Up To Date

NASA IV&V Facility Educator Resource Center Newsletter

November, 2008

Volume 1, Issue 4

NASA IV&V Facility ERC

Hubble Update

The Hubble Servicing Mission has been delayed and the current launch date is under review for 2009 because of a problem with Hubble before the scheduled October launch.

On October 25, the current primary camera on the Hubble Space Telescope was back in active operation and science observations were planned to resume shortly.

The telescope's science computer began to send commands to Wide Field Planetary Camera-2. These commands brought the computer out of the quiescent, safe state in which it has waited since the computer shut down on October 16.

Additional commanding allowed engineers on the ground to assess the instrument's state of health and verify the contents of the camera's microprocessor memory. All systems are poised to begin acquiring science data.

The first observations will be for data calibration purposes. The team at the Space Telescope Science Institute, which manages Hubble science, expects to release an image by the end of October.

Read more at www.nasa.gov.

Goddard engineers install Hubble's new batteries onto the Super Lightweight Interchangeable Carrier.
Image Credit: NASA/Chris Gunn

Inside:

Insulating Paint Powder Turns Every Color 'Green'

Thermographic image shows areas of high heat loss (red and yellow). Image Credit: The Insuladd Company

What's every color in the world, but still always green?

Paint that includes an insulating powder that originated at NASA. Widely used on commercial and residential structures, it transforms paint into an environmentally friendly insulation barrier.

Mix the powder into any color of paint, then break out the brushes. It creates a barrier that deflects the sun's heat away from the house, plus it helps keep heating and air conditioning in.

Currently, businesses use the insulating paint to coat air-conditioning ducts, steam pipes and fittings, metal buildings, and cold storage facilities.

This simple but powerful solution all began with space shuttle launches. During a launch, heat generated by wind resistance and engine exhaust can potentially be very damaging.

The idea was first developed in 1980's, but there were problems with the process.

In 1993, the Marshall Center atomized epoxy and other filler materials to create a fine, environmentally friendly insulation powder known as Marshall Convergent Coating-1 containing hollow glass spheres and particles of cork and epoxy.

First flight test was in 1996 on the STS-79 mission. It was so successful it was adopted for all subsequent shuttle flights.

Bringing the powder to public market resulted in a partnership with Tech Traders, Inc. Now you can add Insuladd®, a safe, non-toxic powder to any interior or exterior paint to transform it into a layer of insulation.

Complete article at www.nasa.gov/topics/

Important Dates:

Nov 1 Energy Series: Science of Energy **Workshop at ERC**

Nov 4 NASA Math & Science for PreK-2nd grade educators **Workshop at ERC**

Nov 11 Graphic Information Systems **Workshop at ERC**

Nov 13-15 WVSTA Conference, Morgantown, WV

Nov 18 CONNECT Math **Workshop at ERC**

Nov 27+ STS-126 Launch

Dec 3 Astro-Venture **Workshop at ERC**

Upcoming Workshops: NASA IV&V Facility ERC

Energy Series: Science of Energy
November 1, 10:00-4:00, Educators of grades 5-12 are invited to the first of our Energy Series based on materials from NEED (www.need.org). This workshop builds the foundational knowledge of energy types and transfers through activities.

NASA Math and Science for PreK-2
November 4, 12:00-3:00 (or 4:30)
A workshop just for our educators of grades PreK-2 to get learners excited about space. Workshop is from 12:00-3:00 if you stay until 4:30 you will earn certification for **the Kindernauts Kit** (see below).

Geographic Information Systems
November 11, 6:00-8:00, Designed for educators of grades 5-12 to learn how GIS increases student understanding of relationships between data and visualizations. Learn to use My World GIS software and work with a GIS professional to discover the potential for student research.

CONNECT Math November 18, 6:00-8:00
Educators of grades 5-8 will explore a video series (now online) with connected problem based learning activities which relate middle school math topics with real world situations.

This month in the ERC learn the science of energy, use great materials for you PreK-2 setting, discover GIS, and experience a fantastic mathematics resource!

Next Month in the ERC:

Dec 3	Astro-Venture, grades 5-8, 6:00-8:00, Study and Search for a habitable planet.
Dec 11	NASA Portal Gets Interactive, grades 1-8, 6:00-8:00, Discover great interactive features on www.nasa.gov.
Dec 13	Energy Series: Hydrogen, grades 5-12, 10:00-4:00. Learn to implement our fuel cell car kit in your educational setting.

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

Featured NASA IV&V Equipment Loan Kit: Kindernauts

A kit designed just for Kindergarten! This kit is tubs full of great resources to use as stations and for whole group activities to get Kindergarteners excited about space.

Activities in this kit have been taken from 321 Liftoff, Cosmic Classroom Living in Space, Rocketry Guide, and many other NASA resources. Each activity is correlated to West Virginia CSOs and the kit covers over 40 WV CSOs!

