultural growing season. The digital product, in either the one- or two-meter format, will be delivered to FSA within one month of acquisition for use in compliance applications. Ultimately, the FSA intends to acquire imagery every year over all crop growing areas in the country.

Initial Wisconsin coverage planned next summer

The FSA acquired its first digital imagery through the NAIP in the summer of 2001. This past summer FSA contracted for coverage over 121 counties in Kansas, Nebraska, North and South Dakota, Missouri and Minnesota. Current plans for summer 2003 and 2004 include obtaining photos over a significant portion of Wisconsin (*see map above*). In this state, coverage over the entire extent of a county will be processed into either of the two products. Copies of the photographs and the digital files will be archived in the Dept of Agriculture's Aerial Photo field Office (APFO) in Salt Lake City, UT.

Opportunities for cooperative work

When acquiring imagery for the NAIP, FSA is interested in working cooperatively with state and local governments to help meet their needs. This could include extending coverage beyond areas that FSA is interested in, upgrading the quality of the rectification, or improving the resolution. For more information on the NAIP, contact Geoff Gabbott, Aerial Photo Contracting Officer (APFO), *ggabbott@apfo.usda.gov*.

Preserving the ancient, adapting to the modern

Chris Baruth is Curator of the AGS Library at UW-Milwaukee where he has been on the staff since 1980. He holds degrees in Geography and Library Science from both UW-Madison and UW-Milwaukee. In addition to his in-house duties, Chris has been very active in the North American Cartographic Information Society.

How did the largest academic collection of geographical materials come to be here in Milwaukee?

Partly it was a matter of expediency. The American Geographical Society, which was founded in New York City in 1851, had amassed a large collection of volumes, documents, and maps. But by the mid-1970's the organization could no longer afford the maintenance burden and access to the materials began to be limited.

Several institutions in other cities submitted proposals to relocate the operation. UW-Milwaukee had just built a new central library, had a strong Department of Geography, and pledge 30,000 square feet of space plus staff positions to maintain the collection and make it available to scholars and the public. That not only the campus chancellor but also the UW System president at the time were geographers probably didn't hurt!

As a result, in August of 1978 the collection was moved to the Golda Meir Library at UW-Milwaukee. I'm told that the process required sixteen moving vans. I might mention that we are celebrating our twenty-fifth anniversary in Milwaukee this year [2003].

> We serve the campus community, the general public, and scholars from around the world.

Does the American Geographical Society continue to exist?

Yes, the AGS continues in New York City. It has a much lower public visibility than its cousin in Washington, D.C., the National Geographic Society. The AGS has chosen to maintain a more scholarly focus. It publishes several periodicals, promotes geographic education and coordinates travel, etc. Activities are profiled on their web site: *www.amergeog.org*.

How does your library fit into the overall UW-M library system?

There's been a change recently. We are now the "American Geographical Society Library", part of the UW-Milwaukee Library System. Previously we were the "AGS Collection." One of our primary clients is the campus community, in terms of serving research and instructional needs. We also serve the general public and scholars from around the world.

You have a very large collection of geographic materials. How does it compare to others?

We are the largest academic collection of our type in the U.S. However, we are dwarfed by the Library of Congress and the National Archives.

Managing these materials is a large job. We are presently approaching the half-way point on a seven-year project to recatalog the entire collection.

With the collection having moved to Milwaukee from New York City, does it have much of a Wisconsin component?

As one would expect from a collection formerly located in New York City, there was a heavy emphasis on that particular eastern metropolis. But that is not to say that other parts of the country were slighted. I would have to say that the Wisconsin elements were remarkably good—an excellent collection of topographic maps and nautical charts, from the earliest times, and a wide range of other maps covering Wisconsin as a whole, its cities and its counties. We have made a persistent effort during the past twenty-five years, however, to build our state and local holdings.

> Our Wisconsin holdings include topographic maps and nautical charts, from the earliest times, and a wide range of other maps covering the state as a whole, its cities and its counties.

The recent acquisition of UWM's Flannery Map Library will certainly help in this regard. The Flannery acquisition has also given us a quite fine collection of aerial photography covering the southeastern part of the state. Our growing digital holdings also are concentrated in this area.

What sort of public events do you have planned here at the AGS Library?

We have thematic exhibits on a regular basis. The current one treats urban mapping from the Renaissance (bird's-eye view of a walled city) to the contemporary (aerial view of Manhattan).

Our big annual event is the Holzheimer Lecture each Spring. The most recent focused on American Aeronautical Charting of which Charles Lindbergh's charts (from our collection) were of special note. Lindbergh donated the charts used on his flight across the Atlantic, actually all the way from California where he picked up his aircraft. These maps have his personal annotations and show how he constructed his route and dealt with the vagaries of magnetic declination

> The Chief of the Geography and Map Division of the Library of Congress will present the 2003 Holzheimer lecture on April 30.

For 2003 we are going to celebrate the 200th anniversary of the signing of the Louisiana Purchase and the subsequent beginning of the Lewis & Clark Voyage of Discovery. This will be a lecture on April 30 by Dr. John Hebert, Chief of the Geography and Map Division of the Library of Congress.

We also host the Map Society of Wisconsin which gathers for occasional meetings with a featured speaker. People can be notified by mail or e-mail by contacting us at 414/229-6282 or electronically per instructions on our web site.

Open to the public at UWM

Major map library thrives in Milwaukee

by Bob Gurda

The largest academic collection of maps and geographical publications in the U.S. is located in Milwaukee and is open to the public. A resource of modern and historical maps, the American Geographical Society (AGS) Library has been located at the University of Wisconsin-Milwaukee since 1978.

