



# Wisconsin MAPPING BULLETIN

## LAND INFORMATION GRANTS TAKE CENTER STAGE

by Bob Gurda

Grant awards totalling over \$2.43 million have now been made in over one-third of the state's counties by the Wisconsin Land Information Board (WLIB). The awards will accelerate various aspects of land records modernization that were identified in the counties' plans approved earlier by the board.

In the recently concluded third grant period, 14 counties were awarded a total of approximately \$940,000; these counties had requested almost \$1.4 million, and none had previously received awards. Seventeen additional grants

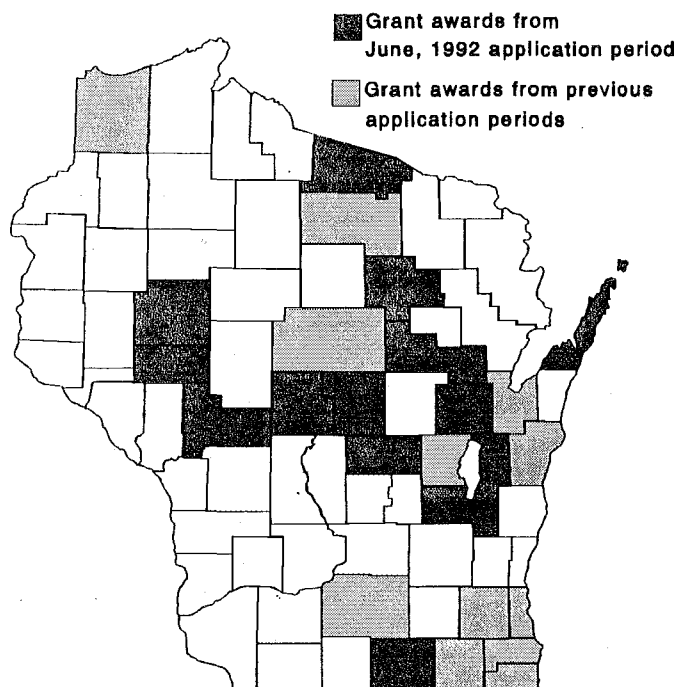
from 13 counties (or cities in those counties) requesting over \$2.4 million went completely unfunded, illustrating both the growing interest among local governments in major modernization activities as well as the limited funding available through the WLIB.

Funds for grant awards from the WLIB come from a portion of document filing fees collected at county Register of Deeds' offices. Counties retain 2/3 of the fees for development and implementation of their modernization plans. In the 27 months since fee collections began, counties have retained a total of approximately \$7 million.

The WLIB generally has somewhat less than \$1 million for grant awards for each semi-annual competition. Any single award cannot exceed \$100,000. In the two earlier grant periods, 22 awards went to 12 counties (or cities in those counties) for a total of \$1.49 million.

The WLIB uses a structured scoring process to evaluate grant applications. The scores are developed by its Grant Evaluation Committee, which makes recommendations to the board. In the first two award periods,

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Counties in which Land Information Program Grants have been Awarded, as of October, 1992.

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## **WLIB Grants, continued**

urban counties received most of the awards (and they constituted most of the applicants). In the third period, a number of less populous counties were successful; in fact, the highest score was achieved by Vilas County.

The grant evaluation scoring system provides a 15-point bonus for the first award in a county. In the most recent award period, scores ranged from 115 to 52. Applications achieving scores from 115 to 102 won awards.

It is likely that the upcoming grant periods will continue to break records for both total dollars requested and total dollars turned down. In the face of relatively static funding levels, the WLIB is faced with a difficult task, in identifying those grant applications that represent the best investments in land records modernization.

In considering the recent set of 41 applications, the evaluation committee (seven persons) spent four days poring over the applications submitted and the approved plans to which they were related. Prior to this time, each committee member read each plan. Later the full board had an opportunity to review these same materials in considering the award recommendations. While there were many disappointed applicants, the process is designed to be as fair as possible, and to implement the statutory mandates underlying the program.

Grant funds are payable by the WLIB upon submission of expenditure documentation by the grant recipient. The first payment was presented to the Winnebago County Board in Oshosh by Governor Thompson during his week in the Fox River Valley this summer.

## **WLIB News**

*by Bob Gurda*

### **Board Meetings**

Since our last issue, the Wisconsin Land Information Board has met twice: September 1 and October 12. Upcoming meetings are scheduled for December 14, January 11, February 8, March 10, and April 12. There will be no meeting this November.

### **Countywide Modernization Plans**

The WLIB approved Countywide Plans For Land Records Modernization for six more counties: Clark, Florence, Green, Iron, Monroe, and Menominee counties. As a result, by the close of the October 12 meeting, 70 of the 71 counties participating in the Land Information Program had their modernization plans approved by the board.

The Vernon County Board recently reaffirmed its earlier position against participating in the Wisconsin Land Information Program. Vernon remains the only county not participating, and will continue to forward its full land records filing fee collections to the WLIB.

### **Grants**

At the September meeting the WLIB approved awards in its third grant cycle (see story on page 1). The month of December, 1992 is the next semi-annual application period, with evaluations and subsequent awards expected by early spring.

### **Revenues**

Document filings at county Register of Deeds' offices have continued to be strong in recent months, resulting in higher total fee collections in most counties than for the same months in the previous two years. Nevertheless, the portion forwarded to the WLIB has fallen far short of the requests received for grant funds.

### **Education Committee**

The WLIB's Education Committee has decided to follow two tracks: short-term and long-term. The short-term focus includes workshops and seminars, some of which may be developed for the upcoming winter-spring period. The long-term focus concentrates on technical training and university education tracks to develop needed skills and expertise.

### **Integration/Clearinghouse Committee**

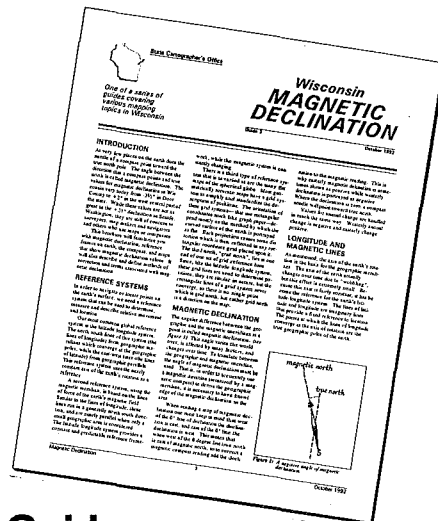
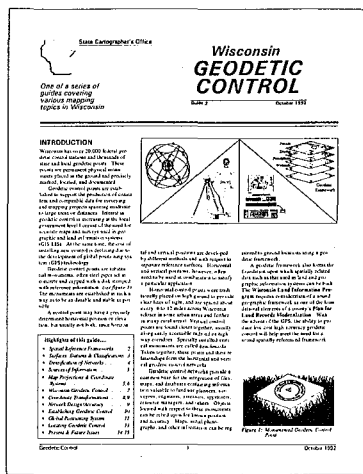
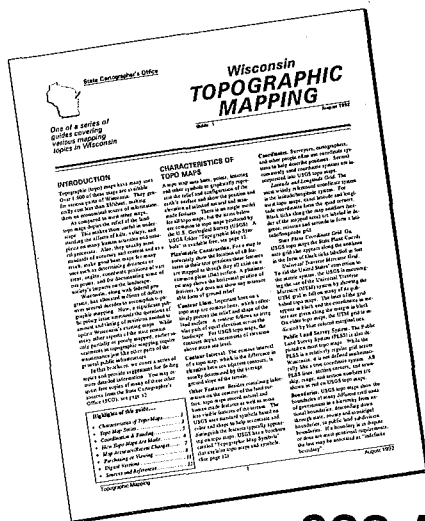
This group, recently restructured from the previous Program Integration and Clearinghouse Committees, began meeting in August. It has two primary tasks: first, to continue prior work leading toward a model of networked local, state, and federal metadata on land information and supporting systems; and second, to develop effective state agency planning that leads to systems and data integration for land information.

### **Technical Issues**

On two dates in October and November, the WLIB is holding a Technical Summit. A small group—mostly non-board members—has been invited to participate in a structured decision process with the goal of identifying the key technical issues needing board action in the next two years.

### **Administration**

The WLIB staff recently moved their office a few blocks to the newest state office building in downtown Madison. The street address is 101 E. Wilson Street, 6th Floor. The mailing address remains P.O. Box 7868, ZIP 53707-7868. The telephone and fax numbers have not changed.



