



Wisconsin MAPPING BULLETIN

Digital Topo Map Scanning Spreads Statewide

by Bob Gurda

Statewide topographic maps, all on a small stack of computer disks? By 1996? Is this sheer fantasy?

No!! In fact, this kind of information is already available for Douglas County in the far northwestern corner of our state, and much more is on the way.

As a recent initiative closes in on its goal, we are approaching full funding for creation of "digital raster graphic" computer files for the entire statewide set of federal topographic maps. This "DRG" is simply a scanned version of the paper map, in color and adjusted to the UTM coordinate system.

Uses are varied

In the computer, it can be used as a form of base map, it can simply be printed out a various scales, or can be merged with other information. Samples from Douglas County, printed on a \$500 desktop color inkjet device, are very attractive.

The merging or "overlay" capability will generate significant payoffs. As part of this process, the standard colors of the DRG could be subdued in the computer so that overlaid information is more visually prominent.

A relatively inexpensive product

The DRG is a new product available through 50/50 cost sharing with the U.S. Geological Survey. Done in blocks of 67 map sheets, the per sheet cost-share price is only \$32.50. This translates to less than \$40,000 to convert all the maps for Wisconsin (approximately 1200) to digital image format. Compared to the investment required to create these maps (\$12 million plus inflation), the cost to make the DRGs is about one-quarter of one percent!!

As of our printing deadline for this issue, a group of organizations had together pledged over \$22,000 toward statewide acquisition. Early contributors include the U.S. Forest Service, the USDA's Natural Resources Conservation Service (formerly SCS), the National Biological Survey, and Wisconsin Electric Power Company. Additional federal, state, regional, and private offices are considering joining in this effort.

Coordinated efforts

Minnesota is working toward statewide coverage of DRGs, and the Wisconsin NRCS office is cooperating with its counterpart to the west to ensure coverage at the border.

Coordination of DRG funding in Wisconsin is being coordinated under WISCLAND, an already existing cooperative activity that has the goal of developing an array of statewide GIS data layers that hold georeferenced information on the state's landscape. Bob Gurda at the SCO is leading this particular WISCLAND activity.

Costs and formats for copies

As the 67 maps sheets for each block of 1 X 1 degree of latitude/longitude are funded and produced, the resulting files will be placed on CD-ROM disks. USGS will sell these disks for their standard price of \$32 each. There will be approximately 22-28 such disks to cover all parts of the state. (Some will contain only a few Wisconsin map sheets, and be primarily covering part of an adjacent state).

Technical details—structure and use

The DRG is structured as a TIFF computer image file, and includes georeferencing which a user can access to merge other geographic information with the DRG. For instance, a set of points with either UTM coordinates or latitude/longitude references can be placed on top of the DRG using selected symbols. This process requires specialized software, but many copies of such software are already in use across the state. For simple viewing, cropping, printing, etc., many types of personal computer illustration software can read TIFF files.

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Board's Executive Director Resigns

William Holland has announced his resignation as Executive Director of the Wisconsin Land Information Board effective September 2, 1995. Expressing his intent to return to private sector employment, Bill delivered this decision to the Board at its August 16 meeting.

Selected as the Board's first executive director in late 1989, Bill has led the board's many administrative functions, including its successful local government based grants-in-aid program.

The Board's staff positions were recently converted to civil service classifications. As a result, the Board has been

accepting applications for the Executive Director position for the past month. Selection of a new Executive Director will probably be made by November 1, 1995. This process was begun well before Holland's resignation and will continue as planned.

Prior to becoming Executive Director, Bill was in private law practice in Madison. He plans to formally associate with H2Geo Consulting, a Madison business founded by Peter Thum, as well as resume law work.

At the August meeting, the board unanimously passed a resolution commending Bill for his outstanding service.

by Ted Koch

Board Meetings

The Wisconsin Land Information Board (WLIB) held its second annual strategic planning retreat in June (see story below), and its next regularly scheduled meeting on August 16 in Madison. The Board's next two meetings are scheduled for October 31 and December 11.

Report from planning retreat

Meeting in Wisconsin Dells on June 19 & 20, the WLIB held its second annual strategic planning retreat. The purpose of the retreat was to discuss progress on the strategic issues identified a year earlier, and to identify critical issues facing the board during the next twelve months.

First, the board heard summaries of actions taken during the past twelve months on the sixteen issues identified one year earlier. Certain issues had been fully addressed, others partially accomplished with efforts continuing, and several had encountered significant impediments.

Following the past year's summary, board members and advisors developed a new list of potential strategic goals and objectives. This included issues from the past year as well as new items. As part of the activity, the board assigned a rating on the perceived difficulty of accomplishing each goal and its associated objective.

A detailed and structured strategic plan will be developed over the next several months from the strategic goals list.

Reports and Standards approved

In recent actions, the WLIB has approved a number of task force reports and recommended standards. At the June 20 meeting, the Wisconsin GPS Standards Work Group presented its final report. The board accepted the report, and accepted for implementation the first two technical recommendations (see story page 7). The remaining three recommendations will be addressed in the board's strategic planning process.

At its August 16 meeting, the board approved final reports submitted by its Competitive Procurement Task Force, and its Technical Assistance Task Force. Also, the board accepted two standards prepared by the Wisconsin Land Information Association, the Parcel Geo-Locator Standard, and the Geodetic Control Clearinghouse Report.

Retained fees decline

Land information fees collected at county Register's of Deeds offices took a significant decline during the past year. For the year ending on June 30, 1995 a total of \$5,836,170 was collected by Wisconsin's 72 counties. This amount is \$2,257,608 less (a reduction of 28%) than the amount collected for the year ending in June, 1994.

Board faces sunset - again

The state's biennial executive budget bill, recently signed by Governor Thompson, includes the provision of ending the operation of all boards, councils and commissions attached to executive agencies within state government. The WLIB is included in this group, and potentially faces a sunset date of July 1, 1996. Those boards, councils and commissions whose existence can be justified will not be eliminated.

The rejustification process is being led by the Lieutenant Governor's Office, with October 1 set as the date for submission of a short rejustification report. The overall process of evaluating these organizations for continuation has not been announced. In the meantime, the WLIB has appointed a seven member committee of board members, headed by Ben Niemann, to prepare the initial report to the Lieutenant Governor.

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Potential for added value

UTM is not the only coordinate system to which such a TIFF file can be oriented. In fact, the Wis. Department of Natural Resources has estimated that it might cost no more than \$15 per file to perform bulk conversions of the USGS DRG product to another coordinate system such as WTM, State Plane, or a county coordinate system. A typical Wisconsin county is mapped on all or parts of about 20-25 USGS map sheets at 1:24,000-scale.

Resolution factors

More specifically, the DRG is produced at a resolution of 250 lines per inch at map scale. From the 1:24,000-scale map series, this resolution translates into pixels ("picture elements" or the gridded colored squares that make up the scanned image) that are 8 feet square on the ground. After being compressed, the computer file for one quadrangle map occupy 5-15 megabytes each. The DRG files for the maps which together cover a 1 X 1 degree area then will fit on a single CD-ROM.

