Geospatial Power in Our Pockets

ASPRS 2014 Annual Conference and co-located JACIE Workshop

March 23-28, 2014   Louisville, Kentucky   USA

Conference Highlights Announcements
## Conference-at-a-Glance

### Sunday, March 23, 2014
- **6:30 AM – 5:00 PM** Registration Open
- **7:45 AM – 5:15 PM** Workshops
- **8:00 AM – 6:00 PM** ASPRS Committee Meetings

### Monday, March 24, 2014
- **6:30 AM – 5:45 PM** Registration Open
- **6:45 AM – 5:00 PM** NGA Classified Session*
- **7:45 AM – 5:15 PM** Workshops
- **8:00 AM – 6:00 PM** ASPRS Committee Meetings
- **1:00 PM – 5:00 PM** User Group Meetings
- **5:30 PM – 6:30 PM** Student Advisory Council Meeting (SAC)
- **6:00 PM – 9:00 PM** Welcome Reception – Kentucky Derby Museum

### Tuesday, March 25, 2014
- **7:00 AM – 5:45 PM** Registration Open
- **7:30 AM – 7:00 PM** Posters on Display
- **8:00 AM – 9:00 AM** Keynote Speaker & Awards
- **9:15 AM – 10:45 AM** Track Sessions Time Block #1
- **10:30 AM – 7:00 PM** Exhibit Hall Open
- **10:45 AM – 11:30 AM** Refreshment Break in Exhibit Hall
- **11:15 AM – 1:00 PM** Thought Leader Presentations
- **11:30 AM – 1:30 PM** Break – Lunch on your own
- **8:00 AM – 9:00 AM** Keynote Speaker & Awards
- **9:00 AM – 5:00 PM** Exhibit Hall Open
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- **10:30 AM – 7:00 PM** Exhibit Hall Open
- **10:45 AM – 11:30 AM** Refreshment Break in Exhibit Hall
- **11:15 AM – 1:00 PM** Thought Leader Presentations
- **11:30 AM – 1:30 PM** Break – Lunch on your own
- **1:30 PM – 3:00 PM** Track Sessions Time Block #2
- **3:00 PM – 3:15 PM** Thought Leader Presentations
- **3:00 PM – 3:30 PM** Refreshment Break in Exhibit Hall
- **3:30 PM – 5:00 PM** Breakout Sessions Time Block #3
- **5:30 PM – 7:00 PM** Exhibitors' Reception

### Wednesday, March 26, 2014
- **7:00 AM – 5:00 PM** Registration Open
- **7:00 AM – 8:00 AM** Past Presidents' Breakfast – Invitation only*
- **8:00 AM – 9:15 AM** Track Sessions Time Block #1
- **9:00 AM – 5:00 PM** Exhibit Hall Open
- **9:15 AM – 10:45 AM** Track Sessions Time Block #2
- **10:30 AM – 7:00 PM** Exhibit Hall Open
- **11:15 AM – 1:00 PM** Thought Leader Presentations
- **11:15 AM – 1:00 PM** Thought Leader Presentations
- **12:00 PM – 1:30 PM** Break – Lunch on your own
- **12:00 PM – 1:30 PM** Memorial Address & Awards Luncheon

### Thursday, March 27, 2014
- **7:00 AM – 3:00 PM** Registration Open
- **8:00 AM – 10:00 AM** ASPRS Board Meeting
- **8:00 AM – 8:45 AM** Breakfast w/Exhibitors & Passport Contest Prize Drawing
- **9:00 AM – 10:30 AM** Refreshment Break in Exhibit Hall
- **9:00 AM – 11:00 AM** ASPRS Board Meeting
- **10:30 AM – 12:30 PM** Refreshment Break in Exhibit Hall
- **11:00 AM – 12:30 PM** ASPRS Board Meeting
- **12:30 PM – 1:30 PM** Thought Leader Presentations
- **1:00 PM – 4:30 PM** Breakout Sessions Time Block #4
- **3:00 PM – 3:15 PM** Thought Leader Presentations
- **3:30 PM – 5:00 PM** Breakout Sessions Time Block #5
- **5:30 PM – 7:00 PM** Exhibitors' Reception

### Friday, March 28, 2014
- **7:30 AM – 8:30 AM** Breakfast (included with JACIE registration)*
- **8:30 AM – 10:00 AM** JACIE Session*
- **10:10 AM – 12:30 PM** JACIE Session*
- **12:30 PM – 1:30 PM** Breakfast (included with JACIE registration)*
- **1:30 PM – 1:45 PM** JACIE Session*
- **3:25 PM – 3:40 PM** JACIE Session*

* Asterisk indicates a separate registration fee required. See registration form on page 15, for details.

Times may change. Please see final program for time and room assignments.
Whether you are a Slugger or a Fighter or just a fan of the “most exciting two minutes in sports,” Louisville is a great bet for the ASPRS 2014 Annual Conference. You can swing by the legendary Louisville Slugger Museum & Factory; knock out a trip to the Muhammad Ali Center or visit any of the nine attractions located along Museum Row on Main. Zagat rated Louisville “One of the Top 8 Foodie Getaways in the World” which means your Urban Bourbon Trail passport and a healthy appetite will be all you need to experience truly unique cuisine. Welcome to Louisville!

