



# WISCONSIN MAPPING BULLETIN

Vol. 14 No. 4 October 1988

REPORTING ON LAND RECORDS AND MAPPING  
SCIENCES IN THE STATE OF WISCONSIN

## WLIA SETS AMBITIOUS AGENDA FOR 1989: LEGISLATION AND CONFERENCE

The Wisconsin Land Information Association (WLIA) is active and growing. Readers of the Wisconsin Mapping Bulletin have become accustomed to news of statewide initiatives for modernizing land records. The Wisconsin Land Records Committee (WLRC) met over a period of two years beginning in the summer of 1985. The formation of a private organization of land information professionals recommended by the WLRC. WLIA has been established, and over the last 18 months has been working to implement additional recommendations of the WLRC. The mission of the group, more broadly, is to foster the development, operation, and maintenance of a network of statewide land information systems. These systems would be capable of using data layers and related files which would continue to be maintained independently in both public and private offices.

### ORGANIZATION AND MEMBERSHIP

The Association (earlier named a Coalition) has adopted bylaws, elected officers and established committees, and meets approximately bimonthly. A newsletter keeps members informed of meetings, activities, and initiatives. The membership of over 100 is diverse---professionally, institutionally, and geographically. As such, WLIA is the only statewide organization providing a forum for the exchange of ideas and the building of common ground amongst Registers of Deeds, planners, utility facility managers, Real Property Listers, public and private surveyors, university researchers and outreach staff, land title insurers, highway engineers, environmental analyst, data processing staff, city engineers, soil conservationists, assessors, and many more.

Al Miller, President of WLIA, has announced that 1989 calendar year memberships will be accepted effective November 1, 1988. There are membership categories for individuals (\$15), students (\$10), institutions (\$50),

businesses (\$200), and associations (\$50). For more information, contact Miller at 608/262-0644.

### LEGISLATION

WLIA is in the process of shaping legislation to implement a Wisconsin Land Information Program along the lines recommended by the WLRC. Basically, there would be an unpaid Board appointed by the Governor, and a small technical staff supported by General Purpose Revenue funds, plus access for local governments to funds designated for modernization efforts. These latter funds would be raised through an increase in the real estate transfer fee.

Support is being sought from all groups which would be affected. Legislative sponsors are being identified. The immediate goal is to have a bill drafted and ready for introduction to the new session of the State Legislature in early 1989. If the bill is enacted, then WLIA through the expertise and organization of its membership will be in position to help get the Program off the ground, as well as to provide continued support. For information on the WLIA's proposed legislation, contact Jane Licht at 608/838-8178 or Dave Stuck at 414/278-3159.

### 1989 CONFERENCE

The Association has set February 22-24 for its second Annual Conference. It will be held at the same site in Oshkosh as last year's very successful meeting. Based on growing awareness and interest statewide in modernization of land records, Conference Chair Ben Niemann projects that the 1989 attendance will easily exceed the 219 of the first conference this last February. Registration information and a Preliminary Program are being prepared for a mailing in December. Niemann can be reached at (608) 263-5534 for input on conference planning.

# SPOTLIGHT on GPS

## WHAT IS GPS, AND WHY IS EVERYONE TALKING ABOUT IT?

Cartography has been bombarded with more and more acronyms and obscure terminology in recent years. The adoption of new technology has been characteristic of the field over the centuries, but the pace of change has accelerated. In surveying, some recent terms are EDM, total station, and GPS.

GPS stands for Global Positioning System---a worldwide, satellite-based, radio positioning system developed by the U.S. Defense Department. It has already begun to revolutionize geodetic surveying. As GPS becomes more feasible technically and economically, more ordinary positioning applications may be developed.

