

# CaGIS/ASPRS 2013 Specialty Conference

## IMAGING AND MAPPING FOR DISASTER MANAGEMENT: *FROM THE INDIVIDUAL TO THE GLOBAL COMMUNITY*

San Antonio, Texas, October 27-30, 2013 ★ Wyndham San Antonio Riverwalk

### FINAL PROGRAM



*Tornado*



*Terrorism*



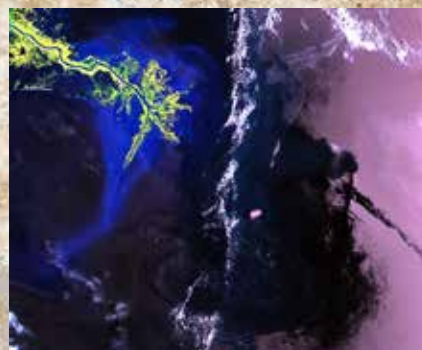
*Wild Fires*



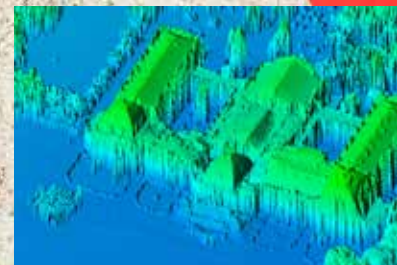
*Flooding*



*Hurricanes*



*Man Made Disasters – Oil Spill*



*Earthquakes*





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### **COMPLIMENTARY PUBLIC WIFI**

The CaGIS/ASPRS 2013 Specialty Conference is pleased to provide wireless internet for most conference attendees in the meeting areas and the general session room. The complimentary wireless internet will be limited speed and is for general usage. Please respect your fellow attendees and do not download large files, stream video content or engage in malicious activities. Each attendee will be provided access information within their onsite registration packet.

*All users of the free public WiFi will be held to the Terms and Conditions of using this free service. The Terms and Conditions can be found online at the conference web site.*

Platinum



Medallion



Conference Sponsor



## **Media Sponsors**

ASPRS would like to Thank our Media Sponsors for continually supporting our organization, the conferences and our exhibitors. These partnerships are a valuable key to our success.

The American Surveyor

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Earth Imaging Journal (EIJ)

EARTH Magazine

GEO:Connexion

GEO Informatics

GeoWorld

GIM International

GISCafe.Com

Imaging Notes

Point of Beginning

Professional Surveyor

Vector 1 Media - Sensors & Systems

# MEDIA SPONSORS

## The American Surveyor [amerisurv.com](http://amerisurv.com), [lidarnews.com](http://lidarnews.com)



The American Surveyor is made by surveyors for surveyors. Editor Marc Cheves draws on 40+ years of industry experience

alongside a stellar team of nationally recognized writers. Sister publications include LIDAR News & GISuser.com.

## Coordinates [www.mycoordinates.org](http://www.mycoordinates.org)



An international monthly magazine on positioning, navigation, and

beyond. It focuses on GPS/GALILEO/GLONASS and other related technologies and applications like mapping, surveying, cartography, timing etc. It also highlights GIS, remote sensing, LIDAR, photogrammetry etc. and their applications.

## Directions Magazine [www.directionsmag.com](http://www.directionsmag.com)



Directions Magazine is the world's leading source of news and opinion for "all things location." We keep our readers informed with the latest

geospatial technology trends and issues through newsletters, blogs, podcasts, industry Channels and webinars.

## Earth Imaging Journal (EIJ) [www.eijournal.com](http://www.eijournal.com)



Devoted to exploring the world of remote sensing. The bimonthly publication focuses on the dominant business applications that support the international remote sensing industry, emphasizing the inherent beauty and informational value of Earth imagery from numerous sources. The magazine also delivers insightful perspectives on remote sensing policy initiatives and covers niche markets as they develop. Earth Imaging Journal is complimented by its website, and its weekly electronic newsletter, Earth Imaging Express.

## EARTH Magazine [www.earthmagazine.org](http://www.earthmagazine.org)



Each monthly issue of EARTH gives readers definitive coverage on topics from natural resources, energy, natural disasters and the environment to space exploration and paleontology and much, much more. EARTH explores the science behind the headlines with timely, relevant editorial content, numerous photos, illustrations, and great maps, with an increasingly diverse mix of topics in each issue. EARTH's readers are spread across the earth science disciplines in academia, government, research and the private sector, people who are involved directly in the issues affecting everyone daily. Awareness of our planet has never been as critical as it is today. EARTH is available digitally at Zinio.com for just \$19.99.

## GEO:Connexion [www.geoconnexion.com/membership](http://www.geoconnexion.com/membership)

Subscribe to GeoConnexion for access to Geospatial articles and news. Enjoy your own printed copy of the magazine, access to GeoConnexion website for latest news, articles and archive, plus exclusive access to offers and events from geotechnology industries in the UK, Europe, the Middle East, Africa, North America and Asia. Join Now.

## GEO Informatics [www.geoinformatics.com](http://www.geoinformatics.com)



Published eight times a year and available free in both print as well as digital. GeoInformatics Magazine offers up-to-the-minute news via its website and its international Geo-news magazine iPhone application allowing users to access the latest news on their iPhone, iPad or iPod. GeoInformatics distinguishes itself from all the others by bringing high-quality articles, the latest news and of course by reaching the right audience.

## GeoWorld [www.geoplace.com](http://www.geoplace.com)

Published monthly, GeoWorld covers local and federal government, emergency management, infrastructure and much more. GoeTec Media also offers news, articles and analysis on its website, GeoPlace.com and its weekly newsletter, the GeoReport.

## GIM International [www.gim-international.com](http://www.gim-international.com)



A global magazine for geomatics, is published by Geomares Publishing. The working scope of

GIM International is worldwide and focuses on reporting the latest news and communicating new developments and applications in geomatics. New! Geo-matching.com – a unique, independent comparison website featuring detailed spec-based comparisons and user reviews for more than 500 geomatics products. The Geo matching.com platform will bring together the popular GIM International and HYDRO International product surveys all in one place.

## GISCafe.Com [www.giscafe.com](http://www.giscafe.com)



GISCafe.Com is the #1 Web Portal for Photogrammetric, Surveying, GPS, and Geographics Information Systems Industry professionals. We provide daily news, editorial, interviews, blogs, webinars, job listings, technical papers, product catalogs. Subscribe to the daily newsletter at GISCafe.Com.

## Imaging Notes [www.imagingnotes.com](http://www.imagingnotes.com)



A premier publication for commercial, government and academic remote sensing professionals around the world. It demonstrates how remote sensing technologies and spatial information illuminate the urgent interrelated issues of the environment, energy and security.

## Point of Beginning [www.pobonline.com](http://www.pobonline.com)



Point of Beginning (POB) helps land surveyors and geomatics professionals succeed through our coverage of new technologies and opportunities. We offer practical solutions to surveying and mapping problems, while keeping you up-to-date on business strategies, the law and education.

## Professional Surveyor [www.profsurv.com](http://www.profsurv.com)



Business and technology information for land and hydrographic surveyors, photogrammetrists, and LIDAR/GIS professionals.

Published with it are annual Aerial Mapping and Red Pages supplements, and e-newsletters Pangaea and Field Notes, the latest in geospatial technologies.

## Sensors & Systems [www.sensorsandsystems.com](http://www.sensorsandsystems.com)



Vector1 Media publishes Sensors & Systems, Informed Infrastructure and Asian Surveying & Mapping (ASM). Each deals with the application of sensing and modeling for different scales of geography. Sensors & Systems explores global change, Informed Infrastructure examines smart city applications and technology and ASM covers geospatial technology application in Asia-Pacific.

# Welcome from the Conference Chairs

CaGIS and ASPRS would like to welcome you to San Antonio for our joint conference on Imaging and Mapping for Disaster Management. As we planned this conference, wildfires were again occurring in Colorado, along with devastating floods. Major recent events such as the tornado in Moore, Oklahoma and Hurricane Sandy's visit to New England are changing the manner in which we use geospatial information in disasters.

As mapping, GIS, and remote sensing professionals, we understand the key role that accurate, current geospatial information plays in preventing, preparing for, and responding to emergencies on all scales. The combined expertise of CaGIS and ASPRS members is critical in supporting disaster management because it is not enough to collect outstanding data; we must be prepared to quickly and efficiently exploit it in order to enable critical decisions. Most importantly, we must understand the information needs of the decision makers and coordinate geospatial data collections.

