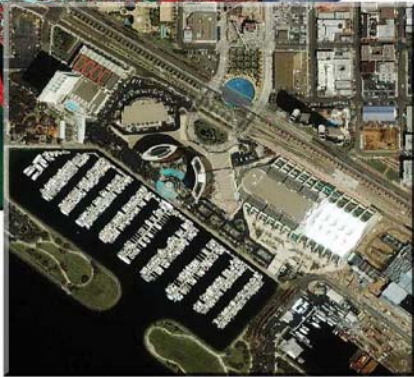




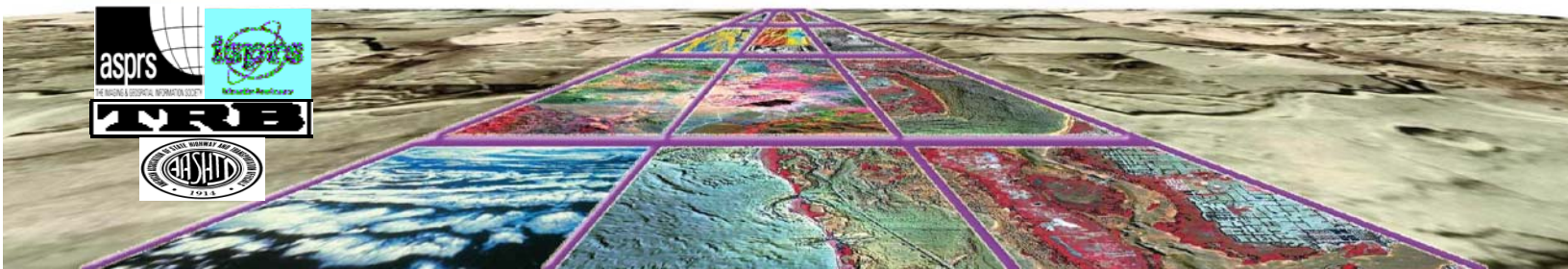
Remote Sensing for Transportation



Program Track

***“Integrating Remote Sensing
at the Global, Regional,
and Local Scale Conference”***

***November 10 to 15, 2002
Denver, Colorado***



Welcome Letter For Remote Sensing Conference 2002



I am pleased to invite you to join us in Denver, Colorado November 11-15, 2002 for an important exchange. As we continue to face unprecedented challenges to preserve the existing transportation system and to take on new missions, a variety of advanced technologies are becoming available to enhance planning, designing, operating, and maintaining all modes of transportation. Aerial and satellite remote sensing represents one area experiencing rapid development.

This year we will be including the Transportation Research Board (TRB) Remote Sensing for Transportation Conference with the *Pecora 15 / Land Satellite Information IV Conference* and the ISPRS Commission Mid-term Symposium.

The overall goal of these joint conferences is to transfer a comprehensive knowledge package about satellite data from successful innovators to end users, current and potential. Our portion of the conference builds on the successful 2000 and 2001 Remote Sensing for Transportation Conferences.

We will continue to focus on the use of space age technologies in managing and monitoring traffic flow, expediting project delivery, system vulnerability and incident management, and infrastructure management. The conference emphasizes demonstrating value of remote sensing for the transportation community.

This conference presents an excellent opportunity for the transportation community to: (1) enhance communication between the transportation and remote sensing communities; (2) develop a common understanding of current successful remote sensing transportation applications; and (3) maximize knowledge gained by attending three events for the price of one.

I hope you will participate actively in this exciting event!

David Ekern
Committee Chair, Remote Sensing for Transportation
Assistant Commissioner
Minnesota Department of Transportation

This brochure is an extract of the full Preliminary Program that emphasizes the conference activities of greatest interest to the transportation community. The Transportation Track is one of five application tracks that are described on the next page. For full information see the conference web site

<http://www.asprs.org/Pecora-ISPRS-2002/>. Contact Tom Palmerlee at the Transportation Research Board (TRB), tpalmerl@nas.edu, 202-334-2907 for more information on the transportation activities.

The 2001 *Conference on Remote Sensing for Transportation* will be part of a combined event that encompasses three other conference. The fourth *Pecora 15/Land Satellite Information Conference* focuses on the application of remote sensing in order to transfer knowledge about the use of satellite data from successful innovators to potential uses. The *ISPRS Commission I Mid-term Symposium* one of seven Commissions in the International Society for Photogrammetry and Remote Sensing (ISPRS). Its focus is on platforms, sensors, and imaging systems for Earth observations. Finally the *Future Intelligent earth Observing Satellites (FIEOS)* symposium brings together private sector, government, and university experts to discuss the possibility and feasibility of such intelligent systems for 2010 and beyond. Intelligent systems could include space-based architectures capable of dynamic and comprehensive onboard integration of sensors, data processors, and communications. Registrants may attend session of any part. Workshops and the Friday Classified Session require separate registration and fees.

