



Wisconsin MAPPING BULLETIN

King Named Executive Director of WLIB

by Bob Gurda

The Wisconsin Land Information Board (WLIB) has a new staff leader. At the board's meeting on October 31, Doug King was introduced as the Executive Director. He won't be moving very far, as his most recent position in a 21-year career in state government has been in the Department of Administration (DOA), to which the WLIB is attached. Both his old and new offices are in the same building.

At DOA, King served as a Senior Technology Consultant, working as member of a three-person Information Technology Team in the State Budget Office, from which he initiated the Governor's Executive Order 242 (see *Bulletin*, April '95) and briefed the Governor on the all-agency technology funding recommendations for the 1995-1997 Biennial Budget. More recently, he has co-directed the Wisconsin Information Technology Infrastructure Project.

No stranger to land records or mapping, King has worked for DNR (10 years) and the UW System (10 years), and in both capacities has directed mapping and GIS programs.

Doug holds a PhD in Public Administration, with a major in Computer Science, and Master's Degrees in Urban and Regional Planning and in Water and Land Resources Management. He is also a Certified Systems Professional and a Certified Facilities Manager.

As we reported in our previous issue, the WLIB's first Executive Director, William Holland, resigned effective September 2. At that time, the search to fill the position had already been underway for several months. This process was initiated earlier by the legislature's lifting of the WLIB's "sunset", which converted the original position from "project" to "permanent" status.

King can be reached at the WLIB at 608/267-2707. He begins at his new desk on November 6.

According to WLIB Chair John Laub, among King's initial tasks will be reviewing the program's strategic direction, filling the WLIB's support staff positions, and evaluating options that the board might consider for counties in updating their land information modernization plans.

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Dear Readers:

On the back cover of this issue is a perforated card which you must complete and return in order to continue receiving the Bulletin.

Due to budgetary constraints, we need to reduce our mailing list significantly. If you don't need to receive this newsletter or can share a copy with others who now receive their own copy, please help out by informing us.

Complete and return card at bottom of pages 15 & 16

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State Cartographer's Office
University of Wisconsin-Madison
Rm. 160 Science Hall
550 N. Park Street
Madison, WI 53706-1491

by Ted Koch

Board meetings

The Wisconsin Land Information Board (WLIB) held a meeting on October 31 in Madison.

The board's next meeting is scheduled for Monday, December 11, in Madison. The board will be making awards at this meeting for grant applications submitted in July 1995. The public hearing on grant applications will be held on November 28 at the Mead Inn in Wisconsin Rapids. As of press deadline, there were no specific dates chosen for meetings in 1996. Contact the WLIB staff for further information or consult the SCO's BBS for calendar listings of many statewide events.

New Executive Director announced

[see story on page 1]. The board acknowledged the efforts of its two support staff, Georgia Hopf and Susan Simons, for their dedication during recent months when the vacancy in the Executive Director position coincided with the need to produce voluminous materials for the Lieutenant Governor's review of the board's functions (see below).

Board membership

In response to the sudden death of board member Anthony Kiedrowski in October, the board passed a resolution acknowledging his dedicated service. Tony's seat on the WLIB was one of the seven which are appointed by the governor, and no successor has been announced.

The board also named Jim Dryden to replace Gary Bauer as an advisory member representing the federal Bureau of Land Management (BLM). Dryden is in BLM's regional office in Milwaukee.

Grants

The board received 34 local government grant requests totaling \$2,804,307 during the July 1995 application period. It is expected that the board will have less than \$1 million available to allocate in response to these requests. The hearing, in advance of WLIB decisions regarding these grants requests, will take place in Wisconsin Rapids on November 28th.



Board Rejustification

As reported in the last issue of the *Bulletin*, the recently approved 1995-97 state budget bill included a provision ending the operation of all advisory boards, councils, and commissions attached to executive agencies within state government.

Lieutenant Governor Scott McCallum has been assigned the responsibility of reviewing more than 140 of these organizations. The WLIB is included in this group; however, those boards, councils and commissions whose existence can be justified will not be eliminated.

In early September, the Lt. Governor's Office initiated the rejustification process with a 60-question form to all organizations, with a response required by October 1. A seven-member WLIB Committee, chaired by Ben Niemann, provided the Lt. Governor's Office with a response to the questionnaire of more than 100 pages and a foot-high stack of appendices.

Meanwhile, during the month of October, Lt. Governor McCallum held public hearings at five locations around the state to receive public input. Hearings were held in Superior, La Crosse, Appleton, Madison, and Waukesha. The timeline for a decision on continued existence of these organizations has not been announced.

Countywide Plans

At the October 31 meeting, the WLIB voted to allow a one-year extension on those plans that are approaching their original 5-year limit. The board expects to address the issues of content, structure, and process of revising the original land records modernization plans which all counties have submitted. The first several plans submitted for the board's consideration were approved in late 1990 and early 1991.

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New Digital Map Products

Decides on software, begins projects

Southwest Consortium set for mapping

by Bob Gurda

Several counties in southwestern Wisconsin are awaiting delivery of new digital orthophotographs. These images, developed in digital form but also available on stable-base film, were produced from aerial photographs acquired this spring.

The original photographs and their derived orthophotos were planned and executed by a group of counties: Columbia, Dane, Green, Lafayette, Grant, and Vernon. By combining their efforts toward a standard product, this consortium achieved some economies of scale. A single contractor, Ayres Associates, managed both the aerial photography mission as well as the orthophoto correction process (computerized removal of distortions from image files created by scanning the photographs).

Dane County has received preliminary orthophoto files, and the other counties' should be following over the winter into spring. In preparation for simplifying data sharing, Dane County is studying options for placing the final files on a set of CD-ROMs (probably 7-8 discs) which would cost in the range of \$300-500 for the set. Anyone interested in this opportunity should contact John Amundson at 608/266-9064.

The Dane County files are in TIFF format, in the new Dane County coordinate system. They are mosaicked into single images each covering a township, for a file size of approximately 125 MB. Early tests indicate a spatial accuracy of better than 10 feet.

People interested in photographic products from the Dane County work should contact Ayres Associates directly. A variety of custom products are possible.

