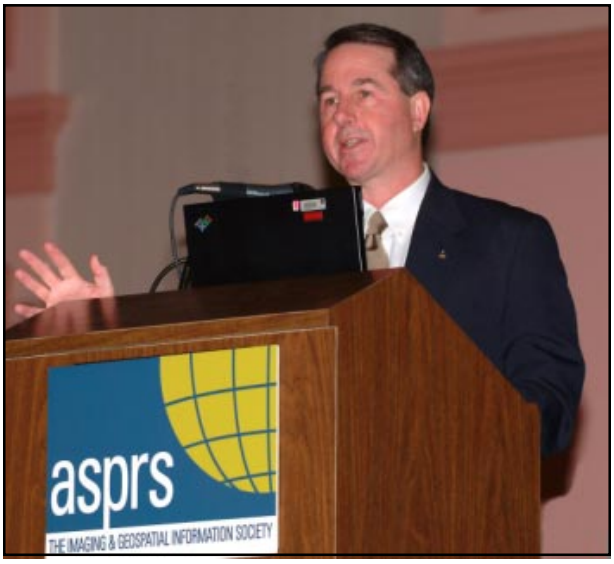
ASPRS Intermountain Region Summer 2006

Report on the ASPRS Annual Conference Reno, Nevada - May 1-5, 2006

The Intermountain Region provided tremendous support for this year's national meeting in Reno. Along with the Northern California Region, we prepared and conducted a fine meeting in all respects.

The meeting had 1350 attendees, 400 speakers in 114 technical sessions. This is very good for a meeting not in the Washington, DC area. The 94 exhibitors were generally pleased with the participation. The post-conference survey indicated that 91% of the respondents rated the Reno meeting as Good to Excellent citing the Keynote address, Landsat Hot Topics and the Exhibit Hall as highlights of the conference. Shuttle astronaut Steve Robinson presented an excellent keynote presentation on the use of close range photogrammetry for analysis of space shuttle heat shield tiles during the mission.

I want to thank all of the Intermountain Region members who served on the planning committee, worked as volunteers and attended the Reno meeting. In particular, I need to thank Doug Ramsey, technical program co-chair, Cindy Clark, volunteer co-chair, Lloyd Blackburn, poster coordinator and Clay Conway, user group coordinator and regional activities coordinator for their exemplary efforts on behalf of the region. Clay organized a regional meeting in Reno that allowed some members from Idaho, and various parts of Utah to meet and discuss initiatives for the upcoming year. Our region is often overlooked in the national ASPRS discussions, but we put forth a fine effort in showing our commitment and worth to the ASPRS.



Astronaut Steve Robinson, keynote speaker

-- *George Hepner* george.hepner@geog.utah.edu.

Hot Topic session

Poster session

ASPRS Student Chapter Forming at U of U

The first student chapter of the Intermountain Region of the American Society for Photogrammetry and Remote Sensing (ASPRS) has begun formation at the University of Utah. Student members met with other Intermountain Region members and officers at the annual ASPRS conference in Reno, NV this year to discuss the establishment of student chapters at universities within the Intermountain Region.

Scott Graves and Rich Medina

The University of Utah student chapter is actively seeking additional student members. Currently there are five students that look forward to becoming chapter members: Rich Medina, Will Clark, Scott Graves, Tim Edgar, and Laura Siebeneck. The chapter's faculty sponsor will be George Hepner. By-laws have been prepared and the chapter expects to host its first meeting shortly after the start of the fall semester. Planned events for this meeting are to discuss new member recruitment, outline officer duties, and plan chapter events for the semester. *-- Rich Medina*

Dr. Vince Salomonson, Past President of ASPRS

Dr. Vincent V. Salomonson, past president of ASPRS (1991/1992), retired from NASA at Goddard Space Flight Center in Maryland where he had a career spanning 37 years and moved to Salt Lake City, Utah. In July of 2005 he was appointed a Research Professor at the University of Utah with joint appointments in the Departments of Geography and Meteorology.

