



Astromaterials Research and Exploration Science Directorate

Newsletter - May 2012

The ARES Newsletter is a snapshot of current events within the Directorate, highlighting a small sample of the remarkable breadth and variety of the research activity and facilities in ARES and the people who do the work. Send Newsletter inputs and feedback to Greg Byrne.

In the News

The Coolest Videos Ever

Our very own **Melissa Dawson** of the **Earth Observations Group** was featured on the Johnson Space Center Homepage and credited with “*an idea that would revolutionize the way every human being would see our planet.*” After viewing some of her work, that glowing accolade may have merit. At the very least, Melissa has created some of the coolest videos ever.

Melissa generated the videos from long sequences of time-lapse images of the Earth taken from the ISS. The low-light sensitive camera captures impressive detail of nighttime features such as city lights, airglow, and even a comet. When the images are stitched together into sequences, dynamic features such as dancing aurora and lightning are really stunning.

Melissa’s videos have been an instant hit with the public – the metrics are through the roof for the ARES website *Gateway to Astronaut Photography of the Earth* that hosts the videos. Read more about Melissa’s brainchild and link to the videos at http://www.nasa.gov/centers/johnson/home/photo_sequence.html

“*[The ISS time lapse videos] are probably on par with some of the most spectacular human spaceflight imagery in history*” – James Hartsfield, NASA Public Affairs

Mr. Vice President



Mike Z

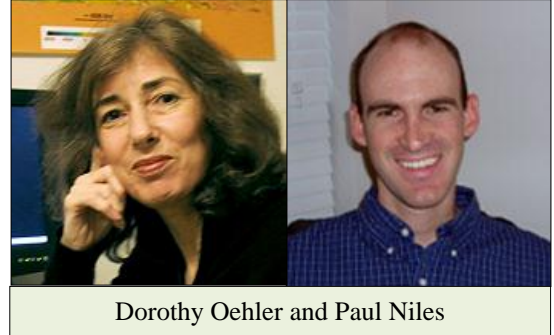
Mike Zolensky, has been elected Vice President of the Meteoritical Society by his peers, effective January 2013. This prestigious international society is dedicated to promoting the study of extraterrestrial materials, including meteorites and space mission returned samples.

As VP, Mike will be a powerful member of the Council of the Society, which administers all of the Society’s affairs. And as a model for efficient transition of power, the Vice-President automatically accedes to the Presidency upon the end of the current President’s two-year term, which means that Mike will be addressed as “Mr. President” beginning 2015.

MSL Participating Scientists

The November 2011 Newsletter article “Yes We Do Science Missions” introduced the ARES team members participating in the Mars Science Laboratory (MSL) mission. Add two more to the list. **Paul Niles** and **Dorothy Oehler** were individually selected as MSL Participating Scientists on the basis of their strong proposals to the highly-competitive MSL Participating Scientist Program sponsored by NASA’s Science Mission Directorate. Their selections bring the total number of ARES members on the MSL mission team to 10. All will be active in several aspects of the mission, including daily rover operations.

For both Paul and Dorothy, their research will utilize the unique analytical tools onboard the MSL rover, in particular its capability for detecting organics, to contribute to the mission’s quest of assessing the potential for life on Mars, past or present.



Dorothy Oehler and Paul Niles

Parachute Testing

Donn Liddle of the **Image Science and Analysis Laboratory** was featured in NASA’s “Image of the Day” gallery doing what he does best, the art and science of 3-D photogrammetry. Donn was working with members of JPL to conduct wind-tunnel tests at Texas A&M on a scaled, prototype parachute system for the Orion spacecraft.

A controlled laboratory setting like in this wind tunnel is ideal for using imagery from multiple cameras to compute 3-D configurations and motions using photogrammetry. So for Donn, these parachute analyses are a piece of cake, relatively speaking. In the early days of International Space Station assembly, Donn pioneered the applications of 3-D photogrammetry in the much more problematic and less-than-controlled settings in space. Since then, Donn has led a photogrammetry team that has performed countless analyses for the ISS, Space Shuttle, and now the Orion spacecraft, each analysis contributing significantly to mission success – and each analysis presenting new challenges to the applications of their trade.



Donn Liddle and Dr. Anita Sengupta in the low speed wind tunnel at Texas A&M University, which is being used for testing of a scale model of the Orion spacecraft and parachute system.



Reflections

Are We Alone?

The Houston Chronicle's ScienceGuy invited 11 of the "top minds" in the greater Houston area to lightheartedly contemplate the world's end in 2012. Accordingly, they were each asked to comment on the following; "*Before the Mayan apocalypse, what is the one burning question that you would like to see answered before the cataclysm?*" Our own **Doug Ming** was one of the invited 11. Doug's burning question was "Are We Alone?" As a NASA scientist, what could be more burning than that? His essay on the question appeared in the Chronicle's SciGuy column on December 31, 2011, and it is repeated below.



Doug Ming

For centuries humans have looked to the skies and have asked the question, "Are we alone?" Does life exist elsewhere in the universe or is it unique here on Earth?

