



Wisconsin MAPPING BULLETIN

STATEWIDE PHOTOGRAPHY SCHEDULED THIS SPRING

by Ted Koch

After months of uncertainty, we have received confirmation that statewide photographic coverage will be acquired this spring through the National Aerial Photography Program (NAPP). This means that Wisconsin will have two complementary statewide airphoto acquisitions occurring in 1992, the other being sponsored by DNR Forestry.

The last issue of the *Mapping Bulletin* reported that inclusion of Wisconsin in the 1992 NAPP program was only a strong possibility. However, within the past month, the U.S. Geological Survey's NAPP administrator in Reston, VA has confirmed that all contracts for Wisconsin coverage have been approved and awarded.

Under the NAPP contracting process, the State of Wisconsin was divided into five areas, each generally being a narrow east-west band extending the full north-south length of the state. Contracts for the five areas were awarded to three different private aerial photography firms on a low-bid basis.

With weather and proper ground conditions (snow free) permitting, the photography acquisition can be accomplished between March 1 and May 31 of this year, as long as no leaf growth is visible. Under the contract terms, photos not successfully taken this spring can be flown this fall, or if that is not possible, again during the spring season of 1993.

NAPP is a cooperative federal-state program, where a state that commits 50% of the cost of photography acquisition is guaranteed to be flown when its scheduled year arrives. Based on the contractor's low bids, Wisconsin's 50% share was set at \$194,000.

Five public agencies and one utility company pledged a total of \$140,000 toward the state share. The Wisconsin Department of Natural Resources, the largest contributor, committed more than half of the total. Other agency commitments were made by the Department's of Transportation; and Agriculture, Trade and Consumer Protection. Two federal agency contributions will be made through the state office of the Soil Conservation Service and the

National Park Service's Trails Project Office in Madison. The contributing utility is Wisconsin Power and Light. The \$54,000 difference between Wisconsin's contribution and the full 50% share was made up with additional funds contributed by NAPP.

The NAPP photos for Wisconsin will be panchromatic (normal, not infrared) black-and-white images, taken at a flying height of nearly four miles. This will yield a photo scale (unenlarged) of approximately 1:40,000 or 1"=3333'. A single 9"x 9" frame of this imagery will depict about 32 square miles.

NAPP photographs are most useful for natural resource and agricultural inventories, and general planning purposes. The acquisition of photographs through NAPP does not, at this time, include any provision for producing orthophoto images, although it is certainly possible to use them for that application.

The current NAPP program is a successor to the National High Altitude photography (NHAP) program that also was coordinated by the U.S. Geological Survey. The purpose of each of these interagency programs has been to eliminate duplicate photographic coverage amongst various federal agencies. NHAP images, with two different scales and film types, were obtained over Wisconsin in the early 80's and again in 1986 at even higher altitude than NAPP.

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Statewide Photography, continued

In another, but unrelated statewide aerial photo acquisition effort, flights will resume this summer for the Dept. of Natural Resources (DNR) forestry management project. Photographs will be acquired at a scale of 1:15,840 (4" = 1 mile), using black-and-white infrared film. Approximately 10% of the state was completed for this project late last summer. For additional details on this photography see the July/September, 1991 issue of the *Mapping Bulletin*.

NAPP photographs will be available for sale to the general public through the U.S. Geological Survey's EROS Data Center in Sioux Falls, SD, or through The ASCS Aerial Photography Field Office in Salt Lake City, UT. After the aerial photo contractors expose and develop the film, the processes of quality control checks, indexing, and distribution for sale is predicted to consume four to five months. This means that the earliest probable date that NAPP photos will be available is sometime this fall.

We do not yet have complete price and ordering information for the various photographic products from these two acquisitions. We hope to publish this information in a future issue.



Comparison of 1992 Statewide Aerial Photography

NAME	NAPP	DNR FORESTRY
Primary Purpose	Land Management and medium-scale mapping	Forest Management
Film Type	Normal Black & White	Black & White Infrared
Acquisition Season	Spring	Summer
Leaf Conditions	No leaves ("leaf off")	Full leaves ("leaf on")
Ratio Scale of originals	1:40,000	1:15,840
Inch Scale of originals	1" = 3333 feet	1" = 1320 feet
Mile Scale of originals	1.6" = 1 mile	4" = 1 mile
Area depicted on one typical 9" x 9" frame	32 square miles	5 square miles
Stereo (overlapping) coverage	Yes	Yes
Number of frames statewide	about 9,000	about 45,000
Flight line orientation	North-south	East-west
Flight line spacing	3.75 minutes of longitude (about 3 miles)	1.5 miles

WLIB NEWS

by Bob Gurda

Meetings

Since our last issue, the Wisconsin Land Information Board (WLIB) has met twice—February 10 and March 9. Future meetings will continue to be held in Madison on the second Monday of each month. Variations on this theme are June 29 (and possibly 30), which will be additional meetings; and there will be no meeting in July.

Countywide Plans

At the last two meetings, the WLIB approved land records modernization plans for six additional counties, bringing the total count of approved plans to twenty. Receiving approval were plans from Kewaunee, Burnett, Oconto, Dodge, Lincoln, and Sauk Counties.

An even larger number of counties are planning to submit their plans for board consideration during April, May, and June.

Grants

The board used a significant portion of the March meeting to consider nineteen grant proposals that had been submitted during December. A total of \$1,892,085 in requests had been submitted by or through land information offices in ten counties. The board's Grant Scoring Committee reviewed these proposals in detail over a period of two full days, and recommended to the WLIB's Executive Committee an allocation totalling \$907,875.

After a period at the meeting when representatives of the applicants could address the board for up to five minutes per grant, and after subsequent open discussion, the board voted without dissent to award the amounts as recommended by the committees. This was a preliminary note pending grant contract negotiations, with a final vote on each grant expected in April.

Four grants received full funding, three received no funding, and the remaining twelve were partially funded by between 35% and 65% of the requested amount. For this particular grant period, a guideline was followed that the total grant awards to groups in any one county would not exceed \$150,000.

Education

Over 175 people attended three workshops sponsored by the board in late February. The one- and two-day sessions preceded the WLIA conference in Middleton (see report on page 13), and were received favorably.

Upcoming Issues

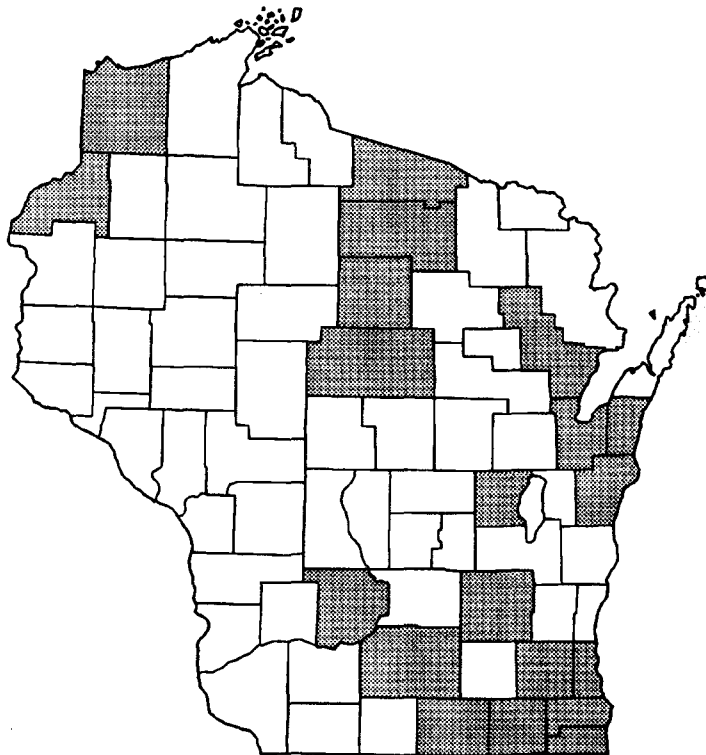
At the next two meetings, the board will repeat its planning exercise of last spring. At the April meeting, the chair will convey his ideas for those issues needing the board's attention. There will be a full discussion of priorities at the May 7 meeting.