To that end, we have assembled an excellent technical program including plenary session speakers **Rear Admiral Joseph Nimmich**, Associate Administrator for the Office of Response and Recovery, Federal Emergency Management Agency (FEMA), **Dr. Bhudu Bhaduri** from the Oak Ridge National Laboratory and **Mr. Josh Campbell** from the U.S. Department of State. In addition, we have built a dynamic program of technical, poster and special sessions for this conference that are sure to spark your interest.

New this year, the technical program has been adjusted so that it makes the best possible use of conference participants' time. Both technical sessions and exhibit hall hours are concentrated over two days – Tuesday (October 29) and Wednesday (October 30) with three presentations per 90-minute technical session, allowing more time for each presenter and for discussion. We are looking forward to these strategic changes and hope your conference experience is enhanced and you are able to make the best use of your time with us. Exhibit hall hours will be maximized so everyone will have ample opportunity to visit the exhibit booths.

And last, but, certainly not least, we will have the Exhibitors' Reception on Tuesday night followed by a unique opportunity for late-night dancing– including lessons from a Technical Program Chair and an ASPRS Past President!

This week, we encourage you to take advantage of the many networking opportunities available, to explore the conference exhibit hall where state-of-the-art innovations are being presented and don't forget the opportunity to have some fun deep in the heart of Texas!

We are glad you are here!



*Kari Craun*

**Kari Craun**  
CaGIS Technical Program Co-Chair

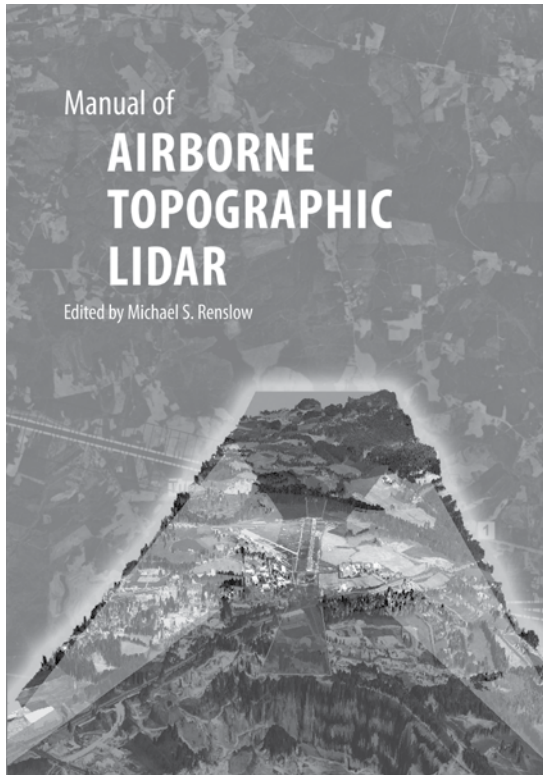


*Michael E. Hodgson*

**Michael E. Hodgson**  
ASPRS Technical Program Co-Chair

# Manual of Airborne Topographic Lidar

Edited by Michael S. Renslow



The ASPRS *Manual of Airborne Topographic Lidar* covers all the relevant topics relating to the science behind lidar systems, mission planning, data collection and management, quality control/quality assurance, and product development.

*Selected topics are discussed in-depth*

- The Global Navigation Satellite System
- Full Waveform Lidar
- Digital Terrain Modeling using GIS
- Rotary-Wing and Fixed-Wing Installations
- Calibration
- Flood Prone Area Mapping
- Hydro-enforcement
- Building Feature Extraction
- Transportation Engineering
- Natural Hazards Mapping
- Airport Surveying

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Stock # 4587

*Hardcover Prices*

**Hardcover available for sale at ASPRS booth 201**

List price: \$150

ASPRS Member Price: \$95

ASPRS Student Member Price: \$75

**Also available on**

**amazonkindle**

Kindle price: \$110



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# Students & Young Professionals



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

## The Student Advisory Council Meeting

Monday, October 28, 5:30 PM to 6:30 PM  
Location: Executive Salon 5

## Employer "Meet and Greet"

Tuesday, October 29, 11:00 AM to 12 NOON  
Location: Texas Ballroom, Salon A

Get together with the other Students and Associate members of ASPRS attending this years' conference and learn what the SAC has been working on. Stay for the meet and greet and make some connections with potential Employers attending this year.

The SAC members would love to meet all students attending the conference and hear any ideas you may have to make your conference experience enjoyable.

The meet and greet is designed to connect members looking to apply for jobs in the digital mapping industry with 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.

## Young Professionals Council (YPC)

Tuesday, October 29, 3:00 PM to 4:00 PM  
Location: Texas Ballroom, Salon A

The mission of the ASPRS Young Professionals Council (YPC) is to enhance a member's professional development through mentoring, networking and certification. We are designed to serve the needs of the Associate Members under the age of 35.

The YPC welcomes anyone who is interested in serving on the council or would like to hear about their progress thus far to attend the meeting.

## Other Social Activities

Your SAC Networking Councilor 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 as well.



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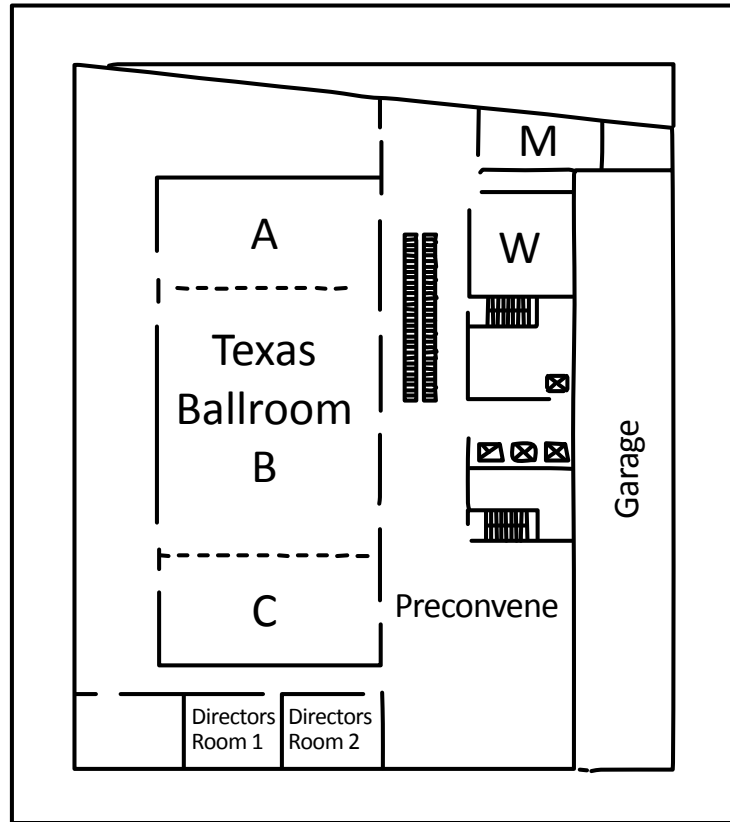
# CONFERENCE-AT-A-GLANCE

	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM
<b>Saturday, October 26</b>														
ASPRS Executive Committee Meeting														
<b>Sunday, October 27</b>														
Registration Desk Open														
ASPRS Committee Meetings														
Student Advisory Council Meeting (SAC)														
Workshop 4														
<b>Monday, October 28</b>														
Registration Desk Open														
CaGIS Board Meeting														
ASPRS Board Meeting														
Workshops 3 & 5														
Student Advisory Council Meeting (SAC)														
<b>Tuesday, October 29</b>														
Registration Desk Open														
Keynote Address														
Technical Sessions														
Student & Employer "Meet & Greet"														
Young Professional Council Meeting (YPC)														
Exhibit Hall Open														
Exhibitor's Reception														
Refreshment Breaks in Exhibit Hall														
<b>Wednesday, October 30</b>														
Registration Desk Open														
General Session 2														
General Session 3														
Technical Sessions														
US National Committee Meeting														
Exhibit Hall Open														
Breakfast with Exhibitors & Refreshments														