Collection of 500,000 maps, atlases, globes

The library's holdings exceed one million items of which about half are maps or atlases. These include all types of maps for areas worldwide. Beyond major national topographic map series and navigation charts, the collection has a wealth of thematic maps treating both physical and human factors.

The count of atlases exceeds 8,000 ranging from 15th century editions of Ptolemy's *Geographia* to modern compilations in paper or digital format. The oldest map dates from 1452, Giovanni Leardo's Mappamundi.

Globes are another category in the collection. These total 81, with the oldest being from 1613. Some are lunar, planetary, or celestial. A spectacular 50-inch "President's Globe, " on permanent loan from UW Libraries, was produced for President Roosevelt and Prime Minister Winston Churchill during World War II. The globe's cartographer was none other than Arthur H. Robinson, later Professor (and now Emeritus) of UW-Madison.

Digital holdings growing

In recent years the AGS Library has extended its scope in the realm of digital spatial data. Patti Day of the library's staff collects and manages this part of the collection. Base maps, attribute data related to various spatial units (e.g., Census), and raster data such as satellite and orthophoto images as well as scanned maps are part of this burgeoning role of the library.

Patti also converts data to formats needed by faculty and students at the university.

Aerial photographs being added

An ongoing project at the library is the merging of materials previously maintained by UW-Milwaukee's Campus Map Library. The aerial photographs from that collection, once merged into the AGS Library, will be known as the James J. Flannery Collection in honor of a key geographer in university history. Most of the aerial photographs are of areas in the southeastern part of Wisconsin.

Ptolemy's *Geographia* in twenty-six varieties

Amongst the rarest of the library's holdings are editions of what in effect was the world's first atlas. Claudius Ptolemy, working from Alexandria, Egypt, produced around 150 A.D. what is generally regarded as the first geographical treatise. It included latitudes and longitudes of more than 8,000 places.

However, when the Roman Empire fell, Ptolemy's work became obscure until the 15th century. Once translated into Latin (from its original Greek), maps began to be drafted from Ptolemy's information. By the 1470's, printed editions containing 27 maps began to appear, and over the next 400 years editions with more (and newer) maps were published. Of these works, the AGS Library holds 26 different editions, mostly published during the 16th century, the oldest from 1478.

Talks and lectures

Each Spring the library hosts a lecture by a prominent world authority on mapping. The Holzheimer "Maps and America" topics in recent years have included the design and mapping of Washington, D.C., aeronautical charting (particularly as used by Charles Lindbergh), and French mapping of Wisconsin and the Old Northwest.

Part of the globe collection at the AGS Library.

Occasional talks are organized under the auspices of the Map Society of Wisconsin. Topics are often chosen to complement a particular exhibit at the library.

Tour planned for February WLIA Conference

Plans are underway for an evening social event at the AGS Library during mid-February's annual conference of the Wisconsin Land Information Association. This will be a great opportunity to more fully grasp the breadth and depth of the library's collections and to see some of the rare items. For further information on the conference, see page 15.

To plan your visit:

The AGS Library is open Monday through Friday, 8:00 a.m. to 5:00 p.m. You'll find it on the east wing of the third floor of the Golda Meir Library on the University of Wisconsin-Milwaukee campus, at 2311 E. Hartford Avenue. Generally, materials are non-circulating, although re-cataloged books circulate, as well as some maps and aerial photographs being absorbed from the Geography Department's holdings.

For further information, visit the web site at *leardo.lib.uwm.edu*, or call 414/229-6282 or 800/558-8993, or e-mail *agsl@uwm.edu.*

A digital cartographic medium

Web Mapping Explored

by AJ Wortley

New web-mapping sites are popping up almost every day. What may not be so obvious is the underlying evolution in how they function and what they deliver.

Web mapping first appeared on-line as simple HTML image maps and canned CGI applications. These sites capitalized on early, primitive HTML/web server capabilities to give a static glimpse into digital map data. But that has all changed.

Today, web-mapping frameworks have gone beyond traditional web servers to devoted map server architectures. These frameworks are pushing forward new ideas and technologies in such emerging fields as location-based services (LBS), on-line distributed E-government services, and animated and dynamic web-based cartography. Much of this progress (some still envisioned) is furthered by introduction of such technologies as Microsoft's .Net framework, XML web services, and the Open GIS Consortium's Web Mapping Testbed framework.

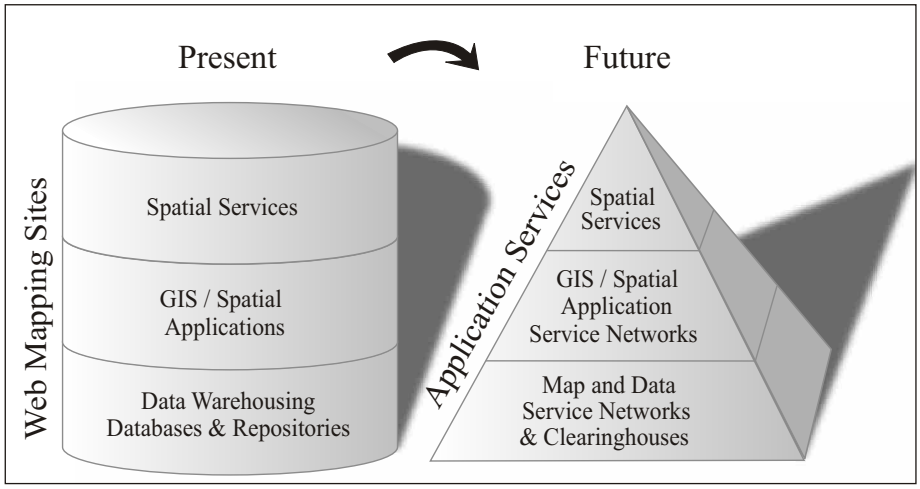
Audience, Function, & Form

Although there exists a wide variety of web mapping approaches, I am dividing them here into three categories. The key criteria are: "what service is being offered to what audience?", and "how centralized/distributed are the components of the service?" These questions should give a good indication of how mature the application/website is in catering to its user group, and how well it takes advantage of distributed technologies.