One difference internal to the group is that the photographs and resulting orthophotos for Columbia County are at a larger scale than those for the remaining area. This choice resulted in a higher cost per square mile in order to achieve higher resolution (a crisper image with somewhat higher accuracy).

The digital orthophoto products are accompanied by digital terrain files which contain irregularly spaced elevation information. Included are elevation traces that follow the road network. Anyone interested in potentially acquiring some or all of the orthophoto or elevation information should contact the land information office in the appropriate county.

In addition to agreeing on a standard orthophoto product, the counties also collectively evaluated a number of potential GIS software/hardware configurations over the summer and fall. Recently, they chose Intergraph's solution. The counties of Columbia, Grant, Iowa, LaFayette, and Vernon will have the technology installed before the end of the year, and will then begin their pilot projects.

Derivative products also being scoped out

More DRG coverage in the works

by Bob Gurda

Wisconsin is getting closer to full funding for statewide production of Digital Raster Graphics (DRGs), the computerized scanning of federal topographic map sheets. Recent interest from several potential contributors has increased the likelihood that the current commitments, which total about 60% of the state, will grow to 100% soon.

Some blocks of map sheets are already heading into the production process, with delivery of these products from the U.S. Geological Survey now expected on CD-ROM in the spring. These areas, primarily in the northern part of the state, were funded earlier this fall.

(For background on DRGs, see the lead article in our July '95 issue).

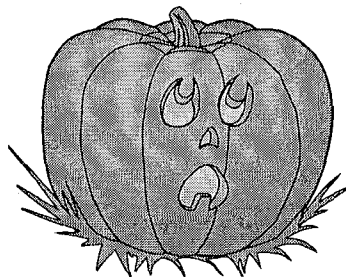
All of the DRGs for the USGS 7.5-minute topographic quadrangle map sheets covering Douglas County in the far northwestern corner of the state are now complete, and have been delivered to the county on a CD-ROM. These are in the standard USGS format, one feature of which is the Universal Transverse Mercator (UTM) coordinate system.

Samples from the Douglas County DRG files will be displayed on screen as well as in printed form as part of the WISCLAND presentation at the WLIA meeting in Green Lake on December 7-8 (see story on page 12).

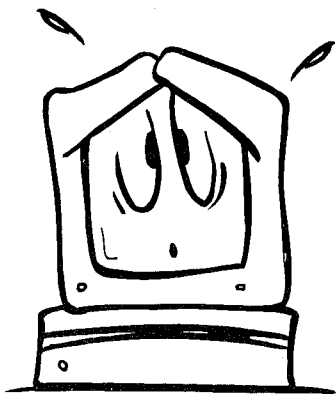
The Wisconsin DNR has also developed a prototype process for creating a value-added derivative product, adjusted to the Wisconsin Transverse Mercator (WTM) coordinate system. In this modified form, the DRG can be directly overlaid with digital information from DNR's various GIS databases, which are based on WTM. Similar products could be produced in the new Wisconsin County Coordinate System.

The DNR prototype has another interesting feature, with the map sheet's collar (the text that surrounds the neatline bounding the actual mapped area) removed. Such DRGs can then easily be displayed side by side without the collar text from one map appearing on top of the neighboring sheet(s). Samples from Douglas County show very satisfactory fits between adjacent map sheets edges — often perfect or not more than 1 pixel wide (8 feet at ground scale).

For more information on DRG activities, access to samples, and expected delivery dates, contact the SCO.



SCO Bulletin Board News



Is it really gone?

SurveyNet unplugged and replugged

by Brenda Hemstead

In the wee hours of the morning of October 18, 1995, a message was sent to "all" from SurveyNet's "sysop", George Ferguson, of his decision to "shut down" the SurveyNet BBS effective October 20, 1995. His decision would have had an impact on *some* users of the SCO BBS.

The SurveyNet BBS was nearly 4 years old (or in BBS years an eternity given the "average" lifespan of a BBS). From the beginning it had been a labor of love for Ferguson and eventually several factors combined to make his decision inevitable.

SurveyNet was an affiliation of eight bulletin board systems around the country that participated in a mapping/surveying "echomail" network. In an echomail network, the participating boards share common message bases. A message posted to a shared area is "echoed" to all BBS's carrying the conference, and other users on participating systems can respond. This allows for an incredible amount of interaction and communication between users across the country. In the case of SurveyNet, messages were echoed once a day among the participating boards.

The SCO BBS has 18 message conference areas for SurveyNet. To view these, start at the Main Menu, select (M)essage Menu, then select (A)rea. A listing will appear showing these 18 SurveyNet conferences as well as 12 other message areas unique to the SCO BBS. Any area marked with an asterisk means that at least one message is waiting that you have not read.

When you are ready to read a message from one of the areas, simply enter that area's number. Then choose how you wish to read the messages (e.g., only new messages, in reverse order). This is where you leave your questions, thoughts, views, etc. for anyone else to read and hopefully answer – except for the foreseeable future, the only people who will see your message will be those who use the SCO's BBS.

Just recently, the SCO has learned that Randy Orvis of Farmington, NH is reviving SurveyNet. He is utilizing Total Station BBS at 603/859-2361, settings: 28.8k, N-8-1, 24hrs. Randy is eager to hear comments and/or questions from those of you who have been active in SurveyNet in the past or from those of you who will be in the future.

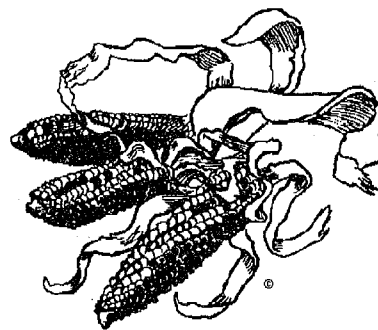
We will be customizing the SurveyNet conference listings on our BBS to match that of the Total Station BBS very soon. Visually, you probably won't notice much difference except for maybe an additional conference or two and a couple that have been dropped.

If you would like further details regarding SurveyNet, you can either leave me a message on our BBS or call me at 608/262-3065.