There are some trade-offs

What a DRG is **not** is important to understand. It is not GIS vector data (points, lines, or areas with attached attrib-

utes), and each pixel in the image is coded only with a color (e.g., a black pixel that is part of a school point symbol is not coded with a "school" attribute). However, the DRG is useful for many purposes just like the printed map, including making inexpensive copies of all or part of the sheet. Gray-tone copies, such as those accompanying this article, work fine for some purposes.


A DRG image also is not any more current than the paper map from which it is scanned. USGS topographic maps in Wisconsin vary in vintage from 1995 (a few revisions) back to 1944. The bulk were produced in the 1970's through 1985. Some of these maps are fairly out-of-date in terms of certain roads and buildings, but other information is still fairly current. Other maps, especially in rural or remote areas, are quite current.


You'll want a robust computer

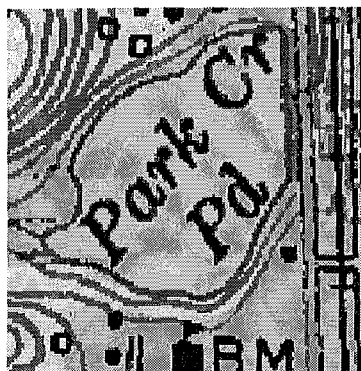
A related caution is that each DRG file will gobble a chunk of computer hard disk space. You can access the files directly from CD-ROM, but some users will want the quicker performance and convenience of a hard disk. A good monitor and printer are also very handy.

Want to keep informed?

To learn more about DRGs, contact the SCO. We can also provide information about the status of funding, production, ordering, and delivery of DRGs.

 To the right is a small piece of one DRG, shown in gray levels rather than color. Solon Springs is in central Douglas County.

 Below is a larger-scale example of part of the same area. Here you can more easily see the gridded "pixel"



Electronic Connections to the SCO

Get the news between Bulletins

BBS carries news of the day & week

by Brenda Hemstead

How do you get your news? Newspaper, radio, TV, magazines, or the grapevine? How about via BBS?



When it comes to news in the broad field of mapping, the SCO's Computer Bulletin Board System (BBS) fills the gap between issues of the *Mapping Bulletin*. We post short news items on the BBS soon after we get the

information. As a result, if you

call our BBS even as seldom as monthly, you can become informed much sooner than you would be by waiting for the *Bulletin* to be delivered to your mailbox.

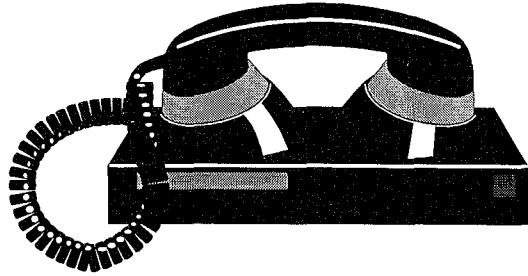
Calling weekly or so can give you an even bigger jump on the news. In addition to timeliness, some news posted to our BBS doesn't end up even being mentioned in the *Bulletin*—there is only so much room on these sixteen pages.

Do you have some news that others might like to hear? You can post news directly onto the BBS, either in a "message area", or by uploading a text file. If those methods are too much of a hurdle, give us a call or fax us the news, and we'll post it for you. Either way, the mapping community becomes better informed through your efforts.

BBS statistics

Here are some BBS statistics for your consideration (all of these continue to grow)

- Number of registered users: 573 (283 of the 573 total registered users have access to the Internet. Of the remaining 290 users who currently don't have access to the Internet, 224 hope to have access soon).
- Total number of calls to date: 3049
- Average number of calls per month: 100
- Most popular file: files.zip
- Other popular files: list.zip, vmap.zip, pspro200.zip
- Total files on BBS: 260



A Clearinghouse for the WLIP

WISCLINC is online

by Diann Danielsen and Hugh Phillips

In the previous (April) issue of the *Bulletin*, we reported on our progress with a Federal Geographic Data Committee grant awarded to the WLIP to establish an Internet clearinghouse and develop metadata on a variety of Wisconsin data sets. (The SCO has been implementing the project for the WLIP.) The clearinghouse has been online for several months, but is now fully operational and is getting final cosmetic touches, such as its own "home page".

We encourage those of you with Internet access and browsing software such as Mosaic or Netscape to check out WISCLINC (the *Wisconsin Land Information Clearinghouse*) at <http://wisclinc.geography.wisc.edu/wisclinc.html>. This address will take you to the home page of the clearinghouse where you can learn more about the Wisconsin Clearinghouse project, techniques for developing metadata and clearinghouse sites, similar activities across the nation, and of course, search the metadata files located at the Wisconsin clearinghouse site. We have also established an anonymous ftp site for WISCLINC located at <ftp://wisclinc.geography.wisc.edu>.

While online, you might also like to investigate the SCO's home page (<http://wisclinc.geography.wisc.edu/sco.html>). This area is under development, but will one day link to our BBS so that you will be able to access information by and about the SCO via either modem or Internet.

The Wisconsin Clearinghouse project continues to develop metadata files for the clearinghouse. We have completed metadata files from federal, state, and county governments cooperating in our project. These sample metadata for selected Wisconsin tax parcel, soil, and watershed data sets are available on WISCLINC. Other metadata for key data sets maintained by the Clearinghouse cooperators are expected to be completed late this summer.

For more information on WISCLINC, metadata, and Internet clearinghouses, contact the SCO.

Broadening input to federal mapping

by Ted Koch

In the complex process of building an automated, locally based land information system, making decisions on the types of base information that will best fit diverse applications is not always an easy process. Over the past two years much discussion and promotion has been put to the idea that digital orthophotos can provide an accurate, versatile and appropriate layer of base information. The approach is that digital orthophotos provide a rich source of information that forms an ideal backdrop for an endless variety of other applications.

DOQQ program

Much of the growth of digital orthophoto awareness and use is attributable to the standardization and availability of the Digital Orthophoto Quarter Quadrangles (DOQQ) produced under state/local cooperative funding programs with federal agencies, particularly the Natural Resources Conservation Service (formerly SCS) and the U.S. Geological Survey. Many organizations have found DOQQs to be an ideal product for their applications, while others have determined that the source photography, resolution, and other technical specifications fall short of their needs.

The DOQQ program, its technical specifications and program goals, is administered by the National Digital Orthophoto Steering Committee, a group that up until several months ago was composed only of representatives from four federal agencies. With the NDOP Steering Committee pushing 50% state/local cost-share commitments, many people believed that the DOQQ Program desperately needed more flexibility in its technical specifications and contractual agreements to be an attractive product for automated land information applications. To achieve that goal, it was felt that the NDOP Steering Committee was in need of representation from a broader base than only federal agencies.

NSGIC involved

Last fall, the National States Geographic Information Council (NSGIC) sponsored a resolution directed to the NDOP Steering Committee, requesting it to consider broadening its membership to include representation from outside the federal sector. This past April, the Steering Committee voted to invite NSGIC to participate as a full committee member, and NSGIC has agreed.

On the surface, the inclusion of NSGIC as a representative organization on the NDOP Steering Committee would seem to many to be a rather minor event. However, it does mark the first time that a non-federal entity has been asked to participate directly in a mapping related program created and managed solely by federal agencies. The NSGIC participation may be a small step, but I believe it to be a significant one.

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Tightened budget boxes us in

SCO wants your spare computer

by Ted Koch

Do you have an extra computer that you would consider donating to the SCO? We have some needs that might be met by equipment you have not been using or are considering for replacement.

