THE IMAGING & GEOSPATIAL INFORMATION SOCIETY

~The Rocky Mountain Compiler~

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Newsletter of the Rocky Mountain Region of ASPRS, serving Montana, Wyoming, Colorado, and New Mexico

President's Message

Looking for Relevance in a Geospatial World

Happy Summer Solstice! I hope the leaf-off season went well for the data collectors and that data processing, extraction and mapping activities are going well.

The geospatial industry is at an interesting juncture, and is in transition. Heretofore, our industry seemed limited by technological constraints whereas today we are enabled by technological advancements and maturity. Some examples of these advancements include Airborne GPS (ABGPS) and Inertial Measurement Units reducing the need for ground survey, high resolution airborne and satellite imagery, LiDAR, lossless data compression, less expensive and more capable computers and peripherals, cheap storage, fast wide-band data transfer and networking, user-friendly and powerful software applications, distributed processing and cloud computing, and more. All these advancements have changed the focus from the "data" to the "solution", i.e., deriving information needed for decision support and management. Technology has enabled the proverbial paradigm shift from "how" to "why".

This paradigm shift has also affected the business environment of the geospatial industry. Generally, the traditional industry was made up of 1) companies that focused on the challenging task of engineering products such as sensors, software and systems, 2) service providers such as photogrammetric mapping and engineering companies that used these products to derive meaningful data, and, 3) the end users of the data, comprised primarily of local, state and federal government organizations.

Profound changes have taken place in the industry, primarily amongst the product and service companies in the form of consolidation and collaboration. For example, Hexagon has acquired Intergraph, ERDAS and Leica, while Trimble has acquired Applanix, INPHO, RolleiMetric, TopoSys and Definiens eCognition. Thus, both companies possess the technology of digital aerial imaging cameras, ABGPS and IMU, GPS surveying, LiDAR, softcopy photogrammetry, remote sensing image processing, GIS and CAD/CAM among other capabilities. Will these companies continue to offer discrete but interoperable products, or will they begin

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to focus on solutions? In other words, will they leverage their end-to-end technology to provide solutions to end users, and who are the end users? Traditional end users have been the photogrammetric mapping and engineering community, whereas in a service-oriented business model the end users are local, county, state and federal government users, oil/gas, environmental engineering and others.

On the service sector side of the industry, large government contracting companies such as SAIC, Northrop Grumman, Lockheed, Harris, Raytheon, BAE, and Mitre Corp. have provided image exploitation products and services primarily to the defense agencies. More recently, large companies such as Critigen, Rolta, Infotech and others are providing GIS, mapping, database, IT and decisions support systems to commercial, civil and local government entities.

Meanwhile, we are becoming awash in data. DigitalGlobe is working with Microsoft to collect 1-foot color and 2-foot CIR imagery of the contiguous United States by 2012. Orthoimage accuracies will range from 1:2,400 and 1:4,800 in urban areas to 1:12,000 in rural areas. Could this be the image base of the National Map? How does this affect the NAIP program? What about the imagery being collected by GeoEye, Google and Pictometry, SPOT, RapidEye, RADARSAT and a host of other companies and government entities? Between 2011 and 2020, some 115 remote sensing satellites will be produced (http://www.defencetalk.com/imaging-data-requirement-spurring-projected-18-billion-satellite-market-33602/_). NEXTMap USA (Intermap) covers the contiguous U.S. with 2m accuracy elevation data, while entire states are being collected with LiDAR.

What does all this mean to the geospatial industry and how is it relevant to the general community? The traditional photogrammetry mapping companies will be affected by all these factors and will need to be nimble in this dynamic environment. It is likely that smaller companies will need to partner with others and embrace imaginative business strategies and practices in order to compete effectively.

According to Wikipedia, Relevance describes how pertinent, connected, or applicable something is to a given matter. A thing is relevant if it serves as a means to a given purpose.

What is the given purpose of the recent consolidation and collaboration affecting the geospatial industry? Besides return on investment, will these satisfy end users and customers? The end user for the equipment/software manufacturer is generally the service industry, the photogrammetric mappers and remote sensors. The end users of the service industry are generally the local, state and federal government organizations, and recently the online content companies. The end users of these entities are the general public and consumers.

So how is this technology, consolidation and collaboration relevant to the general public? Does it help make our lives better and more meaningful? ASPRS provides a forum to address these questions and find mutually beneficial solutions as we step across the threshold of the next epoch of the geospatial world.

Let the dialog and collaborations continue!

