



EARTH SCIENCE

Rediscover Geology

EARTH SCIENCE WEEK observation dates for 2004, October 10-16, addressed a theme of “Living on a Restless Earth”. Earth scientists study the natural hazards that affect our global community. Certainly the eastern United States has experienced this restless Earth with its share of hazardous phenomena during this recent hurricane season. Violent storms, tornadoes, floods and even sinkholes came with the four hurricanes that devastated our eastern areas.

The impact was not confined to coastal areas, but affected many inland areas, including many towns in the Pittsburgh area. Soils saturated with heavy rain from early hurricane fringes could not absorb rains from the later storms. The resulting floods were widespread, if scattered, and the damages clearly showed the effects of powerful water surges that scoured out waterway banks and ravaged whole towns.

(see related article – Science Snippets)

Students have the opportunity for numerous inquiry based investigations built on these very relevant and exciting events. Geology as a dynamic field is featured in the October, 2004 issue of NSTA’s *Science and Children* Journal, complete with a colorful poster with geological definitions and a sample lesson plan. It is produced by the American Geological Institute, and there is an accompanying website: www.earthsciweek.org There are more activities aligned with the National Science education Standards. Investigation areas addressed in the Journal include: fossils, erosion patterns, and “Dust in the Universe”.

Opportunities for compare and contrast studies abound in this area. Helping students make connections across disciplines is easier when geology becomes the context.

- 1) From the study of local landforms and erosion patterns students can connect to the exploration of Mars by the NASA rovers Spirit and Opportunity and the search for evidence of past water activity.
- 2) Catastrophic events in the western U.S. offer relevant study areas of volcanoes and earthquakes – as Mt. St. Helens again becomes active.
- 3) Investigating and comparing the causes of hazards such as floods (ex. natural or man’s impact) can lead into the integration of related areas: population shifts, economics, climate changes, and the solar system.
- 4) Land use and related geological impact is a major study area.

MAKING CONNECTIONS

PRCST continues programs designed to link the natural and historical environments.

- A. The Lewis and Clark Commemoration Expedition program will extend through 2006, helping teachers enable their students to make the connections across disciplines, deepen their understanding, apply their knowledge, use critical thinking, and maintain their interest and curiosity.

Ernest L. Boyer, then President of the Carnegie Foundation for the Advancement of Teaching, said in a speech in 1993 entitled "Connections", "I know how idealistic it may sound, but it is my urgent hope that in the century ahead students in the nation's schools will be judged not by their performance on a single test, but by the quality of their lives. It's my hope that students in the classrooms of tomorrow will be encouraged to be creative, not conforming, and to learn to cooperate rather than compete."

Explore the website <http://lewisandclark.pittsburghlegacy.com> managed by our Advisory Board member Dr. Charles B. Greenberg, who is the primary writer as well.

The Laurel Foundation has provided a grant to add an interactive area to this website. Your input is important as we determine the format and data for this section. If you have developed and taught lessons related to the Lewis and Clark Expedition, please share this with us. A select corps of teachers (most of whom have participated in this program) will meet on Saturday mornings and online to develop this section. You are invited to nominate yourself, based on your prior work and continued interest.

- B. A new PRCST project will focus on the critical years following the French and Indian War, 1763-1775. We are now observing the 250th Anniversary of the French and Indian War. Pittsburgh and the western Pennsylvania area is a pivotal area with primary war sites, exhibits and displays. Some of these:

Fort Pitt hosts a large and rich exhibit

Fort Ligonier, Fort Necessity, Bushy Run and other sites offer tours, programs and information

Senator John Heinz Pittsburgh Regional History Center and The Historical Society of Western Pennsylvania are developing an extensive exhibit and related programming.

The PRCST programs will build on the relevance and excitement of this observation with a focus on the use of land following the war years, the cultural interactions, and the impact on the environment - again linking the natural and historical environments.

If you are interest in participating in this project and teach at the middle levels (social studies, science, history) contact Jane Konrad at konrad@pitt.edu or call 412/648-7315.

Plan Now

While one educational focus seems to be heading in another direction, we can work to ensure survival of student ability to use the knowledge, learn how to think, and to maintain their excitement about learning – while still addressing the standards and using assessment anchors.

A major focus of the No Child Left Behind (NCLB) Act signed into law Jan. 8, 2002 has been student assessment/achievement.

According to the Teaching Commission's report "Teaching at Risk: A Call to Action", the U.S. job market is so scientifically and technologically based that math and science knowledge is critical for the health of our economy.