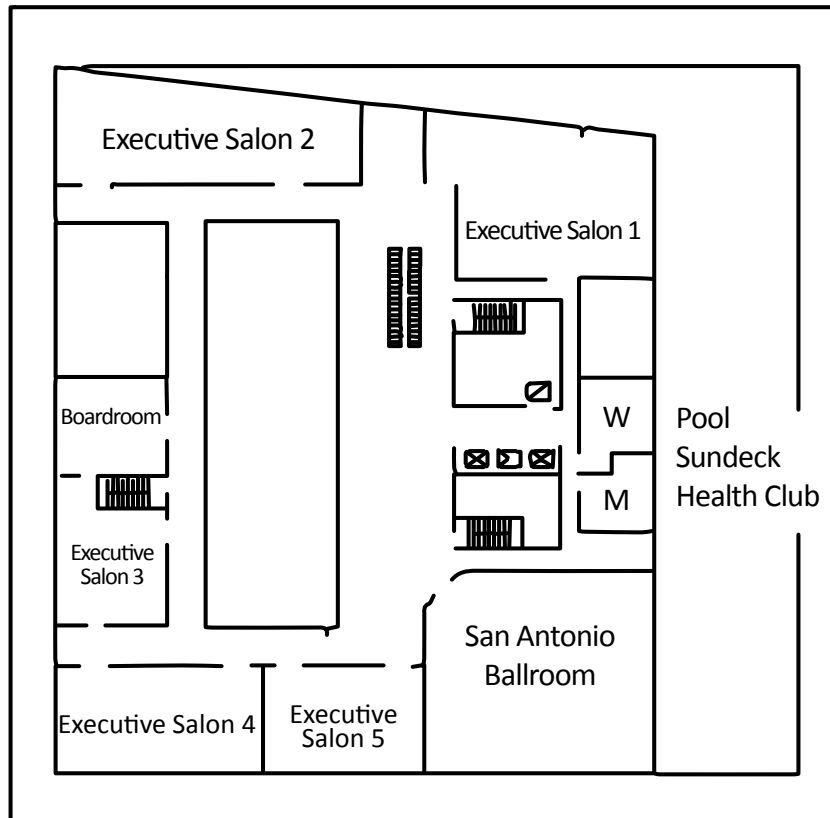
**This chart is a general representation of when things will occur at the conference; however, please consult the rest of the program for more complete information.**



## Second Floor



## Third Floor



# FREQUENTLY ASKED QUESTIONS

## How do I get help in an Emergency?

Contact an ASPRS or CAGIS staff person or pick up any hotel house phone and ask for Security. Give all details of the emergency including the location.

## Where is the Conference Registration Desk?

The Conference Registration Desk is located on the second floor of the hotel near the Texas Ballroom in the Wyndham San Antonio Riverwalk Hotel.

## What are the Conference Registration Desk Hours?

Sunday, October 27	10:00 AM to 6:00 PM
Monday, October 28	6:30 AM to 5:00 PM
Tuesday, October 29	7:00 AM to 5:45 PM
Wednesday, October 30	7:00 AM to 3:30 PM

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

## What are the Exhibit Hall Hours?

The Exhibit Hall is located on the second floor in the Texas Ballroom Salons B & C of the Wyndham San Antonio Riverwalk Hotel.

Tuesday, October 29	9:00 am to 7:30 pm
Exhibitors' Reception	5:30 pm – 7:30 pm
Wednesday, October 30	9:00 am to 3:30 pm
Closing Breakfast	9:00 am – 10:00 am

(Please note: Children under the age of 13 are not allowed in the exhibit hall.)

## Are Workshops included with the registration fees?

No. Workshops require individual registration and a separate fee in addition to the general conference registration fees. Availability is based on space. We do not reserve spaces without full payment in advance and there is no waiting list. *ASPRS reserves the right to cancel any workshop if the minimum number of registrations were not received by September 27, 2013.* On-site registration is available for confirmed workshops with available space.

## What should presenters do after they register?

All Technical Paper Presenters should check in at the Conference Registration Desk to pick-up their registration packets **and initial the Master Final Program next to their name including either a hotel room number or cell phone number.** A Master Final Program will be posted at the Conference Registration Desk so the session moderators can check if each presenter has arrived and can contact them if necessary.

## Does the Conference provide laptops for Technical Sessions?

No, the Conference does not provide laptops or desktop computers for Presenters during Technical Sessions. All Presenters must provide their own laptop computer.

## What does the Conference provide in each Technical Session room?

Each technical session room will be equipped with an LCD projector and screen. A microphone will be provided when necessary. *The Conference does NOT provide internet access, laser pointers, or laptop computers for the technical sessions.*

## Do Presenters have a Preparation Room?

Yes, the **Boardroom**, third floor of the hotel has been reserved for presenters'. The room is available on a first come basis and should be used for rehearsal only. Please be respectful of your fellow presenters when utilizing this room.

Tuesday, October 29	8:00 am – 5:00 pm
Wednesday, October 30	8:00 am – 5:00 pm

This room will be equipped with an LCD projector and screen. All presenters must bring their own laptops for all presentations. We encourage presenters to review their materials prior to their presentation.

## Do Moderators need to check-in?

Yes, as soon as you arrive, go to the Conference Registration Desk where a Master Final Program will be posted. Please initial and write your cell phone number or a hotel room number beside your name on this Master Program. We are asking the Presenters to do the same thing. This will be your way of knowing what presenters have arrived for your session and how to get ahold of everyone.

Prior to your session, check the Master Final Program at the Conference Registration Desk to confirm that all of your presenters have arrived at the conference.

## What are Poster Presenters expected to do?

The Conference provides to each Poster Presenter one side of a fabric covered poster board that measures three feet wide by eight feet high, and push pins. The poster boards will be located in the Exhibit Hall, Texas Ballroom, Salon C. All Poster Presenters should plan to arrive between **7:30 AM and 10 AM on Tuesday, October 29<sup>th</sup>** to affix their work to any available board. All posters must be removed by **5:00 PM on Wednesday, October 30<sup>th</sup>**. All poster packaging must be removed from the poster area once posters are hung. The Conference Organizers are not responsible for posters that are not removed. Poster Presenters must also check in at the Conference Registration Desk to pick-up their registration packets and **initial the Master Final Program next to their name including either a hotel room number or cell phone number.**

*Please be near your poster during the Exhibitors' Reception on Tuesday, October 29<sup>th</sup> from 5:30 PM until 7:30 PM.* This is a time for Conference attendees to view your posters and ask you questions or gain further information about your research.

## Is there an ASPRS and CAGIS staff office in the hotel?

Yes, the ASPRS and CAGIS staff offices are located in the **Directors Room 2**, second floor of the hotel.

## Where should Student Assistants and Volunteers report?

All Student Assistants and Volunteers should check in with the Coordinator in **Directors Room 1** on the second floor of the hotel at least 15 minutes before their scheduled session time.

## Why do I need a badge?

You paid your registration fee and your badge is proof of your payment. For entrance to the General Sessions, plenary and technical sessions, and Exhibit hall, you need to wear your name badge.

## What if I forget or lose my badge?

A charge of \$5 will be made for replacement of lost badges.

## Why do I need tickets for certain events?

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

## How can I visit the Exhibit Hall if I am not registered for the conference?

Daily Exhibit Hall badges may be purchased at the Conference Registration Desk in the Wyndham San Antonio Riverwalk Hotel. Everyone entering the Exhibit hall must have a name badge, including children over 13 years of age. Children under 13 years of age are not permitted in the Exhibit hall at any time due to insurance and safety regulations.

## Will it be possible to post resumes and job openings?

Yes, posting boards are provided near the Exhibit hall for all resumes and job openings. Please bring multiple copies of all postings to allow interested parties to take one and check the board frequently for new materials.

## How do I get a copy of the Proceedings?

All registrants, except for Spouse/Guest, will receive password access information to the Proceedings located on the conference website with their registration materials. Additional access can be purchased at the Conference Registration Desk.

**How can someone from outside the hotel contact me?**

Messages cannot be personally delivered to Conference attendees due to the varied schedules of everyone in attendance. Messages can be left in the rooms of those staying at the Wyndham San Antonio Riverwalk Hotel through the hotel telephone operator. Packages and fax messages can be sent to individuals staying at the hotel. **There is a charge for all packages and faxes sent to hotel guests.** This fee will **NOT** be paid by ASPRS or CAGIS. All packages should be addressed as follows:

Wyndham San Antonio Riverwalk Hotel  
Attn: (Person to receive shipment), Guest of the Hotel  
111 E. Pecan Street  
San Antonio, Texas 78205 USA  
C/O: CAGIS/ASPRS 2013 Specialty Conference; 10/27 – 10/30

**Is there a Lost and Found?**

Please contact Hotel Security through the hotel house phones for all lost and found items.

