9:15 am to 10:45 am

Satellite Imagery
Moderator: Paula Smit, *Raytheon IIS*

An Overview of the NPOESS Preparatory Project (NPP)
Paula Smit, *Raytheon IIS*

Micro Satellites Remote Sensing
John Ahlrichs, *Rapid Eye*

Evaluation of Automated Radiative Transfer Modelling in an Operational Environment on Poorly Calibrated Medium Resolution Satellite Imagery
Luck Wolfgang, *CSIR Satellite Applications Centre*, South Africa

Melanie Vogel

Statistical Study of Space Remote Sensors
Zahra Ghadyani, *University of Tehran*, Iran

Syamak Afshar and Sina Adham

ASPRS PDAD Panel — Airborne Digital Mapping Camera Systems: Manufacturers' Perspective
Moderator: Brian Huberty, *U.S. Fish and Wildlife Service*

A dynamic forum to address current systems and future developments in this important and rapidly evolving mapping technology. System vendors will highlight their specific technologies in order to meet the demand for digital mapping images.

Panelists:
TBD, *Leica*
Franz Liberl, *Vexcel/Microsoft*
Klaus Neuman, *Z/I*
Eric Liberty, *Applanix*
Dave Fuhr, *Airborne Data Systems*
Julien Losseau, *DiMAC*

Object Feature Extraction II
Moderator: Leberl Franz, *Microsoft Photogrammetry*, Austria

Linear Sparse Feature Extraction Transforms for Remote Sensing Images
Stefan Robila, *Montclair State University*

Automated Extraction of Predefined Features from the Imagery
Dmitry Varlyguin, *Geospatial Data Analysis (GDA) Corp*

Stephanie Hulina and Luke Roth

Detecting Cars in Aerial Imagery for Improvements of Orthophotos and Digital Elevation Models
Leberl Franz, *Microsoft Photogrammetry*, Austria

Michael Gruber, Horst Bischof, Helmut Grabner and Stefan Kluckner

Lidar — Data Accuracy Assessment II
Moderator: Michael Hodgson, *University of South Carolina*

New Horizontal Accuracy Assessment Tools and Techniques for Lidar Data
John Ray, *Ohio DOT, GeoCue Corporation*

Lewis Graham

The Synergistic use of Lidar and Hyperspectral Data in a Segment Based Image Classification Algorithm
George Raber, *The University of Southern Mississippi*

Validation of Lidar Points using Crossvalidation versus Reference Points
Michael Hodgson, *University of South Carolina*

Natural Resource Applications I
Moderator: David Johnson, *U.S. Department of Agriculture/National Agricultural Statistics Service*

A Methodology for Mapping and Uncertainty Analysis of Forest Carbon by Combining Image and National Forest Inventory and Analysis Data
Guangxing Wang, *Department of Geography and Environmental Resources Southern Illinois University Carbondale*

Tonny Oyana, Samuel Adu-Prah, and George Gertner

Estimation of Leaf Area Index (LAI) Through the Acquisition of Ground Truth Data in Yosemite National Park
Bettina Schiffman, *NASA Ames Research Center*

Galli Basson, Anjanette Hawk, Evan Lue, Dustin Ottman, and Moyukh Ghosh

Evaluation of ALOS PRISM and PALSAR for Measuring Volume Change of Alaskan Glaciers
Don Atwood, *Alaska Satellite Facility*

Franz Meyer, Reiji Muskett, Scott Arko, and Roman Motyka

An Evaluation of Resourcesat-1 LISS-III versus AWiFS Imagery for Identifying Croplands
David Johnson, *U.S. Department of Agrisulture/National Agricultural Statistics Service*

Geospatial Data Accuracy/Error Assessment
Moderator: Nick Younan, *Mississippi State University*

Establishing the Geodetic Base for All Future Landsat Orthorectified Image Products
Jon Dykstra, *MDA Federal Inc*

Roger Mitchell and Michael Finn

Sampling Strategy for Accuracy Assessment of Vegetation Databases for National Parks
Thomas Jordan, *Center for Remote Sensing and Mapping Science (CRMS), Department of Geography, University of Georgia*

