

Pecora14 LandSatellite InformationIII

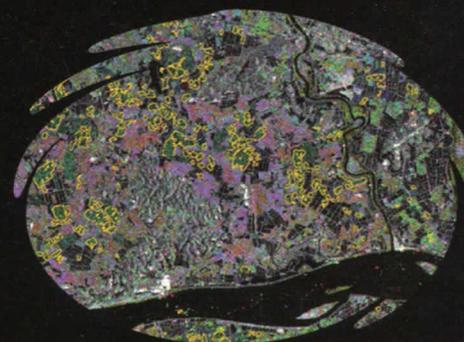
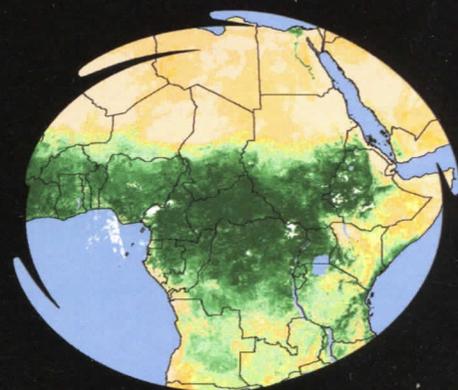
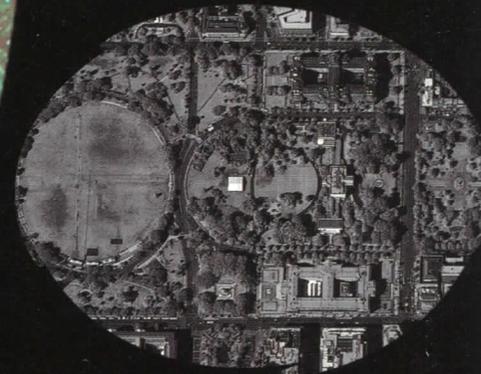
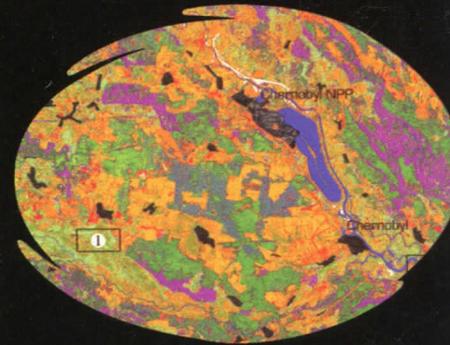
Demonstrating the Value of Satellite Imagery

The Fourteenth William T. Pecora Memorial
Remote Sensing Symposium

The Land Satellite Information
in the Next Decade III Conference

December 6-10, 1999
DoubleTree Hotel Denver
Denver, Colorado

Program



Organizer: ASPRS: The Imaging & Geospatial Information Society
Co-Organizer: North American Remote Sensing Industries Association (NARSIA)

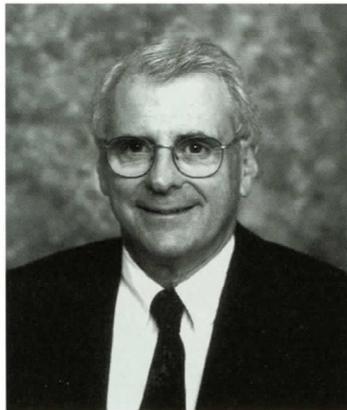
Sponsors: USGS, NASA, NOAA, USDA, EPA, NIMA, DOE, DOT

Cooperating Organizations: ERIM International, ISPRS, NSGIC, TRB, AASHTO-Task Force on GIS, MAPPS

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DoubleTree Hotel Denver
3203 Quebec Street
Denver, Colorado 80207
303-321-3333



Dear Colleague:

As General Chairman, I am pleased to welcome you to the Pecora 14/Land Satellite Information III Conference. The series of William T. Pecora Memorial Symposia on remote sensing, which began in 1975, has joined this year with the Land Satellite Information in the Next Decade conference series, which started in 1995, to bring you a combined conference on "Demonstrating the Value of Satellite Imagery." Our focus is on the end user; the professional

who uses or potentially could use satellite imagery for problem solving.

This conference offers a unique opportunity for resources managers, land planners, and transportation and environmental specialists to learn about the kinds of valuable information that can be extracted from satellite imagery. Data providers and end users will have a forum for sharing ideas and practical solutions to information challenges. While attention will be given to the latest satellite systems, discussions will be in the context of how these systems can assist the end user.

The members of the Steering Committee have planned a conference to further the usefulness of satellite imagery by demonstrating successful solutions in a wide variety of professional fields. If you are a provider of geospatial information, or challenged by information problems where satellite imagery may help provide a solution, we believe your participation in the Pecora 14/Land Satellite Information III Conference will be a rewarding experience.

Donald T. Lauer
Steering Committee Chair and
Chief, EROS Data Center,
U.S. Geological Survey

GOAL OF THE CONFERENCE

The conference goal is the transfer of knowledge about the use of satellite data from successful innovators to potential users. The targeted audience is the end user — the professional facing an information problem that can potentially be served by satellite imagery.

This conference is uniquely poised to create a genesis in the remote sensing industry; bringing image specialists together with end user professionals from diverse application backgrounds. The program will facilitate the transfer of satellite technology to a broader and deeper audience by expanding each professional's field of view, allowing them to both discover options for solving problems, and develop criteria for choosing among options.

GENERAL INFORMATION



EVALUATION FORMS

The evaluation forms are used in part to help us verify session attendance. In addition, we use the information attendees provide to help plan future conferences. Even if you do not require verification of attendance, please complete an evaluation form. We value your feedback.

RIBBONS

Ribbons are available for ASPRS members, speakers, committee members, Board members, exhibitors, etc. at the Registration Desk during registration hours.

SPECIAL EVENTS

The Opening Reception Tuesday evening and the Wednesday and Thursday box lunches will be in the Exhibit Hall, which is located in the Grand Ballroom.

ABOUT YOUR BADGE AND TICKETS

You MUST wear your name badge to enter the Exhibit Hall, workshops, reception, sessions, technical tours and classified session. In addition to your name badge, full conference registrants have been given a drink ticket for the Opening Reception and tickets for the Wednesday and Thursday box lunches in the Exhibit Hall. Be prepared to hand in the appropriate preprinted ticket when requested. There is a \$5.00 replacement fee for lost badges and tickets.

SPEAKER READY ROOM

Equipment to preview your presentation materials is available in the Boardroom. This room will be available from 12:00 pm on Sunday to 5:00 pm on Thursday. Workshop and Session instructors and presenters are encouraged to preview their presentations.

PRESS ROOM

Room 240 is available throughout the conference for press use.

PROCEEDINGS

A Conference Proceeding CD-ROM is included in the Full, Speaker, and Student registrations and has been included in the advance registration packet.

The Proceedings contains the papers submitted and copies of overheads from most of the speakers not submitting papers. Additional Proceedings CDs may be purchased at the Conference Registration Desk. The price is \$35 per copy.

TRANSPORTATION

The hotel provides a complimentary shuttle to and from the Denver Airport. This shuttle leaves every half-hour on the hour and half-hour. To take the shuttle to the airport you must make a shuttle reservation with the hotel guest services.

The hotel also provides complimentary shuttle service to the Denver Pavilions and Cherry Creek shopping and entertainment areas. Please see hotel guest services for details and to make shuttle reservations.

MESSAGES

There is a Message Center located near the Conference Registration Desk. Messages must be dated and placed alphabetically by last name. The message board will be cleared daily. No flyers or advertisements are permitted. The hotel's general number is 303-321-3333.

LOST AND FOUND

For lost items, check at the Conference Registration Desk or with the hotel staff.

RECYCLE BADGE HOLDERS

Drop your badge holder off along with your evaluation form at the Conference Registration Desk before you leave. We appreciate your cooperation.

EMERGENCY

In case of emergency in the hotel, dial the Operator from any house phone.

REGISTRATION

The Registration Desk is located in the Crystal Pre-function area and will be open during the following hours:

Monday, December 6

11:00 am to 2:00 pm

Tuesday, December 7

7:00 am to 5:00 pm

Wednesday, December 8

8:00 am to 10:00 am

Thursday, December 9

8:00 am to 10:00 am

EXHIBIT HALL HOURS

Tuesday, December 7

Opening Reception in Exhibit Hall

5:00 pm to 7:00 pm

Wednesday, December 8

Exhibition Open

10:00 am to 4:30 pm

Break in Exhibit Hall

10:00 am to 10:45 am

Lunch in Exhibit Hall

12:15 pm to 1:45 pm

Break in Exhibit Hall

3:30 pm to 4:15 pm

Thursday, December 9

Exhibition Open

10:00 am to 2:00 pm

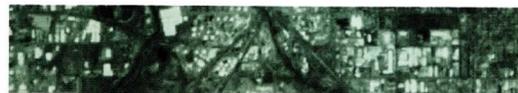
Break in Exhibit Hall

10:00 am to 10:45 am

Lunch in Exhibit Hall

12:15 pm to 1:45 pm

CONFERENCE AT A GLANCE



MONDAY, DECEMBER 6

REGISTRATION HOURS

11:00 am to 2:00 pm

WORKSHOPS

1:00 pm to 5:00 pm

- 1 Land Use/Land Cover Change Detection Analysis
- 2 Precision Agriculture: What it is (and isn't)
- 3 Value-Added Processors of Landsat 7 Data
- 4 Advances in Remote Sensing and Data Capture Technologies for Transportation Applications

TUESDAY, DECEMBER 7

REGISTRATION HOURS

7:00 am to 5:00 pm

WORKSHOPS

8:00 am to 12:00 pm

- 5 Assessing the Accuracy of GIS Information Created from Remotely Sensed Data: Principles and Practices
- 6 A Guide to SAR Interferometry
- 7 Integrating Hyperspectral Data and Spatial Analyses in a Geographic Information System (GIS)
- 8 A Detailed Look at Landsat 7 Spacecraft and Instrument Performance

OPENING SESSION

1:00 pm to 2:40 pm

Dr. Charles G. Groat Keynote Speaker
Presentation of William T. Pecora Award

GENERAL SESSION

3:00 pm to 5:00 pm

A Universe of Choices; Earth Observing Systems I

EXHIBITION OPEN

5:00 pm to 7:00 pm

RECEPTION IN EXHIBIT HALL

5:00 pm to 7:00 pm

WEDNESDAY, DECEMBER 8

REGISTRATION HOURS

8:00 am to 10:00 am

POSTER PRESENTATION

8:00 am to 8:30 am

GENERAL SESSION

8:30 am to 10:00 am

A Universe of Choices; Earth Observing Systems II

EXHIBITION OPEN

10:00 am to 4:30 pm

BREAK IN EXHIBIT HALL

10:00 am to 10:45 am

CONCURRENT SESSIONS

10:45 am to 12:15 pm

Transportation: Enterprise Approaches to Satellite Imagery Data
Emergency Response
From Data to Information: First Steps in Analysis
Environmental Planning: Global Ecosystem Analysis

LUNCH IN EXHIBIT HALL

12:15 pm to 1:45 pm



WEDNESDAY (CONTINUED)

CONCURRENT SESSIONS

2:00 pm to 3:30 pm

Transportation: Applications of Remote Sensing in Transportation
Forestry: Forest Assessment
Agriculture: Precision Applications
Environmental Planning: U.S. State and Local Government Applications

BREAK IN EXHIBIT HALL

3:30 pm to 4:15 pm

CONCURRENT SESSIONS

4:15 pm to 5:45 pm

Transportation: Implementing Strategic Partnerships
Forestry: Change Detection
Agriculture: Regional and Global Assessment
Environmental Planning: Military Base Applications

THURSDAY, DECEMBER 9

REGISTRATION HOURS

8:00 am to 10:00 am

POSTER PRESENTATIONS

8:00 am to 8:30 am

GENERAL SESSION

8:30 am to 10:00 am

Information Access and Analysis

EXHIBITION OPEN

10:00 am to 2:00 pm

BREAK IN EXHIBIT HALL

10:00 am to 10:45 am

CONCURRENT SESSIONS

10:45 am to 12:15 pm

Transportation: Panel on Critical Issues in the Successful Use of Imagery
Forestry: Inventory and Monitoring
Agriculture: Yield Assessment
Environmental Planning: Water and Wetland Management