BBS statistics

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

- Number of registered users: 611 (306 of the 611 total registered users have access to the Internet. Of the remaining 305 users who currently don't have access to the Internet, 235 hope to have access soon).
- Total number of calls to date: 3285
- Average number of calls per month: 80
- Most popular file: files.zip
- Other popular files: list.zip, pspro200.zip, vmap120.zip
- Total files on BBS: 265



State Cartographer's Commentary

Leadership – a critical ingredient

by Ted Koch

In government, business and the media today we often hear people ask, "Where are the leaders?" Often this question is measured against our perceptions of yesterday's leaders who loom larger-than-life in our history. No one today seems capable of matching our images of F.D.R., Eisenhower, Churchill or the Rockefellers.

Experts who study personal leadership say the indispensable first quality is a **guiding vision**, a strongly defined sense of purpose. And when people are aligned behind a clearly defined vision or purpose, the result is a powerful organization.

To be successful, to grow, all organizations and programs require effective leadership. This need for leadership is particularly critical in the relatively new and rapidly expanding field of GIS.

Unfortunately, within the past two months two highly effective leaders – one at the national level, and the other at the state level – have left their positions of guidance to pursue other opportunities.

At the national level, **Nancy Tosta**, now the *former* Staff Director of the Federal Geographic Data Committee (FGDC), assumed the role of guide and voice for the formation of a National Spatial data Infrastructure (NSDI). Over the past four years when many of us asked "NSDI - What?", Nancy was always there to articulate a vision, to present a pragmatic and potent point of concept and direction. It was from Nancy, at one of her many presentations, that I first learned of the Internet and its vast communication potential.

Unfortunately for Nancy, not all of those around her in a management capacity supported her style and delivery of the NSDI vision. So, ultimately, she was assigned other duties within the U.S. Geological Survey. Her public profile is now no doubt lessened, but no less needed.

Nancy followed a vision of doing the right things, while others were concerned with doing things right. For the NSDI to succeed, leadership with vision and purpose is critical. Let us hope that the new FGDC Staff Director has no less a sense of zeal and doing the right things.

At the state level, **Bill Holland**, in early September, left the position of Executive Director of the Wisconsin Land Information Board. As the administrator of the Board's policies, Bill provided the leadership to take a program in its infancy six years ago to a solidly functioning, effective program today. This required a vision, a commitment to purpose that was clear and constant. Bill provided that direction, that leadership. As with Nancy Tosta, Bill committed himself, and led others, to do the right things. Unfortunately, people near him were more concerned with doing things right.

Those in leadership roles are highly visible, and at the same time highly vulnerable – it "goes with the territory" many believe. As leaders change, we must be careful to encourage, select, train others to follow.

For effective growth and the development of flexible policies of change, new leaders must exhibit those prime qualities of leadership – vision, purpose, a strong point of view and constancy.

In our national and state GIS/LIS programs we have had leaders with these traits. Let us hope our future leaders can continue to deliver as much.

SCO News

SCO Staff Update

by Ted Koch

We are pleased to announce that **Hugh Phillips** has joined the SCO's permanent staff. Hugh had been a part-time project assistant while working on a Master's Degree in Cartography which he completed this summer. While a project assistant, Hugh was instrumental in developing metadata documentation files for the Wisconsin Land Information Clearinghouse (WISCLINC) Project, and in creating Internet "homepages" for the clearinghouse and the SCO.

In his new position, Hugh will be working 30% for the SCO and 50% for the UW-Madison Campus Library System. In the SCO component of his work, Hugh will continue to expand The WISCLINC metadata files and maintain the overall operation of WISCLINC.

For the library portion, Hugh will be assisting with the campus libraries' efforts to provide students and faculty with access to appropriate Geographic Information System

(GIS) software and databases through existing library computer laboratories and networks. Work for the libraries will be in conjunction with the campus' Spatial Information and Analysis Consortium (SIAC), a group of UW-Madison campus faculty and staff who promote cooperation between a variety of academic programs that deal with the spatial-data related issues.

The SCO also has a new graduate project assistant. **Tom Panasci**, a Master of Business Administration candidate in finance has taken over our computer system management responsibilities. In addition to his expertise with hardware and software, Tom has a number of years experience in mapping and aerial photo interpretation projects.

Additionally, **Reese Hirth**, an Environmental Monitoring Program graduate student, is assisting the office this fall on an hourly basis to complete the digitizing of benchmark locations for the USGS Third-Order Leveling Transfer project (See the July, 1995 issue for details).

Geodetic Control

Federal installations almost complete in region

GPS base stations come on-line

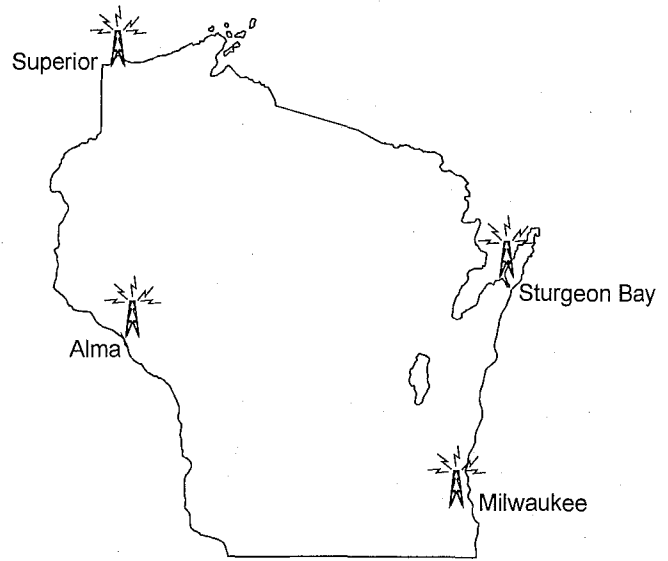
by Bob Gurda

Users of GPS equipment will be happy to learn that a series of continuously operating base stations is close to complete in our region. These sites will broadcast correction information instantly so that people with GPS beacon receivers can immediately collect higher quality position data.

The base station sites that will benefit Wisconsin users are located in St. Louis, Mo., Alma (50 miles up the Mississippi River from La Crosse), Milwaukee, Sturgeon Bay, and Superior. The first three of these installations are operational; the last two are expected to be operating by October and November of this year, respectively. The first two are managed by the U.S. Army Corps of Engineers; the remainder are part of a Coast Guard network.

