The 17th William T. Pecora Memorial Remote Sensing Symposium

November 16 - 20, 2008 • Denver, Colorado

PECORA 17

The Future of Land Imaging

...Going Operational

Final Program

Lead Sponsors
U.S. Geological Survey (USGS)
National Aeronautics and Space Administration (NASA)

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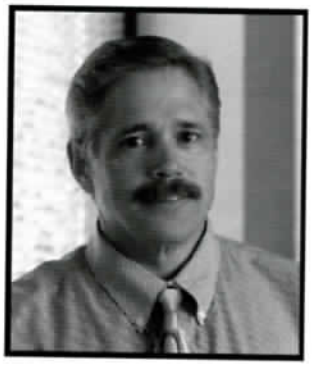

As Steering Committee Chair of the 17th William T. Pecora Memorial Remote Sensing Symposium, I am delighted to have this opportunity to welcome you to Denver, Colorado for this exciting technical program. During the Symposium, with an eye toward the future, we will examine the full range of issues around the theme of "The Future of Land Imaging…Going Operational."

In 1966, through the vision and support of Dr. Pecora, Secretary of the Interior Stewart Udall announced the beginning of "Project EROS" - Earth Resources Observation Satellites - a revolutionary program aimed at gathering facts about the natural resources of our planet from Earth-orbiting satellites carrying remote sensing instruments. That announcement stimulated a partnership between the National Aeronautics and Space Administration (NASA) and the Department of the Interior, U.S. Geological Survey (USGS) that resulted in the 1972 launch of the first Earth Resources Technology Satellite, eventually dubbed "Landsat." In recognition of that historic announcement, the Honorable Congressmen Mark Udall and Tom Udall have been invited to share their thoughts and insights for extending well into the future the original vision for an "operational Earth Resources Observation Satellite (EROS)" Program, as envisioned by Stewart Udall and others, over 40 years ago. Prior to the Congressmen's remarks we will have a special showing of An Idea That Worked – a Stewart Udall commemorative video produced by the USGS.

The keynote address by Dr. Berrien Moore, executive director, Climate Central, Inc. will highlight the findings of the Decadal Survey for Earth Sciences, which he chaired, and address the innumerable environmental challenges facing the world. In addition, Dr. Gene Whitney, research manager for the Energy and Minerals Section of the Congressional Research Service in the Library of Congress, will provide comments on the Future of Land Imaging – Beyond LDCM, titled "Future Opportunities and Hurdles for an Operational Landsat." ASPRS President Kass Green will talk on "Using Moderate Resolution Satellite Imagery for Global Monitoring of Critical Issues – The Need for an Operational National Land Imaging Program."

Through the leadership and commitment of the USGS, NASA, all of the Symposium sponsors, and especially the Technical Program Committee Chairs – June Thormodsgard and Darrel Williams, we have compiled an outstanding program. A special focus of Pecora 17 will be to examine the current and future pathways to transition remote sensing technology and information access from experimentation and exploration to operational monitoring of land surface change.

There will be three general sessions, one featuring past Pecora award recipients and two featuring international speakers focusing on use, availability, and applications of Synthetic Aperature Radar and Multi-Spectral Imagery. The conference will close with a look to a session on "The New Landsat Era – The Future is Now." The Symposium clearly continues the Pecora tradition of focusing on the applications of satellite and other remotely-sensed data to study, monitor, and manage the Earth's land surface, as well as technologies to improve satellite data analyses, quality, access, and preservation.

Also, please join us for the Wednesday evening celebration recognizing 25 years of continuous observations of the Earth from Landsat 5. The combination of technical sessions, policy discussions, posters, workshops, and exhibits at Pecora 17 comprise a unique opportunity for you to share experiences, successes, and ideas.

Thomas M. Holm
Steering Committee Chair
Pecora 17 Symposium

Steering Committee Members

Tom Holm, Chair
U.S. Geological Survey/EROS

June Thormodsgard, Technical Committee Co-Chairs
U.S. Geological Survey/EROS

Darrel Williams, Technical Committee Co-Chairs
NASA/Goddard Space Flight Center

Henry Bastian
DOI/OWFC

Amy Budge
Earth Data Analysis Center, University of New Mexico

Brad Doorn
U.S. Department of Agriculture/FAS

Joanne Gabrynowicz
University of Mississippi, School of Law

Ed Grigsby
National Aeronautics and Space Administration

John Gross
National Park Service

Larry Handley
U.S. Geological Survey/BRD

Jim Irons
NASA/Goddard Space Flight Center

John Lyon
U.S. Environmental Protection Agency

Jim Merchant
University of Nebraska - Lincoln

Carolyn Merry
The Ohio State University

Carol Mladinich
U.S. Geological Survey/ASPRS Rocky Mountain Region

Rick Mueller
U.S. Department of Agriculture/NASS

Bruce Quirk
U.S. Geological Survey/LRS

Kristi Sayler
U.S. Geological Survey/EROS

William Stoney
Mitretek

Mike Story
National Park Service

Kay Weston
National oceanic and Atmospheric Administration

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ASPRS Meeting Schedule

Save the dates!!!

ASPRS 2009 Annual Conference
75th Anniversary of ASPRS
March 8 – 13, 2009
Baltimore Marriott Waterfront Hotel
Baltimore, Maryland

ASPRS/MAPPS 2009 Fall Conference
November 16 – 19, 2009
Crowne Plaza Hotel
San Antonio, Texas

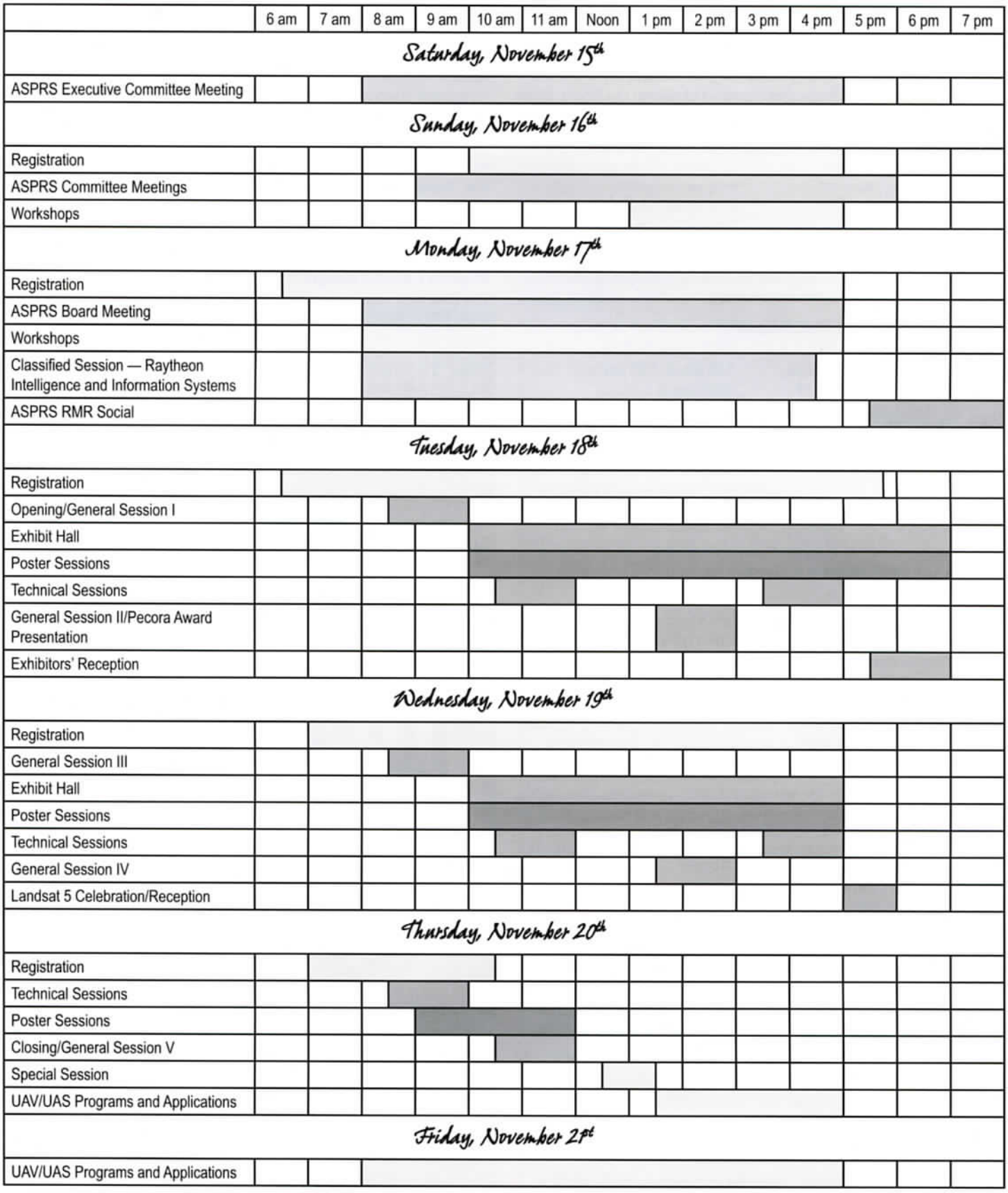
ASPRS 2010 Annual Conference
April 26 – 30, 2010
Town and Country Hotel
San Diego, California

ASPRS 2011 Annual Conference
May 1 – 5, 2011
Midwest Airlines Center/Hyatt Hotel
Milwaukee, Wisconsin

Check www.asprs.org for updates and important program information.

Sponsors

Conference-at-a-Glance



Frequently Asked Questions

How do I get help in an Emergency?
Contact an ASPRS staff person or pick up any hotel house phone and ask for Security. Give all details of the emergency including the location.

Where is the ASPRS Conference Registration Desk?
The ASPRS Conference Registration Desk is located in the Tower Building on the Second Floor of The Sheraton Denver Hotel.

What are the Conference Registration Desk Hours?

Sunday, Nov. 16	10:00 am to 5:00 pm
Monday, Nov. 17	6:30 am to 5:00 pm
Tuesday, Nov. 18	6:30 am to 5:45 pm
Wednesday, Nov. 19	7:00 am to 5:00 pm
Thursday, Nov. 20	7:00 am to 10:30 am

Note: Once the Conference Registration Desk is closed, materials will not be available until the following morning.

What are the Exhibit Hall Hours?

Tuesday, Nov. 18	10:00 am to 7:00 pm
Exhibitors' Reception	5:30 pm to 7:00 pm
Wednesday, Nov. 19	10:00 am to 5:00 pm

Note: The Exhibit Hall will not be open on Thursday, November 20.

Are Workshops included with the registration fees?
No. Workshops require individual registration and a separate fee in addition to the general conference registration fees. Availability is based on space. We do not reserve spaces without full payment in advance and there is no waiting list. ASPRS reserves the right to cancel any workshop if the minimum number of registrations were not received by October 17, 2008. On-site registration is available for confirmed workshops with available space.

What should presenters do after they register?
ALL PRESENTERS MUST CHECK-IN IN THE PRESENTERS' ROOM (Aspen Room – Mezzanine Level.) - AS SOON AS THEY ARRIVE AT THE CONFERENCE. A Master Program will be posted. Please put your initials and cell phone number or hotel room number beside your name on this Master Program. This will be our way of knowing that you have arrived and that we don't have a no-show situation

Do presenters bring their own laptops?
Yes, ASPRS does not provide laptops or desktop computers, laser pointers or flip charts for speakers. However, projectors will be provided in all meeting rooms.

Do Presenters have a Preparation Room?
Yes, the Aspen Room, Mezzanine Level, has been reserved for you. The room will be available on a first come basis from 8 am to 5 pm Monday, November 17, Tuesday, November 18 and Wednesday, November 19 and 8 am to 12 noon Thursday, November 20 for rehearsal only. This room will be equipped with an LCD projector and screen. All presenters must bring their own laptops for all presentations. We encourage all presenters to review their materials prior to their presentation.

Do Moderators need to check-in?
Yes, as soon as you arrive, go to the Presenter Room (Aspen Room, Mezzanine Level). A Master Program will be posted. Please put your initials and cell phone number or hotel room number beside your name on this Master Program. We are asking the presenters to do the same thing. This will be our way of knowing that moderators and presenters have arrived and that we don't have a no-show situation.

Prior to your session, check back in the Presenter Room to confirm that all of your presenters have arrived at the conference (by checking on the Master Program).

Is there an ASPRS staff office in the hotel?
Yes, the ASPRS staff office is located in the Tower Court A Room on the Second Floor.