Sponsors

Exhibitors
- Applanix
- ASD, Inc.
- Blue Marble Geographics
- CannonIV
- Cardinal Systems
- Certainty 3D
- DAT/EM
- DMC
- Dynamic Aviation
- Elecnor Deimos Imaging
- Esri
- Exelis Visual Information Solutions
- IGI
- Lead Air
- Leica/Intergraph
- LizardTech
- Microsoft
- NOAA
- NovAtel Inc
- Optech
- PCI Geomatics
- QCoherent Software/GeoCue
- Riegl USA Inc
- Spectral Evolution
- Trimble

ASPRS 2014 Annual Conference Technical Planning Committee

Thank you to the following members for planning, organizing and executing a fantastic annual conference for 2014!

Dr. Haluk Cetin
Chair

Dr. Thomas Jordan, CP, CMS
Technical Program Co-Chair

Dr. Marguerite Madden
Technical Program Co-Chair

Dr. Demetrio Zourarakis
Secretary of the Committee

Dr. John All
User Group Coordinator

Mr. Robert Burtch, CP
National Workshop Coordinator

Dr. Rakesh Malhotra
Student Volunteer Coordinator

Dr. Sorin Popescu
Moderator Coordinator

Dr. Charles Yorke
Poster Session Coordinator

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- Questex Media
- GIM International
- Imaging Notes
- Point of Beginning
- Professional Surveyor
- Spatial Media LLC
- American Surveyor
- Machine Control Online
- GISuser.com
- LIDAR News
- Vector 1 Media - Sensors & Systems
- ASM
Welcome Reception  
Monday, March 24th  
6:00 PM to 9:00 PM  
Kentucky Derby Museum  
Enjoy an evening at the Kentucky Derby Museum, where Derby is celebrated every day and great Southern hospitality and cuisine are as famous as the race. Straight out of the gate get into the spirit of Louisville with the Conference Welcome Reception.  
Light hors d’oeuvres and drinks will be served for ticketed guests. This event is included with most registrations. Bus transportation will be on a continuous rotation from the Galt House Hotel to the Kentucky Derby Museum beginning at 5:30 PM until 9:00 PM.

The Kentucky Derby Museum, next to Churchill Downs, captures the thrill and traditions of the Kentucky Derby every day in an exciting 360-degree high-definition multimedia show. The museum has exhibits, memorabilia and art to delight all ages. There’s a fine gift shop and a café overlooking a paddock with a resident horse.

Exhibitors’ Reception  
Tuesday, March 25th  
5:30 PM to 7:00 PM  
A wonderful occasion to visit with both national and international suppliers and an Annual ASPRS Conference tradition is the Exhibitors Reception. Mingle with the Conference Exhibitors’, our hosts for the evening, in a relaxed environment and take some time to form lasting professional relationships.  
Light hors d’oeuvres and beverages will be served while you come together with old and new friends.

Admission to this event is included with most registrations.

25th Annual Awards Luncheon & 80th Installation of ASPRS Officers  
Tuesday, March 25th, 11:30 AM to 1:30 PM  
Join your colleagues at this year’s luncheon on Tuesday, March 25th, to honor current award recipients and participate in the installation of the 80th Slate of ASPRS Officers.  
The award winners will be given special honor and the annual business meeting of the Society will include installation of the new ASPRS Officers. To conclude the year, Steve DeGloria, retiring ASPRS President, will give a summation of the past year’s events.

Tickets for this Luncheon are required and are separate from the conference registration. Tickets may be purchased by completing the information on the conference registration form found on page 15 of this program. Cost is $65 per person.

On-site ticket purchases are limited to availability. Limited seating in the rear of the room is available at no cost for conference registrants wishing to attend the ceremonies only.

JACIE/ASPRS Poster Reception & LIVE Music  
Wednesday, March 26th, 5:00 PM to 6:00 PM  
Stop by the Poster area, directly across from the Exhibit Hall, for a Poster Reception. JACIE and ASPRS posters will be displayed and Presenters will be available to discuss their research. Before you head out for your evening dinner plans, enjoy some live Bluegrass music, played by ASPRS Members, light appetizers and drinks. Get your evening started right with some great music and networking!

Admission to this event is open to all registrants; drink tickets are included with JACIE registrations.

User Group Meetings  
Tuesday and Wednesday, March 25th & 26th, 11:15 AM – 1:00 PM  
A great chance to meet with exhibitors one-on-one! User Group Meetings are two hour sessions which include a discussion or presentation from the exhibiting company about their new products, software or innovations. These sessions are designed for personal attention from the exhibitor and are complimentary for all conference attendees. You don’t want to miss this opportunity!

See page 8 for User Group Descriptions.
Breakfast with Exhibitors’ & Prize Drawing
Thursday, March 27th, 8:00 AM to 8:45 AM
A special continental breakfast will be held in the Exhibit Hall on Thursday, March 27th from 8:00 am until 8:45 am. Before the Track Sessions begin, take some time to leisurely view the Exhibit Hall and continue discussions with exhibitors.

Also taking place in the Exhibit Hall on Thursday, March 27th is the Prize Drawing for the winners of the Exhibit Hall Passport Contest! Don’t miss this opportunity to win some great prizes. Winners must have completed the Exhibit Hall Passport Contest game card and be present to win.

Be sure to include these events on your calendar!
Admission to this event is included with most registrations.

Exhibit Hall Passport Contest
Play to win some great prizes in the Exhibit Hall!
As an attendee, you will receive a Passport game card with your registration materials onsite at the conference registration desk. Your goal is to visit each booth listed on the Passport, talk with the exhibitor, answer the trivia question, and you will be rewarded with some great information and a passport stamp on your game card.