**Where can I store my bags/luggage?**

Please contact the Hotel Bellman for storage of your personal items. There may be a fee for this service. The Conference is not responsible for your bags or luggage during the Symposium and will not hold bags/luggage.

**How do I access the complimentary wireless internet?**

Each guest of the CaGIS/ASPRS hotel room block receives complimentary access to wireless internet throughout the hotel. You should be able to access the wireless on a regular basis; however, we cannot guarantee the internet strength. If you have any trouble accessing the wireless internet, please call the hotel front desk for assistance.

**(Please Note:** Do not download large files, stream video content or engage in malicious activities while using this service.)

## UPCOMING ASPRS CONFERENCES

MARCH 2014

**ASPRS 2014 Annual Conference &  
co-located JACIE Workshop**

Galt House Hotel  
Louisville, Kentucky  
March 23–28, 2014

NOVEMBER 2014

**Pecora 19 & ISPRS Commission I  
Symposium**

Renaissance Denver Hotel  
Denver, Colorado  
November 17–20, 2014

MAY 2015

**ASPRS 2015 Annual Conference**

Tampa Bay Marriott Waterside Hotel  
Tampa, Florida  
May 4–8, 2015

FALL 2015

**TBD**

APRIL 2016

**ASPRS 2016 Annual Conference**

Grand Sierra Hotel  
Reno, Nevada  
April 18-22, 2016

**For more information, visit**  
[www.asprs.org/ASPRS-Conferences](http://www.asprs.org/ASPRS-Conferences)



## MEETINGS

Anyone interested in the work of an ASPRS Division or Committee is welcome to attend the meetings. There is no registration required for attendance at the ASPRS Division and Committee meetings. Your participation is encouraged and welcome.

### **Division Directors & Committee Chairs (Joint meeting)**

8:00 AM to 9:00 AM, Location: Texas Ballroom, Salon A

### **Remote Sensing Applications Division (RSAD)**

9:00 AM to 10:00 AM, Location: Texas Ballroom, Salon A

### **ASPRS Standards Committee**

9:00 AM to 10:00 AM, Location: Executive Salon 3

### **Journal Policy & Publications Committee (Joint Meeting)**

10:00 AM until 11:00 AM, Location: Texas Ballroom, Salon A

### **Lidar**

*Mobile Mapping Subcommittee*

10:00 AM to 11:00 AM, Location: Executive Salon 3

### **Convention Policy & Planning Committee (CPPC) & National Technical Planning Committee (NTPC)**

*(Joint Meeting)*

11:00 AM to 12 Noon, Location: Texas Ballroom, Salon A

### **Photogrammetric Applications Division (PAD)**

1:00 PM to 2:00 PM, Location: Texas Ballroom, Salon A

### **ASPRS Education & Professional Development Committee**

2:00 PM to 3:00 PM, Location: Texas Ballroom, Salon A

### **Lidar Division**

2:00 PM to 3:00 PM, Location: Executive Salon 3

### **Remote Sensing Applications Division (RSAD)**

*Climate Change Subcommittee*

3:00 PM to 4:00 PM, Location: Texas Ballroom, Salon A

### **Professional Practice Division (PPD)**

3:00 PM to 4:00 PM, Location: Executive Salon 3

### **Geographic Information Systems Division (GISD)**

4:00 PM to 5:00 PM, Location: Executive Salon 3

### **Primary Data Acquisition Division (PDAD)**

4:00 PM to 5:00 PM, Location: Texas Ballroom, Salon A

### **Division Directors**

5:00 PM to 6:00 PM, Location: Texas Ballroom, Salon A

### **Volunteers Orientation**

5:30 PM to 6:30 PM, Location: Executive Salon 3

## WORKSHOPS

### **Workshop #4**

#### **Looking Above the Terrain: Lidar for Vegetation Assessment**

Sorin Popescu, *Texas A&M University*

12:45 PM to 5:15 PM – Half Day Afternoon, Location: Executive Salon 5, CEU 0.4

## Continuing Education Credits (CEU's)

ASPRS is pleased to announce that Continuing Education Units (CEUs) are awarded for the ASPRS workshops. This program is being offered in conjunction with George Mason University.

The Continuing Education Unit (CEU) is a nationally recognized unit of measurement for participation in non-credit continuing education programs. Adults who successfully complete George Mason University's approved programs will be awarded continuing education units. A permanent record of CEUs awarded will be maintained in the university database and will be easily accessible for certification and verification purposes.

The objective of the CEU is to:

- Provide a nationally established record of professional development learning activity
- Encourage adult students to utilize educational resources to meet their personal and educational needs
- Recognize individuals who continue their education and keep themselves current in their chosen professions
- Enable individuals to have an accurate source of their current CEU activity
- Provide a system to document continuing education experiences in meeting certification requirements.

George Mason University, Office of Continuing Professional Education is registered with the National Association of State Boards of Accountancy (NASBA), as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit.

### Conference Registration Desk Open

10:00 AM to 6:00 PM

Location: 2<sup>nd</sup> Floor Texas Ballroom Foyer

## MEETINGS

*Anyone interested in the work of an ASPRS Division or Committee is welcome to attend the meetings. There is no registration required for attendance at the ASPRS Division and Committee meetings. Your participation is encouraged and welcome.*

### ASPRS Board of Directors Meeting

8:00 AM to 5:00 PM, Location: Executive Salon 4

### Student Advisory Council (SAC)

5:30 PM to 6:30 PM, Location: Executive Salon 5

### CaGIS Board of Directors Meeting

8:00 AM to 5:00 PM, Location: Lone Star, near 1<sup>st</sup> floor restaurant

## WORKSHOPS

### Workshop #3

#### Introduction to Unmanned Aerial System (UAS) Operations

Keven Gambold, *Unmanned Experts LLC*

Ed Freeborn, *Unmanned Experts LLC*

7:45 AM to 5:15 PM – Full Day, Location: Executive Salon 3, CEU 0.8

### Workshop #5

#### QA/QC Processes and Concepts

Qassim Abdullah, *Woolpert*

Tom Asbeck, *Atkins*

12:45 PM to 5:15 PM – Half Day Afternoon, Location: Texas Ballroom, Salon A, CEU 0.4

### WORKSHOP FEES

*Workshop fees are not included in the cost of the conference registration*

#### FULL DAY (WS #3)

Member	\$260
Non-Member	\$360
Student	\$140

#### HALF DAY (WS 4, 5)

Member	\$200
NonMember	\$300
Student	\$100

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[geoconnexion.com](http://geoconnexion.com)

**Conference Registration Desk Open**

7:00 AM to 5:45 PM

Location: 2<sup>nd</sup> Floor Texas Ballroom Foyer

**Poster Set-up**

7:30 AM to 9:00 AM

Location: 2<sup>nd</sup> Floor Texas Ballroom, Salon C

All poster presenters should plan to arrive no earlier than 7:30 AM to display their work and affix their poster to any available board. Board space is available on a first-come, first-served basis – NO holding board space. All poster packaging must be removed from the poster area once posters are installed.

**Presenter Preparation Room Open**

8:00 AM to 5:00 PM

Location: Boardroom, 3<sup>rd</sup> Floor

The Conference has arranged a room for presenters to practice their presentations. This room will be open Tuesday and Wednesday and is available on a first come, first served, basis. Please be respectful of fellow presenters when using the practice room. Just like a regular technical session room, an LCD projector and screen are provided for your practice.

**Exhibit Hall**

Exhibit Hall Open

9:00 AM to 7:30 PM

Location: 2<sup>nd</sup> Floor Texas Ballroom Salons B & C

**Keynote Session 8:00 AM to 9:00 AM**

Location: San Antonio Ballroom

**Gordon L. Wells, PhD**  
**Program Manager**  
***Center for Space Research***  
***University of Texas at Austin***



Dr. Gordon Wells serves as the Program Manager for the Mid-American Geospatial Information Center located at the University of Texas at Austin Center for Space Research, where he supervises the operation of the direct broadcast satellite receiving station. He serves as a member of the Governor's Emergency Management Council, where his team supports the State's

preparedness and response programs for homeland security and natural disasters. His hurricane landfall modeling and simulation results for storm surge and wind impacts are used by the Texas Division of Emergency Management for public meetings, planning, and training, and during activations of the State Operations Center for decision support during and after landfall. His hurricane simulations have been featured in reports by many media sources, including NBC, ABC, CNN, the BBC and The Weather Channel. Dr. Wells is a member of the Drought Technology Steering Committee, a group of academic and agency scientists working on better methods to monitor and forecast Texas droughts and their impacts on natural resources and water availability. He also conducts research in satellite remote sensing for applications in resource assessment and environmental monitoring and is actively involved in the technical development of the next generation of high-resolution remote sensing instruments.