Where should Student Assistants and Volunteers report?
All Student Assistants and Volunteers should check in with the Coordinator in the Tower Court B Room on the Second Floor at least 15 minutes before their scheduled start time.

Will there be a Press Room?
Yes, Tower Court D Room on the Second Floor is reserved for use by members of the press who have registered for the conference. All attendees are encouraged to place applicable press releases in this room for distribution to the press.

Why do I need a badge?
You paid your registration fee and your badge is proof of it. For entrance to the keynote, plenary and technical sessions, and Exhibit Hall, you need to wear your name badge.

What if I forget or lose my badge?
A charge of $5 will be made for replacement of lost badges.

Why do I need tickets for certain events?

Your tickets are proof of payment for certain events and must be presented at the collection point. Lost tickets will not be replaced.

How can I visit the Exhibit Hall if I am not registered for the conference?
Daily Exhibit Hall badges may be purchased at the ASPRS Registration Desk in The Sheraton Denver Hotel. Everyone entering the Exhibit Hall must have a name badge, including children over 12 years of age. Children under 12 years of age are not permitted in the Exhibit Hall at any time due to insurance and safety regulations.

Will it be possible to post resumes and job openings?
Yes, posting boards are provided in the Exhibit Hall for all resumes and job openings. Please bring multiple copies of all postings to allow interested parties to take one and check the board frequently for new materials.

How do I get a copy of the CD-ROM Proceedings?
All registrants, except for Spouse/Guest, will receive a copy on-site with the registration materials. Additional copies can be ordered with the Conference Registration Form or purchased on-site for $20 at the ASPRS Booth in the Exhibit area.

How do I contact other Conference attendees?
A message board is located in the ASPRS Registration Area – Second Floor.

How can someone from outside the hotel contact me?
Messages cannot be personally delivered to Conference attendees due to the varied schedules of everyone in attendance. Messages can be left in the rooms of those staying at The Sheraton Denver Hotel through the hotel telephone operator. Packages and fax messages can be sent to individuals staying at the hotel. They should be addressed to the individual at the following address:

Sheraton Denver Hotel
1550 Court Place
Denver, Colorado
(303) 893-3333; (303) 626-2543 (fax)

Is there a Lost and Found?
Please contact Hotel Security through the hotel house phones for all lost and found items.

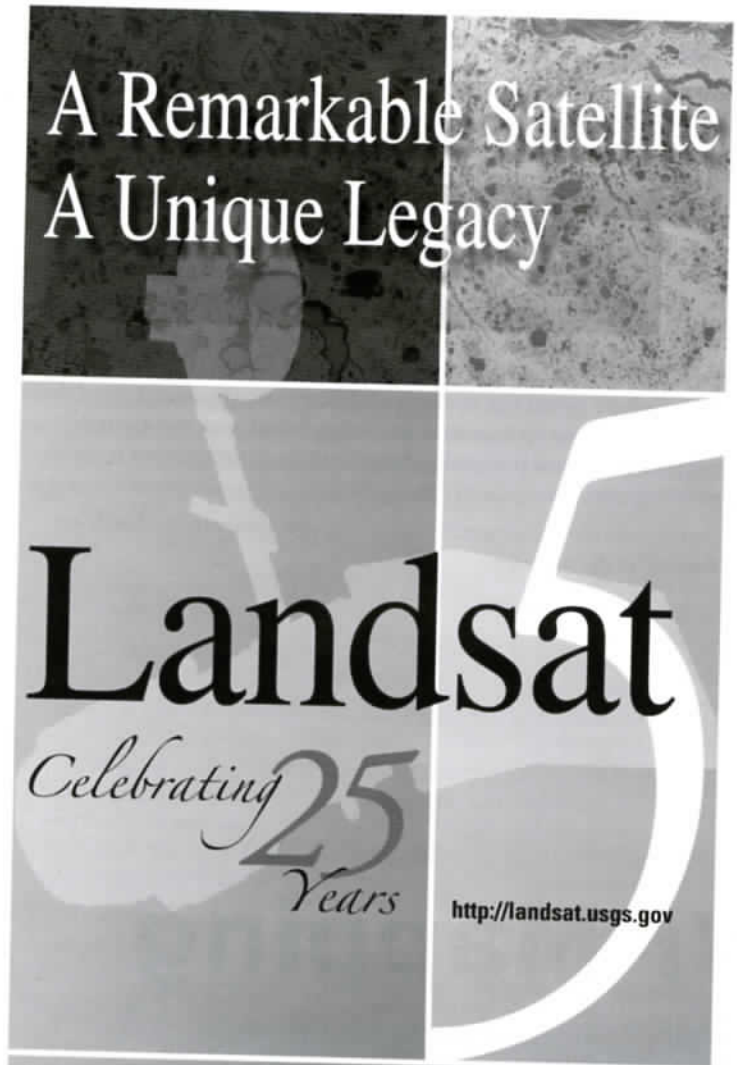
Saturday, November 15 to Sunday, November 16

ASPRS Committee Meeting

Executive Committee
8:00 am to 5:00 pm
Room: Directors Row J

ASPRS Student Assistants' and Volunteers' Orientation Meeting

5:30 pm to 6:30 pm
Room: Gold



There will be a celebration of the remarkable success of Landsat 5, the "workhorse" satellite for land observations, Wednesday November 19, 2008, as part of the Pecora 17 conference. The celebration, sponsored by Lockheed Martin and Ball Aerospace and Technologies Corp., will take place in the Grand Ballroom II, Tower Building, Sheraton Hotel from 5:00 to 6:00 p.m.

Landsat 5, launched on March 1, 1984, was designed to collect data for 3 years. Remarkably, on March 1 of this year it began its 25th year of data collections and has been recognized as an important foundation for the global earth observation industry.

Sunday, November 16

ASPRS Division and Committee Meetings

Division Directors
Committee Chairs
9:00 am to 10:00 am
Room: Terrace

Electronic Communications Committee
10:00 am to 11:00 am
Room: Capitol

Geographic Information Systems Division
10:00 am to 12 noon
Room: Terrace

Sustaining Members Council
11:00 am to 12 noon
Room: Beverly

Journal Policy and Publication Committees
11:00 am to 12 noon
Room: Capitol

Data Preservation and Archiving Committee
11:00 am to 12 noon
Room: Columbine

Photogrammetric Applications Division
Lidar Subcommittee
1:00 pm to 3:00 pm
Room: Terrace

Convention Policy and Planning Committee
1:00 pm to 3:00 pm
Room: Columbine

Professional Practices Division
1:00 pm to 3:00 pm
Room: Capitol

Education and Professional Development Committee
3:00 pm to 5:00 pm
Room: Beverly

Primary Data Acquisition Division
3:00 pm to 5:00 pm
Room: Terrace Room

Remote Sensing Applications Division
3:00 pm to 5:00 pm
Room: Columbine Room

By-Laws Committee
5:00 pm to 6:00 pm
Room: Capitol

Division Directors
5:00 pm to 6:00 pm
Room: Terrace

Student Advisory Council
5:30 pm to 6:30 pm
Room: Beverly

Sunday, November 16

Workshop 1

Hyperspectral Imagery Processing and Feature Extraction: Maximizing Geospatial Information Retrieval

William Farrand, *Space Science Institute*
Stuart Blundell, *Visual Learning Systems, Inc.*
1:00 pm to 5:00 pm, CEU .4
Room: Gold

INTERMEDIATE Workshop: Intended for users of remote sensing data including analysts who may have used multispectral data and GIS systems and are now interested in using hyperspectral data and feature extraction in their work. Also appropriate for managers who must make decisions about what kind of remote sensing data to purchase for their projects and/or what kind of image processing or feature extraction software they should purchase.

In this workshop, we will provide students with an introduction to the phenomenology of imaging spectrometry, hyperspectral image processing techniques, and feature extraction approaches to demonstrate how to add value to the maintenance of geospatial databases. We will emphasize that the added value in imaging spectrometry is on the spectrometry, the ability to identify materials based on their reflectance signatures. We will briefly discuss the phenomenology of reflectance spectrometry and explain why some materials are more amenable to mapping than others. We will describe commercially available processing systems that are available for processing hyperspectral and multispectral data and discuss the processing techniques within those packages. Certain processing techniques are better suited to certain applications. We will explain why this is so. The student will be introduced to the concepts of developing feature extraction models for assisted and automated feature extraction approaches using hyperspectral, lidar, DEMs and multispectral data within a GIS. We will provide real-world examples of how end products, derived from hyperspectral and multispectral data processing, including resultant mineral and vegetation species maps, can be extracted using the Feature Analyst software.

We will provide a package of materials to the students that will include hard copies of the material presented and an extensive list of references on the topics addressed.

Workshop 2

Image Interpretation

Charles Olson, Professor Emeritus, *University of Michigan*
1:00 pm to 5:00 pm, CEU .4
Room: Century

INTRODUCTORY Workshop: Anyone desiring to extract information from remotely sensed data, especially in those situations when automated methods cannot get the job done with sufficient accuracy.

Human interpreters routinely map land cover with accuracy above 90 percent. In this workshop we will explore how they do it.

Workshop 3

Advanced Classification

Ranga Raju Vatsavai, *Oak Ridge National Laboratory*
1:00 pm to 5:00 pm, CEU .4
Room: Spruce

ADVANCED Workshop: Though basic principles will be covered, we assume the attendees are familiar with basic classification schemes (e.g., techniques offered in commercial systems such as ERDAS Imagine or PCI Geomatica).

The primary objective of this workshop is to bring recent advances in classification technology to the remote sensing analyst. Through this workshop we would like to disseminate the basic principles behind these new classification and machine learning schemes, and give the participants a firsthand practical experience through open source research prototype systems.

Participants are encouraged to bring a lap-top computer for hands-on training of the software.

Monday, November 17

ASPRS Board of Directors Meeting

Board of Directors
8:00 am to 5:00 pm
Room: Columbine

Classified Session

8:00 am to 4:30 pm

Classified Level
This session is offered at the TS/SCI level.
Attendees must be U.S. citizens and have a TS/SCI clearance.

The program is jointly organized by the National Geospatial-Intelligence Agency (NGA) and the U.S. Geological Survey (USGS)/ Civil Applications Committee.

The NGA portion of the session will focus on Feature-based Registration. Topics will include a review and overview of the Registration Problem and Critical Needs, 3D Voxcel Registration, Photogrammetric Registration issues, and data specific Registration issues.

The USGS portion of the session will cover general topical areas such as climate change, environmental monitoring, Advanced Education Opportunity and Unmanned Aircraft Systems (UAS).

Transportation
Bus transportation for attendees will be begin loading from the Sheraton Hotel main entrance at 6:45 am and depart promptly at 7:00 am for the Raytheon facility. Only attendees who have submitted clearances to Raytheon Company Security Office and the session POC will be allowed on board. Passengers also must have a photo ID to enter Raytheon.

Continuing Education Units (CEUs)

ASPRS, in conjunction with the University of Maryland, College Park, is pleased to offer Pecora 17 workshop attendees the opportunity to earn Continuing Education Credits (CEUs). All attendees are eligible for CEUs if they attend any of the workshops, register on site for CEUs, and pay the processing fee of $25. For each workshop attended, one CEU for every 10 hours of eligible sessions attended is awarded to CEU registrants. (Full day workshops are eight (8) hours and receive 0.8 CEUs. Half day workshops are four (4) hours and receive 0.4 CEUs). Forms and payment are accepted on site only at the Conference Registration Desk.

CEU participants will receive a certificate of completion awarded by the University of Maryland, College Park, approximately one month after the conference. If certificate is not received within 60 days after the conference, contact ASPRS.

Please note: CEUs are awarded to workshop attendees only. Technical sessions, general sessions, poster sessions, or any other scheduled special event at this conference are not eligible for CEUs.

Workshop registration fees are NOT included in the full Conference registration fee. Workshops require separate registration and payment for each workshop.

On-site registration for all workshops is on a space available basis. Please check with the Conference Registration Staff regarding availability.

Workshop 4

Emerging Technologies in Photogrammetry and Remote Sensing
Mike Renslow, *Renslow Mapping Services*
Claire Kiedrowski, *KAPPA Mapping, Inc.*
8:00 am to 5:00 pm, CEU .8
Room: Denver

INTERMEDIATE Workshop: This workshop provides an overview of emerging technologies and their impact on photogrammetry and remote sensing methodologies. The advance towards full digital mapping from start to finish, and the capacity to capture very large amounts of data supported by rapid processing and software will alter the way maps and imagery are produced in the near future. At the same time, active sensors, hand-held data collection devices, and feature extraction are changing fundamental mapping procedures and the way data are supplied to GIS.

