

# Up To Date

NASA Independent Verification  
and Validation Facility  
Educator Resource Center

August, 2008

Volume 1, Issue 1

## NASA IV&V Facility ERC

### Featured Implementer: This Could be You and Your Learners!

This section is just waiting for you. We want to feature how you are implementing NASA materials from one of our workshops or equipment from our equipment loan program in your educational setting (classroom, afterschool program, etc).

Help us inspire fellow educators by sharing how you are engaging your learners in science, technology, engineering, and mathematics (STEM) using NASA resources.

To submit an article, send us your contact information, picture with caption, and article between 175-225 words in length to [erc@ivv.nasa.gov](mailto:erc@ivv.nasa.gov). The article should include a short description how you brought NASA to your educational setting, how the

activity ties to the NASA IV&V Facility ERC efforts, and the number of learners impacted.

We are looking to feature a variety of educational settings, experiences, and topics so please feel free to get creative!

If your article is chosen for this newsletter, you will receive hard copies of the article and a NASA surprise for each of your learners who participated in the described activity. So start thinking about submission possibilities!

Submissions are accepted on continuous basis, but deadline for submission is the 15<sup>th</sup> of every month for the following month's edition. Articles may be held for future editions.



This could be you and your learners! Read how.

Did you use ideas from a workshop or equipment for our facility at your summer camp? Send us an article for the next newsletter!

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### NASA Update: Phoenix Mars Lander



The Phoenix Mars Lander landed successfully on Mars May 25, 2008 after being launched on August 4, 2007.

It is designed to study the history of water and search for

complex organic molecules in the ice-rich soil of the Martian arctic.

The Phoenix landing site was chosen from discoveries made by the Mars Odyssey Orbiter in 2002 which indicated subsurface water-ice in the northern arctic plains.

In July, the robotic arm delivered a soil sample to an instrument that identifies vapors produced by the heating of samples. The laboratory test aboard Phoenix identified water in the sample!

Find out more, and get classroom resources at <http://phoenix.lpl.arizona.edu>

### Important Dates:

- Sept 5 Rosetta flies by Asteroid 2867
- Sept 11 Space Weather Action Center Workshop at ERC
- Sept 13 Robotics Workshop at ERC
- Sept 14+ Launch of TacSat-3
- Sept 23 Hubble Space Telescope Workshop at ERC
- October Hubble Space Telescope Servicing Mission
- October 8 Imagine Mars Workshop at ERC

## Upcoming Workshops

September kicks off with 3 great workshops at the NASA IV&V Facility ERC in Fairmont, WV to get you ready for back to school!

September 11 is a **Space Weather Action Center Workshop** from 6:00-8:00 pm. Target audience is those working the learners in grades 5-8. Attendees will learn how to make their learners Space Weather action reporters through the use of green-screen technology, video editing software, and NASA data websites on the Sun, Magnetosphere, Auroras, and more.

**Robotics** kicks off this fall with a workshop on Saturday, Sept 13 from 10:00-4:00. Here you will learn the basics of programming LEGO NXT robots to solve challenges. Great for anyone interested in learning more about incorporating robotics in the classroom or afterschool program. See more information on the kit available (sponsored in part by the NASA Space Grant Consortium) after attending this training in the article below. Target age group is educators of grades 3-12.

The **Hubble Space Telescope** is due to receive a servicing mission in October. Come learn what is happening and how to bring Hubble's exciting finds in your educational setting on Sept 23 at 6:00. All educators welcome.

Please register at least one week prior to all workshops.

**We hope to see you at our workshops this year!**

**Contact us (see pg 4) to get further details on workshops and to register!**

## Featured NASA IV&V Equipment Loan Kit: Robotics

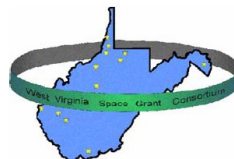
Let the NASA IV&V Facility ERC bring robotics to you and your learners. Robotics enables learners to become active learners where they do, instead of just learn, STEM. In order to help educators bring 21<sup>st</sup> Century Skills into their educational setting, we have developed a Robotics kit.

The Robotics Kit includes nine laptops with LEGO MINDSTORMS NXT G software, LEGO NXT Robots, activity mats and directions, and educational resources to teach robotics currently correlated to WV 6-8<sup>th</sup> grade math, science, and technology CSOs.