Administration

At the March meeting, the WLIB unanimously elected officers for one-year terms. John Laub and Ben Niemann were re-elected as Chair and Vice Chair, respectively. Nat Robinson was elected Secretary. Nat recently became a WLIB member representing the Wisconsin Department of Administration; he succeeded John Bilotti, who was appointed as Deputy Secretary in the Wisconsin Department of Revenue.

Les Van Horn was added as the fourth member of the board's Executive Committee. Lori Scully was reappointed to the board through May 1, 1997 by the governor and her appointment was confirmed by the State Senate.

Editor's Note: For further information on the WLIB, contact the board's staff at 608/266-2722.



Counties with Approved Plans as of March 31, 1992

NAVD 88 Update

by Diann Danielsen

Over the last few issues of the *Bulletin* we have been covering the release of the new vertical control datum, the North American Vertical Datum of 1988 (NAVD 88). The readjustment is now complete and results are available.

NAVD 88 replaces the National Geodetic Vertical Datum of 1929 (NGVD 29) and the International Great Lakes Datum (IGLD 55), and will be the official datum adopted for use by the United States, Mexico and Canada. The datum release culminates a 13 year effort by the National Geodetic Survey (NGS) to redefine and readjust the 585,000 vertical control points in the National Geodetic Reference System.

The new datum provides higher accuracy orders, better closure between benchmarks, and the incorporation of 50,000 miles of new levelling and 40,000 new benchmarks. NAVD 88 also offers improved geoid modeling and a basis for the precise determination of orthometric heights using GPS.

Wisconsin is at an advantage because the "zero" line for NGVD 29-NAVD 88 datum shifts runs through the center of the state resulting in minimal shifts (ranging from +41mm to -57mm; +0.13ft to -0.19 ft). The small datum shifts seen in Wisconsin may allow a single bias (conversion) factor to be applied for many surveying and mapping projects. This would make the conversion to the new vertical datum considerably easier than dealing with differences between the old and new horizontal datums (NAD27 and NAD 83 (1991)).

In Wisconsin, the Department of Transportation analyzed NAVD 88 data at the statewide level and is waiting to look at individual areas, as well, before formulating policies or guidelines regarding its use. We are not aware of any other party in the state which has adopted a policy on the new vertical datum.

Federal agencies will be required to convert their operations to NAVD 88 "as resources permit" Each agency will handle the transition differently and at a different pace.

The Federal Emergency Management Agency (FEMA) is fully supporting the new datum and will mandate contractors to use NAVD 88 for all surveying, mapping and floodplain studies.

The Army Corps of Engineers (COE) is also in agreement with NAVD 88 and will use it for all new projects, but will continue to use NAVD 29 on projects completed and pending. COE river charts and National Oceanic Survey (NOS) navigation charts will see a slow conversion.

The U.S. Geological Survey (USGS) is in the process of submitting its historical field data to NGS for readjustment, which will result in new elevations on 500,000 Third Order benchmarks. This effort, however, will take place over the next 5-10 years. In the meantime, each re-

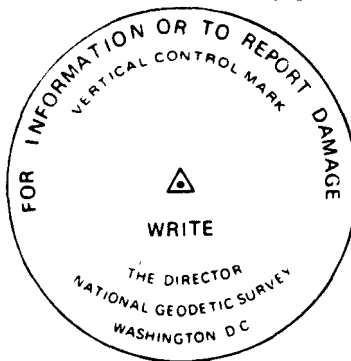
vised topographic quadrangle map will list a bias factor to describe the difference between NGVD 29 and NAVD 88 elevations for that map sheet.

NGS is developing a software program called VERTCON which will compute bias factors for the datum shift between NGVD 29 and NAVD 88. The factors, along with estimates for standard error, will be computed for any given point. The accuracy of the bias factor is dependent upon the number and quality of the benchmarks in the area. VERTCON is expected to be released by the end of 1992 and will be available from the National Geodetic Information Center.

NAVD 88 data will be released as either a listing of elevations only, or in a new datasheet format with both elevation and description. The datasheet will include NGVD 29 elevations (where available) as well as NAVD 88 elevations. Additionally, the datasheet will contain the

station's permanent identifier, order and class, designation, approximate NAD 83 horizontal position, and recovery notes. Plots showing benchmark distribution and an explanation of terms, codes, and attributes will also be available. Geodetic control diagrams are no longer being produced.

continued on next page...



BENEFITS OF NAVD 88

- A single datum for North America.
- An improved set of heights for North America.
- Improved FGCC leveling procedures with higher production and lower error rates.
- All NGS national vertical network data validated in a single data base, with easy access by the user for crustal motion studies, adjustments, latest official heights, and descriptions.
- Removal of height discrepancies caused by inconsistent adjustment constraints.
- Detection and removal of height errors due to blunders.
- Removal of effects of systematic errors in leveling data.
- Replacement of both NGVD 29 and IGLD 55 with a single datum.
- Remonumentation and incorporation of 80,000 km of new leveling data never before adjusted to NGVD 29.
- Orthometric heights which are compatible with Global Positioning System (GPS)—derived orthometric heights computed using the high-resolution geoid model GEOID90.

NAVD 88 Update, continued

NAVD 88 data and other geodetic control information may be obtained in the following sets from the National Geodetic Information Center, N/CG17A, Rockwall Building, Room 24, NGS, NOAA, Rockville, MD 20852, (301) 443-8631.

ELEVATIONS ONLY

(Scheduled to be available now)

Paper Sets-

1° latitude by 1° longitude

\$20-\$40 per block (approx. 34 blocks for Wisconsin)

Digital Sets-

1.2MB, 1.4MB and 720KB disks

Government, \$35; Private Users, \$98

ELEVATIONS AND DESCRIPTIONS

(Available in May)

Digital Sets 1.2MB, 1.4MB, 720KB disks

Government, \$140; Private Users, \$203

For both sets of digital data, 360KB disks are available for an additional cost of \$15 per extra disk.

The Wisconsin State Cartographer's Office will remain the state point of contact for geodetic control information.

(sources: *ACSM Bulletin*, NGS, USGS, and Wisconsin DOT. The list of benefits is from *NAVD 88: Benefits of Improved Set of Heights Outweigh Conversion Costs* (October 1991), David B. Zilkoski, NAVD 88 Project Manager, NGS, NOAA)

"Calling All GPS Base Stations"

A cost-conscious federal geodetic and survey group wants to get in touch with public and private organizations that operate, or are planning to operate permanent Global Positioning System (GPS) base stations in the United States.