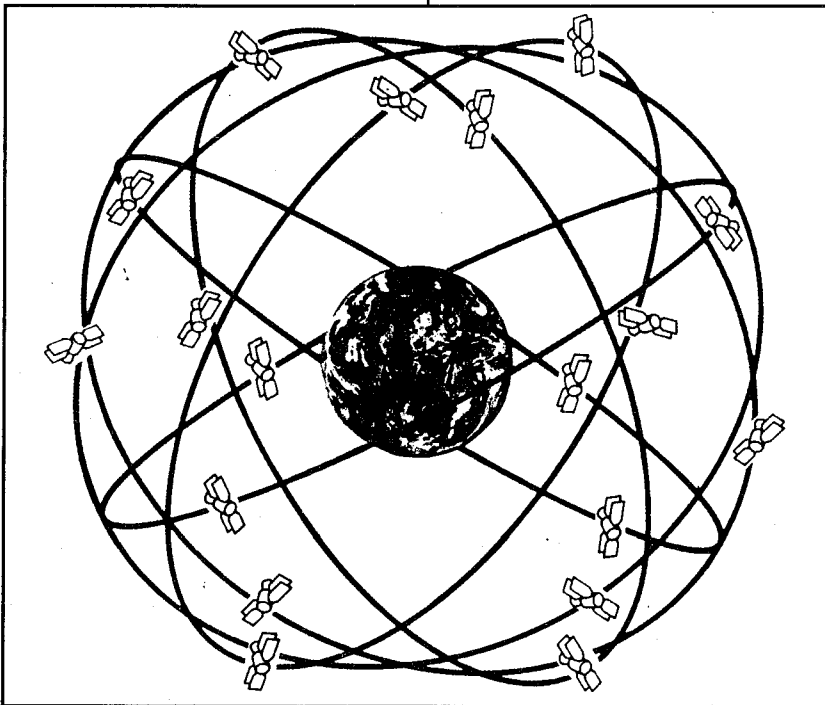
When fully implemented, GPS will function 24 hours a day anywhere in the world. The satellite launch program was delayed by the space shuttle Challenger disaster. Currently only a few satellites are in orbit and operational. Launches via expendable rockets are expected at two month intervals beginning in December 1988.

The basic design function of GPS is providing positions for navigation. A GPS receiver will be able to provide geodetic position (latitude, longitude) to an accuracy of a few meters almost instantly. However, with several synchronized receivers making simultaneous observations at different locations, and more complex mathematics, users may determine the XYZ coordinate differences of those locations to much higher accuracies---a centimeter or less, even though the receivers may be separated by 20 miles, 50 miles, or more. While this kind of relative positioning requires a wait for processing and analysis, it is still much

faster and cheaper than conventional surveying techniques.

In traditional horizontal control surveying, visibility between observation locations is essential. Often, this requires the construction of temporary towers. Clear line-of-sight between observation locations is unnecessary with GPS; however, an unobstructed view of a significant part of the sky is required.

When fully functional, GPS will be supported by a constellation of 24 satellites. This number includes 21 active satellites and 3 spares in orbit. The spares will be available so that they may be positioned quickly in case one of the active satellites fails. Since GPS is a radio positioning system, GPS receivers can only "see" and use those satellites which are above the horizon at any particular time. The satellites will be located in six equally spaced orbit planes, which are inclined at 55 degrees and altitudes of 20250 kilometers (12,600 miles). This arrangement was chosen to provide a minimum of four visible satellites at any time anywhere in the world.



The GPS receiver must select appropriate signals from the satellites overhead. These signals are collected simultaneously and are used to determine the distance to the visible satellites. By comparing these distances with the ephemeris, which contains the exact locations of the satellites for any give time, the receiver's location can be calculated.

For the last several years, only several GPS satellites have been operational. Nevertheless, civilian use of the system has been developed. Experience to date has been very positive. Highly accurate and cost effective positions can be acquired. Several vendors offer GPS observation services, and receivers are available on the open market.

As automated mapping and geographic information system are implemented, accurate ground control will be essential. A common coordinate system with high accuracy is needed to spatially register digitized maps, field observations, and airplane/satellite images.

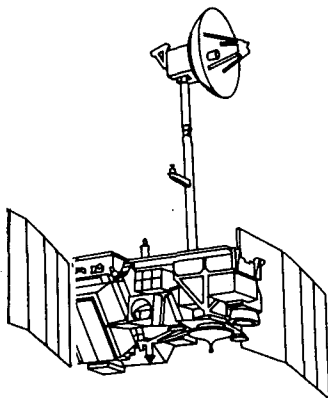
GPS has seen some use already in Wisconsin. Plans are being finalized for a statewide geodetic control network based on GPS observations. The network would be more accurate than NAD83 and would have a number of other advantages. We hope to carry a full report on this project in our next issue.