The three categories are: 1) geo-spatial data warehouses or repositories offering data exploration/visualization interfaces; 2) advanced GIS-enabled or spatially-aware applications for select audiences providing complex applications utilizing GIS data and online spatial application interfaces; and 3) cartographic/spatial end-user applications that employ maps or spatial data to ultimately provide a user-friendly public service. This division is arbitrary and some sites fall into more than one category, but there is usually a primary emphasis in each based on their initial targeted audience.

Geo-spatial data repositories

My first category includes many of the new sites we see, particularly offered by the public sector. It also characterizes what will be a continually shrinking percentage of the visible web-mapping sites on the publicly accessible Internet. Many of these sites will evolve to advanced data maintenance and data/catalog service development. Clearinghouses and portals will eventually provide common interfaces through which to discover these services. Two such emerging networks are the NSDI Clearinghouse and the ESRI Geography Network.



Currently, we find web-mapping interfaces to geo-spatial data repositories everywhere. These applications range from view-only looking, albeit interactive, to simple annotation and print functions stacked on a very rich pile of geo-spatial information. They are often built upon a web-mapping chassis software that matches their native GIS computing environment. Examples include ESRI ArcIMS, Intergraph GeoMedia WebMap, and AutoDesk MapGuide as well as ESRI MapObjects and open-source MapServer applications.

The spatial data presented can range from scanned historical maps or aerial photography, to satellite imagery, to the latest in local land information. The functionality is rudimentary and the interface may not be optimal, but what lies underneath is a treasure trove of buffet-style data layers that can be viewed, queried, and/or accessed for direct download or purchase.

These sites are usually launched by data custodians or coordinators. Dedicated staff support this online enablement. Some example sites are Arkansas' GeoStor Project, WI DNR's WebView, several NSDI Clearinghouses hosted by state agencies, and multiple new USGS sites.

Public sites to public services

Many stand-alone sites in this first category will likely be phased out. The applications and the technology will not disappear but rather become more pervasive. Heavy- duty applications for data editing/update and in-house service provisions will likely shift to intranets and secure access-based extranets to preserve resources for targeted internal audiences. Simultaneously, many of these data providers will seize the opportunity to "publish" their data repositories as map and data services—internally, or more importantly, through outside organizations.

Increasingly, the opportunity to view data straight from the source will likely be overshadowed by visualizations of that data made into information. Data providers will not lose online visibility though, as their role becomes increasingly important in lending credibility and authenticity to other services and applications built on their information services. Discovery of these geo-spatial data warehouses will be through on-line catalogs, data service clearinghouses, specialized networks and the like. Metadata standards combined with cataloguing specifications like those currently promoted by the Open GIS Consortium provide stepping stones in preparing for this new service-provider role.

This trend is analogous to data services already offered by private-sector data warehouses which often are only visible through other companies' interfaces that build upon a data service or subscription. Example data brokers include GDT, TeleAtlas, DMTI Spatial and MapInfo, powering innumerable corporate in-house applications as well as well-known public sites like MapQuest, MapBlast, etc.

Advanced spatial applications

This second category represents a good portion of the vision of integrated GIS and web technologies. Integrated spatial applications that rely on neither their data nor their audience being physically local are just beginning to emerge. These applications close the gap between field observation and submission to a geodatabase, between decision-makers and the spatial implications of their decisions, and between GI Systems and Science. No longer an isolated discipline, there are spatial tools for the public to visualize the Earth.

An organization may be unable to spare its in-house staff to build these high-end GI-applications. Some large organizations will continue to house the data warehouse and the application server; but as the technology evolves at an ever-rapid pace, organizations will likely contract with companies to develop specialized GIS web-mapping applications.

Many state and local government web-mapping sites fall in this category. Often, these sites may not be publicly visible at all. Instead, they may be launched internally for staff skilled in using a technical interface. Another important distinction is that applications in this category, while built on distributed technology, may be accessible through a common web browser or directly through a specialized "thin client."

While varied in purpose, these sites are often based on the role of data custodian. Remote, multi-user data update and editing, review of boundary and redistricting decisions, business analysis, and comprehensive land-use planning are just the tip of the iceberg.

The technology required to launch and maintain one of these applications is expensive and resource-intensive. This is due to many factors not the least of which is preparation of large spatial data repositories to lend themselves to web-based publication. However, one trend in web application software is a separation between all-in-one application development packages and component-based software and services. This split supports markets for both high-end all-in-one applications as well as lightweight distributed geo-spatial services ranging from cartographic enhancement, to on-the-fly reprojection, to simple discipline-oriented GIS analyses.

Maps on demand... on the fly...

At this point, we reach the pinnacle of our pyramid: spatially-aware pervasive computing applications. In the future, the data warehouses and repositories will provide a wide foundation of data source/service options. Application developers' choices among these will be guided by metadata reflecting data quality and usage constraints.