The Federal Geodetic Control Subcommittee (FGCS, formerly the Federal Geodetic Control Committee), a subcommittee of the Federal Geographic Data Committee (FGDC), is investigating the nationwide development of permanently operating stations, which provide critical data for high-precision differential GPS positioning techniques. The FGCS develops and publishes standards, specifications, and instructions for producers of geodetic control and related survey information.

Base stations, which are quite costly to develop and operate, provide a source of data against which field data collected by mobile GPS units can be compared to improve the accuracy of observations.

Generally, these installations have been developed independently and on an ad hoc basis. By coordinating development and sharing base station data, FGCS members believe that the GPS user community could benefit from significant cost savings. For example, a fixed base station located near and operated by a city, county, RPC, et al could be used in conjunction with secondary mobile stations by many persons over an area of several counties.

(source: *GPS World Newsletter*)

NAD 83 Coordinate Transformation

by Diann Danielsen

The release of NAD 83 (1991) for Wisconsin complicates the use of coordinate transformation programs. The two most commonly used software packages are NADCON, developed by the National Geodetic Survey (NGS), and CORPSCON, by the Army Corps of Engineers (COE).

NADCON transforms geographic coordinates only (latitude and longitude). To convert between geographic and state plane coordinates, separate NGS programs must then be run: GPPCGP for NAD 27 and SPCS83 for NAD 83 (1986). NGS is testing a NADCON module for transforming geographic coordinates from NAD 83 (1986) to NAD 83 (1991). They will then incorporate that module into the main body of the NADCON program. The updated NADCON program is scheduled to be available in May.

CORPSCON integrates NGS' NADCON, GPPCGP, and SPCS83 programs into one software package. This provides easier (one-step) transformations between geographic and state plane coordinates, and capability to transform UTM coordinates. However, since this package is developed independently by COE, updates incorporating high precision network data will not be produced as frequently. An updated version of CORPSCON including a NAD 83 (1991) transformation is not expected before the end of 1992.

All software mentioned above can be ordered from the National Geodetic Information Center. The cost is \$98 for private users, and \$35 for state/local government users.

For more information, contact:

National Geodetic Information Center
N/CG174, Rockwall Building, Room 24
National Geodetic Survey, NOAA
Rockville, MD 20852 Telephone (301) 443-8631

NAD 83 (1991) Info from the SCO

by Diann Danielsen

We are developing a number of products to address questions concerning Wisconsin's new horizontal geodetic datum. At this time we have a one-page graphic of the state of Wisconsin, showing the WHPGN stations and their distribution. We also have a three-page set of information sheets with answers to the most commonly asked questions concerning NAD 83 (1991). Our next effort will describe the development history of the WHPGN.

The statewide WHPGN graphic has undergone a number of changes since its first distribution (see page 4 of the January 1992 *Bulletin*). It is now printed with a slightly larger text and scale. A number of stations were misplotted based on NGS source data, and have been corrected. These stations are: *Tipler GPS* and *Tauno*, and *Merrill* and *Merrill 2 GPS*. *New Lisbon Reset* is now noted as destroyed. We are also checking the condition of other stations possibly disturbed or destroyed.

You may request these products individually or as a full set by contacting the State Cartographer's Office.

Remote Sensing News

by Ben Sherman

President Bush has written Landsat 7 into the 1993 budget. According to his latest budget proposal Landsat 7 is projected to be launched in 1998. EOSAT Corporation, in the President's plan, retains its full commercial discretion in Landsat's operations.

However, on the other side of the Capitol, HR 3614 (National Land Remote Sensing Policy Act) introduced by Rep. George Brown (D-Calif) specifies a shorter time frame for Landsat 7's procurement and launch. Included in Brown's bill is the establishment of a Joint Program Office between NASA and the Defense Department to have administrative responsibility for Landsat.

Brown's bill specifies that Washington will be actively seeking out others who might compete with EOSAT in the market place for products and services. HR 3614 recommends that Landsat 7 be made capable of 5-meter resolution and that a two-tiered pricing structure be implemented for data products. One price, established for governmental and non-profit American users would cover only transmission and duplication of data, whereas the second price would reflect current (higher) market conditions for private and out-of-country users.

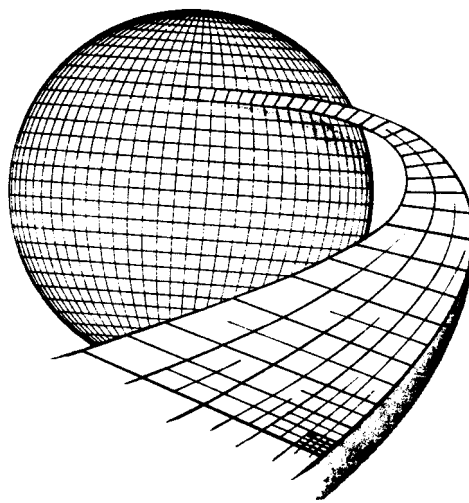
For those of you who have delayed acquiring imagery because of expected Landsat price reductions, EOSAT is introducing some bargains. Anthony Shupin, Regional Manager for EOSAT's Statewide Coverage Program, has provided our office with some price estimates for obtaining governmentally shareable imagery of the whole state. This program is designed to enable States to acquire one set of digital images for use among all authorized state agencies.

There are some limitations, though. This must be a purchase of complete state coverage in one set. Public agencies working on behalf of the state must be coordinated to make sure the data is not used for profit. Should an agency wish to purchase its own copy of the original data, it will cost only \$90 per scene (Wisconsin coverage includes 13 full scenes and 3 subscenes).

For those of you in the private sector, EOSAT has extended its 1/2 price offer until 1993. The offer includes one Thematic Mapper scene (data file) at regular price together with one or two older TM products of the same area for 1/2 price.

In addition, sharper photographic reproductions will be available with a dot pitch of 25 micrometers. As always, Landsat images are annotated with scene-id, sun angle, date of coverage, geographic reference ticks, and TM band information. Images are available as color negatives, positive transparencies, or color prints with scales varying from 1:1,000,000 to 100,000.

The long wait for Landsat 6 is nearing an end. For years the U.S. remote sensing program has been lucky that Landsats 4 and 5 far outlived their expected operational lifetimes. By the end of 1992 Landsat 6 should be



launched and operating. It will offer higher resolution imaging (15 meters in black-and-white).

While the US remote sensing program has been surrounded by uncertainty in recent years, the European Space Agency (ESA) has steadfastly continued its commitment to satellite remote sensing. The ESA launched its ERS-1 satellite this past July. This satellite series is dedicated to global environmental monitoring. ERS-1 is a radar based system capable of 5 kilometer by 5 kilometer interval sensing and 100k swath images as appropriate. It has the ability to combine microwave and infrared sensing to detect cloud temperature.

ERS-1 is in a sun synchronous polar orbit 785 K from Earth. It is already being used to better represent oceanic and atmospheric interactions, keep tabs on polar ice sheets, monitor coastal pollution and development and land use changes in areas in perpetual cloud cover. User Operations are in Italy.