## AERO SERVICE COMPLETES GPS PROJECT IN TENNESSEE

Aero Service of Houston, Texas recently completed a highly accurate GPS geodetic control network for the Tennessee State Department of Transportation covering the entire state of Tennessee. Using its MACROMETER II Dual-Frequency GPS Surveyor, Aero Service achieved an accuracy of one part per million for the 76 points in the network. The U.S. National Geodetic Survey will be able to further reduce these data to an accuracy of better than one part per million. A statewide survey to such a high degree of accuracy would have been prohibitive without GPS technology, both economically and technically.

(source: ACSM Bulletin, August 1988)

*Editor's Note: Several Wisconsin firms have also begun to offer contract GPS work.*



## NEW GPS TRAINING PROGRAM ANNOUNCED BY AMERICAN CONGRESS ON SURVEYING AND MAPPING

Demonstrating the commitment to surveying and mapping education that has kept its members at the profession's forefront for nearly 50 years, ACSM announces a Global Positioning System (GPS) training program designed to help professionals take advantage of this emerging technology.

With the ability to provide relative accuracies of less than a few hundredths of a foot, GPS will revolutionize the way surveying and mapping functions are accomplished. "Leaders in the surveying and mapping field feel that this technology will replace much of the surveying performed today using transits and electronic distance measurers," said John McLaughlin, ACSM Education Committee chair.

Because working effectively with the satellite system when it becomes fully operational in 1991 will play a large role in a surveying and mapping firm's success or failure, ACSM created this program to reduce the learning curve for professionals.

"One of the major future uses of GPS will be to help build computer data files that will contain property, resource and utility information. These cadastre databases will revolutionize record management for property taxation, building permit issuance and resource management," explained McLaughlin.

With the new program, surveying and mapping professionals, whether they are already using GPS or recognize its importance to their future, now have a means of getting the best instruction possible from the leading names in the field. Instructors will include James Collins of Collins and Associates and Larry Hothem of the National Geodetic Survey.

The training program will start in early 1989 and courses in the series continue throughout the year. To add your name to the list to receive future updates on the program and registration information, contact ACSM Education Dept., 210 Little Falls Street, Falls Church, VA 22046, 703/241-2446.

(source: ACSM Bulletin, October 1988)

## NATIONAL CENTER FOR GEOGRAPHIC INFORMATION & ANALYSIS

The National Science Foundation (NSF) announced in August that a consortium of three universities will receive a \$5.5 million-five year grant to establish a National Center for Geographic Information and Analysis (NCGIA). UW-Madison, which outcompeted 10 other American universities and consortia in its bid for the center, was the runner-up.

The winning consortium comprises the University of California at Santa Barbara, the State University of New York at Buffalo, and the University of Maine at Orono. NSF representatives visited the consortium institutions and UW-Madison in June to review the two grant proposals. There were no other finalists.

"Of course, we're disappointed," said Thomas Lillesand, principal investigator in UW-Madison's grant proposal. "But it's not the end of the world. We will continue our work here, and Wisconsin researchers will continue to make important contributions to the field."

Lillesand, who directs the Environmental Remote Sensing Center, is a professor of environmental studies, forestry, and civil and environmental engineering. He is also a member of the Committee on State Cartography.

According to Ronald F. Abler, who until recently was director of NSF's geography and regional science program, many in the field see the new center as providing a focal point for research that has to date been widely scattered. "The field and the applications have been growing erratically. The research community has been fragmented. It's multidisciplinary. The literature is fugitive---the best stuff is in conference proceedings and informal papers," maintains Abler who has resumed his position as professor of geography at Pennsylvania State University.

The center will be directed by David S. Simonett, dean of the graduate division and Michael F. Goodchild, professor of geography, at the University of California at Santa Barbara.

(sources: IES NEWS, September 1988; ACSM Bulletin, October 1988)

## NGS NEWS

### BENCHMARK PRESERVATION

During the past 150 years, agencies of the U.S. Government have been determining with great precision the latitude, longitude, gravity, and height of thousands of locations throughout the United States. Collectively this network of points is called the National Geodetic Reference System (NGRS). The National Oceanic and Atmospheric Association (NOAA) and the National Geodetic Survey (NGS) has set approximately one million permanent survey markers at control points. Other surveying organizations have also established such permanent markers.