Given the great variety of information processing we do here at the SCO, our computer equipment needs to be relatively robust. This means a minimum of 486-33Mhz, 4 Mb RAM, and VGA graphics. We may be able to find resources to upgrade RAM and/or hard disk capacity, etc. to accommodate Windows, if we have the basic box and CPU.

Up until the past several years, we have been able to keep up in this area by accessing a small budget allocation for capital purchases. As part of recent university adjustments to overall budget reductions, however, we no longer have access to a capital budget. This constraint has become severe to the extent that our office computers are not entirely networkable and buying any new computer(s) to take advantage of Windows is beyond our reach.

A donation of equipment we can use might qualify you or your business for an income tax deduction. Give me a call if you can help us out.

SCO staff changes

by Ted Koch

Diann Danielsen, the SCO's Land Information and Survey Advisor, has moved to new position at the Wisconsin Department of Transportation (DOT). At DOT, Diann will be the Geographic Information Coordinator in the Information Technology Section of the Office of Engineering.

Diann joined the SCO four years ago as a graduate student project assistant. After completing a Master's degree in Land Information Systems at UW-Madison in December, 1993, she went to a full-time position, dividing her work between the UW-Madison's Land Information and Computer Graphics Facility and the SCO. Since February this year, Diann has been with the SCO on a full-time basis, working on geodetic control, survey and GIS data clearinghouse issues and policies.

Due to current funding limitations, a replacement will not be hired for Diann's position. As a result, the SCO will be unable to continue some of the survey and geodetic control assistance services it has offered to SCO customers over the past four years.

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Geodetic Control

More workshops scheduled for fall

Learn more about the Wisconsin County Coordinate System

by Diann Danielsen

Two successful workshops were sponsored in June by the Wisconsin Dept. of Transportation on the development and use of the Wisconsin County Coordinate System. In response to requests for additional workshops on the same topic, the WLIB will sponsor two more. The first is scheduled for the morning of September 7 at Lake Geneva (prior to the WLIA meeting; contact Ann Barrett at 800/344-0421 for details). The second is tentatively set for October 6 at a central Wisconsin location (contact the WLIB at 608-267-2707 for details).

Project moves forward

Transferring USGS benchmark information to NGS

by Diann Danielsen

The USGS Third Order Leveling Transfer Project is underway in Wisconsin! Thanks to widespread community response and the generous contributions of the Wisconsin Departments of Transportation and Natural Resources and the SCO, we are able to begin work.

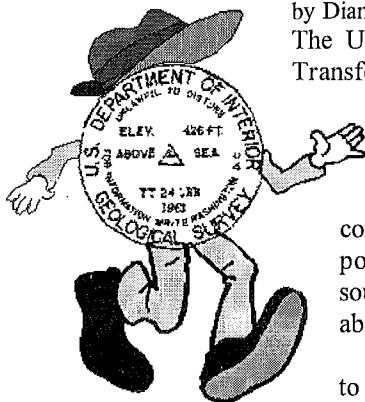
The project was undertaken to automate and then transfer USGS benchmark information

to the NGS where it will be adjusted to the NAVD 88 datum and maintained and published as part of NGS's National Spatial Reference System. There are approximately 7000 vertical control points across Wisconsin that will be included in the project.

Currently, three aspects of the project are underway:

1. All horizontal benchmark locations (statewide) are being digitized and will later be combined with other field book information necessary to perform the adjustment.
2. A pilot project of approximately 700 benchmarks has been selected and full data entry will be performed in this area.
3. An earlier automation effort covering the southern 20% of Wisconsin is being reformatted to meet current project specifications and will be transferred to NGS.

NGS estimates that it will take 3 to 4 months to complete the adjustment and publication. Thus, by the end of the year we may begin to see our first digital USGS benchmark information! For more information on the progress of this project, contact the SCO.



Changing our way of doing business

New geospatial positioning standards from FGCS

by Diann Danielsen

The Federal Geodetic Control Subcommittee has recently released a new draft standard for geospatial positioning. *Standards for Geospatial Positioning* is designed to replace two existing geodetic control standards previously developed by the FGCS: *Standards and Specifications for Geodetic Control Networks* and *Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques* (a draft, ad hoc standard).

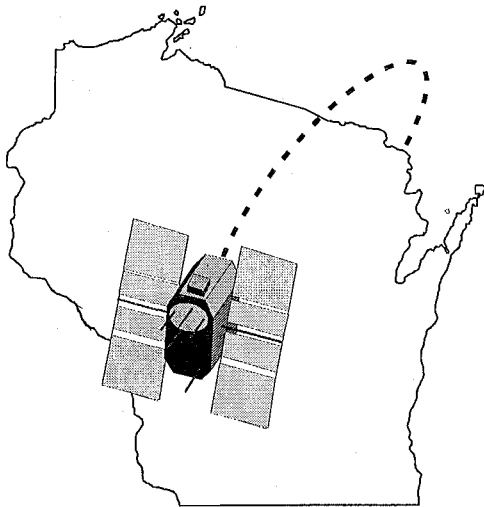
The proposed standard is broader in scope, addressing geospatial positioning at accuracy levels from less than one millimeter to greater than 10 meters. These accuracy levels cover applications ranging from federal CORS (GPS base) stations to GIS feature location. The document contains classification standards for horizontal coordinates, ellipsoid heights, orthometric heights, and gravity values, and continues to require surveys to be tied to the National Spatial (formerly Geodetic) Reference System.

The changes are in response to technological advances in GPS technology as well as the need to support new positioning applications such as GIS/LIS development. The standard will eventually require the state legislature and the WLIB to update certain statutes and requirements.

(source: National Geodetic Survey)

Horizontal, Ellipsoid Height, and Orthometric Height Accuracy Standards	
Classification Range/Name	95-Percent Confidence (Meters)
1mm	<0.001
2mm	0.001 - 0.002
5mm	0.002 - 0.005
1cm	0.005 - 0.010
2cm	0.010 - 0.020
5cm	0.020 - 0.050
1dm	0.050 - 0.100
2dm	0.100 - 0.200
5dm	0.200 - 0.500
1m	0.500 - 1.000
2m	1.000 - 2.000
5m	2.000 - 5.000
10m	5.000 - 10.000

(source: NGS)



A new technical standard for the WLIP

WLIP adopts recommendations from the Wisconsin GPS Standards Work Group

by Diann Danielsen

The Wisconsin Land Information Board has adopted a standard addressing local densification of the Wisconsin HARN. At its annual retreat in June, the WLIP adopted the standard and accepted its first two recommendations. The standard was developed by the Wisconsin GPS Standards Work Group, a cooperative effort of the WLIP, the Wisconsin Society of Land Surveyors, the Wisconsin County Surveyors Association, and the Wisconsin Land Information Association.

Standards, Specifications, and Guidelines to Support Densification of the Wisconsin High Accuracy Reference Network (HARN) Using Global Positioning System (GPS) Technology is now a condition of funding for WLIP projects of this nature. Additional recommendations regarding technical assistance, a statewide geodetic control clearinghouse, and statewide completion of the HARN densification at the primary and secondary levels will undergo further study by the Board.

