Up To Date

NASA IV&V Facility Educator Resource Center Newsletter

February 2010

Volume 1, Issue 2

NASA IV&V Facility ERC

Moon Rocks and Meteorites

How would you like to hold a 4.3 billion year old rock? Or a piece of the moon. Yes, that's right—an actual rock from the surface of the moon!

Educators in West Virginia can qualify for the loan of six samples of lunar material (three rocks and three soils) and six samples of meteorites. To qualify for the loan the educators must attend a workshop sponsored by NASA's IV&V Facility. At this workshop the procedures for obtaining the samples from Johnson Space Center's Curatorial Office, transporting the samples, and storing the samples will be explained. In addition the educators will review current knowledge concerning lunar rocks and meteorites while doing hands-on activities that can be replicated in different learning environments.

The state of West Virginia along with Virginia, North Carolina, South Carolina and Kentucky are part of the Langley Educator Resource Center regional network. Ken Flick, Bonnie Murphy, Todd Ensign and Pam Casto from the Langley Region were certified to train educators to check out the moon rocks and meteorites. To schedule training contact the ERC by email or phone as listed on page four of the newsletter.

According to the Astromaterials website: "Study of rock and soil samples from the Moon yields useful information about the early history of the Moon, the Earth, and the inner solar system. Recent computer models indicate that the Moon could have been formed from the debris resulting from the Earth being struck a glancing blow by a planetary body about the size of Mars. The chemical composition of the Moon, derived from studies of lunar rocks, is compatible with this theory." Check out more information rocks and meteorites at:

http://curator.jsc.nasa.gov/lunar/index.cfm

A one-kilogram (2.2 lb) Apollo 16 breccia rock formed from meteorite impact. Shiny, black, impact-generated glass was splashed on the side.

4 billion year old anorthosite moon rock known as the "genesis rock."

Governor Manchin Presents Real World Design Challenge Trophy to West Virginia Students

Jenny Nash, Diane Crean, Ralph Coppola, Gov. Manchin, Andy Thomas, Ryan Riedel, Cody Legge, Gayle Manchin, Stan Maynard, Todd Ensign, Joedy Cunningham, Mona Evans at RWDC Trophy presentation.

Governor Joe Manchin and First Lady Gayle Manchin announced that Awesome Aeronauts, a team of three students from Cabell Midland High School won WV's 2010 RWDC competition and will receive an all expense paid trip to the national competition in Washington D.C. this March. Students and teachers were provided valuable engineering software to enhance learning and innovation as they designed a new jet tail fin. The challenge was supported by the NASA IV&V Facility ERC in Fairmont, The Dept. of Energy in Morgantown, and the June Harless Center at Marshall University in Huntington.

Inside:

Upcoming Workshops: NASA IV&V Facility ERC

February

2 Line Up with Math.....Tues. 5-7 pm

20 Energy Series: Science of Energy.....Sat. 10 am-12

20 Energy Series: Solar Energy.....Sat. 1-3 pm

22 Kindernauts.....Mon. 10 am-2 pm

27 NASA Exploration Toolkits (Webinar)....Sat. 12-1:30 pm

27 Physics of flight.....Sat 2-5 pm

March

2 Introduction to GPS.....Tues. 5-8 pm

8 Distance Learning Workshop.....Mon. 9:30am-3:30pm

13 Podcasts in the Classroom (Webinar)...Sat. 12-1:30 pm

16 Image Mars.....Tues. 5-7 pm

24 Space Weather Action Center.....Wed. 5-7 pm

27 Space Place and Starlab..... Sat. 10 am-2 pm

Don't' Forget to Register at least one week in advance!

NASA Update: Solar Dynamic Observatory

A SUCCESSFUL LAUNCH FOR SDO!: Congratulations to the Solar Dynamic Observatory (SDO) team! SDO launched successfully aboard the Atlas V on February 11, at 10:23 a.m. (EST) from Launch Complex 41 at Cape Canaveral Air Force Station on Florida's Atlantic Coast.

SDO's orbit will be circularized and will reach about 22,300 miles in what is called geosynchronous orbit. From that altitude, the spacecraft will point its instruments at the Sun and relay the readings instantly to a ground station in New Mexico.