## SCO Announces Three New Guides

Three new free informational guides are now available from the State Cartographer's Office. The guides cover the topics of topographic mapping, geodetic control and magnetic declination from a Wisconsin perspective. They range from 4-16 pages in length, and are produced in a style similar to the *Wisconsin Mapping Bulletin*. Each includes numerous illustrations.

These three publications are the first in a series of guides that will cover a wide range of mapping topics. The purpose of each guide is to describe current information on a mapping related topic, giving specific emphasis to the status, availability, condition, and future of this information in Wisconsin. The guides are intended to be both informative and educational, and analyze and explain a variety of information that is not available from any other single source.

The guides should be useful to people working with the Wisconsin Land Information Program (WLIP), educators who need supplemental classroom materials, or anyone looking for a more in-depth understanding of mapping related topics. In most cases, these publications each provide detailed coverage of a particular topic that is introduced in the SCO's popular handbook *Introduction to Land Information Systems for Wisconsin's Future*.

We will directly distribute copies of each guide to county land information offices, regional planning commissions, certain libraries and educators, and others. You can request a free copy by contacting the SCO (see page 16).

### Wisconsin Topographic Mapping

This 12-page guide highlights the status of federally-produced topographic mapping in Wisconsin. Topics covered include how U.S. Geological Survey (USGS) quadrangles are made, how and when revisions are produced and funded, a discussion of accuracy standards, and the availability of digital map data. Of particular note is the inclusion of two lists giving the location, address and phone number of the USGS topographic map sales outlets and map depository libraries within the State of Wisconsin.

Martha Berry, a recent graduate assistant in the SCO, wrote this guide. She was working toward a Master's degree in Cartography.

### Wisconsin Geodetic Control

This 16-page guide provides a broad discussion on what geodetic control is, why it is important, what it is used for, and its current condition within the state. This guide should be especially helpful to those seeking an understanding of control issues as they relate to WLIP requirements.

Major topics covered include the National Geodetic Reference System framework, geodetic surfaces and datums, densification of control networks, standard map projections and coordinate systems, horizontal and vertical control, monument maintenance, and global positioning systems (GPS). Of particular interest is a discussion of present and future issues for geodetic control in Wisconsin, and a listing of sources of Wisconsin information.

The geodetic control guide was written by Diann Daniels, a graduate assistant at the SCO. Diann is a Registered Land Surveyor and is working towards her Master's degree, concentrating on land information systems. Generous financial support for the printing of this guide was supplied by the Wisconsin Society of Land Surveyors.

### Wisconsin Magnetic Declination

This 4-page guide familiarizes the reader with concepts of magnetic declination, its changes over time, and maps that show magnetic declination values. Of specific interest is a map that shows current magnetic declination values across the state, and their expected rates of annual change. Sources of other magnetic declination information are also included.

This guide is of value to those who wish to know current magnetic declination values for map use or navigation purposes, or to those who want to know declination changes and values in the past.

Matthias Allen, an undergraduate employee at the SCO, wrote this guide. Matt is majoring in Civil Engineering.

### Forthcoming Guides

Currently, the SCO is working on other guides covering soils mapping and parcel mapping, topics that are among the "foundational elements" identified by the Wisconsin Land Information Program. As these guides become available we will announce them in the *Bulletin*.

# AERIAL PHOTOGRAPHY

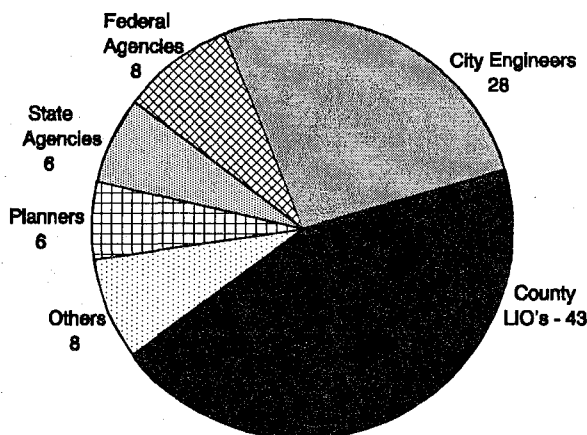
## SCO's Aerial Photography Survey

by Tim Ruhren

This summer, the SCO mailed more than 200 Aerial Photography Surveys and Reports, in the first step towards updating our Aerial Photography Catalog. We hope to obtain a more extensive description of aerial photography holdings within Wisconsin than has been acquired in the past. Among the groups targeted were the County Land Information Offices, the City Engineers of 57 cities and villages with populations over 10,000, Regional Planning Commissions (RPC's), state and federal agencies, paper companies, and numerous others.

The survey is intended to provide a description of the status and future needs of aerial photography users in Wisconsin. Questions discuss the respondent's areas of interest, investments in photography, and cooperation and cost sharing with other organizations. A section addresses the user's familiarity with and interest in orthophotography.

Survey Responses by Types of Organization



A summary of the nearly 100 responses received so far highlights important trends in the state's airphoto user community. Those respondents who reported doing so make rather large investments in aerial photography, up to several hundred thousand dollars. Usually, these acquisitions occur at 5 or 10 year intervals. Many other organizations report minimal investments because they obtain copies of imagery from such groups as the ASCS or RPC's.

Despite the high cost of obtaining aerial photography coverage, few respondents had participated in any cooperatively funded, inter-organizational flights. However, nearly 70% of the organizations expressed interest in possible cooperative flights for the future. This indicates that revenue savings would be realized if organizations with similar needs could be matched.

Orthophotography is widely recognized as a useful resource by those respondents who had seen or used such imagery. Orthophotos were often mentioned as a poten-

tially valuable source for GIS layers. Moreover, over than 75% of the groups surveyed indicated that they would use digital orthophotos if they were available for their area, even though less than 30% of the respondents currently had the ability to display a raster digital orthophoto image.

We are developing a computer database to document the aerial photography holdings reported by survey respondents. This database will be used in creating the new Catalog, in answering inquiries at the SCO about airphotos, and in coordinating and promoting future flights. We appreciate the help of all those who have replied to the survey, and encourage anyone with unreported information to contact us as soon as possible.

## Statewide Aerial Photography . . . An Update

by Ted Koch

### NAPP

In the previous issue of the *Bulletin* (July, 92), we reported that the entire state was recently covered by new aerial photography through the National Aerial Photography Program (NAPP). In spite of some poor early-spring weather, skies cleared in early May which allowed the three NAPP contractors to finish coverage of the entire state.

With flying complete, the photo negatives were delivered for quality inspection to the NAPP administrative offices located at the U.S. Geological Survey's headquarters in Reston, Virginia. USGS completed the inspection process in early September, resulting in 5% of the photos being rejected due to poor quality (improper exposure, scratches, bright spots, etc.). Areas of rejected photographs will be reflowed in the spring of 1993.

At present, the NAPP negatives are being duplicated at the U.S. Department of Agriculture photo facility in Salt Lake City, Utah. When that process is completed, the original negatives will be sent to the Earth Resources Observations Systems (EROS) facility in Sioux Falls, South Dakota. At that location the photos will be indexed, and archived. The current best estimate is that NAPP photo products will be ready for sale from these federal labs sometime this winter.

### DNR Forestry Photography Project

Flights for this leaf-on project were ended for this year in early September. As of late September the northeast contract area (18 counties) was 100% complete, inspected and accepted. The northwest contract area (22 counties) is 38% completed, although no single county within this area is totally finished. The southern contract area (32 counties) is 48% completed, with 9 counties completely flown. All remaining photography is scheduled to be acquired during the summer of 1993. Meanwhile a proposed vending contract for the sale of this photography has been distributed to private firms for bids. The award of this contract is expected around December 1.

# ORTHOPHOTOGRAPHY

## Digital Orthophoto Program Inches Forward

by Bob Gurda

Over the last several months some tantalizing progress has been reported out of Washington, D.C. on the establishment of a national program to produce digital orthophotographs. As we go to press, some large question marks continue to block a clear view of the future. Nevertheless, developments toward such a program have continued to move in a positive direction despite some significant but hopefully temporary roadblocks.

Digital orthophotographs are computerized images, produced by making geometric corrections to scanned aerial photographs. All aerial photographs contain distortions of various amounts, as compared to an accurately constructed map of the same terrain. By removing the distortions from the original image, and recasting it upon a particular map projection, an aerial image that is accurate like a map can be produced.

Orthophotos have a variety of uses at the state and local level. In digital form, they can be viewed on computer graphics screens, printed at various scales, and combined with other map information also stored in the computer.

