Up To Date

NASA IV&V Facility
Educator Resource Center
Newsletter

July-August 2010

NASA AWARE 2010: The Solar System

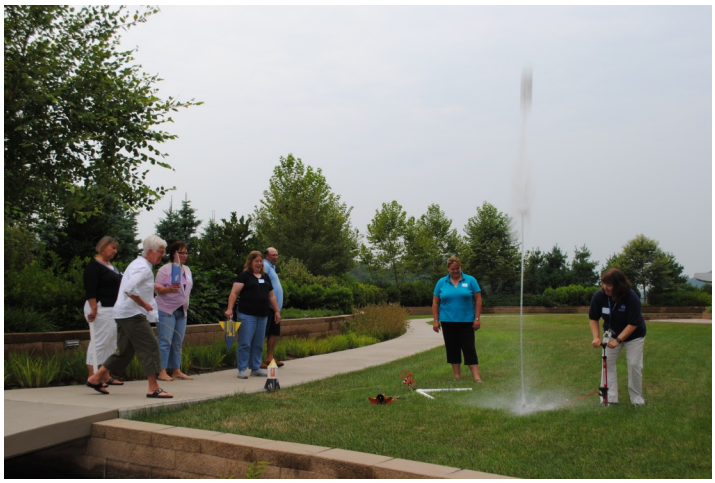
June 21-25, fourteen teachers from around WV gathered at Fairmont State University to study the solar system and to engage in educational strategies which presented that content in exciting and meaningful ways. From the nature of science, scientific habits of mind, inquiry learning and project based learning, to launching rockets, making the invisible detectable, and viewing the universe through telescopes, the educators had a fun filled week. Obtaining seven certifications in one week was probably an ERC record for one group. These certifications allowed the AWARE participants to check out six different ERC equipment kits and also to receive loans of moon rocks and meteorites from Johnson Space Center.

The program was led by Dr. Deb Hemler of Fairmont State University, Pam Casto of the Educator Resource Center, and Brandon Hargis, of the Aerospace Education Services Project.

Top left: The participants gather as a group on the lawn at FSU after aligning their telescopes. Center: Dividing three pounds of clay into the correct proportions to represent the matter in the solar system proved to be challenging. Top right: Getting a spectroscope to land safely on Mars (or the bottom floor of Hunt-Haught Hall) required a variety of skills.

RESA VII: Project ISAAC

Educators involved with Project ISAAC (Improving Student Achievement Advancing Communities), met at the WV High Tech Consortium Research Center site in Fairmont's I-79 Technology Park for enrichment opportunities including a Basic Rocketry workshop from the ERC. Project ISAAC is an after-school program funded by the WV Dept. of Education and a 21st Century Learning Center grant. It is coordinated by the local Regional Education Service Agency (RESA VII).



Educators from RESA VII's Project ISAAC took a Basic Rocketry Workshop Aug. 3 and 4 at the I-79 Technology Park Research Center

Important Dates:

Aug. 12: Perseid Meteor Shower

Aug. 20: New ERC Activity Calendar Available online

Inside:

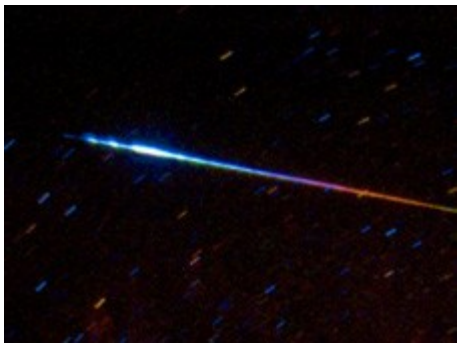
NASA Update: Hurricanes

In less than two weeks, NASA scientists will begin their quest for the holy grail of hurricane research.

The exact conditions required to kick start a tropical depression into a hurricane largely remain a mystery. Though scientists know many of the ingredients needed, it is unclear what processes ultimately drive depressions to form into the intense, spinning storms that lash the U.S. coasts each summer.

"Hurricane formation and intensification is really the 'holy grail' of this field," said Ed Zipser, an atmospheric scientist at the University of Utah and one of three program scientists helping to lead the Genesis and Rapid Intensification Processes (GRIP) experiment this summer.

With GRIP, NASA's first domestic hurricane project since 2001, the agency has assembled the largest-ever hurricane research experiment to investigate these questions. Three NASA planes, multiple NASA satellites and four planes from research partners NOAA and NSF will combine to make unprecedented measurements of tropical storms as they are forming (or dying out) and intensifying (or weakening). The intense scientific focus on these meteorological processes could provide new insight into the fundamental physics of hurricanes and ultimately improve our ability to forecast the strength of a storm at landfall. Predictions of hurricane strength continue to lag behind the accuracy of storm track predictions, but accurate predictions of both are needed for the best possible preparation before landfall. Source: nasa.gov



Perseid Meteor Shower—August 12, 2010

During a high-rate shower like August's Perseids or December's Geminids, a person can witness up to 80 meteors an hour during peak activity. Whether you're watching from a downtown area or the dark countryside, here are some tips to help you enjoy these celestial shows of shooting stars. Those streaks of light are really caused by tiny specks of comet-stuff hitting Earth's atmosphere at very high speed and disintegrating in flashes of light. Even though the 2010 Perseids and Geminids share the night sky with the moon, they are still expected to produce more visible meteor activity than other major showers that don't have an interfering moon.