But the law also calls for improving math and science instruction by developing teachers' knowledge and skills in their subject areas with the goal of improving student learning. Using research-based teaching methods is a key.

All PRCST professional development programs use the inquiry-based instruction Science-Technology-Society (STS) strategy – one of five science programs selected as boosting student learning at the middle levels by the National Staff Development Council. Enhancing this approach, PRCST has added the areas of Green Design, Conation (C³ approach: Content-Context-Conation), and linking the natural and historical environments.

PRCST programs bring together teacher teams and can be funded by School District Title II and Title V funds.

Share your Earth Science Week activities. Submit to konrad@pitt.edu for inclusion in future issues. (Use the subject head: online activities)

F A L L F O L I A G E

Yellow, orange, red – even purple.....leaves on the deciduous trees in Pennsylvania put on a glorious show in the autumn. The great variety of eastern United States trees contributes to the most brilliant display of fall color in the world (although the northwestern U.S. also enjoys autumn colors).

What happened to the green? The chlorophyll used by the leaves to produce food begins to diminish when temperatures fall and the hours of daylight decrease. When the powerful green pigment in the leaves disintegrates, then other pigments that were there all the time begin to show. Carotene and xanthophyll pigments result in the yellow to orange colors typical of species such as tulip poplar, beech, ginko, hickory, and birch.

The brilliant red in leaves of other species such as scarlet oak, Bradford Callery pear, sassafras, "burning bush" and many species of maple result from the accumulation of carbohydrates in the leaves leading to formation of anthocyanin – a red or purplish pigment.

Preparing to keep warm in winter? Here's a verse to aid in selecting firewood.

*Beech wood fires are bright and clear,
if the logs are kept a year.*

*Chestnut's only good, they say,
if for long its laid away.*

*Birch and fir logs burn too fast,
blaze up bright and do not last.*

*Elm woods burn like a churchyard mould,
e'en the very flames are cold.*

*Poplar gives a bitter smoke,
fills your eyes and makes you choke.*

*Apple wood will scent your room
with an incense like perfume.*

*Oak and maple, if dry and old,
keep away the winter cold.*

*But ash wood wet and ash wood dry,
a king shall warm his slippers by.*

-Anon

(from Great Lakes Chapter – ARS October 2004 Newsletter)

Pennsylvania Leaf Color Zones

Pennsylvania's Office of Tourism divides the state into three "leaf – looking" zones:

- Northern tier – along the New York border: Peak color 1st 2 weeks of Oct.
- Lower Central zone – (our region) Southwest region - Peaks midmonth
- Southern zone – includes southeast corner of PA – peaks last 2 weeks of Oct.

For further information go to the state's website: www.fallinpa.com
that includes live foliage cams.

Or call 1-800-VISITPA (1-800-847-4872) for weekly color updates provided by the Department of Conservation and Natural Resources Bureau of Forestry.

BUILDING A PRESENCE FOR SCIENCE (BaP)

Building a Presence for Science in PA held a key Leaders Training for Trainers conference in Harrisburg in September. Focus was: The New Science Basic: Making Connections. The main purpose of BaP is moving toward the 2007-2008 PSSA schedule. How do we teach all of the necessary standards? One way is to connect Anchor Standards across the science, math, and reading curricula. Sharing responsibility of teaching across the curriculum is the best answer. BaP will work with the PA Department of Education and Research for Better Schools (RS) to foster strong and rich science education strategies.



Dr. Eric Packenham & Charylene Philp



Donna Leese & Kip Bollinger, Science Advisor, PDE

Below is a copy of the last E-Blast sent to points of contact. There should be one in your school building. Find your point of contact and/or become one and share this information.

November 2004 - Building a Presence for Science: NSTA/ National Partner E-Blast

Here are your science education resources and announcements for October provided by Building a Presence for Science and our National Partners. These science education highlights are directed to Key Leaders and Points of Contact. Please forward them on to other science educators in your school.

Building a Presence in Science Newsletter
November 1, 2004
K. Bollinger, PDE
CO-coordinator

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MINI GRANTS AVAILABLE: Join the NASA team! The PA Space Grant Consortium announces a \$200

mini-grant opportunity to support teacher and student involvement in the NASA Student Involvement Program. Inspire your students to expand their knowledge through NASA's Student Involvement Program (NSIP), a national program of investigations and challenges that will engage your students' interest in learning through an inquiry process.