Copies of the final report may be obtained by contacting the WLIP at (608-267-2707). The GPS Standards Work Group continues work on a second standard to support the development of sound geographic coordinates on Public Land Survey System corners. The standard will focus on documenting the procedures used and be flexible in accommodating GPS, conventional, or aerial triangulation methods of coordinate development. For more information on the activities of the Work Group, contact co-chairs D. David Moyer (608-266-3919) or Diann Danielsen (608-262-8776).

Coming this winter from the SCO

Watch for new geodetic products

by Diann Danielsen

In an effort to continually improve the geodetic products available to Wisconsin's user community, the SCO will offer several new products this fall. We will make **two new statewide diskettes** available, one containing station descriptions for all USGS vertical control in Wisconsin and the other containing the datasheets for all NGS horizontal and vertical control, grouped by county. The USGS diskette will be distributed with an index map and graphic plots of level lines by 15' quad area.

Unlike NGS's DSX program there is no custom search and retrieval software accompanying the USGS station descriptions. However, they can be searched and printed using an ASCII editor or viewer program. Even without specialized software, the digital files will still be valuable for many uses.

Another new product will be PLSS2GEO, a DOS program developed in-house at the SCO to make DSX (NGS datasheet) searches easier. The program allows the user to input a PLSS section-township-range location, from which it produces a geographic coordinate (NAD27 latitude and longitude) that can be used as a radial search point in DSX.

These products are planned for release in January following anticipated delivery of our annual CD-ROM release from NGS (containing updated datasheet files and software for Wisconsin).

We also hope to have news on the expected release of WISCON, a coordinate transformation package designed specifically for Wisconsin, at that time. Stay tuned for details!

Thumbs Up!



To Marinette County...

...and Jerry Pillath, Marinette County Surveyor, for making the Marinette County Coordinate System of public record by recording it in the Office of the Register of Deeds. Nothing like a

volume and page for an easy pointer to some valuable metadata!

Remote Sensing News

Cold War imagery to become available in a year

Military remote sensing data declassified

by Jim Jordan

Political and technological developments during the past few years have resulted in the declassification of significant quantities of remote sensing data acquired during the Cold War. Aerial photography and satellite imagery mostly obtained during the 1960's and early 1970's is included in this new resource, which will continue to be declassified and made available during the coming years.

Vice President Al Gore got the ball rolling with a February 1995 announcement that imagery obtained by three Cold War-era satellite programs would be declassified and made available to the public. Four images acquired by the CORONA reconnaissance satellite were released at that time as examples of what will amount to nearly a million images that will be declassified by mid-1996. Much of this imagery is now out-of-date in terms of its strategic importance to national security, but it offers an unprecedented source of comparative imagery for landscape change detection at a resolution that is still unavailable from commercial satellite remote sensing systems.

Imagery acquired by CORONA and other reconnaissance satellites was remarkable for the detail it provided to the intelligence community - from 2 to 8 meter ground resolution with an areal coverage of about 10 miles by 120 miles. Exposed film (panchromatic) was transferred to a film return bucket where it was stored for the return to earth. Because these early systems are technologically unsophisticated by today's standards, officials at the Central Intelligence Agency and other government agencies have urged its declassification.

The technology that produced this early imagery also presents archiving and distribution challenges for the National Archives and Records Administration (NARA) and the U.S. Geological Survey's Earth Resources Observation Systems (EROS). Over 2 million feet of film stored in 39,000 canisters will need to be transferred to these agencies, then processed, indexed, and integrated into existing ordering and distribution systems. When completed, transparencies, duplicate negatives, and prints will be available for the cost of reproduction.

For now, limited information exists about geographic coverage and image quality. Searching and ordering will be possible through the Internet on the USGS's Global Land Information System (GLIS). Information about the four released images is currently available on the World Wide Web: URL <http://edcwww.cr.usgs.gov/dclass/dclass.html>, and sample digital images are available through anonymous FTP server: <ftp://edcftp.cr.usgs.gov/pub/data/DCLASS>.

(source: *Photogrammetric Engineering and Remote Sensing*, April 1995)



UW and DOA both doing R&D

Great Lakes coast gets GIS focus

by Bob Gurda

Wisconsin's extensive coastline on the Great Lakes is getting special attention through GIS. In addition to work in progress in local governments and regional planning commissions, two state-level initiatives are getting off the ground.

UW Sea Grant

The University of Wisconsin Sea Grant Institute's began earlier this year, as profiled in the feature interview on the facing page. The first major product of that effort is an annotated compilation of publications on the topic of GIS applied to coastal issues.

Titled *A Categorized Bibliography of Coastal Applications of Geographic Information Systems*, this 34-page document lists 290 books, articles, reports, and papers. Each is assigned to one or more categories (e.g., system design, coastal planning, wetland management, etc.).

A copy of the bibliography is priced at \$4.75 postpaid. Orders under \$20 must be prepaid. Contact Sea Grant for an order form: 608/263-3259.

Coastal Zone Management Program

With the state's Department of Administration, the Coastal Zone Management Program is preparing to contract with a vendor to develop a prototype system that can measure and analyze the rate of recession of the coast as it is subjected to erosion and other processes over the years.

Some sections of the coast are more vulnerable to recession than others. The prototype will focus only on three representative sections of the coast for testing purposes. The recession rate information will be accessible through a GIS, and will be designed to be compatible with systems used by local governments and regional planning commissions.

In approximately one year, the practicality of the prototype will be clear, and arrangements may then be developed to fund the analysis and data development for the entire coast.

Coastal GIS---Land and water do mix

**For this issue, we chatted with Allen H. Miller, Assistant Director of the University of Wisconsin's Sea Grant Institute about the recent development of a coastal GIS program for Wisconsin.*

What is special about the coast, from a GIS perspective?

AI—

GIS is a good tool for integrating a wide variety of information, and it excels when we put it to work in a complex environment such as a coast. Most of us spend virtually

GIS can help us understand the affects of all of our decisions on all coastal resources.

our entire lives on land, so it easy for us to forget that land and water affect each other, and ultimately all of us. Historically, we have known much more about the land—both physically and culturally—than the water. In addition to helping link what we do know about the water, GIS can help us understand the affects of all of our decisions on all coastal resources.

How did the new Wisconsin coastal GIS program begin?

AI—

I had been trying to get something like this going for several years, and finally was successful in convincing the National Sea Grant Program, which funds the other activities of our office, to move in this new direction. As a result, we have developed a joint agreement with Madison campus Land Information and Computer Graphics Facility (LICGF) to bring a half-time specialist aboard. Dave Hart began in January, and we have plans to deliver workshops, technical assistance, assemble existing data for a GIS of the entire coast, and develop sample GIS applications that address particular generic coastal issues.

That sounds quite ambitious. What will be your priorities?

AI—

Yes, it is a challenge. However, we are focusing first on helping people in Wisconsin's fourteen coastal counties learn how GIS can benefit them. Forty percent of Wisconsin's population is in those counties. We are particularly interested in fostering the interaction between technical staff and elected officials. Since coastal issues involve trade-offs between various choices, GIS needs to work for all these people.

How will you handle the heavier technical tasks?

AI—

Dave Hart is housed at LICGF, where he has access to a high level of GIS expertise. In addition, our Sea Grant staff includes experts in water quality, coastal engineering, and the like. These people are committed to helping our GIS efforts succeed.