Add a few distributed spatial-processing and cartographic-enhancement services for data integration and aesthetic appeal. Finally, pipe it all into an intuitive end-user interface. The result could be driving directions, a fishing map, or a real-time rendering that you pay to have beamed up on your plasma screen on the wall as the map of the month.

The audience in this case is the widest possible, and may not even notice their use of spatial data. This is because of the wide range of roles spatial data can and will play in future computing applications. Developers may simply use a map service to provide a graphical catalog or index interface to information that is arranged by geographical unit or context—for instance, to guide people to a company's nearest customer service center.

But that's just the beginning. Developers may build specialized operations or services on top of the basic map-data service, providing anything from point-and-click query of attributes of a geographic entity displayed on the map, to optimized driving directions, to display of surface water networks, geographic health trends, and network forecasting models.

The common theme in this category is a focus on providing a specific service to a wide but well-targeted end-user group. Whether simple or complex, these applications see GI data not only as a potential end result but also as a resource that may be employed in applications to provide a visualized geographic context for mining or presenting information.

Services in this category represent the future of E-Government decision-making applications, and cartographic/spatial visualization of tabular information.

Future prospects

What will the future bring,as geo-spatial data repositories become better organized, and begin to provide information and map services over open protocols? Or as application developers become more aware of web mapping as a specialized form of graphical information visualization?

We can expect to see a new generation of "map service" and "spatial thinking" applications, that will deliver customized interactive maps that employ "fit for use" data sources and deliver interactive, exploratory tools with the digital map. Early glimpses include such products as ESRI's ArcReader technology, various on-line Flash and MapServer applications, and some cutting edge delivery of traditional cartographic products (e.g., David Rumsey Collection).

Emphases here include high-end cartographic presentation of historical, periodically-published or dynamically-updated geo-spatial data in a user-friendly environment. The map reader feels invited to hover, click, explore and investigate the contents of the map through an intuitive interface. What will not be visible is the distributed nature of the component software and data upon which these interfaces operate.

While these prospects are tantalizing, change is still incremental even on the technology front. Organizations just entering this realm of publishing may well develop applications that traverse through all three categories described. Each iteration provides new opportunities to better define audience and services, and to take advantage of new capabilities in distributed application components. Only one thing is certain: the face and architecture of web mapping will change dramatically over the next few years. Stay tuned.

WI DNR's WebView	*maps.dnr.state.wi.us/dnrwebview/*
Arkansas GeoStor	*www.cast.uark.edu/cast/geostor/*
David Rumsey Map Collection	*www.davidrumsey.com/*
Wisconsin Land Info Clearinghouse	*wisclinc.state.wi.us/*
USGS Web Mapping Portal	*gisdata.usgs.net/*

Networking our information

Portals seek out SCO map info

by AJ Wortley

We continually work to update and provide better access to the information and resources on the SCO website. Meanwhile, another breed of website is working to relate many disparate sites out on the web: it's the portals. While portals may in fact utilize web crawlers, search engines, and more in an effort to provide a directory or clearinghouse service, they are different from these previous web organizing methods in that their focus is on a target audience.

A portal site usually caters to a specific set of users, by aiming to network all web information related to that user group. Often portals differ from other automated search-engine-like methods in that they will have human editors approving the content. Apparently, the idea has even been around long enough to have its own web-specific definition in the *American Heritage Dictionary of the English Languag*e (Fourth Edition), where we find among other things that a portal is: *A website considered as an entry point to other websites, often by being or providing access to a search engine.*

SCO as portal target

We have had reason to notice firsthand the variety of portals emerging on the web as recently we have been contacted by a few to alert us to our "linked presence" on their portal site. This is an appreciated gesture as it allows us to notify our prominent 'pass-throughs' when major portions of our website change.

Both the Wisconsin State Portal (*www.wisconsin.gov*) and the newer K-12 at UW-Madison Portal (*www.k12.wisc.edu*) have sought out and linked specific pages from our site for map-related information for their audiences. A quick search on the K-12 portal will also reveal... yep, you guessed it, there's metadata behind their methodology. Each search results in a list of potential sites for which you can get more information (metadata) or go directly to the resource.

In concept, portals are a great way to drive a targeted audience to those resources in highest demand or most common use. But, as with any web development, they must be observed carefully. For, like the websites they track, portals are only as timely and useful as their maintenance will support. Nonetheless, it seems that portals and clearinghouses will quickly come to be our avenue to networked and sorted information from a variety of sources through a common doorway.

Now, about that Wisconsin GIS data portal....

10, 25 years in retrospect

Looking back....

by Bob Gurda

As we pointed out in our previous issue's story on the fifteenth anniversary of the Wisconsin Land Records Committee, much has happened over that span of time in terms of land records modernization.

Looking back through our archives in a broader view, here are some highlights from ten and twenty-five years ago that appeared in the *Wisconsin Mapping Bulletin.*

One decade ago: 1992

The Wisconsin Land Information Board had just completed its 3rd round of competitive grants, awarding $940,000 to 14 counties. Cumulatively, $2.43 million had been awarded to over one-third of the state's 72 counties.

The U.S. Geological Survey published its first standards for digital orthophoto quarter-quadrangles.

James Robertson was selected as State Geologist.

The Spatial Data Transfer Standard (SDTS) was approved by the Secretary of Commerce, making it FIPS 173.

NADCON v 2.1 and CORPSCON v 3.1 software were released.

Deeper history: 1977

Plans for mapping prime farm land were underway, in support of the state's new Farmland Preservation Program.

The High-Precision Transcontinental Traverse, a horizontal geodetic surveying project which passed through northwestern Wisconsin, was completed by the National Geodetic Survey.