The importance of base stations is a direct result of the fact that the Defense Department, operator of the GPS satellite constellation, degrades the satellite signals through a code that is classified. Civilian pressure continues to build toward a reversal of this DOD policy of degrading the signals. A fixed base station at a location for which the position has been very accurately measured can serve as a reference point to extract the degradation from the overall signal. This extraction, or differential correction, can then be applied to improve the positional quality of data collected by movable GPS receivers. If a mobile GPS unit is equipped with a beacon receiver which allows it to tune in to a differential correction broadcast from a base station, it can produce higher quality position information immediately.

Beacon receivers are stated to be functional up to 140 miles from a broadcasting base station. However, Pat Moran of the Wisconsin Department of Transportation re-



ports that he has picked up the signal of the St. Louis station in Madison (about 375 miles away).

Depending on GPS receiver characteristics and the amount of time that GPS signals are received at a field site, positional accuracies of approximately 1-3 meters can be achieved with real time differential correction. Obviously, this level of positional quality will not suffice for geodetic, property, or engineering work, but it will be superior to many existing types of field data collection and will also be faster.

To get current information on base stations, status of GPS satellites, and more, access the Coast Guard's electronic bulletin board at 703/313-5910 (use modem settings of N-8-1-full duplex).

(sources: Paul Hartzheim & Pat Moran, WisDOT)

Coming in January....

A set of new, revised, and updated products from the SCO, for users of geodetic control in Wisconsin.

- new software
- restructured data files
- statewide products
- tools to simplify searching 3rd order benchmark information

Remote Sensing News

A new trend in seeing and making maps

Low cost Terrain Fly-By images being development by federal partners

by Jim Jordan

New methods of integrating remote sensing data and computing technologies are constantly being developed, and with increasing consideration of low-cost alternatives for public and private sector users. Terrain Fly-By imaging is one of these developments, and its potential uses include landscape analysis, natural resource exploration and monitoring, and topographic mapping.

The U.S. Geological Survey, in cooperation with NASA and the Jet Propulsion Laboratory, is developing an imaging program that makes use of available digital data, commercial and public domain software, and video imaging techniques to provide 3-D terrain fly-by simulations for selected parts of the country. Digital orthophotomaps, a digital elevation model, and digital line graph data are merged and preprocessed by commercial GIS software, then are analyzed with free or low-cost image processing and animation software to produce simulated fly-overs of the terrain.

NASA is also experimenting with the use of 3-D imaging radar and video to make topographic maps. Radar data is increasingly relied on to provide images of the earth's surface where cloud cover or dense vegetation makes conventional photography infeasible. Commercial flight simulation software is used to generate fly-through views of terrain models developed from the digital radar data.

These pilot programs have important implications for the mapping community. Merging terrain analysis and mapping software with remote sensing data brings a component of visualization to "map" data that hasn't been available before. Animation of the data enhances exploration and analysis capabilities, and low-cost software that integrates image processing and mapping tools will revolutionize the way we look at and use maps.

If you have access to the Internet, it is worth taking a look at developments in terrain imaging and fly-by visualization. Also find out what is current in radar imaging technology and advances in space-based remote sensing. Here are a few sites to start from:

<http://southport.jpl.nasa.gov/> (NASA's 3D imaging radar program)

<http://info.er.usgs.gov/> (USGS Terrain Fly-By program)

<http://www.coresw.com/> (Landsat, SPOT, and Russian imagery)

archive/browser (A good search tool for Wis. data)

(sources: *Earth Observation Magazine*, July and September 1995; *USGS Bulletin* 2103, *Selected Papers in the Applied Computer Sciences* 1994 (A)).

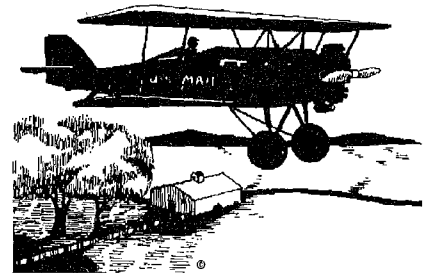
Reprints now available from contractors

National Archives speeds access to historical airphoto collection

by Bob Gurda

Through a new arrangement utilizing private vendors, people interested in acquiring copies of older aerial photographs will now enjoy much faster service. Ten private companies have agreed to provide reproduction services from records held by the National Archives. These include the large collection of aerial photographs maintained by the Archives. The firms have agreed to fill orders within two weeks of receipt.

In recent years, the National Archives has struggled to keep up with an increasing demand for copies of old aerial photographs, at the same time that its staff has been reduced. The Wisconsin photographs



in question were generally acquired by federal agencies beginning in the 1930s, and the Archives has these negatives as well as others from the 1940s into the early 1950s. Most counties have this type of coverage.

Now private firms will be handling inquiries, reproduction, payment, and shipping for prints. Some firms will offer digital versions of some records, although it is not clear whether this service applies to photographs as it does to certain documents.

The change in policy follows a successful one-year test of privatizing the reproduction of records held by the Archives' Motion Picture Branch. The test was inspired by Vice President Gore's emphasis on improving government service.

We have a packet of information at the SCO from the various vendors, including price lists for products and services. Some vendors appear to offer rush service for an additional fee.

People wanting copies from the many older aerial photographs held at the National Archives now have better service and more options to choose from. The next big step forward would be scanning the old photographs and making them available in a form such as CD-ROM. With assurance of sufficient demand, a private concern could choose to invest in such a product.

(source: *National Archives and Records Administration*)

Native American GIS Developments

National meeting set for Wis. next year

Wisconsin tribes adopt GIS

by Bob Gurda

Potawatomi. Ho Chunk. Oneida. Bad River. Menominee. Red Cliff. These are all homes of Native American GIS developments in Wisconsin. The growth of GIS amongst these groups parallels what has been more widely publicized in federal, state, and local governments and the private sector.

Tribal GIS development has benefitted from a set of circumstances. Initially, the federal government's Bureau of Indian Affairs (BIA) began to provide GIS tools through a specialized service center in Colorado. A few sites in Wisconsin used modem communications to access this capability, and accomplished their initial work by this means.

In addition, the BIA has provided technical assistance through a GIS specialist housed in its regional office in Minneapolis. Both the Colorado and Minneapolis groups, plus the Great Lakes Agency in Ashland are being reduced in size as part of overall federal government downsizing.

