



Wisconsin MAPPING BULLETIN

State Board Sets Future Agenda

by Ted Koch

Questions commonly heard around the state are, "Where is our state land information program headed?" "What are the issues and immediate and long term goals?" The Wisconsin Land Information Board (WLIB) held a planning retreat recently from which some answers are forthcoming.

Meeting in Delevan on June 13-14, the board discussed and analyzed a listing of more than 40 current issues and opportunities related to the program. Although not a complete list, the issues were primarily ones that a variety of parties brought to the board in advance of the retreat.

The purpose of the retreat, which was called by WLIB chair John Laub, was to assess the effectiveness of the state's land information program and to chart its future directions. In doing this, the board's voting members and non-voting advisors discussed the short- and long-term implications of all forty-plus issues. Then, through a strategic planning process, the group reduced the full list to a shorter prioritized list of 16 goals and projects.

Each of the 16 items was assigned an "owner". Owners are board members or board advisors charged with identifying actions to be taken, identifying and contacting who will be involved in the action, and reporting progress on the issue to the board during the next 12 months. The owner does not have to direct or chair the process, but is responsible for seeing that attention and progress is being made on the issue in a timely fashion.

The following is a listing of the 16 issues, each with a brief discussion and its owner's name. These are listed in priority order, from most to least number of "votes" cast by the participants.

To better define and advance these initiatives, the board encourages anyone interested in any of these 16 projects to contact the owner for more details.

1. **Statewide Digital Orthophotos.** Evaluate and, if appropriate, facilitate the development of digital orthophoto quarter-quadrangle coverage statewide.

Owner: Ted Koch, State Cartographer.

2. **Wetlands.** Work towards reconciling inconsistent wetlands definitions used by local, state and federal agencies.

Owner: Mike Hines, GEOCODE, Inc.

3. **State-wide Integration Task Force.** Assess the current status of GIS/LIS projects statewide, identify impediments and opportunities to integration, and recommend policies, standards, guidelines, procedures, organizational changes and program directions to insure progress toward integration.

*Owner: Terry Mulcahy, Deputy Secretary,
WI Department of Transportation.*

4. **State Agency Integration Planning.** In cooperation with the State-wide Integration Task Force, insure that agency plans are completed and analyzed to identify budget priorities, recognize and arrange opportunities for cooperation, and further develop an inventory of land information and systems.

*Owner: Ron Semmann, Deputy Secretary,
WI Department of Natural Resources.*

5. **Grant Funds.** Examine and make recommendations on speeding up the distribution of grant funds in two areas; the invoicing and payment for work underway to reduce unpaid balances, and reducing or eliminating any unencumbered balance in the grant appropriation.

*Owner: George Lightbourn, Executive Assistant,
WI Department of Administration.*

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STATE LAND INFORMATION NEWS

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6. **Clearinghouse.** Conduct a pilot project to test clearinghouse functions, communications and applications. The scope will depend, in part, on the success of a pending clearinghouse grant application to the Federal Geographic Data Committee.

Owner: Ted Koch, State Cartographer.

7. **Grant Projects.** Develop a process for evaluating completed grant projects. Evaluation will include technical, fiscal and effectiveness measures.

Owner: Les Van Horn, County Surveyor and Real Property Lister, Brown County.

8. **WISCLAND.** Increase the level of the board's participation in the WISCLAND land cover project, including an evaluation of the form of potential support.

Owner: Brian Huberty, GIS Coordinator, USDA Soil Conservation Service.

9. **Grant Process.** Evaluate and make recommendations on changes to the grant process to make it more fair, efficient and effective for both applicants and the board. This will cover all aspects of the grants program, from application to reporting.

Owner: Les Van Horn, County Surveyor and Real Property Lister, Brown County.

10. **Privacy, Cost Recovery, Ownership, etc.** Review and analyze existing laws and policies related to privacy, cost recovery, ownership, and open records in relationship to land records. This study will consider the economic and policy implications in this sensitive area.

Owner: Mike Hasslinger, Register of Deeds, Waukesha County.

11. **Public Land Survey System Remonumentation.** Enhance the board's work to continue remonumentation of the PLSS as a vital component of land records modernization.

Owner: Tony Kiedrowski, Portage County Board of Supervisors.

12. **Education and Technical Assistance.** Evaluate, develop and implement a strategy for providing meaningful education and technical assistance. Areas of attention are direct technical assistance, educational programs, alternative paths and "cook book" approaches.

Owner: Ben Niemann, UW-Madison.

13. **Public Information Strategy and Administrative Funding.** Develop a long term strategy to improve public relations for the board and the program, and to ensure the continued success of the program. This effort will be directed to decision makers and agencies at all levels of government.

Owner: Ben Niemann, UW-Madison.

14. **Systems Integration.** Attempt to reinstate "systems integration" language back into the statutes. Systems integration authority will allow the board to fund regional or statewide projects that will benefit all program participants.

Owner: Ben Niemann, UW-Madison.

15. **Other Organizations.** Strengthen and improve the effectiveness of the program through better relationships with a wide range of interested parties. This effort is designed to build and reinforce better relationships, partnerships and alliances.

Owner: John Laub, Wis. Power and Light, Inc.

16. **Educational Programs.** Determine how to best provide educational programs for specific program participants.

Owner: Ben Niemann, UW-Madison.

WLIB News

by Bob Gurda

Board Meetings

The Wisconsin Land Information Board (WLIB) has met only once since April, for the June planning retreat described on page 1. The meeting scheduled for August 15 has been canceled. Future meetings are scheduled for October 10 and December 12.

State agency Integration Plans

Eight state agencies have submitted land information integration plans. The Integration and Clearinghouse Committee will resume meeting soon.

Procurement Task Force

The WLIB's new task force on competitive procurement issues held its first meeting in July, and will meet again on August 23 and September 26. This group is chaired by WLIB member Lori Scully.

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ORTHOGRAPHY

Two areas ready to use; others scheduled

Digital orthophoto coverage emerges

by Bob Gurda

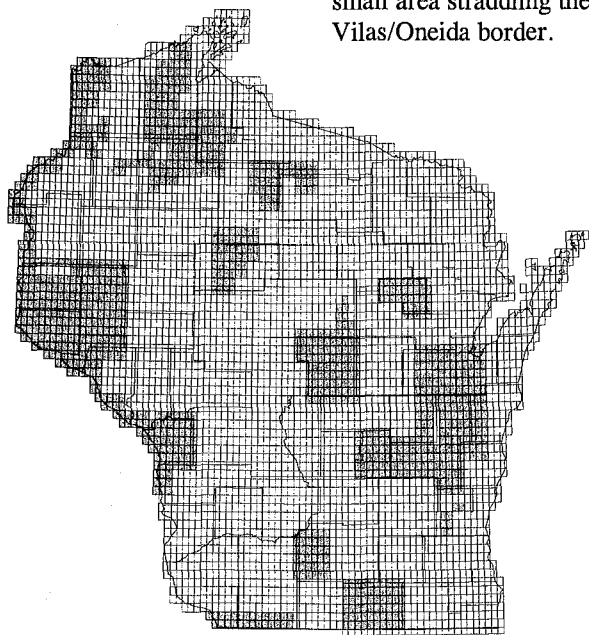
Digital orthophoto data files have started appearing for several areas in Wisconsin. Two major production jobs have recently been completed—for the Chequamegon National Forest and a large rectangular area including the cities of Green Bay and Fond du Lac.

These image files have been developed from scanned NAPP aerial photographs, processed to produce an ortho-corrected image per specifications established by the U.S. Geological Survey. The ortho-correction results in an image that looks very much like the original photograph, but that is geometrically true like a map.