Transportation Research Board (TRB) members are eligible for the Member Registration Rate.

Check the conference web site for updates and additional information.
www.asprs.org/Pecora-ISPRS-2002

The Pecora 15/Land Satellite Information IV program has five broad tracks that include traditional paper sessions, panels and Applications Showcase/Posters.

Disasters, Hazards, and Emergency Response Track — From Response to Mitigation Track

Remote sensing systems have proven to be invaluable sources of information that enable the disaster response community to make critical initial assessments of the nature and magnitude of damage and destruction. High-resolution remote sensing data is especially useful for documenting certain hazards, for determining where to stage response facilities and supplies, and for planning related to reconstruction and relocation activities. Data availability and its timely delivery are crucial to saving lives and property during disasters, and technological developments are making positive contributions in this area. Some of the most significant progress in disaster reduction is being made in mitigation using historical and contemporary remote sensing data in combination with other geospatial data sets as input to predictive models and early warning systems. This track will address new remote sensing developments supporting disaster mitigation and response, and focus on such key issues as data access, timeliness, appropriateness, data sharing, training, transnational cooperation, and the role of the private sector.

Environmental Track

Imagery and remote sensing of the Earth's surface provide insights into environmental conditions and support environmental policy, research, and managerial decisions from global to local scales. Given the natural and anthropogenic forces that affect Earth's landscapes and the range of regulatory requirements, managers and policy makers are drawing on advanced technological methods, including imagery, to monitor conditions and comply with environmental laws. This track will address sensors, research, operational applications, and management issues associated with imagery and environmental topics. In line with the conference, the sessions will focus more on satellite-based sources than on airborne sources. The overall purpose of the track and its five sessions is to provide information on progress using imagery in environmental management (government and business) as well as in global-scale monitoring. The sessions will present analytic and characterization techniques, developments in environmental applications, and opportunities to market imagery and services in the environmental arena.

Law & Policy Track — Integrating Remote Sensing Policy, Law and Practice Track

Space-based remote sensing supports economic, environmental, and security goals at global, regional, and national scales. Geo-spatial information derived from land satellites is critical for our understanding of global/trans boundary issues.

Some contend that on balance global and regional stability are strengthened through the increased transparency of increasing international availability of land satellite information. These satellite programs can provide sources of data and products that improve the ability of national governments to meet critical military and civilian mission requirements. Also, emerging commercial programs can further fuel the information economy with exciting new data sources and applications, and provide economic opportunities. This track will explore how policy and decision-makers can ensure that the appropriate policies are in place to foster robust remote sensing programs that serve as important tools for achieving important civilian, commercial, foreign policy, and national security goals.

Natural Resources Track (including Agriculture and Forestry)

Global monitoring of natural resources, which include forestry, agriculture, and energy resources depend on robust and systematic space/airborne imaging systems. Most of the Earth's natural resources are becoming more scarce, thus requiring more diligence to manage our existing resources and explore for new resources. Satellite imagery and the resulting geospatial information are critical factors for resource managers and scientists to analyze and compare the Earth's resources in space and time. Emerging processing technologies that integrate different types and scales of data enable a hierarchical exchange of data, which is expanding our knowledge of how local changes affect regional, national, and global environments. This track will provide an overview of key programs, successes, and challenges to monitoring and managing our natural resources.

Transportation Track

Transportation organizations at all levels face unprecedented challenges to preserve the existing transportation system and take on new missions. Aerial and satellite remote sensing are technologies that hold promise of great value for transportation. The U.S. Department of Transportation has initiated a major research program on transportation related applications. The Transportation Research Board (TRB) has held two conferences on Remote Sensing and Spatial Information Technologies for Transportation. This track represents the third event in this series and will highlight successful remote sensing projects that serve to enhance the business practices of transportation organizations. The full scope of transportation activities from planning, design, construction, management and operations are addressed, as are all modes. Strategies to improve implementation, use and management of remote sensing in transportation are examined. All application papers are organized into four topical poster sessions: Traffic Flows, Expediting Environmental Assessment, Lifeline Vulnerability and Incident Response, and Infrastructure Management and Protection. The breakout sessions on those topics involve a synthesis of research presented and a collective evaluation of additional efforts needed in order for remote sensing to reach its potential in transportation.