Once you have filled ALL the squares on your passport, turn your completed game card in to the ASPRS booth by 5:00 pm on Wednesday, March 26th and be entered in the prize drawing!

PRIZES!!!
Exhibit Hall Passport Contest

Please join the Student Advisory Council (SAC) for some activities designed just for YOU!

Student Advisory Council Meeting (SAC)
Monday, March 24th, 5:30 PM to 6:30 PM

Exhibit Hall Guided Tour for Students
Tuesday, March 25th, 11:00 AM to 12:00 Noon
The ASPRS Sustaining Members Council is hosting a guided tour of the exhibit hall for students. This is your opportunity to meet the exhibitors, up close and personal. Exhibit halls can be intimidating, but not after this personal tour. Meet at the main exhibit hall entrance doors to participate in this fun tour. See you there!

GeoLeague Competition
The teams competing in the GeoLeague Challenge will be presenting their projects during this technical session. Students should attend and support the teams. Judging will take place following the session and prizes will be awarded during the Memorial Address on Wednesday, March 26th.

Student & Employer “Meet and Greet”
Thursday, March 27th, 9:00 AM until 10:30 AM
A great event designed to connect students applying for jobs in the digital mapping industry and employers looking to hire! Bring your resume, a business card, or just a smile and a handshake, and expand your job network at the conference. It’s also an opportunity to meet other students and young professionals from all over the world who are attending the conference. Don’t miss out on this great event!

Social Activities:
Your SAC Networking Coordinator will arrange relaxed social gatherings after each of the day’s conference activities. These events will allow you to get to know more of the students and young professional members of ASPRS. Attendees are welcome to join in on the fun. To find out about all the activities, visit the conference web page at conferences.asprs.org/Louisville-2014/blog and click on the Presenters & Students tab. Or stop by the Message Board onsite – activities will be posted.
Lost Cities, Lasers, and the Vestiges of the Colonial Discourse of Archaeology
Christopher Begley, Ph.D., Associate Professor of Anthropology, Transylvania University

Archaeologists invoke the saying “It’s not what you find, it’s what you find out” to suggest that we are not after objects, but pursuing an understanding of the past. This understanding benefits from revolutionary advances in technologies such as LiDAR imaging, 3D imaging, and portable analytical tools such as x-ray fluorescence. However, some recent examples demonstrate the use of these new technologies to perpetuate a disturbing and problematic element of archaeological discourse—the trope of discovery. This focus on finding, rather than finding out, has clear historical roots in the colonial discourse of exploration, wherein explorers representing colonial powers were often credited with ‘discoveries’ long known to local folks. As with the explorers of old, differential access to expensive, cutting edge technology and to the media makes it difficult to challenge these claims. Not only does this differential access allow some to perpetuate the discoverer fantasy, it can obscure the critical role of local knowledge and previous research.

Here, I explore this phenomenon by examining the announcements of the discovery of a lost city in Honduras. Publicity over the discoveries, made by non-archaeologists using LiDAR, received immediate and harsh criticism from professionals and has been partly dismissed as hype and sensationalism. I discuss the pattern of using differential access to powerful tools to perpetuate vestiges of a colonial discourse, camouflaging privilege and oppression within the seemingly neutral rhetoric of science, discovery, technology, and exploration. Finally, I examine successful ways in which new technologies also help resist this pattern.

Christopher Begley is Associate Professor of Anthropology at Transylvania University. His archaeological research for the last two decades has focused on issues of ethnicity and identity among ancient populations in the remote jungles of the Mosquito Coast of Honduras. Over the last five years, he has focused on developing zero-impact archaeological imaging technology, especially structured light 3D systems. Most recently, he has worked as an underwater archaeologist in Albania, Montenegro, and Croatia, developing underwater 3D systems. This pioneering work has been supported by several foundations and organizations. He was the recipient of a 2010 National Geographic/Waitt Foundation Grant for work in Honduras, and was named a National Geographic Explorer in 2012. He was a Fulbright scholar in El Salvador, a National Science Foundation Graduate Fellow, and the recipient of other research grants from the National Science Foundation, the Explorers Club, and Transylvania University. His recent work has been supported by the National Speleological Society grants and an Olympus Innov-X Academic Loan grant to conduct spectrographic analyses of artifacts in Honduras, Spain, Italy, and the USA. His work has been featured in documentaries on the BBC, Discovery Channel, and TLC, and he is a presenter for Past Preservers, a media group focusing on archaeology and history. He was recently featured in the New Yorker magazine and in the book ‘Jungleland’ by Christopher Stewart, which explores the lost city myth in Honduras.
JACIE/ASPRS Joint Plenary Session

David Hodgson, CEO and Managing Director, DMC International Imaging Limited (DMCii)

DMCii manages the Disaster Monitoring Constellation (DMC) of satellites. Since 2002, DMCii has launched nine DMC satellites, continues to operate three in orbit, and will be launching more in 2014 and 2015. DMCii has been a strong supporter of the International Charter for Space and Major Disasters.

“We are in a period of unprecedented opportunities to observe the earth from space. Our observation systems and their capabilities are increasing and we are evolving into a world where rapid multi-source and multi-sensor usage is the norm. Insights into how will we manage and what’s next are explored here,” states Hodgson.