The corrected images can then be integrated with other land information that also has geometric integrity, such as property boundaries, soil maps, buried utility lines, etc.

The two areas mentioned above cut across county lines. Within the Fox River Valley area project, 163 separate images are available, each centered on a quarter quadrangle area (a uniform area covering 3.75 minutes of latitude and longitude). However, only Calumet County is completely covered by the project.

A number of other areas are in production (or are scheduled for production). These include the complete counties of Rock, La Crosse, Green Lake, Fond du Lac, St. Croix, Portage, and Menominee, Dunn, Pierce, and Pepin; some of this work is partly funded by grants from the Wisconsin Land Information Board. Other areas yet to be delivered follow the western edge of the state north from La Crosse all the way to Superior, a few spots along the Ice Age Trail (in Washington and Marathon Counties), the western half of Douglas County, and small area straddling the Vilas/Oneida border.



Quarter quads for which digital orthophotos are in work or available as of July, 1994.

State Cartographer's Commentary

Digital orthophotos in your future?

by Ted Koch

On July 28 we held a meeting in Madison on digital orthophotos. As "owner" of the Land Information Board's initiative on statewide digital orthophotography (see article on page 1), it was my purpose to hold a meeting presenting the current technology and status of digital orthophotos in the state, and to explore ways we might organize and fund a statewide program in the near future.

We mailed over 150 invitations to this meeting, including all county land information offices and regional planning commissions, several dozen federal and state agencies, and various utilities and professional associations. Over 60 of you attended the session, bringing forward a variety of comments, viewpoints and beliefs.

The roles of orthophotos

Orthophotos are not a new map image product. They have been produced in film and paper form for decades. Although that "analog" product was never widely accepted and used for mapping and data collection, the more recent introduction of the digital orthophoto has prompted significant discussion and promotion of its benefits and uses.

I and many others believe that digital orthophotos can play a central role in building a complete and integrated local land base of known accuracy for moderate cost. This is not to imply that orthophotos are a suitable substitute or source for establishing highly accurate locations of geodetic control points, public land survey corners, or precise parcel ownership boundaries and maps.

However, it is clear that digital orthophotos can serve a significant role as a compilation base for a variety of visible land information themes. Additionally, as a backdrop to less visible information, the rich content of the photo image helps an end user in understanding the composition of the natural and cultural landscape. Even the most costly, complete and accurate line maps can't serve this role.

What do we do next?

In attempting to summarize the recent orthophoto meeting, I am left with a mixture of results. Certainly, there was no clear and direct message that we should immediately proceed with a statewide program.

However, many of you are extremely interested in digital orthophotos, although many questions remain. The relative costs, benefits, potential applications, accuracy/resolution and hardware/software requirements have to be more clearly defined, analyzed and understood. More education on all of these topics is an obvious need.

Also, we need to better understand the opportunities and limitations of potential cost-sharing, particularly with the U.S. Geological Survey and other federal agencies, who can be a major contributors to a statewide program.

We intend to continue to bring information on digital orthophotos to you. As this product becomes more widely used and integrated into GIS/LIS, the benefits will be more easily documented.

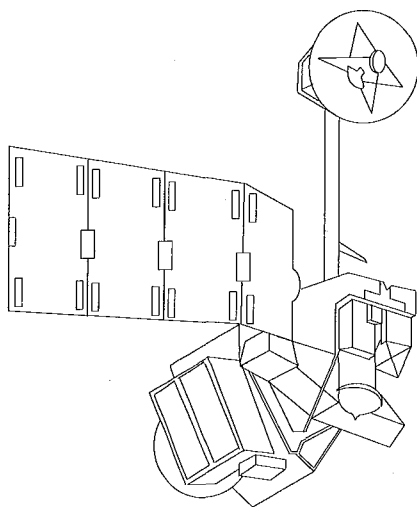
REMOTE SENSING

Federal policy shifts away from DOD

Landsat program lives

by Jim Jordan

A recent press release from the White House (10 May 1994) states the Clinton Administration's intent to support the Landsat remote sensing program. Citing the need for a continuous, long term data set to adequately monitor the Earth's surface over time, the statement outlines a strategy for coordinating future developments. A new Landsat 7 will replace Landsat 6, lost shortly after launch last October, and the aging Landsat 4 and 5 platforms (see related article in the April 1994 issue of the *Bulletin*).



Under the Clinton directive, the previous Department of Defense (DOD) responsibilities for joint development of Landsat 7 with NASA, will be transferred wholly to NASA. NASA will coordinate development of the new satellite and operation of a compatible ground station with the departments of Commerce (DOC) and

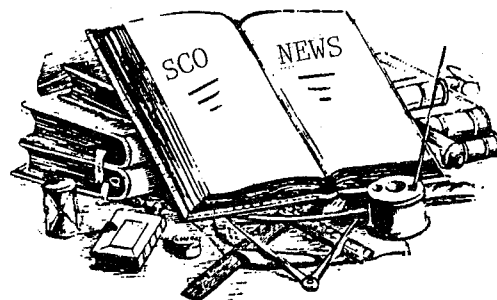
Interior (DOI). The National Oceanic and Atmospheric Administration, under DOC, will have the primary responsibility for continued operation of Landsats 4 and 5 and the routine operation of future Landsat satellites. DOI will maintain a national archive of all Landsat remote sensing data and will make it available to government and other users.

NASA's control of Landsat 7 program development also means that DOD budget request for its share of the project will be transferred, enabling NASA to more effectively coordinate construction, but apparently without the addition of a high resolution 5-meter stereo sensor initially planned by DOD. The reorganization of the Landsat program also requires affected government agencies to rapidly adjust budgets and implement funding transfers in order for the Administration's strategy to proceed.

NASA is now charged with ensuring the continuity of remote sensing data that the Landsat program has provided during the last 22 years. The tentative launch date for Landsat 7, which must yet be built (functionally equivalent to Landsat 6), is currently set for 1998.

(sources: *Washington Remote Sensing Newsletter*, v.14(8), May 1994. *Earth Observation Magazine*, April 1994).

SCO NEWS



Set for August publication

Geologic Mapping is 6th SCO guide

by Bob Gurda

We are about ready to publish another in our series of brochures on mapping topics, this one on geologic mapping. This new 12-page guide, the 6th in the series, will be titled *Wisconsin Geologic Mapping*. It is scheduled for printing in August.

As with the earlier publications in this series, we will be distributing copies to all 72 county Land Information Offices, and other federal, state, regional, and academic organizations and libraries that we expect would find it to be particularly useful. Other persons or organizations may request a free copy from the SCO.

New Publications list available

by Brenda Hemstead

Fresh from the printer in June, the SCO now has available a 4-page flyer describing publications and products that we carry. A copy is bound inside this copy of the *Bulletin*.

Some of the items listed are free, while others have a cost. All items may be ordered by mail or obtained over the counter at the SCO. If you are interested in learning more about what is available from the SCO, call us at 608/262-3065 or fax 608/262-5205, and ask for the *Publications* list.

Staff Update

by Bob Gurda

David Herubin, one of our undergraduate employees, earned his degree in May and left the SCO to work for Encyclopedia Britannica in Chicago. During his tenure here, Dave worked on a wide variety of projects including the new aerial photography catalog, several guides, database application, and programming.

Rob Lawrence, a double-major in cartography and geography, joined our staff in May. His initial major assignment this summer, is to help expand our electronic bulletin board offerings.

Questions & Answers

?

I recently overlaid USGS digital line files with a USGS digital orthophoto. Both are in the UTM coordinate system, yet I found that features such as road and stream centerlines appear to be shifted south about 1/10th of a mile. What can be causing this?