Marguerite Madden

Accuracy Assessment of the Southeast Gap Analysis Project Regional Ecological Systems Map
Todd Earnhardt, *North Carolina State University*

Alexa McKerrow

9:15 am to 10:45 am

Geophysical Applications

Moderator: Chris Hopkinson, *Applied Geomatics Research Group*

Coastal Change Analysis Supported by Multi-dimensional Geospatial Data

I-Chieh Lee, *Mapping and GIS Lab, The Ohio State University*

Sagar Deshpande, Xutong Niu, and Ron Li

Estimations of Erosion and Deposition using High-resolution Optical Imagery and Lidar Data

John Barlow, *University of Saskatchewan*, Canada

Steven Franklin and Chris Hopkinson

Assessing Glacier Dynamics from Multitemporal Lidar Imagery

Chris Hopkinson, *Applied Geomatics Research Group*, Canada

Mike Demuth

A New Method of Shoreline Erosion Assessment

Joon Heo, *Yonsei University*, South Korea

Jung Kim, Kim Whan, and Woo Jin

Panel Discussion — Geographic Information Science (GISc) Licensing Issues

Moderator: Carolyn Merry, *The Ohio State University*

Michael Hodgson, University of South Carolina

Representatives from ASPRS, ACSM, URISA, AAG, MAPPS, GISCI, UCGIS and states that license GIS professionals (South Carolina, Oregon, Florida, California) will present their viewpoints on licensing professionals in the Geoscience disciplines.

Environmental/Public Health Applications

Moderator: James Lein, *Ohio University*

Extending Environmental Surveillance to useful Public Health Information

Stanley A. Morain, *Earth Data Analysis Center, University of New Mexico*

Amelia M. Budge

Utilization of the Landsat Archive for Agricultural Chemical Exposure Assessment

Eric Wood, *SAIC*, contractor to *U.S. Geological Survey/EROS*

Susan Maxwell

Operational Considerations in the Application of Spaceborn Sensors for Envrionmental Compliance Enforcement and Monitoring

James Lein, *Ohio University*

ASPRS SAC — Scientific Communication I: Organizing and Constructing a Scientific Paper

Organized by the ASPRS Student Advisory Council
Moderator: Shaofei Chen

A series of four sessions (Organizing and Constructing a Scientific Paper, Proper Manuscript Preparation, Grammar for Educated Writers of Scientific English, and the Publication Process: From Submission to Print) intended to take students and young professionals through the process of writing and publishing scientific research from start to finish.

Feature-based Registration

Moderator: Paul Salamonowicz, *National Geospatial-Intelligence Agency*
Moderated Question/Answer Session

Overview of the Registration Problem and Critical Needs

Todd Johanesen, *National Geospatial-Intelligence Agency*

Jeff Kretsch and Paul Salamonowicz

Stereo Correspondence and Image Registration: Fundamental Geometry

Steven Zucker, *Yale University*

Gang Li

3D Voxel Framework for Registration and Change Detection

Joseph Mundy, *Brown University*

Thom Pollard and Dan Crispell

Photogrammetric View of Registration

Henry Theiss, *Integrity Applications Incorporated*

Edward Mikhail

The Dual-Bootstrap Registration Algorithm and Its Generalizations

Charles Stewart

AmericaView

Moderator: Ramesh Sivanpillai, *University of Wyoming*

This panel will provide an overview about AmericaView, its goals and objectives, followed by examples from the members (Stateviews) to highlight how these goals and objectives are being accomplished at the state-level.

Panelists:

Rebecca L. Dodge, *AmericaView Inc., University of West Georgia*
Rick Lawrence, *Montana State University, Spatial Sciences Center*
Bruce K. Quirk, *U.S. Geological Survey, Land Remote Sensing Program*
Russell Congalton, *University of New Hampshire*
Yong Wang, *East Carolina University*

Exhibit Hall Opens
10:00 am to 5:00 pm

Beverage Break in Exhibit Hall
10:45 am to 11:15 am

Memorial Address
12:15 pm to 1:15 pm

This year's Memorial Address will feature the life and achievements of John Edward "Jack" Estes, presented by Dr. John R. Jensen.