LUNCH IN EXHIBIT HALL

12:15 pm to 1:45 pm

CONCURRENT SESSIONS

2:00 pm to 3:30 pm

Land Use: Urban Area Analysis
Forestry: Landscape and Habitat Management
Land Use: Land Cover and Land Use Assessment
Environmental Planning: Health Applications

CLOSING SESSION

3:45 pm to 5:15 pm

Policies Affecting the Use of Satellite Imagery: A Panel Discussion

FRIDAY, DECEMBER 10

CLASSIFIED SESSION OFFSITE

6:30 am to 5:30 pm

(Schedule includes transportation)

TECHNICAL TOURS

(Schedule includes transportation)

Space Imaging-Tour A

7:45 am to 10:45 am

Space Imaging-Tour B

9:45 am to 12:45 pm

USGS Rocky Mountain Mapping Center-Tour C

8:45 am to 1:15 pm



PRE-CONFERENCE



SATURDAY

ASPRS COMMITTEE MEETING

Executive Committee

1:00 pm to 7:00pm
Room 527

SUNDAY

ASPRS COMMITTEE MEETINGS

Convention Policy and Planning Committee

8:00 am to 10:00 am
Colorado I

Education and Professional Development Committee

10:00 am to 12:00 pm
Colorado I

Membership Committee

1:00 pm to 3:00 pm
Colorado I

Electronic Communications Committee

1:00 pm to 3:00 pm
Colorado II

Bylaws Committee

1:00 pm to 5:00 pm
Colorado III

MAPPS CONFERENCE

Flight Planning

9:00 am to 10:30 pm
Crystal Ballroom I

Airborne GPS

10:50 am to 12:10 pm
Crystal Ballroom I

Considerations in Data Acquisition

1:40 pm to 3:00 pm
Crystal Ballroom I

Aircraft Operations

3:20 pm to 4:40 pm
Crystal Ballroom I

MONDAY

ASPRS COMMITTEE MEETINGS

Division Directors

7:30 am to 8:30 am
Room 827

GIS Division Meeting

9:00 am to 11:00 am
Colorado I

MAPPS CONFERENCE

Airborne Digital Data Acquisition Systems

9:00 am to 12:00 pm
Crystal Ballroom I

ASPRS COMMITTEE MEETING

Executive Committee

11:30 am to 12:30 pm
Room 527

Board of Directors

1:00 pm to 7:00 pm
Crystal Ballroom II

WORKSHOP 1

1:00 pm to 5:00pm
Crystal Ballroom I

Land Use/Land Cover Change Detection Analysis

Kass Green, *Pacific Meridian Resources*
Russell Congalton, *University of New Hampshire*

The goal of this workshop is to introduce the participants to the incredibly powerful remote sensing tool of change detection. Given the current flux of our environmental and natural resources, there is a great need to map and monitor change on the local, regional, and global scales. This workshop provides timely and valuable information that is useful to the manager seeking to understand how these technologies can be used to aid in decision-making as well as the analyst who must fully understand these techniques in order to apply them.

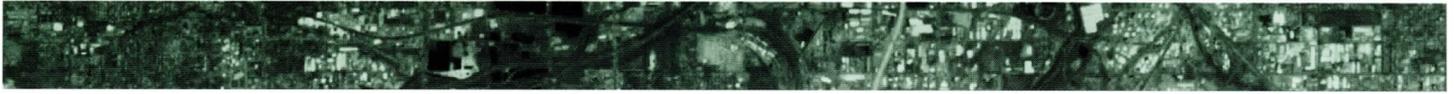
WORKSHOP 2

1:00 pm to 5:00pm
Crystal Ballroom III

Precision Agriculture: What it is (and isn't)

Joseph K. Berry, *Berry & Associates/Spatial Information Systems, Inc.*

Site-specific agriculture is about doing the right thing, in the right way, at the right place and time. It couples the spatial technologies of GPS, GIS and remote sensing with intelligent implementations and variable rate engineering. The approach assesses and reacts "on-the-fly" to field variability by matching management actions, such as fertilization levels, seeding rates and variety selection, to changing field conditions. Its benefits include cost



savings, production increases and better stewardship on millions of acres in the U.S. alone. Site-specific farming isn't just a bunch of imagery and colorful maps, but a set of analytic procedures linking mapped variables to appropriate management actions. This workshop outlines the fundamental concepts, considerations and procedures in the application of spatial technology and site-specific management techniques in production agriculture. It discusses current practices and investigates emerging approaches and issues that are shaping precision farming's future.

This workshop is designed for individuals seeking a clear understanding of the current and future roles of GPS, GIS and remote sensing in precision agriculture. The presentation is most appropriate for data providers, consultants, application developers and researchers anticipating activities in this rapidly growing field.

WORKSHOP 3

1:00 pm to 5:00pm
Colorado I and II

Value-Added Processors of Landsat 7 Data

Ronald Beck, *USGS EROS Data Center*
R.J. Thompson, *USGS EROS Data Center*
Raymond Byrnes, *USGS National Mapping Program*

The workshop is for the value-added commercial processors of Landsat 7 data. It is designed to inform the value added community about the USGS policies for distribution of Landsat 7 data and to encourage feedback from the commercial sector on ways to make those policies more effective. The USGS has responsibility for distribution of Landsat 7 data. We welcome members of the education, state and regional government and private sector users of the data, especially those involved in the value-added processing business, to join in an open forum on the policies in place and the product needs.

WORKSHOP 4

1:00 pm to 5:00pm
Colorado III

(Note: This will be moved to the Red Lion Inn if attendance exceeds 24.)

Advances in Remote Sensing and Data Capture Technologies for Transportation Applications

A. Keith Turner, *Colorado School of Mines*
Jack H. Hansen, *University of Tennessee Space Institute*

This workshop focusses on the theme "One of the biggest difficulties in using GIS is getting the right data, in the right format, at the right time." It covers the entire spectrum of remote sensing data gathering from satellites to ground based van systems, with special emphasis on the applications to transportation and regional planning.

The workshop has been developed with considerable support from the various commercial imagery providers. It provides a rather complete overview of the existing and planned systems. Because many transportation and regional planning applications require 1-foot meter resolution, there is emphasis on the new commercial satellites sources. The audience is expected to be moderately GIS literate but not remote sensing literate. Issues of

greater spectral, as well as spatial resolution, are emphasized, along with imagery sources, costs, and logistical concerns of using imagery within state agencies.

TUESDAY

WORKSHOP 5

8:00 am to 12:00 pm
Crystal Ballroom I

Assessing the Accuracy of GIS Information Created from Remotely Sensed Data: Principles and Practices

Russell Congalton, *University of New Hampshire*
Kass Green, *Pacific Meridian Resources*

This course focuses on the principles, techniques, and practical aspects of assessing the accuracy of GIS information derived from remotely sensed data. Participants will receive instruction in how to design accuracy assessment procedures, allocate accuracy assessment samples, collect both field and photo reference data, and analyze accuracy assessment results. Both locational and thematic accuracy assessments are addressed. Examples of accuracy assessment case studies based on actual project data will be presented and discussed.

Each participant in this course will come away with a solid understanding of accuracy assessment procedures for spatial data, and the knowledge to properly interpret the results of such procedures. In order to maximize the benefits of completing this course, participants should have previous experience with GIS and remotely sensed data. In addition, a good understanding of statistical principles is also strongly suggested.

WORKSHOP 6

8:00 am to 12:00 pm
Crystal Ballroom II

A Guide to SAR Interferometry

James Ikkers, *Atlantis Scientific Corporation*
Pat Northcutt, *Z/I Imaging*

The objective of this workshop is to provide an introduction to SAR interferometry in a comprehensive, easy-to-understand form, and to explain the extent to which users can benefit from this technology and understand its limitations. The workshop will seek to explain the applications that can best utilize and gain from this fascinating, heavily researched, and yet misunderstood topic, beyond the scientist level. The ultimate goal of this exercise is to cause interferometry to be more fully understood, or "de-mystified," and practiced on an operational level.



TUESDAY (CONTINUED)

WORKSHOP 7

8:00 am to 12:00 pm
Crystal Ballroom III

Integrating Hyperspectral Data and Spatial Analyses in a Geographic Information System (GIS)

William Farrand, *Farr View Consulting*
Stuart Blundell, *Integrated Geoscience, Inc.*

Imaging spectrometry, commonly referred to as hyperspectral remote sensing, provides high-resolution spectral information for environmental and natural resource projects. December 1999 should herald our entry into the orbital hyperspectral remote sensing era with the launch of the Hyperion sensor on-board NASA's EO-1 satellite. In this workshop, we will provide students with an introduction to what imaging spectrometry actually is and how it can add value to spatial analyses using relational databases and a GIS. We will define imaging spectrometry, briefly go into the phenomenology of reflectance spectrometry and explain why some materials are more amenable to mapping than others. We will describe different hyperspectral data processing systems and discuss the processing techniques within those packages. The integration of other types of geologic, geochemical, or biologic data into the calibration process refines the interpretation and mapping process. A GIS uses relational databases of tabular information and spatial data (vector, CAD, grid, image) to spatially explore how disparate types of data are related to solve a problem. The student will be introduced to the concepts of developing spatial models to integrate hyperspectral data within a GIS and how grid manipulations can be used to develop hybrid map products that integrate spectral and tabular data. We will present these concepts using real-world examples of how hyperspectral data processing is conducted and how the resulting class maps can be incorporated into spatial analyses in a GIS.

WORKSHOP 8

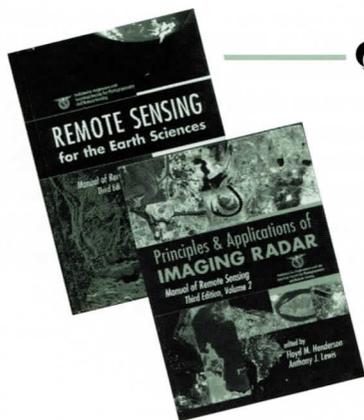
8:00 am to 12:00 pm
Colorado I & II

A Detailed Look at Landsat 7 Spacecraft and Instrument Performance

Darrel L. Williams, *NASA-Goddard Space Flight Center*
John Barker
Brian Markham
Ken Dolan, *NASA-Goddard Space Flight Center*
Jim Storey, *Raytheon ITSS/EROS Data Center*
Kurtis J. Thome, *University of Arizona*

The goal of this workshop is to provide the knowledgeable user of Landsat data with a more in-depth description of the documented performance characteristics of the various facets of the Landsat 7 spacecraft and ETM+ instrument than time would permit in a typical 20-minute oral presentation. In addition, the calibration and validation algorithms that are being used to assess performance will be discussed, as well as results obtained by detailed analyses of ETM+ data with these algorithms. Web sites will be identified where the user can go to obtain up-to-date information on performance characteristics throughout the life of this mission.

This workshop is targeted at the more knowledgeable user of Landsat data, such as value-added processors or researchers, who require and/or who can take advantage of a more in-depth description of the documented performance characteristics of the various facets of the Landsat 7 spacecraft and ETM+ instrument.



COLLECT THE SET!

The Manual of Remote Sensing, Third Edition is a series of volumes being published by ASPRS and John Wiley & Sons, Inc. The set of Third Edition volumes expand upon, and will replace, the Second Edition of the Manual of Remote Sensing.

The first three volumes have been published and are available from ASPRS.

Additional volumes are scheduled for publication over the next several years.

Purchase either Volume 2 or Volume 3 and get a copy of Volume 1 at a reduced rate.