Tuesday, November 12

Roundtable for States and MPOs on the Use of Remote Sensing in Transportation Organizations

8:00 am to 12:00 pm

This year's Roundtable will build on last December's event that provided representatives from 15 State Departments of Transportation and Metropolitan Planning Organizations (MPO's) the opportunity to share experiences and strategies in the use of remote sensing. States and MPOs presented reports that discussed current state of practice, new initiatives, partnerships, and barriers to implementation. Issues for further discussion and research and actions for transportation associations were raised. This year's Roundtable will follow the same format. Each State DOT and MPO representative will present a short report that addresses the current status of remote sensing technology in their agency. Discussions will focus on a common understanding of current successful remote sensing transportation applications and crafting strategies for remote sensing implementation in transportation. While an invitation only event, the Roundtable is open to all state DOTs and MPOs. Representatives from public transportation organizations should contact Dave Gorg, Minnesota Department of Transportation, 651-296-5710, dave.gorg@dot.state.mn.us . **NO FEE.**

Monday, November 11

More than a dozen workshops will be offered. The following are ones of special interest to the transportation community. These workshops are limited to 40 people per workshop. Sign up is on a first-come, first-served basis. Most of these workshops are sold out by the early registration deadline, so sign up early to ensure a spot in the workshop(s) of your choice. These workshops are not included with registration. You must register for at least one daily conference registration.

3 —————

Utilization / Integration of Lidar for Mapping and GIS

Mike Renslow, *Spencer B. Gross, Inc.*

8:00 am to 5:00 pm, .8 CEU hours

Sponsored by ASPRS and ISPRS WG I/3

This workshop presents the fundamentals of lidar technology, data characteristics, supporting technologies, processing, creation of digital map products, and applications. The workshop is designed for technicians and professionals who require an in-depth review of lidar technology and data characteristics, and how the data integrate into existing mapping and GIS applications.

7 —————

Airborne Remote Sensing: A Fast-track Approach to NEPA Streamlining for Transportation

Karen Schuckman, *EarthData Technologies, LLC*

Steven Mah, *ITRES Research Ltd.*

1:00 pm to 5:00 pm, .4 CEU hours

Recent advances in digital photogrammetry and airborne remote sensing can be used to provide engineering-scale mapping quickly and cost-effectively. High-resolution, high accuracy data can be acquired over large project areas for evaluation of multiple alternative corridors in the NEPA permitting process. The challenge is to gain acceptance of technologies such as direct georeferencing with airborne GPS and inertial measurement units (IMU), lidar and hyperspectral imagery by state DOTs. These new data types must be integrated into existing engineering and environmental assessment workflows.

7 continued —————

The final results must meet stringent DOT accuracy specifications. This workshop is based on a Technology Application Project conducted for the U.S. Department of Transportation, Research and Special Programs Administration in cooperation with the National Consortium for Remote Sensing in Transportation, North Carolina Department of Transportation, ITRES Research Ltd. and EarthData International of North Carolina. Detailed results from the demonstration project, including technical approach to data acquisition, data processing, accuracy assessment and quality assurance processes will be discussed. Sample data sets will be distributed to workshop attendees.

9 —————

Applying Remote Sensing Technologies Within the Aviation Sector

Randy Murphy, *Grafton Technologies*

Fred Anderson, *FAA-AVN*

8:00 am to 12:00 pm, .4 CEU hours

The objective of this workshop is to provide an overview of how remote sensing data can be applied to planning, construction, operations, maintenance, security and safety within the aviation sector. The focus will be on how airports and the FAA are using these technologies to help develop, operate and maintain our nation's aviation infrastructure. R&D efforts being conducted by national agencies, universities and private companies will be explained and their results to date will be presented. Recommended specifications for remotely sensed data sets and the associated costs and benefits will also be discussed. Finally, this workshop will provide some insights and speculation on the role these technologies may play in the future for aviation.

Keynote Presentations

Chair: James A. Sturdevant, *U.S. Geological Survey*

1:00 pm to 3:00 pm

Earth Imaging from Space: New Actors, New Sensors, Better Products, and a Brighter Future?

Gérard Brachet, *Director General Centre National d'Etudes Spatiales*

Earth imaging from space has seen a multiplication of new systems operating both in the government sector (CNES, CSA, ESA, ISRO, NASA, etc.), and in the private sector (Space Imaging, DigitalGlobe, Orbimage, ImageSat). These provide services to both the science community and the operational applications users. After many years of development and market research, the Earth imaging industry has finally found its proper place and market, or is it still in its "trial and error" period? The verdict is not certain, but progress in sensor design, efficiency of system operation, and in product technology worldwide. Although sensor performance may seem to be the driving factor, with high ground-resolution images now available to the civilian market, it is a combination of these high sensor performances and much improved overall service to the user community that is enlarging the market base. In parallel, new products generated from the most recent new sensors onboard NASA and other space agencies' spacecraft contribute greatly to our improved understanding of our planet's physical and biogeochemical environment. A review of these new sensors and their relations to market enlargement, as well as to Earth science research, shows that the present combination of cooperation and competition worldwide is indeed a good recipe for progress.