The USGS DLG (digital line graph) files are derived from maps based on the NAD 27 datum, while the USGS digital orthophoto products are based on the newer NAD 83 (1986) datum. When UTM coordinates based upon these two datums are compared for Wisconsin, there is an apparent shift of approximately 200 meters southerly and just a few meters easterly.

This shift is caused because the datums are referenced to different ellipsoids - the Clarke Spheroid of 1866 for NAD 27, and GRS80 for the NAD 83 datum (both adjustments). The parameters defining the origin of the UTM coordinate system remain the same for both datums, but the reference ellipsoid for the origin is different, causing what appears to be a shift of the origin. A comparison of NAD 27 and NAD 83 UTM coordinate values for any point in our area will reflect this approximately 200 meter "shift".

UTM, like all coordinate systems, can be based on any ellipsoid while maintaining the same parameters that define its coordinate system. Unlike the State Plane coordinates, which were deliberately offset by almost 6 miles east-west between the two datums, the U.S. Department of Defense did not redefine UTM's false easting and false northing for the NAD 83 datum. (This is probably because the DOD uses UTM for very large areas where a shift of this magnitude is negligible.)

Since the other differences between the two datums in Wisconsin are much less than 1/10th of a mile, the most likely reason for the shift you are seeing relates to UTM. If you are transforming the line files to NAD 83, the shift should be largely eliminated.

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.

?

Where can I find a map that shows the contours of a lake bed?

First of all, you will need to know the name of the lake you are interested in and the county in which it lies. Since only about 40% of Wisconsin's lakes are named, other geographic references may be necessary. The U.S.G.S. 7.5-minute quadrangle maps show the location of all lakes in the state.

The next step is to find out if that particular lake's hydrography has been surveyed and mapped (most larger lakes have been). We have indexes of this information at the SCO.

The DNR has mapped many lakes, but they may not have a particular map sheet in stock. Contact them at (608) 266-2621. The Clarkson Map Company in Kaukauna, WI has complete sets of detailed lake maps that are available for purchase. They can be reached at (414) 766-3000.

A source of specialized lake maps is Fishing Hot Spots. This company has maps marked with fishing spots for individual lakes or chains of lakes. Contact them at 1-800-338-5957.

If you have any other questions about lake maps contact the SCO.

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In your April, 1994 issue, you used the term "geospatial data" when discussing the National Spatial Data Infrastructure. I don't recall that term; what does it mean?

The term "geospatial data" has been floating around for a short time among people who are working toward a model for developing the National Spatial Data Infrastructure. President Clinton's recent Executive Order on this subject defines several terms including this one: "Geospatial data" means information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth. This information may be derived from, among other things, remote sensing, mapping, and surveying technologies. Statistical data may be included in this definition at the discretion of the collecting agency."

History shows that as new fields are developing, terms tend to proliferate, and often several terms have similar meanings. "Geospatial data" is not a new concept, but may be a new term for something many of us have been working with for some time.

By the way, you can still access the entire text of the Executive Order from our BBS (see page 16).

PROJECT REPORTS

Land cover mapping begins in NW counties

WISCLAND moves into production

by Bob Gurda

Statewide land cover mapping is beginning for the northwestern corner of Wisconsin. Work on this "Phase 1" of the WISCLAND Project will continue across the state over the next several years, culminating in the complete coverage at a resolution of several acres.

WISCLAND's organization

WISCLAND stands for the "Wisconsin Initiative for Statewide Cooperation on Land cover ANALysis and Data". WISCLAND is funded by a growing group of organizations from both the public and private sectors. The project is directed by a Steering Committee chaired by the SCO.

More on land cover mapping (Phase 1)

Land cover is the materials existing at the ground surface. In our state, this is primarily vegetation. An area mapped as the land cover "grass" might be used as a pasture or a golf course. Similarly, a land area covered by pine forest might be a commercial forest or a protected wilderness.

WISCLAND will map the state's recent land cover by a uniform method. The resulting information will be the most detailed and accurate land cover mapping ever accomplished across Wisconsin, and will help support a wide variety of activities carried out by the sponsoring organizations. The actual methods we are using are based on proven modern technology directed toward addressing the needs expressed by the contributing organizations. Land cover can be mapped in several ways, each with its own challenges and costs. From least to most expensive, these are: unsupervised computerized interpretation of satellite images; analyst-assisted computerized interpretation of satellite images (the WISCLAND approach); manual interpretation of aerial photographs (many thousands of frames); and ground-based data collection.

Field staff from state and federal agencies and local governments will be instrumental in identifying the land cover at specific sites. This information is essential in guiding the satellite image analysis, and in evaluating the accuracy of the resulting maps. The Wisconsin Department of Natural Resources, GEO Services Section, is performing the land cover analysis for the WISCLAND Project.

Modernizing land use mapping - (Phase 2)

Land use can also be mapped, although by somewhat different processes. Generally, land use mapping is more costly

than land cover mapping, since a computer cannot interpret different uses easily. An interpreter who is familiar with local land uses must analyze the many photographs needed to cover the study area.

WISCLAND's Phase 2 is attempting to develop compatible methods across the state for accomplishing periodic land use mapping in urban areas. Local and regional governments would manage the mapping work. We are particularly interested in developing maps and information that is more shareable. We will need additional contributors to succeed in this part of the project.

Digital orthophotos - (Phase 3)

The urban land use mapping component of WISCLAND (Phase 2) would be registered to an orthophoto base map. The concept is to use digital orthophotos from 1992 NAPP photography for this purpose. In most urban parts of the state, these digital orthophotos yet need to be funded and then produced prior to the mapping of land uses.

Digital orthophotos would be very useful in many kinds of land management that also benefit from current land

cover and land use information. As a result, the WISCLAND Project added a third phase, which is to accomplish statewide digital orthophotos. This undertaking may now be covered by a new initiative (see cover story).

What WISCLAND is *not*

WISCLAND has only the three phases described above. Many of WISCLAND's contributors are separately engaged in various activities that are developing other computerized geographic information layers. However, WISCLAND is not involved in these activities, and its Articles of Participation do not pro-

vide the basis for any such future involvement. In fact, statewide land cover and urban land use mapping are major challenges that stand alone and that we intend to complete independent of other activities.

How you can keep informed

The WISCLAND Project's Steering Committee meets every 4-8 weeks. Anyone is welcome to attend. We also are planning a general information presentation, including the initial land cover interpretation products, for later this year. In addition, you can request printed materials that explain the goals and methods of the project.

For additional information on WISCLAND, contact Bob Gurda at the SCO (608/262-3065).

WISCLAND Cooperators

The following organizations have signed the WISCLAND "Articles of Participation" and/or have made substantial contributions to the project as of July, 1994.

- *Wisconsin Department of Natural Resources*
- *USDA Soil Conservation Service*
- *US Environmental Protection Agency*
- *National Biological Survey*
- *U.S. Geological Survey, Water Resources Division*
- *Chequamegon National Forest*
- *Wisconsin Department of Transportation*
- *Wisconsin Power & Light Company*
- *UW-Madison, Institute for Environmental Studies*
- *UW-Madison, Environmental Remote Sensing Center*
- *Wisconsin Geological and Natural History Survey*
- *Wisconsin Land Information Board*
- *State Cartographer's Office*

On developing public access to land information

by Robert Martin*

Earlier this summer I had the pleasure of sitting in on a meeting of the WISCLAND** Steering Committee. I was gratified that there was broad representation from both the public and private sectors. It was also rewarding to hear about the progress being made in statewide land cover mapping as well as statewide orthophoto mapping. I regard both of these products as infrastructure.

