![asprs THE IMAGING & GEOSPATIAL INFORMATION SOCIETY]

~The Rocky Mountain Compiler~

Pecora 17 / ASPRS Fall Meeting Nov. 17-20, 2008

Denver - Sheraton (Adams Mark) Hotel

Workshops will be offered on Sunday, November 16 in the afternoon and all day on Monday, November 17. There will also be a full-day workshop on ASPRS certification.

Division and Committee meetings will occur throughout the day Sunday. The Board of Directors will meet all day Monday.

Monday night, the ASPRS Rocky Mountain Region will be hosting the welcome social, Rogue's Night Out, at the Wynkoop's Mercantile Room from 5:30 to 8:30 pm. Be there for the RMR Scholarship Announcement.

Reminder for those registered to attend or speak at the classified session: your security office must submit certification of your SCI access by November 10, 2008. See the program page about the Classified Session for details.

The full program is available as a 1.3 meg pdf.

For more information or questions, please contact:
Carol Mladinich, RMR Pecora Volunteer Coordinator
303-202-4313
csmladinich@usgs.gov

ASPRS-RMR Annual Dinner

The ASPRS-RMR Annual Dinner and Installation of Officers will be held Saturday, January 10, at the Wellshire Inn in Denver, at 6PM. Attendance will be $30 per person, same as last year. Further details will be in the Winter newsletter.

GIS in the Rockies

The 2008 GIS in the Rockies Conference has wrapped and planning is underway for next year's 2009 event. GIS in the Rockies is the intermountain west's premier geospatial information and technology conference. The 2009 event will be held in the same venue as the 2008 conference, The Ranch in Loveland, Colorado. We had fantastic turnout for this year's show and hope to appeal to a much wider audience for next year's event.

Many things are still being put together, however we'd love to hear from you beforehand if you have

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any suggestions, topics or tracks that you'd like to see included or simply something you'd like to see done differently for 2009. We hope to see you all again for the 2009 GIS in the Rockies Conference. Visit the website at www.gisintherockies.org for more information.

President's Message

Greetings Rocky Mountain Region Members,
"IMAGING THE FUTURE"

We've rounded the half way turn through the year and my thoughts both professionally and personally are fixated on the future interrupted by intermittent memories of the past. My son is a high school senior engaged in the university admissions process to study aerospace engineering. Surely only a nanosecond has passed when he was a rambunctious two year old romping around the Rocket Garden at the Kennedy Space Center. I'm sharing a picture of him standing in front of the actual Juno 1 rocket base where the first US satellite, Explorer 1, was successfully launched into orbit almost 50 years ago on January 31, 1958, ushering in the space platform imaging industry that we benefit from today. **Michael Mijon**, Public Programs Manager at the Kennedy Space Center, kindly identified the rocket base and added that the flame deflector on the lower left in the picture is miniscule compared to the 50 foot flame deflectors employed today in the shuttle program. For more information on "Explorer 1 – The Beginning of US Space Exploration", I highly recommend visiting the JPL website, http://www.jpl.nasa.gov/explorer/, where you'll find fascinating historical artifacts and media footage.

We're so fortunate to be part of an industry with an important and fascinating history. The warp speed of development continues today in a globally driven marketplace with emerging technologies forcing us to stay young and on our toes. So I've borrowed my

son's future goggles and will speculate on the technological advances we may anticipate from the next generation matriculating onto college campuses.

I believe the most promising advancement in our industry of collecting, managing, manipulating, visualizing and analyzing spatial and temporal data is seamless integration of sensors, data formats, and modeling applications in real time with 1:1 neural replication of the physical world and all of its dynamic processes captured, visualized and modeled digitally across all disciplines, dimensions, platforms and systems.

Advanced macro, bio and nanotech (passive and active) sensors will collect high fidelity electromagnetic, waveform with backscatter, ultrasonic, acoustic, piezoelectric, gravity, chemical, biological and physical data. Computing advancements will enable simultaneous capture and processing with distribution of fused data packets via live streams fed into integrated systems. Data translating services will offer near real time or instantaneous conversion for mass distribution via automatic sourcing into unfettered applications being manipulated, managed and analyzed by multiple human and virtual actuators in locations all around the globe, no strike that…the universe.

I bet my reputation that the next gen has these and more great developments in store for us but if the preceding futuristic depiction is too much of a techno kumbayah moment for the cynics among us or you believe I'm partaking in an activity that would preclude me from obtaining a clearance, I'll back it up a decade or so and highlight what I refer to as "Uber Cool" emerging technologies employed in our industry today and connect how they'll build pathways to the future.

Former uber cool technology, GEOBIA (geographic object based image analysis) appeared on the commercial market approximately 8 years ago and is a fairly standardized segmentation/classification practice in our industry. This faction of segmentation/classification employs cognitive rules based decision segmentation inching closer to neural system replication in spatial technologies and even enjoys its own growing conference of bright followers (young and weathered). But what's really got me doing cartwheels is Object Based Point Cloud Analysis of Full Waveform LiDAR. Check out a published paper in the August 2008 journal **Sensors**: http://www.mdpi.org/sensors/papers/s8084505.pdf. The authors utilize the backscatter echo (echo width and echo amplitude) from a full waveform sensor as

an additional classification variable to delineate objects in the point cloud. Uber cool!