Are you working primarily through the county land information offices?

AI—

That is our first point of contact, and we encourage the LIO's to involve the other local governments, regional planning commissions, utilities, and state and federal agencies. It's important for the LIO's to adopt as broad a view of spatial information and GIS as possible, because the ultimate value of the investment in data and tools will arise from sharing data and decisions.

Is the focus largely on natural or physical factors and processes?

AI—

Not at all. Many potential GIS applications on the coast are very socially oriented. A call to a 911 system may be for an emergency on the beach, and GIS could help organ-

ize useful information for responding. Enhancement of tourism based on diving around shipwrecks, yet

Of the hundreds of relevant studies, only ten came out of a local government context.

protecting them, could be planned with GIS. Even one of the more obvious environmental applications, modelling long term coastal erosion and its effects on lakeshore properties, includes factors of assessment and zoning that are of critical importance to local citizens.

This sounds like a long term process.

AI—

It is, but most GIS development is like that. We expect to make progress in steps, and our new bibliography (see facing page) is one of the first tangible results. We found it particularly interesting that of the hundreds of relevant studies, only ten came out of a local government context, and four of those were from Florida. There is a significant opportunity here for a large group of interested people to make progress in using GIS to help manage the coastal areas of Wisconsin. I believe that, through creative leveraging of modest amount of effort that the Sea Grant Program has allocated here, we can be of great service.

AI, you deserve kudos for getting this program started. It's just the latest chapter in your list of efforts to move Wisconsin land information and GIS forward. Now...let's get back to what you were saying, off mike, about that secret spot where the steelhead are always waiting to be caught.

**AI has worked with coastal issues for over 20 years, and has also been a strong believer in the value of GIS as applied to many uses. He served as a member of the Wisconsin Land Records Committee (1985-1987) and as President of the Wisconsin Land Information Association (1987-1989).*

Questions & Answers

?

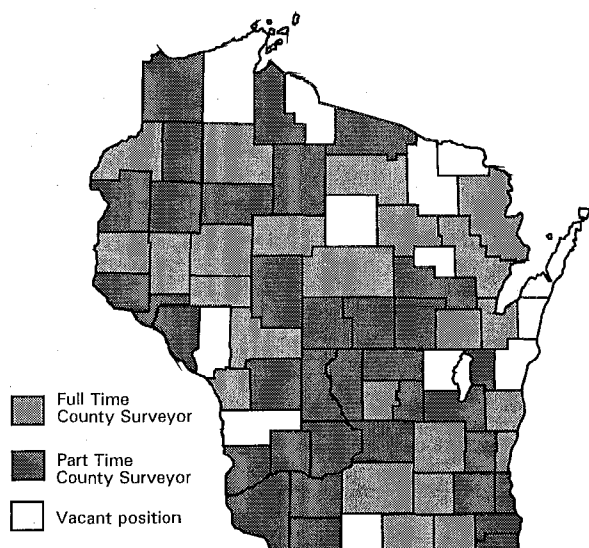
Who is the Oconto County Surveyor?

We were able to easily answer this question of the SCO by referencing the *Directory of Wisconsin County Surveyors*, published by the Wisconsin County Surveyor's Association (WCSA). We thought some of our other Bulletin readers might like to know of this resource as well.

The directory is published yearly by WCSA and can be obtained by contacting Mark Teuteberg, WCSA Secretary (also the Oconto County Surveyor!) at a cost of \$2 for shipping and handling. Mark can be reached at (414) 834-6827. WCSA automatically sends a complimentary copy of the directory to each County LIO.

The map below shows the current status of County Surveyor positions in Wisconsin. Since 1987, full time County Surveyor positions have increased 240%, from 10 to 24. Most of this increase is a result of converting formerly part time positions to full time. No doubt this is a result of the activities of the WLIP and the increased demands currently being placed on these land records professionals.

**County Surveyor Positions
1995**



Editor's Note: If you have a question, or had a question for which you found an answer that might be of interest to others, please let us know.

?

On my new diskette of NGS geodetic control data I have noticed some vertical points classified as a, b, c, etc. What are these points?

Vertical control points that have an accuracy classification of other than 1st, 2nd, or 3rd Order are likely "posted" benchmarks. Posted benchmarks are vertical points which had to be left out of the NAVD 88 datum readjustment because of large adjustment residuals (poor network fits). These typically occurred because of movement since the original observations some 80 or 90 years ago. Since NGS developed this coding system for the NAVD 88 adjustment, there are no posted benchmarks referenced to the NGVD 29 datum.

These posted marks which did not fit the original mathematical datum adjustment were initially withheld from data publication and distribution by NGS. The agency has subsequently gone back and applied correction factors to fit the benchmarks to the NAVD 88 network. These are a "best guess" adjustment—a statistically computed correction based on distribution rate (see the table below). The corrections which were applied to the original leveling observations indicate the *usefulness* of the posted benchmarks' new NAVD 88 heights.

Note that NGS advises that all posted benchmark heights are suspect and should be used with caution. These points are no longer considered to have a vertical accuracy classification. In fact, they may serve no purpose at all for vertical control work. NGS maintains them in their database only because the monuments still physically exist and the user community needs to have some knowledge of them.

In Wisconsin, only 6 counties (Douglas, Fond du Lac, Kenosha, Oconto, Sawyer, and Washburn) currently have posted benchmark data for approximately 50 vertical points.

Posted Benchmark Code	Distribution Correction (mm/km)
a	0.0 - 1.0
b	1.1 - 2.0
c	2.1 - 3.0
d	3.1 - 4.0
e	4.1 - 8.0
f	> 8.0
n	no check, value not computed

People & Organizations

To work with EOSAT

Watkins leaves helm of National Mapping

by Bob Gurda

Al Watkins, Chief of the U.S. Geological Survey's National Mapping Division (NMD), resigned recently. Reportedly, Watkins is joining the EOSAT Corporation.

Richard E. Wittmer has been appointed as Acting Chief of the division. USGS also has other divisions for geology and for water resources. NMD operates primarily from regional centers.

Prior to becoming Chief of the NMD, Watkins administered the EROS Data Center, a USGS facility in South Dakota that handles data from remote sensing satellites. EOSAT holds a federal government contract to manage these satellites and to market the data they collect.

Budget woes force hard choices

WGNHS drops topo map funding

by Bob Gurda

State Geologist James Robertson has regretfully informed us that his office, the Wisconsin Geological and Natural History (WGNHS), has been forced to halt its annual contribution toward revising U.S. Geological Survey topographic maps. This action is part of the response WGNHS is making to a reduction in its overall operating budget provided by the University of Wisconsin-Extension.

Under Wisconsin statute, the State Geologist is responsible for coordinating topographic mapping for the state. In discharging this role, Robertson and his predecessors have for many years contributed all or part of the matching funds that Wisconsin entities have provided to the USGS to create and update federal topographic maps.

In recent times, this has amounted to \$20,000 annually from the WGNHS, directed toward map revision. During the years of heaviest production for the 7.5-minute map series (the 1970's and early '80's), other cooperators (notably DOT and DNR) contributed even larger amounts. USGS typically matches 50:50 any funds received from cooperators.