Only once did the discussion touch on value-added delivery of this information to the numerous potential markets beyond the organizations represented at the meeting, and the prospective public and private sector roles in providing delivery mechanisms.

For the past ten years many of us have been working hard to bring GIS technology to the point where it could routinely solve problems and perform analyses. To do this we had to focus our scarce technical and financial resources on GIS development. Cooperation was essential in making progress.

Now that we see GIS data, software, hardware, and trained people being put in place, it is clear that we have succeeded in moving from an experimental phase into a production environment. At this point however, I question if the cooperation that served us so well when we were testing and experimenting can serve the new customers that will want products and services from these systems.

It is clear that we have succeeded in moving from an experimental phase into a production environment.

Public funding is very tight. Many agencies and departments operate in a 1950's mode. This means that services are provided without charge to eligible publics. For example, the USDA Soil Conservation Service is directed by Congress to provide soil survey information at no cost to any user.

As tax funds become scarce, these policies have three impacts:

- They retard the production and delivery of basic land information products such as soil survey.
- They retard entry of free enterprise into the breach since agencies "still promise" that they will provide the service at no or almost no cost;

**see article on facing page

no private business can survive in such an environment unless it can exploit a market niche where it can charge a fee for adding something of significant value to the public information.

- The public sector tends to define the nature and specification its information products regardless of secondary or tertiary uses that might be developed from them in the private marketplace.

As we move from experimentation in land records automation to public sector production and access, as a society we must decide on our objectives.

If our priority is to have easy access to useful information derived from public records, then we should insist that the users of land information shoulder the related costs.

If our priority is to have no- or low-cost public access to highly automated land records, we must depend on the will of funding authorities. In addition, we must hope to resolve divergent entity and program interests. In this environment, it is highly unlikely that end users will have much to say about the quality or availability of any products or services.

If, on the other hand, our priority is to have easy access to useful information derived from public records, then we should insist that the users of land information shoulder the related costs. Letting demand determine the level of fees that people and businesses are willing to pay for a particular quality of product is the only way for these customers to influence the types and qualities of value-added services. In some cases, duplication of services would probably arise. However, this can also be viewed as competition, which is considered healthy in our society.

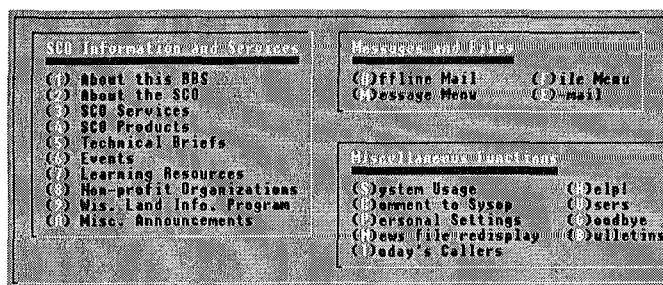
I believe that if we opt for the first case we will wait a very long time for the products and services that we have envisioned for many years.

*Bob Martin recently retired from the USDA Soil Conservation Service. As Assistant State Conservationist, he was instrumental in guiding both the CONSOIL Project, and the WISMAP Project which recommended the technical and institutional approach to statewide land cover mapping that the WISCLAND Project is following.

BULLETIN BOARD UPDATE

by Jim Lacy

A number of interesting developments have occurred since our last *Mapping Bulletin* was published. We added several new conferences to the BBS, in addition to nearly 50 short articles on various mapping topics.



SurveyNet conferences added to SCO BBS

A significant milestone was reached recently when we added 18 SurveyNet conferences to the SCO BBS. SurveyNet is an affiliation of eight bulletin boards systems around the country that participate in a mapping/surveying "echomail" network. In an echomail network, the participating Boards share common message bases. A message posted to a shared area will be "echoed" to all BBS's carrying the conference, and other users on participating systems can respond. In this manner, you can communicate with a nationwide audience simply by dialing into the SCO BBS!

Currently, there are over 1000 messages active in the SurveyNet conferences, with more being added daily. Topics covered appeal to a variety of interests, including GIS/GPS, Ethics, Debate, CAD, Law and Statutes, Public Lands, and a "common" conference for general issues. Check out the SurveyNet conferences; they're a great way to get in touch with your peers!

Off-line mail can make life easier!

Okay, you ask, now that the SCO is offering the SurveyNet conferences with the potential for heavy message traffic, does that mean I'll have to spend an excessive amount of time on-line while my phone company's wallet gets fatter? Don't worry, there's an easy solution. By using what's called an "off-line" mail reader, you can selectively download the contents of both the SurveyNet and local conferences for off-line viewing, and create reply "packets" with your own messages to be uploaded back to our BBS.

benefits of off-line mail include:

- Saves money by reducing your on-line phone charges
- Frees up the BBS for other users by reducing your time spent on-line
- Enhances communication by allowing you to take your time composing messages

Follow these steps

The first piece of the puzzle you need is an off-line mail reader. We have several shareware products for use on IBM-compatible PC's available in file area #9. Installation of the reader on your computer is usually a matter of unzipping the file, and setting some basic configuration options. The instructions that come with the reader should guide you through the installation process, and provide more background on mail networking.

Then, using your communications software, call the SCO BBS, and select (O)ffline mail from the main menu. The first time you select off-line mail, the BBS will provide some background and guide you through the options. Accepting the software defaults will usually suffice. Exit the configuration menu, and select (D)ownload. Any new messages will be bundled using a file compression program of your choice (typically PkZip), and sent to your computer.

Next, you should logoff from the BBS, and exit your communications software. Run the mail reader, and if it is properly configured, it should automatically find the new mail packet in your default download directory. The reader will then unzip the files, and display them in an easy to use index, from which you can select and read messages.

You can also post messages off-line. Here's how it works: Your mail reader will have an option to "enter new mail"; simply select that option, select a conference in which the message should be posted, and enter your message (most readers let you use a text editor of your choice.) After entering your message, you will bundle any new replies (messages) and create what is called a "reply" packet. The next time you call the SCO BBS, select (O)ffline mail, and (U)pload the reply packet. Once your file is uploaded, your messages will be added to the appropriate conferences, and posted for other users to see.

Good luck! Offline mail is a great way to save time and money.

On-line resources for earth scientists

In other news, I recently stumbled across a huge directory of Internet resources for earth scientists. The document, compiled by Bill Thoen of GISnet BBS, contains pointers to frequently asked questions (FAQs) for many topics, lists of FTP and World Wide Web sites, where to find software and digital datasets, how to become part of various discussion lists, and a host of other interesting and useful tidbits. This incredible resource, called "ores.zip", is available for download in file area 12.

Your comments are important!

If you have any advice for improving our BBS, give me a call at (608) 262-8776, or leave a comment on-line. Your input is greatly appreciated!

PEOPLE & ORGANIZATIONS



Receives "Fennel Award"

Vonderohe honored for educational work

Professor Alan Vonderohe of the UW-Madison's Department of Civil and Environmental Engineering has been given the Earle J. Fennel Award by the American Congress on Surveying and Mapping. This award recognizes outstanding contributions in surveying and mapping education.

In addition to his many classroom and research activities, Vonderohe is the lead author of the SCO's popular handbook *Introduction to Land Information Systems for Wisconsin's Future*. For the last several years, Al has also served as Chair of SIAC, a Madison campus organization that cuts across college and department lines. (SIAC stands for the Spatial Information and Analysis Consortium).

(source: *Wisconsin Professional Surveyor*)

At Genasys users conference

Wisconsin projects earn prizes

by Bob Gurda

Wisconsin users of Genamap GIS software recently won prizes in all three categories at the Genamap Users Conference held in Colorado.