Like other GIS users, the tribes have also been aided by a decline in the costs for computer hardware and software. This has allowed limited budgets to support higher levels of system performance, and has brought self-sufficient GIS installations to several sites.

However, probably the greatest single boost to GIS use is proceeds from recently established gaming operations. Several tribes in Wisconsin have hired one or more GIS specialists in the last several years, and some GIS installations are located in new facilities rivalling the newer county courthouses.

Across the United States, about 50 tribes now run their own GIS's. This level of activity has led to formation of a specialized organization, the InterTribal GIS Council (IGC). This group hosted its second annual meeting in Arizona this last summer, and has decided to gather at the Oneida Reservation (near Green Bay) this coming year.

In Wisconsin, tribal GIS is used for a variety of purposes, primarily for managing resources. Some examples are forestry, housing and utility infrastructure, burial sites, wetlands, and land ownership.

Below are contacts for Native American groups in Wisconsin actively using GIS.

Menominee Forest Enterprises
Keshena (Menominee County)
Lee Halbrook
715/799-3896

Menominee Tribal Legislature
Keshena (Menominee County)
Jim Horton
715/799-5149

Oneida Nation in Wisconsin
Oneida (Brown/Outagamie Counties)
Ken Pabich
414/869-4533

Forest County Potawatomi
Crandon (Forest County)
Shari Funk
715/478-7224

Bad River Band, Chippewa
Odanah (Ashland County)
Mark Miller
715/682-7123

Red Cliff Band, Chippewa
Red Cliff (Bayfield County)
Kendall Holmes
715/799-3704

Sokoagon Chippewa
Mole Lake (Forest County)
John Griffin
715/478-2604

Ho Chunk Nation
Black River Falls (Jackson County)
Joe Hanson
800/944-2852

Great Lakes Indian Fish & Wildlife Commission
Odanah (Ashland County) &
Madison (Dane County)
John Coleman
715/682-6619 & 608/263-2873

BIA-Great Lakes Agency
Ashland (Ashland County)
Gerry Walhovd
715/682-4627

BIA-Regional Office
Minneapolis, MN
Carl Hardzinski
612/373-1144

Native American GIS: Springboard for Cooperation

by Chas F. Wheelock*

As digital information technology spreads through the United States, Native American activists are asking themselves whether and how Native communities can benefit. Or, will this opportunity become merely a modern-day version of the telegraph and railroad that were built right through Indian lands with little benefit to the Tribes?

In its report, *Telecommunication Technology and Native Americans: Opportunities and Challenges*, the Office of Technology Assessment (OTA) identified numerous opportunities. These include deepening cultural roots, empowering communities, and strengthening Native governments.

At the same time, the OTA noted daunting impediments including unemployment, poverty, and poor health conditions. "Indeed, if Native Americans, collectively, do not gain a better understanding and control

The recent emergence of GIS provides some interesting opportunities for progress toward comprehensive cultural decision making.

of this technology, the result could be to further undermine Native culture, community, sovereignty, and self-determination."

Indian community development has a varied history of technology adoption across the 353 Nations, communities, and villages in the United States. The recent emergence of one technology, GIS, provides some interesting opportunities for progress toward comprehensive cultural decision making.

For instance, Indian leaders can help create a social environment within which all governments can cooperate toward developing useful GIS data and application approaches

that have broad benefits and that contribute to a common focus on collective responsibilities toward both the natural world and the cultural world.

There are always decisions to be made, issues to be discussed, alternatives to be explored in planning for development within Indian lands as well as across the larger landscape. Just as similar problems be-

...a cooperatively designed GIS can be a tool to help bridge between Indian and non-Indian communities.

tween growing cities and their surrounding towns require solutions, a cooperatively designed GIS can be a tool to help bridge between Indian and non-Indian communities.

The opportunity today is to evolve unique cooperative models to maximize capital expenditures, staff time, and hardware and software applications that support the decision making process in a generic way. The challenges of GIS implementation are essentially the same for the Tribes as they are for other governments, and we can benefit from sharing in meeting these challenges.

In Wisconsin, the different spatial patterns of Indian Nations' land management creates a special challenge. Some lands are large contiguous blocks. Others are very scattered. Some exist within a single county. Others cross county lines. This spatial diversity requires several variations on a general solution to cooperate effectively with other governments on GIS.

In addition to the spatial diversity in the land pattern, the Tribes deal with GIS hardware and software, staff training, computerizing of existing data, development of new data, and building of GIS applications. We consider GIS to be a tool

Policies of information sharing and cooperation could provide the foundational elements of cooperative management of resources which show respect for the unique legal and cultural jurisdiction and sovereignty of Indian Nations.

for better managing records and for supporting decision making. This should all sound familiar to non-Indians.

Opportunities exist for strategic partnerships between the Indian community and non-Indian communities as all communities dealing with critical non-jurisdictional environmental, social and community problems. Policies of information sharing and cooperation could provide the foundational elements of cooperative management of resources which show respect for the unique legal and cultural jurisdiction and sovereignty of Indian Nations.

The beauty of the opportunity to work together to address issues which impact on all peoples regardless of jurisdictional realities should be viewed by the political community as the corner stone of improved community relations in an ever shrinking world unacceptable of negative isolationism and ethnocentrism.

****C.F.W. is the New York Community Planning Director for the Oneida Nation in Wisconsin. He has been working in GIS with a sustainable community focus, using maps and data to address cultural planning and Indian land tenure issues.***

People & Organizations

Obituary

Anthony "Tony" Kiedrowski, 63, of 9251 Evergreen Ave., Portage County (Town of Grant), passed away on Monday evening, October 16 due to a massive heart attack.

Tony was very active in surveying and land information groups, and was one of the original appointees by the Governor to the Wisconsin Land Information Board.

Tony was born on March 5, 1932, in Milwaukee, to John and Ann (Klafka) Kiedrowski. He married Mary Steinhage.

He served on the Wisconsin Land Records Committee created by Governor Anthony Earl and reconstituted by Governor Thompson, and was an active member in the Wisconsin Land Information Association.

Tony also served in the Korean War as a clerk in the U.S. Air Force. He operated Kiedrowski Engineering Inc. for the past 30 years, and was a civil engineer and local land surveyor. He was also on the Mid-State Technical College Board from July 1981 to June 1985 and was its chairman from 1986-94.