Educators use this kit year after year. If you saw it a few years before and have not seen it recently, it has been updated!

The kit is organized around the following themes: Solar System and Constellations, Space Suit, Living and Working in Space, International Space Station and Space Shuttle, Rocket Math, and Careers.

The kit includes posters, science experiment materials, space suit costumes for students, printables, and teaching materials all with a educator guide to give you background information and help you plan your two weeks with the kit.

Interested? Next workshop is November 4th from 12:00-4:30. Go vote then stop in and get great ideas for your classroom. Or gather your group of 10+ PreK-2 grade educators and I will do a workshop for all and then certify the Kindergarten teachers at the end!

ERC is on Facebook!

As one more way to stay up to date with the happenings of the ERC, join the NASA IV&V Facility Educator Resource Center group on Facebook.

Find out about grant and fellowship opportunities, upcoming workshops, and share ideas with fellow educators on the discussion board or wall.

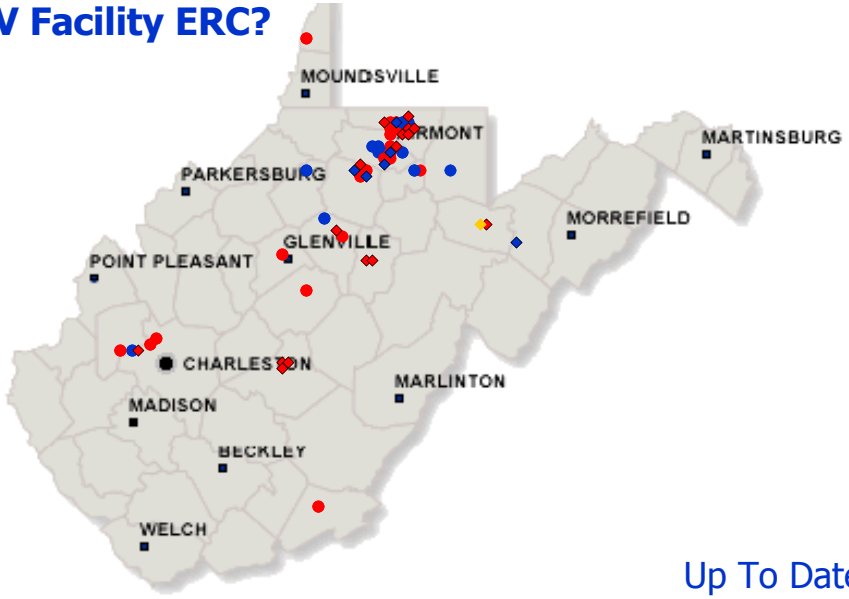
Have you completed a great project in your classroom or educational setting? Share it with us on Facebook!

Already a member of Facebook; join by searching for our group (NASA IV&V Facility Educator Resource Center). If you are not part of the Facebook community; join for free at www.facebook.com. Once you create a profile you can search for and join our group.

See you on Facebook!

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

- ♦ October Equipment Loan
- ♦ October Workshops
- ♦ October Video Conferencing
- • 2008-2009 Equipment Loan
- • 2008-2009 Workshop
- • 2008-2009 Video Conferencing



Featured WV Scientist: NASA IV&V Facility Project Lead

Lisa Nicklow, NASA IV&V Facility Project Lead thinks the best thing about her job is that she gets to work for NASA and contribute to the success of future space exploration. No wonder, during her time working for NASA, she has worked on the Orion, Ares, Phoenix, MSL, Glory, GOES-N, and Calipso projects.

In her current role as Project Lead she manages IV&V projects by developing tasking and communicating with development projects.

Nicklow grew up near Morgantown and went to high school in Bruceton Mills. She then continued on to earn her B.S. in Electrical Engineering and B.S. in Computer Engineering from WVU. From the University of Maryland she earned her M.S. in Computer Systems Management.

When asked what motivated her to pursue this educational track she responded "I was encouraged by one of my high school science teachers to pursue a degree in engineering. It was also the availability of jobs, there are engineering positions everywhere."

She encourages students to study math and science because "the logic learned through mathematics and the problem solving skills obtained through science are invaluable tools for the rest of life."

Featured STEM Career: NASA Nutritionist

Job Description:
Complete clinical-type assessment to evaluate the nutritional status of crewmembers before and after flight; conduct research to better understand how the body reacts to flight and how nutrient needs of the body change in weightless-ness and on long-duration missions.