**NETWORKING OPPORTUNITY All Conference Refreshment Break**

9:00 AM to 9:30 AM

Location: 2<sup>nd</sup> Floor

Texas Ballroom Salons B & C



**TECHNICAL SESSIONS 9:30 AM – 11:00 AM****1 - Geospatial Information Collection, Distribution and Management - Airborne Sensors: Innovative Techniques for Acquisition and Processing to Support Disaster Management**

Moderator: Chris Lippitt, *University of New Mexico*, United States  
Location: Executive Salon 5

**Low Light Imaging using Absolutely Calibrated Large Format Digital Aerial Framing Cameras**

Robert Ryan, *Innovative Imaging and Research*, United States  
Mary Pagnutti and Kara Holekamp

**Repeat Station Airborne Imaging for Rapid Disaster Assessment and Situational Awareness**

Lloyd (Pete) Coulter, *San Diego State University*, United States  
Douglas Stow, Christopher Lippitt, Grant Fraley, and Richard McCreight

**Coastal Flooding and Marsh Resource Monitoring With Radar and Optical Satellite Sensor Data**

Aamina Rangoonwala, *Five Rivers Services LLC*, United States  
Elijah Ramsey III

**2 - Geospatial Information Analysis Modeling – Feature Extraction and Analysis to Support Pre- and Post-Event Planning and Response**

Moderator: Devin White, *Oak Ridge National Laboratory*, United States  
Location: Executive Salon 3

**Landcover Supervised Classification for Emergency Preparedness**

Jay Morrow, *Harris Corporation*, United States  
Mark Rahmes, Morris Akbari, George Lemieux

**Extracting Infrastructure Information from Images to Support Human Interpretation**

Raechel Bianchetti, *The Pennsylvania State University*, United States

**Automatic Landslide Feature Extraction From Airborne Lidar**

Charles Toth, *The Ohio State University*, United States  
Jung-Kuan Liu, Omar Mora, and Dorota Grejner-Brzezinska

**3 - Visualization and Communication - Base Geospatial Information to Support Disaster Management**

Moderator: Melissa Wagner, *Arizona State University*, United States  
Location: San Antonio Ballroom

**Enhancing National Emergency Response through a National Address Database**

Kaile Bower, *U.S. Census Bureau*, United States

**Ensuring Geospatial Preparedness: A Proposed User Fee for National Data?**

Alan M. Mikuni, *Towill, Inc.*, United States

**Proper Care and Feeding of Metadata**

Ryan Elizabeth Bowe, *Photo Science, Inc.*, United States

**Special Session****4 - UAS Session 1**

Moderator: Ed Freeborn, *Unmanned Experts LLC*, United States  
Location: Executive Salon 4

**Applications of UAV-capable Systems for Post-disaster Damage Assessment of Transportation Infrastructure**

David Dean, *Michigan Tech Research Institute*, United States  
Colin Brooks, R. Dobson, C. Roussi, T. Colling, and C. Singh

**Experience Using UAS Sensors Post Hurricane**

David Yoel, *American Aerospace Advisors*, United States  
Gabriel Ladd

**The Rise of the Machines**

Mike Tully, *Aerial Services, Inc. (ASI)*, United States  
Joshua McNary

**Networking Opportunity**

All Conference Refreshment Break  
11:00 AM to 11:30 AM  
Location: 2<sup>nd</sup> Floor, Texas Ballroom Salons B & C

**MEETINGS****Student & Employer Meet & Greet**

11:00 AM to 12 Noon

Location: Texas Ballroom, Salon A

Take this wonderful opportunity to make some connections with potential Employers attending the conference this year. The Meet and greet is designed to connect members looking to apply for jobs in the digital mapping industry with employers looking to hire. Bring your resume, a business card, or just a smile and a handshake, and expand your job network.

**LUNCH BREAK – ON YOUR OWN**

11:30 AM to 1:15 PM

**TECHNICAL SESSIONS 1:30 PM – 3:00 PM**

**5 - Geospatial Information Collection, Distribution and Management – Commercial Imagery Assets for Disaster Management and Response**

Moderator: Ramesh Sivanpillai, *University of Wyoming*, United States

Location: Executive Salon 4

**Using Astrium GEO-Information Services EO Satellite Constellation for Disaster Response**

Drew Hopwood, *Astrium GEO-Information Services*, United States

**Perspectives on Multi-Modal Imaging for Emergency Response with Specific Reference to Isaac, Granbury TX and Moore OK**

Pierre le Roux, *ASPRS PDAD/Aerometric*, United States

**Access to DigitalGlobe Imagery through the FirstLook Crisis Event Services**

Jack Hild, *DigitalGlobe*, United States

**Ubiquitous Satellite Imagery of Our Planet**

Josh Alban, *Planet Labs*, United States

Frank Warmerdam, Chris Boshuizen

**6 - Geospatial Information Analysis Modeling – Forest Fire Risk Modeling**

Moderator: Thomas Cova, *University of Utah*, United States

Location: Executive Salon 5

**Forest Fire Analysis and Modeling using NASA Earth Observing System in Coahuila, Mexico**

Rohini S. Swaminathan, *NASA DEVELOP*, United States

Pedro Juan Rodriguez Rivera, Carlos Cardenas, Christian Gonzalez, Laura Helena, Hector Hernandez, Daniel Martinez, and Ryan Quinn

**Fire Risk Assessment in the USA Using RiskPro Web-based Application**

Mary Lorraine Tighe, *Intermap*, United States

Stephen Griffiths, Michael Wollersheim, and Qiaoping Zhang

**A Fused Disturbance Model for Disaster Assessment and Planning**

Braden Owsley, *The University of Oklahoma*, United States

Kirsten de Beurs, Jason Julian

**7 - Visualization and Communication**

Moderator: Raechel Bianchetti, *The Pennsylvania State University*, United States

Location: Executive Salon 3

**Integrating Service Learning and GEOBIA Research: High Resolution Mapping of Urban and Rural Landscapes in Georgia**

Jitendra Sharma, *University of North Georgia*, United States

**Spatial Data Integration Using Ontological System**

Otakar Cerba, *University of West Bohemia*, Czech Republic

**The Effect of Urban Environments on Severe Weather**

Kirsten de Beurs, *University of Oklahoma*, United States

Jess Walker, Geoff Henebry, and Duncan Fetner

**Special Session**

**8 - Hurricane Sandy**

Moderator: Alan Mikuni, *Towill, Inc.*, United States

Location: San Antonio Ballroom

**Evaluating the Impact of Hurricane Sandy through the Lens of Ian McHarg's Design by Nature**

Melissa Wagner, *Arizona State University*, United States

Elizabeth Wentz, Nabil Kamel

**Risk Assessment and Modeling Storm Damage: Hurricane Sandy as a Case Study in Disaster Management**

Yan Yan, *Graduate School of Geography, Clark University*, United States

Hayley Solak

**Summary of Post-Hurricane Sandy Lidar Data Acquisition Plans by the USGS National Geospatial Program and Partners**

Kari Craun, *U.S. Geological Survey*, United States

**MEETINGS**

**Young Professionals Council (YPC)**

3:00 PM to 4:00 PM

Location: 2<sup>nd</sup> Floor, Texas Ballroom, Salon A

**NETWORKING OPPORTUNITY**

**All Conference Refreshment Break**

3:00 PM to 4:00 PM

Location: 2<sup>nd</sup> Floor, Texas Ballroom Salons B & C





**TECHNICAL SESSIONS 4:00 PM – 5:30 PM****9 - Geospatial Information Collection, Distribution and Management - 3-D Modeling and Terrestrial Lidar**Moderator: Charles Toth, *The Ohio State University*

Location: Executive Salon 4

**Sensor Fusion: Combining Capabilities for Recovery**Joshua France, *RIEGL USA*, United States

William Meyer

**The Efficacy of Terrestrial Laser Scanning in Retrieving Tree Level Forest Inventory Variables and Studying Tree Level Growth**Shruthi Srinivasan, *Spatial Science Laboratory*, United States