These markers are bronze disks, about 3.5 inches in diameter. Different types are used for position, height, gravity, and direction measurements, and the information associated with these markers is invaluable to surveyors, engineers, and planning officials. When a survey marker is removed or displaced, its value as a survey point is lost. Replacing a marker is time-consuming and expensive, requiring precise measurements from other nearby markers. Repeat surveys reveal the destruction of an alarming number of survey markers, most of which have been destroyed by ordinary construction activities. As a result, warning signs, which are called Witness Posts, are set near some types of markers to aid in their preservation and recovery.

To help protect the NGRS network, NGS asks the public's cooperation in preserving these survey markers. Never remove or disturb a survey marker without first receiving permission. NGS regional coordinators and state advisors will arrange the necessary marker preservation procedures. If you have information on NGRS survey markers that are either in need of repair or in danger of being disturbed, call the National Geodetic Survey's office in Rockville, MD at 301/443-8319.

(source: Cartographic Information, Summer 1988, No. 8; produced by Maryland Geological Survey)

## NGS SELLS C&GS PROJECTION TABLES

The National Geodetic Survey, working as a sales agent for the U.S. Government Printing Office, still sells many of the publications of the former U.S. Coast and Geodetic Survey, including state plane coordinate projection tables for the 48 contiguous states. Plane coordinate intersection tables are also available for Alaska, Hawaii and the U.S. Trust territories. An advertisement in a recent issue of a regional land surveyors journal erroneously reported that these tables were no longer available from the government. Prices are nominal and cover postage and handling. For more information contact National Geodetic Information Branch, N/CG174, Rockwall Bldg, Room 24, National Geodetic Survey, NOAA, Rockville, MD 20852 301/443-8631.

The State Cartographer's Office has on file the state plane coordinate projection tables for Wisconsin.

## USGS NEWS

### TASK FORCE FORMED TO MERGE DATA STANDARD

Lowell Starr, chief of the U.S. Geological Survey (USGS) National Mapping Division, has brought together a task force with the mission of joining the current activities of the National Committee for Digital Cartographic Data Standards (NCDCDS) and the Standards Working Group of the Federal Interagency Coordinating Committee on Digital Cartography (SWG/FICCDC).

Earlier this year the committees published a draft standard for digital cartographic data in the January, 1988 issue of *The American Cartographer*. Copies of the draft standard are available from the American Congress on Surveying and Mapping, 210 Little Falls Street, Falls Church, VA 22046 for \$17.50 each.

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## FEMA CRACKS DOWN ON FLOODPLAIN VIOLATIONS

*Editor's note: The following is a condensed version of an article called "FEMA is getting tougher!" which appeared in the Flood Insurance Producers National Committee (FIPNC) Bulletin, January 1988. This version is reprinted from Floodplain-Shoreland Management Notes (Wisconsin DNR), Summer 1988.*

There's no question the Federal Emergency Management Agency (FEMA) is clamping down on communities which do not comply with good, sound floodplain management rules and procedures. In FIPNC Bulletin #2 (Vol. 1, August 1987) we reported on a community in Missouri that had felt FEMA's wrath. Now Monroe County, Florida (the Florida Keys) has received the message-and it is eight pages long. (specifics on the violations in Monroe County, Florida are listed in two "Editor's note" references).

If remedial measures are not taken, National Flood Insurance Program (NFIP) probation will become effective. During the probation period, flood insurance coverage will remain available within Monroe County. However, a \$25 surcharge will be added to the premium of each new or renewal flood insurance policy sold in the County for one year from the effective date of probation.

If the remedial measures are not taken during the specified probation period, Monroe County will become subject to suspension from the NFIP. In NFIP suspended communities, where flood insurance coverage is no longer available, ...no grants, loans, or guarantees for the acquisition or construction of structures located in an identified flood hazard area are available. This restriction applies to assistance from Federal Housing Administration (FHA), Veterans Administration (VA), and the Small Business Administration (SBA), among others. If a flood disaster occurs, Federal disaster assistance within an identified flood hazard area will not be available. Furthermore, Individual and Family Grant assistance for housing and personal property in identified flood hazard areas will not be available.

To avoid all of this, follow your ordinance: when any development occurs in floodplain areas it must be protected and records kept of the elevation and permit. Do not use variances to allow questionable development.