Volume 1 + Volume 2 Price: **\$203**
Stock #4553

ASPRS Members: \$175
Students: \$145

Volume 1 + Volume 3 Price: **\$203**
Stock #4555

ASPRS Members: \$175
Students: \$145

SPECIAL OFFER

Start now and collect them all



OPENING SESSION

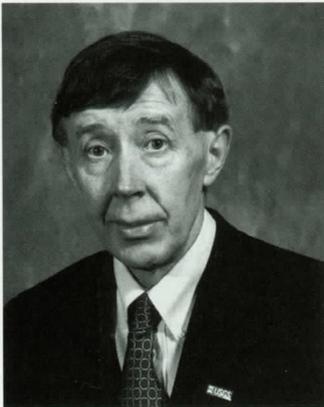
1:00 pm to 2:40 pm

Kass Green, *Pacific Meridian Resources*
Crystal Ballroom

Keynote Address

Dr. Charles G. Groat, Director, *USGS*

Presentation of William T. Pecora Award



Dr. Charles G. Groat became the 13th director of the U.S. Geological Survey (USGS), U.S. Department of the Interior in November

1998. Groat is a distinguished professional in the earth science community with over 25 years of direct involvement in geological studies, energy and minerals resource assessment, ground-water occurrence and protection, geomorphic processes and landform evolution in desert areas, and coastal studies. For a short time before assuming his position at USGS, he served as associate vice president for Research and Sponsored Projects at the University of Texas at El Paso, following three years as director of the Center for Environmental Resource Management. He was also director of the University's Environmental Science and Engineering PhD Program and a professor of Geological Sciences. For three years he served as executive director at the Center for Coastal, Energy, and Environmental Resources, at Louisiana State University. He was executive director for the American Geological Institute for two years, and from 1983-88, he served as assistant to the Secretary of the Louisiana Department of Natural Resources, where he administered the Coastal Zone Management Program, and the Coastal Protection Program. Groat is a member of several professional organizations. In addition, he has served on over a dozen earth science boards and committees and has authored and contributed to numerous publications and articles on major issues involving earth resources and the environment.

William T. Pecora Award

Presented to

John E. Estes

University of California, Santa Barbara

In recognition of his outstanding contributions as a researcher and teacher in the use of remote sensing and geographic information systems (GIS) technologies to analyze earth resources.

Dr. John E. Estes is an internationally recognized leader in developing and applying remote sensing and GIS tools for mapping land use/land cover, validating land cover map products, monitoring land cover change, mapping protected areas, identifying agricultural crop types, modeling fire fuels, modeling water demand, analyzing biodiversity, and detecting marine oil pollution. He joined the faculty of the Geography Department at the University of California, Santa Barbara, in 1969, and has served as the department chairman and director of the Department's Remote Sensing Research Unit. Dr. Estes has a unique ability to lead and guide graduate students, rather than direct them, in pursuit of their education and research objectives.

Dr. Estes has also made significant contributions to the remote sensing and GIS communities that extend far beyond the academic community. He has taken extended assignments with both the USGS and NASA to assist in formulating national and international programs and policies for Earth observation. He is currently chair of the International Steering Committee for Global Mapping, and serves on the NASA's Space Station Science Utilization Advisory Committee and Earth System Science and Applications Advisory Committee, as well as the National Academy of Sciences Space Applications Board and Mapping Science Committee.

The William T. Pecora Award is presented annually to recognize outstanding contributions by individuals or groups toward the understanding of the Earth by means of remote sensing. The award is sponsored jointly by the Department of the Interior (DOI) and the National Aeronautics and Space Administration (NASA). The award was established in 1974 to honor the memory of Dr. William T. Pecora, former director of the U.S. Geological Survey, and Under Secretary, Department of the Interior. Dr. Pecora was a motivating force behind the establishment of a program for civil remote sensing of the Earth from space. His early vision and support helped establish what we know today as the Landsat satellite program.

PROGRAM



TUESDAY CONTINUED

GENERAL SESSION

Crystal Ballroom
3:00 pm to 5:00 pm

A Universe of Choices; Earth Observing Systems I

Chair: Bonnie McGregor, Regional Director, Eastern Region, USGS

Gil Rye, *Orbimage*

John Copple, *Space Imaging*

Darrel Williams, *NASA-Goddard Space Flight Center*

John Hoffman, *Spin 2*

Herbert Satterlee III, *EarthWatch*

This and the second Earth Observing Systems session will provide an exciting overview of the latest satellites and those which will be launched within the next year, whose new capabilities will broaden and enhance nearly all the applications being presented at this conference. This first session will present the newest of the Landsat series, Landsat 7, which with its increased sensor capabilities, its frequent global coverage and its considerably reduced data costs will generate many new and/or improved large area applications. It also includes four of the recently or soon to be launched 1 and 2 meter resolution commercial systems which will provide data anywhere on the globe at resolutions previously available only from aircraft, a truly major breakthrough in satellite remote sensing.

OPENING RECEPTION IN EXHIBIT HALL

Grand Ballroom
5:00 pm to 7:00 pm

WEDNESDAY

POSTER PRESENTATION

Lobby Seating Area
8:00 am to 8:30 am

GENERAL SESSION

Crystal Ballroom
8:30 am to 10:00 am

A Universe of Choices; Earth Observing Systems II

Chair: Ghassem Asrar, Associate Admin. for Earth Sciences, NASA

Gene Colabattisto, *SPOT Image Corporation*

Marcello Maranesi, *Eurimage*

Steve Wilson, *West Indian Space*

Vincent V. Salomonson, *NASA-Goddard Space Flight Center*

In addition to providing the characteristics of the first international high resolution system, this session will highlight the capabilities and plans of the European associated satellite and data providers. It also includes an overview of the future technologies foreshadowed in NASA's experimental technology programs.

EXHIBITION OPEN

Grand Ballroom
10:00 am to 4:30 pm

BREAK IN EXHIBIT HALL

Grand Ballroom
10:00 am to 10:45 am

CONCURRENT SESSIONS

10:45 am to 12:15 pm

Transportation: Enterprise Approaches to Satellite Imagery Data

Chair: David R. Fletcher, *GEODIGM*

Crystal Ballroom I

Issues in Effective Use of Imagery in Transportation Organizations
David R. Fletcher, *GEODIGM*

The Impact of High Resolution Satellite Data on
Transportation Planning and Operations

Jim Schmidt, *CH2M HILL*

Strategies for Integrating Imagery into State-wide Spatial Data
Systems

David Gorg, *Minnesota DOT*

Challenges in the Use of High Resolution Satellite Data for
Improving the Quality of Land Use Information for Regional
Planning Applications

Nancy Tosta, *Puget Sound Regional Council*

Emergency Response

Chair: Tim Smith, *L.A. County Fire Department*

Crystal Ballroom II

Real-time Volcanic Hazard Mitigation Using Satellite Data

Luke Flynn, *HIGP/SOEST*

Andrew Harris, Eric Pilger

Remote Sensing and Telecommunications For Real-Time
Emergency Management via Satellite (REMSAT)

Norman Eldridge, *MacDonald Dettwiler and Associates Ltd.*

Pat Brownsword, Tony Knight

Using Remote Sensing to Assess and Manage Wildfire Risk

Chad Hendrix, *Pacific Meridian Resources*

Processing of Multiwave Remote Sensing Data for Ecological
Risk Monitoring in the Chernobyl Area

Viktor Shevchenko, *Geological Environmental Consulting*

Iryna Shevchenko

From Data to Information: First Steps in Analysis

Chair: Darrel Williams, *NASA-Goddard Space Flight Center*

Crystal Ballroom III

Developments in Software Modeling of Airborne and
Spaceborne Sensors

A. Stewart Walker, *LH Systems, LLC*

Neal F. Olander



Mapping the World in 3-D: The Shuttle Radar Topography Mission

Tom G. Farr, *Jet Propulsion Lab*
Mike Kobrick

Effects of Landsat TM Radiometric & Geometric Calibrations on Land Cover Analyses

James E. Vogelmann, *Raytheon ITSS/EROS Data Center*
Dennis Helder, James W. Merchant, Henry Bulley, Michael J. Choate

Pleasing All of the People Most of the Time: Planning Landsat 7 Acquisitions for the U.S. Archive

Terry Arvidson, *Lockheed Martin*

Environmental Planning: Global Ecosystem Analysis

Chair: Joanne Gabrynowicz, *University of North Dakota*
Colorado Room

Early Warning of Selected Emerging Environmental Issues in Africa: Change and Correlation from a Geographic Perspective

Ashbindu Singh, *United Nations Environment Program*
Amadou M. Dieye, Mark Finco, M. Sean Chenoweth, Eugene A. Fosnight

Monitoring the Interannual Variations of the Grasslands Bordering the Eastern Edge of the Gobi Desert in Central Asia with Time-series NOAA/AVHRR Data

Fangfang Yu, *Kansas Applied R.S. (KARS) Prog., Univ. of Kansas*
Kevin P. Price, Re-Yang Lee, Jim Ellis

A Land Use and Land Cover Change Model for Southern Senegal

Eric Wood, *Raytheon ITSS/EROS Data Center*
G. Gray Tappan, John E. Lewis, Ronald W. Lietzow

Earth Science, Climate Change, and Native Peoples

Nancy Maynard, *NASA-Office of Earth Sciences*
Verna Teller, Isleta Pueblo

LUNCH IN EXHIBIT HALL

Grand Ballroom
12:15 pm to 1:45 pm

CONCURRENT SESSIONS

2:00 pm to 3:30 pm

Transportation: Applications of Remote Sensing in Transportation

Chair: Bruce D. Spear, *Bureau of Transportation Statistics*
Crystal Ballroom I

Satellite Data Use for Traffic Monitoring

Carolyn Merry, *Ohio State University*
Using Imagery as a Data Source for Transportation Micro-simulation
Stephen M. Perone, *Metro Portland, Oregon*

Imagery Resolution Requirements for Metropolitan Transportation Applications

Bill McFarlane, *San Diego Association of Governments*

Use of Remote Sensing Data to Improve Environmental Review of Transportation Projects

Leni Oman, *Washington State Department of Transportation*

Satellite Imagery for State Transportation System Applications

Stanford T. Hovey, *Parsons Brinkerhoff Facilities*

Forestry: Forest Assessment

Chair: Russell Congalton, *University of New Hampshire*
Crystal Ballroom II

Information Potential of Orbital SAR Data for Commercial Forestry Applications

Josef Kellndorfer, *EnviSense Corporation*
Michael L. Clutter, Kass Green

Applying Red Edge and Water Absorption Geometry Analyses to Estimate Hardwood Forest Structure and Biomass Using Hyperspectral Data

Nelson Dias, *Indiana State University*

Important Factors in Assessing the Accuracy of Remotely Sensed Forest Vegetation Maps

Lucie Plourde, *University of New Hampshire*
Russell Congalton

Integrating Strategic and Tactical Forest Resources

Frank Sapiro, *Department of Natural Resources, State of Michigan*

Agriculture: Precision Applications

Chair: Joseph K. Berry, *Berry and Associates*
Crystal Ballroom III

Agricultural Applications of Remote Sensing in the Northern Great Plains

George A. Seielstad, *Upper Midwest Aerospace Consortium*
Gerald Nielsen, Ray Knighton, Sherry Farwell, Kevin Dalsted, Lloyd Que

Prediction of Weed Infestation Levels Through Integration of Landscape Position, Weed Ecology, and Remote Sensing

Charles Cole, *South Dakota State University*
Kevin Dalsted, Sharon Clay, Jason Lems

Classical and Contemporary Optical Data Processing Techniques for Pre-harvest Agricultural Yield Estimation

Glenn J. Newnham, *University of Waterloo*
Ellsworth F. LeDrew, Phillip J. Howarth

Automated Crop Type Mapping from Landsat Imagery

Susan K. Maxwell, *Raytheon ITSS/EROS Data Center*
J.R. Nuckols, M.H. Ward, E. Smith, R.M. Hoffer

Environmental Planning: U.S. State and Local Government Applications

Chair: Paul Tessar, *Boulder County, Colorado*
Colorado Room

U.S., State, and Local Government Environmental Applications

James K. Lein, *Ohio University*
An Internet-Accessible Prototype for Land Economics and Regional Hydrology Information
Chandra Bales, *Earth Data Analysis Center*
Paul Neville, Jennifer Bondick



WEDNESDAY CONTINUED

Application of High Resolution Multi-Spectral Imagery to Local Government in Jefferson County, Colorado
David W. Gallaheer, *Jefferson County GIS Department*