All the Best,
Jeff Liedtke
President, ASPRS-RMR

National Director's Report

Change Is In the Wind -- ASPRS Ad Hoc "Branding" Task Force Is Formed in Milwaukee

A "Branding" Task Force was authorized at the Milwaukee Annual Board of Directors meeting by President **Gary Florence**. As part of its scope, the Task Force is conducting group-specific surveys over the summer and fall of this year of our National Staff, Region Boards, Division and Committee leadership, Sustaining members, regular membership, student membership, and non-members. The Task Force is seeking recommendations for process improvements to assure the necessary level of support from our National Staff in order to better understand challenges faced by our Regions, and to define specific actionable items that serve our goals and objectives. The ASPRS Strategic Plan, recently revised and published in the June 2011 issue of *PE&RS*, focuses our organization on goals and objectives intended to advance our professional impact. One goal of that plan seeks to "ensure continued organizational strength." Strengthening our programs relies upon supportive interactions between regions, divisions, committees, sustaining members, individual members, and national staff. The survey to the Regions, which was released in June, covers several areas, including the following (below are selected excerpts from the survey and cover e-mail issued by the Task Force on 27 June 2011):

• General cooperation and communication within the Society
• The scope and level of effort provided by National Staff to support Regions
• Characterization of Regional levels of activity for comparative purposes
• Recommendations for any Bylaws changes that could enrich the professional relevancy of our Society both now and into the future.

The survey also seeks answers to the following questions:
• Based on the revised Strategic Plan, what opportunities exist for enhancing the organization to meet our goals and objectives, including considering existing or changing roles/responsibilities of Regions, Divisions, Committees, National Staff, Students, Sustaining Members or even new groups?
• How can communication and effective interaction between Regions and National staff be improved?
• What can National staff, the National Officers, the National Board, or the Divisions and Committees specifically do better to help Regions develop and deliver a successful program?
• How can Regions best strengthen our Society and complement National staff, officers, and Board to ensure a vigorous professional presence and to attain the goals of the Strategic Plan?
• Other thoughts for this Task Force to consider provided by the survey participants (examples include webinar topics, Region website support, approaches for on-line annual reporting, and teleconferences).

I am a member of the ***ASPRS Ad Hoc "Branding" Task Force*** and I am fully committed to revitalizing the Society. I welcome your contributions. Also, I hope to see many of you over the summer and at Pecora this November. Please contact me if you have any questions regarding National ASPRS and this change initiative.

Regards,
Jeffrey M. Young
National Director, ASPRS-RMR
jyoung@lizardtech.com

GIS in the Rockies Update

The 2011 GIS in the Rockies Conference will be held August 30th – September 2nd at the Cable Center on the University of Denver campus. For the latest updates, please check the website.

The conference is adjacent to a light rail station. If you do plan on driving to the venue, pay parking will be available and carpooling is encouraged.

There are still opportunities for more Sponsors, Tours, and Workshops. Do not be discouraged by deadlines - these are mostly to encourage timely response.

Following are the presenters and topics on the program for the ASPRS track on Thursday, 1 September:

- **Jan Van Sickle** - Oil and Gas LiDAR with Proper Attribution
- **Mark Stanton** - ThreeLine Time Dependent "Push Broom" Image Scanner Data Acquisition and Processing Using the Leica ADS40 and Stellacore Processing Software
- **Bruce Adey** - Identify Buildings Under Dense Vegetation
- **Merinda Lobato** - LiDAR Quality Control Concepts
- **Douglas Gennetten** - Advances in Data Visualization
- **Beth Spencer** - Using GIS and GLO surveys to reconstruct historical fire regimes in sagebrush
- **Jerry Mohnhaupt** - Transportation Linear Referencing Considerations for Cities and Counties
- **James Young** - Surveying with Mobile LiDAR Sensor
- **Paula Smit** - Variance as a Geospatial Analysis Tool
- **Karl Brown** - Methodologies for National Park Vegetation Map Updates Due to Wildfire and Land Use Change in 3 Case Studies at Jewel Cave, SD; Glacier, MT; and Point Reyes, CA.
- **Nils Babel** - Developing an Image Based Scoring System to Quantify Wildfire Mitigation Efforts and Update Wildfire Hazard Maps

The keynote address will be given by ASPRS-RMR member **Dr. Jan Van Sickle** on Wednesday morning, 31 August, at 8:30 am. Jan has spoken at many conferences, including MAPPS and GITA; he was the 2010 keynote speaker at the ESRI User Conference on Imagery and Remote Sensing. He has advised such notable companies as Anadarko, IHS Energy, Microsoft, Intermap, Jeppesen, and GeoEye in geospatial matters. He earned his Ph. D. in geospatial engineering from the University of Colorado and has been a licensed professional Land Surveyor for 31 years. Dr. Van Sickle is also a Senior Lecturer at Penn State University.

