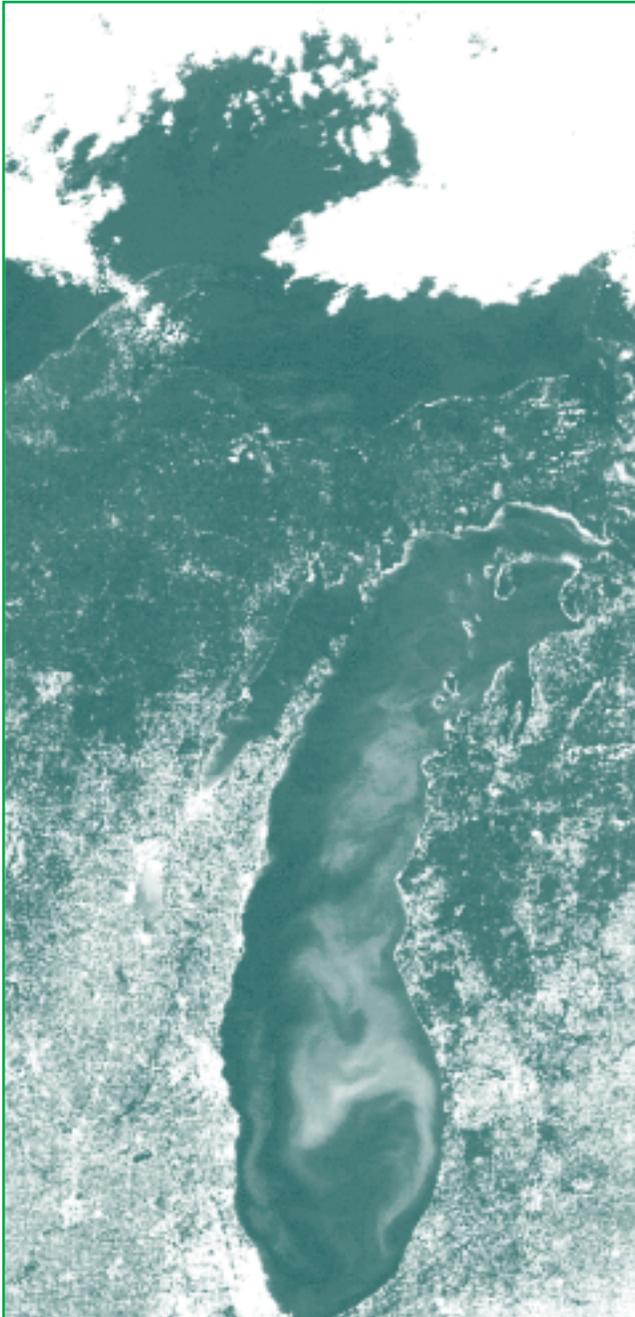


The Wisconsin Land Information Association presents . . .

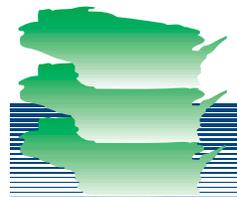
Remote Sensing: Basics and Applications Workshop



Thursday, July 24th
Wisconsin Rapids
Hotel Mead

Those who will benefit:

- **Foresters**
- **Land Conservationists**
- **Planners**
- **GIS Professionals**
- **Anyone interested in newest techniques of earth imaging**



W I S C O N S I N
L A N D I N F O R M A T I O N
A S S O C I A T I O N

**Funded in part by a grant from the Institute for the Application of Geospatial Technology, Auburn, NY,
and by contributions from the WI State Cartographer's Office.**

The *Wisconsin Land Information Association* presents . . .

Remote Sensing: Basics and Applications Workshop

Wisconsin Rapids - Hotel Mead & Conference Center

July 24, 2003

8:30 am - 4:00 pm

Remote sensing which is the collection of earth data, usually by sensors riding on aircraft and satellites, encompasses many technologies including aerial photography, satellite images, LIDAR, Radar and thermal data. A variety of technological changes have advanced remote sensing data collection tremendously in recent years. This workshop offers the opportunity to learn the basics, hear about the newest developments, participate in presentations on remote sensing applications related to agriculture, forestry, land conservation and water, and view an exhibit featuring interactive satellite data.

Workshop presentations include several nationally known remote sensing experts:

- Thomas Lillesand, UW-Madison Professor & Director, Environmental Remote Sensing Center (www.ersc.wisc.edu/ersc/)
- Mike Renslow, an expert in the field of LIDAR and Vice-President of Spencer Gross, Inc. (www.sbgmaps.com) a photogrammetric mapping and imaging company located in Portland, Oregon.

Morning General Session and Two Afternoon Concurrent Sessions:

The morning general session features presentations on basic principles and discussion of emerging technologies. The afternoon's two concurrent sessions enable attendees to select information and topics of greatest interest.

Program Agenda

8:30 - 9:00 Registration and continental breakfast

9:00 - 9:15 Introduction

General Session

9:15 - 10:30 **Overview of Remote Sensing: Basic Principles and Aerial Systems** - The very basics of electromagnetic energy and spectral reflectance; aerial photos; digital orthophotos; acquiring digital images; resolution effects; thermal and hyperspectral sensing; radar; applications.