Sorin Popescu, Ryan Sheridan, and Nian-Wei Ku

**3D Laser Scanning Insights on Impacts of Earthquakes and Tsunamis**Michael Olsen, *Oregon State University*, United States**10 - Geospatial Information Analysis Modeling – GIS-based Models to Enable Disaster Management**Moderator: Thomas Morelli, *Sea Land & Air Technologies & Systems, Inc.*, United States

Location: San Antonio Ballroom

**Identifying Likely Post-Disaster Travel Routes Through Urban Landscapes Using Lidar and Massively Parallelized Least Cost Analysis**Devin White, *Oak Ridge National Laboratory*, United States**Modeling Protective-Action Triggers in Wildfires**Thomas Cova, *University of Utah*, United States

Phil Dennison, Frank Drews

**Simulations of DAM Failure Events and Associated Emergency Response Planning**Haluk Cetin, *Murray State University*, United States

Tom Mueller

**11 - Management of Disasters – Data Management/ Data Dissemination**Moderator: Robert Ryan, *Innovative Imaging and Research*, United States

Location: Executive Salon 5

**A Preliminary Review of Time-Sensitive Remote Sensing Methods**Chris Lippitt, *University of New Mexico*, United States**Using IDEAS (Intelligent Data Exploration and Analytics System) for Visual Solutions of Geospatial Challenges Associated with Disaster Prediction and Response**Charles Samuels, *The SI Organization, Inc.*, United States

John Kelley and Shawana Johnson

**The National Map and Hazard Data Distribution System**Robert Bewley, *U.S. Geological Survey*, United States**12 - Poster Lightening Session Talks**Moderator: Michael E. Hodgson, *University of South Carolina*, United States

Location: Executive Salon 3

**Morphological Operators Based Approach for Building Extraction in Hazardous Areas Using Close Range Airborne Imagery**Chandana Dinesh Parape, *Environmental Informatics*, Japan  
Chinthaka Pemachandra and Masayuki Tamura**Automated Urban Building DAM age Detection Using Fast Fourier Transform From Pre- and Post-Event High Resolution Airborne Stereo Imagery in Case Of Natural Hazards**Chandana Dinesh Parape, *Environmental Informatics*, Japan  
Masayuki Tamura and Chinthaka Pemachandra**Design of an Online Course for Interpretation and Assessment of Images before and After Events**Ming-Chih Hung, *Northwest Missouri State University*, United States

Yi-Hwa Wu

**Social Media and Geospatial Information**Terra Wright-DeLoatch, *Fayetteville State University*, United States**Revisiting Tournachon – How Balloon Aerial Photography has Been Moved out of History and into the GIS Classroom**Gustavo Zastrow, *Northern Virginia Community College*, United States

Michael Krimmer and Jason Brown

**NETWORKING OPPORTUNITY****Exhibitors' Reception**

5:30 PM to 7:30 PM

Location: 2<sup>nd</sup> Floor, Texas Ballroom Salons B & C

A highlight of the Specialty Conferences is this gathering of exhibitors the night the Show officially opens, as we say "Thank You" to the exhibitors. Their innovative new products and creative displays are the conference main attraction.

Join us for this fun way to say "Thank You" to all of our supporting exhibitors!

Light hors d'oeuvres will be served and each attendee will be given one complimentary drink ticket. Admission to this event is included with most registrations. A cash bar will be open until 7:00 PM.

**Salsa Night****8:00 PM – 11:00 PM****Tuesday, October 29****Location: 3rd Floor****San Antonio Ballroom**

Come join us for an evening of learning and fun! This great networking opportunity includes 45 minutes of basic salsa dance lessons with Karen Schuckman and Michael E. Hodgson as your dance instructors followed by dancing at a local venue.

There is no cost associated with the dance lessons. Any fees, food or drink associated with the off-site local venue are the responsibility of each participant. The Conference assumes no responsibility at the off-site venue.

**Conference Registration Desk Open**

7:00 AM to 3:30 PM

Location: 2<sup>nd</sup> Floor Texas Ballroom Foyer

**Presenter Preparation Room Open**

8:00 AM to 5:00 PM

Location: Boardroom, 3rd Floor

The Conference has arranged a room for presenters to practice their presentations. This room will be open Tuesday and Wednesday and is available on a first come, first served, basis. Please be respectful of fellow presenters when using the practice room. Just like a regular technical session room, an LCD projector and screen are provided for your practice.

**Exhibit Hall Open**

9:00 AM to 3:30 PM

Location: 2<sup>nd</sup> Floor Texas Ballroom Salons B & C

**BREAKFAST WITH EXHIBITORS**

9:00 AM to 10:00 AM

A light continental breakfast will be held in the Exhibit Hall before the Technical Sessions begin. Take some time to leisurely view the exhibit hall and continue discussions with the exhibitors.

*Admission to this event is included with most registrations.*



**General Session 2 8:00 AM – 9:00 AM**

Location: San Antonio Ballroom

**Towards a Geospatial Knowledge Discovery Framework for Disaster Management**

Budhendra Bhaduri

*Corporate Research Fellow, Oak Ridge National Laboratory, United States*

The progressive cyber and data infrastructures have enabled the development of novel decision support frameworks for the disaster preparedness and response community of practice. This presentation will describe ongoing development of a computationally intensive and efficient geospatial modeling and analysis framework that allows near real time processing and integration of remotely sensed data, derivation and delivery of useful data derivatives, and spatio-temporal modeling and simulations using capability computing. Drawing from our experience in supporting national and international disaster management efforts for recent natural disasters, the practical limitations of traditional disaster decision support structure and criticality of geospatial computing will also be highlighted.



Dr. Budhendra Bhaduri is a Corporate Research Fellow (ORNL) and leads the Geographic Information Science and Technology (GIST) group at Oak Ridge National Laboratory. He is a founding member of the U.S. Department of Energy's Geospatial Sciences Steering Committee. His research interests and experience include novel implementation of geospatial science and technology in sustainable development research, including population dynamics, urbanization and watershed im-

pacts, energy resource assessment, and disaster management. He is a principal member of the LandScan global population modeling programs at ORNL. He received the 2010 Homeland Security award for emergency preparedness and response from Christopher Columbus Fellowship Foundation. In 2009, he was appointed to the Mapping Science Committee of the National Academy of Sciences/National Research Council. He is also serving on the Geographic Information Science and Applications and on a Strategic Highway Research Program, Expert Task Group of the Transportation Research Board (TRB) of the National Academies. Dr. Bhaduri is actively involved with academic institutions for scientific collaborations and student engagement for research in geo-spatial science. He is a recipient of the Department of Energy's Outstanding Mentor Award for his dedicated service to the department for developing future workforce for the nation.

**TECHNICAL SESSIONS 10:00 AM – 11:30 AM**

**13 - Geospatial Information Collection, Distribution and Management – International Charter**

Moderator: Kari Craun, *U.S. Geological Survey*, United States  
Location: San Antonio Ballroom

**Emergency Response and the International Charter Space and Major Disasters**

Brenda Jones, *U.S. Geological Survey*, United States  
Rynn Lamb

**Collecting and Distributing Remotely Sensed Data to Monitor and Map the 2011 US Midwestern Floods.**

Ramesh Sivanpillai, *University of Wyoming*, United States  
Brenda Jones and Rynn Lamb

**AmericaView – Disaster Prep, Response and Support**

Brent Yantis, *AmericaView*, United States

**Special Session**

**14 - Emerging Geospatial Research Frontiers in Emergency Management**

Sponsored by the ASPRS Student Advisory Council  
Moderator: Raechel Bianchetti, *The Pennsylvania State University*, United States  
Location: Executive Salon 3

**Panelists:**

Dr. Peter Coulter, *San Diego State University*, United States  
Dr. Tim Frazier, *University of Idaho*, United States  
Dr. Chris Lippit, *University of New Mexico*, United States  
Dr. Karen Schuckman, *The Pennsylvania State University*, United States  
Michael E. Hodgson, *University of South Carolina*, United States

**15 - Hazard Risk Mapping and Modeling**

Moderator: Mary Lorraine Tighe, *Intermap*, United States  
Location: Executive Salon 5

**Fine-Scale Vulnerability Assessment of Rainfall Flooding and Storm Surge Hazard for Single-Family Housing in a Coastal Community - A Case Study of Clearwater, Florida**

Yin-Hsuen Chen, *University of Florida*, United States  
Timothy Fik and Joann Mossa

**Multivariate GIS Analysis of Landslide Vulnerability for Western Oregon**

Rubini Santha Mahalingam, *Oregon State University*, United States  
Mahyar Sharifi-Mood and J. Michael Olsen