ASPRS-RMR would like to extend a special thanks to **Mark Stanton** and **Roger Hanson**, who have coordinated workshop presenters from their respective companies, Pixxures and Merrick.

There will again be a table for ASPRS-RMR (and other sponsoring organizations). Please stop by during the conference. We look forward to seeing you there!

Welcome New Members

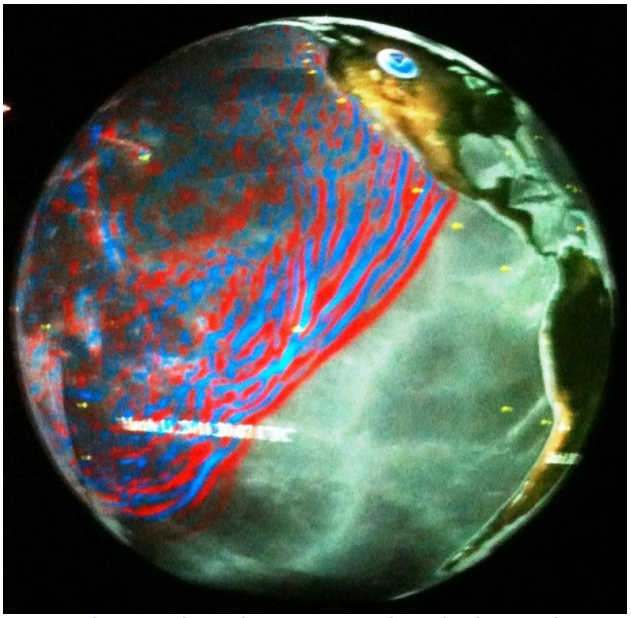
Kirk Benell	Becky Bottlemy
Lane Carter	Bree Connell
Eric Coppock	Aaron Crane
John Dietrich	Matthew Hayes
Carolyn Johnston	Scott Jones
Kurtis Kroll	Robert Lega
Dennis Nicks	Joshua Quint
Adina Racoviteanu	Eli Rodemaker
Craig Sweitzer	Mickey Tani
Martin Taylor	Alassane Toure
David Turk	Jagath Chandralal Vithanage
Shane Zentner	

ASPRS-RMR Sponsors Technical Tour of the NOAA Facility

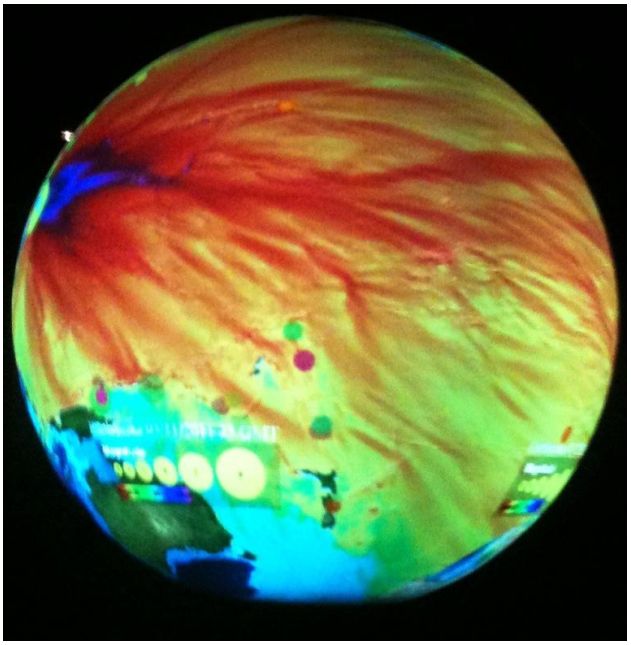
The technical tour of the NOAA facility in Boulder on June 17th was informative, fascinating and fun. The tour was attended by 22 participants who came from Fort Collins, the Denver Metro area and Colorado Springs. The tour was guided by **George Sharman,** who works in the National Geophysical Data Center and entertained everyone with interesting facts and stories about the facility and the important work done there.