Participants will receive an overview of the systems, technologies, and impacts on mapping in the next two to three years, as well as, the institutional issues involved in implementation.

Workshop 5

Grid-Based Map Analysis and GIS Modeling
Joseph K. Berry, *University of Denver and Berry & Associates*
8:00 am to 5:00 pm, CEU .8
Room: Gold

INTERMEDIATE Workshop: Attendees should be comfortable with the basic concepts in GIS and math/stat procedures and have an interest in map analysis/modeling.

This workshop provides experience with the concepts, underlying theory, data considerations, procedures, and practical considerations in applying advanced grid-based map analysis techniques. It investigates spatial analysis and spatial data mining approaches using numerous hands-on examples of analytical techniques and applications from natural resources management, environmental assessment, precision agriculture and geo-business. Specific topics include the Nature of Grid-based Data (discrete spatial objects vs. continuous map surfaces), Spatial Analysis Operations (operators for assessing "geographical context" within and among map layers; Reclassify, Overlay, Distance and Neighbors), Spatial Statistics Operations (operators for assessing "numerical context" within and among map layers; Surface Modeling and Spatial Data Mining) and Future Directions (alternative data structures; GeoExploration vs. GeoScience). The workshop follows the organization of the instructor's chapter on "GIS Modeling and Analysis" in the forthcoming ASPRS *Manual of Geographic Information Systems*. Each participant receives a CD with lecture materials, related readings and software/exercises for hands-on experience as homework.

Monday, November 17

Workshop 6

Preparing For ASPRS Certification
Robert Burtch, *Ferris State University*
Rakesh Malhotra, *North Carolina Central University*
8:00 am to 5:00 pm, CEU .8
Room: Silver

INTERMEDIATE Workshop: Assumes participants have subject knowledge and are serious about taking the Certification Exam.

The purpose of this workshop is to prepare individuals who are planning to sit for the ASPRS Certification exams as a Certified Photogrammetrist or Certified Mapping Scientist in either Remote Sensing or GIS. The workshop will begin by explaining the purpose and form of the exam. It will then identify key topical areas that an applicant should be aware of prior to taking the exam. Topics will start with a review of the basic concepts and sample questions to show how they will be tested in the exam. Finally, the workshop will try to identify resources in which exam takers should be aware and from which to study in their preparation for the examination.

ASPRS RMR Social

5.30 pm to 8.30 pm
Wynkoop Brewery — Mercantile Room
1634 18th Street, Denver

PECORA17 attendees and their guests are invited to join the Rocky Mountain Region (RMR) of ASPRS for their annual scholarship announcement party during the regular gathering of the Rocky ROGUES. The Wynkoop Brewing Company, Colorado's oldest brew pub is housed in the glorious J. S. Brown Mercantile Building. This social is a great introduction to the spirit of Denver and an ideal opportunity to meet with the Geospatial community in Colorado. The ROGUES have specifically planned this gathering to coincide with PECORA17.

Tuesday, November 18

Opening/General Session 1

8:30 am to 10:00 am
Room: Grand Ballroom II – Second Floor, Tower Building

From a Vision in the '60s to an Operational Program in the 21st Century
Moderator: Tom Holm, *U.S. Geological Survey*

Invited
Congressman Mark Udall and Congressman Tom Udall

Keynotes
Berrien Moore, Executive Director, *Climate Central, Inc.*, and Chair, *Committee on Earth Studies, Space Studies Board, National Research Council, The National Academies*
Gene Whitney, Research Manager, *Energy and Minerals Section, Congressional Research Service, Library of Congress*
Kass Green, President, *Kass Green & Associates*, and current President of ASPRS

In 1966, through the vision and support of Dr. William T. Pecora (former Director of the U.S. Geological Survey), Secretary of the Interior Stewart Udall announced the beginning of "Project EROS" - Earth Resources Observation Satellites - a revolutionary program aimed at gathering facts about the natural resources of our planet from Earth-orbiting satellites carrying remote sensing instruments. That announcement stimulated a partnership between the National Aeronautics and Space Administration (NASA) and the Department of the Interior, U.S. Geological Survey (USGS) that resulted in the 1972 launch of the first Earth Resources Technology Satellite, eventually dubbed "Landsat". To commemorate this historic event, USGS produced a video about Secretary Udall's vision. The Opening Session will feature a special viewing of this video, *An Idea That Worked*. The Honorable Congressman Mark Udall (invited) and Congressman Tom Udall (invited) will share their thoughts and insights for extending the original vision for an "operational Earth Resources Observation Satellite (EROS)" Program another 40 Years.

The Symposium keynote address by Dr. Berrien Moore, will highlight the findings of the Decadal Survey for Earth Sciences, which he chaired, and address the innumerable environmental challenges facing the world. In addition, Dr. Gene Whitney will provide comments on the Future of Land Imaging – Beyond LDCM, titled "Future Opportunities and Hurdles for an Operational Landsat". Kass Green will talk on "Using Moderate Resolution Satellite Imagery For Global Monitoring of Critical Issues – The Need for an Operational National Land Imaging Program."

Berrien Moore III left his longtime position as Director of the Institute for the Study of Earth, Oceans, and Space at the University of New Hampshire to become the founding director of Climate Central. As coordinating lead author of the final chapter of the Intergovernmental Panel on Climate Change's (IPCC's) Third Assessment Report, Moore shared in the 2007 Nobel Peace Prize. Among his other honors are the 2007 Dryden Lectureship in Research from the American Institute of Aeronautics and Astronautics and NASA's highest civilian award, the Distinguished Public Service Medal. Moore holds a Ph.D. in Mathematics from the University of Virginia.

Gene Whitney is Research Manager for the Energy and Minerals Section of the Congressional Research Service in the Library of Congress. Prior to working for Congress, Whitney was Assistant Director for Environment at the White House Office of Science and Technology Policy, Executive Office of the President. He was co-Chair of the U.S. Group on Earth Observations and was the OSTP Principal to the U.S. Climate Change Science Program. He directed the Future of Land Imaging Interagency Working Group, and served as director of the Subcommittee on Disaster Reduction and the Subcommittee on Water Availability and Quality. He has also coordinated the Federal interagency science and technology portfolio for the United States in UNESCO.

Whitney has a Ph.D. in Geology from the University of Illinois, has authored or co-authored numerous scientific papers and abstracts, and has received several national and international awards and fellowships.

Kass Green, President of Kass Green & Associates, consults on geospatial strategy, technology and policy issues to private, educational, and public organizations. Green also provides pro bono advice and consulting to public agencies and non-profit organizations. Five years ago, Green retired as President of Space Imaging Solutions, a division of Space Imaging LLC where she supervised over 200 employees involved in tasks including operation of a digital airborne system, acquisition of airborne and satellite imagery from numerous platforms and sensors, creation of land cover and land use coverage from remotely sensed data using both manual and automated techniques, and the development of desktop and web based geospatial analysis software. Prior to joining Space Imaging, Green was President of Pacific Meridian Resources, a geospatial services company she co-founded in 1988 and grew to 7 offices throughout the United States.

Green received her BS degree in Forestry from the University of California at Berkeley, her MS degree in Resource Policy and Management from the University of Michigan, and advanced to PhD candidacy at the University of California at Berkeley.

Tuesday, November 18

Exhibit Hall

10:00 am to 7:00 pm
Room: Grand Ballroom I – Second Floor, Tower Building

Poster Session

10:00 am to 7:00 pm
Room: South Convention Lobby – Second Floor, Tower Building

Beverage Break

10:00 am to 10:30 am
Room: Exhibit Hall – Grand Ballroom I

Technical Sessions

10:30 am to 12:00 pm

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Remote Sensing Applications to Wildland Fire
Moderator: Henry Bastian, *DOI*
Room: Spruce

Forecasting Distribution of Large Federal-land Fires Utilizing Satellite and Gridded Weather Information
Jeff Eidenshink, *U.S. Geological Survey*

Robert Klaver, Haiganoush Preisler, and Robert Burgan

Environmental Monitoring of Wildland Fires using Historical Landsat Time Series
Kari Pabst, *Arctic Slope Regional Corporation Research and Technology Solutions (ASRC)*

Stephen Howard and Jeffery Eidenshink

Evaluating the use of SRTM data in LANDFIRE Existing Vegetation Height Mapping
Kurtis Nelson, *U.S. Geological Survey*

Birgit Peterson, Josef Kellndorfer, and Wayne Walker

Updating LANDFIRE Data in the Southeastern United States using Landsat Time Series Data
Birgit Peterson, *U.S. Forest Service*

Kurtis Nelson

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Monitoring and Modeling Land Use/Land Cover Change
Moderator: Rick Mueller, *U.S. Department of Agriculture/NASS*
Room: Century

Assessing Moderate Resolution Remote Sensing for Characterizing Sagebrush Structure
Teal Wyckoff, *Wyoming GIS*

Steven Prager and Kenneth Driese

Developing Multi-Scale Remote Sensing Sagebrush Steppe Quantification and Monitoring Methods in Wyoming
Collin Homer, *U.S. Geological Survey*

Cameron Aldridge and Debra Meyer

A Remote Sensing and GIS Method for Detecting Land Surface Areas Covered by Copper Mill Tailings
Russell Schimmer, *University Connecticut*

Regional Variability of Land Cover Change in the Great Plains
Kristi Sayler, *U.S. Geological Survey*

Mark Drummond

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Landsat Data Continuity Mission - Status and Plans
Moderator: Bill Ochs, *NASA*
Room: Silver

The Road to Launching the Landsat Data Continuity Mission
James R. Irons, *NASA Goddard Space Flight Center*

William R. Ochs and Del T. Jenstrom,

LDCM Space Segment Overview
Jeanine Murphy-Morris, *NASA Goddard Space Flight Center*

William Anselm

Landsat Data Continuity Mission Calibration and Validation
Brian Markham, *NASA Goddard Space Flight Center*

James Storey and Ron Morfitt

Operating the Landsat Data Continuity Mission: Data Collection, Archiving, and Distribution
Tom Loveland, *U.S. Geological Survey*

Generation of Standard Products from LDCM OLI Data
John Dwyer, *U.S. Geological Survey*

Tom Loveland

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Government Needs for Commercial Satellite Panchromatic and Multispectral Imagery
Moderator: Robert Eadie, *Intrasearch Inc.*
Room: Gold
Sponsored by the ASPRS Primary Data Acquisition Division (PDAD)

This session will focus on the current and future US government requirements for commercial panchromatic and multispectral satellite remote sensing data. The platform characterization of a variety of commercial US satellite platforms, such as QuickBird, WorldView, Ikonos, GeoEye, as well as the Landsat "Data Gap" platforms will be discussed.