The Commonwealth of Independent States (formerly the USSR) still has an active satellite remote sensing program. Since the end of the cold war, scientists in the former soviet republics are free to travel and promote their countries' products abroad.

There are a variety of soviet satellites and sensors from which data is or may become available. These range from multi-spectral data between 10 and 30 meter resolution to side-looking radar designed for ocean resource analysis.

Russian defense satellites are still classified, but are estimated to have 1.5 meter resolution and pass every 1 to 3 days. Their imagery may become available soon as economic conditions worsen.

The Russian Republic sells their images through 3 organizations: Pryota and Planeta, and a subsidiary in America called Soyuz Carta based in Washington and Texas which sells basic imagery to the public upon request. Pryota co-operates with the USGS in science and data exchange, providing imagery for governmental and collaborative projects.

All in all, there is a lot of activity in the remote sensing field. The present degree of chaos is unsettling, but things seem to be moving toward a more predictable future.

(source: *Washington Remote Sensing Letter*, Jan, Feb, 1992; *GIS World*, Feb. 1992)

THE FOREST FOR THE TREES

by Thomas M. Lillesand*

It is an honor to be the second contributor to this "Guest Opinion" section of the *Wisconsin Mapping Bulletin*. David Fletcher did a great job of initiating this column with his piece titled "From Lascaux to Cyberspace" in the January Issue. His are words of wisdom from one intimately familiar with the numerous changes in GIS/LIS technology and institutions underway here in Wisconsin. These are changes we should be proud of—the home of the "land ethic" has become the national model for the "land information ethic" as well.

The bad news is amidst all of this activity there is no explicit commitment and plan for systematically collecting, updating, and disseminating one of the most fundamental forms of land information needed to manage the state's natural resource base—land cover. In my view it is imperative that we begin the development of a common, statewide land cover information base as soon as practically feasible. The reasons why are both short-term and pragmatic, and long-term and scientific.

The Pragmatic Perspective

At the local level, land cover data provide a coherent view of "what's out there" and how it is changing over time. Historically, we've met this need with nothing more perhaps than a map, an airphoto, or a really good memory. But, today's pressures on our resources require much more systematic information at all levels of land management. Increasingly, we are expected to meet the need for accommodating growing social and economic demands for quality of life, while maintaining the integrity and quality of the physical environment. This results in such activities as nonpoint pollution abatement, multiple use forest planning, ozone emission modeling, soil erosion control planning, "swampbuster" and "sodbuster" determinations, lake management, wildlife habitat assessment, etc.

All of these activities require current (and in many cases historical) land cover information. What that typically means is we often face the age old land information problem. Namely, one or more agencies collect at substantial cost essentially the same information that another already possesses, or decisions are simply made with inadequate information. In short, we could improve the efficiency and/or the quality of these types of programs through better information management.

The Scientific Perspective

At this point, perhaps my ivory-tower juices are kicking in but I believe the short-term pragmatic reasons for collecting systematic, statewide, detailed land cover data pale in comparison to the longer-term scientific justification. We've all heard our share of doom-and-gloom global change prophesies. I don't personally subscribe to such philosophy, but there is little argument that the ozone layer is under attack and that we better soon start more fully understanding the influences of human activity on climate change and vice versa. If you think those of us in the scientific community have all these types of questions in hand, rest (un) assured we don't!

Dr. Lillesand is a Professor of Environmental Studies, Civil & Environmental Engineering, and Forestry at UW-Madison, and is Director of its Environmental Remote Sensing Center

For example, two of the keys to making regionally specific climate forecasts are to calibrate global models to local historical meteorological data and to account for changes in the heat and light returned to the atmosphere due to changes in land use. Developing specific climate impact forecasts will require a statewide biophysical geographic database with land cover as

one of its key parts. Without monitoring land cover we can't track its influence on local climate, so we can't develop climate impact models that describe alternative future climatic scenarios on a local to regional basis. In short, we can't predict what our resource base is going to be in

the future without a better idea of on what is now (and what it was in the past).

The Bottom Line

Here we live in a state with its economy intimately tied to the quality of its natural resource base. Our state contains some of the most productive agricultural lands in the world. Our forest resources are extensive and our lakes are among the most numerous in the world. Yet we are forced to manage this enterprise on a day-to-day basis at the local level with largely inconsistent or non-existent land cover information. What little historical information exists in digital form was compiled years ago, and at very coarse resolution. At the same time, we lack enough information to assess complex phenomena such as the impact of global climate change on our state's cities, forests, lakes, wetlands, and agricultural areas and, therefore, its economy. Somewhere we've lost the forest for the trees.

The good news is, I am convinced we already have the technical wherewithal to develop a continuous, statewide land cover mapping program—a program useful both at the local and the regional/state levels. For example, the "forestry flights" and the upcoming NAPP acquisition can provide a consistent starting point (see page 1). Beyond this, satellite image processing can now be performed in a desktop GIS environment. Furthermore, suppliers of high resolution satellite image data are prepared to give substantial discounts for repeated statewide coverage and make provisions for data sharing among agencies.

Today, on a pilot project basis¹ we are generating land cover data by digitally merging satellite data with higher resolution digital orthophotography and numerous forms of non-image GIS data. What we need now is the commitment and institutional structure to move beyond the research stage and initiate a statewide landcover mapping program. Such a program would not only assist day-to-day land management, in many respects it is essential to mapping out our state's future.

¹Lillesand and other researchers at the UW-Madison Environmental Remote Sensing Center have conducted numerous land cover mapping experiments using satellite data. Among these is a recently completed interagency cooperative study, funded by the USDA Soil Conservation Service, entitled "Toward Automation of Statewide Land Cover Mapping Using Remote Sensing Techniques." A complete report on the results of this study will be available by mid-summer.

PEOPLE

Robinson Honored by British

The British Cartographic Society has awarded its highest honor, the Silver Medal, to Arthur H. Robinson. Robinson is professor emeritus of geography at the University of Wisconsin-Madison, and was the inspiration for the establishment of the State Cartographer's Office. He is the first American to receive the award.

(source: *ACSM Bulletin*)

Ostrom Honored by AIPG

Merideth "Buzz" Ostrom, who retired as Wisconsin State Geologist a year and a half ago, was named the 1991 recipient of the American Institute of Professional Geologists' Public Service Award. The institute recognized Ostrom's leadership in community, university, and state affairs.

As of our last contact with Buzz, he was immersed in a national pilot project for high school earth science development.

(source: *SurView*, vol. 12, no. 2)

Engineering Firm Wins Award

A Madison engineering firm, Mead & Hunt Inc. took top honors in the 1992 Engineering Excellence Awards sponsored by the Wisconsin Association of Consulting Engineers. The firm was chosen as one of five state winners in the 1992 program and will advance to national competition. Their project was the only one of the five that was primarily related to mapping or GIS.

Mead & Hunt was cited for proving that a \$10 million flood control upgrade was unnecessary by analyzing data from a satellite orbiting 438 miles above the earth. The satellite data was evaluated to determine the effects of landcover and soil characteristics on flooding.

(source: *The Capital Times*)



Map Historian Brian Harley Dies

John Brian Harley, professor of geography at UW-Milwaukee, died in December at age 59. He was co-editor of the six-volume *History of Cartography*; his collaborator, David Woodward of the UW-Madison, will continue the project which will contain much of Harley's work.