Real time data collection and onboard processing are the emerging hot topics in my circles and may drive additional mergers and acquisitions in our industry in FY2009 to accomplish successful and timely delivery of these prized technologies. It seems the "I want it now and I want it delivered" generation has actually found a coalition with the defense sector, emergency managers and first responding agencies combating and mitigating the effects of man-made and natural threats on human life and property. Actionable intelligence drives the business case for multiple streams of live data from space, fixed wing, rotary wing, UAV, marine and terrestrial platforms.

A new interest for me is developing a solution by assisting a client utilizing a finite element method to characterize spatial migration of pressurized fluids and gases with the incorporation of a geographically weighted regression model. So while the methodologies are not necessarily new, the ability to fuse and integrate across platforms is promising. I believe by initiating endeavors like these and integrating disciplines, we become the pioneers constructing bridges to highly accurate non-linear statistical data models and the coveted fully integrated systems of the future.

Try this exercise. With an aggregated simulation of the previously featured technologies, imagine this…you have some sparse data in any format (an idea, a photograph, a data cluster, a sound bite, a scent, etc.) with no georegistration or associated location information (metadata). In the 1:1 neural network you run an object-matching algorithm along with spatial-pattern-matching applications through a global database to determine the geographic location of your data and then apply the appropriate analytical tools to solve the problem. The implications are extraordinary. For example, a couple of years ago, I recognized a spatial pattern in the distribution of Multiple Sclerosis (MS) in North America. Typically, I can't remember what I had for dinner the night before, but in this case, my memory connected to a paleostructure and tectonics geology course I took 25 years earlier where I studied the development of the Laurasian supercontinent following the PT Boundary (Permian – Triassic) extinction event. Through this spatial connection stored in a remote part (potentially dormant) of my brain, I was able to build a hypothesis connecting the North American MS Belt to a distinct radiologic marker from the Earth's most severe extinction event. Imagine having the ability to plug these datasets into a neural networked supercomputer. The brain-like computational capabilities on the

horizon are quite exciting for our industry and will have significant impacts on humanity. And similar to LiDAR, these technologies are bubbling up through non-traditional channels. The arts, computer gaming experts and savvy graphic specialists are developing complimentary technologies in parallel to our industry. And we continue to benefit from the traditional inter-reliant development we've shared with the medical and energy industries and R&D from computing academic powerhouses. However, way fun for me is the addition of the pop culturists on the emerging technologies stage. Enjoy the following example; and yes, if you're from my generation, you'll need to put away your 8 track tape deck and open YouTube.

Last February at the International LiDAR Mapping Forum (ILMF) in Denver, a new vendor to the show, Velodyne, exhibited its terrestrial high definition instrument, the HDL-64E, a 64-element LiDAR sensor that delivers a 360-degree HFOV and a 26.8-degree VFOV. It features frame rates of 5-15 Hz and 1.5 million data points per second. By itself, the HDL-64E is unique because instead of a single laser firing through an oscillating mirror, 64 lasers are mounted on upper and lower blocks of 32 lasers each and the entire unit spins rapidly. The design allows for 64 separate lasers to each fire thousands of times per second while it collects terrestrial data (approx. 120 meters) along a linear feature (corridor, track, waterway, road, etc.) mounted on a moving platform. I was quite impressed. Recently, Velodyne extended a hand to pop culture when the HDL-64E was selected to capture remotely sensed data for the first music video produced with no cameras and successfully accomplished an entertaining marriage of the arts and sciences. Aerotec contributed to the project by providing airborne LiDAR data for certain city scenes, transmission lines and towers, and power generation plants captured with the TopEye MKII discrete and full-wave form scanner on a rotary wing platform. The music video was created entirely from data visualization and manipulation of the resulting point clouds by combining Velodyne's and Aerotec's data with Geometric Informatics, a real time 3D animation software company.

CLICK HERE to view my pick for the "Most Super Uber Coolest" music LiDAR video on YouTube directed by **James Frost** and titled "House of Cards" from the band, Radiohead's album, IN RAINBOWS.

CLICK HERE to view on YouTube how the music video was made. As an added bonus, the band, Radiohead has made the data available in CSV format for download. CLICK HERE to access the data on Google. I've converted the CSV files to LAS format and am experimenting in LP360, the LiDAR extension for ArcGIS. If you want to follow my
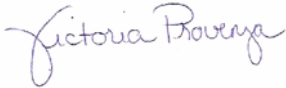
progress, I'll post updates at www.prospatial.com/ubercool.html.

And in closing, this totally NOT cool, NOT hip, "so over" Mom of the little cutie pictured above, may just upload her animated LiDAR result with the rest of the younger generation on the Radiohead viewer contribution site like this fabulous example utilizing MATLAB. I encourage your submission as well!

I think the future of imaging is in good hands. Remember Pong? This is really going to go far.

As always, please do not hesitate to contact me if you have any questions, suggestions or desire to become more involved in our region. It's a pleasure and honor to serve as your President.