(source: Wisconsin Counties, October 1988)

## NATIONAL BUREAU OF STANDARDS, AND NOAA SUPPORT SURVEY FOOT RETENTION

The measurement known as the U.S. Survey Foot has come under scrutiny recently due to a 1959 Federal Register notice. The notice stated that the U.S. Survey Foot would continue to be used, "until such time as it become desirable and expedient to readjust the basic geodetic survey networks in the United States, after which the ratio of a yard, equal to 0.9144 meter, shall apply."

This new measurement, termed the International Foot, was determined by setting an inch equal to exactly 2.54 centimeters. It is 22 millionths of an inch shorter than the U.S. Survey Foot. Proposing a change from the U.S. Survey Foot to the International Foot was an attempt to correct conversion standards used internationally.

The U.S. Survey Foot was declared the official foot in 1893. It is 1200/3937 of a meter. It sets a meter at 39.37 inches and the Survey Foot is twelve of these inches.

Since the readjustment of the basic geodetic survey networks by the office of Charting and Geodetic Services, National Ocean Service, is now complete, the notice is forcing a decision to be made at the federal level on whether the International Foot or the U.S. Survey Foot should be the officially-accepted unit of measure.

Because since 1959 the U.S. Survey Foot has remained the standard in the country for land surveying, mapping and related activities, and is still incorporated in legal definitions in many states as well as in practical usage, a tentative decision has been made not to adopt the international foot of 0.3048 meter for surveying and mapping activities in this country. "We're no longer going to insist on the adoption of the International Foot," said James E. Stem of the National Geodetic Survey.

However, the National Bureau of Standards, (NBS) and the National Oceanic and Atmospheric Administration (NOAA) plan to carefully consider all comments received in response to a call for input printed in the July 19, 1988, Federal Register. Surveyors and mappers; federal, state and local officials; and interested members of the public should send their comments on the proposed retention of the U.S. Survey Foot as a unit of measurement by November 16, 1988, to Director,

Charting and Geodetic Services, N/CG, WSC-1, Room 1006, National Ocean Service, NOAA, Rockville, MD 20852.

(source: ACSM Bulletin, October 1988)

## CONFERENCES & TECHNICAL MEETINGS

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November 14, 1988, The 15th Regional Planning Conference. "Clean Water Through Land Management", sponsored by the Southeastern Wisconsin Regional Planning Commission. For further information contact: Gary K. Korb, UW-Extension at 414/547-6721.

November 30-December 2, GIS/LIS '88. At the Marriott Rivercenter Hotel, San Antonio, TX. For more information contact: GIS/LIS '88, Mail Stop 3, 210 Little Falls St., Falls Church, VA 22046, 703/241-2446.

November 29-December 1, 1988 International Forum on Engineering Education. For more information contact ABET, 345 E. 47th St., New York, NY 10017, 705-7685.

January 25-27, 1989, Wisconsin Society of Land Surveyors 40th Annual Surveyors' Institute, Holiday Inn, Stevens Point, WI. Contact: Les Van Horn at 414/436-3365, P. O. Box 1600, Green Bay, WI 54305.

February 22-24, 1989, Wisconsin Land Information Association 2nd Annual Meeting in Oshkosh, WI. For more information contact Art Ziegler/Bob Gurda at 608/262-6852, Rm 160 Science Hall, Madison, WI 53706.

March 5-10, 1989, Space Commercialization: Roles of Developing Countries. Nashville, TN.

March 18-19, 1989, International Geographic Information Systems (IGIS) Symposium '89 in conjunction with the annual meeting of the Association of American Geographers. Baltimore, MD. For more information write: E.H. Pechan & Associates, Inc., 5537 Hempstead Way, Springfield, VA 22151 or call 703/941-4490.

April 2-7, 1989, ACSM/ASPRS Annual Convention/Ninth International Symposium on Computer-Assisted Cartography (AUTO CARTO 9). Baltimore, MD. For more information contact: Peter N. Gibson, 1162 Bedford Court, Germantown, MD 20874.

(Conferences & Technical Meetings, continued)

April 10-13, 1989, AM/FM International Conference XII, "Orchestrating Automated Mapping/Facilities Management for the 1990's", Marriott Hotel, New Orleans, LA. For information call 303/779-8320.