Harley relocated from England in 1986 in part to supervise and coordinate research on the American Geographical Society's map collection housed at UW-Milwaukee's Golda Meier Library. One of his recent projects, *Maps and the Columbian Encounter*, is currently on tour, including several Wisconsin stops.

(source: *ACSM Bulletin*)

Robinette Leaves Gap at LMIC

We sadly note the death of a colleague from Minnesota.

Al Robinette, the long-time director of the Minnesota Land Management Information Center, died on January 13.

Al had a number of connections with Wisconsin. As a representative of a large organization (33 staff; \$1.8 million budget) devoted to GIS in a neighboring state, he provided many public and private insights into organization and promotion of statewide mapping and analysis; he spoke several times at seminars in Madison. He also devoted extra time to chairing URISA's State and Province Special Interest Group.

(source: *URISA News*, March 1992)

Questions & Answers

Editor's Note: With this issue we begin a new feature designed to highlight answers to questions that are of current interest. 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.

?

I'm puzzled. Are the 90th meridian and the 4th Principal Meridian the same? In comparing the maps on pages 10 and 16 of Introduction to Land Information Systems for Wisconsin's Future, that would appear to be the case but other maps seem to tell a different story.

You get this month's prize for sharp eyes in discovering a slightly embarrassing mistake in the referenced book (that we published). The 90th meridian follows an unmarked path along the globe's surface between the south to the north poles, always being 90 degrees west of the Prime Meridian that passes through Greenwich, England. It passes through Wisconsin, and just happens to divide the state into approximately equal east and west areas. The map on page 16 of the book is incorrect; the meridian should have been shown about 1/4 inch further to the right.

By contrast, the 4th Principal Meridian is an approximately south-north "line" that was marked off on the ground as the primary backbone for laying out the Public Land Survey System (PLSS) in the 1800's. It was begun on what later became the southern border of Wisconsin, at a point that today we know to be about 22 miles west of the 90th meridian. The 4th Principal Meridian forms the boundary between LaFayette and Grant Counties, and continues more or less northward as the demarcation line between Ranges east and Ranges west in the language of the PLSS. The map on page 10 of the book is correct.

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We've heard that the NAPP photography acquisition is going to occur soon. Would it be useful to place "targets" on the ground for geodetic control purposes? And if so, when will the photographs be taken over my area?

Placing targets on the ground for NAPP or any other aerial photographic acquisition can provide several benefits. However, this particular flight will occur so soon that it would be very difficult to plan and then implement a serious targetting program in time. If we were assured that digital orthophotos would be made from NAPP imagery, then targets located on geodetic control points would be an excellent investment supporting the orthophoto production.

The NAPP acquisition is scheduled for this spring, can't begin until snow is melted, and can't go beyond the point when deciduous leaves have come out enough to affect detail in the imagery. Spring temperatures will affect the

start and end of the available time period; this affect will vary across each contract project area, as spring "moves" north. In addition, clouds will hold up the acquisition. As a result, it will be very difficult to know when the acquisition can (and then will) occur over your location.

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?

I have some state plane coordinate values based on NAD 83. When I compare the coordinate readings against the older NAD 27 values for these same locations, the coordinates are very different. I had assumed that they would be much closer since the combined shifts in latitude and longitude between the two datums is supposed to be much less than 100 feet across the entire state. Is it possible that I have received incorrect NAD 83 information?

While it is possible, you most likely have the correct coordinates. If you are going to compare NAD 83 state plane coordinates against NAD 27 values there are two fundamental differences between the two that you have to be fully aware of:

First, NAD 83 uses meters as its coordinate units, while NAD 27 uses feet. That alone will produce big differences between coordinate readings.

(A more subtle effect involving units depends on which of two standard feet are used. NAD 27 used the "Survey Foot" but a newer standard is the "International Foot"; these two differ by about 2 parts in 1 million. When we convert NAD 83 coordinates in meters for the State Plane Coordinate System—first using one standard foot and then the other—the results will differ by about 2.5 to 5.6 feet [from the west edge across to the east edge of the state]. Unlike some other states, Wisconsin has as yet no statute, rule, or guideline that specifies use of one standard foot over the other).

The second large difference in state plane coordinates on NAD 83 is caused by its false easting which was deliberately selected to be enough different than the false easting on NAD 27 that we will be unlikely to confuse the two. The NAD 27 definition for the false easting is 2,000,000 feet, while the NAD 83 definition is 600,000 meters (1,968,500 feet). This results in an easting shift of approximately 6 miles (31,500 feet). The origin for northing values, however, remains in the same location for both datums.

Knowing these facts should help you better understand the coordinate readings in both systems.

Send your questions or comments regarding this column to:

*Editor: Wisconsin Mapping Bulletin
UW-Madison, 550 N. Park Street
Rm. 160 Science Hall
Madison, WI 53706-1404*

100,000-Scale Topo Quad Series Completed for Wisconsin

The U.S. Geological Survey has completed the last of the 49 topographic quadrangle maps at 1:100,000-scale for the state. While we have had complete state coverage for several years at this scale on a county format (one sheet per county), the quadrangle series had been in work recently.

Thirty of the maps in this group of 49 cover only Wisconsin area, and the remaining 19 overlap adjacent states. Each sheet is about 30" x 40", with the mapped area occupying about 22" x 32". If you were to trim the margin off each sheet, and then join the entire set edge to edge, it would occupy an area of a little less than 20 feet x 20 feet. If trimmed to the state border, an area of less than 17 feet square would be needed.

Each sheet covers a ground area of 30 minutes of latitude by 60 minutes (or one degree) of longitude, which translates to between about 1600-2200 square miles. As such, each sheet depicts the same area as a block of 32 individual sheets from the 1:24,000-scale series.

Topographic contours on this series are drawn at either 10 or 20 meter intervals depending on the amount of landscape relief in the area. By contrast, the county series at this same scale was produced with a contour interval of 40 or 80 feet.

National Wetlands Map Available

In the interest of improving public understanding of wetlands, the U.S. Fish and Wildlife Service has recently produced a wetlands map covering the conterminous United States, Hawaii, and Puerto Rico. At a scale of 1:3,268,000 (1 inch = 50 miles), the map illustrates the relative abundance and location of the nation's wetlands.

Information for the map was compiled from a variety of sources; identified areas meet the U.S. Fish and Wildlife Service definition of wetland and include deepwater habitats, deepwater rivers, areas predominately wetland, and rivers or streams which are predominantly wetland. Because of the fact that the level of detail and accuracy of wetland information varies from one area to another, a reliability diagram is included on the map.

The map measures about 3 1/2 x 5 1/2 feet and sells for \$10.00. For additional information on ordering the map, or for information on availability of other National Wetlands Inventory products, call any of the U.S. Geological Survey's Earth Science Information Centers or call 1-800-USA-MAPS. A companion map for Alaska is currently under production.

(source: *National Wetlands Inventory*)

NOAA Produces New 3-D Images of Coastal Sea Floor

You can get a birds-eye view of underwater relief of coastal areas on two new computer-generated images. The areas covered are central California and the Louisiana-Texas continental slope. The images have been produced by a division of NOAA's Coast and Geodetic Survey, part of the U.S. Department of Commerce.