Gérard Brachet

In 1982 Brachet was appointed as chairman and chief executive officer of SPOT IMAGE and remained in the position until 1994. In this capacity, he undertook the development of the company that led to the emerging global market for space-based remote sensing imagery. At the same time he acted several times as an advisor on space matters to the European Commission. In particular he chaired

a group of European experts on satellite-based Earth observation, and in 1991 and 1992 he helped formulate space policy for the European Union.

Since 1994, Brachet has been back at the Centre National d'Etudes Spatiales where he has successively held the positions of director for programs, planning and industrial policy until 1996, scientific director, and since July 1997 director general.

Turning a Great Idea Into Real Science and Applications

Mary Cleave, *Deputy Associate Administrator for Advanced Planning, NASA*



Viewing the Earth from space was a truly inspired idea. But like all great ideas, this one has taken a lot of work to realize its full potential. NASA, USGS, and others have worked hard since the days of ERTS-1 to ensure Earth observation could be fully exploited for science and applications. This has required a focus on calibration and validation, and on expanding the spatial, temporal, and spectral coverage in scientifically useful ways. And

it has required the formation of a web of commercial, inter-agency, and international partnerships with both suppliers and users of Earth remote sensing data. We have demonstrated the vast utility and potential of the view from space. It remains for us to help remote sensing products become ubiquitous in the economy and in societal decision-making generally.

Mary L. Cleave

A veteran of two space flights, Dr. Cleave has logged a total of 10 days, 22 hours, 02 minutes, 23 seconds in space, orbited the earth 172 times and traveled 3.94 million miles.

She is working in the Laboratory for Hydrospheric Processes. She is the deputy project manager for SeaWiFS (Sea-viewing, Wide-Field-of-view-Sensor), an ocean color sensor for monitoring global marine chlorophyll concentration.

General Sessions

Tuesday, November 12

General Session

3:45 pm to 5:15 pm

The Future of the Satellite Earth Observation Industry: Views of the Commercial Data Providers

Chair: William E. Stoney, *Mitretek Systems*

The principals of current commercial data providers will present their visions of the problems and the possibilities facing their young industry. They will discuss the potential impact of government programs and regulations on their future viability, and will offer their suggestions on how the government and industry can best work together so that the full potential of global satellite imaging can be realized.

Panelists:

John Cople, Space Imaging

Herbert Satterlee, DigitalGlobe

Matthew O'Connell, Orbital Image Corporation

Larry Schwartz, ImageSat International (invited)

Roland Knight, RADARSAT International (invited)

Gene Colabattito, SPOT Image Corporation

Wednesday, November 13 continued

NASA/NOAA Electronic-Theater 2002: Showing 1

12:45 pm to 1:30 pm

Visions of Our Planet's Atmosphere, Land & Oceans: Spectacular Visualizations of Our Blue Marble

Arthur F. (Fritz) Hasler, *NASA*

Earth Science Electronic Theater presents remote sensing observations and visualizations of our planet in a historical perspective. Fly in from outer space to the 2002 Winter Olympic stadium site of the Olympic opening and closing ceremonies in Salt Lake City. Fly in and through Olympic alpine venues and visit the Denver/Boulder area using 1 m IKONOS "Spy Satellite" data. Go back to the early weather satellite images from the 1960s and see them contrasted with the latest US and international global satellite weather movies including hurricanes and "tornadoes". See the latest visualizations of spectacular images from NASA/NOAA/USGS datasets from Terra, GOES, TRMM, SeaWiFS, Landsat 7 including 1 - min GOES rapid scan image sequences of Nov 9th, 2001 Midwest tornadic thunderstorms and have them explained.

The presentation will be made using the latest HDTV technology from a portable computer server.

Wednesday, November 13

General Session

8:30 am – 10:00 am

Integrating Sensor Data from International Programs

Chair: Stanley Morain, *ISPRS Commission I*

Organized by ISPRS Commission I

Space-faring nations have been invited to brief conference participants on the latest international developments and capabilities for sensing Earth's environments, systems, and resources. This is a companion overview to General Session #2, intended to share an international government perspective on national roles and achievements in Earth observations. Representatives have been invited from the People's Republic of China, Japan, India, Brazil, France, and the European Space Agency to describe their initiatives and programs, paying particular attention to new and planned aerial and satellite systems. The goal is to provide high-level overviews so participants can gain a sense of global unity and collaboration by international governments for Earth observations technology.

Panelists:

Guo Huadong, People's Republic of China

Rangnath Navalgund, National Remote Sensing Agency, India

Jose Braga Raimundo Coelho, INPE, Brazil

Daniel Vidal-Madjar, Earth Study & Observation, CNES, France

José Achache, Earth Observations Directorate, ESA, France

Thursday, November 14

General Session

8:00 am to 9:00 am

Directions in the Spatial Information Industry: The RAND Studies and the ASPRS Industry Forecast

Chair: John C. Trinder, *ISPRS*

This session summarizes the global efforts in developing information infrastructures and provides highlights of the major ASPRS study to determine the anticipated use of remote sensing imagery.