Tom Lillesand, Professor, UW-Madison

Director, Environmental Remote Sensing Center

Chair, Environmental Monitoring Graduate Program, Institute for Environmental Studies

10:30 - 10:45 Break *

10:45 - 11:45 **Emerging Remote Sensing Technologies and Satellite Systems: IFSAR; LIDAR; digital aerial cameras; satellite imagery (governmental and commercial); applications.**

Tom Lillesand, Professor, UW-Madison

11:45 - 1:00 Lunch (included in registration) *

* Interactive exhibit of satellite remote sensing data available during break and lunch, staffed by Tim Olsen and Sam Batzli, UW-Madison Environmental Remote Sensing Center

Two Concurrent Sessions

Session 1: 1:00 - 3:45 Acquisition and Applications of LIDAR for GIS

(includes 15 minute break *) *Mike Renslow, Vice-President, Spencer Gross, Inc.*

This session covers the fundamentals of airborne LIDAR including system specifications, the role of airborne GPS and IMU systems, calibration and validation, project operational considerations, the LIDAR error budget, data-preprocessing and post-processing to surface models. The second part of the presentation focuses on applications including: DEM use, forestry, hydrographic analysis, riparian vegetation identification, steep slope and flat terrain surface analysis, and utility corridor mapping. Final comments will cover LIDAR acquisition and operational guidelines.

Session 2: 1:00 - 3:45 Imagery Applications: Satellites and Orthophotos

1:00 - 1:30 Wisconsin Land Cover from Landsat Satellite Images

Bob Gurda, WI State Cartographer's Office

The statewide land cover data developed through the WISCLAND project in the 1990's is useful in a variety of analytical and cartographic applications. This presentation will profile the data set and introduce some of its key uses.

1:30 - 2:00 Lake Water Quality Assessment - Satellites and Citizens

Tom Lillesand, Professor, UW-Madison

Statewide, there are over 650 citizen volunteers in the DNR-coordinated Self-Help Lake Monitoring program. Since 2000, these volunteers have been encouraged to obtain Secchi disk measurements of lake transparency at times coinciding with the collection of Landsat-7 satellite data over their particular geographic area. By correlating this ground truth with the digital satellite imagery, researchers at the Environmental Remote Sensing Center have developed a satellite-based method to estimate the clarity of lakes that are not sampled on the ground. This has led to the development of a water clarity database for over 8600 lakes statewide. This session will cover the availability of this data and its use to assess spatial and temporal trends in lake water clarity on a statewide basis.

2:00 - 2:15 Break*

2:15 - 3:15 Use of LandSat Data for Agricultural Planning in Wisconsin

Kevin Conners, Dane County Land Conservationist

Bob Battaglia, State Agricultural Statistician

For the past two years, the National Agricultural Statistics Service (NASS) has provided a Landsat satellite image of south-central Wisconsin to the Wisconsin Agricultural Statistics Service (WASS) to support a pilot project for making annual crop estimates. WASS ground-truths the data to assure accuracy, and classifies the imagery according to major crop types. WASS has been working with the Dept. of Agriculture, Trade, and Consumer Protection to distribute these data to the ten counties in the south-central Wisconsin project area. Kevin Conners will explain how the Dane County Land Conservation Department has used the data and will discuss future potential applications.

3:15 - 3:45 County LCD Uses of Digital Orthophotos

Tammy Castonia, Brown County Land Conservation Department

The Brown County Land Conservation Department interprets and utilizes orthophotos on a daily basis for planning and implementing soil erosion and water quality programs. Accurate agriculture field boundaries and stream placement have been digitized based on these images. Additional uses have allowed for precise implementation of the county's Shoreland Protection and Animal Waste Management ordinances by measuring and mapping riparian buffers and permitted animal waste facilities.

3:45 - 4:00 Conclusion and Workshop Evaluation

* Interactive exhibit of satellite remote sensing data available during break and lunch, staffed by Tim Olsen and Sam Batzli, UW-Madison Environmental Remote Sensing Center



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Wild Rose, WI 54984
800/344-0421
<http://www.wlia.org>

**WLIA Special Workshop on “Remote Sensing: Basics & Applications”
Thursday, July 24, 2003 in Wisconsin Rapids, WI
Mead Hotel, Wisconsin Rapids**

To Register: Please email Ann Barrett at: abarrett@uniontel.net or fax: 715-366-4501 or call: 800/344-0421 to register for the July 24th Workshop in Wisconsin Rapids, WI.

Directions to the Mead Hotel: Take I-90/94 West from Madison to Highway 51/39 North (exit 108). Take 51/39 North to 73 West at Plainfield. Take 73 West to Highway 13 and turn right or north. Highway 13 becomes 8th Street in town. Follow 8th Street to Grand Ave and turn left. Hotel Mead is four blocks on your right.

Lodging Reservations: The Mead Hotel is located at 451 East Grand Avenue in Wisconsin Rapids, WI 54494. WLIA has a block of rooms on Wednesday, July 23rd at rates of \$62.00 for single for those who qualify for state rate or \$79.00 for all others. Please call the Mead Hotel directly for reservations at 800/843-6323 or 715-423-1500. Their web site is: www.hotelmead.com

Cost: Make check payable to WLIA and mail to: WLIA, P.O. Box 389, Wild Rose, WI 54984. Check must arrive prior to July 24th or you may pay by MasterCard or Visa below. Workshop: \$40.00 member/ \$50.00 non-member (includes lunch).

Cancellations: You may cancel by Monday, July 21st, 2003 for a full refund. After 7/21/03 there are no refunds.

Registration:

Name(s) _____

Organization _____ Email address(es) _____

***Check Attendance Below:**

_____ \$40.00 member _____ \$50.00 non-member:

Payment:

Pay by MasterCard or Visa or make check payable to WLIA:

Card Number (MasterCard or Visa only)

Exp. Date

Signature

Amount \$ _____