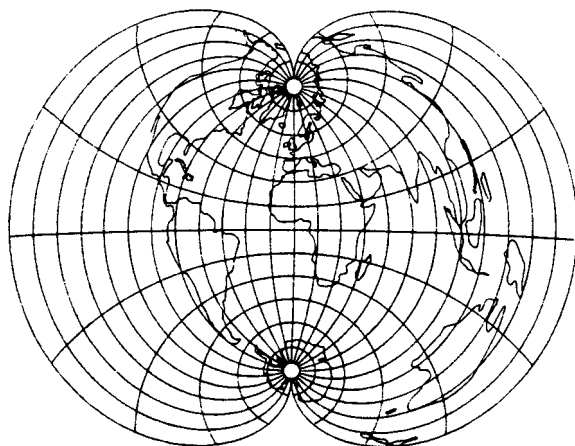
Both images are from areas in the U.S. Exclusive Economic Zone (EEZ). Recent high-resolution multibeam echo sounding surveys within the EEZ have made possible detailed bathymetric maps and physiographic images.

The central California image (PI-1) shows how the sea floor landscape would appear with the water removed. Undersea features such as the Monterey Canyon, which is comparable in size to the Grand Canyon of the Colorado River, may be followed all the way from Monterey Bay to the foot of the continental slope. The image shows where sediments have been carried through the canyons and deposited in large fans at the foot of the slope.

The Gulf Coast image map (PI-2) covers the lower and middle continental slope off Louisiana and Texas. It is dominated by a series of basins that give it much more relief than is found on most continental slopes. Sea floor feature names are shown on a 1:250,000-scale bathymetric map with 200m contours above the 3-dimensional image.

Both of these multicolor maps measure 57" by 39"; cost is \$10 each. For further information, contact Carl Fefe at (301) 443-8855. To order, call (301) 436-6990.

(source: *C&GS Update, Spring 1992*)



Groundwater Management GIS Video

A new video on GIS development is available. "The Central Sands Geographic Information Project: Managing the Invisible Resource" is a 12-minute video designed for people with resource management responsibilities. It profiles the institutional and technical development of a prototype geographic information system (GIS) for groundwater management in the central Wisconsin sand plain.

A copy of the video can be purchased for \$20.00. For more information on the content, approach, or how to order, contact Golden Sands RC&D at (715) 346-3161.

(source: *Golden Sands RC&D*)

Guide to GIS Selection Published

The American Planning Association has published a new guide to assist in the selection of appropriate GIS systems. The primary audience is planners and planning agencies. The black-and-white document is 26 pages long.

Authors Lyna L. Wiggins and Steven P. French, AICP, recommend a user needs assessment including a functional requirements analysis and a cost-benefit analysis. A number of appendices appear in the report, including a glossary of common GIS terms and a model Request for Proposal for needs assessment services.

Copies can be obtained from APA's Planners Press, 1313 E. 60th Street, Chicago, IL 60637. The price is \$12 for PAS subscribers or \$24 for nonsubscribers, plus shipping and handling of \$4.50. Send a check, or call (312) 955-9100 for telephone credit card ordering.

(source: *ARC NEWS*, Winter 1992)

WGNHS Offers Sale Prices

The Wisconsin Geological and Natural History is offering reduced prices on a select group of its publications. Generally, prices are 50% of the original. This sale is available for mail-order customers only.

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

600-page Compendium of State GIS Activities Published

The Council of State Governments has announced a compilation and analysis of geographic information activities and people. It includes individual state profiles, a directory of state GIS officials, and tables of comparative data. An electronic version of the directory is also available.

At 600 pages, the State Geographic Information Activities Compendium is by far the most extensive such document. The directory includes over 2,000 contacts instrumental in the development, direction and coordination of geographic information in all 50 states.

The compendium is priced at \$79. The directory alone in electronic form (including a printed copy) is \$300 (\$210 for state officials). It is available in three formats: WordPerfect 5.1, dBase, and ASCII.

For an order form or additional information, contact:
Order Department

The Council of State Governments

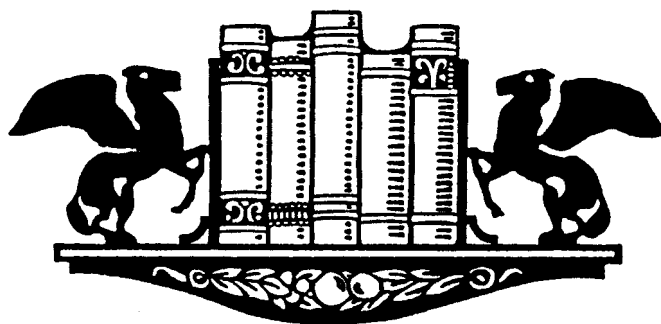
P.O. Box 11910

Lexington, KY 40578

Phone: (800) 800-1910

Fax: (606) 231-1858

(source: *Council of State Governments*)



CONFERENCES, TECHNICAL MEETINGS, AND CLASSES

April 6-9, **Introduction to Global Positioning Systems (GPS)** will be held at the Union South, 227 North Randall Ave., Madison, WI. Contact: Engineering Registration, The Wisconsin Center, 702 Langdon St., Madison, WI 53706, 800/462-0876 or 608/262-1299.

April 7-8, **Managing the Risks and Recovering the Costs and Geographic and Facilities Management Systems** will be held at the Hanalei Hotel, 2270 Hotel Circle North, San Diego, CA. Contact: The Wisconsin Center, 702 Langdon St., Madison, WI 53706, 800/462-0876 or 608/262-1299.

April 8-9, **Intergraph's Midwest Regional Users Group Spring Conference** will be held in Arlington Heights, IL. Contact: Richard Hilton at 708/360-7397.

April 13-14, **On Common Ground: Technical and Practical Aspects of Integrating GPS, GIS, and CAD Technologies** will be held at the Hyatt Regency Tech. Center, Denver, CO. Contact: Nancy Good at 503/343-1200.

April 18-21, **Association of American Geographers (AAG) Annual Meeting** will be held in San Diego, CA. Contact: Devin Klug at 202/234-1450.

April 23-24, **Database Management for GIS** will be held at the University of Vermont. Contact: UVM Conferences, 460 S. Prospect St., Burlington, VT 05401, 802/656-2088.

April 27-30, **AM/FM International Annual Conference XV** will be held in San Antonio, TX. Contact: Linda Money, AM/FM International, 8775 E. Orchard Road, Englewood, CO 80111, 303/337-0513.

May 4-7, **MidAmerica GIS Symposium** will be held in Kansas City, MO. Contact: Karl Kappelman, The University of Kansas, Div. of Continuing Education, 1246 Mississippi St., Lawrence, KS 66045-2607, 913/864-3284.

May 4-7, **Intergraph Graphics Users Group (IGUG) Spring Conference** will be held in Huntsville, AL. Contact: Intergraph Graphics Users Group at 205/730-2292.

May 5-8, **Introduction to Intergraph's MicroStation PC** will be held in the South Hall at the UW-Milwaukee Civic Center Campus, 929 North 6th Street. Contact: Stephen J. Scott, Program Director at 414/227-3115.