Bring NASA into your classroom to support inquiry-based units on space, history, math, language arts, engineering, geography, and the sciences. NSIP challenges and teacher resource guides support national science, mathematics, and technology education standards. NSIP is a wonderful opportunity for students to learn by getting involved in NASA's story of adventure, discovery, and invention! Students design space missions, investigate Earth from space, explore Earth systems in their neighborhood, and learn about the latest developments in aerospace technology.

Each student receives recognition from NASA for participation and has the opportunity to win cool prizes including a trip to the U.S. Space Camp or Student Flight Week at NASA's Wallops Flight Facility. Regional and National winners will be selected! The mini-grant application deadline is November 15, 2004. NSIP entries due January 2005.

For more information about the mini-grant program, visit <http://www.psu.edu/spacegrant/k12/nsip.html>

To learn more about the NSIP Program, visit <http://www.nsip.net/>

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Angela Phelps, Assistant Director for K-12 Programs  
NASA's PA Space Grant Consortium  
The Pennsylvania State University  
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### Space Academy Scholarships

If any of you know any middle school math and science teachers who would be interested in going to space camp for a week, Honeywell offers a scholarship program that covers tuition, materials, and travel/lodging costs for the program. Please forward on to anyone who you think would want to apply.

I am copying the original letter from Honeywell below. If you can not get all of it, it would probably be best to go to [www.honeywell.com/hometownsolutions](http://www.honeywell.com/hometownsolutions) or contact Marcia Lindstrom [marcial@spacecamp.com](mailto:marcial@spacecamp.com)  
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## Safety Guide Available

It is with great pleasure that the Department of Environmental Protection and the Pennsylvania Chemical Industry Education Foundation present to you the Laboratory Waste Minimization And Pollution Prevention. A Guide For Teachers in Pennsylvania publication. Research shows effective hands-on experiences dramatically enhance students educational experiences. You, as a practitioner of this hands-on teaching method, know firsthand the value of laboratory time.

Yet, you know the liability that goes along with having an active chemistry laboratory. For example, it is not uncommon for students to be intrigued with mercury leftover from an old experiment only to quickly learn how difficult it is to control this quick silver. You will find the Guide to be a useful tool to help you implement best management practices that will reduce your exposure to such incidents. The Guide will give you tips on how to purchase chemicals, manage chemicals once they are in your laboratory and how to deal with unwanted chemicals. The Guide will also provide information on how you can scale down experiments and substitute material.

For a PDF file see: <http://www.dep.state.pa.us/educators/>

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ON LINE COURSES AVAILABLE: The Center for Science Education at EDC is now offering three online courses for science educators.

### Connecting Science and Literacy in the Elementary Classroom

This six-session course is designed for elementary teachers whose students are engaged in hands-on science units. The course focuses on two areas that offer great potential for developing science understanding while also building students' literacy skills: Students' science talk & science notebooks.

### Science Assessment in the Middle Grades

This course is designed for middle-grades science teachers who would like to understand more about assessment—particularly the types found on national and state science tests—and when and how each type can be incorporated into science units. Assessments analyzed in the course include written assessment (both open-ended and multiple choice) graphic (including charts, tables and graphs) and performance.

### High School Students Working as Scientists Work

This is a seven-week course on ways to adapt current high school lesson plans so that students take a more scientifically disciplined, inquiry-based approach to the reading, laboratory, discussion, and lecture experiences they have in class. Participants will examine the myths and realities of doing inquiry in the high school classroom and develop a richer conception of inquiry.

Courses begin January 28th, 2005

Cost: \$149

Graduate credit available

<http://cse.edc.org/onlinecourses/>

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Pennsylvania Publications of interest:

There are many books, posters, and booklets on Pennsylvania that focus on natural history, science and geology. Use can search the following site for the listing and order it from the library managed by the PA Historical and Museum Commission.

<http://www.phmc.state.pa.us/bah/dps/browse.asp?catid=3>

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PSTA CONVENTION NEEDS YOU! The Pennsylvania Science Teachers Association Convention is rapidly approaching. If you teach science, math, technology then this is THE convention to attend. The PSTA convention is held at The Hershey Convention Center on December 1 and 2, 2004. All registration forms can be obtained at the PSTA web site: <http://www.pascience.org> then select conventions from the menu.

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PROJECT WET WORKSHOP: PPL Brunner Island Power Plant, York Haven, Training Room NOVEMBER 9, (sorry for the late announcement)

This year's Project WET workshop will offer useful curriculum supplements and activity guides related to Watersheds and Wetlands, and the activities can be easily inserted into your current lesson plans. Check out the Web site at [www.projectwet.org](http://www.projectwet.org) for more details on the curriculum.

\*There is no charge to attend this workshop.