It truly is a wonderful kit brought to you in part through a grant from the NASA West Virginia Space Grant Consortium and



the NASA IV&V Facility Director's Discretionary Funds.



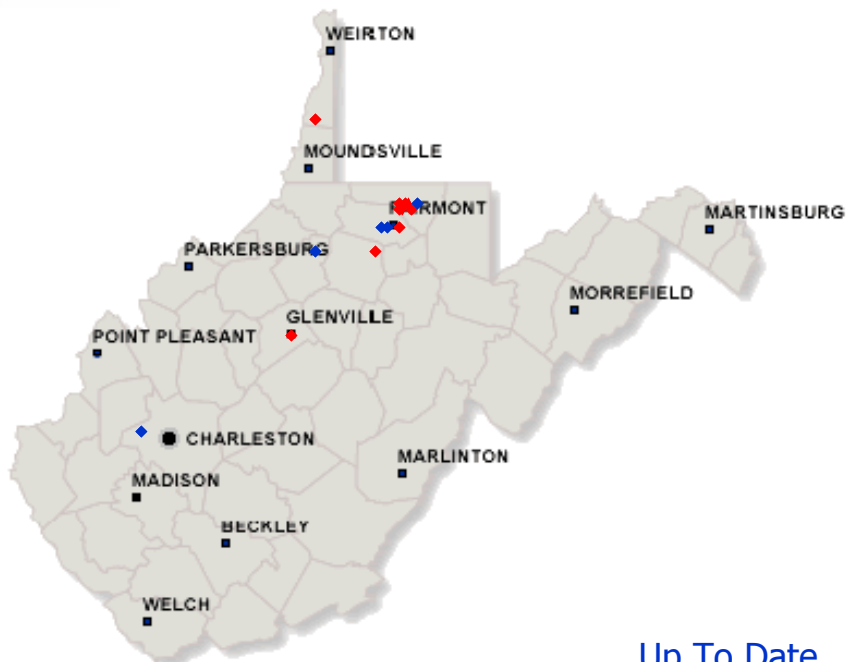
Training (approximately 6 hours) is required before using the kit in your educational setting. The next training scheduled is at the NASA IV&V Facility ERC on Saturday, Sept 13 from 10 to 4pm.

Contact Marcie at [marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov) or 304-367-8436 for details, or to register for the Sept 13th workshop.

To schedule a workshop on this or one of our other kits near you with 10+ educators, please use the contact information on page 4.

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

- ◆ July's Equipment Loan
- ◆ July's Workshops
- ◆ July's Video Conferencing
- 2008-2009 Equipment Loan
- 2008-2009 Workshop
- 2008-2009 Video Conferencing



## Featured WV Systems Engineer: Dan Solomon, NASA IV&V Facility Project Manager



**Dan Solomon**

Dan Solomon is a man who has worn many hats at the NASA IV&V Facility; the one that got me talking to him this month was his work on the Mars Phoenix project.

As the project manager, he oversaw 4-5 team members who worked to verify and validate that no software would cause a problem for the multimillion dollar Phoenix. The team looked at the requirements, design of software, code, and test program of the spacecraft, and all of the software

needed for each of the instruments. There was also an emphasis on what many term the most nerve racking part of the mission; entry, decent, and landing.

How did Dan get to this job? Beyond his experience on previous projects, this native of New Jersey received his undergraduate and master degrees in Mathematics from Rutgers and University of Wisconsin. Additionally, he is currently working on his PhD at West Virginia University.

Since IV&V work is completed before launch, Dan has moved on to a new project, working on the Orbiting Carbon Observatory which is scheduled to launch in January. In case you were wondering, that analysis has too been finished already. In addition, Dan serves as Manager of the Tools Lab which provides support for IV&V work.

Talking to Dan was great because you can tell he enjoys his job. He finds Math and Science to be fun and he is "jazzed about all the space stuff NASA is doing."

## Featured STEM Career: International Space Station (ISS) / Space Shuttle Robotic Arm Trainer

### **Job Description:**

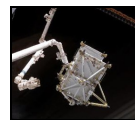
Become proficient using the ISS and space shuttle robotic arms using computer simulation experiences and mock up area. Then train astronauts to prepare them for the challenges of controlling these arms to complete tasks while in space. After completing training with you and your team, astronauts must be able to make their execution precise in an environment where objects are almost weightless yet massive and relatively fragile.