Dr. Salomonson

Dr. Salomonson was a Senior Scientist in the Earth Sciences Directorate at the Goddard Space Flight Center of NASA from 2001-2005. He has also been serving as the Science Team Leader for the NASA Earth Observing System (EOS) facility instrument called the Moderate Resolution Imaging Spectrometer (MODIS) on the EOS Terra and Aqua missions from 2000 to the present. In that position he is leading a Science Team of over 90 Principal Investigators providing some 40 data products from MODIS to the Earth science and applications communities and performing scientific studies of global and regional land, ocean, and atmospheric processes and trends using MODIS observations. Prior to being Senior Scientist he served as the Director of the Earth Sciences Directorate at the Goddard Space Flight Center, NASA from 1990-2000. He served at Goddard as the Deputy Director for Earth Sciences in the Space and Earth Sciences Directorate (1988-1990), Chief of the Laboratory for Terrestrial Physics (1980-1988), Project Scientist for Landsat 4 and 5 (1977-1989), the Head of the Hydrospheric Sciences Branch (1973-1980), and as a research meteorologist (1968-1973). Prior to coming to Goddard, he spent three years as Weather Officer in the United States Air Force (1959-1962). His academic training includes a B.S. degree in Agricultural Engineering from Colorado State University (1959), a B.S. degree in Meteorology from the University of Utah (1960), an M.S. degree in Agricultural Engineering from Cornell University (1964), and a Ph.D. in Atmospheric Science from Colorado State University (1968). His publication record shows over 130 publications in scientific journals, conference proceedings, and NASA reports.

At the University of Utah he will continue as the MODIS Science Team Leader via a grant from NASA and contribute wherever his time and background permit to efforts in the geography and meteorology departments. He plans to focus on the use of spaceborne remote sensing, using MODIS in particular, for observing the characteristics and processes occurring in the Great Salt Lake Basin. To that end he is working with a graduate student in geography and another one in meteorology. He also looks forward to participating where he can contribute to ASPRS activities in the intermountain area. Lastly he looks forward to more frequent, wonderful visits with family (4 children and 13 grandchildren) that live in Sandy, Utah, Boise, Idaho, and Ft. Collins, Colorado.

Photogrammetry at Olympus Aerial Surveys

From the Private Sector

The following company memo written over 20 years ago by Maurice X. Pia, President and co-founder of Olympus, is still applicable to photogrammetry today:

"The other day I had the unusual opportunity to watch one of our competitors get nailed to the wall and be meticulously dissected in front of eight attorneys. It was a vivid reminder of how vulnerable each of us can be in our business.

"I am reminded that most of us in the photogrammetric business have not had the technical, or engineering training that would have prepared us psychologically, to keep accurate records, be systematic and consistent in every phase of the jobs we do. "On the job" training has allowed us to be a little lax at times in our approach, or to use momentary rationale to change our judgments that should have been consistent with standard training.

"The following are strong requirements for anyone that desires to become a recognized professional in photogrammetry:

- A strong academic schooling background.
- A college degree, (preferably in the same, or an associated field).
- Specialized training (seminars, extension classes).
- Professional association, ASP, ACSM** or both.*
- ASP certification as "Certified Photogrammetrist".
- Develop work habits consistent with professional practices
  - *Understand what you are doing*
  - *Keep careful and consistent records*
  - *Be able to explain, intelligibly, what you do*

"In some instances, photogrammetry can have a strong liability attachment, particularly to the corporation and possibly to the individual photogrammetrist, if neglect is shown. Everyone's best protection is a thorough knowledge of what we are doing and accurate meaningful records of what was done, so someone else can follow your reasoning.

"Photogrammetry, like other professions, requires consistent learning, both within and in regards to the associated fields where it is used. I trust that we all have sufficient interest and satisfaction in the work, to make this effort worthwhile and have a strong concern for the results we leave behind us."

(Continued on page 4)

* Now known as ASPRS
** American Congress on Surveying and Mapping

Thanks to Intermountain Region Student Volunteers

We would like to highlight the Intermountain Region's student members that were volunteers at the ASPRS Annual Conference in Reno, during the first week in May. They were Terri Mitchell of Southern Utah University, Jill Norton of Idaho State University, and Tim Edgar, Scott Graves, Richard Medina, and Will Clark, from the University of Utah. They all represented our region spectacularly. The people from ASPRS headquarters were impressed as were the many members they met and helped during their stint as conference volunteers.