The Northeast U.S. Regional Application Center: An Organization for Distributing and Facilitating the Application of Remotely Sensed Data
Robert N. Brower, *Cayuga County Planning Department*

BREAK IN EXHIBIT HALL

Grand Ballroom
3:30 pm to 4:15 pm

CONCURRENT SESSIONS

4:15 pm to 5:45 pm

Transportation: Implementing Strategic Partnerships for Remote Sensing in Transportation

Chair: Roger Petzold, *Federal Highway Administration*
Crystal Ballroom I

Future Directions for Remote Sensing Support for the National Transportation Infrastructure
Fenton Carey, *U.S. Department of Transportation*

NASA Plans and Programs in Transportation Commercial Remote Sensing Products and Spatial Information Technologies
Nancy Maynard, *NASA-Office of Earth Sciences*

A Vision from a State Secretary of Transportation
E. Dean Carlson, *Kansas Department of Transportation*

A Private Sector Perspective
Bryan J. Logan, *EarthData International*

Forestry: Change Detection

Chair: Chuck Dull, *USDA Forest Service*
Crystal Ballroom II

Regional to Continental Monitoring of Change in Temperate Conifer Forests

Curtis E. Woodcock, *Boston University*
Scott A. Macomber, Conghe Song, Mary Pax-Lenney, Sucharita Gopal

Large Scale Monitoring of Land Use and Cover Change with Landsat 7

David Skole, *Michigan State University*
W.H. Chomentowski, D. Cramer, C. Oliver, T. Smucker

Variability of the Spectral Response Due to the Phenological Changes of the Sierra de Artega Vegetation
M. del Consuelo Hori Ochoa, *Laboratoria de Infor. Georreferenciada*
D. Fabian Lozano Garcia

Minnesota's AFIS Project: Routinizing TM Change Analysis
James Rack, *Resource Assessment Unit, Div. of Forestry, MN*
William Befort

Agriculture: Regional and Global Assessment

Chair: Glen Bethel, *USDA Foreign Agricultural Service*
Crystal Ballroom III

Application of the Tasseled Cap Transformation on Separating Three Management Practices on Cool and Warm Season Grasslands in Eastern Kansas

Kevin P. Price, *Kansas Applied Remote Sensing Program*
Xulin Guo, James M. Stiles

Applications of Landsat TM: Regional Environmental Information System (REIS)

Bruce Gleig, *Agriculture & Agri-Food Canada*
Ian Jarvis

A Comparison of Methods for Estimating Start-of-Season from Operational Rainfall and Vegetation Index Remote Sensing Products

James Verdin, *USGS EROS Data Center*
Robert Klaver, James Rowland, Ronald Lietzow, Vikki French, Felix Lee

Global Crop Assessment Using Remote Sensing Data at the Foreign Agriculture Service: Australian Winter Grain Case Study
Jim Crutchfield, *USDA Foreign Agricultural Service*
Bradley D. Doom

Environmental Planning: Military Base Applications

Chair: Lynn Phillips, *Camp Lejeune Marine Corps Base*
Colorado Room

Mapping and Analyzing Long-Term Development and Expansion of Military Bases and Their Infrastructure in the NW Former Soviet Union by Combined Use of Landsat-MSS, TM, Spot Imagery and Corona Photographs
Johnny Skorve, *Norwegian Institute of International Affairs*

Mapping Landforms and Earth Materials of the Mojave Desert from Space

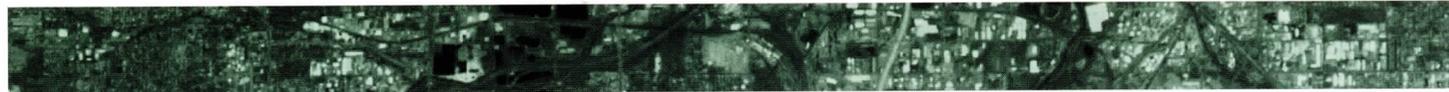
Roy K. Dokka, *Louisiana State University*
Constance Christensen, Joseph Watts

Building an integrated Geographic Information System from Multiple Data Sources for Military Installation Management
Lynn Phillips, *Camp Lejeune Marine Corps Base*

Using Remotely Sensed Data for Vegetation Mapping at Fort Hood
Paul Loechl, *Army Corps of Engineers, CERL*

Attention ASPRS Members

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THURSDAY

POSTER PRESENTATION

Lobby Seating Area
8:00 am to 8:30 am

GENERAL SESSION

Crystal Ballroom
8:30 am to 10:00 am

Information Access and Analysis

Chair: Mike Thomas, *NASA-Commercial Remote Sensing Program*

Jack Dangermond, *ESRI*
John Allen, *ERDAS*
John Jensen, *University of South Carolina*
Nate Boyer, *Eastman Kodak Company*

This session provides a look at the capabilities of the value-added sector and academia to supply new and better products for information users. New and improved tools for accessing and analyzing existing data sources, and matched with new sources of Earth observing data, will foster a wide variety of applications.

EXHIBITION OPEN

Grand Ballroom
10:00 am to 2:00 pm

BREAK IN EXHIBIT HALL

Grand Ballroom
10:00 am to 10:45 am

CONCURRENT SESSIONS

10:45 am to 12:15 pm

Transportation: Panel on Critical Issues in the Successful Use of High Resolution Satellite Data

Chair: A. Keith Turner, *Colorado School of Mines*

Crystal Ballroom I

Reg Souleyrette, *CTRE, Iowa State University*
Thomas M. Lillesand, *University of Wisconsin-Madison*
Jack Dangermond, *ESRI*
David Gallaher, *Jefferson County GIS Department*
Jessica Sunshine, *SAIC*

Forestry: Inventory and Monitoring

Chair: Ann Maclean, *Michigan Technological University*

Crystal Ballroom II

Assessing Forest Tax Compliance in Georgia with Landsat TM Data

Christy Jenkins, *Pacific Meridian Resources*

Estimating Subpixel Forest Cover with 1KM Satellite Data

Eric Waller, *Raytheon ITSS/EROS Data Center*
Zhiliang Zhu

Using Satellite Imagery to Map and Monitor California's National Forests

Ralph Warbington, *USDA Forest Service, Region 5*

Forest Inventory Update Checking Using Satellite Data
Norman Eldridge, *MacDonald Dettwiler and Associates Ltd.*

Agriculture: Yield Assessment

Chair: John Arvik, *Foundation Consulting Services*

Crystal Ballroom III

ERS Data for Agricultural Yield Monitoring

Andrea Celentano, *Eurimage S.P.A.*

Assessing Wheat Yield Variability Using Satellite Remote Sensing

Daniel Itenfisu, *Oklahoma State University*

Ronald L. Elliott, John B. Solie

Corn Yield Estimates Using a Biogeochemical Model and Remote Sensing

Naber Khatib, *University of Colorado at Boulder*

William Emery

Forecasting Corn Yield in Iowa Using Remotely Sensed Data and Vegetation Phenology Information

Dietrich Kastens, *Kansas Applied Remote Sensing Program*

ReYang Lee, Kevin P. Price, Edward A. Martinko

Environmental Planning: Water and Wetland Management

Chair: Jan Svejksky, *Ocean Imaging*

Colorado Room

Atmospheric Correction and Calibration of Landsat 7/ETM+ Imagery Over Aquatic Environments: A Multi-Platform Approach Using SeaWiFs/Orbview-II and MODIS/Terra

David Palandro, *University of South Florida*

Chuanmin Hu, Kendall Carder

Application of Landsat 7 Data to Great Lakes Water Resource Assessment

John Schott, *Rochester Institute of Technology*

Julia Barsi, Nina Raqueño, Mary Ellen Miller, Dilkushi DeAlwis

Use of Satellite Imagery for Mapping Impervious Surfaces in Support of Urban Stormwater Management Programs

John M. Morgan, III, *Towson University*

Bathymetry Estimation in Turbid Waters Using Multispectral Data: Case Study La Nacha Lagoon, Mexico

Jorge Brenner, *Laboratoria de Informacion Georreferenciada*

D. Fabian Lozano Garcia

LUNCH IN EXHIBIT HALL

Grand Ballroom
12:15 pm to 1:45 pm

EXHIBITS CLOSE

2:00 pm



THURSDAY CONTINUED

CONCURRENT SESSIONS

2:00 pm to 3:30 pm

Land Use: Urban Area Analysis

Chair: James W. Merchant, *University of Nebraska*

Crystal Ballroom I

Applying Multi-temporal Remotely Sensed Images to Monitor the Urban Dynamics and Update Land Use Information:

A Case Study in Fuqing City, Southeast China

Xuan Huang, *LREIS, Institute of Geography, CAS*

Chen Chongcheng

An Information System as Support for Managing and Urban Planning

Beatriz Nozari Ribeiro de Carvalho, *The Federal Univ. of Santa Catarina*

Edis Mafra Lapolli, Flavio Bonfatti

Crop Area Assessments Using Low, Moderate and High Resolution Imagery: A Geo Tools Approach

Gregory T. Koeln, *Earth Satellite Corporation*

Spatial Econometric Analysis and Project Evaluation: Modeling Land Use Change in the Darién

Gerald C. Nelson, *University of Illinois, Urbana-Champaign*
Virginia Harris, Steven W. Stone

USGS National Land Cover Data Base

Thomas R. Loveland, *USGS EROS Data Center*

Forestry: Landscape and Habitat Management

Chair: Frank Sapio, *Department of Natural Resources, State of Michigan*

Crystal Ballroom II

Evaluation of Elk Movement and Habitats Within the Black Hills National Forest

Tammy K. Davis, *South Dakota School of Mines and Technology*
Maribeth H. Price

Remote Sensing Based Resources Accounting and Management System

J. K. Mishra, *Yamagata University*

O. P. Sharma

Using 3-D Visualization Of Remotely Sensed Data to Simulate Forest Management Impacts

Joseph K. Berry, *Berry & Associates*

David J. Buckley, Craig Ulbricht

Land Use: Land Cover and Land Use Assessment

Chair: Barry Haack, *George Mason University*

Crystal Ballroom III

Assimilating Landsat 7 ETM+ Imagery in a Grassland Growth Model: A Case Study in Arizona

M. Susan Moran, *USDA-ARS U.S. Water Conservation Laboratory*

Y. Nouvellon, R.B. Bryant, W. Ni

A Method Using Multi-Temporal NDVI and Rainfall Data for Semi-Arid Land Performance Evaluation

Li Junhua, *McGill University*

J. Lewis, J. Rowland, L. Tieszen, G. Tappan

Integration of Optical and Radar for Land Cover Mapping

Barry Haack, *George Mason University*

Nathaniel Herold

Characterization of Vegetation in the South of Mexico by Means of a Canonical Expansion

J. Lira, *1-Instituto de Geofisica-UNAM*

E. García, M.L. Alviar

Environmental Planning: Health Applications

Chair: Byron Wood, *NASA-Ames Research Center*

Colorado Room

Obstacles and Opportunities for Remote Sensing and Geographic Information Systems in Disease Surveillance

Byron L. Wood, *CHAART*

Evaluating Current and Planned Sensors for Human Health Applications

Louisa R. Beck, *Cal. State University, Monterey Bay*

Byron L. Wood, Brad M. Lobitz

Applying the USGS Geospatial Data Archives to Health Surveillance

Eric C. Wood, *Raytheon ITSS/EROS Data Center*

James Rowland

Hantavirus Pulmonary Syndrome in the Southwestern United States

Rachel Loehman, *University of New Mexico*

James Cheek, Douglas Thoroughman

CLOSING SESSION

Crystal Ballroom

3:45 pm to 5:15 pm

Policies Affecting the Use of Satellite Imagery

Chair: Don Lauer, *USGS EROS Data Center*

Mark Brender, *Space Imaging*

Frank DiBello, *Space Vest*

Kass Green, *Pacific Meridian Resources*

Peter Backlund, *White House/OSTP*

Fenton Carey, *Department of Transportation*

Laura A. Robinson, *NIMA*

John E. Estes, *University of California at Santa Barbara*

A panel of invited experts from government, private industry and academia will discuss policies affecting data availability, data distribution and pricing, education and training, and organizational infrastructure which impede or enhance the use of satellite imagery.