The Memorial Address Series affords attendees an opportunity to hear about the great accomplishments of industry pioneers and learn how they continue to impact our profession.

Honoree

John Edward "Jack" Estes was a pioneer in remote sensing of the environment who passed away on March 9, 2001 at the age of 61. He was a devoted husband to Claire and father to Tommy and John II.

Like geographers of old, Jack helped us see the world in new and more complete ways. Jack received his PhD in 1969 from UCLA and went on to a distinguished career at the University of California at Santa Barbara where he was the director of the Geography Remote Sensing Unit. Professor Estes' primary research interests revolved around the basic and applied use of remote sensing and geographic information systems (GIS) for the analysis of earth resources. Jack and his graduate students developed improved analytical methods to inventory and detect change in landcover at the national and international level, monitor marine oil spills, measure agricultural crop type and production, predict agricultural water demand, and document the spatial distribution of biodiversity.

He was the co-author of one of the earliest remote sensing textbooks titled *Remote Sensing: Techniques for Environmental Analysis* (1974). He was co-author of "Fundamentals of Image Interpretation" in the *Manual of Remote Sensing* (ASPRS, 1975). He was the editor of the interpretation and applications volume of the *Manual of Remote Sensing* (ASP&, 2ⁿᵈ Ed., 1983). With Daniel Botkin, he edited *Changing the Global Environment: Perspectives on Human Involvement* (Academic Press, 1989), and with Jeffrey Star he wrote *Geographic Information Systems: An Introduction* (Prentice Hall, 1990). Jack collaborated closely with other GIScientists in the federal government especially within NASA and the U. S. Geological Survey. He served on numerous National Academy of Science committees.

Jack mentored more than 50 graduate students who are now employed in prominent positions in various professional fields. His strength in teaching both undergraduate and graduate students lay in his thorough knowledge of his subject, his ability to organize and present complex materials, his sense of humor, and his sincere interest in his students' well-being. NASA and the U.S. Department of the Interior recognized Dr. Estes' outstanding contributions by awarding him the William T. Pecora Award in 1999. NASA awarded Jack the Distinguished Public Service Medal in 2001 in recognition of his pioneering achievements in remote sensing. His memory is honored annually through the "SAIC John E. Estes Memorial Teaching Award," given to a remote sensing scientist who has made significant contributions to remote sensing science and education. Jack will be missed greatly, though his legacy lives on through his numerous national and international scientific contributions and his students.

Presenter

John R. Jensen is a Carolina Distinguished Professor in the Department of Geography at the University of South Carolina. Jack Estes and John Jensen were both mentored by Dr. Norman J. W. Thrower at UCLA. Dr. Thrower allowed John to go to the UCSB Geography Remote Sensing Unit to learn about remote sensing of the environment under the direction of Dr. Estes from 1974-1977. Dr. Jensen is a certified photogrammetrist (#852), Past-President of ASPRS (1995-1996), and ASPRS Fellow. John was a co-author of ASPRS' *Manual of Remote Sensing* (1st and 2nd ed.) and *Manual of Photographic Interpretation* (1997). He was a contributor to *People and Pixels* (1998) and co-authored *Geographic Information for Sustainable Development* published by the National Academy Press in 2002. His textbooks *Introductory Digital Image Processing* (2005) and *Remote Sensing of the Environment* (2007) are used throughout the world. Dr. Jensen has mentored 65 masters students and 30 PhDs in remote sensing. He received the SAIC John E. Estes Memorial Teaching Award in 2005 and the NASA/DOI William T. Pecora Award in 2006. He has served on eight National Academy of Science remote sensing-related committees.