Current Job Holder Qualifications:
Bachelor's Degree in Biology, Penn State
Doctorate in Nutrition, Penn State
2 years research at US Dept of Agriculture's Human Nutrition Research Center

Quote from Current Job Holder:
"The Human Research Program at NASA has spent a lot of time in the last year or two to step back and take a very hard look at what do we know, what don't we know, what risks do we have and what do we need to do to take those next steps in exploration"

Learn More:
www.nasa.gov/audience/foreducators/stseducation/stories/Scott_Smith_Profile.html

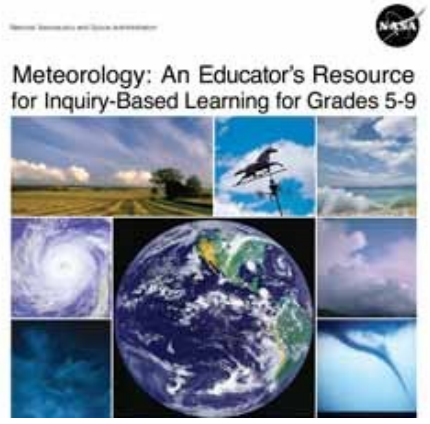
Expedition 14 commander places medical samples in the ISS's Minus-Eighty Laboratory Freezer. Image Credit: NASA

Scott M. Smith is the lead scientist in the Nutritional Biochemistry Laboratory at Johnson Space Center. Image Credit: NASA

Several in-flight studies on the ISS are focused on astronauts' nutritional needs for long-duration spaceflight.

Featured NASA Product:

Meteorology: An Educator's Resource for Grades 5-9



Information gathered from http://www.nasa.gov/centers/langley/science/met-guide.html.

Meteorology: An Educator's Resource for Inquiry-Based Learning for Grades 5-9 was designed for both formal and informal educational settings. It's function is to assist educators in instilling excitement in learning about meteorology through inquiry based learning opportunities. The learner will experience "how we arrive at what we know," rather than memorizing what we know.

We will be exploring activities from this guide during our **Meteorology Made Simple Workshop on February 19**. Contact Marcie at 367-8436 or marcie.raol@ivv.nasa.gov to register.

Free Web Casts

The First Stars in the Universe
Mssimo Stiavelli, STScI
November 11, 8:00 p.m., http://hubblesite.org/about_us/public-talks.shtml

Energy and the Polar Environment
November 13, 6:30-8:00 p.m.
http://learningcenter.nsta.org/products/symposia_seminars/NSDL3/Webseminar3.aspx

The Atlas of Science Literacy
November 18, 6:30-8:00 p.m.
http://learningcenter.nsta.org/products/symposia_seminars/AAAS/Webseminar.aspx

Teach Science Concepts & Inquiry with Food Tuesday, December 2, 6:30-8:00 p.m.
http://learningcenter.nsta.org/products/symposia_seminars/fall08/FDA/webseminar.aspx

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 marcie.raol@ivv.nasa.gov

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

NASA

Independent Verification & Validation Facility

Grants and Fellowship Opportunities:

We are happy to work with you and provide letter of support if there is a role for the ERC in your grant.

Youth Incentive Award
Monetary grants of $150 and $200 or $400 equipment credit from the BioQuip Products catalog to enable educators to provide encouragement and assistance to young beetle enthusiasts (grades 7-12). **Deadline:** December 15, 2008
www.coleopsoc.org/default.asp?Action=Show_SocietyInfo&ID=Youth

The Live Monarch Foundation Educator Outreach Program provides funding for teachers to bring monarch butterflies into the classroom by providing education and materials to strengthen the monarch's 3,000-mile migratory route within North America by creating self-sustaining butterfly gardens and refuges. Materials will be provided for each participant to raise a virtual butterfly and start a butterfly garden with instruction on each level of its maintenance and care.
www.lmf-educator-award.com/index.html

The Lexus Eco Challenge
Last year, more than 3,500 middle and high school students tackled issues like water pollution, vampire electronics, and alternative energy as they took part in the first-ever Lexus Eco Challenge. This year, the winning teams of each of the initial challenges will receive $10,000 and the opportunity to compete for the top prize of $50,000. Also available for schools and teachers are standards-based supplementary educational materials to help teachers educate their students about the environment. www.scholastic.com/lexus/

The ARMADA Project—Research and Mentoring Experiences for Teachers provides K-12 teachers an opportunity to actively participated in ocean, polar, and environmental science research and peer mentoring through the University of Rhode Island's Office of Marine Programs. This project has placed teachers in research experiences all over the world. **Deadline:** February 9, 2009.
www.armadaproject.org

Earthwatch Institute offers elementary, middle, and high school educators and administrators of any discipline fully-funded fellowships for hands-on learning with leading scientists doing field research and conservation on one of 130 projects around the world. Applications accepted on a rolling basis.
www.earthwatch.org/edopp

Toyota TAPESTRY
Toyota Motor Sales, U.S.A., Inc. and NSTA will award 50 grants of up to $10,000 each and 20-32 mini-grants of up to $2,500 to K-12 teachers of science in the US. http://tapestry.nsta.org/Default.aspx

The Lorrie Otto Seeds for Education Grant Program gives small monetary grants to schools, or other non-profit educational organizations, for the purpose of establishing outdoor learning centers. Funds will be provided only for the purchase of native plants and seed. **Deadline:** November 15, 2008.
www.for-wild.org/sfecvr.html