Presenters
Mike Lawless, *Digital Globe*
Erol Morey, *GeoEye*
Jennifer Sabers Willems, *U.S. Geological Survey*

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Global Mapping from Space
Moderator: Sam Goward, *University Maryland*
Room: Denver

Global Land Surveys 1975-2010
Jeffrey Masek, *NASA Goddard Space Flight Center*

Rachel Headley, Garik Gutman, and Raymond Byrnes

Global Irrigated Area Map (GIAM) and Global Map of Rainfed Cropland Areas (GMRCA) at the end of last Millennium using Time-series Remote Sensing
Prasad Thenkabail, *International Water Management Institute*, Sri Lanka

C.M. Biradar, P. Noojipady, V. Dheeravath, M. Gumma, Y.J. Li, M. Velpuri, G.P.O. Reddy, X.L. Cai, and H. Turral

Operational Assessment of Global Crop Status and Market Opportunities with Remotely Sensed Data
Dmitry Varlyguin, *GDA Corporation*

Stephanie Hulina, Luke Roth, Julian Winter, Curt Reynolds, and Brad Doorn

Thermal-based Remote Sensing Models for Prediction of Thermal and Dielectric Soil Properties from Landsat Imagery
Jan Hendrickx, *New Mexico Tech*

Sung-ho Hong, Brian Borchers, Bruce Harrison, and Thomas Ruzycki

The CEOS Land Surface Imaging Constellation contribution to GEO/GEOSS
Kevin Gallo, *NOAA/NESDIS*

G. Bryan Bailey

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Data Exploitation
Moderator: Greg Stensaas, *U.S. Geological Survey*
Room: Colorado

Large Area Scene Selection Interface (LASSI). The methodology used to Select Scenes for the Global Land Survey 2005
Shannon Franks, *University Maryland, College Park*

Rachel Headley

Is 80% Accuracy Good Enough?
Charles Olson, *Michigan Tech Research Institute*

i3Miner: An Automated Framework for Thematic Information Extraction From Large Collection of Remotely Sensed Images
Ranga Raju Vatsavai, *Oak Ridge National Labs*

Shashi Shekhar and Budhendra Bhaduri

Leveraging GIS for Projecting Data in Virtual Earth
Jason Setzer, *Microsoft*

Tuesday, November 18

General Session II

1:30 pm to 3:00 pm
Room: Grand Ballroom II

Insights and Visions of Land Imaging as Seen Through the Eyes of Past Pecora Award Recipients

Moderator: Darrel Williams, *NASA Goddard Space Flight Center*

Presenters
Al Watkins, *SAIC*, formerly *U.S. Geological Survey*
Vince Salomonson, *University of Utah*, formerly *NASA Goddard Space Flight Center*
Compton (Jim) Tucker, *NASA Goddard Space Flight Center*
Stanley A. Morain, *University of New Mexico*

The first Pecora Award was presented in 1974, two years after William Pecora's untimely death at age 59, just a few days before the launch of ERTS-1, and the birth of what we now know as the Landsat era of Earth observation. The first two recipients of the Pecora Award were from the USGS (William A. Fischer) and NASA (William Nordberg). Both men played key roles in the early years of the Landsat program and were instrumental in bringing national and international recognition to the program. The vast majority of subsequent Pecora Award recipients have had strong ties to the Landsat program. As we celebrate the upcoming 25th anniversary of Landsat 5, as well as the official decision to "go operational" more than four decades after Secretary Udall and Pecora announced Project EROS, we have invited several past Pecora Award recipients to share their thoughts on the past, present, and future of Earth observations. We will hear from Al Watkins (Pecora Award 1986); Vince Salomonson (Pecora Award 1987); Compton (Jim) Tucker (Pecora Award 1997); and Stanley A. Morain (Pecora Award 2007). The 2008 Pecora Award will be presented at the end of this session.

Allen (Al) Watkins is a Vice President of SAIC. He was the first Director of the U.S. Geological Survey's (USGS) EROS Data Center in Sioux Falls and served in that position for 17 years prior to becoming Chief of Mapping for the USGS in Reston, VA, in 1990. He retired from the government in 1995 and joined SAIC where he has been responsible for managing company programs supporting NASA, NOAA, and the USGS. His early career was spent with NASA at the Manned Space Center (now Johnson Space Center) in Houston during the Apollo program and was an early pioneer in NASA's Earth remote sensing activities serving as Manager of the Earth Resources Aircraft Program, Skylab Earth Resources Experiment Project, and Manager of the Earth Missions Program Office at Houston.

Vincent V. Salomonson is a Research Professor with joint appointments in the Departments of Meteorology and Geography at the University of Utah and Senior Scientist (Emeritus) with NASA/Goddard Space Flight Center. He is also serving as the Science Team Leader for the NASA Earth Observing System (EOS) MODIS. He was a Senior Scientist at NASA/Goddard from 2001-2005 and the Director of the Earth Sciences Directorate at the Goddard Space Flight Center, NASA from 1990-2000. His academic training includes a BS degree in Agricultural Engineering from Colorado State University (1959), a BS degree in Meteorology from the University of Utah (1960), an MS degree in Agricultural Engineering from Cornell University (1964), and a PhD in Atmospheric Science from Colorado State University (1968). His publication record shows over 130 publications in scientific journals, conference proceedings, and NASA reports.

Compton Tucker received his B.S. degree in biological science in 1969 from Colorado State University in Ft. Collins, M.S in 1973, and PhD in 1975, both from the College of Forestry. In 1975 he came to the NASA/Goddard Space Flight Center as a National Academy of Sciences post-doctoral fellow and in 1977 became an employee of NASA. He contributed to the band selection on the Thematic Mapper and has used NOAA AVHRR, MODIS, SPOT Vegetation, and Landsat satellite data for studying deforestation, habitat fragmentation, desert boundary determination, ecologically-coupled diseases, terrestrial primary production, glacier extent, and how climate affects global vegetation. He has authored or coauthored more than 150 journal articles, is an adjunct professor in the Geography Department at the University of Maryland, and has been awarded several medals and honors.

Stanley A. Morain, Director of the Earth Data Analysis Center and Research Professor of Geography at the University of New Mexico has made exceptional contributions to the field of satellite remote sensing in the biogeographical sciences. In a distinguished career he has collaborated with professionals in many developing countries in their creation of applications of remote sensing for societal benefit. He has consulted on more than 30 training programs and applications projects in Asia, Africa, and Central America. Morain's expertise and knowledge in remote sensing have been directed toward sustainable transportation, public health, and archaeological studies of early agricultural systems. His work on a dust-forecast model is contributing to plans by the World Meteorological Organization for establishing an International Sand and Dust Storm Warning System.

2008 Pecora Award Presentation

The William T. Pecora Award is presented annually to individuals or groups that make outstanding contributions toward understanding 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).

Dr. Samuel N. Goward, Professor of Geography at the University of Maryland, is the individual recipient of the 2008 Pecora Award for his outstanding and sustained scientific leadership in advancing remote sensing science and especially the continuation of the Landsat Program.

The **QuikSCAT Mission Team**, which includes personnel from the National Aeronautics and Space Administration (NASA), California Institute of Technology's Jet Propulsion Laboratory, Ball Aerospace and Technology Corporation, the University of Colorado's Laboratory for Atmospheric and Space Physics, and numerous principal investigators funded by NASA's Ocean Vector Winds Science Team, is the group recipient of the 2008 Pecora Award for the advancement of Earth science research and contributions toward improved environmental predictions using measurements of global radar backscatter and all-weather surface wind speed and direction over the ice-free oceans.

Previous Recipients

1974	William A. Fischer, USGS (deceased)
1975	William Nordberg, NASA (deceased) Carlos Brockmann, Landsat-Bolivia Project
1976	Environmental Research Inst. of Michigan and Laboratory for Applications of Remote Sensing of Purdue University (Group Awards)
1977	Robert N. Colwell, University of California, Berkeley (deceased) Michel T. Halbouty, The Halbouty Center (deceased)
1978	David S. Johnson, National Environmental Satellite Service, Department of Commerce
1979	John M. DeNoyer, USGS Virginia T. Norwood, Hughes Aircraft Co.
1980	Verner E. Suomi, University of Wisconsin (deceased)
1981	Leonard Jaffe, NASA James R. Anderson, USGS (posthumously)
1982	Alexander F.H. Goetz, NASA Lawrence C. Rowan, USGS
1983	Floyd F. Sabins, Jr., Chevron Oil Field Research Co.
1984	Archibald B. Park, Globex, Inc.
1985	Charles Elachi, NASA
1986	Allen H. Watkins, USGS
1987	Francis P. Bretherton, National Center for Atmospheric Research Vincent V. Salomonson, NASA
1988	William J. Campbell, USGS (deceased)
1989	Moustafa T. Chahine, NASA
1990	David A. Landgrebe, Purdue University
1991	David S. Simonett, University of California, Santa Barbara (posthumously)
1992	Shelby G. Tilford, NASA
1993	J. Robert Porter, Earth Satellite Corporation
1995	Philip N. Slater, University of Arizona
1996	Crofton B. Farmer, Jet Propulsion Laboratory M. Patrick McCormick, Hampton University
1997	Compton J. Tucker, NASA
1998	John R. Apel, Global Ocean Associates (deceased) TOPEX/Poseidon Team (Group Award)
1999	John E. Estes, University of California, Santa Barbara (deceased)
2000	Fawwaz T. Ulaby, University of Michigan SeaWiFS Project Team (Group Award)
2001	Ronald J.P. Lyon, Stanford University Landsat 7 Satellite Team (Group Award)
2002	Ichtiaque Rasool, NASA/International Geosphere-Biosphere Program Upper Atmosphere Research Satellite (UARS) Team (Group Award)
2003	Thomas J. Jackson, U.S. Department of Agriculture
2004	William Krabill, NASA Staff of the USGS EROS Data Center (Group Award)
2005	Jeff Dozier, University of California, Santa Barbara John R. G. Townshend, University of Maryland
2006	John R. Jensen, University of South Carolina Total Ozone Mapping Spectrometer (TOMS) Team (Group Award)
2007	Stanley A. Morain, University of New Mexico The GRACE Team (Group Award)

Tuesday, November 18

Beverage Break

3:00 pm to 3:30 pm
Room: Exhibit Hall – Grand Ballroom I

Technical Sessions

3:30 pm to 5:00 pm

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Remote Sensing Applications to Forestry
Moderator: Jeff Masek, *NASA*
Room: Spruce

Monitoring Gradual Change in Forest Condition in the Western United States using Landsat Time-Series Data
James Vogelmann, *ASRC Research and Technology Solutions*

Brian Tolk and Zhiliang Zhu

Contrasting Protected Areas with Surrounding Areas in the Western United States: Ecosystem Attributes, Conditions, and Disturbances
Hua Shi, *ASRC Research and Technology Solutions, U.S. Geological Survey*

Zhiliang Zhu, James Vogelmann, Jeffery C. Eidenshink, Stephen Howard, Chengquan Huang

Predicting Spatial Distribution of Privet (Ligustrum spp.) in South Carolina from MODIS and Forest Inventory Plot Data
Salajanu Dumitru, *U. S. Department of Agriculture/Forest Service*

Dennis Jacobs

Changes in Whitebark Pine Distribution in the Northern Rockies: 1984 – 2002
Jeff Jewett, *Spatial Sciences Center, Montana State University*

Rick Lawrence

Integration of MODIS-derived Metrics to Assess Interannual Variability in Snowpack, Lake Ice, and NDVI in Southwest Alaska
Page Spencer, *Lake Clark National Park*

Bradley Reed, Mike Budde, and Amy Miller

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Irrigated Lands
Moderator: Collin Homer, *U.S. Geological Survey*
Room: Century

Evaluation of Remote Sensing-based Irrigated Area Map for the Conterminous United States
Shahriar Pervez, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Jesslyn Brown and Susan Maxwell

Cost Comparison For Monitoring Irrigation Water use
Anthony Morse, *Idaho Department of Water Resources*

Wetland and Coastal Land Cover Modeling in the Northern Gulf of Mexico - Louisiana and Mississippi
Joyce Fry, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Collin Homer

Resolution of Imagery and Irrigated Areas
Manohar Velpuri, *International Water Management Institute*, Sri Lanka

P.S. Thenkabail, M. Gumma, C. Biradar, V. Dheeravath, P. Noojipady, and Y.J. Li

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Landsat Data Continuity Mission - Instrument Characterization
Moderator: Jim Irons, *NASA*
Room: Silver

The OLI Instrument Design: Key Differences from Landsat-7
Edward J. Knight, *Ball Aerospace & Technologies Corporation*

Steven W. Bidwell

Geometric Performance Differences between the OLI and the ETM+
James C. Storey, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Kenton Lee and Michael J. Choate

Pre-Launch Radiometric Calibration of the Operational Land Imager (OLI)
Geir Kvaran, *Ball Aerospace & Technologies Corporation*

Edward Knight and Stuart Biggar

LDCM On-orbit Operational Calibration and Validation
Ron Morfitt, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Brian Markham, Jim Storey, and Doug Hollaren

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Remote Sensing for Modeling of Evapotranspiration
Moderator: Richard Allen, *University of Idaho*
Room: Gold

Yellowstone's Geothermal Areas: Mapping Changes in Radiative Flux
Shannon Savage, *Montana State University*

Rick Lawrence and Stephan Custer

Application of the Surface Energy Balance using Landsat Thermal Imagery to Improve On-farm Water Management in the Imperial Irrigation District
Deepak Lal, *SEBAL N. America*

Byron Clark, Bryan Thoreson, and John Eckhardt

Calibration and Refinement of Traditional Crop Coefficients Curves in the South Platte River Basin using Mapping Evapotranspiration at High Resolution with Internalized Calibration
Claudio Schneider, *Riverside Technology, Inc.*

Graeme Aggett and Mary Hattendorf

An Inventory of Denver's Urban Vegetation using Multiple Endmember Spectral Mixture Analysis
Rebecca Powell, *University of Denver*

Sharolyn Anderson

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Workforce Development and Continued Education
Moderator: Kevin Czajkowski, *University of Toledo*
Room: Denver

GeorgiaView Internship Program 2004 - 2008: Geospatial Workforce Development and Statewide Outreach
Rebecca Dodge, *AmericaView, Inc.*

Marguerite Madden

The DEVELOP National Internship Program at NASA Ames Research Center
Cindy Schmidt, *San Jose State University/NASA Ames Research Center*

Jay Skiles

Workforce Development on Tribal Lands
Tammie Grant, *Salish Kootenai College*

Jhon Goes in Center

Integrated Geospatial Education and Technology Training
Jeannie Allen, *SSAI/NASA Goddard Space Flight Center*

Laura Rocchio, Ken Bailey, and Ann Johnson

From Theory to Practice: How TexasView Supports Applied Remote Sensing in the Workplace
Teresa Howard, *University of Texas at Austin Center for Space Research*

Gayla Mullins

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GEOSS Special Session on Air Quality and Human Health
Moderator: Amy Budge, *Earth Data Analysis Center, University of New Mexico*
Room: Colorado

Changes in the natural environment can compromise human health. For example, dust is a global problem that affects millions of people, especially those with respiratory illness. Human health is one of the nine Societal Benefit Areas identified by the Group on Earth Observations (GEO). One of their goals is to work with the Health community to improve the flow of user-friendly environmental data by facilitating access to comprehensive data sets that support prevention, early warning, research, health-care planning and delivery, and timely public alerts. This session focuses on air quality and human health, including discussions on environmental modeling, uses of Earth observation data to improve models, early warning systems, and enhancements to decision support and surveillance systems.