The best thing you can do to maximize the number of meteors you'll see is to get as far away from urban light pollution as possible and find a location with a clear, unclouded view of the night sky. Once you get to your viewing location, search for the darkest patch of sky you can find, as meteors can appear anywhere overhead. The meteors will always travel in a path away from the constellation for which the shower is named. This apparent point of origin is called the "radiant." For example, meteors during a Leonid meteor shower will appear to originate from the constellation Leo. (Note: the constellation only serves as a helpful guide in the night's sky. The constellation is not the actual source of the meteors. For an overview of what causes meteor showers click on Meteor Showers: Shooting for Shooting Stars)

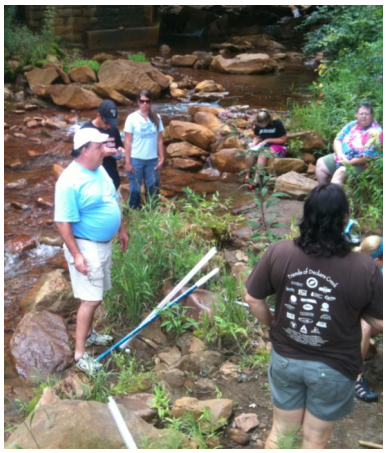
Bring something comfortable on which to sit or lie down. While Mother Nature can put on a magnificent celestial display, meteor showers rarely approach anything on the scale of a July 4th fireworks show. Plan to be patient and watch for at least half an hour.

Put away the telescope or binoculars. Using either reduces the amount of sky you can see at one time. Instead, let your eyes hang loose and don't look in any one specific spot. Relaxed eyes will quickly zone in on any movement up above, and you'll be able to spot more meteors. Avoid looking at your cell phone or any other light. Both destroy night vision. Source: nasa.gov

ArcGIS Training Camp: WVDE

Elementary and secondary educators learned how to use GIS and GPS tools, to align the technologies to curriculum objectives and to implement them in their classrooms in ways that encouraged students to think spatially as they research data and compile it into maps, tables, charts and graphs, ask critical questions, use creativity and ingenuity to solve problems, and develop a deeper understanding of global issues. Dr. Steven Paine used this information in his welcome letter to educators at the ArcGIS Training Camp sponsored by the West Virginia Department of Education at WVU the last week of July.

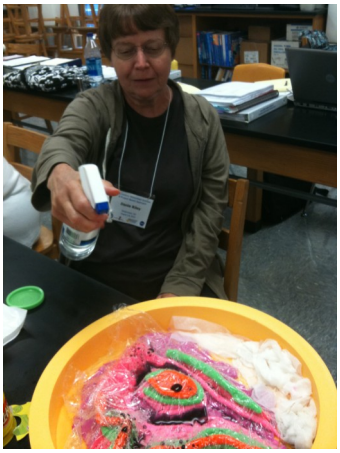
Photo: Dr. Joseph Kerski of Environmental Research Systems Institute speaks to GIS educators.



21st Century Watershed Science

Friends of Deckers Creek, Preston County Schools, Fairmont State University and the Educator Resource Center at the NASA IV&V Facility joined together in a week-long institute that took a project based approach to the study of watersheds. Preston County Educators participating in the institute received hands on instruction and over one thousand dollars of water quality monitoring equipment, books, and supplies to be used in the classroom.

Topics covered during the week included (but was definitely not limited to!) identifying patterns and connections in environmental data to develop an understanding of the interactions within the Earth system, to identify watersheds with topographic maps, identifying pollution sources and other factors that affect watersheds, monitoring the stream quality within a watershed, creating inquiry based lesson plans and problem based learning projects, and understanding acid mine drainage and AMD mitigation.



Principal instructors for the course were Sarah Veselka, Dr. Martin Christ, and Shannon Dey from Friends of Deckers Creek, Dr. Deb Hemler and Dr. Sharon Smith from Fairmont State University, and Todd Ensign from the NASA IV&V Facility Educator Resource Center. Later this fall, on a follow-up workshop day, Tim Craddock from the WV Department of Environmental Protection will meet with the group.

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We're on the web!

http://erc.ivv.nasa.gov

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

The NASA Independent Verification and Validation Facility Educator Resource Center's goal is to serve teachers, informal educators, and pre-service 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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Where in WV is the NASA IV&V Facility ERC?

- **July-Aug Equipment Loan**
- **July-Aug Workshops**