The initiative to establish this national program has come from the U.S. Dept. of Agriculture (especially SCS and ASCS) and the U.S. Geological Survey (USGS). Following several successful pilot projects conducted since 1987 (including one in Wisconsin), these agencies concluded that a digital orthophoto program would have numerous benefits to the administration of various federal programs. Some of these programs are implemented on a county basis through USDA field offices.

The federal group spearheading the digital orthophoto concept has estimated that national coverage would cost about \$180 million, and could be done over a 5-year period, using NAPP photo images as its raw material. NAPP (the National Aerial Photography Program) operates on a 5-year cycle, covering about 10 states per year. Wisconsin had its first NAPP flight this last spring.

An initial proposal indicated that the \$36 million annual cost would be shared equally by SCS, ASCS, and USGS, with the program starting as early as October, 1992 (the beginning of a new federal fiscal year).

To date, the first year of funding has been slow falling into place. The USDA agencies together identified a source for their \$24 million share, but the Office of Management and Budget would not give the Secretary of Agriculture the approval to shift this existing funding to orthophoto production.

USGS tried to get additional funding from the Congress but has not identified alternative existing internal funding

since the Congress declined to augment their budget.

Other agencies within the Department of Interior have similarly declined to help with funding so far despite their interest in using the resulting orthophoto imagery.

The Wisconsin Land Information Association recently asked people around the state to contact OMB and elected representatives in Washington in an attempt to free up the funds identified by USDA. Especially since a coalition of Wisconsin groups provided \$140,000 of funding for the NAPP acquisition this spring, there is heightened interest in seeing that investment converted into the much more useful digital orthophotos.

## DOQQ Standards Released

by Bob Gurda

Standards for the production of digital orthophotoquads have been published by the U.S. Geological Survey. We have received a copy of the 50-page report, and this short report covers its high points. These technical instructions were the result of negotiations between USGS and Department of Agriculture agencies interested in using digital orthophoto imagery in their field offices.

Under this standard, NAPP and NHAP aerial photography are the primary source material options. NAPP

(1:40,000-scale) is used for quarter-quadrangle images (3.75 minutes of latitude and longitude), while older NHAP (1:80,000-scale) covers four times that area (same as a 7.5-minute topographic quad sheet).

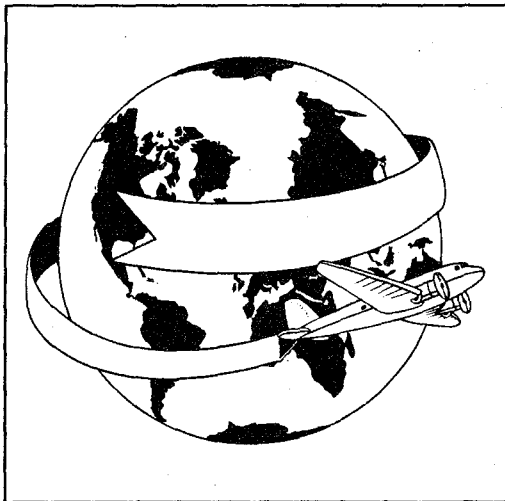
Scanning of the photographs must be sufficiently fine to support in 1 meter image pixels for NAPP, 2 meters for NHAP. Pixels are given gray values ranging between 0 and 255 (8-bits).

The ground area included in the digital file is less than the entire scene recorded on the photograph, but does extend beyond the precise latitude/longitude window by about

1,000 feet in each direction. That is, adjacent files will overlap, providing a 2,000-foot wide zone that appears in both images.

The quarter quadrangle images are cast on the Universal Transverse Mercator projection, on the new NAD 83. The less detailed quadrangle images can also be controlled to NAD 27. Coordinates are expressed in meters.

Accuracy is required to meet National Map Accuracy Standards at 1:12,000-scale for quarter quads, and 1:24,000-scale for quadrangles. Vertical accuracy of the photo image must not exceed 7 meters RMSE. Additional part of the standard cover header content and structure, and data structure of the image itself.



## GPS "Base-Station" Planning

by Ted Koch

A recently established interagency taskforce is starting to evaluate the potential of installing and maintaining one or more Global Positioning Systems (GPS) base-station receivers in Wisconsin. Base-station receivers are permanently located and positioned devices designed to receive and store multiple GPS satellite radio signals continuously, 24-hours per day.

Base-station receivers are of significant potential value to the surveying community. They serve as an anchor point in determining the precise differential position of other mobile GPS receivers. A permanently located receiver may be operated in "real-time" when supported by direct radio or telephone communication, or in a "post-processed" mode where data can be accessed at any time.

The obvious advantages of accessing a permanent base-station receiver are efficiency and cost savings to data collectors and users of GPS satellite signals. With the base-station in providing access to the collected and processed signals, users of mobile GPS data collectors can obtain positions using a single receiver, vs. a minimum of two. Resulting savings come from investing in fewer receivers, and spending less time and effort with receiver set-up.

Typically, in high precision GPS work, survey designed to support accuracy, two or more receivers collect signals during an observation session, and the data are then analyzed to produce positions of the occupied points relative to one another. If the latitude and longitude of one of the points is known, the latitude and longitude of other points can then be computed. With a base-station in place, its precise location (latitude and longitude) is known, fixed and constant, allowing other precise position values to be determined by signals received and processed through a single high-precision mobile receiver. This method also works to improve the accuracy of lower precision handheld type GPS receivers.

The taskforce studying the base-station issue is made-up of representatives from a variety of state and federal agencies, and the Wisconsin Society of Land Surveyors. In its first meeting on September 24, the taskforce discussed many of the complex, and as yet, unanswered issues associated with the installation and operation of base-station receivers. Solutions to the questions of funding sources, data availability, data management, number of base-stations required statewide, their location, responsibility for installation and maintenance, and receiver requirements for survey-accuracy data are some of the many issues that await analysis and answers.

At its second meeting on October 28, the taskforce developed a mission statement, began preparations for a questionnaire to be answered by potential users, and created two subgroups, one to investigate technical requirements and the other to analyze management issues. In conducting its work, the taskforce is soliciting involvement and

input from a wide variety of organizations concerned with GPS technology and applications.

If any agencies or organizations wish to have representation on the taskforce, or want further information on the future of the base-station issue, contact the taskforce chair: John Haverberg, State Technical Services Engineer, Wisconsin Department of Transportation, P.O. Box 7916, Room 5B, Madison, WI 53707. Phone: 608/266-0075.

## Improving Cadastral Maps .....

### *Upgrading Boundary Information Obtained from Digitized Tax Maps for the Purpose of Creating a Digital Cadastral Overlay*

Najeh Tamim and Grenville Barnes,  
Ohio State University, 1992 URISA Proceedings

by Diann Danielsen

This presentation at the July 1992 URISA Conference in Washington D.C. addresses a real and present problem faced by many governmental agencies. The authors have attempted to find a practical balance of time, cost, and accuracy along the continuum of cadastral mapping.

They begin by recognizing several approaches to cadastral mapping, ranging from digitizing of existing tax maps to detailed field surveys of ownership parcels. One approach is inexpensive and quick to implement, however the resulting accuracy does not meet the needs of all land information system users. A more comprehensive approach provides optimum accuracy but is generally cost prohibitive. This latter approach requires the establishment of a geographic framework, remonumentation of lost monuments, and extensive records research and analysis, all very time consuming projects involving years of effort.

The authors' compromise solution is first to digitize the best available data to begin building a land information system. This allows the system to be built in a short amount of time and at a low cost, and, then used in the short term for purposes not requiring the detailed survey. The digitized coordinates are then improved over time by a least squares adjustment—holding fixed predefined parameters such as parcel area, boundary measurements, street widths, etc. Over subsequent years, the accuracy would be upgraded in cycles by incorporating more accurate field survey and legal document data and performing another adjustment.

Study results showed a significant accuracy improvement utilizing this method, indicating that incorporating a routine such as this in a GIS module could significantly improve cadastral mapping efforts. Currently the computation and storage limitations of the adjustment forces tax maps to be treated one at a time. Further research will deal with joining these individually adjusted maps.

As a point of interest, Professor Barnes received his PhD in Civil and Environmental Engineering from the UW Madison in 1988. URISA honored this paper with its "Best Student Paper" award for 1992.