International Sand & Dust Storm Warning and Assessment System
William Sprigg, *University of Arizona*

Impacts of Desert Dust on Human Health
Mark Lyles, *U.S. Navy*

Earth Observations for Assessing Environmental Impacts on Human Health: Programs and Initiatives
Stanley Morain, *University of New Mexico*

Application of Satellite Aerosol Optical Depth and Airborne Lidar Data for Monitoring and Evaluating Spatial Gradient of the Fine Particulate Matter in the San Joaquin Valley, California
Jim Szykman, *Environmental Protection Agency*

Exhibitors' Reception

5:30 pm to 7:00 pm

The Exhibitors Reception is sponsored by the exhibiting companies and provides an excellent opportunity to see the latest products and services offered to the industry by the world wide suppliers. Also, the reception affords all attendees a great time to see old friends and make new ones. Light hors d'oeuvres and beverages will be served.

Wednesday, November 19

General Session III

8:30 am to 10:00 am
Room: Grand Ballroom II

Satellite-borne Radar in Today's Remote Sensing Community
Moderator: Alan Robinson, *NOAA/NESDIS/International & Interagency Affairs*

Presenters
Marcello Maranesi, CEO, *e-GEOS*
John Hornsby, President, *MDA Geospatial Services Inc.*, Canada
Corinne Kaplan, Vice President, *Space, EADS North America*

Multispectral optical data have dominated remote land imaging since Landsat 1 in 1972. However, the remote sensing community has recognized also that radar sensors, with their ability to provide data through clouds and in darkness, and their sensitivity to shapes and moisture have many exciting capabilities that could augment, and even replace, optical data information. Due to their complexity, satellite-borne radar emerged over a decade after the first Landsat (1987) and are limited in number. This situation changed rather abruptly in 2007 with the launch of four Radarsats, doubling the number then in orbit. This dramatic increase in radar data availability, as well as the increase in the data specifications (1 and 3 meter resolutions compared with the 8 and 30 meter capabilities for the former systems), should stimulate considerable experimentation and application by remote sensing user communities.

This session provides users with a description of radar data products currently available commercially and different ways to exploit this imagery.

Marcello Maranesi is Vice President of Telespazio in the Earth Observation Division, also CEO of Eurimage and recently appointed as CEO of e-GEOS, the new joint venture between the Italian Space Agency and Telespazio for COSMO-SkyMed commercialization. Previously, Maranesi was director for East Europe Business Development and CEO of Telespazio Hungary. Maranesi was also CEO of Eurimage.

John Hornsby has been at MDA Geospatial Services Inc. (formerly RADARSAT International) since 1991 holding the position of President since 2003. Hornsby has been employed in the Remote Sensing industry for over 23 years, both in the public and private sectors. This experience has included research and development, consulting, project management, business management and development. He has held senior technical, business development and management positions.

Corinne Kaplan is the Vice-President for Space within EADS North America where she advises Astrium regarding U.S. export control regulations and policies, as well as supports Astrium's programs. In 1999, after the merger of Matra Marconi Space and Daimler Chrysler Aerospace, Kaplan joined Astrium North America as the Director of Marketing, Procurement and Export Control and incorporated the former Matra Marconi Space's U.S. activities office, which she had established in 1996, into Astrium North America's framework. Previously Kaplan has held several project management positions leading European-based multinational teams in space and defense projects such as satellite platform electronics and scientific instruments. Kaplan received a post-graduate degree in Electrical Engineering from University of Nancy and is a Magna cum laude graduate of Ecole Nationale d'Electricité et de Mécanique of Nancy, France.

Exhibit Hall

10:00 am to 5:00 pm
Room: Grand Ballroom I

Poster Session

10:00 am to 5:00 pm
Room: South Convention Lobby

Beverage Break

10:00 am to 10:30 am
Room: Exhibit Hall – Grand Ballroom I

Technical Sessions

10:30 am to 12:00 pm

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GEOSS Special Session: Integration and Interoperability

Moderator: John Lyon, *U.S. Environmental Protection Agency*
Room: Spruce

The Geo process and GEOSS offer great opportunities to leverage elements of various systems to create the whole. These talks will illustrate the continuum of elements that go into the system of systems. Synergy from a number of groups will cast the GEOSS vision into reality.

The GEO Process and GEOSS
John Lyon, *U.S. Environmental Protection Agency*

Monitoring Agricultural Crop Rotations in the Great Lakes Basin using MODIS NDVI Data
Ross S. Lunetta, *U.S. Environmental Protection Agency*
Yang Shao, *U.S. Environmental Protection Agency*

Rapid Land Cover Mapping and Automated Feature Extraction for Environmental Decision Support using NASA World Wind and D.O.E. Genie Pro
Drew Pilant, *U.S. Environmental Protection Agency*

Interoperability of Joint Hyperspectral Sensors from a Single Collection Platform
Dean Riley, *The Aerospace Corporation*
Neilson Schulenburg, *The Aerospace Corporation*
Conrad Wright, *SpecTIR, LLC*
Mark Landers, *SpecTIR, LLC*

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Monitoring and Modeling Land Use/Land Cover Change

Moderator: Rick Mueller, *U. S. Department of Agriculture/National Agriculture Statistics Services*
Room: Century

Assessment of 2006 and 2007 Drought Patterns in the Vegetation Drought Response Index Across Nebraska
Jesslyn Brown, *U.S. Geological Survey*

Brian Wardlow and Tsegaye Tadesse

Deriving Essential Dates of AWiFS and MODIS Data for the Identification of Corn and Soybean Fields in the U.S. Heartland
Claire G. Boryan, *U.S. Department of Agriculture/National Agriculture Statistics Services/RDD*

Impact of Band-Ratio Enhanced AWIFS Image to Crop Classification Accuracy
Zhengwei Yang, *U.S. Department of Agriculture/National Agriculture Statistics Services/RDD*

Rick Mueller

Monitoring Land Cover Changes after Wildfire in the Black Hills of South Dakota using Landsat Imagery
Xuexia Chen, *ASRC Research and Technology Solutions (ARTS)*

Zhiliang Zhu and Donald Ohlen

Fusion of KH-Series Declassified Satellite Imagery and Landsat MSS Data in Support of Urban Land Cover Classification
Daniel Civco, *University Connecticut*

Anna Chabaeva, Jason Parent, Manfred Ehlers, and Schlomo Angel

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Special Session — The DELTA Project: Innovative Research and Development into the Application of RADARSAT-1 Interferometric Data for Subsidence Mapping in New Orleans

Moderator: Greg Snyder, *Land Remote Sensing Program - U.S. Geological Survey*
Room: Silver

In 2006 the Canadian Space Agency (CSA), in cooperation with the United States Geological Survey (USGS) and the National Aeronautics and Space Administration (NASA), launched an International Announcement of Opportunity for researching new developments in interferometric applications of RADARSAT-1 data and innovative mapping approaches to better illustrate subsidence over New Orleans. Several Principal Investigators from around the world were selected to conduct this research. This session will describe the DELTA project and the research results from various Principal Investigators including the methodologies employed and the measurement accuracies achieved.

DELTA Project Overview
Steve Iris, M.Sc, *Commercialization Office - Canadian Space Agency*, Canada

DELTA Project Technology Overview; Data Methods and Tools
Mike Kirby, Senior Associate, *Athena Global*, Canada

Investigators:
Non-Linear Processing of RADARSAT Interferometric Data for Subsidence Measurement
Kenneth Sartor, *Harris Corporation*

Application of RADARSAT-1 Interferometric Data for Subsidence Mapping in New Orleans
Udo Nielsen, President, *Dendron Resource Surveys Inc.*, Canada

Subsidence in New Orleans from RADARSAT InSAR and PSInSAR™
Tim Dixon, *University of Miami*

Wednesday, November 19

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Airborne Lidar
Moderator: Greg Stensaas, *U.S. Geological Survey*
Room: Gold

Evaluation of Airborne Lidar Data to Predict Vegetation-Cover Percentage and Presence / Absence in Jean Laffite National Park, Louisiana
Monica Palaseanu-Lovejoy, *Jacobs/U.S. Geological Survey/FISC*

Amar Nayegandhi, John Brock, Robert Woodman, and Wayne C. Wright

Estimation of Forest Biomass with Multi-return Lidar Data
Michele Dalponte, *University of Trento, and Centro di Ecologia Alpina-Fondazione Mach*, Italy

Sergio Tonolli, Lorenzo Bruzzone, and Damiano Gianelle

Rigorous Lidar Sensor Modeling to Support End User Requirements
Mark Lee, *Integrity Applications Incorporated*

Henry Theiss and Craig Rodarmel

An Algorithm for Automated Extraction and Classification of Static and Non-Static Features from Laser Ranging Data
C. Toth, *The Ohio State University*

J.N. Markiel and D. Grejner-Brzezinska

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Workforce Development and Continued Education
Moderator: Carolyn Merry, *Ohio State University*
Room: Denver

A Wetland Education using Maps, Aerial Photography, and Satellite Imagery
Catherine Lockwood, *Chadron State College*

Lawrence Handley and Nathan Handley

AmericaView: Current Mission and Future Direction
Rick E. Landenberger, *West Virginia View*

Rebecca L. Dodge

A Roadmap for Implementing Geospatial Technology in K12 within the United States
Stanford Hovey

Using a Web-based GIS to Teach Problem-based Science in High School
Cindy Schmidt, *San Jose State University*

Allison Lenkeit-Meezan, Ellen Metzger, and Richard Taketa

Students and Teachers Exploring Local Landscapes to Interpret the Earth from Space Application to the International Polar Year (SATELLITES-IPY Application)
Kevin Czajkowski, *University of Toledo*

Mikell Lynne Hedley

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Hyperspectral Imaging
Moderator: John Dwyer, *U.S. Geological Survey*
Room: Colorado

Use of Airborne Hyperspectral Imagery for Water Quality Assessments of Minnesota's Rivers
Leif Olmanson, *University of Minnesota*

Marvin Bauer and Patrick Brezonik

Hyperspectral Analysis of Fugitive Contaminants
Terrence Slonecker, *U.S. Geological Survey/EGSC*

Susan Price

An Adaptive Noise Reduction Technique for Improving the Utility of Hyperspectral Data
Rhonda Phillips, *Virginia Polytechnic Institute and State University*

Christine Blinn, Layne Watson, and Randolph Wynne

Geospatial Exploitation of Simultaneously Collected Multi-Sensor Data
Raul Campos-Marquetti, *Merrick & Company*

Mark Romano and Bill Emison

www.asprs.org/Decora17

General Session IV

1:30 pm to 3:00 pm
Room: Grand Ballroom II

Availability of Multispectral Data from Non-U.S. Providers
Moderator: William Stoney, *Mitretek*

Presenters
John Ahlrichs, *RapidEye*
Antoine de Chassy, *SPOT*
Tim Puckorius, *Earth Observation Technologies, LLC*
Paul Stephens, DMCii

Multispectral data are the basis for most, if not all, civil applications and science investigations. These data are available potentially from 25 systems that are currently in orbit, or planned to be in orbit by November 2008, and operated by a dozen countries. In addition to providing multispectral resolutions from 6 to 56 meters, the number of satellites flown singly and in constellations promises to provide users new abilities for acquiring data at specific times for the events being studied. For example, data could be acquired at a specific date and time over areas affected by human-induced or natural disasters.