Robertson expects that the budget reduction imposed on WGNHS will be permanent, and thus he has little hope of restoring the previous topo mapping budget allocation. In fact, WGNHS is now determining how to adapt to a similar anticipated budget cut for next year.

Leads midwest mapping for USGS

Ethridge named to head MCMC

The Mid-Continent Mapping Center (MCMC) of the USGS National Mapping Division (NMD) has a new director. Max Ethridge has moved from a position with the USGS in Reston, VA to the MCMC in Rolla, Missouri. Prior to joining the USGS, he headed the National Geodetic Survey.

The previous director of the MCMC, Merle Southern, retired earlier this year after a long career with NMD.

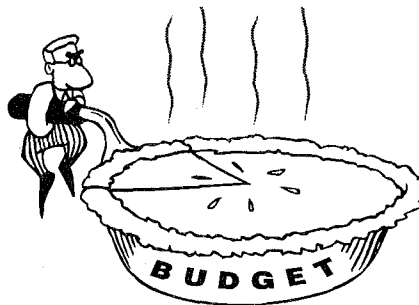
(source: USGS)

SCO News

continued from page 5...

The Bulletin is our largest expense

HELP!! us control costs



by Bob Gurda

As editor of this publication, I wish I could concentrate solely on news, in-depth stories, illustrations, etc. That's the fun side of the business.

However, the *Mapping Bulletin*

is the single largest annual expense item funded by our "Supplies and Expenses" budget. This budget category has not increased in absolute dollars in several years. During this period, costs for printing and mailing have risen, and at the same time more and more people have asked to have their names added to the mailing list.

Obviously, we have had to allocate a greater and greater proportion of our available budget toward the *Bulletin*, and as a result we are approaching a reckoning time. You can help us in several ways. Do you truly need to receive the *Bulletin*? Could you and other recipients in your office share fewer copies (or perhaps one copy that you circulate)? Is there some other accommodation that would help us out?

If you have an idea of how you can help, please let us know. We want to keep providing this free service, but that is becoming more and more difficult. A subscription might seem like an easy answer, but it would require a significant investment in record-keeping. With your help, we should be able to avoid that alternative.

Publications and Products

Includes index by county

Publications catalog reissued by WGNHS

by Bob Gurda

The Wisconsin Geological and Natural History Survey (WGNHS) has produced a new edition of their List of Publications. This 73-page document describes reports, maps, and other materials prepared by WGNHS staff over several decades, and further references numerous additional publications produced by other organizations (e.g., EPA, USGS).

The catalog also includes a topical index and a 23-page index by county.

Copies of many of the items described in the List of Publications can be acquired from WGNHS, some for a modest fee and some others for no charge other than mailing. Some older items are out of print, but available through various libraries.

To get a free copy of the new List, call WGNHS Map and Publication Sales at 608/263-7389 or fax to 608/262-8086.

First increase in over 10 years

USGS raises topo quad price

Effective August 12, 1995, the price per sheet of the USGS standard topographic quadrangle map series is increasing from \$2.50 to \$4.00. The price for most other maps produced by USGS is being standardized to \$4 per map. The agency has also instituted a handling fee of \$3.50 per mail order for all product lines.

According to the USGS, an in-depth analysis of the costs of printing and distributing maps led to the revision of the price structure. Paper and mailing costs alone had risen steadily over the last decade while sales prices were not changed, contributing to a situation where full costs exceeded revenues.

As the nation's largest civilian mapping agency, the USGS has produced more than 85,000 different maps and digital products. Last year, more than 7 million maps were distributed, primarily through commercial map dealers. These resellers set their own retail price for the maps they purchase from USGS. Many such businesses can gain a 40% discount on bulk purchases as "Retail Business Partners".

In Wisconsin, resellers have also been able to gain a discounted price for bulk purchases from the Wisconsin Geological and Natural History Survey (WGNHS) in Madison. In response to the USGS announcement, WGNHS is reviewing its own price schedule, both for dealer sales as well as direct sales. Prices will rise, but probably not until October. When we receive the news about the WGNHS decision, we will post it on the SCO BBS.

(sources: USGS, WGNHS)

Most are in east central area

USGS issues revised topo quads

by Bob Gurda

There are nine more recently revised U.S. Geological Survey maps for areas in Wisconsin. Seven are in the Sheboygan area, and two are along the border with Minnesota:

Cleveland East
Cleveland West
Howard's Grove
Plymouth South
Sheboygan Falls
Sheboygan North
Sheboygan South
La Crescent
Lakewood

In recent years, there has been only a minor amount of revision of the USGS 1:24,000-scale topographic map series for Wisconsin. The series, comprising over 1150 sheets each covering 7.5 minutes of latitude and longitude, primarily was completed in the 1970's and 1980's.

Recent Wisconsin revisions have been in the vicinities of Wausau, Stevens Point, La Crosse, the rapidly urbanizing fringes of cities in the southeastern corner of the state, and along parts of the border with Minnesota.

Report & recommendations on county land records from county surveyors

by Diann Danielsen

The Wisconsin County Surveyors Association (WCSA) has published an extensive report summarizing the results of their survey of county holdings of surveying, mapping, and related land information records held under various Wisconsin statutes and Administrative Codes. In the report, the WCSA makes several recommendations related to the adequacy, availability, uniformity, and perpetuation of these records. WCSA has contacted the Wisconsin Land Information Association and the Wisconsin Society of Land Surveyors for their input and endorsement of the report.

The report also serves as a valuable reference manual to relate land records to statutory requirements. The WCSA has requested the WLIB to take the issues and recommendations of the report under consideration.

Copies of the *Surveying Records and Repository Study* are available from Mark Teuteberg, WCSA Secretary, 301 Washington Street, Oconto WI 54153-1621, at a cost of \$10 per report.

(source: Wisconsin County Surveyors Association)

Publications and Products

Locates streets, shows ski trails, covers new Convention Center, lists climate statistics, parks, and more

Dane County Atlas Published

by Bob Gurda

Peter Sample is bubbling with enthusiasm over his recently published *Atlas of Dane County*. A compilation from a wide variety of sources, the 72-page atlas is printed in handy 8 1/2 X 11 inch size and in full color.

Using USGS base maps as a source, Sample assembled 21 panels covering the county, then added road names and symbols for features such as watershed boundaries, boat landings, parks, and historic sites. Each of these pages includes alphabetical indexes and location codes of road names by township, and is scaled approximately 1 inch = 1 mile. Separate pages cover villages and cities, at larger scale. Several additional pages depict the four-level floor plan of the Frank Lloyd Wright Convention Center now under construction.

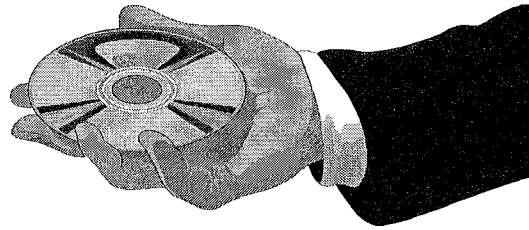
The atlas is published by Community Maps, a division of Straus Printing in Madison. It is available in bookstores and other local outlets, and is priced at \$11.95. To order directly from the publisher, contact Straus Printing at 608/251-3222.

Sample, a native of Madison, can be reached at 608/256-9100 for further details on the compilation and design of the atlas.