**Value-added Humanitarian Information Delivery from Earth Observation Data: Investigating Synergies of Data Fusion and Image Segmentation in Rapid Mapping Workflows**

Chandi Witharana, *University of Connecticut*, United States  
Daniel L. Civco

**Special Session**

**16 - Crowd-sourcing: Formalizing Geospatial Crowdsourcing in the Crisis Mapping Community**

Moderator: Dapeng Li, *University of Utah*, United States  
Location: Executive Salon 2

**Formalizing Geospatial Crowdsourcing in the Crisis Mapping Community**

Sophia Liu, *U.S. Geological Survey*, United States

**Understanding the Geoweb in Authoritarian Contexts**

Cameran Ashraf, *UCLA*, United States

**Using Geotagged Tweets to Explore Geographic Disparities of Twitter Users: a Case Study of New Jersey State, U.S.**

Dapeng Li, *University of Utah*, United States  
Thomas Cova

**Mobile-Cloud Crowdsourcing-enabled Image Understanding and GIS Fusion for Rapid Post-disaster Response**

ZhiQiang Chen, *University of Missouri-Kansas City*, United States  
Jianfei Chen, Ashlee Warnke, and Maria Medrano



Event Response Using Unmanned Aerial Vehicles

Presentation Wed 3:30pm

Special Session UAS 2

Bret Vandervoort

Ph: 480-626-3385

bret@gisservices.net



**19 - Geospatial Information Analysis Modeling – Lidar and Elevation Data Processing to Support Disaster Management**

Moderator: Michael Olsen, *Oregon State University*, United States  
Location: Executive Salon 2

**The Impact of Algorithm, Relief, and Resolution on Drainage Network Extraction From Digital Terrain**

Boleslo Romero, *University of California*, Santa Barbara, United States  
Keith Clarke

**Applying 2D Compression Methods to Lidar Waveform Cubes**

Charles Toth, *The Ohio State University*, United States  
Greg Jozkow and Michelle Quirk

**The Impact of Incidence Angle on Lidar Waveform**

Charles Toth, *The Ohio State University*, United States  
Zoltan Koppanyi, Sandor Laky, John Anderson, and Ricky Massaro

**20 - Disaster Planning and Communication – Transportation and Supply Chain Network Analysis Post-Event**

Moderator: Lynn Usery, *U.S. Geologic Survey*, United States  
Location: Executive Salon 5

**Integrating Complexity into Data-Driven Multi-Hazard Supply Chain Network Strategies**

Suzanna Long, *Missouri University of Science and Technology*, United States  
T. Shoberg, V. Ramachandran, S. Corns, and H. Carlo

**Supply Chain Network Resiliency Model for an Urban Center in the Aftermath of an Extreme Event**

Tom Shoberg, *U.S. Geological Survey*, United States  
Suzanna K. Long, V. Ramachandran, S. Corns, and H. Carlo

**Tsunami Warning System Helped Reduce the Loss of Life In Tōhoku**

M. Lorraine Tighe, *Intermap*, United States  
Ivan Maddox

**Refreshment Break**

All Conference Refreshment Break  
3:15 PM to 3:30 PM  
Location: 2<sup>nd</sup> Floor, Texas Ballroom Salons B & C



**Poster Removal**

3:30 PM to 5:00 PM  
All posters must be removed by 5:00 PM. Any posters left on the poster boards will be thrown away.



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Technical Sessions 3:30 PM – 5:00 PM

**Special Session**

**21 - DHS IDIQ Contract Experience/Lessons Learned**

Chris Barnard, *Remote Sensing Advisor*, Geospatial Management Office, Department of Homeland Security (DHS), will provide an overview of DHS' new Indefinite Delivery/Indefinite Quantity (IDIQ) rapid acquisition contract. This will be followed by presentations from each of the firms under contract discussing issues such as: meeting the event-specific rapid response needs of DHS, the major challenges in rapid response acquisition, and what particular technologies/methods might be deployed to support rapid data acquisition and the associated issues related to data management in this type of event.

Moderator: Bruce Davis, *Department of Homeland Security*, United States

Location: San Antonio Ballroom

**Overview of Scope and Contract Background**

Chris Barnard,\* *Department of Homeland Security*, United States

**Mapping the Path to Recovery**

Mark Safran, *BAE Systems*, United States

**Discussion of Their Perspectives as Contractors**

Bob Hickey, *Photoscience*, United States

Terry Keating, *Aerometric*, United States

Amar Nayegandi, *Dewberry*, United States

*Time will be reserved for a Q&A and panel discussion on this contract and associated challenges from both a government, as well as a private sector perspective.*

*\*Speaker will participate remotely.*

**22 - Geospatial Information Analysis Modeling - Data Fusion to Support Disaster Response and Recovery**

Moderator: Jitendra Sharma, *University of North Georgia*, United States

Location: Executive Salon 3

**Fusion of Remotely Sensed Data for Human Grave Detection**

Katie Corcoran, *University of Tennessee*, United States

Devin White

**Performance Analysis on Image Fusion Methods**

Volkan Yilmaz, *Karadeniz Technical University*, Turkey

Oguz Gungor

**Automated Detection Of Refugee/IDP Tents From Satellite Imagery Using Two-Level Graph Cut Segmentation**

Serife S. Kucur Ergunay, *Informatics and Information Security*

*Research Center (BILGEM)*, Turkey

Fatih Kahraman and Hasan F. Ates

**23 - Disaster Management - Effective Planning and Communication**

Moderator: Kaile Bower, *U.S. Census Bureau*, United States

Location: Executive Salon 5

**Development of Geospatially Enabled Geographic Response Plans for Oil Spill Response in the Western Basin of Lake Erie**

David Dean, *Michigan Tech Research Institute*, United States

C. Brooks and K. Arthur Endsley

**Maritime Migration of Disaster-Displaced International Refugees: Contingency Planning and Response Supported by Remote Sensing Applications Implemented Through Comprehensive Engagement Strategy**

Thomas Morelli, *Sea Land & Air Technologies & Systems, Inc.*, United States

Bradley Niesen

**Communicating School Emergency Plans with the Community Using Resilient Communication**

Jennifer Burrell, *Kent State University*, United States

**Special Session**

**24 - UAS Session 2**

Sponsored by the ASPRS Primary Data Acquisition Division (PDAD)