Mr. Hodgson has been the Program Manager for the DMC and Division Head of Ground & Information System for Surrey Satellite Technology Ltd. Hodgson also served, on the International Charter for Space and Major Disasters, including twice leading the Executive Secretariat of that group, and, and is a past chairman of the British Association of Remote Sensing Companies (BARSC). Hodgson has over 20 years of satellite and service industry experience. He holds an MBA from Warwick Business School and a degree in computing from Surrey University.

Hodgson brings a unique perspective on the future direction and growth of the remote sensing industry, as well as the importance of calibration and validation of sensors for private, commercial, and governmental use. Hodgson will participate in a panel of distinguished representatives in a subsequent JACIE Question and Answer session that is open to all ASPRS and JACIE attendees.

Frank Kelly, Space Policy Advisor and Director, USGS — EROS Data Center

Dr. Frank Kelly will briefly review the Landsat legacy; the Landsat 8 improvements in imaging; the USGS commitment to continuing that legacy, and discuss Landsat 8 and beyond … existing situation, steps forward, and challenges ahead for the U.S.

Dr. Frank P. Kelly is the USGS Space Policy Advisor and Director of the USGS Earth Resources Observation and Science (EROS) Center, Sioux Falls, S.D. In late 2011 Kelly joined the USGS EROS Center from Anchorage, Alaska, where he served as the National Oceanic Atmospheric Administration National Weather Service (NWS) Regional Director. Prior to being stationed in Anchorage, Kelly served in several senior leadership positions at NWS Headquarters in Silver Spring, Maryland, including a key role in the implementation and activation of the national deployment of inter-agency capability to transmit time-sensitive information of all hazards, including weather, hydrologic, environmental and homeland security threats.

Kelly started his professional career in the U.S. Air Force, where he served in several capacities, including Satellite Acquisition Manager for Defense Meteorological Satellite Program. After retiring from the Air Force, he worked in the private sector as Senior Staff Scientist and later as Vice-President at Atmospheric and Environmental Research, Inc. Dr. Kelly holds both a master’s and PhD from Colorado State University in Atmospheric Science (with focus on satellite meteorology, statistics, and environmental forecasting applications), and a bachelor’s degree from Montana State University in Earth Science.

Presidential Address

“Gen X and Millennials: ASPRS is Sustainable!”

Stewart Walker, ASPRS Incoming President

ASPRS faces its greatest challenges this century; changing expectations on part of stakeholders and growing competition for their time and attention. Just as we were appointing Michael Hauck as the new Executive Director, we suffered the tragic loss of Kim Tilley.

The Society’s many strengths include a diverse membership of both individuals and supportive Sustaining Members, publications, certification, student affairs, advocacy and the work of the divisions. Combining this Conference with the 2014 JACIE Workshop is an exemplar of adventurous new approaches to partnerships that can bridge the range of generations, interests and geospatial technologies. It is salutary to wonder at the development of photogrammetry, including LIDAR and other remarkable sensors, and the impact of GIS—even in our own lifetimes. Photogrammetry, remote sensing and GIS are pieces in a geomatics jigsaw that offers compelling technologies and exciting career prospects. As new leaders complement dynamic member volunteers to foster new ideas, we must proselytize our discipline and its applicability while we provide relevant services to our members, including professional development, mentoring and networking. We will prevail and prosper.

http://conferences.asprs.org/Louisville-2014/blog
User Groups/Travel

Applanix
Tuesday, March 25th

“Directly Georeferenced Aerial Mapping for UAVs.”

With small unmanned systems, the physical and financial constraints present all-new challenges for direct georeferencing from the air. Applanix has brought together its experience in positioning, orientation and mobile mapping, along with the best in small-form-factor hardware and powerful software, to produce a system for aerial mapping with UAVs: the DMS (Direct Mapping Solution).

Exelis
Tuesday, March 25th

Join us at the ENVI User Group Meeting to learn how advances in the ENVI product family can help you turn imagery, LiDAR, and SAR data into the knowledge you need to make more informed decisions. This event will feature presentations by remote sensing and GIS professionals who will demonstrate how they use ENVI to solve real-world problems.

GeoCue Corporation
Tuesday, March 25th

GeoCue Corporation is a premier software development and consulting services company specializing in geospatial production management and LiDAR exploitation solutions. We will be demonstrating our GeoCue product family of integrated solutions for sensor data processing as well as our expanding suite of LP360 and Terrasolid LiDAR/Point Cloud processing and analysis solutions.

Intergraph/Leica
Monday, March 24th

Learn about the next generation of Leica Geosystems LiDAR sensors for airborne topography and bathymetry, and find out about the cost saving common sensor platform for ADS100, DMC IIe and RCD 30. Plus, get the latest on the unique RCD30 Penta oblique system configuration and workflow. Thought leaders from Hexagon Geospatial will also showcase the Intergraph Geospatial 2014 release, highlighting the new analytics, mobile and cloud capabilities to increase your productivity.

Microsoft
Wednesday, March 26th

Join the technical experts and business leaders from Microsoft’s UltraCam product group in this 105 minute presentation for an opportunity to learn about the company’s latest aerial mapping sensor and software product advancements: UltraCam Osprey, UltraCam Eagle, UltraCam Falcon, UltraCam Hawk and UltraMap v3. Prizes will be raffled and refreshments will be served.