Kindest regards,

Victoria Provenza

Victoria Provenza
ASPRS RMR President

Lidar Survey: Your Input Is Requested

Cary and Associates of Longmont, Colo., is conducting research on the rapidly growing global airborne lidar market. Results will be presented at the International Lidar Mapping Forum (www.lidarmap.org/) in New Orleans in January 2009. Members of the lidar community are invited to complete a brief survey, available on the company website at www.caryandassociates.com. An executive summary of the research will be sent (in early 2009) to all respondents who provide their email address. Most questions are multiple choice, so the survey goes quickly. The path through the survey depends on the answers given; many respondents will be able to complete the survey in 7-10 minutes.

Nominations for Board Elections

The Rocky Mountain Region (RMR) of ASPRS needs your active and engaged participation! Being a Board Member is just one of many ways to support the continued expansion of the geospatial community throughout the Rockies. We are seeing our industry's constant advancement into everyday life, and this is an exciting time to immerse oneself in ASPRS by becoming a Board Member. Board membership allows individuals to lead the convergence of ideas and technologies, connect with our peers, communicate with our membership, and contribute to these kinds of collaborations. Please consider running for the 2009 Board of

Directors. Contact any of the Regional Officers listed on our Web page about your interest and questions. In the Winter Regional Newsletter, we will publish the nominated slate of officers to be presented to the membership for a vote...so take action today!

National Director's Report

Allen Cook, National Director of the Rocky Mountain Region of ASPRS was unable to attend the EXCOM meeting in August (had to get his daughter off to college). He has reviewed the minutes and found no action items specific to the Rocky Mountain Region.

Have any questions about what is happening at ASPRS Headquarters? Allen will be happy to answer them. He can be reached at frostbite@myawai.com or 303-841-2994.

Allen Cook
National Director, ASPRS

Rocky Mountain Region 2008-2009 Scholarship Announcement

In its continuing efforts to support and build awareness for the Remote Sensing and GIS sciences, the Rocky Mountain Region of ASPRS is proud to announce its academic scholarships for 2008-2009. If you'd like to obtain additional information or details please visit www.asprs-rmr.org to learn more about the Scholarship Program.

The Rocky Mountain Region (RMR) of ASPRS offers scholarships to deserving undergraduate and graduate students every year. The scholarships are intended for students throughout the Rocky Mountain Region (Colorado, Montana, New Mexico, and Wyoming) who are demonstrating excellence while pursuing careers in the fields of Photogrammetry, Remote Sensing, and Geographic Information Systems (GIS) or related disciplines. Both undergraduate and graduate students of any third-level educational institution within the four-state region who are pursuing careers in these disciplines.

Application deadline this year is December 20th. Awards are presented at the ASPRS-RMR Annual Dinner Meeting in January. We've consistently offered thousands of dollars in annual scholarships and this year will be no different! For the 2007-2008 scholarship awards, we gave over $6,000! Preference is given to those studies that apply sound scientific principles to practical applications and/or to those presenting their work at an ASPRS sponsored conference. Award of both the Undergraduate and the Graduate scholarships is

based on academic merit (that is, the application form does not request any personal financial data).

For more information, please contact **Trent Casi**, Vice-President, ASPRS-RMR at 303.215-1700 or at tcasi@harris.com.

Welcome New Members!

Please extend a warm Rocky Mountain Region welcome to our new members!

Tanya Holtz   Kristen Kaczynski
Thomas Ruzycki   Erica Tilley

We Invite You to Get Involved

To suggest new activities, offer compliments or feedback, or help with the various activities underway in the Region, get in touch with a member of the Board. Contact information is on the region website at http://www.asprs-rmr.org/officers.html.

News from Headquarters

During the XXI ISPRS (International Society for Photogrammetry and Remote Sensing) Congress in Beijing, China, July 3-11, **Michael Renslow**, an ASPRS past president, was elected Treasurer of the ISPRS Council for a four-year term. ASPRS Immediate Past President **Marguerite Madden** was elected President of ISPRS Commission IV, which covers Geodatabases and Digital Mapping, also for a four-year term.
http://www.asprs.org/news/releases/2008-08-renslow-madden-isprs.htm.

The ASPRS Foundation, Inc. approved a $40K grant to Penn State Public Broadcasting (PSPB) to fund Phase I of The Evolution of Modern Mapping initiative, which consists of the collection of historic interviews and a feasibility analysis for a potential documentary and public outreach.
http://www.asprs.org/news/releases/2008-09-foundation-penn.htm

The ASPRS Foundation is administering the newly created John O. Behrens Institute for Land Information (ILI) Memorial Scholarship.
http://www.asprs.org/news/releases/2008-09-behrens-scholarship.htm

ASPRS released a draft "Guidelines for Procurement of Professional Aerial Imagery, Photogrammetry, Lidar and Related Remote Sensor-based Geospatial Mapping Services." The material is considered DRAFT FOR REVIEW and is being published at this time to encourage wide dissemination and comment.
http://www.asprs.org/news/releases/2008-10-procurement-guidelines.htm