Integration of Spatial Technologies and Information into our Everyday Lives

Beth Lachman, *RAND*

This presentation will overview potential future directions of the spatial technologies industry based on RAND analysis of marketplace, technology and application trends. Implications of international collaboration and spatial infrastructure development, such as the Global Spatial Data Infrastructure, will also be discussed.

Remote Sensing Industry Forecast

James Plasker, *Am. Soc. for Photogrammetry & Remote Sensing (ASPRS)*

General & Transportation Technical Sessions

Thursday, November 14 continued

ASPRS, together with NASA and several other collaborating organizations, is in the midst of producing a Ten-year Remote Sensing Industry Forecast. The study will include commercial market projections for data collection (space-based and aerial), data processing, tools and support services, value-added reselling, and other product lines by market segment, as well as projections of educational and work force demands and research and development trends. The current status and findings of the study will be presented.

General Session 9:00 am to 10:15 am

Issues in Civil Remote Sensing Programs

Chair: Gregory W. Withee, *Nat. Oceanic & Atmospheric Admin.*

Space-based remote sensing supports broad economic, environmental, and security goals at global, regional, and national scales. USG agencies managing civil remote sensing programs provide continuous images of the Earth's surface used in agriculture, forestry, geology, natural resource management, coastal and marine resource management. The three agencies with civil remote sensing responsibilities will convene in a panel to discuss current issues in managing the USG civil remote sensing programs. Topics may include: transition from research to operations; future planning and requirements; public-private partnerships; access and dissemination policy; and international partnerships.

National Aeronautics and Space Administration

Ghassem R. Asrar, *Earth Science Enterprise, NASA*

United States Geological Survey

Charles Groat, *U. S. Geological Survey*

National Oceanic and Atmospheric Administration

Gregory W. Withee, *Nat. Oceanic & Atmospheric Administration*

NASA/NOAA Electronic-Theater 2002:

Showing 2

12:45 pm to 1:30 pm

Visions of Our Planet's Atmosphere, Land & Oceans: Spectacular Visualizations of Our Blue Marble

Arthur F. (Fritz) Hasler, *NASA*

Thursday, November 14 continued

Concluding General Session

4:00 pm to 5:30 pm

Policies Affecting the Use of Satellite Imagery

Chair: Donald T. Lauer, *Scientist Emeritus, U.S. Geological Survey*

A panel of invited experts from private industry, government 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.

Panelists:

Jack Dangermond, *ESRI, Inc.*

Daniel Dubno, *CBS News*

Joanne Gabrynowicz, *University of Mississippi*

John R. Jensen, *University of South Carolina*

John MacDonald, *MacDonald-Detwiler Associates (retired)*

Ian MacGillivray, *Iowa Department of Transportation (retired)*

Chris Shank, *House Science Com., Subcommittee for Space & Aeronautics*

TRANSPORTATION

Wednesday, November 13

Applications Showcase & Poster Session I

Transportation Applications Showcase & Posters 1

These authors will be at their posters from 1:30 pm to 3:30 pm.

Infrastructure Management and Protection:

Hyperspectral Sensing for Road Centerline Extraction and Pavement Condition

Val Noronha, *University of California — Santa Barbara*

Dar Roberts, Meg Gardner, and Martin Herold

Using Hyperspectral Imagery to Map Roads and Determine Surface Material Types

Brian S. Penn, *Boeing-Autometric*

Evaluation of Lidar for Highway Planning, Location and Design

Reginald R. Souleyrette, *Iowa State University*

Shauna Hallmark, David Veneziano, and Sitansu Pattnaik

Comparison of Surface Models Derived by Three Techniques

Alan Vonderohe, *University of Wisconsin — Madison*

Nick Koncz, Hongwei Zhu, Frank Scarpace, and Teresa Ad

Transportation Sessions

Wednesday, November 13 continued

A High Accuracy Photogrammetric Mapping Solution For Design/Build Projects

Thomas L. Pagh, *Spencer B. Gross, Inc.*

Transportation Applications Showcase & Poster 2

These authors will be at their posters from 3:30 pm to 5:45 pm.