Optech
Wednesday, March 24th

Trimble
Tuesday, March 25th

Unmanned Aerial Systems (UAS) and automated feature extraction from imagery provide photogrammetry and remote sensing professionals with new technologies for creating GIS ready information. In this session, Trimble’s UAS solutions, including Inpho and eCognition software, will be presented highlighting the technologies, workflows and user benefits that can be obtained. Learn how these new technologies can be applied to increase productivity for your business.

Accommodations
The headquarter hotel for the ASPRS 2014 Annual Conference and co-located JACIE Workshop is the Galt House Hotel & Suites. Conveniently located just seven miles from the Louisville International Airport (SDF) in downtown’s business and entertainment districts, it is the largest hotel in Kentucky with 1300 guest rooms.

The services and amenities at the Galt House Hotel & Suite include a state of the art rooftop fitness center, in-room safes, security, business center, six restaurants and lounges, XHale Salon-Spa, self and valet parking and much more.

Within a mile of the lobby, you can check out the Louisville Ballet, Louisville Orchestra, Actors Theatre of Louisville, Muhammad Ali Center, Louisville Slugger Museum & Factory, Louisville Slugger Field and Bats Stadium, Louisville Science Center, Glassworks and many other exciting attractions.

Headquarter Hotel:
Galt House Hotel & Suites
140 North Fourth Street
Louisville, KY 40202 USA
(502) 589-5200

Airport Transportation
Sanddollar Transportation is located in the Galt House Hotel Lobby and reservations for airport pick-up can be made by calling 1-502-561-4022. The cost is $15.00 each way or $22.00 with the purchase of a round-trip ticket.
The ASPRS and JACIE group rate is $140 for standard rooms and $160 for the suite tower. The special rate will be extended for three days prior and three days post of the conference dates, based on availability. Make your sleeping room reservation prior to February 26, 2014 for this discounted rate.

Room may be reserved online by visiting the conference website at www.asprs.org/Conferences/Louisville-2014 or by call the reservations hotline at 1-800-THE-GALT (1-800-843-4258) and referencing ASPRS.

All rooms in the suite Tower feature:
- 720 square feet of spacious accommodations
- Large living room with oversized work desk
- Dual-line phones with voice mail
- Separate bedroom with two queen beds
- Three large closets
- Wet bar, mini-refrigerator, coffee maker, hair dryer, iron/ironing board
- Complimentary wireless internet
- Two flat screen TV’s
- Great river and city views

Taxis are also available at the airport and the hotel. For a less expensive taxi ride, ask about Share-a-Ride at the taxi stand.

Ready Cab (502) 417-4406
Yellow Cab (502) 636-5511

About Louisville
Louisville, known for the most exciting two minutes in horse racing, has so much more to offer visitors. Did you know that over 1/3 of the world’s bourbon and 90% of the U.S. disco balls are produced here? Nestled on the banks of the Ohio River, Louisville charms with over 120 parks, the largest Victorian neighborhood in the U.S., and a wealth of original attractions like Louisville Slugger Museum & Factory or Muhammad Ali Center. Louisville is full of surprises! Come explore them during the ASPRS 2014 Annual Conference and co-located JACIE Workshop! Learn more at www.asprs.org/Conferences/Louisville-2014.

http://conferences.asprs.org/Louisville-2014/blog
# Session Schedule

Use the following schedule to plan the technical sessions you are interested in attending at the conference.

<table>
<thead>
<tr>
<th>Time</th>
<th>T1 – Geospatial Power in Our Pockets</th>
<th>T2 – Emerging Technologies</th>
<th>T3 – Business &amp; Management for the Geospatial Professional</th>
<th>T4 – Core Technologies</th>
<th>T5 – PDAD Special Sessions</th>
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</thead>
<tbody>
<tr>
<td>1:30 PM – 3:00 PM</td>
<td>Terrian Visualization on Mobile Devices</td>
<td>SAC/PDAD SPECIAL SESSION - Emerging Trends in UAS Research</td>
<td>Big Data Management for Small Businesses</td>
<td>Unmanned and Autonomous Aerial Systems</td>
<td>PRAD SPECIAL SESSION - Mapping with UAS and Hyperspectral Imagery</td>
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<td>9:30 AM – 11:00 AM</td>
<td>SAC SPECIAL SESSION - Geoleague Challenge</td>
<td>Surface from Motion: 3D Reconstruction</td>
<td>Funding and Risk Management - Geospatial Production Programs</td>
<td>SPECIAL SESSION - Best Practices in Archiving and Preservation of Imagery and Geospatial Data</td>
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<tr>
<td>1:30 PM – 3:00 PM</td>
<td>LIDAR for Forest Assessment</td>
<td>Object Based Classification</td>
<td>Generating Leads, Marketing Support &amp; Meeting Clients’ Goals</td>
<td>Unmanned and Autonomous Aerial Systems</td>
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<td>3:30 PM – 5:00 PM</td>
<td>Fire Impact Assessment</td>
<td>Pattern Recognition in Remote Sensing</td>
<td>Value of PMP Certification for the Geospatial Professional</td>
<td>Broad Scale Mapping Projects</td>
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<td>9:00 AM – 10:30 AM</td>
<td>Disaster Monitoring</td>
<td>Close Range Photogrammetry</td>
<td>CEO Roundtable Discussion</td>
<td>Surface Modeling</td>
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<td>11:00 AM – 12:30 PM</td>
<td>Applications in Agriculture</td>
<td>Long Term Monitoring of Dynamic Environments</td>
<td>Real-World Experience with Geospatial Science and Technologies in the Workplace</td>
<td>High-Resolution Satellite Imagery</td>
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<td>Date</td>
<td>T1 - Application Areas</td>
<td>T2 - Invited Groups</td>
<td>T3 – Interactive Sessions (Lightning Talks &amp; Commercial Sessions)</td>
<td>T4 – Applications</td>
<td>T5 – Hot Topics &amp; Panels</td>
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<td>March 25, 2014</td>
<td>3D Landscape and Building Reconstruction Using LIDAR</td>
<td>NGA Unclassified Session - Topic To Be Announced</td>
<td>LighTning - LiDAR Data Processing and Classification</td>
<td>SAC SPECIAL SESSION - Geospatial Semantics 101</td>
<td>New ASPRS Mapping</td>
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<td>EDUCATION COMMITTEE SPECIAL SESSION - Geospatial Education Initiatives in Kentucky - Decades-Old, Overnight Success Stories</td>
<td>Accuracy Standards for Digital Geospatial Data</td>
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<td>Feature Extraction for Infrastructure</td>
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<td>SPECIAL SESSION OF THE RSAD CLIMATE CHANGE COMMITTEE - Extreme Weather Monitoring with Remote Sensing</td>
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<td>SPECIAL SESSION - The Geospatial Community and Open Source Software</td>
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<td>Planetary Photogrammetric Mapping</td>
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Workshops