This session focuses on availability of multispectral data from non-U.S. sources that manage single satellites or that are flying several platforms in constellations.

John Ahlrichs, Vice President, RapidEye AG., leads new business development, channel establishment and regional sales activities for RapidEye. Previously, Ahlrichs held numerous technology, marketing and sales leadership positions, primarily for start up companies or business units. As director of Ag Services for DigitalGlobe, he led the department developing and commercializing information services for the natural resource markets. Ahlrichs held numerous development, marketing and sales positions with Rooster.com, conceptualized and led the business unit developing software to run fertilizer plants for Cenex/land O' Lakes cooperatives which resulted in the first computer systems for many of these businesses; and led the nationwide plant nutrition research program for ChemLawn Corporation. Ahlrichs has a MS in Crop Remote Sensing from Purdue University, a PhD from Texas A&M University and a MBA from University of St. Thomas in Minnesota.

Antoine de Chassy is the President and Chief Executive Officer of U.S. Operations of Spot Image Corporation (Chantilly, Virginia). Previously he served as the Vice President for Strategy and Chief Operating Officer at Spot Image SA in Toulouse, France. Before joining Spot in 2003, de Chassy served as the Chief Executive Officer for Fleximage SA, an EADS subsidiary. Earlier, he worked for the National Geographic Institute as a regional sales manager for Africa (three years) and for Asia (two years). He also served as a geophysics and oceanography research engineer for the French Petroleum Institute. de Chassy has an MS in geophysics and an MBA.

Timothy J. Puckorius, Chairman and CEO of Earth Observation Technologies, LLC ("EOTec") of Washington, DC. EOTec is an international remote sensing and imagery services company that serves as Managing Agents and Representatives for ANTRIX Corporation Limited of India, the exclusive providers of satellite imagery from India's constellation of IRS satellites. Prior to founding EOTec, Puckorius served as GeoEye's Senior Vice President for Worldwide Marketing & Sales where he helped orchestrate its rise from last to first place by successfully winning NGA's NextView-II contract, then acquiring Space Imaging and merging it with ORBIMAGE to create GeoEye - the world's largest commercial satellite imagery company. Prior to GeoEye, Puckorius spent 13 years at EOSAT as Vice President of International where he managed the global network of Landsat receiving stations and was the principle architect of the company's ten-year exclusive contract to commercialization India's IRS Satellite Program.

J. Paul Stephens, Director of Sales & Marketing for DMC International Imaging Ltd., part of the Surrey Satellite Technology Group, providing satellite imaging services and disaster response. Following a first degree at Bristol University, Stephens worked in industry for ten years before gaining his MBA at Cranfield School of Management in 1987 and setting up his own consultancy company. He became involved in space when, in 1997, he worked to raise venture capital for GANDER, a constellation of radar altimeter satellites to monitor ocean storms. Stephens then joined the world leader in small low cost satellites, Surrey Satellite Technology Ltd., and has been active in developing the five-nation Disaster Monitoring Constellation (DMC). He has presented and published many papers on small satellites and their applications. Since October 2004 he has served as a Director of DMC International Imaging Ltd., a wholly owned subsidiary of Surrey Satellite Technology Ltd., developing the commercial activities of the DMC which provides daily imaging services worldwide, as well as disaster response through the International Charter.

Wednesday, November 19

Beverage Break

3:00 pm to 3:30 pm
Room: Exhibit Hall – Grand Ballroom I

Technical Sessions

3:30 pm to 5:00 pm

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Data Access: Current and Future Approaches
Moderator: Jeff Eidenshink, *U.S. Geological Survey*
Room: Spruce

A Service-Based Architectural Approach to Enhanced Data Access
Lyn Oleson, *U.S. Geological Survey*

DataDoors: A System for Cataloging, Accessing, Processing, and Delivering Large Amounts of Image Data
Yusuf Siddiqui, *i-cubed*

Mick Garrett

eMODIS Product Access for Broad Scale Monitoring
Calli Jenkerson, *ADNET Systems*

Supporting Disaster Response Efforts: The USGS Role in Data Access
Brenda Jones, *U.S. Geological Survey*

Improving Digital Access to the USGS Film Archive
Timothy Smith, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Ryan Longhenry

-20-

Landsat: Past, Present and Future
Moderator: Ray Byrnes, *U.S. Geological Survey*
Room: Century

Preserving Landsat's Legacy
Theresa Arvidson, *Lockheed Martin*

Landsat 5: An Unprecedented Record of Global Observations
Bruce Quirk, *U.S. Geological Survey*

Ron Beck

The Landsat Project: New Products, Activities, and No-charge Data
Kristi Kline, *U.S. Geological Survey*

USGS Land Imaging Status and Future
Jennifer Willems, *U.S. Geological Survey*

Bruce Quirk

-21-

UAVs - Sensors, Platforms and Applications
Moderator: Larry Handley, *U.S. Geological Survey*
Room: Silver

UAS Impact to the NAS and ATC
Roger Trevino, *FAA*

Randy Willis and Ardyth Williams

US Northern Command Unmanned Aircraft Systems Domestic Concept of Operations (CONOPS)
Travis Buford, *U.S. Northern Command*

UAS Activities in the NASA Airborne Science Program
Andrew Roberts, *NASA*

NOAA UAS Program
Sarra Summers, *NOAA*

-22-

National Monitoring Programs
Moderator: Claire Boryan, *U.S. Department of Agriculture/National Agriculture Statistics Services*
Room: Gold

Towards an Operational Multi-Resolution Monitoring Program in the BLM
Matthew Bobo, *Bureau of Land Management*

Early Season Remote Sensing Based Acreage Estimates
Rick Mueller, *U.S. Department of Agriculture/National Agriculture Statistics Services*

National Park Service Vegetation Inventory and use of Hybrid Approaches to Signature Development and Object Oriented Tools
Karl Brown, *National Park Service*

Tammy Hamer

National Lidar Program
Jason Stoker, *U.S. Geological Survey*

NEXTMap USA: A New National Map - Midterm Report
Garth R. Lawrence, *Intermap Technologies Inc.*

-23-

State and Local Agency Remote Sensing Support
Moderator: Rick Lawrence, *Montana State University*
Room: Denver

Geographic Information Network of Alaska: Multi-agency Satellite Data and Information Product Sharing in Support of Operational, Real-time, and Emergency Response Activities
Thomas Heinrichs, *University of Alaska Fairbanks*

Dayne Broderson, Kevin Engle, Larry Ledlow, Richard McMahon, Lance Seman, and Sean Triplett

The Role of KansasView in Disaster Response and Recovery
Kevin Dobbs, *KansasView, Kansas Applied Remote Sensing Program*

Stephen Egbert and Jude Kastens

Supporting Statewide Emergency Management with the WisconsinView Remote Sensing Network
Sam Batzli, *University of Wisconsin-Madison*

Increasing Remote Sensing Applications in State Government Agencies: WyomingView Experience
Ramesh Sivanpillai, *University of Wyoming / WYGISC*

-24-

Remote Sensing for Modeling of Evapotranspiration
Moderator: Jim Verdin, *U.S. Geological Survey*
Room: Colorado

Fine-tuning Components of Inverse-Calibrated, Thermal-based Remote Sensing Models for Evapotranspiration
Richard Allen, *University of Idaho*

Jeppe Kjaersgaard, Jan Hendrickx, M. Tasumi, and Magali Garcia

Modeling Urban Heat Islands and their Relationship with Impervious Surface and Vegetation Abundance by using Landsat Images
Qihao Weng, *Center for Urban and Environmental Change, Indiana State University*

Umamaheshwaran Rajasekar and Xuefei Hu

Computation of Landsat based Evapotranspiration Maps along the South Platte and North Platte Rivers
Richard Allen, *University of Idaho*

Jeppe Kjaersgaard, Graeme Aggett, Claudio Schneider, Mary Hattendorf, Ayse Irmak, Gary Hergert, and Clarence Robison

Mapping Evapotranspiration using Thermal Satellite Data
Ayse Irmak, *University of Nebraska-Lincoln - School of Natural Resources*

Ian Ratcliffe and Ramesh Singh

Landsat 5 Celebration/Reception

5:00 pm to 6:30 pm
Room: Grand Ballroom II

Moderator: Dr. Bruce Quirk, *U.S. Geological Survey*

Landsat 5 Celebrating 25 Years

There will be a celebration of the remarkable success of Landsat 5, the 'workhorse' satellite for land observations as part of the Pecora 17 Conference. The celebration is sponsored by Lockheed Martin and Ball Aerospace and Technologies Corporation. The celebration will highlight the story of Landsat 5 and recognition of individuals that were or are part of the Landsat 5 legacy. Light refreshments will be served.

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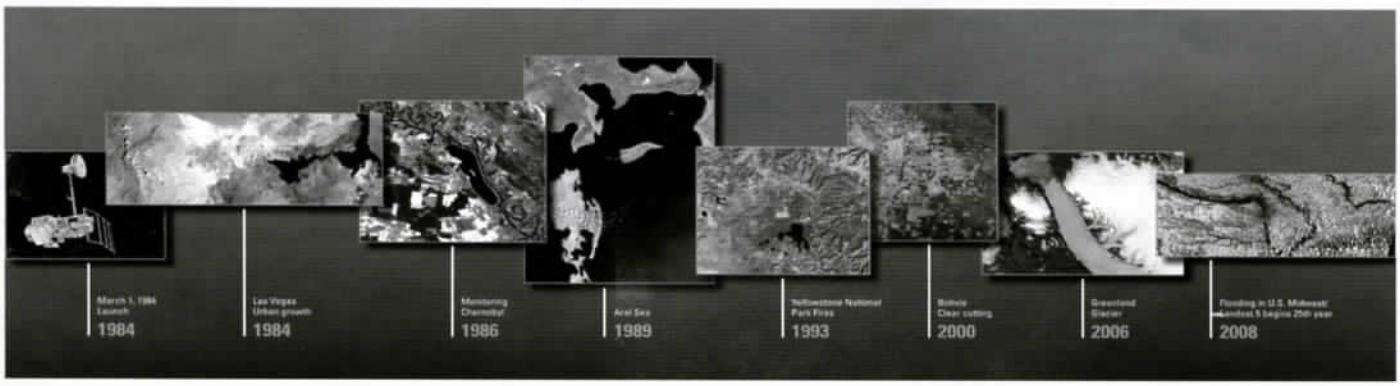
The Landsat 5 Legacy

On March 1, 1984, Landsat 5 headed into space with an expected lifespan of three years. No one could have foreseen that this fifth satellite in the Earth-observing Landsat Program would far exceed that expectation. In 2009, the still-operational Landsat 5 celebrates its 25th anniversary in orbit. For a quarter of a century, it has steadfastly captured images of Earth's changing surface as illustrated in the timeline. To date, Landsat 5 has taken more than 600,000 images of Earth's continents and coastal regions. These unique pictures of the planet form a global visual archive, an irreplaceable reference for monitoring Earth's well-being.