FRIDAY

CLASSIFIED SESSION OFF-SITE

(See page 17 for more information)

TECHNICAL TOURS

Space Imaging Primary Operations Center

USGS Rocky Mountain Mapping Center

(See page 17 for more information)

POSTER PRESENTATIONS



WEDNESDAY, 8:00 AM-8:30 AM

The following posters will be on display all day Wednesday, in the Lobby Seating Area.

Development of the Way of Ecological Cartography Using Non-Parametrical Methods of Multispectral Space Images Segmentation

Michael Andreev, *St. Petersburg State Electrotechnical University*
Anatoly A. Buznikov, Vladimir L. Gorohov, Yaroslav V. Logachev

Utilizing Radarsat and Landsat Imagery for Navigation During a South Patagonia Ice Cap Mountaineering Expedition

Kyle Bohnenstiehl, *NAGIS, Inc.*
Karl Feaux, Bart Matthews, Robert Weber

Estimation of Winter Wheat Yields in North China Using NOAA AVHRR Data

Jiang Dong, *Commission for Integrated Survey of Natural Resources*
Wang Jianhua, Wang Naibing, Yang Xiaohuan

The Use of Multidate Satellite Imagery for the Analysis of Patterns of Urban Growth: Applications for Growth Management in Springfield, Missouri

James Dunajcik, *University of Missouri*
James D. Hipple, Fred May

Broadening Access to Earth Imagery

Mark Freeberg, *OCENS, Inc.*
Lee S. Chesneau, Jeremy Throwe

Remote Sensing Applications in Urban Areas: The Commercial Potential

James Hipple, *University of Missouri*
Timothy Haithcoat, Dan Daugherty

Early Assessment of Winter Wheat Conditions in Kansas Using Remotely Sensed Data and Crop Phenological Indices

Dietrick L. A. Kastens, *University of Kansas*
Kevin P. Price, Edward A. Martinko, ReYang Lee

The Effect of the Resolution of Satellite Images on the Interpretability and Detectability of Geographic Information

Yong-Il Kim, *Seoul National University*
Byung-Joon Seo

Coastal Zone Mapping of Jamaica for Planning and Management

L. Tommy Lindell, *Uppsala University*

Multispectral Classification of IKONOS-like imagery

Peter Lohmann, *University of Hanover*

Access to Information: Using Geographical Landscapes as a Visual Interface Metaphor to Coastal Information Systems

David R. Green, *University of Aberdeen*
Stephen D. King

Utilizing a Multispectral Video Mapping System for Aerial Remote Sensing and Ground Truthing

David K. Wright, *Colorado State University*
D.G. Westfall, Walter C. Bausch, J.A. Delgado, J.K. Berry

The LANDSAT 5/LANDSAT 7 Underfly Cross-Calibration Experiment

Grant. R. Mah, *Raytheon, ITSS/EROS Data Center*

The Hurricane Mitch Disaster/The USGS Response

Michael Crane, *USGS/EROS Data Center*
Wayne Rohde, Ron Risty, Bryan Tolk, Jeff Danielson, Jan Nelson

Moderate Resolution Imaging Spectroradiometer (MODIS): Land Data Products

Calli B. Jenkerson, *Raytheon, ITSS/EROS Data Center*

The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER): An Overview of the Instrument and the Derived Data Products

Bhaskar Ramachandran, *Space Applications Corp., EROS Data Center*

THURSDAY, 8:00 AM-8:30 AM

The following posters will be on display all day Thursday, in the Lobby Seating Area.

Agricultural Registers Used for Controlling Area Based Subsidies by Remote Sensing and Decision Support Systems

Birger Faurholt Pederson, *Danish Institute of Agriculture Sciences*
Rene Larsen

The Use of Satellite Remote Sensing for Rural Population Estimation in South Africa

L.A. Sandham, *School of Environmental Sciences and Development*
TC de Klerk

Reconstructing and Applying Puebloan Traditional Ecological Knowledge to Environmental and Climatic Variability Through Remote Sensing Technologies

Rick Watson, *San Juan College*
Carmelita Topaha, Ray A. Williamson

Wetland Vegetation Modeling Using Two Meter Airborne Multispectral Videography

Charles Werstak, Jr., *Utah State University*

Building Capacity for Applying Geospatial Technologies to Environmental Planning Among Native Peoples in the American Southwest

Ray A. Williamson, *Space Policy Institute*
Stan Morain

Delineation of the Glacial Geology of North-Central Ohio Using Image Enhancement in Landsat TM Data

Carina Dalton-Sorrell, *Ohio State University*
Garry D. McKenzie, Dean N. Riley

Fragmentation Analysis in a Tropical Area in Southern Mexico

Roberto Bonifaz, *DGSCA-UNAM*
Jose Luis Villareal

Discriminating Between Native Warm Season and Non-Native Cool Season Grazed Grasslands in Douglas County, Kansas Using Multitemporal Landsat Thematic Mapper Data

Dana Peterson, *University of Kansas*
Kevin P. Price, Edward A. Martinko

POSTER PRESENTATIONS



Format Independent Management of Geo-imagery in a Very Large Database

Roberto Lattuada, *Oracle Corporation*

Analysis of Landsat Data for Change Detection in a Rapidly Developing Area of the Republic of South Africa

Matthew E. Ramspott, *Southwest Texas State University*

Anisotropic Reflectance Correction of Satellite Imagery in Mountain Environments

Jeff Olsenholler, *University of Nebraska at Omaha*

Michael P. Bishop, Stephen B. Cacioppo and John F. Shroder, Jr.

A National 30m Land Cover Dataset: An Innovative Partnership for National Environmental Assessment

Charles R. Larson, *Raytheon, ITSS/EROS Data Center*

A Comparison of Satellite Derived Vegetation Metrics and Climate Variables in the Central United States

Michael E. Budde, *Raytheon, ITSS/EROS Data Center*

Our National Land Remote Sensing Data Archive: Preserving Earth Surface Data for Global Applications

Dana Larsen, *Raytheon, ITSS/EROS Data Center*

Tim Smith

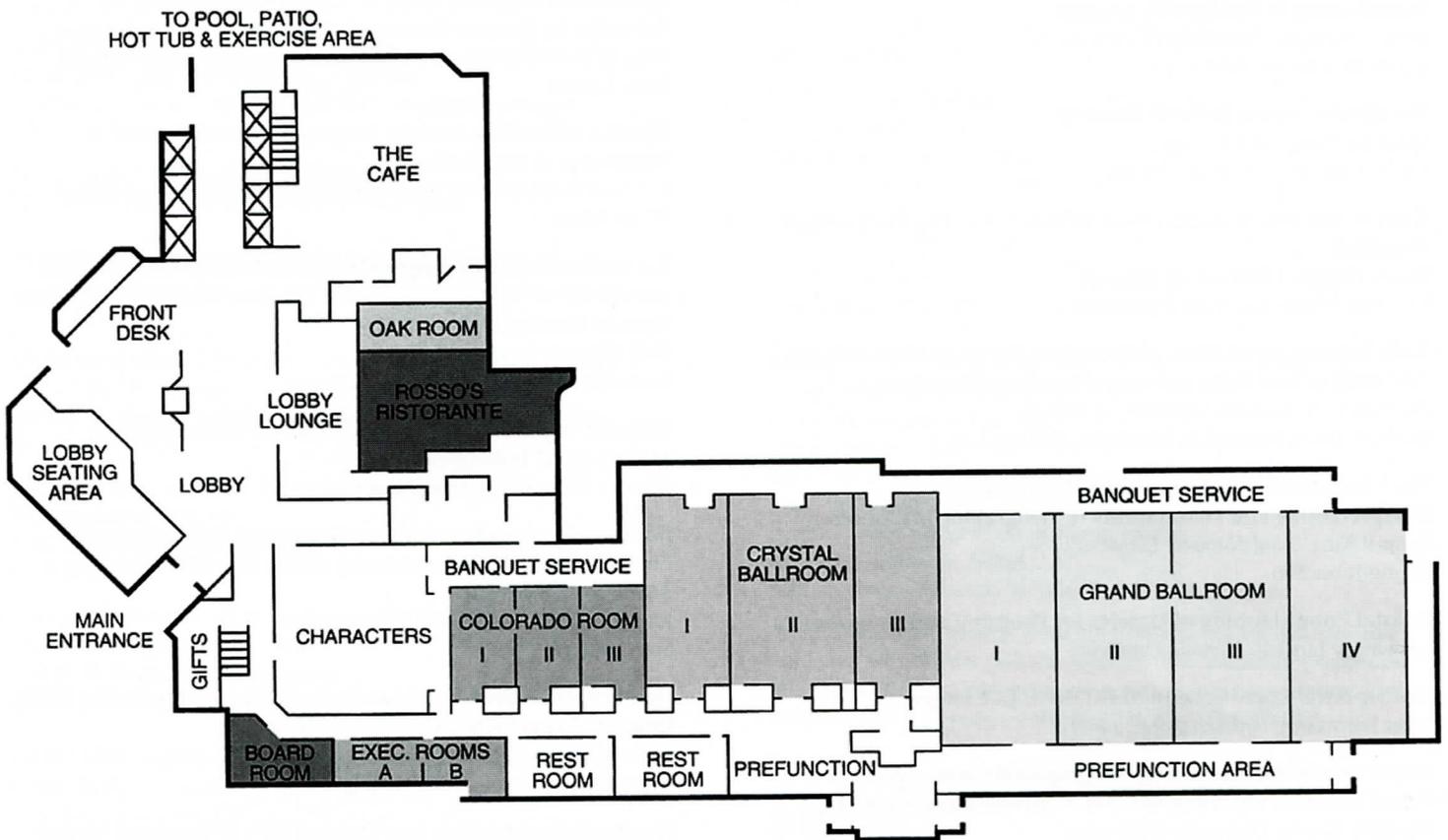
Phenological Characterization

Bradley Reed, *Raytheon, ITSS/EROS Data Center*

Landscape Change Indicators: Alternative Techniques Applied to Florida's Big Bend Coast

Ellen Raabe, *Raytheon, USGS*

Amy Streck, Richard Stumpf



TECHNICAL TOURS & CLASSIFIED SESSION

TECHNICAL TOURS

Friday, December 10, 1999

Technical Tour Registrants:

- You must wear your conference name badge and be prepared to submit your ticket for the technical tour for which you are registered.
- All tour facilities are secure and visitors will be verified as tour registrants and required to show a government issued photo identification.
- We encourage you to take the bus transportation provided by the conference, however, if you prefer to drive, directions are included in your registration packet. You must arrive promptly for each tour or you will forfeit your space. Each tour will require registration verification and a security briefing.

Space Imaging's Primary Operations Center (POC)

Space Imaging's Primary Operations Center (POC) is located at the company's corporate headquarters Thornton, Colorado.

Travel to SI is 25 minutes each way and the tour is 1.5 hours.

TOUR A

Buses will load at the hotel at 7:45 am and depart promptly at 8:00 am; return to the hotel by 10:45 am

TOUR B

Buses will load at the hotel at 9:45 am and depart promptly at 10:00 am; return to the hotel by 12:45 pm

USGS Rocky Mountain Mapping Center

USGS Rocky Mountain Mapping Center is located at the Denver Federal Center in Lakewood, Colorado. The tour will last approximately 2 hours. The travel time to and from the facility is about one hour each way.

TOUR C

Buses will load at the hotel at 8:45 am and depart promptly at 9:00 am; return to the hotel by 1:15 pm

CLASSIFIED SESSION

"Federal Government Applications of Satellite Imagery"

Friday, December 10, 1999

Advanced registration and security clearance were required for this session.

Classified Session Registrants:

- You must wear your conference name badge and be prepared to submit your ticket for the classified session.
- All session facilities are secure and visitors will be verified as classified session registrants and required to show a government issued photo identification.
- We encourage you to take the bus transportation provided by the conference, however, if you prefer to drive, directions are included in your registration packet. You must arrive promptly at 7:00 am for this session for processing and a security briefing.
- Buses will begin loading at the conference hotel at 6:30 am and will depart promptly at 6:45 am for TRW. The TRW facility is a 15-minute drive from the hotel. It is necessary for all participants to arrive at TRW by 7:00 am for processing and a security briefing. The Classified Symposium will begin at 8:00 am and end at 5:00 pm. Buses will return to the hotel following the session.
- A continental breakfast and box lunch is provided.