Workshop #1
From LiDAR Point Clouds to Forest Biophysical Parameters: Theoretical Concepts and Hands-On Processing
Dr. Sorin Popescu and Ryan Sheridan, Texas A&M University
Sunday, March 23rd, 7:45 AM to 5:15 PM, CEU .8
Fees
- EARLY (by 2/22): $235
- MEMBER: $260
- NONMEMBER: $335
- STUDENT MEMBER: $125

Workshop #4
Introduction to Unmanned Aerial System (UAS) Operations
Kevin Gambold and Ed Freeborn, Unmanned Experts LLC
Monday, March 24th, 7:45 AM to 5:15 PM, CEU .8
Fees
- EARLY (by 2/22): $235
- MEMBER: $260
- NONMEMBER: $335
- STUDENT MEMBER: $125

Workshop #5
Object-Based Image Analysis
Jarlath O’Neil-Dunne, Ph.D., University of Vermont and Keith Pelletier, Ph.D., University of Minnesota
Monday, March 24th, 7:45 AM to 5:15 PM, CEU .8
Fees
- EARLY (by 2/22): $235
- MEMBER: $260
- NONMEMBER: $335
- STUDENT MEMBER: $125

ADVANCED WORKSHOP
This full-day, advanced workshop is designed to help participants harness the true power of object-based image analysis (OBIA). It is recommended that participants have a strong foundation in remote sensing and GIS, and at least some exposure to OBIA. This workshop is particularly well suited to individuals who are finding it difficult to extract information from the latest generation of high-resolution imaging and LiDAR sensors using OBIA techniques. Specific emphasis in this workshop will be paid to moving beyond the standard “segment and classify” approach that is typically employed in most OBIA projects, to an iterative workflow that better mimics the type of mapping carried out by human analysts by fully incorporating the spectral, geometric, and contextual information present in an image. Through a series of lectures, demonstrations, and hands-on exercises, participants will be exposed to the methods that will enable them to build effective and efficient OBIA routines.

The workshop will be divided into four parts. In the first part, the theoretical foundation for the effective application of OBIA technology will be laid out by drawing from the remote sensing, neurobiology, and cognitive sciences literature. This will be followed by a review of the current approaches to OBIA, with particular attention to some of the pitfalls that often prevent OBIA technology from being applied to its full potential. The second part will focus on effective approaches to and best practices for object-based feature extraction, including a thorough review of segmentation algorithms. The third part will cover more advanced topics, including: 1) image object fusion, 2) pattern recognition, 3) morphological routines, and 4) context-based classification. The workshop will conclude with recommendations on how to design and deploy enterprise OBIA systems capable of processing of datasets containing billions of pixels.

Demonstrations and exercises will make use of a broad range of remotely sensed (e.g. imagery and LiDAR) datasets and a particular focus in the exercises will be integrating remotely sensed and thematic datasets in an OBIA context. Participants will receive a workshop manual, sample OBIA projects that include data and algorithms, and a series of video tutorials. Participants are encouraged to bring their own computers to use during the hands-on exercises. OBIA software will be provided (requires Windows XP, Vista, or 7).

INTERMEDIATE WORKSHOP
This workshop is intended for participants who are looking to expand their basic knowledge of LiDAR remote sensing. Participants are expected to have a basic understanding of LiDAR, remote sensing techniques, and image processing. The overall goal of this workshop is to introduce participants to advanced theoretical LiDAR concepts and employ open source software packages (such as FUSION®, LASTools®) to provide hands-on experience utilizing LiDAR data for forest vegetation assessment. Participants are requested to bring their own laptops with prior installation of the open-source software. LiDAR data will be provided by workshop instructors.