1:30 pm to 3:00 pm

Pacific Northwest Aquatic Monitoring Program (PNAMP) III
Moderator: Ralph Haugerud, *U.S. Geological Survey*

Using High Spatial Resolution Compact Airborne Spectrographic Imager (CASI) Imagery to Examine Patterns in Eelgrass Beds in Hood Canal, WA
Ralph Garono, *Earth Design, Inc.*

Using Remotely Sensed Landscape Variables to Assess Anthropogenic Influences on In-Stream Water Temperature in the John Day River
Mimi Diorio, *NOAA*

Modeling Watershed Condition and Trend
Peter Eldred, *U.S. Department of Agriculture, Forest Service*

Kirsten Gallo

Integrating Existing Vegetation Maps and Models of Vegetation Dynamics for Watershed Assessment
Melinda Moeur, *U.S. Department of Agriculture-Forest Service*

Wetland/Aquatic Vegetation Mapping
Moderator: Craig Ducey, *Bureau of Land Management*

Assessment for Wetland Vegetation Mapping using Multiple Remote Sensing Resources (Hyperspectral, High Spatial Resolution, and Radar Data)
Ken Chen, *South Florida Water Management District*

Vegetation Community Differentiation in a Large Wetland Landscape
Christa L Zweig, *Florida Cooperative Fish and Wildlife Research Unit, Department of Wildlife Ecology and Conservation*

Wiley M. Kitchens and Jane Southworth

Ugandan Dambo Wetland Classification using Multispectral and Topographic Data
Matthew Hansen, *University of Utah*

Philip Dennison, Scott Graves, and David Brown

Vegetation Dynamics III
Moderator: Joanne Halls, *University of North Carolina Wilmington*

Understanding the Deforestation Process in the Tropics through Remote Sensing Analysis and GIS Modeling of Socioeconomic and Biophysical Variables
Samuel Rivera, *Utah State University*

Alexander Hernandez, Pablo MartinezdeAnguita, and R. Douglas Ramsey

A GIS Model for Predicting Conifer Encroachment in the Bald Hills Prairies of Redwood National Park
Scott Powell, *Humboldt State University*

JasonTeraoka and Leonel Arguello

An Investigation of IKONOS Image Classification and Change Detection Techniques to Measure Coastal Habitat Progression
Joanne Halls, *University of North Carolina Wilmington*

Holly Gabries

Radiometric Correction
Moderator: Zhengwei Yang, *U.S. Department of Agriculture/NASS, R&D Devision, Spatial Analysis Research*

Application of Radiometric Recalibration Method for Improved Level 1 Landsat 5 Thematic Mapper (TM) Products
Rynn Lamb, *SAIC*

Md. Obaidul Haque, Gyanesh Chander, Esad Micijevic, and Ronald Hayes

Unbiased Histogram Matching Quality Measure for Optimal Radiometric Normalization
Zhengwei Yang, *U.S. Department of Agriculture/NASS, R&D Devision, Spatial Analysis Research*

Rick Mueller

Assessment of the Integrated Radiometric Correction (IRC) Method for Optical Satellite Data Analysis
Sanga-Ngoie Kazadi, *Ritsumeikan Asia Pacific University*, Japan

Shoko Kobayashi

Photogrammetric DEM Extraction
Moderator: Chunsun Zhang, *South Dakota State University*

Alternative Formulation of Multilinear Constraints with Geometric Interpretation
Orrin Thomas, *NASA*

Ed Oshel

Improving the Quality of Digital Elevation Models in Urban Areas using Breaklines via a Multi-photo Least Squares Matching Algorithm
Ahmed Elaksher, *Purdue Univeristy*

James Bethel

Generation of Digital Surface Model from High-resolution Satellite Imagery
Chunsun Zhang, *South Dakota State University*

Clive Fraser

Lidar — Urban Applications I
Moderator: Sirisha Karamchedu, *University of Wisconsin-Madison*

Morphology Based Building Detection using Airborne Lidar Data
Xuelian Meng, *Texas State University*

Le Wang and Nate Currit

Delineating Impervious Surfaces Utilizing High Spatial Resolution Multispectral Imagery and Lidar Data
Ming-Chih Hung, *Northwest Missouri State University*