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) won awards for maps in two categories. One is an analysis of multiple factors for identifying most appropriate sites for solid waste landfills in Walworth County. The second, which won an award for map design, is based on mapped soil survey information for Walworth County, specifically depicting soil capacity for filtering contaminants.

The WINGS Project in Winnebago County won prizes for a "script" application that supports the development of customized interfaces for various government departments. The prizes were for "originality" and "presentation".

(sources: *SEWRPC & Winnebago County*)

Committee appointed to study needs

WSLS to consider State Surveyor

Editor's note: The following is part of the "President's Message", written by Francis Thousand to the membership of the Wisconsin Society of Land Surveyors (WSLS).

The Board of Directors at our May meeting formed a new Committee to reopen discussion on a topic that has been considered over the years. This committee will study whether Wisconsin needs a State Surveyor. The needs of the surveying community are changing. With the creation of the land information program state wide, survey issues have moved to a more state wide basis and I believe need to be addressed on a state wide basis. If this committee finds a need for this office, it will propose a definition for the position and propose the necessary legislation to create the position. This committee will assess surveying activities in Wisconsin and how these activities could be improved with a state surveyor. They need to discuss the role this office will play, whether it will be a clearinghouse for information and ideas or whether it will have some type of rule making authority.

(source: *Wisconsin Professional Surveyor*)

Classroom computer technology recognized

UW-Madison honors Jim Burt

by Bob Gurda

Geography Professor James Burt has been honored by the UW-Madison with a Distinguished Teaching Award. Jim is constantly challenged to explain complex spatial patterns and processes as part of his teaching. He has melded his disciplinary niche with innovative use of computer-assisted visualization techniques. This work includes computer programs that demonstrate key cartographic concepts.

To coordinate county LIS

Glenn Meyer to join Waukesha Co.

by Bob Gurda

Glenn Meyer has accepted the position of Land Information Systems Coordinator with Waukesha County. He was selected as the result of a six-month search by the county, and will begin his new position in August. Waukesha County is the third most populous in the state, and is growing rapidly.

Meyer will be leaving his position as Corporate Base Map and Geographic Information Manager at Wisconsin Power & Light Company (WP&L) in Madison. He has worked for WP&L for the last 14 years, is a Registered Land Surveyor, and has been very active in the Wisconsin Society of Land Surveyors, particularly on legislative issues.

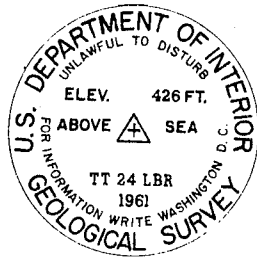
GEODETIC CONTROL

A cooperative "Encoding Project"

Can we modernize USGS control data?

by Diann Danielsen

The U.S. Geological Survey (USGS) and the National Geodetic Survey (NGS) have initiated a **nationwide project to automate, adjust, and better maintain USGS 3rd Order vertical control information**. In Wisconsin, this would involve approximately 7000 USGS *benchmarks* and *useful elevations*. These vertical control points are the basis of many surveying and mapping projects and play a key role in engineering construction, floodplain studies, and other projects.



The USGS 3rd Order Leveling Transfer Project will:

- automate USGS paper files,
 - transfer the automated (digital) USGS information to NGS,
 - adjust the data to the North American Vertical Datum of 1988 (NAVD 88),
 - preserve the USGS vertical control information within the NGS database, and
 - improve availability of USGS data through NGS data publication and distribution.
- USGS vertical control information is currently referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). However, NAVD 88 is now the official national vertical datum and must be used for all federal and federally funded projects (for example, FEMA requires use of the NAVD 88 datum for all floodplain projects). The NGS will no longer support the NGVD 29 datum as a part of the National Geodetic Reference System. Thus, if the USGS data is not adjusted to the NAVD 88 datum, its value as precise geodetic control information will diminish over time and no longer be of use.

USGS and NGS are calling for a cooperative effort to complete the Transfer Project, involving interested parties in each state. Wisconsin has been exploring this idea for several months now. Without state involvement, the project for Wisconsin would not be completed for approximately 10 years. With our involvement, the data can be made available in a much shorter time period.

The Project was brought before the Wisconsin Land Information Board (WLIB) in September 1993, as a technical issue impacting a broad range of users in the state land information community. WLIB tasked a work group to explore the details and costs of the project for Wisconsin and

later accepted its recommendation to solicit private and public sector parties regarding their interest and available resources.

The State Cartographer's Office (SCO), on behalf of the WLIB, has met informally with a number of interested parties to explain the project. We are also circulating the Work Group Report and a Questionnaire to state and local government agencies, professional organizations, and utilities.

While the Transfer Project does not include a field inventory of control points, maintenance of the USGS data will be greatly improved by its incorporation into the NGS database. The non-federal share of the project's cost for Wisconsin is estimated to be \$85,000. Project costs will need to be covered by contributions from the Wisconsin community since the WLIB has been unable, up to this time, to fund state-wide land information projects.

The USGS data is Wisconsin's most abundant vertical control information, comprising 40% of the available vertical control data. (At the SCO, 90% of all geodetic inquiries are for vertical control information.) Thus the preservation of this data is critical to many users. We encourage you to join others in supporting the modernization of this valuable and abundant information. Contact your County Surveyor, County Land Information Officer, or municipal engineering head and urge their endorsement of the USGS Encoding Project for Wisconsin.

For details, contact the SCO at 608/262-3065.

NGS to upgrade geodetic info

New data and products set for this fall



by Diann Danielsen

This fall the NGS will issue an updated CD-ROM of geodetic control data and software for the North Central U.S., including Wisconsin. Updated data will be pulled from the NGS database this summer and is expected to be available in October. The vast majority of the geodetic control information will not change from the first CD-ROM, however the update will include information added to the database after August 1993, such as newly submitted data and backlogged information on reset points which have now been fully processed.

In addition to the geodetic data, the CD-ROM will contain a new release of the DSX software (version 4.0) with a number of enhancements. The new DSX program will allow users to do a radial search for data based on a latitude/longitude location and a mile distance from that point. It will allow users to name additional extraction parameters, such as vertical points only, to avoid the current bi-

continued on next page...

Assisting local control network densification

GPS Standards Work Group: an update

by Diann Danielsen

In the last issue of the Mapping Bulletin, we reported on efforts toward the establishment of standards and the development of a services procurement bulletin for GPS control network densification projects in Wisconsin. Many counties are actively densifying control networks in an effort to support surveying, mapping, and GIS/LIS implementation, typically with the assistance of the Dept. of Transportation.

This work has been a joint effort of the Wisconsin Land Information Board, the Wisconsin Land Information Association, the Wisconsin Society of Land Surveyors, and the Wisconsin County Surveyors Association. The group is near completion on a standard for local network densification of the WHPGN. The draft standard provides several options for densification, to accommodate differing local needs, terrain, and logistics. At the same time, it incorporates the comprehensive specifications of the DOT guidelines and supports the overall goal of a sound and integratable statewide network.

The group was initially charged to deal with GPS standards, and in so doing, two separate and distinct, but related, issues have emerged as needing attention. The first is the need for standards supporting the densification of the WHPGN, as described above. The second concerns *uses* of the densified network. Once in place, the densified network has many uses, including the development of geographic coordinates on Public Land Survey System corners, GPS data collection for GIS, and the current explosion of non-traditional users and applications in fields as diverse as natural resource, law enforcement, and health.

When the densification standard is completed, the work group will begin work on a second, related standard which will address the next priority issue - using the densified control network to develop geographic coordinates for PLSS corners.