July 9-19, 1989, 28th International Geological Congress. For more information contact: Organizing Committee, Dr. Bruce B. Hanshaw, Secretary General, 28th International Geological Congress, P.O. Box 1001, Herndon, VA 22070-1001, 703/648-6053, telex 248218.

August 6-10, 1989, URISA 27th Annual Conference, Boston, MA. Contact: Connie Blackmon, Atlanta Regional Commission, 100 Edgewood Ave., NE, Suite 1801, Atlanta, GA 30335, 404/656-7720.

August 17-24, 1989, XIV International Cartographic Conference. Budapest, Hungary. Call for Papers. For more information contact: A. Jon Kimerling, U.S. Program Committee (ICA), Dept. of Geography, Oregon State Univ., Corvallis, OR 87331, 503/754-3141.

September 17-22, 1989, ACSM/ASPRS Fall Convention. Cleveland, OH. For more information contact: John E. Dailey, Suite 100, The Honeywell Bldg., 925 Keynote Circle, Cleveland, OH 44131, 206/741-3215.



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## PUBLICATIONS

### WG&NHS PUBLICATIONS

Contact the Wisconsin Geological and Natural History Survey at 608/263-7389 for ordering information for the following publications:

Drought and ground-water levels in northern Wisconsin. A. Zaporozec, 1980 (Geoscience Wisconsin, vol. 5, 92 p., \$5.00).

Groundwater levels in Wisconsin, 1987, A. Zaporozec, 1988 (Educational Series 15, 4 p., \$.25).

Bedrock geology of Wisconsin, northwest sheet. Full-color map, scale 1:100,000. In 2 sheets (Maps 87-11a & b, \$4.00).

Pleistocene geology of Barron County, Wisconsin, 1986. With full-color map, scale 1:100,000 (Information Circular 55, 42 p., \$6.00).

Metallic mineral exploration in Wisconsin: summary of 1987 activity (Educational Series 18, 6 p., \$.25).

A guide to groundwater quality planning and management for local governments, (WGNHS Special Report 9/DNR Wisconsin's Groundwater Management Plan Report No. 12, \$5.00).

Wellhead-protection districts in Wisconsin: an analysis and test applications (Special Report 10, 75 p., \$3.00).

### WASHBURN, VILAS AND ONEIDA COUNTY CARTOGRAPHIC CATALOGS

The Washburn, Vilas and Oneida County Cartographic Catalogs, the 47th, 48th, and 49th in the series, produced by the SCO are now available. The Dane County catalog is currently in progress. Chippewa County is being scheduled. For your free copy of any available catalog, contact Brenda at 608/262-3065.

### COUNTY PLAT BOOKS AVAILABLE

The following Wisconsin County Land Atlas and Plat Books are now available for 1988: Bayfield, Clark, Crawford, Eau Claire, Fond du Lac, Green, Jackson, Jefferson, Marathon, Rusk, St. Croix, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washburn. Those available in late 1987 are: Dunn, \*Green Lake-Marquette, Trempealeau, Waukesha, Waushara. These Plat books sell for \$22.50 each plus tax and shipping. Other plat books cost between \$20.00 and \$27.50 plus tax and shipping. For ordering details contact: Rockford Map Publishers, Inc., P.O. Box 6126, Rockford, IL 61125, phone (orders only) 800/435-0712 or for customer service information call 815/399-4614.

\* Green Lake-Marquette sells for \$27.50

### 1988 DIRECTORY OF THE MAPPING SCIENCES

Accurate information concerning the mapping industry, from industry giants to small, private firms in the United States and abroad is carefully indexed for reference, published by The American Society for Photogrammetry and Remote Sensing, 210 Little Falls Street, Falls Church, VA 22046, 703/534-6617.

(Publications, continued)



## NEW MAP PROJECTIONS BOOKLET

Underscoring the importance of the new publication compiled by the American Cartographic Association's Committee on Map Projections, "Choosing a World Map," the following organizations interested in map projections provided financial support for producing the booklet:

The National Geographic Society, Rand McNally and Company, R.R. Donnelley Cartographic Services, Mapping Specialists Ltd., (of Madison, WI), and Association of American Geographers.

The funds supplied by these groups will be used to bring down the cost of the booklet for educational institutions so that it can reach more students.