*Limited space was available for the Technical Tours and advance registrants were accepted on a first-come first-serve basis. You may check at Conference Registration to see if space remains.

ASPRS 2000

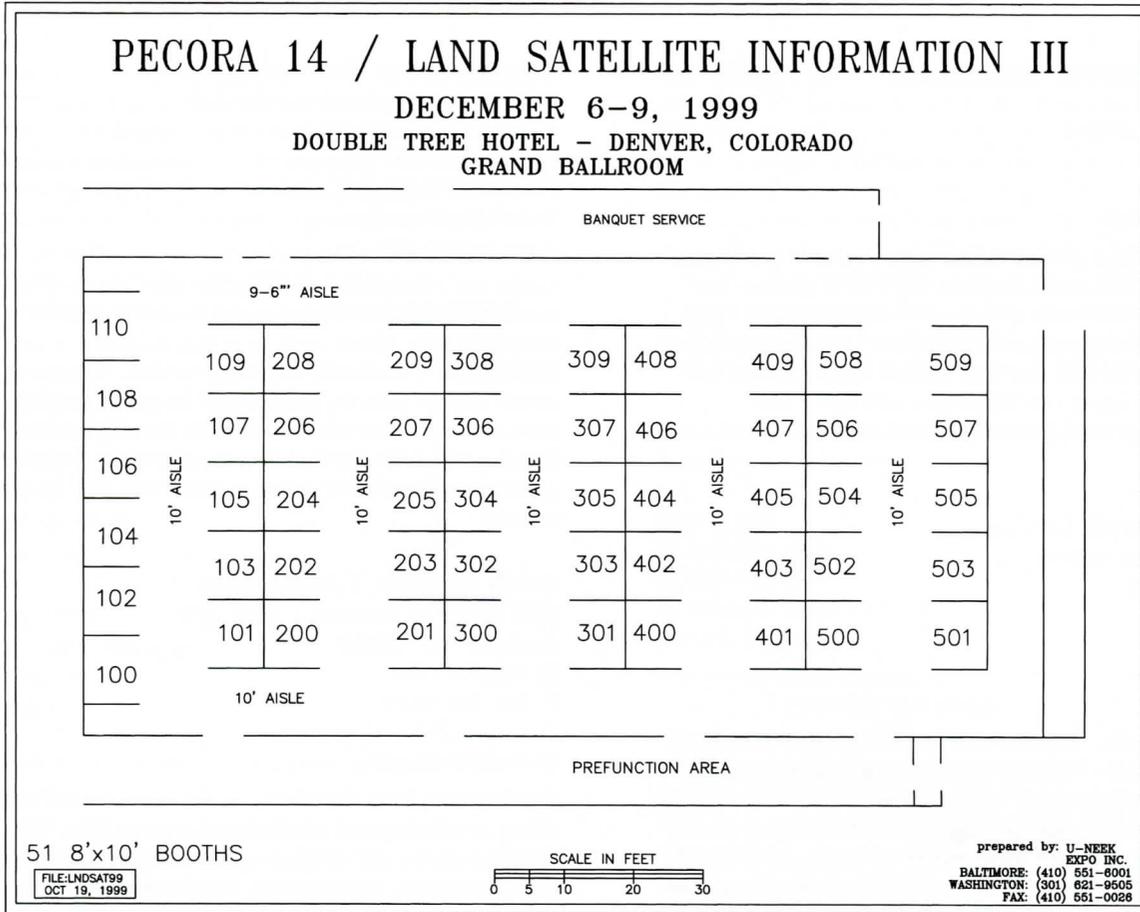


Omni Shoreham Hotel
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May 22-23
Workshops
User Group Meetings
Committee Meetings

May 24-26
Educational Sessions
Exhibits

Launching the Geospatial Information Age



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Earth Satellite Corporation

BOOTH #307

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www.earthsat.com

For 30 years, Earth Satellite Corporation has been an international consulting and professional services firm specializing in the application and development of remote sensing and GIS for the exploration, development, monitoring and management of the Earth's resources. Based in Rockville, MD, EarthSat is a world leader in the utilization of remote sensing data from aircraft and satellites and is the largest value-added provider of satellite remotely-sensed images.

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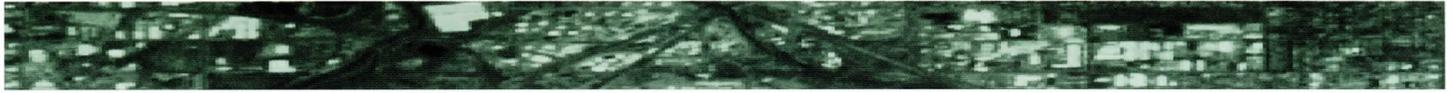
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EarthWatch is building two satellites capable of collecting high resolution digital imagery of the Earth's surface, as well as a comprehensive image collection, enhancement and digital archive system, known as the Digital Globe database. Our QuickBird satellites are designed to collect one-meter resolution panchromatic and four-meter resolution multispectral imagery of the Earth and they will have an ability to revisit most areas almost daily. Launch of QuickBird 1 is scheduled for the first quarter of 2000.

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E: westernsales@erdas.com
www.erdas.com



ERDAS pioneered the first PC-based image processing system, and for over 21 years has set the standard for multi-functional geographic imaging systems. ERDAS IMAGINE 8.4 is designed for speed, accuracy, and ease of use in mapping and imaging processes, and features the first commercially available expert systems classification tool for geographic applications. Digital photogrammetry solutions include IMAGINE OrthoBASE for Windows and IMAGINE OrthoMAX for UNIX. ERDAS products are fully integrated and support industry standard data formats.

ESRI

380 New York Street
Redlands, CA 92313
P: 909-793-2853
F: 909-307-3072
E: joe_johnson@esri.com
www.esri.com

BOOTH #501

ImageAtlas.com

11402 North Cave Creek Road
Phoenix, AZ 85020
P: 602-678-5111
F: 602-678-5228
E: bmoore@cooperaerial.com or rmurphy@imageatlas.com
www.imageatlas.com

BOOTH #107

ImageAtlas.com is the first user-friendly Internet service to provide access to top products in the geographic information industry. You can now order products such as satellite imagery online, and each of the major industries can tailor our services to meet their needs. Those industries can also use ImageAtlas.com to understand how to use these new innovative technologies. ImageAtlas.com is the answer to finding innovative solutions.

Kansas Applied Remote Sensing Program

University of Kansas
2291 Irving Hill Road
Lawrence, KS 66045
P: 785-864-7720
F: 785-864-0392
E: e-martinko@ukans.edu
www.kars.ukans.edu

BOOTH #202

The Kansas Applied Remote Sensing (KARS) Program, one of seven NASA Regional Earth Science Applications Centers (RESAC), is dedicated to promoting the growth of remote sensing and GIS. The foremost goal of the Great Plains-RESAC is to put results of basic and applied research, as they relate to the Great Plains agroecosystem, into the hands of end users. Interdisciplinary projects undertaken by the Center include monitoring land use/land change and agricultural crop production estimates.

LizardTech

1008 Western Avenue
Seattle, WA 98104
P: 206-652-5211
F: 206-652-0880
www.lizardtech.com

BOOTH #100

The MrSID Portable Image Format for Geospatial is a revolutionary image file format from LizardTech designed specifically for GIS professionals to enable true portability of massive images. MrSID Geospatial Edition reduces the size of high-resolution images to less than 5% of their original size, while maintaining the quality and geometric accuracy of the original. More than just a compression utility, MrSID is a complete imaging language. Now, multiple image sets can be mosaicked automatically into a single seamless image that can be zoomed and panned instantaneously locally or over the Internet. And, MrSID is compatible with all popular GIS applications and web browsers.

Lockheed Martin Missile and Space Intelligent Library

1111 Lockheed Martin Way
Sunnyvale, CA 94089
P: 408-743-7871
F: 408-742-0731
E: miriam.buzi@lmco.com
www.lmils.com

BOOTH #301

Intelligent Library System (ILS) (TM) is an integrated end-to-end h/w and s/w solution that enables you to efficiently ingest, access, display, manipulate, analyze and distribute satellite imagery and other files. It comprises two functional components: SmartArchiver(TM) answers the need for a cost-effective, scalable digital storage solution with automated workflow and asset management. SmartAnalyst(TM) provides an integrated suite of leading geospatial imaging tools enhanced with Lockheed Martin-developed software for unsurpassed imagery viewing and analysis.

NASA Commercial Remote Sensing Program

Building 1100, Room 220
Stennis Space Center, MS 39529-6000
P: 228-688-2634
F: 228-688-2271
E: mthomas@ssc.nasa.gov
www.crsp.ssc.nasa.gov

BOOTH #507/509

NASA's Lead Center for Commercial Remote Sensing development located at Stennis Space Center is chartered by the Agency's Earth Science Enterprise to ensure that U.S. companies maintain their technological and business leadership in this critical 21st century market. The Commercial Remote Sensing Program has implemented an aggressive approach to realize this vision. This approach has three equally important mission elements: Accelerate development of a preeminent U.S. remote sensing industry; Link the U.S. Remote Sensing Industry with the Enterprise (ESE) in developing mutually beneficial partnerships; Make NASA an understandable customer of the remote sensing industry.



NASA/EOSDIS

Raytheon ITSS
4500 Forbes Boulevard, Suite 300
Lanham, MD 20706
P: 301-794-3073
F: 301-794-3165
E: geralyn@killians.gsfc.nasa.gov
<http://eos.nasa.gov/imswelcome>

NASA provides more than 1,000 science data products and associated services for interdisciplinary Earth science studies as part of its Earth Science Enterprise. Management and distribution of these products is administered through the Earth Observing System Data and Information System (EOSDIS) via several Distributed Active Archive Centers (DAACs), which are tied together by the EOS Data Gateway, providing seamless access to all EOSDIS data.

BOOTH #504

NASA/Earth Science Enterprise/ Earth Observing System

NASA Goddard Space Flight Center
Mail code 900, Building 33, Room E112
Greenbelt, MD 20771
P: 301-614-5560
F: 301-614-6530
E: winnie.humberson@gsfc.nasa.gov
eospsso.gsfc.nasa.gov

Since its creation in 1958, NASA has been studying the Earth and its changing environment by observing the atmosphere, oceans, land, ice and snow, and their influence on climate and weather. In 1991, NASA launched Earth Science Enterprise Program to study the Earth. Using satellites and information from ground-based sources, and working together with nations of the world, we hope to improve our knowledge of the Earth system, and use that knowledge for the benefit of future generations.

BOOTH #500/502

National Imagery & Mapping Agency

4600 Sangamore Road
Bethesda, MD 20816-5003
P: 301-227-1045
F: 301-227-3558
www.nima.mil

A major combat support agency of the Department of Defense and a member of the Intelligence Community, the National Imagery and Mapping Agency was established October 1, 1996, to provide timely and accurate imagery, imagery intelligence and geospatial information in support of the nation's military forces and national policy makers. Through collection, analysis and distribution of large amounts of data, NIMA provides critical support for the national decision making process and contributes to the high state of operational readiness of America's military forces.

BOOTH #102

Orbimage

21700 Atlantic Boulevard
Dulles, VA 20165
P: 703-406-5800
F: 703-404-8061
E: info@orbimage.com
www.orbimage.com

BOOTH #402/404

ORBIMAGE is a leading global provider of satellite-delivered Earth imagery services with a planned constellation of digital remote sensing satellites. It currently operates the OrbView-1 atmospheric imaging satellite, the OrbView-2 ocean and land multispectral imaging satellite, and an integrated image receiving, processing and distribution system. OrbView-3, the first of two high-resolution (one-meter panchromatic and four-meter multispectral) optical imaging satellites, will be launched in mid-2000, followed by the launch of OrbView-4, which will include a hyperspectral imagery capability, in late 2000. ORBIMAGE also holds distribution rights for the Canadian RADARSAT-1 and RADARSAT-2 satellites as well as the Russian Spin-2 satellite.