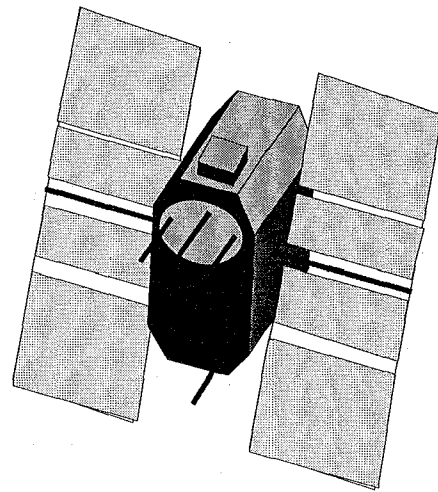
For more information, contact Work Group Chairperson, D. David Moyer at 608/263-3919.

...continued from page 10

level sort method. The program will also create a simple plot file of points that could be brought into a CAD or other software program. This is not a full-featured graphics utility, but will be helpful for viewing level lines.

A new software program, called DSSELECT will be added to the CD-ROM. This program is designed to prepare a tabular file of the geodetic information directly from the digital datasheet files. The tabular file can be formatted to meet user needs, and will be of great assistance to those wishing to build databases and/or GIS applications from NGS data.

For more details, watch for the October issue of the *Mapping Bulletin*.



Civilian users gaining a voice

Federal GPS policy shifts

by Diann Danielsen

Eyes are on the U.S. Department of Transportation (DOT) as it moves to strengthen its role as an advocate for civilian users of the Global Positioning System (GPS). DOT Secretary Peña recently consolidated GPS activities to the office of the Assistant Secretary for Transportation Policy, giving GPS issues a higher level of visibility and oversight within the agency. Peña plans to implement a number of agency recommendations designed to establish GPS "as the world's standard in the air, on land, and over water."

The recommendations include making the Assistant Secretary responsible for:

- coordinating with other civilian government agencies and committees to ensure that everyone's system needs are properly represented in policies and planning,
- ensuring that DOT administration maintains an outreach program to civilian users of GPS and to reflect customer input into DOT policy and planning,
- maintaining an outreach program to civilian users not represented through other federal agencies or committees, and
- conducting economic studies and recommending methods of GPS financing and cost recovery (if appropriate) from civilian users.

All of these activities indicate a continued and growing sense of equity and balance between the civilian and military interests in GPS. Civilians have long needed a voice in the development of GPS. The outreach activities of the DOT may allow this voice, and will certainly further the overall development of GPS as a utility for the future.

(source: *GPS World*, July 1994).

PUBLICATIONS and PRODUCTS

Please keep us informed !!!

Calling all new aerial photography

by Bob Gurda

Some local governments in various parts of the state were busy this last fall and spring acquiring new aerial photography. We are aware of flights that were arranged in a number of counties (Waupaca, Shawano, Winnebago, Waukesha, Burnett, Kewaunee, Sauk, and Chippewa) and cities (Wauwatosa, Sun Prairie, Middleton). In addition, the Chequamegon National Forest had some work done, and the Wisconsin DNR's statewide forestry photography project continues and hopefully concludes this summer.

In our next issue (October) we'll be reporting on details of these recent acquisitions. If you know of projects in addition to those listed in the previous paragraph, please let us know so that we can collect the necessary information.

Shows land and sea floor

NOAA makes new earth surface map

by Bob Gurda

A new large-format map of the earth's surface is now available. The National Geophysical Data Center has produced a 31" X 43" full color poster showing a computer-generated relief image of both land and sea-floor elevations. The map is cast on a Mercator Projection, from 270° West to 120° East longitude; latitude coverage is 80° both North and South.

This "Surface of the Earth" color relief-map poster is available for \$20 including shipping (additional charges for non-US orders or for overnight delivery). For additional ordering details, contact Robin Warnken at 303/497-6338.

Over 11,000 definitions !!!

ASPRS book covers mapping terms

Are you feeling lost amongst the jargon of mapping? Do you need a more solid understanding of emerging terms? A new book is riding to the rescue.

The new book contains 11,497 definitions that encompass every aspect of the mapping sciences. It will be available in August. The *Glossary of the Mapping Sciences* is being co-published by ASPRS, ASCM, and ASCE (acronyms for the following professional organizations: the American Society for Photogrammetry and Remote Sensing; the American Congress on Surveying and Mapping; and the American Society of Civil Engineers).

The ASPRS prices will be \$60 (members) and \$80 (non-members) plus shipping and handling; presumably the other two organizations will have similar prices. For more information, contact ASPRS at 412/772-0099.

(source: *ASPRS*)

Focuses on glacial features

New geologic map for Taylor County

Pleistocene Geology of Taylor County is a new publication from the Wisconsin Geological and Natural History Survey (WGNHS). Indexed as Bulletin 90, this publication includes a 25-page explanatory booklet plus a color map at 1:100,000-scale. The full map sheet measures 22" X 36"

This publication (with map folded) can be purchased from the Survey for \$7 plus tax and shipping, or an unfolded map is \$4 plus tax and shipping. Contact the WGNHS at 608/263-7389 for details.

(source: *WGNHS*)

USGS Publications

Miscellaneous Field Studies Maps (MF) that are published by the USGS include multicolor or black-and-white maps on topographic or planimetric bases, can have regular and irregular areas; various scales. Pre-1971 maps show bed-rock geology and the majority of post-1971 are maps on subjects such as environmental studies or wilderness mineral investigations. To order, contact the U.S. Geological Survey, Branch of Distribution (Books & Maps), P.O. Box 25286, Denver, CO 80225, phone 303/236-7477.

MF-2252. WISCONSIN. Shoreline and coastal wetland variability along the west shore of Green Bay, Marinette and Oconto counties, Wisconsin, by G.L. Shideler. 1994. Lat 44°30' to 45°, long 87°37'30" to 88°57'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 45 by 41 inches. \$3.25.

Water-Resources Investigations Reports (WRI) are reports that are of an interpretative nature made available to the public outside the formal USGS publications series. To order, contact the USGS-ESIC, Open File Report Section, Box 5286, Mail Stop 517, Denver, CO 80225, phone 303/236-7476.

WRI 91-4128. WISCONSIN. Flood-frequency characteristics of Wisconsin streams, by W.R. Krug, D.H. Conger and W.A. Gebert. Prepared in cooperation with the Wisconsin Dept. of Transportation. 1993. 185 p., 2 over-size sheets, scale 1:750,000 (1 inch = about 12 miles). NC, Da, M, Wb; USGS, WRD, 6417 Normandy Lane, Madison, WI 53719-1133.) Paper copy \$34.85.

New county plat books

The following 1994 Wisconsin County Land Atlas and Plat Books are now available, for \$25 plus tax and shipping: Clark, Columbia, Dodge, Jackson, Lincoln, Marinette, Oneida, Rock, St. Croix, Trempealeau, Vilas, and Walworth Counties. In addition, Bayfield County is available for \$35. 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.

PUBLICATIONS and PRODUCTS

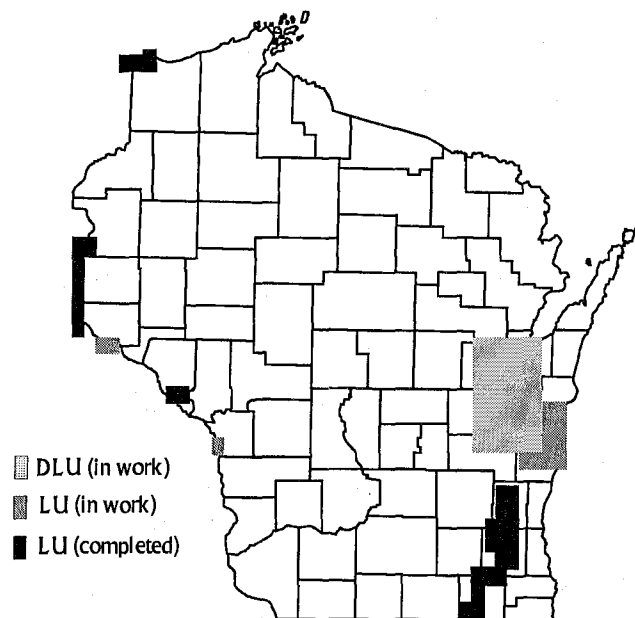
Digital process to get workout

Topo quad revisions proceed

by Bob Gurda

Revisions of some 7.5-minute topographic quadrangle maps are moving through the production pipeline at the U.S. Geological Survey. A number of the maps scheduled for revision will be done with a new digital technique, resulting in several related products.