Moderator: Pierre le Roux, *ASPRS PDAD/Aerometric*, United States

Location: Executive Salon 2

**Event Response Using Unmanned Aerial Vehicles**

Bret Vandervoort, *GIS Services*, United States

Bill Timmins and Jeff Cooper

**Woolpert's Unmanned Airborne System for Today's Mapping Needs: The Metric Approach**

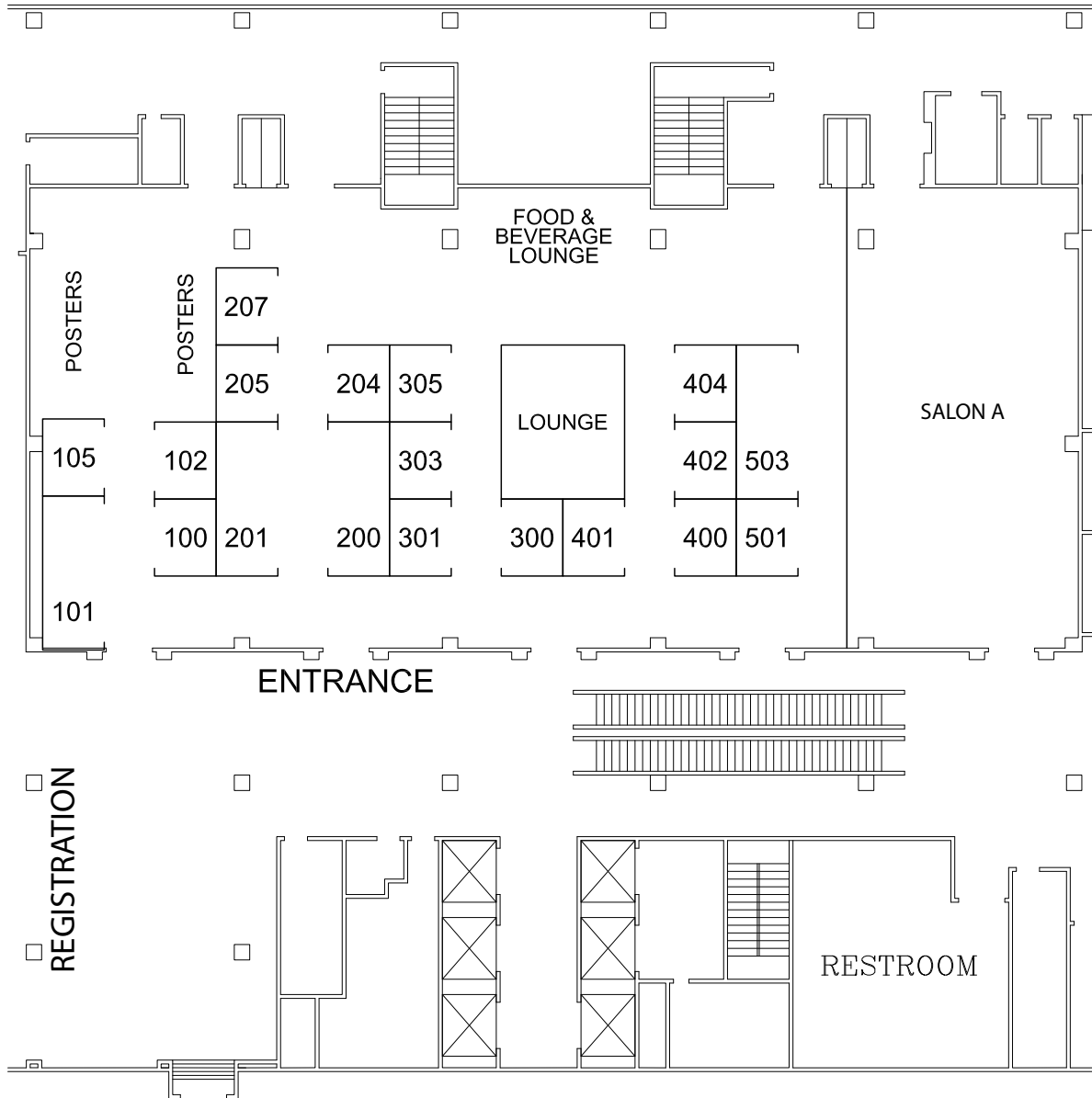
Qassim Abdullah, *Woolpert*, United States

**Meetings**

**U.S. National Committee Meeting**

5:30 PM to 6:30 PM

Location: Boardroom



## Exhibitors

- |  |   |
|--|---|
| 102 American Surveyor  | 402 Intergraph                              |
| 201 ASPRS  | 400 Leica GeoSystems, Inc.                  |
| 503 ASPRS Student Advisory Council & Young Professionals Council | 102 LiDAR News                              |
| 105 CaGIS  | 200 Lizardtech                              |
| 301 Cardinal Systems, LLC  | 303 NorPix, Inc.                            |
| 102 Coordinates  | 100 Optech                                  |
| 205 Digital Globe  | 102 Point of Beginning                      |
| 102 Directions   | 102 Professional Surveyor                   |
| 305 Dynamic Aviation Group                                       | 300 RIEGL USA                               |
| 101 Esri   | 401 Surveying and Mapping, Inc. (SAM, Inc.) |
| 102 Imaging Notes  | 102 Take One Publications                   |

# EXHIBITORS

## American Surveyor/LiDAR News

www.amerisurv.com  
www.lidarnews.com

The American Surveyor is made by surveyors for surveyors. Editor Marc Cheves draws on 40+ years of industry experience alongside a stellar team of nationally recognized writers. Sister publications include LIDAR News & GISuser.com.

## ASPRS

Bethesda, Maryland  
301-493-0290

Come visit the ASPRS Bookstore to preview our new eBook, *Manual of Airborne Topographic Lidar*. Browse through our other publications, including the *Manual of Photogrammetry*, 6<sup>th</sup> Edition. Take advantage of the show discount and save on shipping. Learn more about upcoming ASPRS conferences, including the ASPRS 2014 Annual Conference in Louisville, Kentucky, March 2014. ASPRS staff members will be available to answer questions about certification, membership, awards and scholarships, and more. Make sure to pick up a free copy of *PE&RS* and take your chance at putt-putt to win a prize.

## ASPRS Student Advisory Council & Young Professionals Council

## CaGIS

Mt. Pleasant, South Carolina  
843-324-0665

The Cartography and Geographic Information Society (CaGIS) is composed of educators, researchers and practitioners who utilize geographic information. CaGIS publishes the quarterly research journal *Cartography and Geographic Information Science*; hosts AutoCarto, a biennial research conference; represents the United States to the International Cartographic Association (ICA); hosts an annual map competition, provides student scholarships, and advocates on policy issues in the field.

## Cardinal Systems, LLC

Flagler Beach, Florida  
386-439-2525

Cardinal Systems, LLC provides mapping software solutions for the handling of digital spatial data and is the developer and provider of the Vr Mapping software suite. Offering the modules VrOne, VrTwo, VrLiDAR, VrOrtho, VrAirTrig, VrMosaic, VrBalance, VrAdjust, VrVolumes and VrLite we are continually developing fresh new programs for the geospatial community in which Vr is fast becoming the standard. To learn how to revolutionize your data collection and editing methods please visit us at Booth 301.

## Coordinates

www.mycoordinates.org

COORDINATES is an international monthly magazine on positioning, navigation and geospatial technologies and applications. In its 9th year, it is widely circulated in Asia, Australia, New Zealand, Europe, N. America. Download the complete magazine including the AD's free from [www.mycoordinates.org](http://www.mycoordinates.org).

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## Digital Globe

Herndon, Virginia  
703-480-7500

DigitalGlobe, a leading provider of commercial high-resolution earth observation and advanced geospatial solutions, helps decision makers better understand our changing planet in order to save lives, resources and time. Sourced from the world's leading constellation, our imagery solutions deliver unmatched coverage and capacity to meet our customers' most demanding mission requirements.

## Directions Magazine

www.directionsmag.com

Directions Magazine is the world's leading source of news and opinion for "all things location." We keep our readers informed with the latest geospatial technology trends and issues through newsletters, blogs, podcasts, industry Channels and webinars. Read us daily at [www.DirectionsMag.com](http://www.DirectionsMag.com).

## Dynamic Aviation Group

www.dynamicaviation.com

Dynamic Aviation specializes in providing turbine powered aircraft and aviation infrastructure to organizations with exacting data needs, but lacking aviation resources. We offer versatile, superior aerial platforms into which existing and emerging technologies can be installed to acquire data of all types. Our aerial platforms can be deployed to obtain LiDAR and multi/hyperspectral data. They may be used for aerial photography, geophysical survey, and air sampling; as well as for aerial and maritime surveillance.

## Esri

Redlands, California  
909-793-2853

Esri® creates GIS software tools and methodologies that enable organizations to effectively analyze and manage their geographic information and make better decisions. Esri leads the way for remote sensing technology that helps our customers become successful through easy to use imagery products for managing, visualizing, sharing and analyzing imagery. We also provide online access to a wealth of imagery content, including high resolution world basemaps, and dynamic elevation and Landsat GLS image services.

## Imaging Notes

www.imagingnotes.com

A premier publication for commercial, government and academic remote sensing professionals around the world. It demonstrates how remote sensing technologies and spatial information illuminate the urgent interrelated issues of the environment, energy and security.

## Intergraph

www.intergraph.com

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Since 1992, LizardTech® has delivered state-of-the-art software products for managing and distributing massive, high-resolution geospatial data such as aerial and satellite imagery and LiDAR data. LizardTech pioneered the MrSID® technology, a powerful wavelet-based image encoder, viewer, and file format and now has offices in Seattle, Denver, London and Tokyo. LizardTech is a business name of Celartem Technology Inc. For more information about LizardTech, visit [www.lizardtech.com](http://www.lizardtech.com).

**NorPix, Inc.** TK  
Montreal, Quebec, Canada www.norpix.com  
+1-514-846-0009

NorPix is a developer of high speed digital video recording software and solutions. Our flagship product, StreamPix 6, supports a wide selection of GigE Vision, USB3, CoAXpress, Camera Link, Analog and Firewire cameras. StreamPix can capture from multiple synchronized cameras simultaneously as well as capture images with computer time stamp, GPS coordinates, or IrigB and GPS timing. DAQ data can also be captured from single or multiple sources at rates of single or multiple inputs per second.

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Optech offers integrated lidar and camera solutions for airborne, mobile, terrestrial and bathymetric surveying in transportation, utilities, engineering, industrial, natural resources, marine and ISR applications.

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