Workshop #3
Processing From LiDAR Point Clouds to Forest Biophysical Parameters: Theoretical Concepts and Hands-On Processing
Dr. Sorin Popescu and Ryan Sheridan, Texas A&M University
Monday, March 24th, 7:45 AM to 5:15 PM, CEU .8
Fees
- EARLY (by 2/22): $235
- MEMBER: $260
- NONMEMBER: $335
- STUDENT MEMBER: $125

INTERMEDIATE WORKSHOP
The airborne remote sensing, survey and mapping community are showing increasing interest in Unmanned Aerial System (UAS), and new adopters and technology for metric-quality data production are being reported daily. As UAS become operational the ‘How and Why’ of UAS operations need to be considered as well as the ‘What.’ The “Introduction to UAS Operations” full-day workshop is designed to address this need with practical discussion and a focus on metric-quality UAS surveying and mapping.

The workshop is broken down into 4 sections:
- Introduction to UAS Concepts
- Case Studies
- Business Model
- Wrap-up

This course assumes that attendees have an intermediate to advanced understanding of airborne operations, and a basic understanding of photogrammetric and remote sensing principles or their equivalents in military intelligence, surveillance, and reconnaissance (ISR) fundamentals.

WORKSHOPS

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Member

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Y (by 2/22)

Member

Y (by 2/22)

Member

Y (by 2/22)

Member

Y (by 2/22)

Member

Y (by 2/22)
INTRODUCTORY WORKSHOP

Mobile Laser Scanning (MLS) is becoming more and more prevalent as a technique for moving road and rail survey from the field to the office. MLS exploitation tools allow users to visualize road/rail ways and extraction information from the safety and convenience of office environments. Initially the domain of data collection companies, new desktop tools are enabling end users of MLS data to perform meaningful data exploitation.

In this workshop, we will cover some of the basic principles of MLS data exploitation using a hands-on approach. Mobile Laser Scanning (MLS) is becoming more and more prevalent as a technique for moving road and rail survey from the field to the office. MLS exploitation tools allow users to visualize road/rail ways and extraction information from the safety and convenience of office environments. Initially the domain of data collection companies, new desktop tools are enabling end users of MLS data to perform meaningful data exploitation.

In this workshop, we will cover some of the basic principles of MLS data exploitation using a hands-on approach.

Workshop #8

Mobile Laser Scanning (MLS) - Desktop Data Exploitation
Lewis Graham, CTO of GeoCue Corporation and Division Director of the ASPRS LiDAR Division
Monday, March 24th, 7:45 AM to 12:15 PM, CEU .4
Fees
EARLY (by 2/22)     ONSITE (after 2/22)
Member-$180     Member-$200
Nonmember-$280     Nonmember-$300
Student Member-$90     Student Member-$100

INTRODUCTORY WORKSHOP

Introduction to GPS- and IMU-controlled AT
- Objective
- Benefits

Fundamentals of an airborne GPS and IMU integrated system
- Operational principles and requirements of a GPS system
- Operational principles and requirements of an IMU system
- Functional system design and requirements for an airborne GPS/IMU integrated photogrammetric system
- Geometric integration of airborne sensors
- Electronic integration of airborne sensors
- System calibration

Flight design and control criteria for successful airborne GPS-controlled missions for framing cameras (analog or digital)
- Flight configuration
- Ground control configuration

Incorporating airborne GPS and IMU data in the mathematical model for bundle adjustment of AT blocks
- Incorporating airborne GPS data
- Incorporating airborne IMU data
- Fundamental of the push broom digital photography, the ADS40 case
- Image formation with ADS40 push broom digital aerial camera
- Image characteristics at various processing levels

Flight design and control criteria for successful airborne GPS-controlled missions for push broom digital camera (ADS40)
- Flight configuration
- Ground control configuration

Processing flow for bundle adjustment of imagery from frame and push broom cameras
- Input data requirements
- Systematic error corrections
- Data analysis

Practical results and the status of airborne GPS and IMU-controlled aerial-triangulation in production today.
**ASPRS 2014 Annual Conference and co-located JACIE Workshop Registration Form**

Louisville, Kentucky, USA • March 23-28, 2014

**Register online** or complete this form (type, print clearly, or attach a business card) and return to ASPRS 2014 Annual Conference Registration, 5410 Grosvenor Lane, Suite 210, Bethesda, MD 20814. Phone: 301-493-0290, ext. 109 (all forms of payment accepted by mail) or fax: 301-493-0208 (Visa, MasterCard, Discover, and American Express or purchase orders only).

**NOTE:** No daily registration options available for the JACIE Workshop.

* Speaker Rebate Applies – $115 for Members, $95 for Non-members. Conditions apply. Please see conference web site for speaker rebate conditions.

Are you Currently certified by ASPRS?  □ Yes #  □ No

### Personal Information

- Preferred first name on badge: __________________________
- Birth Country: __________________________
- Name (please print): __________________________
- First name on badge: __________________________
- Business Fax: __________________________
- Business Phone: __________________________
- Zip Code/Postal Code: __________________________
- City: __________________________
- Organization Name (if applicable): __________________________
- State/Province: __________________________
- Email: __________________________
- Emergency Contact Name: __________________________
- County: __________________________
- Emergency Contact Phone: __________________________
- Spouse/Guest Name: __________________________
- Optional: □ ASPRS Member (# )  □ Non-member
- Please check this box if you would like the above Personal Information updated in your ASPRS membership profile.