Lifeline Vulnerability and Incident Response

Satellite Remote Sensing and Transportation Lifelines: Safety and Risk Analysis Along Rural Roads

Douglas Fuller, *The George Washington University*
Michael Jeffe, Ray Williamson, and Dalton James

Facilitating the Practical Application of Remote Sensing and Spatial Information Technologies to Transportation Practice

Vicki Glenn, *BSN, Inc.*

Transportation Hazards Research at the University of Utah

George Hepner, *University of Utah*

AIRSTEP: An Evaluation of Alternative Remote Sensing Technologies in Meeting Federal Requirements for Airfield Obstruction Identification

Richard Watson, *University of New Mexico*
Theresa Kuntz and Karl Benedict

Remote Sensing and Transportation Security

Ray A. Williamson, *The George Washington University*

Remote Sensing and GIS-based Estimation of Dynamic Population Distributions for Evacuation Planning

Demin Xiong, *Center for Transportation Analysis*

Combined Use of Remotely Sensed Data and Mobile Mapping Imagery for Roadway Characteristics Database Development

Demin Xiong, *Center for Transportation Analysis*
Rodney Floyd

Assessment of Airborne Lidar and Imaging Technology for Pipeline Mapping and Safety Applications

C. Vincent Tao, *York University*
Yong Hu and Jason Hu

Integrating Remotely Sensed Imagery and Information for Transportation Infrastructure Management

Dan Matthews, *HSA Consulting Group, Inc.*
Ted Jones and Gay Smith

Wednesday, November 13 continued

Concurrent Technical Sessions 1

10:45 am to 12:15 pm

Transportation

Is Remote Sensing in Your Future?

Chair: Leni Oman, *Washington State Dept. of Transportation*

This session will present an overview of two years of intensive research in applications of Remote Sensing in 21st Century DOTs and the transportation community. Presentations will highlight a five-year outlook and will assess challenges and propose future actions to bring the remote sensing industry and transportation community closer together.

The US DOT/NASA Remote Sensing Initiative: What We've Done, Where We are Going

K. Thirumalai, *U.S. Department of Transportation*

Transportation-Related Activities at NASA

Michael R. Thomas, *NASA*

Scenarios for the Next Five Years for Remote Sensing in Transportation

David R. Fletcher, *Geographic Paradigm Computing, Inc.*

An Action Plan for Remote Sensing in Transportation

David S. Ekern, *AASHTO*
Henry L. Peyrebrune

Concurrent Technical Sessions 2

2:00 pm to 3:30 pm

Transportation

Traffic Flows - Planning and Operations

Chair: Joel L. Morrison, *The Ohio State University*

Remote sensing provides more information, faster to planners and traffic engineers. It helps develop information systems that can facilitate both short and long range highway and transit planning. This session highlights the application of remote sensing data and information to improve the efficiency and safety of traffic flow through enhanced planning and operations. Selected recent research results and future directions will be summarized in each area. Improved estimates of VMT, AADT, O-D travel patterns and land use, demographic and economic data resulting from remotely sensed data are indispensable in planning modern transportation systems. How many vehicles, how fast, and individual vehicle tracking, from air and space-borne platforms provides data to manage transportation systems.

Integrating and Analyzing Land Use, Land Cover, and Activity Information Using Remote Sensing Technology

Jeff Tayman, *San Diego Association of Governments*

Transportation Sessions

Wednesday, November 13 continued

Traffic Planning

Ian MacGillivray, *Iowa Department of Transportation* (retired)

Improved Transportation Operations Through the Use of Remote Sensing

Walter Kraft, *Parsons Brinckerhoff/Farradyne*

Concurrent Technical Sessions 3

4:15 pm to 5:45 pm

Transportation

Expediting Environmental Assessment for Project Delivery

Chair: Leni Oman, *Washington State Dept. of Transportation*

Transportation projects must often go through rigorous environmental reviews for approval. Project specific actions may impact landscape level functions but few methods and tools exist for this scale of analysis. Data availability and level of detail issues frequently slow the environmental assessment process. This session will identify methods and tools that are currently available or in development that can help facilitate environmental assessment. Panelists will discuss actions to improve the application of remote sensing to environmental assessment in transportation.

Transportation, The Environment and Remote Sensing

Charles Laymon, *Universities Space Research Association*

A Synthesis of Remote Sensing Applications for Environmental Assessment

Roger King, *Mississippi State University*

Where Do We Go From Here? A Panel

Donald T. Lauer, *U.S. Geological Survey*

Fred Skaer, *FHWA Office of NEPA Facilitation*

Judith Leckrone Lee, *Environmental Protection Agency*

Leroy Irwin, *Florida Department of Transportation*

Thursday, November 14

Applications Showcase & Poster Session 2

Transportation Applications Showcase and Posters 3: Expediting Environmental Assessment

These authors will be at their posters from 10:15 am to 12:15 pm

Remote Sensing for Identifying Environmental Features and Streamlining the NEPA Process

John Albasini, *Veridian Systems Division*

Gary Erenrich

Remote Sensing Applications in Environmental Impact Assessment of Land Cover and Socioeconomic Changes at the Watershed Scale

James Cruise, *Global Hydrology and Climate Center, UAH*

Charles Laymon, Maury Estes, and Burgess Howell

Protecting Ecological Function Using the Southeastern Ecological Framework

Rick Durbrow, *US Environmental Protection Agency, Region 4*

Cory Berish, John Richardson, and Stacy Fehlenberg

Digital Data Libraries of Geospatial Data and Information Products for Transportation Assessment and Planning