May 5, **16th Regional Planning Conference "Growth Management Through Land Use and Transportation Planning: A Renewed Commitment"** will be held at the Grand Milwaukee Hotel, 4747 S. Howell Ave., Milwaukee, WI. Contact: Bruce P. Rubin at 414/547-6721.

May 11-13, **First Annual Conference & Exposition on GIS in Business & Commerce** will be held at the Sheraton Denver Tech Center and Conference Center in Denver, CO. Contact: GIS World, Inc., BOX 8090, Ft. Collins, CO 80526, 303/223-4848.

May 14, **AM/FM Wisconsin Chapter Membership Meeting** will be held in the Milwaukee area. Contact: Gary Miller, Intelligraphics International, at 414/784-9200.

May 18-19, **Introduction to Digital Computer Mapping** will be held in the South Hall at the UW-Milwaukee Civic Center Campus, 929 North 6th Street. Contact: Stephen J. Scott, Program Director at 414/227-3115.

May 26-27, **TIGER: Unleashing the 1990 Census** (a workshop) will be held in Madison, WI. Contact: Nancy Hurley, Applied Population Lab., Dept. of Rural Sociology, UW-Madison-Extension, 1450 Linden Dr., Madison, WI 53706, 608/262-0141.

June 1-6, **GPS/GIS Conference and Training Program** will be held in Newport Beach, CA. Contact: Conference Coordinator, c/o GeoResearch, Inc., 115 N. Broadway, Billings, MT 59101, 406/248-6771.

June 2-4, **High Accuracy GPS Positioning Techniques & Applications** will be held at the J.W. Marriott Hotel in Houston, TX. Call: 800/NAV-0885 or 703/931-0500.

June 8-10, **Spatial Analysis Using GIS** will be held in Denver, CO. Call: 301/445-4400, fax 301/445-5722.

June 8-12, **Introduction to GIS**, Central Washington University, Ellensburg, WA. Contact: Claudia Van Ausdal, 509/963-1504.

June 8-12, **Twelfth Annual ESRI User Conference** will be held in Palm Springs, CA. Contact: 1992 ESRI User Conference at fax 714/793-5953.

June 12, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Eau Claire, WI. Contact: WLIA at 800/344-0421.

June 15-17, **Introduction to Global Positioning Systems** will be held at the UW-Madison, Madison, WI. Contact: Patrick Eagan at 800/462-0876.

June 15-17 **First Thematic Conference on Remote Sensing for Marine and Coastal Environments** will be held in New Orleans, LA. Contact: Nancy J. Wallman at 313/994-1200, ext. 3234.

July 12-16, **URISA '92 Annual Conference** will be held in Washington, D.C. Contact: Urban & Regional Information Systems Association, 900 Second St., N.E., Ste. 302, Washington, D.C. 20002, 202/289-1685.

July 20-22, **Spatial Analysis Using GIS** will be held in Denver, CO. Call: 301/445-4400, fax 301/445-5722.

August 3-7, **1992 ASPRS/ACSM/RT92 Convention** will be held in Washington, DC in conjunction with XVII ISPRS Congress listed below.

August 2-14, **International Society for Photogrammetry and Remote Sensing XVII Congress**, Washington, DC. Contact: XVII ISPRS Congress Secretariat, P.O. Box 7147, Reston, VA 22091.

August 3-7, **International Symposium on Spatial Data Handling** will be held at the Mills House Hotel in Charleston, SC. Contact: David J. Cowen, Humanities & Social Sciences Computing Lab, Univ. of South Carolina, Columbia, SC 29208, 803/777-6803.

August 9-14, **International Geographical Union (IGU)** will hold its 27th Congress in Washington, DC. Contact: USNC/IGU Exhibits Committee at 202/707-8525.

August 19-21, **Remote Sensing & Image Processing** will be held in Denver, CO. Call: 301/445-4400, fax 301/445-5722.

September 11, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Rhinelander, WI. Contact: WLIA at 800/344-0421.

October 6-9, **GISDEX '92**, will be held at the Washington Hilton, Washington, DC. Contact: GISDEX '92, 1734 Elton Road, Suite 221, Silver Spring, MD 20903-1724, 301/445-4400.

October 14-17, **North American Cartographic Information Society's Twelfth Annual Convention (NACIS XII)** will be held at the Ramada Inn in St. Paul, MN. Contact: Dr. Jeffrey C. Patton, Program chair NACIS XII, Dept. of Geography, Univ. of North Carolina at Greensboro, NC 27412, 919/334-5388.

October 26-29, **104th Annual Meeting & Exposition** by the Geological Society of America presents *"The Voyage Continues"* will be held in Cincinnati, OH. Call: 303/447-2020, fax 303/447-1133.

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.

December 11, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Fond du Lac, WI. Contact: WLIA at 800/344-0421.

WLIA Attracts Over 400 to Middleton

by Bob Gurda

Attendance was again up by 25% compared to the previous year at the 1992 Annual Conference of the Wisconsin Land Information Association (WLIA). Meeting in Middleton at the new Holiday Inn, almost 475 people participated in an array of workshops, vendor displays, and general sessions.

The keynote speech was given by James Klauser, Secretary of the Wisconsin Department of Administration. Other speakers from the political arena were State Representative David Travis and County Executive Richard Phelps, both from Dane County.

The WLIA is a group of professionals interested in the modernization of land information management. WLIA was formed in 1987. Members include land surveyors, data processors, natural resource managers, civil engineers, mappers, registers of deeds, zoning administrators, educators, planners, and many more.

The WLIA's membership now exceeds 500. The facility in Middleton handled the crowd comfortably, and next year's conference may also be held there.

In addition to setting another attendance record for the annual conference, more commercial vendors exhibited this year.

Two features of the program were also firsts. A poster session provided an opportunity for members and WLIA task forces to display the products of their recent work. And a "data exchange game" that attendees participated in throughout the conference simulated some of the problems, opportunities, and dynamics involved in the sharing of geographically referenced data.

WLIA has tentatively scheduled three membership meetings at other state locations for the balance of 1992:

Eau Claire (June 10)
Rhineland (September 11)
Milwaukee area (December 11).

For further information on meetings or membership, contact WLIA at (800) 344-0421.

GIS/Business Conference Announced

The number of national conferences focussing on use of Geographic Information Systems continues to grow. As part of this activity, one trend is toward specialization. A new GIS conference devoted to applications in the commercial world is the latest example.

Organized by the people at GIS World, publishers of one of the two monthly magazines devoted to GIS, the conference will be held in Denver, May 11-13. For details, consult the listings on page 12.

GISDEX Begins Awards Program

GISDEX '92, The Second Annual Conference and Exposition on Geographic Information Systems and Spatial Data for Federal, State and Local Governments, has announced a new program of Awards for Excellence in Geographic Information Systems.

Five awards will be presented: First Prize of \$1,000; Second Prize of \$500; and three Honorable Mention Prizes. Each prize includes a Certificate of Merit and a scholarship to attend GISDEX '92. The awards will be presented on October 8 at a general session of this year's conference in Washington, D.C.

Nominations may be submitted reflecting both sustained performance over an extended period or special accomplishment on a one-time project. Selections will be based on the following criteria:

- 1). Support of new or changed program requirements;
- 2). Improvements in economy efficiency;
- 3). Improvements in services delivery; and
- 4). Innovative application of GIS technology.