The research is expected to reveal the Sun's inner workings by constantly taking high resolution images of the Sun, collecting readings from inside the Sun and measuring its magnetic field activity. This data is expected to give researchers the insight they need to eventually predict solar storms and other activity on the Sun that can affect spacecraft in orbit, astronauts on the International Space Station and electronic and other systems on Earth.

To view video of the launch, visit:

http://www.nasa.gov/sdo

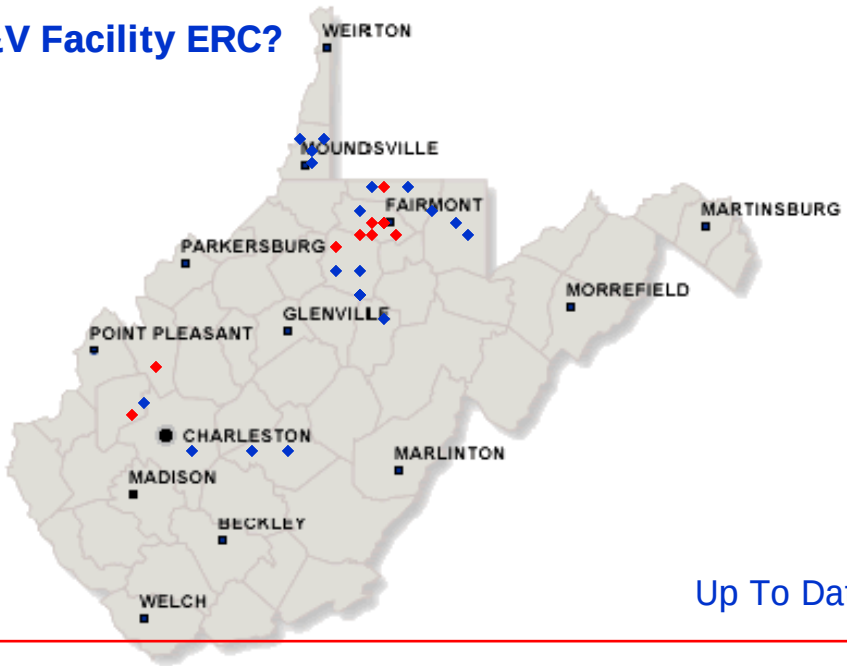
and click onto SDO Videos.

Where in WV is the NASA IV&V Facility ERC?

- **Jan.—Feb. Equipment Loan**
- **Jan.—Feb. Workshops**

In January and February the Educator Resource Center conducted workshops on site, workshops off site at schools, and video conferences that reached 201 WV educators.

17 Equipment Loans of Lego Robotics, Starlab Planetariums, Kindernauts, GPS Kits, and Rocketry Kits, were checked out. In addition 13 Afterschool Universe kits were on long term loan to educators within the state. (Not shown on map)



Viewing Vesta by Geoff Gaherty

Have you ever seen an asteroid? If not, the week of Feb. 15 is an excellent time to do so: Vesta, the brightest asteroid, will be well placed for observation with binoculars in the constellation Leo.

Vesta was discovered in 1807 by Heinrich Wilhelm Olbers. An active German astronomer, he also discovered the asteroid Pallas and a comet named after him, but is most famous today for stating Olbers' paradox: the darkness of the night sky conflicts with the supposition of an infinite and eternal static universe.

Vesta is the second largest asteroid, after Ceres, and by far the brightest, having a greater albedo (percentage of light reflected) than any other asteroid. This seems to be partly the result of a collision with another asteroid about a billion years ago. Its mean diameter is 329 miles (529 km), but it is rather irregular in shape because of its violent history.

Vesta is at a point in its orbit called "opposition," which is its closest approach to Earth, NASA officials said in a statement. At high noon on Wednesday, when the sun is over your head, Vesta will be about 131,700,000 miles (211,980,000 km) below your feet, they added.

Unlike some other asteroids, Vesta also has a brighter-than-typical surface (the albedo) which makes the space rock reflect more sunlight and stand out more to observers, NASA officials said.