Recently published map sheets are for areas primarily clustered on the edge of the Milwaukee metropolitan area (see map below). These new maps represent "limited updates" (LU), where revisions are basically overprinted using purple ink on the map as previously published. USGS topo quads in extreme southeastern part of Wisconsin all date from the 1970's. For names of specific maps for which limited updates have been published recently, contact the SCO.



A large area in work covers the greater Fox River Valley, and extends east to Lake Michigan. Most of this area is being revised in a fully digital process. First, digital orthophotos are developed for quarter-quadrangle areas (in "raster" format). Next the old printed maps are scanned to develop thematic layers of computerized information (in "vector" format). Then, the vector layers are displayed on-screen, over the top of the raster orthophoto; from this combined image and other information, an operator updates the thematic map layers to reflect changes on the land that are visible in the orthophoto. Finally, the map is reprinted based up these updated vectors.

This new process, which was converted from experimental to production status last year, yields several compatible products: the digital orthophoto; a digital elevation model (DEM); original vector map files; revised vector map files; and the revised printed map.

New edition adds many features

Orthophoto demo on disk, v.2

by Bob Gurda

We are preparing a new edition of our digital orthophoto demonstration package that many people have used over the last 4 years. In addition to a newer and more powerful version of the IMDISP display software (version 7.9), we are greatly expanding and enhancing our demo programs. You can order this package from the SCO for a modest fee beginning in September.

This demo explains digital imagery, using digital orthophoto files as illustrations. Windowing, zooming, pixel resolution, histograms, contrast stretching, gray-scale slicing, and false-color palettes are all explained.

We are including a new full-frame example of higher resolution (1-meter) imagery to provide a glimpse of the kind of sharpness that is typical for the products of the National Digital Orthophoto Program. We have also enhanced the comparisons between 4-meter, 2-meter, and 1-meter images of a common ground area that were part of the earlier version.

To view this demo, you need only an IBM-compatible pc microcomputer that supports VGA graphics programs. While the demo program is written to use VGA only, the new version of IMDISP display software is also capable of utilizing various types of SuperVGA video cards (which have become almost the norm in the last year). This advanced functionality means that digital orthophoto images can be displayed at higher screen resolutions, with their full range of 256 gray levels, and at higher speed than VGA alone. The visual effect of these improvements is striking. The new software also includes a suite of image processing tools that can manipulate an image to make it even more useful for various purposes.

To order this newly revised product, contact us after August for an order form. Meanwhile, our original orthophoto demo can be downloaded from our BBS (see p. 16).

Places names for the entire U.S.

GNIS on CD-ROM

A CD-ROM has just been made available that shows a computer listing of almost two million recognized place names across the country. This product is from the U.S. Geological Survey in cooperation with the U.S. Board on Geographic Names. The main purpose of the listing is to standardize the names for use on federal maps. Among other reasons, the mappers want to avoid confusion and differences in spelling.

This CD-ROM contains a user manual and software for searching, sorting, displaying, printing and exporting the data. The software must be installed onto a hard disk. The CD-ROM can be purchased for \$57.00 including shipping and handling from the USGS at 1-800-USA-MAPS.

EVENT PROFILES

WLIA to visit Rhinelander

by Ted Koch

September 8-9 are the dates for the next meeting of the Wisconsin Land Information Association (WLIA). Billed as the "1st Annual Fall Meeting" rather than the usual "fall quarterly membership meeting", this gathering will be held at the Holiday Acres Resort near Rhinelander. The meeting will feature several social events along with special programs Thursday evening and all day Friday.

The Thursday evening offering features a mock trial focusing on the issues of open records and sale of public information. William Holland, Executive Director of the Wisconsin Land Information Board, and Dr. Earl Epstein a professor at Ohio State University, will serve as opposing attorneys. Friday's sessions will revolve around continued discussions and presentations on issues related to open records, copyright and data sales.

Attendance at the Friday meeting requires a modest registration fee that includes lunch. Non-WLIA members are welcome to attend.

For more information, contact WLIA at 800-344-0421.

New GIS R&D Center

UW-River Falls offers short courses

Classes lasting several days each on GIS topics are now being offered at the University of Wisconsin-River Falls.

The GIS Research and Development Center (GRDC) there has set a schedule of classes from the overview through advanced levels. See the listings on page 15 for details. For further information, contact the Center at (715) 425-0635.

(source: GRDC)

A correspondence course

Photogrammetry

This course examines the basics of aerial photogrammetry. It is offered by the University of Wisconsin Department of Engineering Professional Development.

Emphasis is on computational aspects, the photographic process, image distortions, vertical photographs, scale, relief displacement, tilted photographs and rectification, stereoscopic viewing, stereoscopic parallax, heights of objects from relief displacement and parallax, stereoscopic plotting instruments, introductory photo interpretation, and remote sensing.

This course has 20 assignments and 1 exam. Prerequisite: High school algebra. (14.4 CEU). For more information call Judy Faber at 800/462-0876.

Public meetings scheduled

Cultural Map Project seeks input

What would you choose to include on a cultural map of Wisconsin? You can state your opinions, or simply learn more about the upcoming Cultural Map of Wisconsin, by attending one of six public meetings.

The meetings are scheduled between September 7 and October 5, generally in the evenings. The cities and sites, and dates and times are listed below.

LaCrosse

Sept. 7 (Wed.), 7 pm

Public Library (800 Main St.)

Eau Claire

Sept. 14 (Wed.), 7 pm

L.E. Phillips Public Library (400 Eau Claire St.)

Ashland

Sept. 21 (Wed.), 7 pm

Sigurd Olson Environmental Institute

Lac du Flambeau

Sept. 22 (Thurs.), 2 pm

Lac du Flambeau Museum and Cultural Center

Milwaukee

Sept. 28 (Wed.), 7:30 pm

Golda Meir Library, AGS Collection, 3rd floor
East Wing (2311 E. Hartford Ave.)

Madison

Oct. 5 (Wed.), 7:30 pm

State Historical Society of Wisconsin Auditorium
(816 State St.)

The Cultural Map of Wisconsin is a project of the Department of Geography at the University of Wisconsin-Madison. Its goal is to produce a printed map that is a companion to the state highway map, showing sites of particular cultural significance. The project's current activities are to gather, sort, and then select those sites that together will best portray Wisconsin's cultural landscape.

Public meetings are a primary means for the project staff to inform the general public and to solicit input on the map's content.

For more information on the project, call 608/265-4571.



CONFERENCES, TECHNICAL MEETINGS, AND CLASSES

August 7-12, **URISA '94, Urban & Regional Information Systems Assn.**, will be held in Milwaukee, WI. Contact: The Urban & Regional Information Systems Assn., 900 Second St., N.E., Suite 304, Washington, DC 20002, 202/289-1685.

August 10-13, **North American Cartographic Information Society (NACIS) 14th Annual Meeting** will be held in Ottawa, Canada. Contact: NACIS, c/o American Geographical Society Collection, P.O. Box 399, Milwaukee, WI 53201.