Plans were underway for the 3rd International Symposium on Computer-Assisted Cartography (Auto-Carto III) to be held in January.

1:24,000-scale topographic mapping of the state was 52% complete.

Newsy tidbits keep on coming

Checked our web news lately?

by Bob Gurda

As we have been saying here for several issues, some news items surface and then become stale too quickly for us to get them into the *Bulletin*. For these stories and some others that appeal to a narrow audience, we turn to our web site's news page.

Here are headlines of some web news items during the last few months:

USGS offers access to stream-level data

Madison campus GIS events scheduled

See maps of Hurricane Lili

UW research fuels new National Geographic map

Q: ***Where can I get a map of land cover for a township using the WISCLAND data?***

A: Other than the large state map (available for purchase from the SCO), we know of no other off-the-shelf maps of land cover that are based on the WISCLAND rural vegetation interpretation. However, maps covering subsets of the state—a river basin, county, or township, for example—could be produced fairly easily as once-off plots.

WISCLAND is a partnership of 25 organizations that came together initially in 1993 to cooperate on statewide land cover mapping. As that activity went into production mode, the group took on other related work such as completing DRG (scanned USGS topo map) coverage, DEM coverage, and a digital hydrography layer. For more information see *www.geography.wisc.edu/sco/wiscland/wiscland.html*.

The land cover database was completed in 1998 and is free to download in two formats. For people who have certain GIS software, there is a "grid" file which can be displayed, queried, and used for spatial analysis. This version includes three levels of classification, so you can make a plot displaying any of the three levels, from simple to complex, of any part of the state.

Another version is a less sophisticated TIFF file. This is essentially a picture that can be manipulated using "paint" software.

Both files are very large since they cover the entire state. To read detailed background information, and to download, go to *www.dnr.state.wi.us/org/at/et/geo/data/wlc.htm.* Note that this gives you only the land cover data, not any reference layers such as county boundaries, transportation or water networks, etc.

One other option is to use the web-based mapping option through the URL immediately above. Here you would be zooming in to your area of interest, then capturing your computer screen image as a file to be pasted into another application.

In regards to map scale, if you plot a typical survey township (6 x 6 miles) at the size of 8 x 8 inches, the cells that make up the land cover image will each be about 1/40". This should make a pleasing display, but if enlarged much more the gridded nature of the data would become obvious, and perhaps distracting.

You also might want to check with your County land information office or regional planning commission to see if they might have produced any local maps of land cover.

Q: ***I read in Adena's Schutzberg's on-line column that Wisconsin had collected more than $12 million through GIS data sales. Could you provide details?***

A: We read the *GIS Monitor* weekly digital GIS news ourselves, and find that generally it contains a lot of germane information and commentary. However, what you refer to in your question (from the Sept. 12 edition) was an incorrect characterization, unfortunately.

Ms. Schutzberg attended the annual meeting of the National States Geographic Information Council held this September in Utah. During a "roll call" period when each state's representative gets exactly two minutes to very quickly recite highlights of the past year, Ted Koch, our State Cartographer, reported on the revenues collected under the Wisconsin Land Information Program through document filing fees during the fiscal year ended June 30, 2002. Since those revenues were at a record level (due to housing activity, especially mortgage refinancings), it made for something worth reporting.

Adena's notes may have led her to characterize the revenues as from data sales—but obviously that was incorrect.

Q: ***I need to map the acreages of wild rice beds over a large area every year. What advice would you have?***

A: Your goal represents quite a challenge. If you had only a few areas to map, it might be easiest to take a GPS receiver out in a canoe, and paddle the perimeter of the rice beds.

Since wild rice is an annual crop (i.e., seeds sprout each year and the plants live only through that growing season), you can map the beds only in late summer into early fall. Any earlier and the plants won't have emerged from the water. The size and shape of beds may vary from year to year.

Aerial photography is an option, although the cost might be prohibitive for mapping-quality vertical imagery. You might be able to drum up some partners to help fund an acquisition, but both the annual cycle as well as the time of year will not appeal to most other organizations.

Simpler oblique photographs (e.g., taken with a hand-held camera from the side window of a small low-flying aircraft) might provide some useful information, but it would not be simple to determine acreages due to the geometry of the images. However, you could try using oblique images as a source for mapping the beds in reference to an accurate orthophoto base map.

Satellite imagery is also a possibility, although some of the rice beds are likely too small to be detectable. Even if visible, it might be difficult to separate the rice from other wetland/lake vegetation accurately. Area measurement could also be of low accuracy if the satellite sensor of choice delivers fairly coarse images. You would also have to hope for clear skies on the day the satellite passes overhead.

Mapping Specialists' new line

Lake maps plumb the depths

by Bob Gurda

You almost want to feel the paper to be sure the map is indeed flat. That's how effective the design is on a new line of Wisconsin lake maps produced by the firm Mapping Specialists in Madison. According to Vice President of Operations David Knipfer, the number of lake maps offered is growing steadily at a rate of about 25 per year.