Survivors include his wife; four sons, three daughters, one granddaughter, and one brother.

switches to new NRCS office in Madison

Huberty becomes regional GIS coordinator

by Bob Gurda

Brian Huberty has been named to a new position as regional GIS coordinator for the USDA Natural Resources Conservation Service (NRCS, formerly SCS). He becomes part of the new regional office staff, housed on Madison's far east side. The NRCS regional office network is part of a plan to relocate administrative positions from Washington, D.C.

Huberty has coordinated GIS at the state level in Wisconsin for several years. In his new role, he is responsible for activities in 8 states. Brian's new telephone number is 608/224-3014.

The GIS group at the NRCS state office has been trimmed as part of the agency's overall adjustment to lower staff levels. The new contact there is Ken Lubich, who can be reached at 608/264-5334, Ext. 148.

Moeller moves from BLM, Nebert from WRD

USGS switches FGDC staff leadership

by Bob Gurda

The staff of the Federal Geographic Data Committee (FGDC) is undergoing some major changes. The director of the staff is now John Moeller, formerly of the Interior Department's Bureau of Land Management. The FGDC staff is managed by the U.S. Geological Survey's National Mapping Division.

Moeller has authored numerous papers and reports on modernizing his former bureau's land information, and spoke on this subject at a Wisconsin Land Information Association conference several years ago. He also has been active on committees of the FGDC, representing the BLM, and more recently he was assigned temporarily to the fledgling National Biological Service.

Nancy Tosta, the FGDC's first staff director, has become a Special Assistant to Interior Secretary Bruce Babbitt, focusing on issues surrounding the National Spatial Data Infrastructure (NSDI). She will split her time between USGS offices in Reston, VA and the Interior Department headquarters in downtown Washington, D.C.

Doug Nebert is another new face at the FGDC, leading clearinghouse efforts. Those of us who have worked in the geospatial data clearinghouse area for the last several years are very familiar with Doug, who has been a productive technical advisor on subjects such as development of the metadata standard that eventually was adopted by the FGDC, spatial extensions to WAIS, and creation of a metadata tool "document.aml". In joining the FGDC staff, Nebert moves over from the USGS Water Resources Division (WRD).

The FGDC was created in 1990 by the Office of Management and Budget to improve geographic data coordination across federal agencies. The committee's first chair was an upper level USGS administrator, designated by the Secretary of Interior. Later, Babbitt took over that responsibility. Its support staff has grown as the committee and its subcommittees and working groups have tackled various tasks such as standards, communications, and coordination.

(source: USGS)

Questions & Answers

?

How can I determine the amount of lake frontage that falls within a particular municipality's boundaries?

Your request is straightforward, but unfortunately the answer is not!

If you need a rough idea of, for example, the relative amounts of frontage on a lake that has three municipalities on its shores, then you may be able to locate a map or two, or make a few phone calls, and get your answer.

In a few parts of the state, quite detailed and accurate maps, usually prepared by either county or municipal governments, do exist that can provide a good answer to your question. In most places, however, if you need a more than an approximate answer, you will have to search for information and analyze it carefully.

Your question actually has two parts, and neither has a simple answer.

First, the amount of frontage on any particular lake depends on how it is measured. As we noted in this column in our October 1993 issue, the Wisconsin shoreline of Lakes Michigan and Superior ranges from 816 to 1017 miles, depending on the scale of the map from which it is measured. This effect is a result of generalization of the line representing the shore – less detail can be shown at a smaller scale, and a less detailed line has a shorter length. No matter what size the lake is, the scale of its depiction will influence the length of shoreline.

Maps such as USGS 7.5-minute quadrangles would provide consistency of shoreline measurement from one lake to another, since they are prepared to standard specifications statewide. Maps from this series are not good, however, for determining the extent of municipal boundaries since many of the map sheets are twenty or more years old. Most municipalities have annexed lands over that period, changing their boundaries.

In fact, municipality boundaries can change far more often than most of the maps that depict them. And even if you can find current information on the boundaries, you may not find it easy to integrate that information with a shoreline frontage depiction, since they may not be referenced to the same base map or coordinate system, or may not be measured with comparable accuracies.



?

When will WISCLAND's statewide land cover database be available?

Parts of this new set of information will begin to emerge over this winter, although the entire statewide probably will not be completed until late 1997. We will provide information in the *Bulletin* about how to access this data as it becomes available.

(For those who haven't seen earlier articles on WISCLAND, it is an acronym for a group that formed in 1993: The Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data).

The initial areas will be from the far northwestern part of Wisconsin. Work will continue over the next two years, eventually covering the entire state. Color plots of the first finished work can be viewed at the December meeting of the Wisconsin Land Information Association (see preview, bottom of p. 12).

The complex analytical task of interpreting satellite imagery into land cover classes (primarily, types of vegetation) is being performed for WISCLAND by a team in the Wisconsin Department of Natural Resources' GeoServices Unit. Because the intensity of their effort goes well beyond what has been done on similar projects in several other states, the results do not come quickly although the quality will be very high.

The team's work is divided into ten major geographic units, each from a different "scene" area as collected by the Landsat satellite. Each scene is then subdivided into as many as 5 areas having relatively homogeneous vegetation. By analyzing each sub-area separately, the team expects to achieve a higher level of accuracy than by analyzing the entire scene at once.

While the analysis of the Landsat imagery will be done by computer, the computer program will be guided by information collected at key points on the ground. According to Bob Goldmann, DNR's land cover project manager, over 30,000 areas on the ground from across the state will have their land cover identified by field experts who are cooperating with the project. The polygons used for this sampling total about 6% of the state's area. This level of sampling is higher than any other state has attempted for this kind of project, and is also higher than the vegetation sampling density used by Prof. John Curtis in the 1950's for his internationally recognized work published as "The Vegetation of Wisconsin".

The task of delineating these "ground truth" areas on aerial photographs, then coordinating with field staff to identify the land cover types in those particular areas on the photos, and finally entering that information into the computer database in Madison is a very intensive process. Goldmann and his staff recently completed one major step in the job, sending out the last batch of information requests to the field. In all, they have delineated and distributed over 1,000 aerial photographs to guide field staff in collecting the ground truth samples statewide.

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.