USGS Fact Sheets

In April, the U.S. Geological Survey advertised a new formal series--the USGS Fact Sheet. Fact Sheets are concise, descriptive publications that detail the results of USGS programs and earth science information to the public, scientists, and policymakers. Fact Sheets are available free of charge through the mail from U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225. When ordering, please give the series designation and number, such as FS 94-009 or FS 112-95, and the complete title.

(source: *New Publications of the USGS, April '95*)



available by subscription on CD-ROM

Milwaukee offers property data in bulk

The City of Milwaukee can provide you with large quantities of data on properties in the city, for a modest fee, and delivered on CD-ROM. You can acquire updates for any month of the year for \$100 each, or \$250 for an annual subscription.

The data includes a great variety of information about land parcels and improvements, census statistics, and geographic position. When transferred from the CD-ROM to a hard disk, the data occupies over 180 megabytes.

Software on the CD-ROM lets a user search through the data in several ways. The software runs on a pc microcomputer with 486DX or higher, 8 MB of RAM, and Windows 3.1.

For details, contact Bill Shaw at the city's Geographic Information Systems Group, phone 414/286-8710 or fax 414/286-2113.

(source: *City of Milwaukee*)

New county plat books

The following 1995 Wisconsin County Land Atlas and Plat Books are now available, for \$25 plus tax and shipping: Adams, Barron, Juneau, Lafayette, Langlade, Portage, Price, Rusk, Sheboygan, and Vernon Counties. For ordering details, contact: Rockford Map Publishers, Inc., P.O. Box 6126, Rockford, IL 61125, phone (orders only) 800/321-1MAP; for customer service information, call 815/399-4614.

Events

Stay tuned for details

WLIA plans a busy fall

by Diann Danielsen

The Wisconsin Land Information Association (WLIA) held its summer quarterly membership meeting on June 8 and 9 in Hudson. The educational focus was on GPS technology and featured a public night demonstration of equipment and techniques, followed by a presentation on post-processing software the next day. Other presentations included an update on the status of Wisconsin HARN (High Accuracy Reference Network) densification by local government, and the activities and standards under development by the Wisconsin GPS Standards Work Group. Attendees also enjoyed a "live" demonstration of the SCO Bulletin Board.

The fall meeting is scheduled for September 7 & 8, at the Grand Geneva Conference Center in Lake Geneva. Watch for WLIA's announcement of the educational program. Two new technical task forces will hold organizational meetings in Lake Geneva—the Document Indexing Task Force, chaired by Jane Licht, and the Digital Orthophotography Task Force, co-chaired by Fred Halfen and Paul Tessar. Plan to attend, or contact task force leaders, if you're interested in participating in one of these groups.

Another major fall event for WLIA will be Land Records Day, planned for November 14. The event will be patterned after the successful model provided by Burnett County, who hosted a Land Records Day for County Board members and the general public last spring to demonstrate the benefits and potentials of land records modernization. The Association hopes to kick off the event with an official proclamation from Gov. Tommy Thompson and to hold a Land Records Day in every Wisconsin county.

For more information on the September meeting or Land Records Day, contact Ann Barrett at 800-344-0421.

Open to all for low fee

ISPRS workshop on GIS for mapping and environment set for Madison in Sept.

by Bob Gurda

On September 28-29, an international event titled *Mapping and Environmental Application of GIS Data* will be held in Madison. This workshop is sponsored by the International Society for Photogrammetry and Remote Sensing, but is open to anyone interested. The content includes a variety of technical papers and poster sessions.

The registration fee is \$50, which includes a lunch and breakfast plus Proceedings, Technical Sessions, and refreshments. The workshop will be held at the Memorial Union on the UW-Madison campus (a stone's throw from the SCO).

For details or registration materials, call E. Lynn Usery of the University of Georgia at 706/542-2345 (or fax 706/542-2388) or send email to usery@feature.ggy.uga.edu.

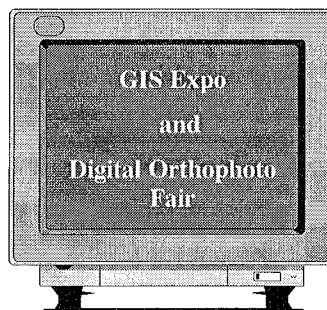
(source: ASPRS)

Annual event expands

DNR to stage 1995 GIS Expo as well as new Digital Orthophoto Fair

The Wisconsin Department of Natural Resources has scheduled the 1995 edition of its annual GIS Expo for September 21 in Madison. It is free and open to the public. No registration is necessary.

The Expo is designed to showcase the use of GIS in a variety of projects within DNR programs and in cooperation with other organizations. It includes five presentations with slides (10 am - noon) as well as twelve simultaneous live computer demos (8-10 am, repeated 1-3 pm).



This year, a second day has been added in order to present background information and demonstrate the development and use of digital orthophotos. This "Digital Orthophoto Fair" will be on Friday, September 22. Like the Expo, the Fair is free, open to all, with no registration.

Both days' events will take place at DNR's headquarters in downtown Madison, the GEF 2 building at 101 South Webster Street. For details on the particular topics and speakers scheduled for either day, you can view the agendas in full on the SCO's BBS. Alternatively, you can call the SCO, or the DNR—Kenneth Parsons (608/266-5213) for the Expo, or Mike Bohn (608/264-8557) for the Fair.

(source: DNR)

State Cartographer's Commentary

....continued from page 5

Many people envision the emerging National Spatial Data Infrastructure (NSDI) as a means for sharing geospatial data. Overall, the NSDI is considered to be the collection of technology, policies, and people necessary to allow effective data sharing through both the public and private sectors. To achieve consensus on building this infrastructure, closer working relationships and partnering agreements need to be created and sustained, or the effective functioning of the NSDI will never be realized. This is true in the broadest of approaches, and is true even in the development of specific data sets such as digital orthophotos. For that reason participation of NSGIC on the NDOP steering committee sets a precedent of participation in federal decision making from a variety of potential users.

Selected* Conferences, Technical Meetings, and Classes

September 3-9, 1995, **17th International Cartographic Conference**, "Cartography Crossing Borders" will be held in Barcelona, Spain. Contact: A. J. Kimerling, fax: 503/737-1200.

September 7-8, 1995, **Wisconsin Land Information Association Quarterly Membership Meeting** will be held at the Grand Geneva Conference Center in Lake Geneva, WI. Contact: WLIA at 800/344-0421.

September 12, 1995, **WISCLAND Steering Committee** meeting will be held in Madison, from 1:00 - 4:00 pm. Everyone is welcome to attend. Contact: Bob Gurda at 608/262-6850.

September 12-15, 1995, **Institute of Navigation (ION) GPS '95** will be held at the Palm Springs Convention Center, Palm Springs, CA. Contact: Program Chair, Dr. M. Elizabeth Cannon, University of Calgary, phone: 403/220-3593, fax: 403/284-1980.

September 12-16, 1995, **International Map Trade Association 15th Annual Conference and Trade Show** will be held in Dublin, Ireland. Contact: Nancy Edwards at 815/939-4627; fax 815/933-8320.

September 15, 1995, **Western Wisconsin Land Information Network (WWLIN)** will meet at the Wisconsin State Office Building, 718 West Clairemont Avenue, Eau Claire, WI. Call: 800/226-9672; fax 715/834-8663.