NASA has several missions that address this question. The recent discovery of a planet in habitable zones around a distant star by the Kepler mission is a step closer to finding Earth-like planets where life as we know it might exist.

Closer to home, the Mars Science Laboratory (MSL) rover Curiosity is currently en route to Mars and will arrive on the surface in August. Although MSL is not a life-detection mission, we are going there to look for all of the things that are necessary for life such as water, organic compounds and nutrients.

Curiosity is much larger than the previous Mars Exploration Rovers Spirit and Opportunity that arrived at Mars in 2004. Opportunity is currently exploring the rim of a large crater and continues to advance our knowledge of the history of water on the red planet.

Mars science is driven by that age-old question: Are we alone? Could life once have developed there? Could life have persisted there? Could life still persist on Mars today? Perhaps Curiosity's cameras will image a "dinosaur bone" that indicates that life once persisted on Mars and may be there today.

So, if the world is going to end in 2012, I would want to know if there is life somewhere out there. If there is life elsewhere, then perhaps we can find comfort in the fact that life will persist in the universe as our world disappears.

Doug Ming, NASA Johnson Space Center

Congratulations are in Order

President's Award

At the annual ESCG award/holiday banquet, each of the teammate companies of ESCG presented a "President's Award" to their most outstanding employee for 2011, and the recipient for MEI Technologies was our very own **Carol Schwarz**. Congrats to Carol for this well-deserved recognition.



Silver Snoopy Awards

The Silver Snoopy is the Astronaut Office's personal achievement award for those who enhance space flight safety and mission success. The award is given to individuals considered among the best in their respective professions. Three more ARES personnel have recently received the Snoopy:

Nick Johnson was cited, *"for extraordinary efforts to increase humankind's understanding of the risks of orbital debris and the need to limit the generation of orbital debris by all space-faring nations."*

Phillip Anz-Meador was presented a Snoopy for, *"significant contributions to all aspects of the field of orbital debris for over 25 years."*

And **Dean Eppler's** glowing accolade reads; *"This letter is to express our personal thanks for your unparalleled determination, ingenuity and perseverance in the design and provision of a remarkable geophysics/geology training flow for the 2009 Astronaut Candidate Class."*

American Society of Civil Engineers

The American Society of Civil Engineers has recognized **Dave McKay** as the recipient of the Aerospace Division's Outstanding Technical Contribution Award for 2010, one of the highest awards of the Society. The award is given to an individual who *"has contributed substantially to the state of the art aerospace engineering, sciences and technology, and space exploration and construction with application to civil engineering."*

This is the second award from this prestigious Society to a member of ARES over the past couple of years – **Wendell Mendell** was awarded the Society's Outstanding Professional Service Award for 2008.

JSC Secretarial Excellence Award

The JSC Secretarial Excellence Award Recognizes JSC secretaries who have made exceptional contributions to the effective operation of JSC. The award winner for this quarter is our very own **Beverly Haygood** who doubles as the secretary and office administrator for both KR and KX. Her citation for this much-deserved award is glowing, and we all thank her for the great work.

Welcome to ARES

Dean Busch (IT Support Specialist) – Dean, a Navy veteran, comes to SARD/ARES to augment our in-house IT staff with over 20 years experience in the computer business, many of those being here at JSC in previous stints with Boeing and in Mission Control under United Space Alliance. He holds numerous certificates from NASA, Microsoft, Dell, and HP to name a few, and has system administration and hands-on hardware/software experience. With the end of the ODIN contract and the new ACES contract providing fewer IT "boots on the ground," Dean is a valuable addition to the in-house IT support group.

Zhan Peng (Geochemist) – Dr. Zhan (*pronounced Jan*) Peng joined SARD/ARES at the end of February. Zhan holds a PhD in Geochemistry from the University of Hawaii and spent time at Washington University in St. Louis where he managed both the Thermal Ionization Mass Spectrometry (TIMS) and ICP-MS labs. His last stop before coming to JSC was Yale University where he managed the ICP-MS laboratory for the Department of Geology and Geophysics. Zhan’s TIMS & ICP-MS experience, along with his chemical dissolution and sample preparation skills, will be a valuable asset to ARES research capabilities. Zhan will manage the ARES ICP-MS laboratory and work with Duck on his research of HED meteorites.

Georg Ann Robinson – Georg Ann, a 20-plus year veteran of Building 31, has made a glorious return to SARD/ARES. She will be primarily supporting the Orbital Debris group, and will also matrix to research or curation projects as the needs arise.

Parting Shot

Storytelling Event Extraordinaire



A storytelling special event, “The Science of Apollo: What We Learned from the Moon,” at Teague Auditorium was moderated by Andrew Chaikan (far left) with distinguished ARES scientists (l to r) **Don Bogard, Fred Hörz, Gary Lofgren, Dave McKay, and Wendell Mendell**. The open forum discussion on what we learned (and continue to learn) about the Moon from the lunar samples returned from the Apollo missions was both informative and entertaining.