Kreh Germaine

Lidar-Photo Fusion Approach to Enhancing DEMs with Building Elevation Information
Sirisha Karamchedu, *University of Wisconsin-Madison*

Kiran Manchikanti and Frank Scarpace

Image Registration
Moderator: Jackson Cothren, *University of Arkansas; Bohanan Huston, Inc.*

Automatic Compilation of 3D Road Features using Lidar and Multi-Spectral Source Data
Wilson Harvey, *TerraSim, Inc.*

David McKeown

A New Feature-based Image Registration Algorithm
Karthik Krish, *North Carolina State University*

Stuart Heinrich, Wesley Snyder, Halil Cakir, and Siamak Khorram

Automated Matching and Orientation of Aerial Images using Affine Covariant Region Descriptors
Jackson Cothren, *University of Arkansas; Bohanan Huston, Inc.*

John Nipper, Robert Dzur, and Dennis Sandin

Hydrologic Applications II
Moderator: Kiran Manchikanti, *University of Wisconsin-Madison*

The Bigger the Better? How Spatial Resolution Affect Modeling and Watershed Delineation
David Alvarez, *CDM*

Barrett Goodwin

Optimizing Allocation and Scheduling for Irrigation Systems (OASIS) — A Spatial/temporal Optimization Problem
Kiran Manchikanti, *University of Wisconsin-Madison*

Multicriteria Analysis for Flood Vulnerable Areas In Hadejia-jama'are River Basin, Nigeria
Sani Yahaya, *Geomatics Engineering Unit, University Putra Malaysia*, Malaysia

Noordin Ahmad and Ranya Fadlalla Abdalla

1:30 pm to 3:00 pm

High-Resolution Imagery
Moderator: Yong Wang, *East Carolina University*

Evaluation of NAIP ADS40 1-Meter Stereo Imagery for Landslide Mapping
Timothy P. McCrink, *California Geological Survey*

Florante G. Perez, Robert E. Yoha, Shawn R. Slade, And Becky Morton

Improving the Spatial Resolution of the ALOS PRISM Triplet using a Fusion Technique
Yong Wang, *East Carolina University*

Chong Fan, Jianya Gong, and Mingsheng Liao

Tells the Number of Pixels the Truth? Effective Resolution of Large Size Digital Frame Cameras
Karsten Jacobsen, *Leibniz University Hannover*, Gemany

ASPRS SAC — Scientific Communication II: Proper Manuscript Preparation
Organized by ASPRS Student Advisory Council
Moderator: Shaofei Chen

A series of four sessions (Organizing and Constructing a Scientific Paper, Proper Manuscript Preparation, Grammar for Educated Writers of Scientific English, and the Publication Process: From Submission to Print) intended to take students and young professionals through the process of writing and publishing scientific research from start to finish.

ASPRS PDAD Panel — Airborne Digital Mapping Camera Systems: Owners' Perspective
Moderator: Qassim Abdullah, *Fugro EarthData*

Panelists will discuss highlights and some pitfalls of new airborne digital mapping cameras.

Panelists:
Jeff Welter, *NWG*
Jeff Lovin, *Woolpert, Inc.*
Michael Ritchie, *PhotoScience, Inc.*
Debbie Simerlink, *Fugro EarthData Inc.*

Lidar — Forestry Applications
Moderator: Jason Tullis, *University of Arkansas*

Using Lidar to Assess Canopy Depth of Red-cockaded Woodpecker (RCW Picoides borealis) Habitat
H. Alexis Londo, *Mississippi State University*

David L. Evans and Scott A. Tweddale

Individual Tree Species Identification using Lidar Intensity Data
Sooyoung Kim, *Precision Forestry Cooperative, College of Forest Resources, University of Washington*

Hans-Erik Andersen, Robert McGaughey, Gerard Schreuder

Forest Lidar-derived Statistical Enhancement of Oak Hazard Models
Jason Tullis, *University of Arkansas*