The tour started with a review of the Space Weather Prediction Center which provides space weather alerts and warnings to the nation and the world for geomagnetic and solar radiation storms and disturbances that can affect people and equipment, such as the electric grid and radio transmission. This was followed by a tour of the National Weather Center, which was especially relevant with the recent tornados across the country, and long-term weather research area, which studies tree rings and ice cores to help establish long-term records of weather and climate. The group then visited NOAA's National Geophysical Data Center (NGDC), which provides scientific stewardship, products, and services for geophysical data from the Sun to the Earth and Earth's sea floor and solid earth environment, including Earth observations from space.

The presentation of “Science on a Sphere” was a highlight, where different types of Earth data are projected onto a 6-foot sphere (http://sos.noaa.gov/index.html). Many of the data sets are time-series animations, such as La Niña and El Niño conditions, migration of sea ice since the 19th century, ocean currents and even plate tectonics and continental drift. One particularly interesting display portrayed the tsunami waves propagating from the 9.0 earthquake in Japan. Over 100 datasets are available free to the public, many are in KML format, and others are movie animations. Please see http://sos.noaa.gov/datasets/ for more details.



Tsunami waves from the Japan earthquake in March



Japan earthquake energy propagation

ASPRS-RMR thanks NOAA and our hosts **Hilary Peddicord** and **George Sharman** for an excellent and fun tour of the NOAA facility.

ASPRS-RMR Sponsors Last Public Tour of DigitalGlobe

The technical tour of the DigitalGlobe facility in Longmont on July 8th was very fitting, since DigitalGlobe is a Sustaining Member of ASPRS, with a major emphasis on all things imaging. DigitalGlobe controls, maintains and collects imagery from three high-resolution Earth imaging satellites, QuickBird, WorldView-1 and WorldView-2. They also are engaged in an aerial imaging acquisition program, although this was not addressed during the tour. The tour was attended by about 20 participants who came from Fort Collins, the Denver Metro area and Colorado Springs.

ASPRS-RMR members on tour of DigitalGlobe

The tour started with a review of the Enterprise Point of Coordination (EPOC) center which oversees the product lifecycle from command and control of the satellites to reception of data, data processing and shipping of imagery products to government and commercial customers. Next the group toured the Mission Control Center, which monitors the health and status of the satellites, and uploads telemetry, commands and image acquisition target decks for the three satellites. They also manage the downlink of data to their various ground stations around the world, all of which can receive data from any of the satellites.

Collection planning was an interesting component of the process, where many variables are factored into considering and finalizing an image collection plan for one of 15 passes per day for each of the three satellites. Much of the collection planning today is automated; it considers the physical feasibility of acquiring the image, long-term and short-term weather, opportunity costs, and different priorities of both government and commercial customers. This complex software application considers and weighs all these various factors for the three satellites.

Last, the group visited the Geospatial Operations Center which generates the various imagery products. The orthoimage mosaic process was demonstrated, including the generation of Digital Elevation Models (DEMs) from stereo satellite imagery, orthorectification and cutline generation. The DEMs from same-pass stereo imagery are accurate to 1m Linear Error (LE90), while the DEMS from different overpasses and different sensors are accurate to within 5m LE90.

ASPRS-RMR thanks DigitalGlobe for an excellent and informative tour of its operations. For more information about DigitalGlobe, please visit www.digitalglobe.com.

New ASPRS-RMR President

Jeff Liedtke has resigned as President of ASPRS-RMR due to a job relocation. Our Secretary, **Mark Stanton**, was nominated to serve as President for the remainder of the term, and he has graciously agreed. The Executive Committee has unanimously approved his appointment. We wish Jeff good luck, and welcome Mark as President of ASPRS-RMR.

The position of Secretary is now open. Please identify and encourage a colleague to serve, or take advantage of this opportunity yourself to become a member of the Board of Directors. Contact a board member for information and to volunteer.

News from Headquarters

Recent Press Releases

ASPRS Awards & Scholarships Deadline - October 17, 2011

ASPRS Announces Call for Nominees for the Outstanding Technical Achievement Award

ASPRS Feedback Instrumental in USGS Decision to Continue Providing Analog Camera Calibration Services

ASPRS Board Approves Formation of Lidar Division

The Aerial Mapping Market

Mobility, interoperability, Unmanned Aerial Vehicles (UAVs) and cloud computing are all discussed in relation to the aerial mapping market in "Overview: Adapting to Change" by ASPRS past president and Fellow **Tina Cary,** member of the Rocky Mountain Region. This is the second consecutive year **Professional Surveyor** magazine invited her to write the overview article for their annual review of Aerial Mapping.