Thursday, November 20

Technical Sessions

8:30 am to 10:00 am

-25-

Advances in Radiometric Calibration
Moderator: Brian Markham, *NASA*
Room: Spruce

Advances in the Landsat-5 TM Instrument Radiometric Characterization
Julia Barsi, *NASA Goddard Space Flight Center*

Esad Micijevic

Consistent Radiometric Calibration of the Historical Landsat Archive
Dennis Helder, *South Dakota State University*

James Dewald

Inflight, Intersensor Radiometric Calibration using the Reflectance-based Method for Landsat-Type Sensors
Kurtis Thome, *University of Arizona*

Joel McCorkel and Jeff Czapla-Myers

Calibration Matters; Landsat Data Analysis of Science Products with and without Calibration
Ronald Hayes, *Stinger-Ghaffarian Technologies, Inc. (SGT)*

Rynn Lamb

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Surface Water Hydrology
Moderator: Dave Johnson, *U.S. Department of Agriculture/National Agriculture Statistics Services*
Room: Century

Locating Turf and Surface Water Features in the Las Vegas Valley Using Remote Sensing Techniques and GIS
Judy Brandt, *Southern Nevada Water Authority*

Spatial and Temporal Analysis of a 20-year Landsat Water Clarity Database of Minnesota's 10,000 Lakes
Leif Olmanson, *University of Minnesota*

Marvin Bauer and Partick Brezonik

Mapping of the Ganges River Network Changes in Bangladesh using Multi-temporal Remotely Sensed Data with GIS
Ashraf M. Dewan, *Department of Earth and Environmental Science, Nagoya, Japan, University Bangladesh,* India

Yasushi Yamaguchi

Water Productivity Mapping Methods and Protocols using Remote Sensing to Support Growing More Crops per Drop
Prasad Thenkabail, *International Water Management Institute (IWMI),* Sri Lanka

C. Xueliang, C. Biradar, A. Platonov, M. Gumma, and V. Dheeravath

-27-

UAVs - Sensors, Platforms and Applications
Moderator: Larry Handley, *U.S. Geological Survey*
Room: Silver

United States Forest Service Unmanned Aerial Systems Integration Status
Thomas Zajkowski, *Remote Sensing Applications Center*

Everett Hinkley

UAS for Remote Sensing of Climate Change in Polar Regions
Susan Schoenung, *Longitude 122 West, Inc.*

Randal Albertson

Thermal Infrared Imaging in Agriculture Using a Small Unmanned Aerial System
Dana G.Sullivan, *U.S. Department of Agriculture ARS*

G. Bland, J.P. Fulton, J.N. Shaw, D. Endale, J. E. Hook, and R.D. Lee

Special UAV Applications Session: The Western States UAV Fire Imaging Mission: 2007 Results
Vincent Ambrosia, *California State University - Monterey Bay/NASA-Ames*

Everett Hinkley, Thomas Zajkowski, and Steve Wegener

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Data Exploitation
Moderator: John Dwyer, *U.S. Geological Survey*
Room: Gold

Spatio-Temporal Data Mining Techniques for Land Surface Change Monitoring -- Exploring the Landsat Archive
Daniel R. Steinwand, *U.S. Geological Survey*

Incorporating Optical Sensor Models into Remote Sensing Analyses to Improve Accuracy
Tyler A. Erickson, *Michigan Tech Research Institute*

Brian Thelen

Improving Forest Monitoring and Management using Interannual, Multitemporal Landsat Data
Randy Wynne, *Virginia Polytechnic Institute*

Land Cover Time Series Analysis with Landsat
Sam Goward, *University of Maryland*

College and University Level Remote Sensing Curriculum
Moderator: Rick Lawrence, *Montana State University*
Room: Denver

Remote Sensing Education Through Interactive Learning
Ramesh Sivanpillai, *University of Wyoming / WYGISC*

Digital Image Classification Taught using Web-based Interactive Learning
Sugumaran Ramanathan, *University of Northern Iowa*

James Campbell

Using GloVis in the Classroom
James B. Campbell, *Virginia Tech*

AlabamaView Perspectives of Consortium Development
Luke J. Marzen, *Auburn University*

The VirginiaView Atlas
Peter Sforza, *Department of Geography, Virginia Tech*

Poster Session

9:00 am to 12:00 noon

Beverage Break

10:00 am to 10:30 am
Room: South Convention Lobby

Closing/General Session V

10:30 am to 12:00 noon
Room: Grand Ballroom II

Entering A New Landsat Era – The Future is Now
Moderator
James R. Irons, *NASA Goddard Space Flight Center*
Thomas Loveland, *U.S. Geological Survey*
Randolph H. Wynn, *Virginia Tech*
Curtis Woodcock, *Boston University*

Landsat data have been acquired continuously over the global land surface since July 1972 creating an unprecedented comprehensive record of landscape dynamics. NASA and the U.S. Geological Survey are now developing the Landsat Data Continuity Mission, which will further extend the global land record. In addition, the USGS will soon be making the entire 36-year long Landsat archive available to anyone via the Internet at no cost. The opening of the Landsat archive and the continuation of the Landsat record is a revolution that will affect the future of moderate resolution Earth observations. The session will explore the scientific advances possible in understanding global land changes, the opportunities for significant new innovations associated with free access to millions of Landsat images, and the scientific and technical challenges ahead for operational uses of Landsat data.

James R. Irons is the Associate Chief of the Laboratory for Atmospheres, NASA Goddard Space Flight Center (GSFC). He is also the NASA Landsat Data Continuity Mission (LDCM) Project Scientist and in that capacity ensures that the design and implementation of the mission meet science requirements. Prior to 2007, Irons worked 28 years as a physical scientist in the Biospheric Sciences Branch, NASA GSFC where he served as the Landsat 7 Deputy Project Scientist beginning in 1992. Irons received his B.Sc. degree in environmental resources management in 1976 and the M.Sc. degree in agronomy in 1979 from the Pennsylvania State University. He received his Ph.D. degree in agronomy in 1993 from the University of Maryland.

Thomas R. Loveland is a Senior Scientist with the U.S. Geological Survey EROS Center in Sioux Falls, South Dakota and co-director of the USGS-South Dakota State University Geographic Information Sciences Center of Excellence. Loveland has been conducting research on the use of remote sensing for studying local to global scale land cover dynamics for over 30 years. Loveland is the lead scientist for Landsat for the USGS and provides science input to all USGS remote sensing activities. Dr. Loveland has published over 100 journal articles, book chapters, and other professional papers. He serves on numerous national and international science advisory panels dealing with remote sensing, land use and land cover dynamics, environmental monitoring, and global environmental change. Dr. Loveland received B.S and M.S. degrees in Geography from South Dakota State University, and a Ph.D. in Geography from the University of California, Santa Barbara.

Randolph H. Wynne received his M.S. and Ph.D. in Environmental Monitoring from the University of Wisconsin-Madison in 1993 and 1995, respectively. Wynne joined the Forestry Faculty at Virginia Polytechnic Institute and State University in 1996, where he is now a Professor of Forest Biometrics and Geomatics, Remote Sensing Team Leader for the Forest Nutrition Cooperative, Associate Director of the Conservation Management Institute, and Co-Director of the Center for Environmental Applications of Remote Sensing. He teaches courses in Forest Photogrammetry and Spatial Data Processing, Remote Sensing of Natural Resources, Forestry Lidar Applications, and an Interdisciplinary Seminar in GIS and Remote Sensing. Dr. Wynne's research interests are in the applications of remote sensing to forestry, natural resource management, ecology, and earth system science. Since 1996 Dr. Wynne has directed or co-directed numerous major research projects. He has been the author or co-author of more than 65 scientific papers, including three book chapters and 38 papers. He was co-coordinator of the Virginia Tech Deans' Task Force and Forum on the Environment in 2006-2007, and is a member of the Landsat Science Team. Wynne also serves as a member of the Management Operations Working Group for NASA's Carbon Cycle and Ecosystems Focus Area within NASA's Earth Science Research Program.

Curtis Woodcock is a Professor in the Department of Geography and Environment at Boston University. He earned his PhD in Geography from the University of California, Santa Barbara in 1986. His primary area of research is remote sensing, particularly the use of optical imagery for mapping forest resources and monitoring environmental change. He has published over 70 peer reviewed journal articles and authored over 15 book chapters. His recent work has focused on monitoring land use and land cover change and has included projects in a number of locations. He served on the NASA Landsat Science Team from 1996-2001 and now leads the USGS-NASA Landsat Science Team. Woodcock also leads the GOFC/GOLD Implementation Team. He has taught at Boston University for 22 years, helped establish its Center for Remote Sensing, and served as Chair of the Department of Geography for 9 years.

Special Session

12:30 p.m. to 1:30 p.m.
Room: Gold Room

Survey of Societal Benefits of Moderate Resolution Imagery -- User Feedback Session

Moderate-resolution imagery, such as Landsat, is generally considered beneficial for a variety of uses by public agencies, research scientists, and private firms. However, these uses and benefits have not been extensively examined, and there is limited understanding of how American industry; State, local, and tribal governments; and nonprofit organizations use and benefit from this imagery. The USGS Fort Collins Science Center (FORT) and Western Geography Science Center are collaborating to conduct an extensive study on the uses and benefits of moderate-resolution imagery. This study was initiated by the USGS Land Remote Sensing Program. Study objectives are to (1) identify and classify users of moderate-resolution imagery, (2) better understand its uses and applications, and (3) determine the societal benefits of Landsat in decision making. In the recently completed first phase, USGS social scientists have identified and characterized moderate-resolution imagery users. In Phase 2, investigators will survey this population on moderate-resolution imagery uses and benefits. During this PECORA session, social scientists from the FORT's Policy Analysis and Science Assistance branch will solicit feedback from attendees on a draft version of the survey. In order to ensure that all attendees' suggestions are fully documented, the session will be limited to around 30 people.

UAV/UAS Programs and Applications

As a continuation of the UAV Special Sessions during the Pecora 17 Symposium, there will be additional sessions of presentations focusing on UAV/UAS Programs and Applications.

The primary objective of the UAV organized sessions associated with the Pecora 17 Symposium is to:

I. Provide a mechanism to stimulate communication across a broad community of UAV managers, users, producers, and researchers.
II. Communicate within the community and to a wider public on:
   A. what to use,
   B. when to use it,
   C. how to use it, and
   D. convey to others outside the UAV community.

Also available will be a series of static displays of UAS systems presented by NASA, DOD, and private industry.

Special UAV Program

1:30 pm to 5:00 pm
Room: Silver

NASA Global Hawk: Project Update and Upcoming Missions
Chris Naftel, *NASA Dryden Flight Research Center*

NASA UAS Remote Sensing Systems for Earth Science
Jeffrey Myers, *University of California, Santa Cruz*

Edward Hildum

Impact Assessment of Potential Hurricane Imaging Radiometer (HIRAD) Tropical Cyclone Observations from UAS and Satellite Platforms
Robbie Hood, *NASA Marshall Space Center*

Remote Sensing of Crop Leaf Area Index Using Unmanned Airborne Vehicles (UAVs)
E. Raymond Hunt, *U.S. Department of Agriculture/ARS Hydrology and Remote Sensing Lab*

W. Dean Hively, C. S. T. Daughtry, Greg McCarty, and Stephen Fujikawa

UAV Applications Special Session: UAS for Threat Detection on Pipeline Rights-of-Way
Lee Johnson, *NASA (CSUMB)*

Steve Dunagan and Brad Lobitz

Special UAV Program

Friday, November 21, 8:00 am to 5:00 pm
U.S. Geological Survey Auditorium, Denver Federal Center

Buses will depart from the Sheraton Hotel to the Denver Federal Center in Lakewood, Colorado at 8:00 am and return to the Sheraton Hotel at approximately 5:00 pm.

There is no additional fee to participate in either of these sessions.
These sessions are sponsored and conducted by the U.S. Geological Survey.