Brian Culpepper, Jason Defibaugh y Chávez, Fred M. Stephen, and John Riggins

Beverage Break in Exhibit Hall
3:00 pm to 3:30 pm

3:30 pm to 5:00 pm

Pacific Northwest Aquatic Monitoring Program (PNAMP) IV
Moderator: Ralph Haugerud, *U.S. Geological Survey*
Expert Panel

Natural Resource Applications II
Moderator: Yinghai Ke, *SUNY-ESF*

Comparison of Individual Tree Crown Detection and Delineation Methods
Yinghai Ke, *SUNY-ESF*

Lindi Quackenbush

Towards Integrated System Modelling using Remote Sensing and in situ Inputs: Extraction of Robust Operational Spectral Parameters from Hyperspectral Data for Forest Macro- and Micro-nutrient Assessment
Jan van Aardt, *Council for Scientific and Industrial Research - Ecosystems Earth Observation*, South Africa

Bongani Majeke, Russell Main, and Moses Cho

Land use Conflicts Identification in Protected Areas in the Surroundings of the Caparaó National Park, State of Minas Gerais, Brazil
Fernando Soares de Oliveira, *Federal University of Vicosa - Forestry Department*, Brazil

Vicente Paulo Soares, José Marinaldo Gleriani, José Eduardo Macedo Pezzopane, Elias Silva , Gumercindo Souza Lima, and Carlos A. A. S. Ribeiro

Photogrammetric Triangulation Models
Moderator: Mushtaq Hussain, *California State University, Fresno*

The Replacement Sensor Model (RSM): Overview, Status, and Performance Summary
John Dolloff, *BAE Systems, Network Systems*

Charles Taylor and Michelle Iiyama

Replacement Sensor Model (RSM) Performance for Triangulation and Geopositioning
Charles Taylor, *BAE Systems, Network Systems*

John Dolloff and Michelle Iiyama

Building and Road Recognition using Shape and Height Information
Hongwei Zhu, *University of Wisconsin-Madison*

Frank Scarpace

Reliability of CORS-Based GPS Data for Highway Aerial Triangulation
Mushtaq Hussain, *California State University, Fresno*

Riadh Munjy and James Appleton

Lidar — Urban Applications II

Moderator: Charles Toth, *Center for Mapping, The Ohio State University*

An AFE Approach for Combining Lidar and Color Imagery
David Opitz, *Overwatch Textron Systems*

Stuart Blundell

Quality Assessment of Lidar Data by using Pavement Markings
Charles Toth, *Center for Mapping, The Ohio State University*

Eva Paska and Dorota Brzezinska

Potential of Terrestrial Laserscanning in Deformation Measurement of Structures
Tamas Lovas, *Budapest University of Technology and Economics*, Hungary

Arpad Barsi, Attila Polgar, Zoltan Kibedy, Akos Detrekoi, and Laszlo Dunai

Lidar — Biomass Applications

Moderator: Sorin Popescu, *Texas A&M University*

Coupling Lidar and High-resolution Digital Imagery for Biomass Estimation in Mixed-wood Forest Environments
Neal Pilger, *Queen's University*, Canada

Paul Treitz, Benoit St-Onge, Murray Woods, and Paul Courville

Scale-invariant Prediction of Forest Biomass Using Airborne Lasers
Kaiguang Zhao, *Spatial Sciences Lab*

Sorin Popescu and Ross Nelson

Scaling Up Lidar-derived Estimates of Aboveground Biomass to MODIS Scales: A Case Study in East Texas
Sorin Popescu, *Texas A&M University*

Kaiguang Zhao, Ross Nelson, and Chinsu Lin

ASPRS PDAD Panel — Rapid Response Imaging

Moderator: Mohamed Mustafa, *Applanix*, Canada

Panelists:
Jon Sellers, *NOAA*
Jason Woolard, *NOAA*
Vickie Childers, *Naval Research Lab*
Bill Kidman, *Canadian Department of National Defense*, Canada

This session will illustrate the use of photogrammetric multi-sensor system technology in Rapid Response applications. Expert panelists will explain the importance of geospatial information in their daily activities through their practical experience in the Rapid Response field.