Event Profiles

Governor signs Proclamation

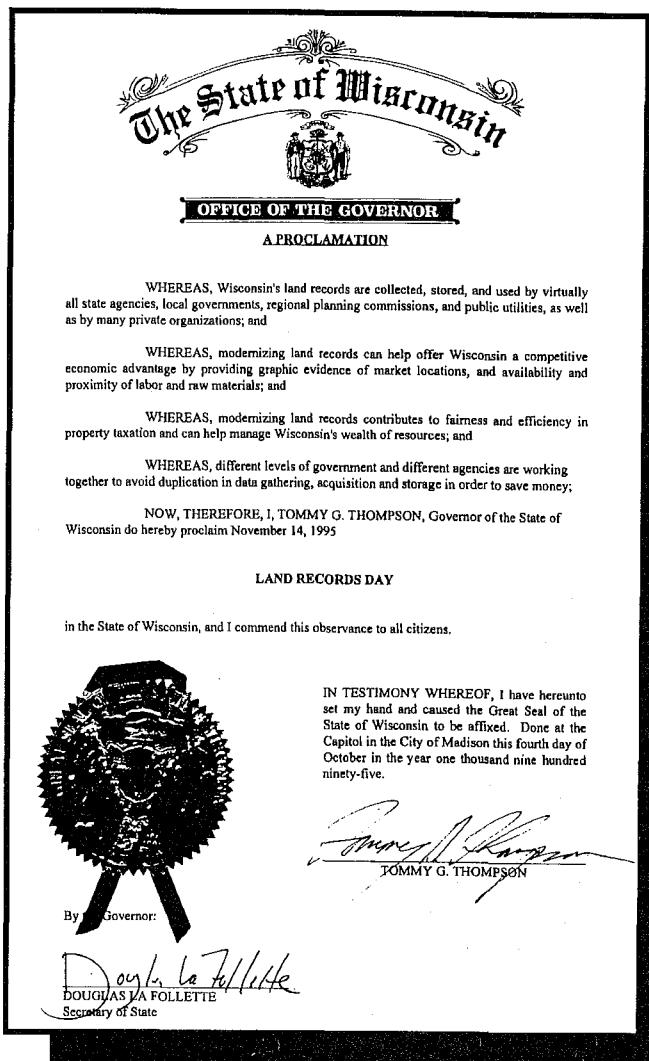
Land Records Day: Nov. 14

by Ted Koch

The Wisconsin Land Information Program will celebrate a special day on Tuesday, November 14. Officially proclaimed by Governor Thompson as Land Records Day, county Land Information Offices (LIO) across the state will host open houses to give the public a first hand view of recent developments in local land records modernization activities. The date, November 14, was chosen to coincide with National Geography Week which is November 14-18.

The LIO open houses will display and demonstrate the latest in land records modernization improvements, ranging from the computerization of rural addressing systems and property mapping, to the electronic conversion and display of paper documents. Land Records Day is intended for local elected officials and the public to get a closer look at recent changes in county Land Information Offices, to meet the staff, and get a better understanding of the state's Land Information Program.

Land Records Day is being jointly sponsored by the Wisconsin Land Information Association and the Land Information Board. Roxanne Brown, the Real Property Lister in Burnett County, is serving as the director of the state-wide event. She will assist nine regional coordinators to help counties organize the day's activities. She will also collect data to summarize the results of the day's activities from all the participating counties. For more information on Land Records Day contact the Wisconsin Land Information Association at 1-800-344-0421.



WLIA plans busy fall and winter

Upcoming WLIA conferences

by Ted Koch

The Wisconsin Land Information Association (WLIA) will hold its winter quarterly membership meeting at the Heidel House Resort and Conference Center in Green Lake on December 7 and 8. The Thursday evening program will include a special presentation on the WISCLAND project, which is currently generating land cover, hydrography and other state-wide GIS data sets. Friday morning's program will feature a "Tools-of-the-Trade" session, with focus on creating and using metadata, and managing county coordinate systems. The Friday afternoon session will be an update by Dave Schmidt on Winnebago County's "WINGS" program.

Call for Presentations issued

The WLIA has issued a "Call for Presentations" in conjunction with its upcoming ninth annual conference. Scheduled for March 5-8, 1996 at the Hilton Hotel in Oshkosh, the conference theme is slated as "Weathering the Elements - a Forecast for Land Records". Proposals for presentations will be accepted through Friday, November 10, 1995.

For more information on either meeting, contact the WLIA at 1-800-344-0421. Non-member are welcome.



Selected* Conferences, Technical Meetings, and Classes

November 7-8, 1995, **Coordinated GIS: Working Together Toward a Common Vision** will be held at the Iowa Memorial Union, University of Iowa, Iowa City, IA. Contact: Center for Conferences and Institutes at 319/335-3231.

November 8-11, 1995, **18th Annual Applied Geography Conference** will be held in Crystal City, VA. Contact: Nancy Torrieri at 301/457-4710.

November 10-11, 1995, **Wisconsin Geographical Society** will be held at the UW-River Falls, River Falls, WI.

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

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

November 28, 1995, **Wisconsin Land Information Boards' Evaluation Committee Meeting** will be held at the Mead Inn, Wisconsin Rapids, WI. Contact: WLIB at 608/267-2707.

December 4-5, 1995, **1995 GIS in Illinois Conference** will be held at the Marriott Hotel in Schaumburg, IL. Contact: 815/753-0927.

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

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

1996

January 22-24, 1996, **The Institute of Navigation (ION) National Technical Meeting** will be held in Santa Monica, CA. Contact: Lisa Beatty at 703/683-7101, fax: 703/683-7105.

January 24-26, 1996, **46th Annual Wisconsin Society of Land Surveyor's Institute Convention** will be held at the Holiday Inn in Stevens Point, WI. Contact: Mike Roach at 414/496-6787.

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

February 27-29, 1996, **Eleventh Thematic Conference on Applied Geologic Remote Sensing** will be held in Las Vegas, NV. Contact: Cindy Achten, AM/FM, 303/337-0513; fax 303/337-4001.

March 5-8, 1996, **Wisconsin Land Information Association's Annual Conference** will be held at the Oshkosh Hilton & Convention Center in Oshkosh, WI. Contact: WLIA at 800/344-0421.