Charles G. O'Hara, *Mississippi State University*

Roger L. King

Remote Sensing and Geospatial Application for Wetland Mapping, Assessment and Mitigation

Charles G. O'Hara, *Mississippi State University*

Analysis of Remotely Sensed Data

Dennis D. Truax, *Mississippi State University*

Charles G. O'Hara and Repaka Sunil Reddy

Remote Sensing, GIS, and Land Use and Land Cover Mapping Along the I-10 Corridor

Dennis D. Truax, *Mississippi State University*

Adam Johnson and Charles G. O'Hara

Evaluation of Airborne Lidar Digital Terrain Mapping for Highway Corridor Planning and Design

Waheed Uddin, *The University of Mississippi*

Transportation Sessions

Thursday, November 14 continued

Transportation Applications Showcase and Poster 4: Traffic Flows

These authors will be at their posters from 1:30 pm to 3:30 pm

Remote Sensing for Developing and Updating Regional Databases for Transportation Planning

John Albasini, *Veridian Systems Division*

Using Remote Sensing to Monitor and Manage Truck Activity at Rest Areas

Michael S. Bronzini, *George Mason University*

Hyperspectral Imaging of Submerged Aquatic Vegetation Near Ports and Harbors

Richard B. Gomez, *George Mason University*

State-of-the-Art Positioning and Imaging Sensors and Techniques Supporting Traffic Flow Estimates

Dorota Grejner-Brzezinska, *NCRST-Flows, The Ohio State Univ.*
Charles Toth

Remote Sensing and Spatial Information Applications for Transportation Demand Management (TDM) Assessment

Lawrence J. Harman, *Bridgewater State University*

Mapping and Monitoring Invasive Aquatic Plant Obstructions in Navigable Waterways

Mark E. Jakubauskas, *TerraMetrics, Inc./Kansas Biological Survey*

D. L. Peterson, S. W. Campbell, and S. D. Campbell

Improving AADT and VMT Estimation with High-Resolution Satellite Imagery

Mark McCord, *The Ohio State University*
Prem Goel, Zhuojun Jiang, Benjamin Coifman, Yongliang Yang, and Carolyn Merry

Application of Aerial Video for Traffic Flow Monitoring and Management

Pitu Mirchandani, *University of Arizona*
Mark Hickman, Alejandro Angel, and Dinesh Chandnani

Evaluating Real-Time Origin-Destination Flow Estimation Using Airborne-Based Data from Multiple Surveillance Platforms

Rabi Mishalani, *The Ohio State University*

Remote Sensing for Airport Development and Transportation Planning

Randy Murphy, *Grafton Technologies*

Estimating Truck Speeds from Imagery

Morton O'Kelly, *The Ohio State University*
Ron Li, Carolyn Merry, Tim Matisziw, and Xutong Niu

The Use of ADAS for Surface Transportation

Dan Rathbone, *GeoData Systems and DBR & Associates*
Ernest Carroll

Airborne Video Georegistration for Visualization and Parameter Estimation of Traffic Flows

Robert A. Schowengerdt, *University of Arizona*
Anand C. Shastri

Concurrent Technical Sessions 4

10:45 am to 12:15 pm

Transportation

Lifeline Vulnerability and Incident Response

Chair: Diane Pierzinski, *California Dept. of Transportation*

Lifeline vulnerability and incident response are vital activities in transportation operations. This session addresses how remote sensing and geospatial data and information can be used to assess vulnerability and respond to incidents after they occur. The session summarizes a series of workshops devoted to extending traditional remote sensing applications to critical infrastructure protection, and to identifying requirements for future incident response systems. Presentations will show how images can be used in geographic information systems to support incident response requirements. These summary presentations will be culminated with a facilitated open discussion to identify what yet needs to be addressed, what has been overlooked, and what future directions seem most appropriate for transportation planners and emergency response providers.

Introduction to Lifeline Vulnerability and Incident Response

Rick Watson, *University of New Mexico*

Matching Image Information to Lifeline Vulnerability Assessment

Ray A Williamson, *The George Washington University*

Using Imagery and GIS Inputs for Incident Response

Dennis Goreham, *State of Utah*

Discussion

David L. Huft, *South Dakota Department of Transportation*

Concurrent Technical Sessions 5

2:00 pm to 3:30 pm

Transportation

Chair: Freddie Simmons, *Florida Department of Transportation*

Infrastructure Management and Protection

Remote sensing and spatial information technologies help to provide, manage and analyze information on the location, condition and adequacy of infrastructure assets. This session discusses tools to detect and to map infrastructure such as roads and bridges, and technical comparisons of photogrammetry with lidar for terrain mapping in support of planning and design. The session also addresses protection of critical infrastructure assets against deliberate, accidental and natural threats, and methods of assessing the performance of critical infrastructure in emergencies. An open discussion addresses user issues, directions for future research and appropriate initiatives for applying research results to practice.