Complex shading scheme

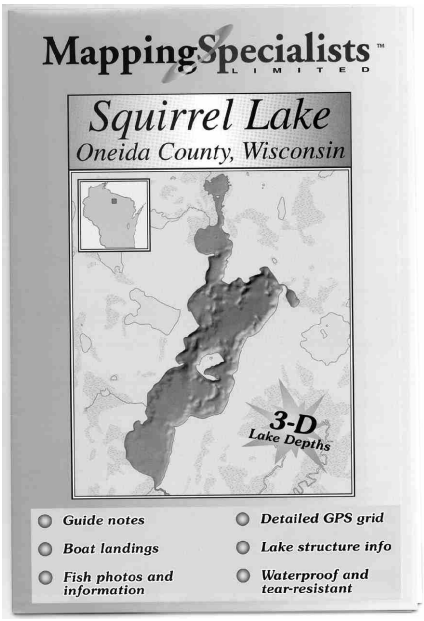
These lake maps take a new tack by employing a full four-color process and subtle shading to emphasize the depths and slopes of a lake bed. A blue bathymetric tint series is employed, steps in color becoming darker in the deeper waters. To emphasize the shape of the lake bed, various amounts of gray are then added to simulate shadow such as you would see if the lake were drained of its water and a light shone at a low angle from the northwest. This approach is similar to relief shading of land topography.

The result is quite striking and is further enhanced by useful information such as lake bed materials (e.g., rocks, timbers, vegetation), boat landings, and a latitude/longitude tick system.

Choices for indoors and outdoors

There are actually two related series of maps available. Mapping Specialists plots their lake maps at various scales, with a standard paper size of 18" by 24". These are printed on paper, and only one side. Portrait or landscape orientation depends on the shape of the lake. Custom enlargements are available at 150% and 200%, and can be laminated and/or framed. These products (currently 50 maps have been prepared) can be ordered from Mapping Specialists and are carried by a small number of dealers. Prices range from $10 - $30.

A derivative product is printed on a durable paper-like waterproof plastic material. This is available only folded (6" by 9", and 18" x 24" unfolded). The back side of this version of the map is customized with fishing information including directions to, and photographs of, boat landings, pictures and descriptions of fish found in the particular lake, drawings and descriptions of common plants, and extensive notes and advice regarding the lake's fishery compiled from various sources including a fishing guide from the local area. The folded map series (currently 18 maps) is available directly from the producer or through a series of outlets across the state. Prices are generally $9.95 although a few larger format maps have higher prices.



Cover panel of one of Mapping Specialists' folded lake maps

Check website for current offerings

The early maps in this series cover the larger and better-known fishing lakes in Wisconsin. New wall maps become available first and the reverse-side material is added later to produce the folded version. Check *www.mappingspecialists.com* for a current list and prices, or call 866/525-2298 to place an order.

Company expands its offerings

Mapping Specialists has been in business for almost 20 years and over that time has primarily done contract work for other publishers of maps, textbooks, etc. However, in the last two years they have begun to develop their own products for retail sale. The first foray was print-on-demand plots derived from scanned USGS topo maps (DRGs). These are produced as portions, full map sheets, or combinations of up to six 7.5-minute topographic quadrangles in a single block. The customer can request that the relief be shaded to enhance visualization of the terrain.

Once the topo map relief-shading process was established, Knipfer resurrected an idea he had years earlier, and the work on the lake maps began. A key impediment was the lack of digital bathymetric data. The company's staff took depth contour lines compiled by the Wis. Department of Natural Resources and converted them to digital models; this then allowed the automated shading process to work.

Mapping Specialists' goal is to have 100 Wisconsin lake maps published by 2005. Lakes outside the state are also under consideration.

New book available

"Introduction to GPS"

by Adam Simcock

One result of the widespread adoption of the GPS technology and system is a fairly low expense and knowledge requirement for entry-level use; a journey to your local discount store and a hundred dollars will have you locating your general position within 15 meters or so in an afternoon.

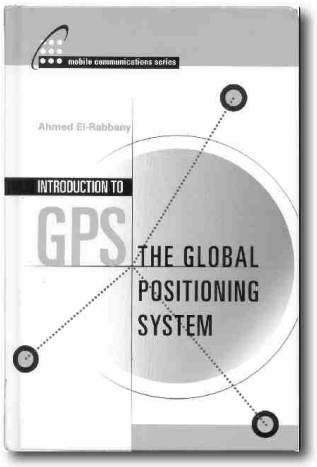
However, once accuracy requirements begin to rise, equipment choices and costs increase exponentially. This is when a solid understanding of how the GPS system works and how you access it becomes important, and is where Ahmed El-Rabbany's new book *Introduction to GPS* can be an asset.

This 175-page book begins with an introduction to fundamental aspects of the three components of the GPS system: the satellites, ground control, and receivers. The following chapters explore in detail topics such as types of receivers, structure of the signals transmitted by the satellites, methods of positioning using GPS (stand-alone, differential, real-time kinematic, etc.), and GPS errors and biases.

Supporting chapters provide background information on coordinate systems and map projections, examples of application areas and a discussion of non-US satellite positioning systems. For a complete list of the table of contents and a sample chapter, search for the title on *www.artechhouse.com*.

The author's stated goal is to provide a readable and complete coverage of GPS. While not a simple discussion of how to locate your favorite fishing hole using a basic handheld receiver, neither does the material get bogged down in textbook discussion of the mathematical foundations of GPS.

The book is geared toward professional users; consequently some of the detail, such as the frequencies of the GPS signals, may not be of interest to everyone. But the book's style, somewhere between a reference and a tutorial, allows the reader to skip sections of less interest or paragraphs of high detail and still understand following sections. Additionally, if you feel the section does not provide enough detail, each chapter provides references for followup reading.



My only complaint is with some of the forward referencing, where a term or topic is introduced and deferred for later discussion in the book. I found myself skipping around a little rather than reading it straight through. However this actually reflects how I think many people might use the book, with the beginning chapters providing a foundation, and later chapters serving as references when further detail is required.

Introduction to GPS is published by Artech House and retails for $50-60 at a number of web-based bookstores.