## PEOPLE & ORGANIZATIONS

### New WGNHS Director Selected

University of Wisconsin-Extension Dean Ayse Somersan has named Dr. James M. Robertson as State Geologist and Director of the Wisconsin Geological and Natural History Survey. Robertson will take over these duties in January.

Robertson received a B.A. in geology from Carleton College, and an M.S. in geology and a Ph.D. in economic geology from the University of Michigan. He has spent the past 18 years with the New Mexico Bureau of Mines and Mineral Resources; during part of that time he served as the Bureau's Associate Director. His present work as a Senior Economic Geologist emphasizes recognizing, organizing, and defining a chronologic and geologic framework for Precambrian rocks in New Mexico.

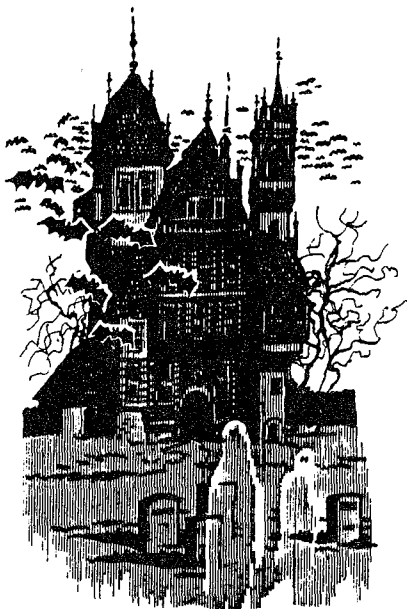
(source: *SurView*, Vol. 13, No. 1, Spring/Summer 1992)

### News from the SCO

Brenda Hemstead returned to work early October from her maternity leave. Her second child is a girl named Brooke, who was born a healthy 9 lb 3oz in July. SCO employees came up with many possible names for her baby to fit in with the family pattern (Brenda, Brent, Brandon), such as, "Brenchmark", "Brass Cap", "Brensten", get the picture?

Lee Samson, our automated systems manager, left in August after two years, and was replaced by Ken Gotsch, a new graduate student in Cartography.

Two former SCO graduate assistants are in the employment news. Following his completion of law school, Alan Stewart has joined Plangraphics in Frankfort, Kentucky. He also has a Master's Degree in Civil & Environmental Engineering. John Laedlein is moving back to Madison to become DNR's database manager. He has been employed by ESRI in California for over four years.



### Obituary

Barbara Bartz Petchenik, ACA member and vice president of the International Cartographic Association (ICA), died of cancer in Chicago, IL on June 7th. She was 52.

Regarded as one of the most prolific and hardworking members of the profession, Petchenik integrated her scholarly interests (spatial knowledge and mapping) with active participation in commercial cartography. She was a senior sales representative for cartographic services at R.R. Donnelly and Sons Co., Chicago. Recently, she was a member of the National Research Council's Mapping Sciences Committee where she was the primary author of their 1990 report "Spatial Data Needs: The Future of the National Mapping Program".

Petchenik was born in a small rural Wisconsin town, and earned a bachelor of science degree at the University of Wisconsin-Milwaukee in 1961. She intended to study the geography of soils in graduate school, and thinking that she could combine two specialties, accepted a National Defense Education Act Fellowship in cartography at the University of Wisconsin-Madison. Petchenik studied with such notable mapping scientists as Joel Morrison, George McCleary, Les Maercklein, Henry Castner, Mei Ling Hsu, and somewhat later, Judy Olson and David Woodward.

Petchenik co-authored "The Nature of Maps" with Arthur H. Robinson and contributed more than 50 articles, reviews, and essays to the professional literature, focusing on map design, education, cognitive psychology and human factors.

(source: *ACSM Bulletin*, September/October 1992)

### Census & USGS Agree to Joint TIGER/DLG Development

The Bureau of the Census and the U.S. Geological Survey have agreed to enhance their existing collaborations, leading to a joint digital geographic data base that will be used by Census to support the 2000 decennial census, and by USGS to prepare intermediate scale mapping.

These two agencies cooperated during the 1980's in conversion of USGS 1:100,000-scale maps into digital line graphs (DLGs) that became the foundation for much of the TIGER geographic base. TIGER was used to help collect and report the 1990 census, and was used in Wisconsin and other states to assist in redrawing election district boundaries.

The new agreement is a formal amendment to an existing memorandum of understanding between the agencies.

(source: *Bureau of the Census*)



## Questions & Answers

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### **What conversion factor can I use for going from NGVD29 to IGLD(55)?**

Persons doing survey work along the rivers and lakes of the Great Lakes system often encounter a need to relate these two vertical datums. However, conversion factors and the relationship of land and water datums are very complex subjects. Questions are best answered by the National Ocean Service, Office of Earth Sciences, or the Vertical or Tidal Datums Branches of the National Geodetic Survey.

The short answer to the above question is that any conversion factor will be dependent upon your project location. The value varies because the heights and the reference surfaces for the two systems are different.

The National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988 (National Geodetic Survey) use orthometric height. For these heights, one equipotential surface, mean sea level, is selected for the reference surface to which heights are measured. The International Great Lakes Datum of 1955 (U.S. Army Corps of Engineers) uses dynamic height, which is referenced to the equipotential surface at a particular point. The dynamic height varies with the elevation and latitude of the point.

The IGLD is based on water levels which are readjusted every 25 to 35 years to correct for the effect of crustal rebound from the Ice Age. The rate of crustal movement is not uniform across the Great Lakes, causing the benchmarks to shift over time, both with respect to each other and with respect to the initial reference point. This too makes conversion factors variable.

The best source of information on conversion factors is the Office of Ocean and Earth Sciences, a part of the National Oceanic and Atmospheric Administration. When provided with a NGVD 29 benchmark value, they can compute a conversion factor suitable for a particular project site. Contact:

NOAA, National Ocean Service  
Office of Ocean and Earth Sciences  
ATTN: N/OES211  
6001 Executive Boulevard  
Rockville, Maryland 20852  
(301) 443 8441

The recent incorporation of IGLD(85) into NAVD 88 have brought these two datums closer together. Today they are essentially the same datum, the only remaining difference being the published heights (dynamic v. orthometric).

(source: *Establishment of the International Great Lakes Datum (1985)*, Draft, October 1991, Coordinating Committee on Great Lakes Basic Hydraulic and Hydrological Data)

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### **More and more, I hear about satellite imagery being used in performing tasks previously accomplished with aerial photography. How does the spatial resolution of Landsat/SPOT imagery compare with that of aerial photography?**

Spatial resolution in remote sensing is defined by the smallest feature that can be detected. The Landsat and SPOT satellites capture an image in digital format. The imaged area is composed of an array of cells called pixels ("picture elements"), and it is the corresponding ground size of each pixel that determines the smallest object that can be resolved. For Landsat TM imagery, a single pixel represents an area roughly 30 meters square. SPOT gathers imagery with two different resolutions, depending on the sensor used. The multispectral ("color") images consist of pixels with an approximate ground area 20 meters by 20 meters, while the panchromatic (black & white) pixels are 10 meters square.

A photograph's ground resolution is limited by the flying height, camera lens, film, and/or processing method. For the high precision camera systems used in most aerial photography, the film resolution will be on the order of 20 millionths of a meter or about 1/200th of an inch, or better. For 1:40,000 scale airphotos such as NAPP photography, this would mean that the image of an object as small as 0.8 meters square could be resolved.

Airphotos often are scanned into digital, computer compatible format. The scanning process "breaks" the photo into an array of pixels. The array size can be varied - 1000 dots per inch (dpi) is a typical value, equivalent to 25 millionths of a meter. Again, consider NAPP photography in 9 inch square format at 1:40,000-scale. When scanned at 1000 dpi, the image is broken into 81 million pixels or dots. Each 25.4 micron square pixel represents a ground area of roughly 1 meter square —the resolution of the scanned image.

All in all, typical remote sensing satellites can't come close to the resolution captured by aerial photography. However, it is interesting to note that satellite images gathered at over 100 times the altitude can have ground resolutions only ten times coarser than aerial photography. Spatial resolution, of course, is not the only consideration when choosing an imagery source. Satellites especially shine when computer image processing techniques are used to extract various patterns from multi-channel data. Actually, satellite and aircraft images can be used together very effectively.

*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.*



## Cooperation Pays Off

by David Schmidt\*

Using Geographic Information System (GIS) technology in local government is perceived to be the solution to redundant capture, storage and retrieval of land record information. In the State of Wisconsin recent legislation provides incentives to all local units of governments to modernize their land record systems. In theory, redundancy can be reduced by compatible and integrated systems development across a group of local governments and others.