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

March 25-29, 1996, **The 26th International Symposium on Remote Sensing of Environment & The 18th Annual Symposium of the Canadian Remote Sensing Society** will jointly be held at the Hotel Vancouver, Canada.

April 9-14, 1996, **92nd AAG Annual Conference** will be held in Charlotte, NC. Contact: Association of American Geographers at 202/234-1450; fax 202/234-2744.

April 16-17, 1996, **WAUG Spring Conference** will be held at the Valley Inn, Neenah, WI. Contact: George Glocka at 414/781-1000, fax: 414/781-8466.

April 17, 1996, **live satellite conference on Land Information Systems for Local Government: Issues and Interfaces** will be held. Contact: Ben Niemann or Celeste Kirk at the UW-Madison, Land Information & Computer Graphics Facility at 608/263-5534; fax 608/262-2500.

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

April 29-May 1, 1996, **Mid-America GIS Symposium** will be held at the Hyatt Regency Hotel at Crown Center, Kansas City, MO. Contact: URISA at 202/289-1685, fax: 202/842-1850.

May 20-24, 1996, **ESRI 16th Annual User Conference** will be held at the Wyndham Hotel and Palm Springs Convention Center, Palm Springs, CA. Contact: ESRI at 909/793-2853, fax: 909/793-5953.

May 21-23, 1996, **Second International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences** will be held in Fort Collins, CO. Contact: H. Todd Mowrer at 970/498-1100, fax: 970/498-1010.

May 28-31, 1996, **Fifth Annual Business Geographics Conference and Exposition** will be held in Chicago, IL. Contact: Conference Dept. at 970/223-4848, fax: 970-223-5700.

June 6-7, 1996, **Wisconsin Land Information Association Quarterly Meeting** will be held at the Point Hotel in Minocqua, WI. Contact: WLIA at 800/344-0421.

June 24-26, 1996, **6th International GPS/GIS Conference** will be held in Billings, MT and Yellowstone National Park. Contact: GeoResearch at 301/320-0911; fax 301/320-0922.

July 27-August 1, 1996, **URISA Annual Conference** will be held at the Salt Palace Convention Center, Salt Lake City, UT. Contact: URISA at 202/289-1685, fax: 202/842-1850.

September 5-6, 1996, **Wisconsin Land Information Association Quarterly Meeting** will be held at the Country Inn Suites in Hayward, WI. Contact: WLIA at 800/344-0421.

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

December 5-6, 1996, **Wisconsin Land Information Association Quarterly Meeting** will be held in southwestern Wisconsin. Contact: WLIA at 800/344-0421.

1997

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

March 25-28, 1997, **AM/FM Annual Conference** will be held in Nashville, TN.

April 1-5, 1997, **AAG Annual Conference** will be held in Ft. Worth, TX.

**For much more extensive and/or more current listings, separated into Foreign, National, and Wisconsin, consult the SCO's BBS (see p. 15)*

Publications and Products

For state, and greater Milwaukee area

ZIP Code maps again available

by Bob Gurda

Milwaukee Map Service has produced new (1996) editions of their ZIP Code maps for Wisconsin. The two maps, each wall size, are available as unmounted (paper or laminated) or laminated on board with frame. Each map shows ZIP Code areas, is printed in two colors, and includes a list of post offices by city and ZIP code.

The state map is 27" X 33" at a scale of 1" = 14 miles. It includes inset maps for six cities with multiple ZIP codes.

Another map cover 6 counties in southeastern Wisconsin: Ozaukee, Washington, Milwaukee, Waukesha, Racine, and Kenosha. This map is 25" X 40" at a scale of 1" = 3 miles.

Prices range from \$25 to \$125, depending on lamination and framing. Contact Milwaukee Map Service for details: 800/525-3822.

from CRC Press

Specialty mapping texts offered

by Bob Gurda

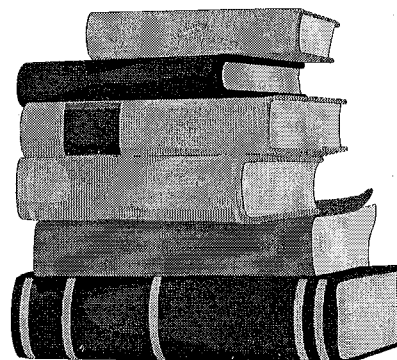
CRC Press in Boca Raton, Florida has released several titles in their Mapping Sciences series, which is edited by John Lyon of the Ohio State University.

These texts range from 144 to 688 pages, with prices between \$60 and \$90. Several are written by one person, and the others edited groups of contributions by a variety of authors.

The new titles relevant to Wisconsin mapping are:

- Satellite Remote Sensing of Natural Resources
- Wetland and Environmental Applications of GIS
- Aerial Mapping – Methods and Applications
- Practical Handbook of Digital Mapping – Terms and Concepts
- Environmental GIS – Applications to Industrial Facilities
- Optical Properties and Remote Sensing of Inland and Coastal Waters
- The Image Processing Handbook

For details on these books, contact CRC Press at 800/272-7737.



4 issues, 256 pages per year

New GPS journal emerges

by Bob Gurda

GPS Solutions is a new quarterly journal, published by John Wiley & Sons, in cooperation with the GPS International Association. The first issue was produced in July, 1995. An annual subscription for an individual is \$98.00.

Appearing every 3 months, this publication will carry a series of standing columns, regular departments, and feature articles. Its editorial board includes experts from 11 countries.

For additional information, call Wiley at 800/825-7550 or send email to subinfo@jwiley.com.

part of Third edition, first time on CD

Manual of Remote Sensing revised

by Bob Gurda

ASPRS (the American Society for Photogrammetry and Remote Sensing) has published part of 3rd edition of its *Manual of Remote Sensing* on CD-ROM. Just one portion of the every-growing manual, this part is titled *Earth Observing Platforms & Sensors*.

By utilizing CD-ROM technology, ASPRS utilizes a number of new features that enhance this information resource. These include hypertext searching, sample data sets, and browse files. Over 270 satellite platforms and sensors are documented, including over 200 color illustrations.

The CD is available for prices ranging from \$99.00 to \$224.00 depending on ASPRS membership status. For details, contact the ASPRS publications ordering service at 412/741-1495.