Nominations will be accepted through August 15, 1992. Nomination forms are available by calling GISDEX '92 at (301) 445-4400.

Columbus Map Exhibit Tours State

A touring exhibit entitled "Maps and the Columbian Encounter" is scheduled for several appearances in Wisconsin through the end of the year. Organized by the Office for Map History at the University of Wisconsin-Milwaukee, the exhibit captures the era of changing world views symbolized by Columbus' voyages to the New World.

Many of the maps included in the exhibit are from the collections of the American Geographical Society, housed in the Golda Meier Library at UW-Milwaukee.

Scheduled stops in and near Wisconsin include:

April	UW-Center, West Bend
September	Ripon College
September	Rockford Museum (IL)
October	UW-Center, Rice Lake
November	University of Minnesota
November	Milwaukee Public Library

For further information on the schedule or content of the exhibit, call Beth Schaefer at (414) 229-4101. An exhibit guide, video tape, and poster are also available for sale.

Trying Out Redistricting Technology

by Lee Samson

Recently the Wisconsin Legislative Reference Bureau (LRB) ran a free public access program to the computer systems used for redistricting. These systems allow a user to develop and print out a redistricting plan based on 1990 census data and voting records. The access program ended on March 27. What follows is based on one person's brief experience with the system.

Prospective users were allowed to sign up for a four hour session. Once they were signed up they were sent a package consisting of a map of Wisconsin Senate and Assembly districts and a manual describing the public access terminals. This allowed the user to develop a rough draft of a redistricting plan for a city, county or the whole state before working on the computer system.

The computer system itself is an IBM RS/6000-320 Graphical Unix Workstation. This workstation has a 19-inch high resolution screen, a hard disk, 3.5-inch floppy disk and a mouse. Attached to this computer are devices for creating a print-out of a redistricting plan. Large maps are printed on the Versatec color electrostatic Plotter (36 by 44 inches at 400ppi). Statistical reports are printed on a IBM 4019 LaserPrinter. Screen dumps are printed on a Seiko Instruments color printer (8 1/2 by 17 inches).

ARC/INFO version 5.01 handles the spatial database consisting of block, ward, municipality and county data. The rest of the database—voting records and population data—is handled by SAS statistical software.

The spatial data used is part of the 1990 census TIGER files. The population data were from the 1990 Census Public Law 94-171 files. The voting records data were from 1984 and 1982 election records.

A Special user interface called WISCORE was developed just for this system by two UW-Madison groups: APL (Applied Population Lab) and LICGF (Land Information and Computer Graphics Facility). Using a pull-down menu, the user can select and modify districts in any region of the state for their plan. The menu also allows the user to manage the plans, review alternate plans and use SAS to generate a statistical report.

With assistance from a LRB employee a user can interactively design alternative redistricting plans. Using the WISCORE interface the user could select any of the population or voting data items and display them in terms of percentage or a total number per area. These values could be represented in either number or a color fill of the area. The assembly and senate district boundaries could then be altered according to the population or voting data.

For example, if the user wanted a district that represented younger voters, then age of voter data could be put on the screen in the form of wards. The user would then be able to choose which wards should be put into the new district. The resulting plan could then be sent to the legislative redistricting system for analysis, processing and possibly inclusion in the final redistricting plan for the state.

For technical information and documentation on this system and the database design please contact:

Loren Hoffman at (608) 267-0899

For general information please contact:

Larry Barish at (608) 266-0344

(source: *Public Access Terminal User Manual - WLRB Informational Bulletin 91-5*)



State Cartographer's Commentary

by Ted Koch

Wisconsin has managed to do something that a number of other states have found difficult. We have put together an interagency funding package for the NAPP program that guarantees us full state aerial photography coverage (see article on page 1).

This is a significant development upon which we can build in the future. The spirit of cooperation that brought us back from the brink on NAPP provides a positive model for future collaborations.

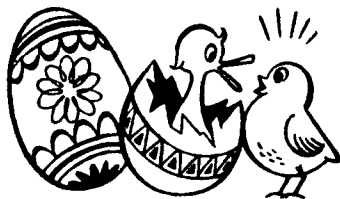
In the case of NAPP, interested state, federal, and private entities searched their budgets for funds to replace those provided by the legislature but vetoed by the governor last summer. We had hoped to develop a larger group of collaborators, but as it turned out we demonstrated a sufficient effort to ensure that the NAPP program would include Wisconsin in 1992.

A healthy future for Wisconsin mapping will require additional and significant investments in our statewide spatial information infrastructure. Where will the resources come from? Who will be the primary and secondary beneficiaries? Where can we find broad institutional support? How will the tough choices be made?

As an example, Tom Lillesand has made a strong case for the value of repeated statewide landcover mapping in his commentary on page 7. He recommends a commitment to a program and an institutional structure to support it. There are other examples that also deserve our attention in the days and months ahead.

Each time an issue like NAPP comes up, we can struggle to come up with a one-time solution. Or we can channel that energy into a continuing cooperative effort that improves our statewide spatial information infrastructure, to the benefit of all. This second option is clearly the more positive and leads to a more predictable future.

The NAPP cooperators deserve a round of applause for stepping forward. With their continuing efforts combined with the participation of many others, we can accomplish much more together.



State Signs GIS Purchasing Contract

by Bob Gurda

The State of Wisconsin has signed a contract providing standard products and pricing of GIS systems. This is the first of what should be several contracts with different suppliers of software and hardware, all meeting minimum qualifications as described in a Request for Proposals issued somewhat over a year ago by the Wisconsin Department of Administration (DOA).

The first contract is with Environmental Systems Research Institute (ESRI) of Redlands, California. ESRI produces and markets ARC/INFO software and related hardware, data, and training.

ESRI products on the "state contract" can now be purchased by any *public agency within Wisconsin* without negotiating directly with the vendor. In addition to minimizing time dealing with vendors, the state contract process usually provides lower prices.

Interested state agencies (and local governments participating in the Cooperative Purchasing Program) should contact their purchasing department for details. Other local governments can receive a copy of Bulletin #11-39720-201 by calling Kolleen Apelgren at 608/266-0817.

Negotiations are continuing with other vendors whose products were also approved earlier through a DOA screening process.

(source: Wisconsin Department of Administration)

From the Editor's Desk

by Bob Gurda

This month's issue brings a new feature: we have begun a question and answer feature. The first subjects are drawn from the dozens of questions that people have called into our office over the last several months.

We strongly encourage you to suggest questions that you have, or that you know other people have. The topics we will lean towards are those of general interest and/or statewide impact.

Of course, you don't have to be considering the *Mapping Bulletin's* question and answer feature to contact us for assistance. We field many inquiries each week, ranging across a variety of topics. Consult the listing on page 16 for an idea of the most common categories.

The potentially big story we are following closely is a federal initiative to produce 1-meter resolution digital orthophoto data from NAPP imagery. At this point, it appears to depend on decisions on budget reallocations and long-term commitments. We will carry news as soon as it becomes available.

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 as 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 June 15, 1992.

Editor: Bob Gurda

Desktop publishing: Brenda Hemstead

Mailing: SCO Production Staff

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

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