Copies of "Choosing a World Map" are available from the American Congress on Surveying and Mapping (ACSM) for \$5.00 (single copy) to members and \$5.50 to non-members (add \$2.00 per order for shipping and handling). Please refer to our July 1988 issue, Vol. 14, No. 3, page 5 for information on volume discounts. Send check or money order to ACSM Publications, 210 Little Falls Street, Falls Church, VA 22046. All orders must be prepaid or call Sheila McMahon at 703/241-2446.

## MADISON AREA SATELLITE MAP AVAILABLE SOON

### SPOT IMAGE MAP

In a matter of weeks, an experimental map of the Madison area produced from a SPOT satellite image will be back from the printers. Copies will immediately be available for sale, at very attractive prices. Orders are being accepted at this time. (See order form on back of mailing cover).

The image area on the 24" (W) x 32" (H) map has Madison as its center. At a scale of 1:62,500, the image extends beyond Sun Prairie, Stoughton, Verona, Dane, and DeForest. Explanatory text and diagrams are included. The satellite acquisition date was June 8, 1986. The skies were free of clouds.

Development of this map is the result of cooperation between the State Cartographer's Office and the UW-Madison Environmental Remote Sensing Center (ERSC). Professor Thomas M. Lillesand and graduate student W. Joseph Carper performed the image processing and file conversions necessary to produce digital color separates. The balance of the map production is being handled by the UW-Madison Cartographic Laboratory.

The French SPOT satellite collects brightness information for ground resolution cells of 20m (color infrared) and 10m (black-white). By a digital transformation process, Carper was able to derive 10m resolution in color. At the scale of 1:62,500 (approx. 1" = 1 mile), these 10m cells are smaller than the resolution of printing dot screens. As a result, this image does not exhibit the jaggedness of some published satellite images. The visible resolution shows features as small as residences, suburban streets, and contour strip crops. The map portrays the landscape in typical false-color infrared--vegetation appears in tones of red, water is black, soils are medium to dark gray, and pavement is light gray to white.

The Madison SPOT Image Map will be printed in two versions: on heavy-weight low-lustre stock (rolled) suitable for framing, and on medium weight stock folded to approximately 8"x11". For more information see the back of the front mailing cover.



## RAILROAD RIGHT-OF-WAY INFORMATION

For information concerning right-of-way of the following Wisconsin railroads, contact the numbers listed below:

Burlington Northern RR Co.  
319/345-6221 = Southern  
612/298-7362 = Northern

Chicago & Northwestern Transportation Co.  
Richard Taylor, 312/559-6177

Soo Line RR Co.  
Mike Hanson, 312/860-4973

Wisconsin Central Ltd.  
Terry Lee, 715/345-2503

Duluth, Missabe & Iron Range RR Co.  
Donald T. Fontaine, 218/723-2166



Escanaba & Lake Superior RR Co.  
Ken Nelson, 906/786-0693

Green Bay & Western RR Co; Ahnapee & Western RR Co.  
Bob Larson, 414/497-5130

East Troy Municipality of East Troy, WI RR  
Paul Averdung, 414/542-5573

Nicolet Badger Northern RR  
Richard Connor, 715/674-2631

Wisconsin & Calumet RR Co, Wisconsin & Southern RR Co.,  
Richard Black, WI Dept. of Transp., 608/266-9498

## KODAK LABELS AVAILABLE

To improve chemical safety in your lab changes to OSHA's hazard communication standard which became effective in May 1988, require most employers to label all containers (including tanks) of hazardous chemicals and chemical mixtures. Kodak has developed a new labeling system for use in the United States that allows laboratory personnel to determine easily the appropriate labeling for containers of working solutions properly made from Kodak products. The labeling system includes KODAK Self-Adhesive Labels, which have a protective coating. The labels state the chemical hazard and what is required should accidental contact be made with the dilute chemical mixture. The labels are to be applied to the processing machine tank and also to the replenisher holding tank containing the diluted Kodak chemicals. The hazard warnings provide the employee information to properly handle the chemicals. No numerical codes are used. For more information contact: 1-800- 445-6325, ext. 25 or Charlene Nowakowski, Communications and Public Affairs Publications, 2nd Floor, Bldg. 16, Eastman Kodak Company, 343 State Street, Rochester, NY 14650-0722.