Featured STEM Career: Space Suit Designer—Heather Paul

Heather Paul works at NASA's Johnson Space Center in Houston as part of the spacesuit team. She is the project manager of the life support designs for the next-generation spacesuits that astronauts will wear on the moon and Mars.

Who I am and What I do: I work with a team of engineers to create and build some of the tools that the astronauts use when they're doing a space walk, or an EVA (Extravehicular Activity), as they build and maintain the International Space Station. My background is in mechanical engineering. As a project manager, I have to be a good leader, and guide my team of engineers through the design and certification process for the hardware. My job is extremely exciting, but also very time consuming. I have always wanted to work for NASA, with the ultimate goal of being an astronaut!

Schooling: I went to North Atlanta High School, a magnet school for the performing arts, where I majored in dance. I attended Auburn University and obtained a bachelor of science in mechanical engineering and a bachelor of arts in Spanish. The Spanish degree was just for fun as I have always loved languages. I continued my education at the University of Texas at Austin and received my master of science in mechanical engineering, while continuing to co-op at JSC. Once I graduated, I came to work full-time at JSC.

Hobbies: I am the lead singer in a band.

I enjoy scuba diving, boating, and playing with my dog.

Distance Learning Workshop

The NASA IV&V ERC is now offering workshops online as interactive Webinars and via video conferencing (for sites with the proper equipment). These shorter trainings focus on NASA resources and materials that can be mailed in a small packet (NOT the STARLAB). To request one of these trainings, simply contact the ERC at erc@ivv.nasa.gov or 304-367-8438 and get together at least five educators in a room that has an Internet accessible computer with a microphone, speakers and a projector (or you can use a Polycom or Tanberg VC unit if available).

To kick off this exciting development, the ERC is collaborating with the Challenger Learning Center in Wheeling, WV and will provide a training on TWO of their e-Missions and TWO lucky winners will receive a FREE e-Mission of their choice at their school ($500 value). Attendees will be certified to borrow a portable Polycom unit to use at your school to facilitate enhanced distance learning, e-Misssions, or the dinosaur program through the Carnegie Museum of Natural History. The date for this exciting training will be announced soon!

Moon, Mars, and Beyond Grades 3-5 Math, Language Arts, Science The class is organized into 5 planet teams to help NASA locate and rescue a lost space ship that is orbiting one of the outer planets.

Space Station Alpha Grades 5-12 Physical Science, Biology, Chemistry, Physics The class is organized into teams to help the International Space Station to survive a solar storm.

NASA IV&V Facility ERC

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We're on the web!

http://erc.ivv.nasa.gov

Submit story ideas and pictures to pamela.casto@ivv.nasa.go

The NASA Independent Verification and Validation Facility Educator Resource Center's goal is to serve teachers, informal educators, and preservice teaches to enable them to reach their goals. Through a grant with Fairmont State University, the NASA IV&V Facility ERC provides materials, equipment for loan, and professional development workshops both at the facility and around the state of West Virginia (scheduled upon request) for educators that reflect NASA's current research and technology.

FAIRMONT STATE UNIVERSITY

Independent Verification & Validation Facility

Neat Things to Note

Globe at Night

Join thousands of teachers, students and families around the globe **March 3-16, 2010**, in a hunt for stars. Take part in this international event to observe the nighttime sky and learn more about light pollution around the world. GLOBE at Night is an easy observation and reporting activity that takes approximately 15-30 minutes to complete.

Global Learning and Observations to Benefit the Environment, also known as GLOBE, is a worldwide, hands-on science and education program for primary and secondary schools.

For more information about the event, visit http://www.globe.gov/GaN/. E-mail questions about the event to globeatnight@globe.gov

Climate Kids

Climate change can be a daunting topic for most adults to grasp, let alone kids. A new NASA Web site can help our future explorers and leaders understand how and why their planet is changing and what they can do to help keep it habitable.
Called "Climate Kids," the new Web site is the latest companion to NASA's award-winning Global Climate Change Web site, http://climate.nasa.gov . Geared toward students in grades 4 through 6, the multimedia-rich Climate Kids site uses age-appropriate language, games and humorous illustrations and animations to help break down the important issue of climate change. Climate Kids can be found at http://climate.nasa.gov/kids .