Infrastructure Planning, Location and Design: Lidar and Photogrammetry

Ian MacGillivray, *Iowa Department of Transportation* (retired)

Michael T. McNerney

Critical Infrastructure Protection

David R. Fletcher, *Geographic Paradigm Computing, Inc.*

Registration Information

How to Register

Please register on-line or download the registration form. Payment will be accepted by Visa, MasterCard, American Express, checks made payable to ASPRS, and signed government purchase orders or training orders. **Registrations received without payment will not be processed. Please do not mail in your pre-registration form after you have registered by fax or on-line.**

On-line:

www.asprs.org/Pecora-ISPRS-2002
(Visa & MasterCard, American Express only)

Workshop Registration

Workshops require individual registration and additional payment to the general conference registration fees. **They are not included in the full registration fees.**

Refund Policy

All refunds are subject to a \$50.00 processing fee and will be issued one month after the conference. To qualify for a full refund, a written cancellation must be received by the Meeting Registrar by October 11, 2002. For cancellations received by November 4, 2002, a 50 percent refund will apply. No refunds will be given after November 5, 2002.

Member Registration Fees

	Through October 11, 2002	After October 11, 2002
<input type="checkbox"/> Full ¹	\$350	\$450
<input type="checkbox"/> Student ²	\$60	\$95
<input type="checkbox"/> Spouse/Guest ³	\$85	\$85
<input type="checkbox"/> CEU Processing Fee	\$25	\$25

Non-Member Registration Fees

	Through October 11, 2002	After October 11, 2002
<input type="checkbox"/> Full ¹	\$450	\$550
<input type="checkbox"/> Student ²	\$75	\$110
<input type="checkbox"/> Spouse/Guest ³	\$285	\$85
<input type="checkbox"/> CEU Processing Fee	\$25	\$25

Advance Registrations must be postmarked by October 11, 2002; ¹Full Registrations includes educational sessions, exhibits, proceedings, reception/drink ticket, lunches and breaks. The technical tours, workshops and classified session are available for an additional charge; ²Student Registration requires a copy of student ID and includes educational sessions, exhibits, proceedings, reception, lunches and breaks. The technical tours, workshops and classified session are available for an additional charge. All refunds are subject to a \$50.00 processing fee and will be issued one month after the conference. To qualify for a full refund, a written cancellation must be received by the Meeting Registrar by October 11, 2002. For cancellations received by November 4, 2002, a 50 percent refund will apply. No refunds will be given after November 5, 2002.

Adam's Mark Hotel

1550 Court Place
Denver, Colorado 80202
(303) 893-3333
(303) 626-2542 FAX
1-800-444-ADAM
(2326) Reservations

Room Rates
\$149 Single \$159 Double
Early Reservation Deadline **OCTOBER 11, 2002**

Membership Discount

To receive the discounted registration rate for members, you must be a dues paying member of **ASPRS**, or a member of an ISPRS member country, or **TRB**. To become a member of ASPRS, download the membership application at www.asprs.org/membership.

**Advanced Registrations
will not be accepted
after October 11, 2002**

Workshop Fees

	Member	Non-Member
<input type="checkbox"/> Workshop 1 — Sunday**	\$150	\$250
<input type="checkbox"/> Workshop 2 — Monday	\$195	\$295
<input type="checkbox"/> Workshop 3 — Monday	\$250	\$350
<input type="checkbox"/> Workshop 4 — Monday	\$195	\$295
<input type="checkbox"/> Workshop 5 — Monday	\$195	\$295
<input type="checkbox"/> Workshop 6 — Monday**	\$150	\$250
<input type="checkbox"/> Workshop 7 — Monday**	\$150	\$250
<input type="checkbox"/> Workshop 8 — Tuesday**	\$150	\$250
<input type="checkbox"/> Workshop 9 — Tuesday**	\$150	\$250
<input type="checkbox"/> Workshop 10 — Tuesday**	\$150	\$250
<input type="checkbox"/> Workshop 11 — Tuesday**	\$150	\$250
<input type="checkbox"/> Workshop 12 — Tuesday**	\$150	\$250

**** Indicates a half-day workshop.**

Limited space is available in each workshop. Workshop registrations will be accepted on a first-come, first-serve basis. ASPRS reserves the right to set a maximum and minimum for each workshop and to cancel any workshop for insufficient registration. You will be notified if a workshop you are registering for is full.

After October 11, 2002, you may only register on-site. Space is limited, therefore, on-site registration will be available on a first-come, first-serve basis.