Compiled by Nancy von Meyer

GIS glossary from URISA

by Bob Gurda

Rapidly evolving disciplines—such as GIS—often rely on terminology adopted from other fields or invented to suit new needs. This makes keeping track of the lingo a big task.

The Urban and Regional Information Systems (URISA) has stepped in with a glossary to keep us all "on the same page." URISA relied on former Wisconsin resident and GIS expert Nancy von Meyer to compile more than one-hundred pages of terms and their definitions from a wide variety of sources.

You can order a copy from URISA (see *www.urisa.org*) for $49 if you are a member or $69 if you aren't.

Ask for *Surveying and Land Records Glossary of Terms*.

More review and study recommended

Imagery and remote sensing report released

by Ted Koch

An October 2002 report entitled *Value of Civil Imagery and Remote Sensing*, has been released by a special task force of the Federal Geographic Data Committee (FGDC). See *www.fgdc.gov/whatsnew/whatsnew.html#cirs*.

The purpose of the report, which was authored by 20 federal agency employees representing seventeen agencies, is to illustrate the value of remote sensing to federal agencies in meeting their needs to manage a variety of programs that rely on up-to-date, high quality data.

The 23-page report covers seven areas to illustrate applications of remotely sensed data (transportation, agricultural management, environment, homeland defense, energy, natural resource management and basic research), and provides a brief analysis of national programs reliant on remote sensing such as the national map, national shoreline delineation, flood mapping programs, and farm compliance programs.

The report recommends that the Federal Government conduct a technical review of operational and research needs over the next five years, that the National Academy of Public Administration (NAPA) be hired to recommend changes in policy and administrative approaches to insure improved collaboration and wider use of remotely-sensed data, and that the FGDC should form a permanent task force to identify and oversee the proposed NAPA study.

Tornado strikes Ladysmith

Rusk County Land Info undamaged

by Bob Gurda

For the second time in two summers, a tornado has caused major damage to a county seat in northern Wisconsin. This time it was the city of Ladysmith in Rusk County that suffered the blow on Labor Day, September 2. The tornado tore through the central business district which includes major public buildings such as the county courthouse.

The county courthouse is a sturdy masonry building and its damage was primarily limited to windows, roof, and radio antenna. Dave Kaiser, land information officer and county surveyor, reports that his office and others involved in land records management for Rusk County did not themselves incur any major disruption. Others in the city and vicinity were not so fortunate although no one died from the storm, likely because it occurred on a holiday.

Kaiser said that cleanup in the city moved along at a rapid pace; one weekend more than 1100 volunteers were on hand. Ladysmith's population is about 4000.

In June of 2001 a tornado caused major damage to the village of Siren in Burnett County. That county's courthouse is a fairly new structure located several miles outside the village, and was not affected by that storm.

Annual conference commemorates 40th anniversary

URISA celebrates in Chicago

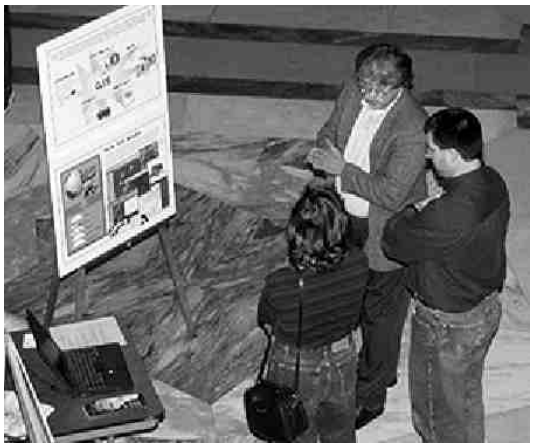
by Ted Koch

URISA (the Urban and Regional Information Systems Association) celebrated its 40th annual conference recently. Held in downtown Chicago in late October, the conference had a lower attendance (approximately 500) than typical URISA meetings of several years ago; however, this conference did offer a quality program with excellent speakers covering a range of current topics.

With the focus on the anniversary, and a theme of "Looking Back - Moving Forward" a number of presentations focused on the change in technological and institutional journeys over the past four decades. Offering a Wisconsin perspective on this idea, Ben Niemann, Emeritus Professor at UW-Madison, provided a comparison of the status of land records in Wisconsin in 1977 compared to what has actually evolved by 2002.

Overall, Wisconsin was well represented at the conference. At least seven Wisconsin residents were involved in conference presentations, and five Wisconsin organizations were registered as conference exhibitors. Others from the state also taught several pre-conference workshops.

URISA's 2003 conference is scheduled for October 11-15 in Atlanta, GA.



Ken Parsons of the Wis. Dept. of Natural Resources explains a GIS application at the GIS Day event at the State Capitol, Nov. 20.

For a listing of some of the other events that were scheduled for GIS Day 2002 in Wisconsin, visit www.GISDay.com.

Seminars and more

UW-Madison gets together on GIS

by Bob Gurda

Dozens of people have been gathering each Tuesday noon this Fall semester at the University of Wisconsin-Madison to hear seminar presentations in the broad field of Geographic Information Science. The seminar is one example of the revitalization of campus-wide GIS activities undertaken in 2002.

Speakers in this Fall's series were all faculty or staff from a variety of departments at UW-Madison. With the approaching Spring semester the seminars will resume, this time featuring speakers primarily being students and GIS experts from off the campus. Schedules are posted on the web site of SIAC, the Spatial Information and Analysis Consortium — *www.geography.wisc.edu/sco/siac/*.

The seminars are open to the public. A schedule is posted on the SIAC web site.