Land Cover Change Datasets and Applications

Moderator: Michael Coan, *Science Applications International, Corporation, Contractor to U. S. Geological Survey - EROS*

Noise Reduction in NDVI Time Series: An Empirical Comparison
Jennifer Hird, *Foothills Facility for Remote Sensing and GIScience, Deptartment of Geography, University of Calgary*, Canada

Gregory McDermid

The Landcover Change Mapper (LCM) and Its Application to Forestry and Landslide Monitoring
Guillermo Castilla, *Department of Geography, University of Calgary*, Canada

Geoffrey J. Hay, Ken Dutchak, and Richard Guthrie

The Generation and Initial Application of a 250-Meter Conterminous United States Vegetation Phenological Database from MODIS Data
Joseph P. Spruce, *Lockheed Martin Mission Services – Civil Programs*

Jerry Gasser, James Smoot, Robert E. Ryan, Don Prados, Kenton W. Ross, Rodney McKellip, and Bill Hargrove

Completion of the National Land Cover Database 1992/2001 Change Product
Michael Coan, *Science Applications International, Corporation, Contractor to U. S. Geological Survey - EROS*

Joyce Fry, Collin Homer, Debra Meyer, Charles Larson, and Charles Wickham

IFSAR & SRTM

Moderator: Steven Lennartz, *Sanborn*

EarthData USDA-FSA GeoSAR Acquisition Project
Nathan Pugh, *Fugro EarthData; DA-FSA-APFO*

Steven Shaffer

A Comparison of Automatically Extracted OrbView-3 and IKONOS Elevation Data to Shuttle Radar Topography Mission Elevation Data
Robert Black, *GeoEye*

IFSAR Processing using Variational Calculus
Kenneth Sartor, *Northrop Grumman*

Gnana Bhaskar Tenali, Emile Ganthier, and Adrian Peter

Hydrologic Applications III

Moderator: Karen Breitlow, *Oregon State University*

Landsat Thermal Data for Water Resources Management in Idaho
William Kramber, *Idaho Department of Water Resources*

Anthony Morse and Richard Allen

The Effect of Urbanization on the Hydrologic Regime of the Big Darby Creek Watershed, Ohio
Gi-Choul Ahn, *The Ohio State University*

Carolyn Merry

Watershed Condition Assessments for George Washington Birthplace National Monument and Thomas Stone National Historic Site
Ernie F. Hain, *North Carolina State University*

Stacy A.C. Nelson and Halil Cakir

3:30 pm to 5:00 pm

Digital Camera and Sensor Analysis and Calibration
Moderator: Ricardo Passini, *BAE Systems*

Geometric Analysis on Digital Photogrammetric Cameras
Ricardo Passini, *BAE Systems*

Karsten Jacobsen

Calibration of Camera Systems
Karsten Jacobsen, *Leibniz University Hannover*, Gemany

Direct Georeferencing and Ultracam D Misalignment Calibration
Khaldoun Qtaishat, *Mu'ta University,* Jordan

Martin Smith and David Park

ASPRS SAC — Scientific Communication III: Grammar for Educated Writers of Scientific English
Organized by the ASPRS Student Advisory Council
Moderator: Shaofei Chen
A series of four sessions (Organizing and Constructing a Scientific Paper, Proper Manuscript Preparation, Grammar for Educated Writers of Scientific English, and the Publication Process: From Submission to Print) intended to take students and young professionals through the process of writing and publishing scientific research from start to finish.

ASPRS 10-Year Industry Forecast – Phase V Update
Charles Mondello, Chair ASPRS 10 Year Industry Forecast, *Pictometry International*
George Hepner, *Department of Geography, University of Utah*
Richard Medina, *University of Utah*

NOAA, USGS and ASPRS have continued the ASPRS 10 Year Industry Forecast into its 5th Phase. While many projections have been made over time, this is a forecast developed and carried out by members of our industry. This places significant credibility on the study results. The study has expanded from US only to the industry worldwide. This paper reviews the initial results of Phase V.

An Evening at the World Forestry Center
6:00 pm to 9:00 pm

See page 44 for details.