Pacific Meridian Resources

5915 Hollis Street, Building B
Emeryville, CA 94608
P: 510-654-6980
F: 510-654-5775
E: info@pacificmeridian.com

Pacific Meridian Resources brings cutting edge technology to resource analysis and management. The firm is renowned for its development of innovative, state of the art methods of applying geospatial information technologies to critical issues such as evaluation of wildfire risk, change detection, pipeline siting and ecosystem management. Pacific Meridian Resources operates from offices in the San Francisco Bay Area; Ann Arbor, Michigan; Atlanta, Georgia; Fort Collins, Colorado; Portland, Oregon; Salt Lake City, Utah; and Sacramento, California.

BOOTH #401/403

PCI Geomatics

50 West Wilmot Street
Richmond Hill, Ontario, Canada L4B 1M5
P: 905-764-0614
F: 905-764-9604
E: info@pcigeomatics.com
www.pcigeomatics.com

PCI Geomatics is a world leading developer of geomatics software and solutions based on its remote sensing, digital photogrammetry, spatial analysis, and cartographic editing programs. PCI Geomatics has over 7,000 licenses installed in over 100 countries, a result of its commitment to supply leading edge software, customer support and service worldwide. Additional information can be obtained on the PCI Geomatics web site: www.pcigeomatics.com.

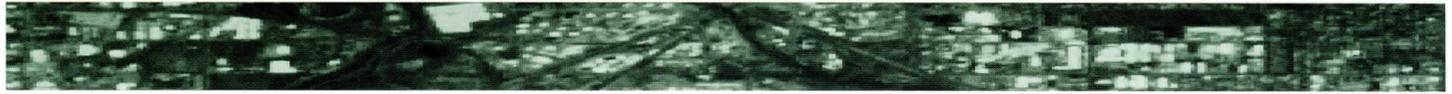
BOOTH #300

RADARSAT International (RSI)

13800 Commerce Parkway
MacDonald Dettwiler Building
Richmond, B.C., Canada V6V 2J3
P: 604-244-0400
F: 604-244-0404
E: info@rsi.ca
www.rsi.ca

RSI is a reliable, cost-effective, and service-oriented source of satellite imagery products, services, and training. RSI is pleased to be processing and distributing LANDSAT 7 data—offering volume discounts and a “floating window.” RSI is also the world-

BOOTH #303



wide distributor of RADARSAT-1 imagery, and, under a subcontract from ORBIMAGE, will be operating the RADARSAT-2 satellite, as well as distributing the imagery around the world. RSI offers other products including ERS, IRS, LANDSAT, and SPOT satellite imagery.

Remote Sensing Core Curriculum

BOOTH #T8D

ICRSE
1450 S. Rolling Road, Box 2-11
Baltimore, MD 21227
P: 410-455-5573
F: 410-455-5575
E: icsre@symposia.org
www.umbc.edu/rscc

The Remote Sensing Core Curriculum (RSCC), originally sponsored by NASA and NCGIA, is the education initiative of the ASPRS: The Imaging & Geospatial Information Society. The RSCC includes a series of lecture outlines and self-contained laboratory exercises with data to support the education needs for advancing technologies and their integration with spatial information systems. The RSCC design will ensure full access by educators and industry to datasets, operating software, and lecture materials via the web. New for '99 Vol.5...K-12 remote sensing resources.

Research Systems

BOOTH #30C

4990 Pearl East Circle
Boulder, CO 80301
P: 303-786-9900
F: 303-786-9909
E: info@rsinc.com
www.rsinc.com

Research Systems, a leading developer of analysis, visualization and development solutions offers a full product line including ENVI, the Environment for Visualizing Images. ENVI boasts a fully-accessible underlying language, the Interactive Data Language (IDL) allowing you to expand ENVI's features or create your own routines. ENVI includes features such as advanced spectral and radar tool sets, heads-up vector digitizing and querying that make multispectral, hyperspectral and radar analysis easy. Other products include IDL, VIP (visual IDL programming), ION (IDL on the Internet), RiverTools (river analysis) and Noesys (expanded data access).

Sensor Systems Inc.

BOOTH #204/20C

103A Carpenter Drive
Sterling, VA 20164
P: 703-437-7651
F: 703-437-0039
E: troy@sensor.com
www.sensor.com

Sensor Systems - a dynamic, entrepreneurial imaging-software company. Our flagship product, RemoteView, is a comprehensive product suite for image processing, analysis, exploitation, and production of remote sensing products. Ideal for government, military, and commercial - RemoteView scales from simple viewers through interactive image processing and analysis to multispectral image and mapping/geodetic analysis.

Silicon Graphics Computer Systems

BOOTH #205/207/209

2011 N. Shoreline Boulevard
Mountain View, CA 94043
P: 415-960-1980

Sony Electronics

BOOTH #304

1 Sony Drive
Park Ridge, NJ 07656
P: 201-930-6158
F: 201-930-4752
E: mark_bonifacio@mail.sel.sony.com

Space Imaging

BOOTH #201/203

12076 Grant Street
Thornton, CO 80241
P: 303-254-2000
F: 303-254-2215
E: info@spaceimaging.com
www.spaceimaging.com

Space Imaging is the leading supplier of space imagery, aerial photography, mapping services, and derivative geographic information products and services. On September 24, 1999, Space Imaging successfully launched IKONOS, the world's first commercial, high-resolution imaging satellite. IKONOS complements the various other satellite and aerial imaging sources Space Imaging already has access to. The company's digital earth information products, marketed under the CARTERRA™ brand name, are used in a variety of commercial and government industries worldwide.

Spot Image Corporation

BOOTH #305

1897 Preston White Drive
Reston, VA 20191
P: 703-715-3100
F: 703-648-1813
E: Theimagekings@spot.com
www.spot.com

Spot Image Corporation, Reston, Virginia, is the U.S. office of the international SPOT system, including 3 operational satellites, 23 ground receiving stations and a worldwide distribution network. Products include raw imagery, digital orthoimagery, digital elevation models, and land-use classifications. Specific formats provide compatibility with GIS, desktop mapping, visualization and image processing software.



StorageTek

2270 S. 88th Street, MS 4341
Louisville, CO 80028
P: 303-673-7945
F: 303-661-5478
www.stortek.com

BOOTH #109

The Geospatial Knowledge System (GKS) developed by StorageTek, a world leader in intelligent network storage, allows Government, satellite data providers, and businesses to easily and quickly store, view, share, and distribute spatial data in minutes to users and the public. It provides online data access and unlimited storage capacity. The GKS design combines a web-based GUI with storage hardware and software into a seamless solution that overcomes today's data storage and accessibility problems.

University of Wisconsin Environmental Remote Sensing Center

AOSS Building 1203
1225 W. Dayton Street
Madison, WI 53706
P: 608-262-1585
F: 608-262-5964
E: tpolsen@facstaff.wisc.edu
<http://rs320h.ersc.wisc.edu/ersc>

BOOTH #309

Geospatial research, commercial innovations and professional development together create dynamic projects and learning opportunities at the University of Wisconsin-Madison. NASA Regional Earth Science Applications Center and ARC programs are shaping and extending the value of imagery from EOS-era land satellites and experimental imaging platforms; and they foster productive partnerships between academic institutions, government and industry. A new non-thesis Sloan Foundation Masters degree emphasizing the management of geospatial projects complements established science-focused Masters and Doctoral programs.

USDA Forest Service

Sydney R. Yates Federal Building
201 14th Street, SW
at Independence Avenue
Washington, DC 20024
P: 202-205-8333
E: mailroom/wo@fs.fed.us
www.fs.fed.us

BOOTH #104

The USDA Forest Service has the Federal responsibility for National leadership in forestry. It fulfills that responsibility in 4 main program areas: Sustainable, multiple-use management of the National Forests and Grasslands; Cooperative forestry assistance to states, local governments and private citizens; Forestry research; and International assistance in forestry and environmental conservation. The Forest Service uses remote sensing technology extensively to classify and manage the land resources and to detect change.

US Geological Survey

EROS Data Center
Sioux Falls SD 57198
P: 888-ASK-USGS
F: 888-ASK-USGS
E: ask@usgs.gov
www.usgs.gov

BOOTH #103

The USGS, the nation's largest science agency, is hosting an exhibit that features information and demonstrations on the use and application of USGS satellite imagery. Special emphasis will be placed on how to browse, order, and use Landsat 7 data.

Vexcel Corporation

4909 Nautilus Court
Boulder, CO 80301
P: 303-444-0094
F: 303-444-0470
E: info@vexcel.com

BOOTH #405

Vexcel Corporation is an internationally recognized systems engineering company doing business in remote sensing processing systems, advanced SAR research and development, close-range and aerial photogrammetry, mapping systems and services, and telemetry systems. The company provides engineering services and markets a line of related software and hardware solutions. Vexcel is currently celebrating its 15 year anniversary in business.

TRADE PUBLICATIONS EXHIBIT

located outside the Exhibit Hall
(Grand Ballroom/Pre-function area)

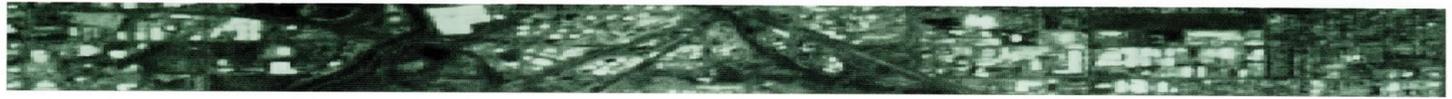
Earth Observation Magazine (EOM)

4901 East Dry Creek Road, Suite 170
Littleton, CO 80122
P: 303-713-9500
F: 303-713-9944
www.eomonline.com

GeoTec Media/GeoWorld

2101 S. Arlington Heights Road, Suite 150
Arlington heights, IL 60005
P: 847-427-9512
F: 847-427-2079
www.geoplacement.com

The GeoTec Media division of Adams Business Media is comprised of *GeoWorld*, *GeoEurope*, *GeoAsia Pacific*, and *Business Geographics*. For more than a decade these publications have been recognized for their hard-hitting news stories and comparative reviews. The group consists of the world's leading integrated spatial technologies publications. GeoTec Media's readers are professionals in a wide variety of industries and professions with purchasing influence for geospatial hardware, software, data products and services.



GITC

Nieuwedijk 43
8531 HK Lemmer
The Netherlands
P: 31-514-561854
F: 31-514-563898
E: wilmiene.bakker@gitc.nl
www.gitc.nl

GITC bv is an independent publishing company at the forefront of world-wide information dissemination in the international field of geomatics and hydrography. GITC publishes business magazines, reflecting a technical and management perspective on the latest news and developments in the industry and market place, plus market studies. It also provides consultancy and service, through the medium of information exchange. GITC publishes the following journals: *GIM* (Geomatics Info Magazine), *Professional Surveyor*, *HYDRO International*, and *Surveying World*.

Launchspace Magazine

7929 Westpark Drive, Suite 100
McLean, VA 22102
P: 703-749-2324
F: 703-749-3177
www.launchspace.com

Launchspace is the magazine of the space industry, reaching over 60,000 professionals. Each issue focuses on significant industry programs and is free to qualified space professionals.

Space News

6883 Commercial Drive
Springfield, Virginia 22159
P: 703-642-7330
F: 703-642-7386
www.spacenews.com

SPACE NEWS is the authoritative weekly newspaper for the global space community. We cover space policies, political & legislation, NASA, ESA & space agency programs, satellite communications, new products & advanced technologies, interviews with worldwide space leaders, satellite manufacturing, operation & applications, remote sensing and space exploration activities. Stop by and pick up your free copy.

COVER COLLAGE

Background image:

Landsat 7 image of Metropolitan Denver
Courtesy of EROS Data Center

Border Images, from top to bottom:

Shipping traffic on the Columbia River (upper left) and the Portland International Airport (top middle) can be seen in this full resolution (30-meter/pixel) Landsat 7 sub-scene.

Courtesy of EROS Data Center

Satellite image from SPOT XS (August 23, 1995) shows that the process of deurbanization contributed to changes in the landscape of the Chernobyl Risk Area.