(source: Kodak Techbits, summer 1988)



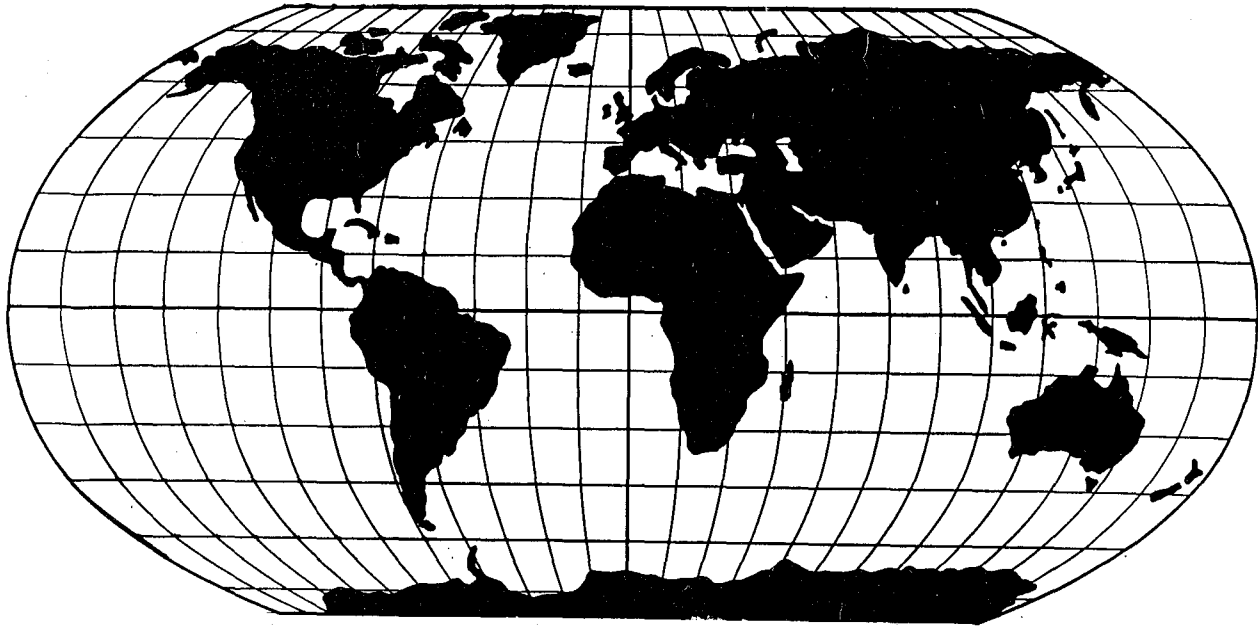
## WISCONSIN MAPPING BULLETIN

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 welcomed.

*Editors: Art Ziegler, Bob Gurda*  
*Desktop Publishing: Brenda Hemstead*  
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Please send all comments, corrections, and news items to:  
State Cartographer's Office, 155 Science Hall, Madison,  
WI 53706-1404, phone 608/262-3065



## FINALLY, ROBINSON'S WORLD

The National Geographic Society is finally getting around to seeing the world Arthur Robinson's way.

With much hoopla, the society announced Thursday, October 13th it has begun printing 11 million world maps using a projection developed by the UW-Madison emeritus professor of geography. The maps will appear in the December issue of the society's magazine.

National Geographic is abandoning the Vander Grinten projection, which it has used since 1922, because it said Robinson's version is more accurate. "I think the National Geographic society is doing a great job in improving geography education," Robinson said, in a telephone interview from a champagne reception in his honor in Washington on Thursday. "I think this map is going to be helpful in getting us to look at the world in the right way." Robinson also received the John Oliver Lagorce Medal from the society on Thursday.

Actually, cartographers have known that Robinson had it right for many years. Onno Brouwer, associate director of the UW's Cartographic Laboratory, said the Robinson projection is already used in many textbooks and by the Rand McNally mapmakers. "As cartographers, we use the Robinson projection frequently when we want to make a map of the world," Brouwer said. "It represents a happy medium between equal size and equal distance."

(source: reprinted from the Wisconsin State Journal, October 14, 1988)

*Editor's note: Arthur H. Robinson is Professor Emeritus in the geography department of the UW-Madison. It was through his action in the early 1970's that the Wisconsin State Cartographer's position was established. He was the chair of the Committee on State Cartography when it was first established and guided the early activities of the Office.*