### **Current Job Holder Qualifications:**

Studied electrical and computer engineering.

### **Quote from Current Job Holder:**

"We have to have the same skills as the astronauts. It's not just knowing the book or having a teacher's manual. They could ask us at any time to do what they're doing, and they know we know how to do it."



**Robotic Arms  
at Work**

### **Learn More:**

Information gathered from *Matt Pepper, Robotic Arm Instructor*

[http://www.nasa.gov/audience/foreducators/stseducation/stories/Matt\\_Pepper\\_Profile.html](http://www.nasa.gov/audience/foreducators/stseducation/stories/Matt_Pepper_Profile.html)

**"We have to have the same skills as the astronauts. It's not just knowing the book or having a teacher's manual. They could ask us at any time to do what they're doing, and they know we know how to do it."**

## Featured NASA Product: Imagine Mars

With Imagine Mars learners work together with scientists, educators, and professionals to create a futuristic Mars community for 100 people.

Learners explore their community and decide which arts, scientific, and cultural elements will be important on Mars. Then, they develop their ideal community.

Appropriate for most ages and a perfect interdisciplinary unit!

See the online project gallery to gain ideas and post your learners' finished projects.



Details at <http://imaginemars.jpl.nasa.gov>

Workshop on Imagine Mars at the NASA IV&V Facility ERC on Oct 8 at 6:00. Please register using contact info on pg4.

## Free Web Casts

**NSTA:** Web Casts are a great professional development opportunity, check out their archives at

[http://learningcenter.nsta.org/products/web\\_seminar\\_archive.aspx](http://learningcenter.nsta.org/products/web_seminar_archive.aspx)

### **Hubble Site:**

[http://hubblesite.org/about\\_us/public-talks.shtml](http://hubblesite.org/about_us/public-talks.shtml)

Sept 2, 8pm - The Servicing Mission 4 and the Final Frontiers of Hubble

## NASA IV&V Facility ERC

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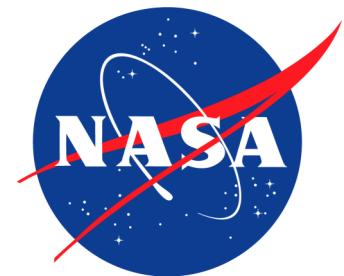
**E-mail: [erc@ivv.nasa.gov](mailto:erc@ivv.nasa.gov)**

**We're on the web!**

**<http://erc.ivv.nasa.gov>**

**Submit story ideas and  
pictures to  
[marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov)**

The NASA Independent Verification and Validation (IV&V) Facility Educator Resource Center's (ERC) goal is to serve teachers, informal educators, and preservice teachers 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.



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## Featured Workshop: Podcasting at the Teacher Leader Institute

Three workshops on podcasting reached 92 teachers as part of the West Virginia Department of Education's Teacher Leadership Institute held in Morgantown, WV the weeks of July 28 and August 4, 2008.

Podcasts are a great way to bring outside experts into your classroom, no matter the discipline you teach. Visit

[www.nasa.gov/multimedia/podcasting](http://www.nasa.gov/multimedia/podcasting) to find NASA podcasts on a wide variety of topics. Or create your own, we can help!

Todd Ensign, leader of the first two workshops, and Marcie Raol, leader of the third workshop, exposed teachers to podcasting and how it can be used in their classroom.

After being given time to look at available podcasts, teachers learned how to create their own audio podcast using Audacity. Then, since true podcasts are posted on the internet, the teachers learned how to do just that with their own creations.

Teachers had the following to say about their workshop experience:

- ~ Very interesting, informative, and useful for a classroom teacher.*
- ~ The presenter was very patient and knowledgeable and engaging.*
- ~ Very applicable to ideas currently being discussed within our science department. This will help with our implementation.*

Remember, this workshop also goes on the road. Please contact the NASA IV&V Facility ERC if your school or a group of 10+ educators are interested. It makes a great cross discipline professional development experience!



**Educators research possible  
podcasts to use in their classes.**