Taken from Viktor Shevchenko's paper on Processing of Multiwave Remote Sensing Data For Ecological Risk Monitoring In The Chernobyl Area.

Space Imaging released the world's first high-resolution commercial satellite image of the Earth in October. The one-meter resolution black-and-white image of Washington, D.C., collected by Space Imaging's IKONOS satellite, has unprecedented clarity and detail for commercial

space imagery. The image showcases part of the Mall area in the heart of Washington D.C., and is downloadable from the Space Imaging Web site.

Courtesy of Space Imaging

10-day Maximum Composite Image of Normalized Difference Vegetation Index for the Period 11-20 September 1999.

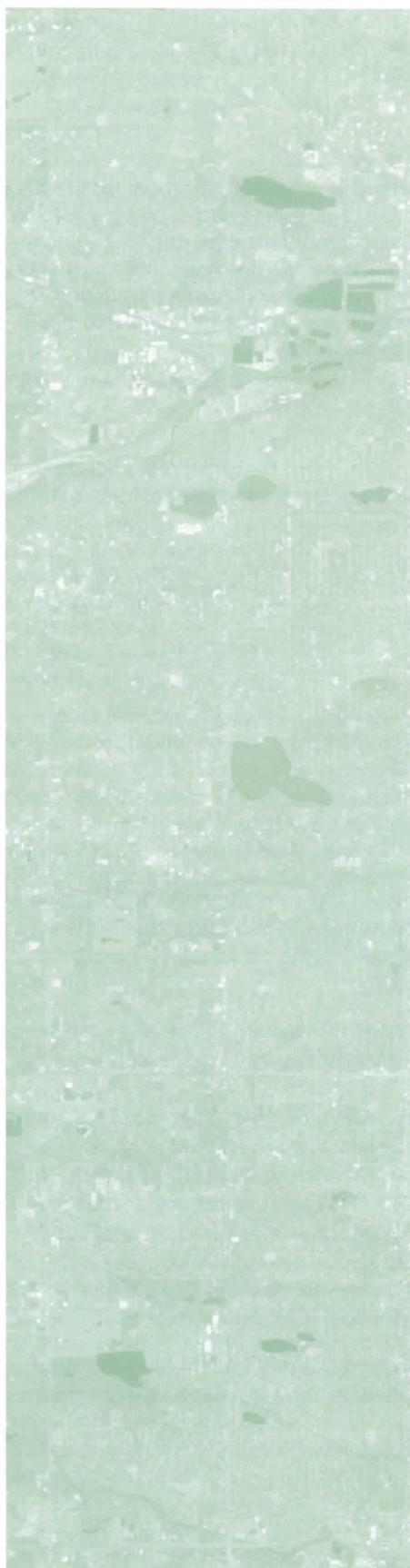
NDVI processed from NOAA/AVHRR (Advanced Very High Resolution Radiometer) data by NASA/GIMMS (Global Inventory Monitoring and Modeling Studies). Image prepared by USGS/EDC (EROS Data Center) for USAID/FEWS (U.S. Agency for International Development/Famine Early Warning) project.

Taken from Eric Wood's paper on Applying The USGS Geospatial Data Archives To Health Surveillance.

"Radarsat image processed using PCI Geomatics Agroma® software. Image supplied by Canada Centre for Remote Sensing (CCRS)."

Courtesy of PCI Geomatics

SPONSORING ORGANIZATIONS



CONFERENCE ORGANIZER

ASPRS: The Imaging & Geospatial Information Society

ASPRS, serving more than 7,000 members throughout the US and abroad, is committed to providing the highest quality spatial information to all people for effective decision-making and better understanding to improve their quality of life. Founded in 1934, ASPRS's mission is to advance knowledge and improve understanding of mapping sciences to promote the responsible application of photogrammetry, remote sensing, geographic information systems, and supporting technologies. Through its monthly journal, *Photogrammetric Engineering and Remote Sensing*, extensive publications and certification programs, workshops and conferences, ASPRS promotes, establishes, and facilitates core and supporting technologies; integrates and applies core and supporting technologies; and advances responsible practice. For more information, visit the web site at www.asprs.org.

CO-ORGANIZER

North American Remote Sensing Industries Association (NARSIA)

An industry association dedicated to commercial remote sensing advocacy. NARSIA is the forum to define and promote issues to benefit the commercial remote sensing industry. As such, it represents private-sector efforts in all space-and ground-segment aspects of remote sensing. NARSIA works to ensure that industry concerns are heard and understood by program officials and policy makers in the federal agencies, as well as legislators in Congress. NARSIA seeks to "grow" its end-user base through market studies and outreach programs aimed at current and future customers. NARSIA strives to construct a mainstream constituency by educating the public on benefits derived through use of remote sensing technologies. We maintain relationships domestically with the education system that provides our talented work-force. And we maintain relationships internationally with the global commercial remote sensing community. Membership is open to all companies involved in all phases of remote sensing/GIS/GPS. For more information, contact: felsher@tmn.com.

SPONSORING AGENCIES

National Aeronautics & Space Administration (NASA)

NASA's broad mission is driven by the Space Act of 1958. It directs NASA to conduct space activities devoted to peaceful purposes for the benefit of all humankind. NASA preserves the leadership of the U.S. in aeronautics and space science and technology; expands the knowledge of the Earth and space; conducts human activities in space; encourages the fullest commercial use of space; cooperates with other nations; and communicates the results of our efforts widely. For more information visit the web site at www.nasa.gov.

U.S. Geological Survey (USGS)

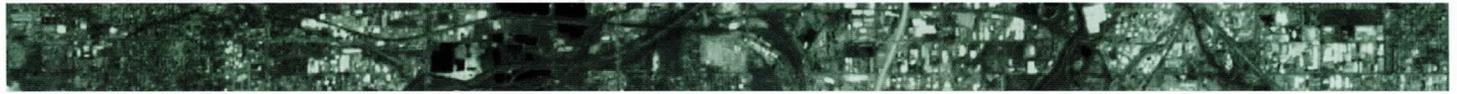
As the country's largest natural-resource science agency, the USGS provides the Nation with reliable, impartial geologic, topographic, biologic, and hydrologic data and information. USGS information is used to minimize the loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; enhance and protect the quality of life; and contribute to sound economic and physical development. For more information visit the web site at www.usgs.gov.

National Oceanic and Atmospheric Administration (NOAA)

NOAA conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to describe and predict changes in the Earth's environment, and conserve and manage wisely the Nation's coastal and marine resources to ensure sustainable economic opportunities. As the world's fourth largest space organization, NOAA's satellites provide essential information for accurate weather forecasts, monitor winter snowpack across the country and gauge the health of coastal estuaries. NOAA's global data centers distribute vast stores of information and provide climate, oceanographic and geophysical reports vital to the public and industry. For more information visit the web site at www.noaa.gov.

U.S. Department of Agriculture (USDA), Agricultural Research Service

As the in-house research arm of the USDA, the Agricultural Research Service has a mission



to: conduct research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to ensure high-quality, safe food, and other agricultural products, assess the nutritional needs of Americans, sustain a competitive agricultural economy, enhance the natural resource base and the environment, and provide economic opportunities for rural citizens, communities, and society as a whole. Where appropriate remote sensing techniques have been used extensively to address these problems. For more information visit the web site at www.ars.usda.gov.

Environmental Protection Agency (EPA)

The EPA protects public health and safeguards and improves the natural environment — air, water, and land - upon which human life depends. EPA ensures that Federal environmental laws are implemented and enforced fairly and effectively; that national efforts to reduce environmental risk are based on the best available scientific information; and that all parts of society - business, state and local governments, communities, citizens - can access information so they can fully participate in preventing pollution and protecting human health and the environment. For more information visit the web site at www.epa.gov

The National Imagery and Mapping Agency (NIMA)

The mission of NIMA is to provide timely, relevant and accurate imagery, imagery intelligence, and geospatial information in support of national security objectives. NIMA was established on October 1, 1996 and, as a Department of Defense (DoD) combat support agency, has the additional mission of supporting national-level policy makers. NIMA is also a member of the National Intelligence Community and is the single entity upon which the U.S. Government relies to coherently manage the previously separate DoD imagery and mapping disciplines. Finally, the DoD has directed NIMA to serve as the sole DoD action agency for all purchases of commercial and foreign government-owned imagery related remote sensing data by the DoD components. For more information visit the web site at www.nima.mil.

U.S. Department of Transportation, (DOT)

The mission of the DOT is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future. The DOT consists of the Office of the Secretary and eleven individual operating administrations that cover land, water, air, and space transportation. For additional information see the web page: www.dot.gov.

The Federal Highway Administration (FHWA) coordinates highway transportation programs in cooperation with states and other partners to enhance the country's safety, economic vitality, quality of life, and the environment. The FHWA also manages a comprehensive research, development and technology program that includes spatial data and remote sensing. For more information visit the web site at www.fhwa.dot.gov.

U.S. Department of Energy (DOE)

The Department of Energy is a leading science and technology agency whose research supports our nation's energy security, national security, environmental quality, and contributes to a better quality of life for all Americans. The Department of Energy contributes to the future of the nation by ensuring our energy security, maintaining the safety and reliability of our nuclear stockpile, cleaning up the environment from the legacy of the Cold War, and developing innovations in science and technology. For more information visit the web site at <http://home.doe.gov/>.

COOPERATING ORGANIZATIONS

ERIM International

International Society for Photogrammetry and Remote Sensing

National State Geographic Information Council

American Association of State Highway and Transportation Officials, Task Force on GIS Transportation Research Board

Management Association for Private Photogrammetric Surveyors

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Susan Embrock, *Raytheon ITSS/ EROS Data Center*

Volunteer Coordinator

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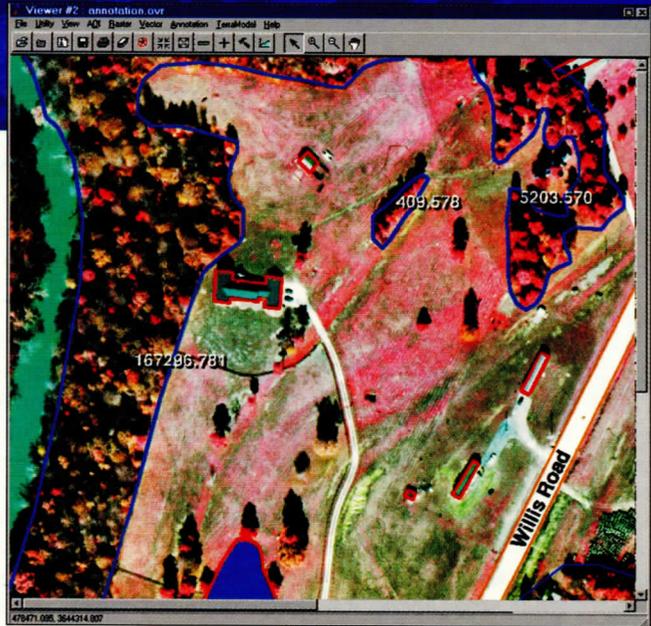
Technical Tour Coordinator

Tina Cary, *Cary and Associates*

Poster Session Coordinator

Jesslyn Brown, *Raytheon ITSS/ EROS Data Center*

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ERDAS IMAGINE® is the world's leading Geographic Imaging solution for the GIS industry, with cost-effective, scalable products for combining satellite imagery, aerial photography, scanned maps and other raster data with your GIS.

- Use existing imagery in its native format
- Orthorectify and reproject imagery
- Classify/categorize imagery
- Automatically mosaic and color balance multiple images
- Analyze and extract information from imagery
- Edit and create ESRI ArcInfo coverages and Shapefiles without conversion
- Fully integrate ESRI SDE data
- Extract vector features automatically

Find out more about Geographic Imaging solutions by ERDAS®

www.erdas.com

ERDAS

IMAGINE®

**“If interoperability
with ArcInfo is
important, it's
clearly the
product to buy”**

*— GeoWorld Magazine,
May 1999*

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geographic imaging made simple™

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Phone: +1 404-248-9000
Fax: +1 404-248-9400

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Asia/Pacific Rim**
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