How effective can a cooperative systems development project in the land information area be? One Wisconsin example—the WINGS Project—tells much the same story as numerous others that have come to light in various parts of the world: cooperation can have benefits in excess of costs.

As implemented by the Wisconsin Land Information Board, the Grants-In-Aid section of the legislation encourages multiparticipant type projects. More points are counted toward gaining a grant award when there is more integration and cooperation between departments, agencies, and local, state and federal jurisdictions. The premise is that the more integration and cooperation that transpires in land record modernization, the larger the net benefit to all involved. Benefit or deterrent, Winnebago County's multiparticipant project uncovered both.

### WINGS: Form and Function

The Winnebago County Geographic Systems (WINGS) Project has been a multiparticipant project from its conception in 1989. All 23 political jurisdictions in the county agreed early in the formation of the project that integration and cooperation would have more benefits than deterrents. The county has had other multiparticipant type projects in the past—some successful, and some not. The most recent success is a countywide 911 dispatch center operated by the County, which was implemented in 1979.

The WINGS Project is an attempt to share a common land digital database with all jurisdictions and businesses in the county. With 23 political jurisdictions and a potential of 156 elected officials, the project could have drowned in a quagmire of political rhetoric. Such was not the case.

The County Executive asked for representatives from each jurisdiction, all public utilities and an engineering firm to serve on a Land Records Council (LRC). Meetings of the LRC have an average attendance of twenty people. All policies for database design, purchase of hardware and software, data conversion and maintenance are established by the LRC.

### Deterrents

The old saying "the more the merrier", does present some problems in implementing a GIS land record modernization project. The more participants, the more varied the opinions, and the more difficult it is to gain consensus. The WINGS Land Records Council did not proceed on a task until consensus was achieved. Consensus is achieved by constant open communication and no hidden agendas.

The WINGS experience to date is that the more jurisdictions involved in a project, the more time it takes to complete the project. A rule of thumb is for every jurisdiction that is committed to spend dollars on the project, you can calculate that the project will be extended by 25%. The complexity of the project, i.e., the number of layers of information, networking scheme and number of participants, etc., all contribute to the length of time it will take to complete the project.

***By avoiding redundancy, more work can be done for the same combined investment.***

### Benefits

The benefits of a multiparticipant project can be compared to playing the nickel and dollar slot machines at a casino. Both give returns, but we know which has the bigger jackpot. Using nickels may be less an investment, but in combining various players' nickels to reach the level of dollars you gain access to the eventual larger jackpot. A "one department GIS" is a conflict in terms. When using the word "geographic" a broader scope is very natural.

As stated above in "Deterrents", the more participants, the longer the project. Referring to the "Benefits", by contrast, the larger the participant group, the greater the payback. The payback can be measured in operational efficiency, better service to the public, and prevention of redundancy of land information. Most elected officials ask if there is going to be a reduction of staff. No, in fact, you will probably have to add staff to *administer* the project.

Payback in a multiparticipant project comes from doing it once, i.e., designing the database, networking equipment, conversion of paper documents and ongoing maintenance. By avoiding redundancy, more work can be done for the same combined investment. The WINGS Project is projected to save well over 2.4 million dollars over 10 years, with a seven year payback.

### The Bottom Line

In summary, the net benefit to participants and to the general public justifies the investment in time to complete a multiparticipant GIS project. Many people in our county have worked together long and hard to bring the WINGS Project to life, and we are confident that with continued commitment it will pay dividends for all into the future.

*\*David Schmidt is Director of Planning and Zoning for Winnebago County in Oshkosh.*

## REMOTE SENSING NEWS

### Statewide Landcover

by Tim Ruhren

The Guest Opinion column in our April 1992 *Bulletin* contained a call by Professor Thomas Lillesand for a statewide landcover mapping program. A similar project was recently completed by the Georgia Department of Natural Resources. The DNR, working with ERDAS Inc. of Atlanta, used Landsat Thematic Mapper (TM) data to create land cover classifications for the entire state.

Eleven full scenes and two quarter scenes covering the state were divided into 13 unique physiographic regions to aid classification. ERDAS classified the images and performed field checks to ensure the accuracy of the classification. The raster images were converted to a vector format to be compatible with existing state databases. Color landcover maps corresponding to Georgia's 1,016 USGS 1:24,000-scale topographic maps were plotted. The state's 18 regional development centers received maps and data for use in natural resource planning and management.

In related news, EOSAT's offer of bargains through their Statewide Coverage Program (April *Bulletin*) has been attracting customers. Interest exists among state and local governments, and more than a dozen states have participated. Several Wisconsin entities have expressed interest in the potential of a statewide set of satellite imagery (Landsat or SPOT). Please contact Bob Gurda at the SCO if you would like to be involved in such an initiative.

Meanwhile, work on Landsat 6 continues. The satellite should be delivered to the government as we go to press, and NOAA is planning for a January 23, 1993 launch. In anticipation of this event, EOSAT is offering a simulation of the eight-band TM data that will come from Landsat 6. An image of the airport in Calgary, Alberta, Canada was created by merging 7-band TM data with higher resolution panchromatic data. A handling fee of \$25 is necessary to obtain the disk. More information about the simulation data is available from EOSAT's Application and Training Department, 301/552-0569.

Several recent developments will influence the roles of the private sector in remote sensing in the U.S. EOSAT has opened its new ground station near Norman, Oklahoma. The station was bought and installed with EOSAT funds, and marks the transfer of satellite control from government owned to private facilities. Also, in May EOSAT announced that it would assume operations costs for Landsat on October 1, 1992. This move reportedly will save the taxpayer \$19 million in Fiscal Year 1993.

In Washington, D.C., the Senate will be considering S. 2297, a bill to repeal the Land Remote Sensing Commercialization Act of 1984. The legislation, introduced by Senator Larry Pressler (R-SD), recommends changes similar to those described in H.R. 3614 (National Remote

Sensing Policy Act) proposed by Rep. George Brown (D-CA) (see *Bulletin*, April 1992). In summary, the bill calls for NASA and the Department of Defense to oversee the development of Landsat 7 and the distribution of its products. Commercial development in remote sensing is to be encouraged by authorizing the Secretary of Commerce to license private sector remote sensing space systems.

The state of federal oversight of remote sensing grows more complicated when one considers legislation such as H.R. 5529. This bill, which was being reviewed by the House Government Operations Committee, proposes the creation of a cabinet-level Department of Science, Space, Energy, and Technology (DSSET). DSSET would incorporate NASA, NOAA, EPA and the National Institute of Standards and Technology, as well as parts of the Department of Energy; and is intended to lead to more efficient use of resources in science and technology research.

Evidently, this fall's national election may do much to determine the future course of remote sensing in the U.S. Among many other criteria, members of the remote sensing community can judge their elected officials by how much support they have given or will give to the field.

(sources: EOSAT, *Landsat Users Notes*, Spring 1992. EOSAT, *Landsat World Update*, June 1992. *Washington Remote Sensing Letter*, July (II), 1992 & September (I), 1992)

### North American Vegetation Index Map Produced from Satellite Data

As part of the Global Change Initiative, the U.S. Geological Survey and the Canadian Centre for Remote Sensing have jointly produced an AVHRR-derived vegetation greenness index map covering North America. The index depicted on this map is computed from data collected during mid-August of 1990.

The map is produced in color at a scale of 1:12,500,000 (about 1" = 200 miles) and covers the entire area from Panama to the Arctic. The mapped area measures 23 X 24" on a paper size of 31" square.

AVHRR is the acronym for the Advanced Very High Resolution Radiometer, a satellite-based instrument that measures energy reflected from earth surfaces. It has a fairly coarse spatial resolution of 1 km, although this feature means that data analyses over large areas can be performed relatively easily.

A limited number of copies, along with a short descriptive brochure, are available from Ron Meyer, Sioux Falls ESIC, USGS, EROS Data Center, Sioux Falls, SD 57198, 605/594-6151.

(source: USGS)

## Geodetic Control Database Software is a Timely Product for Wisconsin

### RLS Manager Control Base v. 2.0

by Diann Danielsen

Many Wisconsin counties, state agencies, utility companies, and private firms are acquiring and producing unprecedented volumes of geodetic control data. With the recent high precision horizontal datum adjustment (NAD 83 (1991)), the increasing number of GPS surveys, and local government control densification activity, there is a growing need to be able to search, maintain, and report on available geodetic control.