September 16-20, 1995, **National State Geographic Information Council (NSGIC) Annual Conference** will be held at the Radisson Hotel Burlington in Burlington, VT. Contact: William S. Holland at 608/267-2722, fax 608/267-0626.

September 19, 1995, **Indiana GIS Conference and Workshops** will be held in Indianapolis, IN. Contact: Kathy McCarter at 317/274-8400; fax 317/326-3697.

September 19-21, 1995, **Introduction to FGDC's Metadata Standards** will be held in Lafayette, LA. Call: 318/266-8500; fax 318/266-8513.

September 21-22, 1995, **6th Annual GIS EXPO and Digital Orthophoto Fair** will be held in the GEF 2 state office building, 101 S. Webster Street in downtown Madison, WI. Open to the public and free of charge. Call: Kenneth Parsons at 608/266-5213 or Mike Bohn at 608/264-8557.

September 25-28, 1995, **Land Satellite Information in the Next Decade** will be held at the Sheraton Premiere Tysons Corner, Vienna, VA. Hosted by the American Society for Photogrammetry and Remote Sensing (ASPRS). Contact: ASPRS at 5410 Grosvenor Lane, Suite 210, Bethesda, MD 20814; telephone 301/493-0290; fax 301/493-0208; e-mail asprs@asprs.org.

September 27-29, 1995, **Minnesota GIS/LIS Consortium, 5th Annual Conference** will be held at the Sheraton Park Place Hotel, Minneapolis, MN. Contact: The Management Company at 612/890-5312.

September 27-29, 1995, **1995 Midwest/Great Lakes ARC/INFO Users Conference** will be held at the Chancellor Hotel and Convention Center, Champaign, IL. Contact: Illinois State Geological Survey, 615 East Peabody Drive, Champaign, IL 61820, phone 217/ 333-4085.

September 28-29, 1995, **Workshop on Mapping and Environmental Applications of GIS Data**, sponsored by the International Society for Photogrammetry and Remote Sensing Commission IV (Mapping and GIS) will be held in Madison, WI. Contact: Lynn Usery, University of Georgia, 706/542-2345.

October 11-13, 1995, **Environmental Computing and Information Technology '95** will be held in Washington, D.C. Contact: World Computer Graphics Association at 703/578-0301, fax 703/578-3386.

October 25-29, 1995, **NACIS XV: Fifteenth Annual Meeting of the North American Cartographic Information Society** will be held in Wilmington, North Carolina. Contact: NACIS c/o AGS Collection, P.O. Box 399, Milwaukee, WI 53201, or by telephone to 800/558-8993.

October 31, 1995, **Wisconsin Land Information Board Meeting**, (Grants to be awarded) will be held in Madison, WI. Contact: WLIB at 608/267-2707.

November 13-17, 1995, **GIS/LIS '95 Annual Conference and Exposition**, (sponsored by AAG, ACSM, AM/FM International, ASPRS, and URISA) will be held in Nashville, TN. Contact: GIS/LIS '95, 5410 Grosvenor Lane, Bethesda, MD 20814-2112, 301/493-0200, fax 301/492-8245.

November 14, 1995, **Wisconsin Land Records Day** will be held at locations across the state. Contact: WLIA at 800/344-0421.

December 7-8, 1995, **Wisconsin Land Information Association Quarterly Meeting** will be held at the Heidel House Resort and Conference Center in Green Lake, WI. Contact: WLIA at 800/344-0421.

December 11, 1995, **Wisconsin Land Information Board Meeting** will be held in Madison, WI. Contact: WLIB at 608/267-2707.

1996

January 24-26, 1996, **47th Annual Wisconsin Society of Land Surveyor's Institute Convention** will be held at the Holiday Inn in Stevens Point, WI. Contact: Mike Roach at 414/496-6787.

February 20-22, 1996, **1996 Nebraska GIS Symposium** will be held at the Cornhusker Hotel in Lincoln, NE. Contact: Bernice Goemann at 402/472-8197.

March 4-7, 1996, **Wisconsin Land Information Association's Annual Conference** will be held at the Oshkosh Hilton & Convention Center in Oshkosh, WI. Contact: WLIA at 800/344-0421.

March 25-28, 1996, **AM/FM International Annual Conference XIX** will be held in Seattle, WA. Contact: Cindy Achten, AM/FM International, Aurora, CO, 303/337-0513; fax 303/337-4001.

April, 1996, **live satellite conference on Implementation of GIS into Local Government** will be held. Contact: Ben Niemann or Celeste Kirk at the UW-Madison, Land Information & Computer Graphics Facility at 608/263-5534; fax 608/262-2500.

April 20-26, 1996, **ASPRS/ACSM Annual Convention and Exhibition** will be held at the Baltimore Convention Center, Baltimore, MD. Contact: American Congress on Surveying and Mapping, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814, 301/493-0200, fax 301/493-8245.

July 27-August 1, 1996, **URISA Annual Conference** will be held in Salt Lake City, UT.

November 16-22, 1996, **GIS/LIS '96 Annual Conference** will be held in Denver, CO. Contact: GIS/LIS at 301/493-0200; fax 301/493-8245.

1997

March 4-7, 1997, **Wisconsin Land Information Association's Annual Conference** will be held at the Grand Geneva Conference Center in Lake Geneva, WI. Contact: WLIA at 800/344-0421.

**For much more extensive and/or more current listings, separated into Foreign, National, and Wisconsin, consult the SCO's BBS (see p. 16)*

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), Diann Daniels, Outreach Specialist (608/262-8776), Brenda Hemstead, Administrative Assistant (608/262-3065), and Liz Krug, Program Assistant (608/262-3065), plus several part-time graduate and undergraduate students.

The State Cartographer's position and mission is described in Wis. Statute 36.25 (12m). In addressing this role, the SCO functions in a number of ways:

- publishes the *Wisconsin Mapping Bulletin*, catalogs, guides, brochures, and other documents 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.
- 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 BBS...

The SCO has an electronic bulletin board system (BBS), as another means of making information available. You can use it to browse standard information, check on late-breaking news and upcoming events, download copies of our files and free software, and to interact with other BBS users on various mapping-related topics as they emerge.

You access our BBS with a telephone call from any remote computer that is connected to a modem and operated through basic communications software. An ordinary personal computer will suffice; a modern modem will give you faster response and reduce the length of your connect time.

The telephone number is 608/265-2807, and your modem settings need to be N, 8, 1; the modem on our end operates up to 14.4 K baud. Don't try calling the BBS directly from your telephone!! If you need help getting started, contact us at 608/262-3065.

On your first call to the BBS, you will enter your name and choose a password, then be briefed on how the BBS works. Then you can go exploring.



Wisconsin Mapping Bulletin

Published quarterly by the Wisconsin State Cartographer's Office. A University of Wisconsin-Madison outreach publication distributed free upon request.

News is welcome on completed or ongoing projects, published maps or reports, or conferences/workshops. Local and regional information is especially encouraged. The Editor makes all decisions on content. Deadline for the next issue is October 6, 1995.

Editor: Bob Gurda
Illustrations: Monique Melum & Rob Lawrence
Desktop publishing: Brenda Hemstead
Mailing: UW-Extension Bulk Mail

Please send all comments, corrections, and news items to:

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