The topics this Fall were varied, including:

- GIS mapping of animal functions on real landscapes;
- Measuring and modeling global land-use and land-cover change;
- Satellite monitoring of large lakes with NASA's EOS;
- On-line tools for helping non-experts select good color schemes;
- Back-casting and forecasting residential housing density through attribute clustering;
- Canopy transpiration models & global classification systems as related to landscape water flux;
- Potential and problems for querying land-use data over the web;
- Developing the history of 20th century cartography; and
- Geographic visualization using Vis5D and VisAD.

2003

January 22-24, **Wisconsin Society of Land Surveyors Annual Conference** will be held at the Holiday Inn in Stevens Point, WI. Contact WSLS at 262/549-1533 or visit *www.wsls.org*.

February 11-14, **Wisconsin Land Information Association Annual Conference** will be held at the Hilton Milwaukee City Center, Milwaukee, WI. Contact WLIA at 800/344-0421 or visit *www.wlia.org*

March 2-5, **GITA's Annual Conference and Exhibition** will be held at the San Antonio Conference Center in San Antonio, TX. Visit *www.gita.org* or phone 303/337-0513.

March 20, **Metadata Workshop** will be held in Science Hall on the UW-Madison Campus, Madison, WI. Contact the SCO at 608/262-3065 or visit *www.geography.wisc.edu/sco*.

March 29-April 2, **ACSM Annual Conference** will be held at the Phoenix Civic Plaza, Phoenix, AZ. Visit: *www.acsm.net/acsmconf.html*.

March 30-April 1, **Integrating GIS & CAMA Conference** will be held t the Hyatt Regency Columbus, Columbus, OH. Visit *www.urisa.org/cama.htm*.

April 8, **Map Design Workshop** will be held at the Pyle Center in Madison, WI. Contact the SCO at 608/262-3065 or visit *www.geography.wisc.edu/sco*.

April 8-9, **Spring ILGISA Conference** will be held at the Radisson Hotel, Bloomington, IL. Visit *www.ilgisa.org*.

May 3-9, **ASPRS Annual Conference** will be held at the Anchorage Convention Center, Anchorage, AK. Visit *www.asprs.org*.

June 15-20, **The International Conference on the History of Cartography** will be held in Cambridge, MA (first 3 days) continuing in Portland, ME (last 3 days). Visit *www.ichc2003.org* or phone 207/780-5951.

June 30-July 2, **Iowa's GIS Conference** will be held at the Scheman Center - Iowa State University, Ames, IA. Visit: *http://igic.gis.iastate.edu/2003conf/2003IGIC.htm*.

July 7-11, **ESRI International User Conference** will be held in San Diego, CA. Visit *www.esri.com/events/index.html*.

October 28-30, **Digital Terrain Data and 3D Visualization**, sponsored by ASPRS and MAPPS will be held in the Charleston Convention Center, Charleston,SC. Visit *www.asprs.org* or *www.mapps.org*.

To see a more extensive calendar of regional events, and to use hot links to other calendars, visit the SCO website.

February 11-14, 2003

WLIA Conference heads for Milwaukee

by Bob Gurda

For the first time in its history, the Wisconsin Land Information Association will be holding its annual conference in the state's largest city, Milwaukee. The theme of this 15th annual conference is "Soaring into the Sunrise", alluding to one of WLIA's key goals—to lift the Sept. 1, 2003 sunset scheduled for the Wis. Land Information Board.

Conference Chair Jeff Bluske is planning a series of workshops, sessions, vendors, and social events. The meeting will take place at the Hilton Milwaukee City Center. An off-site event is also being planned for the American Geographical Society Library (*see stories on pages 6 & 7*).

WLIA is, in essence, the state's GIS association. Attendance at the annual conference typically tops 600 and draws people from all over the state and beyond. For further information, call WLIA at 800/344-0421 or visit the web site at *www.wlia.org*.

About the SCO…

The State Cartographer's Office (SCO), established in 1973, is a unit of the University of Wisconsin-Madison. The SCO is located on the 1st Floor of Science Hall.

Our permanent staff consists of five people—Ted Koch, State Cartographer (608/262-6852), Bob Gurda, Assistant State Cartographer (608/262-6850), A.J. Wortley, Outreach Specialist (608/265-8106), Brenda Hemstead, IS Resource Support Technician (608/263-4371), and Ana Rumm, Financial Specialist (608/265-9368). We also employ several part-time graduate and undergraduate students.

The State Cartographer's position and mission are described in Wis. Statute 32.25 (12m). In addressing this role, the SCO functions in a number of ways.

publishes the Wisconsin Mapping Bulletin, catalogs, guides, brochures, and other documents and maintains a web site to inform the mapping community.

inventories mapping practices, methods, accomplishments, experience, and expertise, and further acts as a clearinghouse by providing information and advice in support of sound mapping practices and map use.

participates on committees, task forces, boards, etc. The State Cartographer is one of the 13 voting members of the Wisconsin Land Information Board and one of 16 voting members on the Wisconsin Land Council.

develops experimental and prototype products.

serves as the state's affiliate for cartographic information in the U.S. Geological Survey's Earth Science Information Center (ESIC) network.

About our Web site…

Here you will find links mentioned in *Bulletin* articles, information on a wide range of mapping topics, news items, functions and activities of the SCO, our on-line aerial photography catalog, a calendar of events, and links to related web sites.

www.geography.wisc.edu/sco

About WISCLINC Web site…

On the Wisconsin Land INformation Clearinghouse (WISCLINC) site, you can search and read metadata files, download certain data files, learn about our continuing work in this area, and link to other state clearinghouses.

www.wisclinc.state.wi.us

Wisconsin
Mapping Bulletin

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