How can one manage and manipulate this volume of information? One available solution is *RLS Manager Control Base v. 2.0* produced by Randy Noland of SP Software, Inc., Greensboro, North Carolina. It has been developed with the assistance of the National Geodetic Survey (NGS) to aid geodetic control users in the management of their geodetic data.

*Control Base* is a relational database built on, and cross referencing, NGS data files (NAD 27 and NAD 83 coordinate listings, NGVD 29 and NAVD 88 elevation listings, and their station descriptions). The program allows the creation of a user control file in the NGS data format and has import routines for GEOLAB, FILLNET (e.g., Ashtech), TRIMNET (Trimble), STAR\*NET, and generic ASCII coordinate files.

Files can be searched by station name, positional quality, geographic or State Plane coordinates, or a user defined search radius. The station is found in one datum and can then be searched in other datums or files. A personal notepad is incorporated for the user to add notes concerning individual stations. The program inverses between points and gives distances from the radial search point. ASCII plot files can be produced for import into AutoCad and GIS systems.

The package was introduced in June 1991 and sells for \$495. The price includes NAD 27 and NAD 83 coordinate files for one state. The software is designed for IBM compatible PC's and is Windows compatible. A network version is also available. A demo can be obtained through SP Software (\$30 by order) or downloaded from the Professional Surveyor Bulletin Board Service. The demos are good for 35 tries within 60 days. The software is currently being used by the Army Corps of Engineers and six State Departments of Transportation.

Other SP Software products include NGS data files at a 20-50% discount from NGS prices and an RLS Manager Extraction Utility program for \$175. The Extraction Utility allows a portion of the *Control Base* files to be extracted for regional use in district, area, or county offices.

The State Cartographer's Office obtained a copy of the software and tested it on a sample file set. All in all, it is an excellent and much needed product. The software is friendly and easy to use, and is very generously supported

by Randy Noland. More details about *Control Base* can be found in reviews in the June 1992 ACSM journal, *Surveying and Land Information Systems* and the July/August 1992 issue of *P.O.B.* magazine.

While both reviews noted above are detailed, they do not address certain issues or limitations (note that both reviewers operate in metes and bounds states):

- The program is not able to search and retrieve control points by section, township, and range location. This limitation could be overcome by custom programming, but needs to be added to the base package for marketability in PLSS states.
- The search capabilities could be improved by allowing the user to select all the files to be examined at the beginning of the search. In this version of the program, the user must typically perform two searches per point—one for the coordinate or elevation value and another for the station description.
- The NGS data set and any user created data set are not linked. This means the user must search file sets separately to retrieve, for example, NGS and USGS vertical control data—once in the NGS file set and again in a user created USGS file set.
- Searches by State Plane coordinates are limited to one zone, which could result in a loss of data at zone boundaries.

*RLS Manager Control Base* and further information are available from Randy Noland at:

SP Software, Inc.  
PO Box 420  
Greensboro NC 27402  
(919) 274-1541  
(919) 370-4711 fax

## STDS Becomes FIPS Standard

On July 29, 1992, the Secretary of Commerce approved the spatial Data Transfer Standard (SDTS) as Federal Information Processing Standard (FIPS) Publication 173. The SDTS provides specifications for the organization and structure of digital spatial data transfer, definition of spatial features and attributes, and data transfer encoding. The SDTS promotes and facilitates the transfer of digital spatial data between dissimilar computer systems.

FIPS Publication 173, the SDTS, is effective February 15, 1993; use of the FIPS SDTS is mandatory for federal agencies one year from this date. As a FIPS, the SDTS will serve as the national spatial data transfer mechanism for all federal agencies. The SDTS is available to state and local governments, the private sector and academia.

For additional information about the SDTS program, contact: SDTS Task Force, Manager, USGS, 526 National Center, Reston, VA 22092. FIPS publications are available from the National Technical Information Service, U.S. Dept. of Commerce, 703/487-4600.

(source: *URISA News*, September 1992)

## PUBLICATIONS

### New Digital Cadastral Mapping Publication Released

The Urban and Regional Information Systems Association (URISA) and the International Association of Assessing Officers (IAAO) have released *GIS Guidelines for Assessors*, a 106-page primer on GIS and its applicability to property assessing government offices across the United States.

The new *GIS Guidelines for Assessors* publication is designed to assist the assessor in understanding geographic information systems (GIS) and how this emerging technology can be used in the important task of assessing property values for taxation purposes. The result of an intensive, effort by the two associations, *GIS Guidelines for Assessors* serves as a companion piece to an earlier IAAO publication on the manual preparation of cadastral maps entitled, *Standard on Cadastral Maps and Parcel Identifiers*.

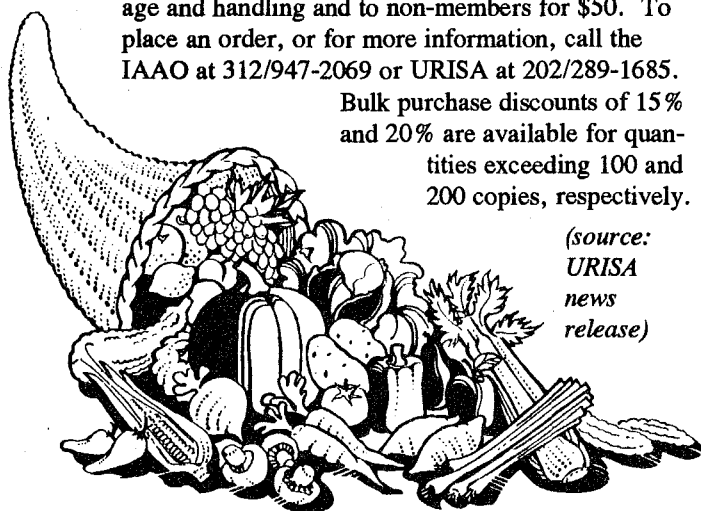
Since today's assessor is the custodian of land parcel data in most jurisdictions, *GIS Guidelines for Assessors* will prove very useful to additional government offices and private companies that rely on land data in their operations.

*GIS Guidelines for Assessors* goes well beyond cadastral mapping and focuses on the information behind the maps, including how such information can be structured to form a computerized data base and how the assessor can increase the efficiency of his or her office by utilizing a GIS system. The primer even goes as far as providing recommendations to assessors on the development and implementation of a GIS, and includes the first comprehensive discussion of the assessor's role in the development and operation of a GIS project. The latter, a new and challenging role for today's assessor, provides the mechanism for a stronger linkage between land records and other geographic data and makes all of the available data more useful to those who use it.

*GIS Guidelines for Assessors* is available to IAAO and URISA members for \$35, including postage and handling and to non-members for \$50. To place an order, or for more information, call the IAAO at 312/947-2069 or URISA at 202/289-1685.

Bulk purchase discounts of 15% and 20% are available for quantities exceeding 100 and 200 copies, respectively.

(source:  
URISA  
news  
release)



### USGS Looking to Acquire DLG Data

The U.S. Geological Survey (USGS) wishes to acquire digital line graph (DLG) data digitized from the USGS primary topographic map series for entry into the National Digital Cartographic Data Base as part of the public domain. This announcement does not solicit contractor support for specific USGS digital mapping requirements, nor is it an inducement for speculative or profit-making ventures by either private or public-funded organizations.

The intent is to identify other sources of base category digital cartographic data being prepared coincidentally by non-federal organizations, public utilities, and private firms in areas of the United States presently lacking DLG coverage in the USGS primary maps series, and to determine the potential for acquiring the data through partnerships with these organizations. When it is in the government's interest and subject to the availability of funds, USGS intends to enter into cooperative agreements or contracts with these organizations to acquire accurate, non-proprietary DLG or DLG-compatible data for the public domain.

For more information, contact Tammy Fanning or Nedra Stallone, Interior Dept., USGS, Office of Procurement and Contracts, MS205A, Rm. 6A331, 12201 Sunrise Valley Dr., Reston, VA 22092, 703/648-7364.

(source: *ACSM Bulletin*, September/October 1992)

### County Plat Books

The following Wisconsin County Land Atlas and Plat Books are now available for 1992: Ashland, Barron, Langlade, Lincoln, Marathon, Monroe, Pierce, Portage, Richland, Rock, Shawano, Sheboygan, Vernon, and Walworth Counties. These Plat Books sell for \$25.00 plus tax and shipping. For ordering details contact: Rockford Map Publishers, Inc., P.O. Box 6126, Rockford, IL 61125, phone (orders only) 800/447-2222 for customer service information call 815/399-4614.