The Region had acquired enough ASPRS "bucks" due to new memberships. These "bucks" were spent on the ASPRS book on Remote Sensing. A drawing was done by the board members, and Rich Medina won the book. We all hope it will be a great help in his future.

Thanks again to these volunteers for representing the Intermountain Region in such a fine fashion. Remember at both the spring Annual Conference, and the fall Pecora Conference, volunteers are always needed. Registration fees are waived, so this is a great way to attend these different conferences, to network, and to explore new horizons in the geospatial world.

– Cindy Clark cclark@utah.gov

Registration booth, Reno 2006

Photogrammetry at Olympus Aerial Surveys

(Continued from page 3)

Our mapping procedures now employ the powerful tools of Airborne GPS, automatic aerial triangulation, auto-correlation and computer generated digital elevation models and contours. It is very easy to assume the computer program is doing everything required to produce a quality map, when in fact many checks and tests of the data are required throughout the process to insure a quality product. Just like with ground surveying, the most important component of photogrammetry is procedure, procedure, procedure. The shiny new tools of today with all the bells and whistles cannot make up for sloppy or neglectful work.

When we receive a request for mapping, we study the configuration and the terrain characteristics of the site. We then plan the flight lines to cover the area in the most effective manner for the scale and contour interval required. The flight plan is then reviewed and any adjustments made that would improve the mapping project. The costs for photography, aerial triangulation, compilation, orthophotography and editing are totaled, the proposal prepared, reviewed and submitted to the client. More often than not the client calls us to say the project is a "go" and requests our mapping services.

We start by talking with the client to verify boundaries, check that all specifications are understood, and inquire if there are any changes. A comprehensive work order is made up. The flight map is finalized, the surveyor is notified and weather forecasts are monitored for the time period that coincides with the completion of the field control paneling. The flight mission is scheduled for the day with the best weather, atmospheric conditions and satellite constellation geometry if Airborne GPS is to be used. The flight mission is conducted in our Cessna T210 aircraft using our precision Zeiss RMK aerial camera. The mission is controlled by our Track Air aerial survey system which keeps the plane on "line" and triggers the camera shutter at the appropriate coordinates as computed from the flight map. Our Ashtech Airborne GPS unit records the coordinates of the film platen of the camera at the precise moment of exposure.

When the flight mission is completed and processed the photographer examines the film for coverage and quality. The film is then annotated and prints, diapositives, and any enlargements are made. The film is digitally scanned at a finer resolution than the final GSD of the orthophoto.

We create maps by either compiling traditional contours and planimetry or collecting a DTM (digital terrain model). Our highly experienced stereo compilers work on first order Kern DSR analytical stereo plotters. While the compilation is being accomplished we import the digital imagery into our Z/I Imaging (Zeiss) softcopy workstation. The models will be set-up as they are in the DSRs. The DTM data that is compiled on the DSRs will be imported into softcopy workstation to strengthen the auto-correlation process and the creation of the DEM (digital elevation model). The DEM is then edited and used in conjunction with the breaklines and spot elevations to generate the orthophoto. The final orthophoto is a color-balanced image that is georeferenced and shows the true position of features on the ground. Those features that are not on the ground (like building rooftops) will not necessarily be in their true horizontal positions. These features can be brought into their true horizontal positions with additional work. Usually only cities with large buildings or skyscrapers go to the expense to have this type of orthophoto.

The editors do the final production checking of the mapping and orthophoto to verify features. The mapping is also checked for content, consistency and conformance to the project's specifications. Check plots are made and reviewed. When everything is signed off the mapping is cut into tiles that the client can use with their software systems.

As noted above, we have several checks on ourselves as we produce the mapping and orthophotography. Because we "observe" our compiled contours or breaklines and spot elevations in stereo with high end optical equipment the extraordinary editing that is required by computer generated breaklines and spot elevations is not necessary. They are checked, however, during the DEM and orthophoto generation process and then again in the editing process along with the DEM and orthophotography. This quality control and assurance procedure has proven highly successful for many years.

– Karl M. Pia www.olympusaerialsurveys.com