August 10-16, **NCGIA Summer Institute 1994** will take place in Santa Barbara, CA. Sessions will be held on the UCSB campus in NCGIA and Geography Dept meeting rooms and labs and off campus in the university owned Cliff House. Contact the NCGIA Conference Coordinator at 805/893-8224.

August 15-19, **U.S. Army Corps of Engineers Symposium on Surveying, Mapping, Remote Sensing and GIS** will be held in New Orleans, LA. Contact: Leonard P. Halphen, US. Army Engineer District, New Orleans, ATTN: CELMN-ED-SS, P.O. Box 60267, New Orleans, LA 70160-0267, 504/862-1841; fax 504/862-1850.

August 20, **Maryland Geographic Information Systems Committee** meeting will be held at the Advanced Technology Center, Hagerstown Junior College. Call: 410/830-2964, fax 410/830-3888.

August 22-24, **ARC/INFO, Introductory course**, will be held in River Falls, WI. Contact the GIS Research and Development Center at 715/425-0635, fax 715/425-4479.

August 23, **Construction Surveying in the '90s** will be held at the Holiday Inn-East Towne, 4402 East Washington Ave., Madison. Contact: the Seminar Dept. at 313/981-4600, fax 313/981-0048.

August 25-26, **ARC/INFO, Intermediate course**, will be held in River Falls, WI. Contact the GIS Research and Development Center at 715/425-0635, fax 715/425-4479.

August 26-29, **Mapping and Remote Sensing Tools for the 21st Century** will be held at the Sheraton Washington Hotel, Washington, DC. Contact: ASPRS at 301/493-0290, fax 301/493-0208.

August 29-30, **Landsat and Beyond, An in-depth look at new data options to assist you with your environmental applications and GIS needs** will be held at the Baltimore Marriott Inner Harbor, 110 South Eutaw Street, Baltimore, MD 21201. Contact: Brenda Burroughs at 407/856-7828.

August 29-31, **Introducing ArcCAD** will be held in Madison, WI. Contact: Tom McClintock or Dan Capacio, Land Information and Computer Graphics Facility, B102 Steenbock, 550 Babcock Drive, Madison, WI 53706 at 608/263-5535, fax 608/262-2500.

September 1-2, **ARC/INFO, Advanced course**, will be held in River Falls, WI. Contact the GIS Research and Development Center at 715/425-0635, fax 715/425-4479.

September 3-9, **17th International Cartographic Conference (ICC '95)** will be held in Barcelona, Spain, call: 343/218-8758, fax 343/218-8959.

September 5-9, **Sixth International Symposium on Spatial Data Handling** will be held in Edinburgh, Scotland, UK. Contact: Thomas C. Waugh, SDH94, Dept. of Geography, Univ. of Edinburgh, Drummond St., Edinburgh, EH89XP, Scotland, UK, call: (44) (31) 650-2530/2531.

September 8-9, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Rhinelander, WI. Contact: WLIA at 800/344-0421.

September 12, **GIS Overview for Managers and Decision Makers** will be held in River Falls, WI. Contact the GIS Research and Development Center at 715/425-0635, fax 715/425-4479.

September 19-20, **Selecting a GIS: What GIS Do I Need?** will be held in River Falls, WI. Contact the GIS Research and Development Center at 715/425-0635, fax 715/425-4479.

September 20-23, **Institute of Navigation GPS '94, "GPS Goes Operational: Applications and Technology"** will be held at the Salt Palace Convention Center, Salt Lake City, UT. Contact: Dr. Richard Green-span, Program Chair, at 214/348-9446, fax 214/348-9447.

September 26-28, **Federal Geographic Technology '94 Conference, Exposition and DataMart** will be held at the Omni Shorham Hotel, Washington, D.C. Contact: GIS World, Inc., 155 E. Boardwalk Dr., Ste. 250, Fort Collins, CO 80525, 303/223-4848, fax 303/223-5700.

September 26-28, **Introducing pcArc/Info for Windows** will be held in Madison, WI. See August 29-31 seminar listing for contact.

October 2-4, **Commercial Opportunities for GIS and Satellite Imagery** will be held in Seattle, WA. Contact: Micki Barber, Earth Observation Satellite Co. (EOSAT), 4300 Forbes Blvd., Lanham, MD 20706 at 818/596-2388.

October 5-7, **Minnesota GIS/LIS Consortium's 4th Annual State-wide Conference** will be held in St. Louis Park, MN.

October 12-15, **The 17th Annual Applied Geography Conference** will be held in Akron, OH. Contact: Jay Lee, Dept. of Geography, Kent State Univ., Kent, OH 44242-0001 at 216/672-2045, fax 216/672-4304.

October 14-19, **National States Geographic Information Council's Annual Meeting** will be held in Jackson Hole, WY. Contact: Nancy McCann at 307/777-5958.

October 17-18, **Introducing ArcView 2** will be held in Madison, WI. See August 29-31 seminar listing for contact.

October 19-20, **Customizing ArcView 2 with Avenue** will be held in Madison, WI. See August 29-31 seminar listing for contact.

October 23-28, **GIS/LIS '94 Annual Conference & Exposition & ACSM/ASPRS Fall Convention** will be held in Phoenix, AZ. Contact: GIS/LIS '94, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2122 at 301/493-0200; fax 301/493-8245.

October 28-29, **Conference on Law and Information Policy for Spatial Databases** will be held at Arizona State University College of Law, Tempe, AZ. Contact: Kathleen Hornsby, NCGIA, 5711 Boardman Hall, Univ. of Maine, Orono, ME 04469-5711 at 207/581-2143, fax 207/581-2206.

December 8-9, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Wisconsin Dells, WI. Contact: WLIA at 800/344-0421.

1995

February 27-March 2, **ASPRS/ACSM Annual Convention '95** will be held at the Charlotte Convention Center, Charlotte, N.C. Contact: Denise Cranwell, ASPRS/ACSM '95, 5410 Grosvenor Lane, Bethesda, MD 20814-2112, 301/493-0200, fax 301/492-8245.

March 1-3, **Wisconsin Land Information Association's Annual Conference** will be held in Madison, WI. Contact: WLIA at 800/344-0421.

March 14-18, **91st Annual Association of American Geographers Meeting** will be held in Chicago, IL. Contact: AAG, 1710 16th St., N.W., Washington, DC 20009-3109 at 202/234-1450, fax 202/234-2744.

March 20-23, **AM/FM International Annual Conference XVIII** will be held in Seattle, WA. Contact: AM/FM International, 14456 E. Evans Ave., Aurora, CO 80014, 303/337-0513; fax 303/337-1001.

August 13-17, **URISA '95 Annual Conference** will be held in San Antonio, TX. Contact: Urban & Regional Information Systems Assn., 900 Second St. N.E., Suite 304, Washington, D.C., 202/289-1685.

November 13-17, **GIS/LIS '95 Annual Conference** will be held in Nashville, TN. Contact: GIS/LIS '95, 5410 Grosvenor Lane, Bethesda, MD 20814-2112, 301/493-0200, fax 301/492-8245.

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), and Program Assistants Brenda Hemstead and Nancy Graham (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.

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, and then you can go exploring.



Wisconsin Mapping Bulletin

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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 7, 1994.

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

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

State Cartographer's Office
550 N. Park Street
Room 160 Science Hall
Madison, WI 53706-1404
phone 608/262-3065
fax 608/262-5205
bbs 608/265-2807

State Cartographer's Office
Univ. of Wisconsin-Madison
550 N. Park Street
Rm. 160 Science Hall
Madison, WI 53706-1404

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