### WG&NHS Publications

#### *List of Publications, 1992* (76 p., free)

This new edition presents the publications currently available through the Wisconsin Geological & Natural History Survey. Included are selected publications of other state and federal agencies that are available through the MAPS office. Subject and location indexes (county/statewide) help users locate materials.

#### *Index to U.S. Geological Survey Topographic Maps of Wisconsin, 1992* (folded map, free)

*Generalized Water-Table Elevation Map of Eau Claire County*, M.A. Muldoon, 1992 (Miscellaneous Map 35, scale 1:100,000, \$2.00)

For a listing of sale items and information on ordering, contact WGNHS at 608/263-7389.

## PUBLICATIONS

### NGS Releases a NADCON Update

NADCON version 2.10 was released by the National Geodetic Survey this summer. The updated coordinate conversion software includes additional routines that accommodate three of the completed state high precision geodetic networks: Florida, Tennessee, and Wisconsin.

NADCON is the federal standard for NGRS horizontal datum transformations. It provides approximate coordinate values accurate to about 0.5 feet. The accuracy of the converted coordinate depends upon the proximity and quality of control used in building the transformation model for that particular area. This type of transformation has many applications and is often used to bring historical record data into the NAD 83 adjustments.

The program allows conversion of latitude and longitude between NAD 27 and NAD 83 (1991) in a two step process. For example, data is converted from NAD 27 to NAD 83 (1986) in one computation, and those coordinate values are then used to calculate the final NAD 83 (1991) coordinates.

NADCON v. 2.10 is available from the National Geodetic Information Center at a cost of \$98 for private users and \$35 for government.

National Geodetic Information Center  
N/CG174, Rockwall Bldg. Rm. 24  
National Geodetic Survey, NOAA  
Rockville, Maryland 20852  
301/443-8631 or 301/881-0390 fax

### USGS Revises Topo Quads

by Bob Gurda

Three revised 7.5-minute topographic quadrangle maps are available from the U.S. Geological Survey. They are a contiguous group in central Wisconsin, and go by the same names as the older map sheets that they replace: Dancy, Rocky Run, and Stevens Point.

These maps are the first revisions of 1:24,000-scale USGS topographic maps produced since entire state coverage of this series was completed in 1985. Several others are in production, for the La Crosse and Wausau areas, and along parts of the Mississippi and St. Croix Rivers.

### CORPSCON v. 3.10

The U.S. Army Corps of Engineers' (COE) latest software release now supports coordinate transformations with UTM coordinates in addition to geographic (latitude/longitude) and State Plane coordinates. Also new with this release, CORPSCON is no longer limited as to the number of points transformed at one time.

COE does not plan to use individual state high precision networks for their work and thus, at this time, will not support them in their software products. CORPSCON utilizes NADCON and other NGS software programs for coordinate transformations between the NAD 27 and NAD 83 (1986) datums only.

### FEMA NGVD29

The Federal Emergency Management Agency (FEMA) has published a helpful guidebook for those involved with datum conversions for FEMA products. Beginning October 1, 1992, all new FEMA projects must be performed on the NAVD 88 vertical datum and revisions to work performed on the NGVD 29 datum will require a datum conversion.

*Converting the National Flood Insurance Program to the North American Vertical Datum of 1988 (NAVD 88): Guidelines for Community Officials, Engineers, and Surveyors* is divided into two parts, a general section for community officials and a technical section for surveyors, engineers, and FEMA staff. The general section discusses the background, need for, and effects of datum conversion on Flood Insurance Rate Maps (FIRMs). The technical section addresses conversion methods, map revisions, and new requirements for flood insurance studies.

This free publication (FIA 20/June 1992), or a list of FEMA publications, is available from:

Federal Emergency Management Agency  
ATTN: Publications Office  
PO Box 70274  
Washington DC 20024  
(202) 646 3484

OR:

FEMA, Natural & Technological Hazards Division  
Region V  
ATTN: Eric Berman  
175 W. Jackson Blvd., Fourth Floor  
Chicago IL 60604 2698



### Business Geographics Magazine Available

GIS World, Inc., publisher of *GIS WORLD* and *GIS EUROPE* magazines and the *International GIS Sourcebook*, is launching *Business Geographics*, a magazine devoted to uses of GIS (geographic information systems) in business. The premier issue will be published in January.

*Business Geographics* is a bimonthly magazine, printed in full-color and distributed free to qualified recipients. For further information contact H. Dennison Parker at 303/223-4848.

# CONFERENCES, TECHNICAL MEETINGS, AND CLASSES

November 6-12, **GIS/LIS '92** will be held in San Jose, CA. Contact: GIS/LIS '92, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2122, 301/493-0200.

November 11-13, **Spatial Data Structures for GIS Computer Graphics and Image Processing** short course will be held in Berkeley, CA. Contact: Department B, UC Berkeley Extension, 2223 Fulton Street, Berkeley, CA 94720.

November 12-14, **Engineering Surveying for MegaProjects—With Focus on the Superconducting Supercollider** will be held in Dallas, TX. American Society of Civil Engineers, Surveying Engineering Division. Contact: Nick Day, PG&E, 123 Mission St., Rm. H2276, San Francisco, CA 94106, 415/973-5698.

November 15-18, **National Council on Energy Management (NCCEM) 40th Annual Conference** will be held in Colorado Springs, CO. Contact: NCCEM at 7297 Lee Highway Suite N, Falls Church, VA 22042, 703/533-7672.

November 18, **Overview of Population, Housing, and Economic Data and Current Technologies for Access and Use** will be held at the Wisconsin Center, UW-Madison, 702 Langdon Street, Madison, WI. Contact: Nancy Hurley at 608/262-0141.

November 19, **Existing Basemaps for AM/FM/GIS** will be the topic at the AM/FM Wisconsin Chapter Membership meeting held at the Paper Valley Hotel and Conference Center, 333 W. College Ave., Appleton, WI 54911, 414/733-8000. Contact: Doug Fuller, Aero-Metric Engr., 4708 N. 40th St., Box 449, Sheboygan, WI 53082-0449, 414/457-3631.

November 30 - December 2, **Fifth Annual Montana GIS Conference** will be held at the Copper King Inn, 4655 Harrison Avenue, Butte, MT 59701. Contact: Stu Kirkpatrick, Butte-Silver Bow Planning Dept., Courthouse Bldg., 155 W. Granite St., Butte, MT 59701, 406/723-8262, ext. 220.

December 10-11, **Wisconsin Land Information Association (WLIA) Quarterly Workshop and Membership Meeting** will be held in Pewaukee Wisconsin. Contact: WLIA at 800/344-0421.

December 15-17, **High Accuracy GPS Techniques & Applications Including Surveying, Geographic Information Systems (GIS), Positioning of Moving Platforms & Movement Monitoring** will be held in San Diego, CA. Contact: Navtech Seminars Inc., 2775 S. Quincy St., Suite 610, Arlington, VA 22206-2204, 800/NAV-0885, fax 703/931-0503.

## 1993

January 14, **AM/FM Wisconsin Chapter Membership Meeting** will be held in the Milwaukee area. Contact: Jerry Laatsch at 414/291-6927.

January 27-29, **Wisconsin Society of Land Surveyors 44th Annual Institute** will be held at the Holiday Inn in Stevens Point, WI. Contact: Michael Roach at Foth & Van Dyke at 414/497-2500.

February 8-11, **Ninth Thematic Conference Geologic Remote Sensing** will be held in Pasadena, CA. Contact: ERIM/Thematic Conferences, Nancy J. Wallman, P.O. Box 134001, Ann Arbor, MI 48113-4001, 313/994-1200, fax 313/994-5123, telex 4940991 ERIMARB.

February 15-18, 1993, **7th Annual Symposium: Geographic Information Systems in Forestry, Environmental and Natural Resources Management** will be held in Vancouver, British Columbia, Canada. Contact: Symposium Office, Suite 305, 1040 Hamilton Street, Vancouver, British Columbia, Canada V6B 2R9, 604/688-1573.

February 16-18, **1993 ACSM/ASPRS Annual Convention & Exposition** will be held in New Orleans, LA. Contact: ACSM/ASPRS, 5410 Grosvenor Lane, Bethesda, MD 20814, 301/493-0200.

March 3-5, **Wisconsin Land Information Association Annual Conference** will be held in Madison, WI at the Holiday Inn (West), 1313 John Q. Hammonds Drive, Middleton, WI. Contact: WLIA at 800/344-0421.