### Registration Fees

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- □ ASPRS Full
- □ Daily Tues.
- □ Daily Wed.
- □ Daily Thurs.
- □ Student
- □ Student Daily Tues.
- □ Student Daily Wed.
- □ Student Daily Thurs.
- □ JACIE & ASPRS Full
- □ JACIE & ASPRS Student
- □ JACIE Only
- □ JACIE Student
- □ ASPRS Guest

### Exhibit Only

- □ Exhibit Only Tues. $80
- □ Exhibit Only Wed. OR Thurs. $35
- □ Exhibit Only Tues. + Wed. $115
- □ Exhibit Only Wed. + Thurs. $70
- □ Exhibit Only 3 days $130

### Extras

- □ Classified Session $100
- □ Child Social $40
- □ Child Social (onsite) $50
- □ Adult Social $50
- □ Adult Social (onsite) $60
- □ Online Proceedings $20
- □ Awards Luncheon $65

**Subtotal**

$ __________________________

* Speaker Rebate Applies – $115 for Members, $95 for Non-members. Conditions apply. Please see conference web site for speaker rebate conditions.

**NOTE:** No daily registration options available for the JACIE Workshop.

### Other Options

- □ Welcome Reception
- □ ASPRS Technical & Keynote Sessions
- □ Exhibitors' Reception
- □ JACIE Technical Sessions
- □ Combined Plenary & Technical Sessions
- □ Poster Reception
- □ Entry
- □ Daily Breakfast & Lunch
- □ Thursday Closing Breakfast
- □ ASPRS Proceedings
- □ JACIE Proceedings
- □ Exhibit Hall Access

**ASPRS 2014 Annual Conference and co-located 13th Annual JACIE Workshop • Geospatial Power in Our Pockets • March 23 – 28, 2014**
Pre-Conference Workshops

Workshops will be offered on Sunday, March 23rd and Monday, March 24th. For a complete description of each workshop, please visit the conference web site.

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<td>From Lidar Point Clouds to Forest Biophysical Parameters: Theoretical Concepts and Hands-On Processing</td>
<td>Inter</td>
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<td>Introduction to Unmanned Aerial System (UAS) Operations</td>
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<td>Object-Based Image Analysis</td>
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<td>GPS Based Aerial Triangulation for Imaging Sensors Orientation</td>
<td>Inter</td>
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<td>Mobile Laser Scanning (MLS) — Desktop Data Exploitation</td>
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**Students must provide a valid student ID when they register. Students will be allowed to attend workshops at the reduced price on a space available basis. All student registrations for workshops that are received before February 22, 2014, will be held until that date. If there are spaces available at that time the student will be notified that their registration has been accepted. If a student workshop registration is not accepted, their workshop fee will be refunded in full. NOTE: Individual workshops are subject to cancellation if the minimum number of required registrations are not received by February 22, 2014. Workshops are limited to a maximum of 40 attendees per workshop. Popular workshops sell out early and we do NOT keep a waiting list.**

NOTE: Individual workshops are subject to cancellation if the minimum number of required registrations are not received by February 22, 2014. Workshops are limited to a maximum of 40 attendees per workshop. Popular workshops sell out early and we do NOT keep a waiting list.

ASPRS is offering a special New Member Promotion to non-member attendees at the ASPRS 2014 Annual Conference. Your Conference registration at the Non-Member rate entitles you to a complimentary 1-year ASPRS membership. This offer applies only to those who have not been a member of ASPRS within the past three (3) years. We are also offering a New Student Member Promotion to student non-members. Your ASPRS 2013 Annual Conference registration at the Student Non-Member rate entitles you to a complimentary 1-year ASPRS Student membership. This offer applies only to those who have not previously held an ASPRS membership in another category or have not been a member of ASPRS within the past three (3) years.

Once your paid conference registration has been confirmed, we will provide you with a membership application and instructions for completing and returning it, if you choose to accept the complimentary membership. Students must provide proof of current status with their application.

To qualify for a full conference registration refund, a written cancellation must be received by the ASPRS 2014 Annual Conference Meeting Registrar at registrar@asprs.org by close of business on February 22, 2014. For cancellations received by close of business March 8, 2014, a 50 percent refund will apply. No refunds will be made after March 8, 2014. This policy applies to all fees paid for the conference. All refunds are subject to a $50.00 processing fee and will be issued one month after the conference concludes.

Cancellations for medical emergencies after the above deadline will be considered on an individual basis and will require a physician’s signed letter. In the unlikely event ASPRS finds it necessary to cancel this entire conference, 100 percent of the registration fees paid will be refunded. ASPRS assumes no liability for any penalty fees on transportation tickets, deposits for hotel accommodations or any other fees, charges, penalties, or other incidental costs that a registrant might incur as a consequence of this conference being canceled.

Disability Assistance: Please contact ASPRS Headquarters at 301.493.0290 ext. 106 to request assistance. A written statement will be required. Please submit all requests by March 8, 2014, so appropriate arrangements can be made.

Please direct all registration related questions to the ASPRS 2014 Annual Conference Meeting Registrar at registrar@asprs.org.

Method of Payment (Full payment must accompany this form.)

- Check (make payable to ASPRS 2014 Annual Conference, print attendee name on check)
- Visa, MasterCard, Discover, American Express

Name on Credit Card

Billing address of Credit Card Holder

Contact phone and email address for Credit Card Holder if other than registrant.

Credit Card Account Number

Expires (Month/Year)

Cardholder Signature

Date

Purchase Order #__________ (government and university only)

Payments must be made in U.S. dollars drawn on a U.S. bank or appropriate credit card. Make checks payable to ASPRS 2014 Annual Conference and print attendee name on check.