USGS
science for a changing world

Posters

Mapping Mountain Top Removal Mining over the Decades
David Campagna, *SkyTruth*
John Amos and Matt Wasson

Shadows and Cloud Detection in High Resolution Images using Mathematical Morphology
Thiago Statela, *CEFET - MT and FCT – UNESP*, Brazil

Erivaldo Silva

An Approach to Evaluate Multi-temporal Moderate Resolution Satellite Image Data Composites
Shahid K.Khurshid, *Canada Centre for Remote Sensing*, Canada

Darren Pouliot, Richard Fernandes, and Rasim Latifovic

Deriving Hourly Surface Energy Fluxes and Evapotranspiration from Landsat Thematic Mapper Data Using Metric
Prasanna Gowda, *U.S. Department of Agriculture/ARS Conservation and Production Research Laboratory*

Terry Howell and Richard Allen

eMODIS 2008 Flood Response
Calli Jenkerson, *ADDNET*

Forest Ice Storm Damage: A Multi-temporal Kauth-Thomas Assessment
Christine McMichael, *Morehead State University*

Grant York and Jeffrey Lewis

Irrigated Areas of India Derived using MODIS 500m Data for Years 2001-2003
Venkateswarlu Dheeravath, *International Water Management Institute,* Sri Lanka

P.S. Thenkabail, G. Chandrakantha, P. Noojipady, C.M. Biradar, H. Turral, M. Gumma, G.P.O. Reddy, and M. Velpuri

Comparisons Between Evapotranspiration Images Derived from MODIS-based Energy Balance and Those Based on Traditional Crop Coefficient-weather Data (ETToolbox) Along the Middle Rio Grande of New Mexico
Clarence Robison, *University of Idaho*

Richard Allen, Ricardo Trezza, Magali Garcia, Al Brower, David Toll, Kristi Arsenault, Jan Hendrickx, M. Tasumi, Richard Stodt, and Steve Bowser

Enhanced Resolution of Evapotranspiration by Sharpening the Landsat Thermal Band
Richard Allen, *University of Idaho*

Ricardo Trezza, Jeppe Kjaersgaard, William Kramber, Clarence Robison, M. Tasumi,. Magali Garcia

Landsat Based Estimation of Evapotranspiration for the Nebraska Panhandle
Ian Ratcliffe, *University of Nebraska-Lincoln*

Ayse Irmak, Jeppe Kjaersgaard, Rick Allen, Gary Hergert, Gary Stone, and Peggy Penrose

Per Pixel and Object Oriented Approaches for Determining Land use Change in Urbanizing Watersheds of North Alabama
Sharadha Seerla, *Alabama A&M University*

Wubishet Tadesse

Land Use and Land Cover Change and its Impact on Land Surface Temperature of Urbanized Watersheds in North Alabama using Landsat Data
Wubishet Tadesse, *Alabama A&M University*

Teferi Tsegaye and Mezemir Wagaw

Estimation of Crop LAI from Landsat TM Vegetation Indices in the Texas Panhandle
Sreekala G. Bajwa, *University of Arkansas*

Prasanna H. Gowda, Terry A. Howell, and Mansoor Leh

Metrics and Tools for the Analysis of Urban Sprawl
Daniel Civco *University of Connecticut*

Jason Parent and Shlomo Angel

Feature-based and Pixel-based Glacier Surface Change Detection
Mahsa sadat Moussavi, *Remote Sensing Department, K.N.Toosi University of Technology*, Iran

Mohamad Javad Valadan Zoej, Mahmoud Reza Sahebi, and Yousef Rezaei

Using Geospatial Techniques to Quantify Land Use/Cover Change and Landscape Fragmentation in Dhaka Megacity, Bangladesh
Ashraf M. Dewan, *Department of Earth and Environmental Science, Nagoya, Japan, University Bangladesh*, India

Yasushi Yamaguchi

Assessing Multi-temporal Landsat ETM+ SLC-off Data for Cropland Classification
David Johnson, *U.S. Department of Agriculture/National Agricultural Statistics Service*

Sub-Pixel Area (SPA) Computation Methods
Prasad Thenkabail, *International Water Management Institute (IWMI)*, Sri Lanka

C.M Biradar, P. Noojipady, V. Dheeravath, M. Gumma, Y.J. Li, M. Velpuri, G.P.O. Reddy, X.L. Cai, and H. Turral

Comparison of Evapotranspiration Images Derived from MODIS and Landsat along the Middle Rio Grande of New Mexico
Richard Allen, *University of Idaho*

M. Tasumi, Ricardo Trezza, Clarence Robison, Magali Garcia, Jeppe Kjaersgaard, David Toll, Kristi Arsenault, and Jan Hendrickx

Close-range Photogrammetry: A New Look at using Ground-based Photographs to Produce Detailed 3D Terrain Data
Neffra Matthews, *Bureau of Land Management, National Operations Center*

Tommy Noble and Matthew Bobo

An Operational-ready Algorithm for using Satellite Data to Measure Biomass Accumulation in Secondary Tropical Forest of Lowland Amazonia
Thomas Ruzycki, *International Institute of Tropical Forestry*

Eileen H. Helmer, Michael A. Lefsky, and Dar A.Roberts

Effects of Land Use Change on Erosion in the West Fork of the White River Watershed, Arkansas, USA
Sreekala G. Bajwa, *University of Arkansas*

Mansoor Leh and Indrajeet Chaubey

Harris Solution to Fill the ETM+ Scan-Gap
Charles Wivell, *Harris Imagelinks Corporation*

Morris Akbari

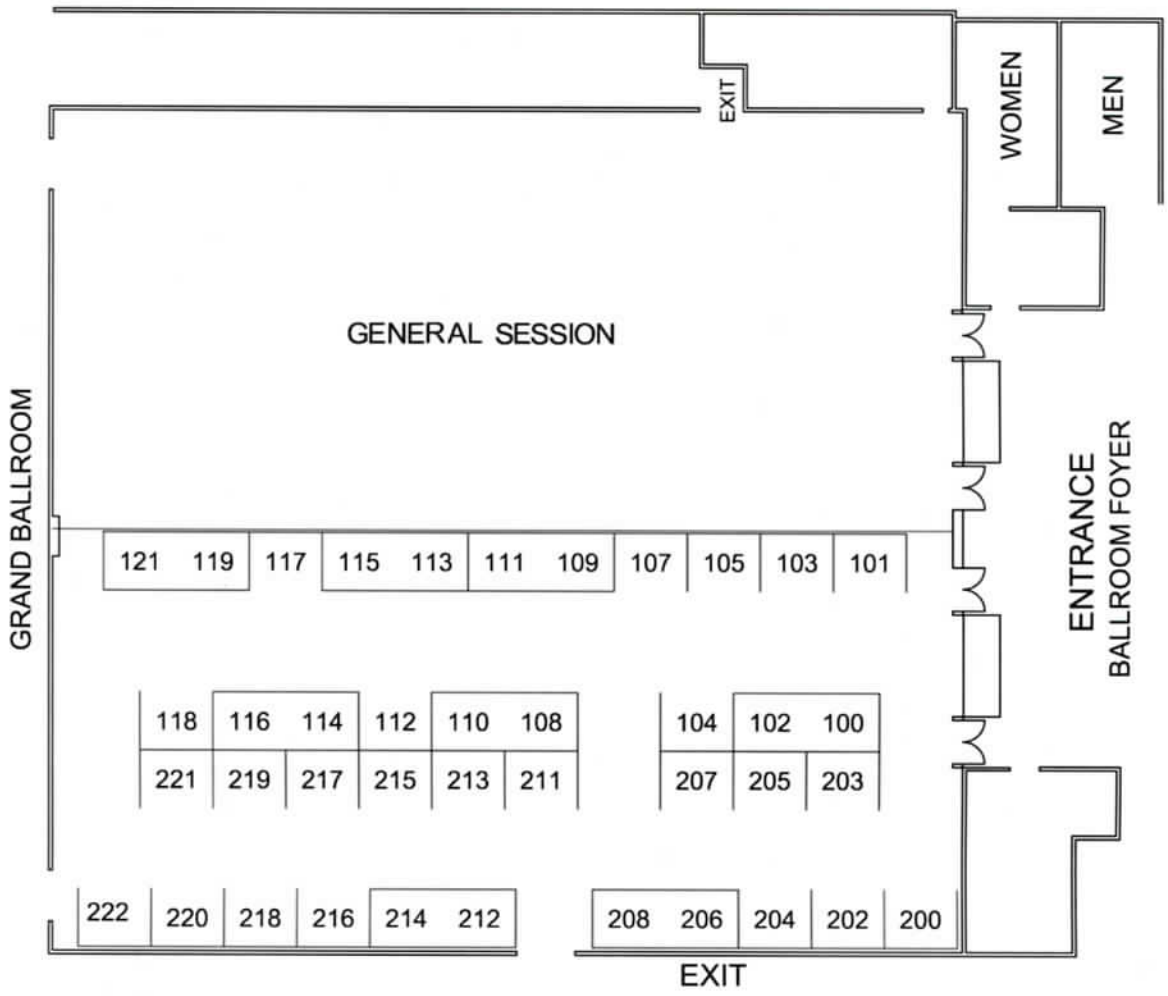
Mapping and Evaluating Various Digital Elevation Models in the Gulf Coast Region
Megan Burke

Stacey Lyle

USGS Land Cover Institute
Chris Barnes, *SGT, Inc.*

National Land Cover Database 2001
Chris Barnes, *SGT, Inc*

Exhibit Hall Floor Plan



Exhibitor	Booth #
American Society for Photogrammetry and Remote Sensing (ASPRS)	206
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ASD Inc. (formerly Analytical Spectral Devices)	202
BAE Systems, GXP	100
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U.S. Geological Survey (USGS)	112
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Western Air Maps, Inc.	203

Exhibitor Descriptions

American Society for Photogrammetry and Remote Sensing (ASPRS) **Booth 206**
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Bethesda, MD 20814
301 493-0290; 301 493-0208 (Fax); www.asprs.org

Come visit the ASPRS Bookstore and take a sneak-peek at the new *Manual of Remote Sensing, Volume 1*. Our new *Manual* is scheduled for publication in early 2009 but you will have the opportunity to review and pre-order it at the conference. Also, take advantage of the show discount and learn more about our upcoming conferences and 75th Anniversary Celebration being held at the ASPRS 2009 Annual Conference in Baltimore, Maryland next March. ASPRS staff will be on hand to answer questions about membership, certification, and the awards and scholarship program. And don't forget to pick-up your complimentary copy of *PE&RS*.

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NASA EOS Project Science Office **Booth 114**
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NGA is a major combat support agency of the Department of Defense and an integral member of the Intelligence Community. NGA provides timely, relevant, and accurate geospatial intelligence (a combination of imagery, imagery intelligence, and geospatial information) to the military warfighter and our nation's civilian senior policy and decision makers. NGA's geospatial intelligence provides the knowledge foundation our customers need for planning, decision, and action.

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Next year marks the 75th Anniversary for ASPRS and we have two special conferences planned including the

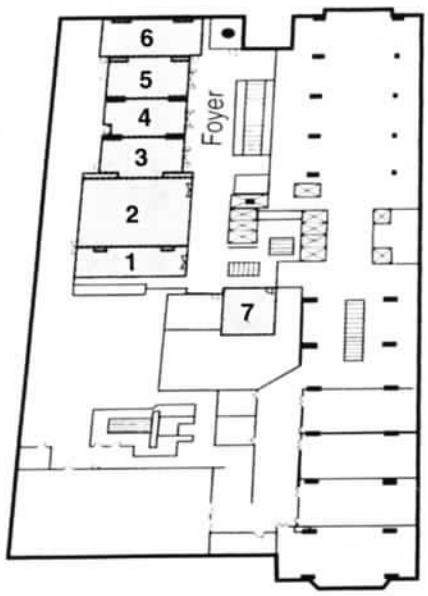
2009 ASPRS Annual Conference, March 8-13 in Baltimore, Maryland

and the

ASPRS/MAPPS 2009 Fall Conference, November 16-19 in San Antonio, Texas.

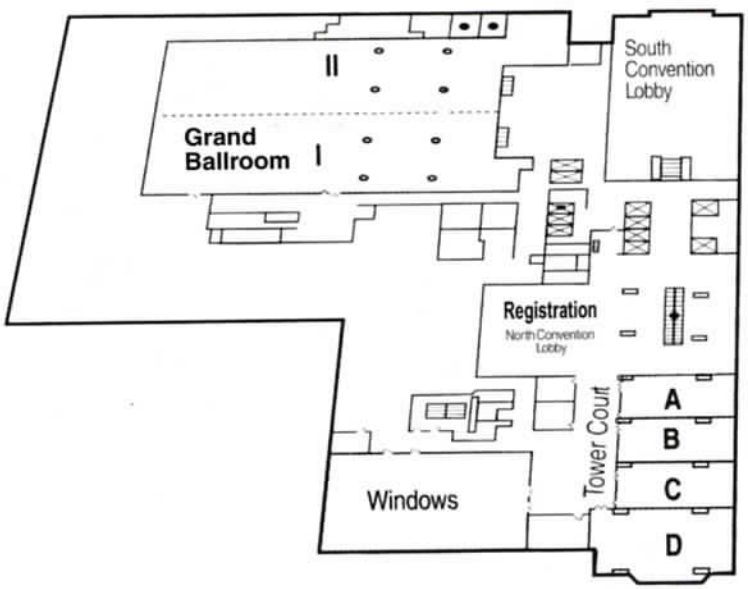
Hotel Floor Plan

Tower Building

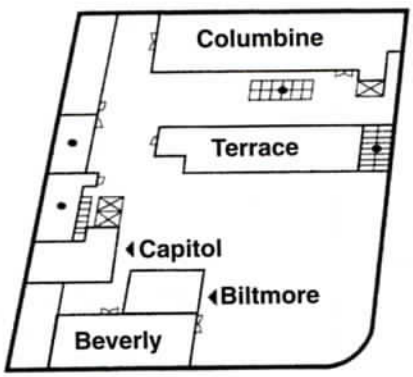


Mezzanine Level

1. Colorado
2. Silver
3. Gold
4. Century
5. Spruce
6. Denver
7. Aspen



Second Floor



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