March 7-10, **GIS in Business '93 Conference** will be held in Boston, MA. Contact: Derry Eynon, GIS World Inc., 155 E. Boardwalk Drive, Suite 250, Fort Collins, CO 80525, 303/223-4848.

March 21-25, **The Fifth International Conference on GIS** will be held in Ottawa, Ontario, Canada. Contact: L. Aubrey, Canadian Conference on GIS, c/o SMRSS EMR Canada, 615 Booth St., Ottawa, ON Canada, K1A 0E9 at 613/995-0266.

March 22-25, **AM/FM Conference XVI** will be held in Orlando Florida, 14456 E. Evans Avenue, Aurora, CO 80014, 303/337-0513.

March 24-27, **Sixth Annual Geographic Information Systems Conference (TSU/GIS '93)**. Contact: Dr. John M. Morgan, III, Dept. of Geography & Environmental Planning, Towson State Univ., Baltimore, MD 21204-7097, 410/830-2964.

March 28-31, **GIS Transportation Symposium '93** will be held in Albuquerque, NM. Contact: Jim Dolson, GIS-T '93 Symposium Chair, Florida DOT, 605 Suwannee St., MS43, Tallahassee, FL 32399, 904/488-1954.

April 6-9, 1993, **AAG Annual Meeting** will be held in Atlanta, GA. Contact: Kevin Klug 202/234-1450.

April 12-16, **SPIE's International Symposium on Aerospace Science and Sensing** will be held in Orlando, FL. Contact: SPIE at 206/676-3290.

April 26-28, **ELRC and WSLCA** will hold a joint spring meeting in Washington, DC. Contact: ELRC c/o Michigan Department of Natural Resources, Real Estate Division, P.O. Box 30028, Lansing, MI 48909.

May 10-12, **First National GeoData Policy Forum** will be held in Washington, DC. Contact: Brenda Abrams at 301/929-3351.

June, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in the Fox River Valley area. Contact: WLIA at 800/344-0421.

July 25-29, 1993, **URISA '93 Annual Conference** will be held in Atlanta, GA. Contact: Urban and Regional Information Systems Association, 900 Second Street N.E., Suite 304, Washington, DC 20002, 202/289-1685.

August 24-26, **Twelfth Pecora Remote Sensing Symposium** will be held in Sioux Falls, SD. Contact: Dr. Robert Haas, Symposium Chair at 605/594-6007.

September 26-30, **Second International Conference/Workshop on Integrating GIS and Environmental Modeling** will be held in Breckenridge, CO. Contact: NCGIA Conference Secretariat at 805/893-8224.

October 29-November 6, 1993, **GIS/LIS '93 Annual Conference & Expo. & ACSM/ASPRS Fall Convention** will be held in Minneapolis, MN. Contact: ACSM, 5410 Grosvenor Lane, Bethesda, MD 20814-2122, 301/493-8245

## CONFERENCE REPORTS AND PREVIEWS

### UW-URISA

The first student section of the national Urban and Regional Information Systems Association, UW-URISA, hosted a talk by Professor William Huxhold of UW-Milwaukee on September 17 on the UW-Madison campus. Professor Huxhold drew upon his experiences with establishing the City of Milwaukee's GIS and teaching to discuss trends in GIS-related employment. He stated that there should be numerous opportunities for individuals with multi-disciplinary, GIS training in the future.

Anyone with questions about UW-URISA can call the SCO, or send email to [URISA@cae.wisc.edu](mailto:URISA@cae.wisc.edu).

### URISA Conference Report

*by Bob Gurda*

The Urban and Regional Systems Association held its 1992 Annual Conference in Washington, D.C. in July. As usual, Wisconsin was well represented by attendees, presenters, moderators, program coordinators, and exhibitors.

One set of sessions covered the recent development of the Federal Geographic Data Committee. The FGDC is charged with coordinating federal activities in the collection and use of geographic information. It is composed solely of federal agency representatives, but part of its charter is to consider the needs of state and local governments and the private sector. As one way of collecting input from these other groups, the FGDC will participate in similar forums at various open events in the future.

Next year's URISA Conference will be in Atlanta, and in 1994 it will come to Milwaukee for the first time. In an effort to increase attendance in the face of tighter travel budgets, URISA is expected to emphasize topics of particular interest to the region of the host city.

### Census/TIGER Workshop Set

On Wednesday, November 18 a workshop on Census data and current technologies for its access and use will be held in Madison. The program runs from 8:30am to 3:30pm, and is being offered by the UW-Madison's Applied Population Laboratory. The registration fee of \$70 includes hand-out materials and lunch.

For general information, contact Nancy Hurley at 608/262-0141. For program details, contact Michael Knight at 608/262-3097.

### WLIA Sets December Meeting

*by Bob Gurda*

The Wisconsin Land Information Association is continuing its series of quarterly events with a membership meeting in southeastern Wisconsin, December 10-11, in Pewaukee. Non-members are welcome.

On December 10, a Thursday, there will be a free afternoon seminar "Making the Transition from CAD to GIS". The Friday portion of the meeting (registration fee includes lunch) will feature a presentation by Tom Patterson on the evolution of the SEWRPC Land Information System.

Last month, 75 people attended the WLIA meeting in Rhinelander. That meeting featured a presentation on aerial photography and digital orthophotography by Ted Koch, the State Cartographer.

WLIA is also in the midst of planning for its 6th Annual Conference, to be held in Middleton (Madison area) from March 3-5. This event is expected to attract in excess of 500 people, and will feature vendor exhibits (including one afternoon/evening of free access to the general public), multiple workshops, and a town meeting on the future of funding for the state land information program.

For details, contact WLIA at 800-344-0421.

### AM/FM to meet in Appleton

"Existing Basemaps for AM/FM/GIS" will be the topic at the next meeting of the Wisconsin Chapter of AM/FM, scheduled for November 19 in Appleton, beginning at 5 pm. Pat Liebmman of American Digital Cartography, Inc. will be the presenter. A fee of \$20 (\$15 for students) covers dinner. For details, contact Doug Fuller at 414/457-3631. The following meeting will be on January 14 in the Milwaukee area.

### NSGIC Meets in Santa Fe

*by Ted Koch*

The National States Geographic Information Council (NSGIC) is an organization with representation from each of the 50 states. The council was created a year ago with the goal of presenting a unified state voice on the issues of geographic information and related technologies, plus the legislative and agency activities of the federal government.

Representatives from 43 states, half-a-dozen federal agencies, and several private firms attended NSGIC's second annual meeting on September 20-23 in Santa Fe, NM. The state representatives voted to adopt a set of by-laws, elected a slate of officers, and discussed and proposed a number of action plans on currently vital issues concerning state and federal GIS development and coordination. Bill Holland, Executive Director of the Wisconsin Land Information Board, was elected to one of the six board-of-director positions.



## 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 staff presently consists of two full-time academic staff—Ted Koch, State Cartographer (608/262-6852), Bob Gurda, Assistant State Cartographer (608/262-6850), and one full-time classified staff—Brenda Hemstead, 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.

The Office answers a wide range of inquiries ranging from simple to complex, in the following general categories:

1. Geodetic Control—Requests for surveying information which has been established by some office or agency, and upon which the requestor wishes to base a survey or map.
2. Aerial Photographic Coverage—These are requests for information about existing or planned aerial photographic coverage which can be utilized for a variety of projects. These requests, in many instances, are motivated by the desire to avoid the exceedingly more costly option of acquiring specifically flown photography.
3. General Map Coverage—The requestor is seeking map coverage to fulfill a specific need, from utilization as a base map upon which other information can be compiled, to determination of location or extent of a resource such as wetlands, to use as a recreation guide.
4. Specific Unique Data—These types of requests change as various programs are implemented. Examples include Magnetic Declination (for land surveying), and Latitude/Longitude (federal requirement for placement of sending satellite dishes or radio towers).
5. General Requests—Such as size of an area, height of a particular feature, location of a named feature, explaining contours, digital methods, software, hardware, etc.
6. Activities of Others—This provides access to publications, news, anecdotal information, and referrals to appropriate agencies, programs, organizations, or individuals who may be able to provide the information being sought.

For more information, call the SCO at 608/262-3065.

You can request a free brochure profiling the SCO in more detail, and listing available publications.

### ***Wisconsin Mapping Bulletin***

Published quarterly by the 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, conferences/workshops. Local and regional information is especially encouraged. The Editor makes all decisions on content. Deadline for the next issue is December 11, 1992.

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