\*Registration and refreshments start at 8:30 a.m. and the workshop will begin at 9:00 a.m. Lunch is provided for all participants. The day is scheduled to conclude by 4:00 p.m. for a total of six (6) hours of professional development.

\*Act 48 hours are available to educators for this workshop. Participants will complete the necessary paperwork at the workshop. Participants must stay to the conclusion in order to receive full credit.

\*This workshop includes an outdoor component. Please dress accordingly and bring proper footwear.

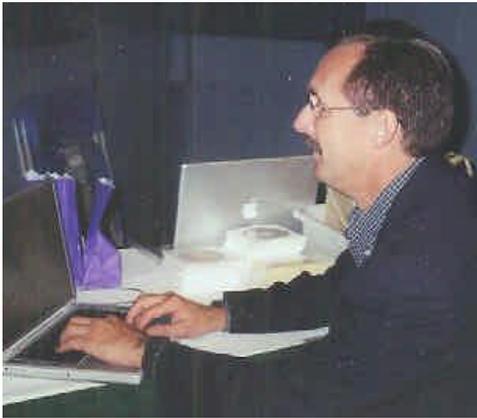
\*Pre-registration is required. Space is limited to a maximum of 25 participants. If your registration is accepted, you will receive an e-mail confirmation from PPL within a day.

\*The preferred method of registration is via e-mail. Please go to the registration form at [http://www.pplweb.com/community/tea\\_registration.htm](http://www.pplweb.com/community/tea_registration.htm) . If you are unable to register via e-mail, call Jon Beam, PPL Montour Preserve naturalist at (570) 437-3131 to register.

Directions to PPL Brunner Island power plant:

Brunner Island is located on the west bank of the Susquehanna River in York County, about 15 miles downstream of Harrisburg. From I-83: Take Exit 32 (old exit 13), Newberrytown. Take Route 382 South to York Haven. At intersection of Route 181, go straight for one block (do not take Route 181). Bear right onto Locust Street and continue across the railroad tracks and concrete bridge. The road is now named Wago Road. Proceed for one-half mile and turn left into Brunner Island power plant entrance.

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Dave Bauman works on the BaP CD



Kathy Blouch conducts a hands-on Literacy Activity

To learn more about Building a Presence for Science, please visit our website: <http://www.nsta.org/bap>

## **INFORMAL SCIENCE EDUCATION**

### Green Education Movement

GEM, the Green Education Movement, is a collaboration of organizations in the Pittsburgh region that promotes environmental education through shared programming, fundraising, and development of new projects. GEM seeks to combine the resources and expertise of many organizations and institutions to offer a scientific and holistic approach to teacher trainings and environmental education programs.

GEM serves as the Pittsburgh representative to the Education Working Group of the Urban Ecology Collaborative (UEC), a multi-city collaboration between non-profits, universities, community groups, and government agencies. The UEC was founded to create healthy ecosystems in service to urban communities. Along with Pittsburgh, the UEC member cities are Boston, New York, New Haven, Baltimore and Washington, DC. Member cities share models, funding, and research strategies that have already resulted in successful initiatives here in our region.

One of GEM's most successful efforts so far has been the Pittsburgh Environmental Teaching Workshop held in July 2004. Nineteen educators attended and gained

knowledge in topics relating to the built and natural elements of our urban environment. GEM organizations involved in the summer workshop included Conservation Consultants, Inc, Lake Erie-Allegheny Earth Force, Pennsylvania Resources Council, Pittsburgh Parks Conservancy, Frick Environmental Center, Carnegie Museum of Natural History, and SALVO.

The workshop did more than just increase the educators' content knowledge. As one teacher wrote in her evaluation: "this workshop has revitalized in me a strong interest in caring about and doing something to promote a better environment."

As a result of the successful Pittsburgh Environmental Teaching Workshop, GEM is forming a Teacher Advisory Committee to help determine educators' needs in the area of environmental education. The inaugural meeting of this committee will be November 17, 2004 from 4:30-6:00pm at the CCI Center on the South Side. The committee is open to all those who are looking for a chance to network with other interested educators and plan professional development opportunities throughout the year. Call 412-321-5434 or email [LEAphg@earthforce.org](mailto:LEAphg@earthforce.org) to attend or for more information about GEM.

## **SCIENCE SNIPPETS**

### **CATASTROPHES**

#### Hurricanes

The 2004 Atlantic hurricane season was record-setting, and the season is not yet over. Certainly Charley, Frances, Ivan and Jeanne left their mark throughout the eastern United States. It may be the costliest hurricane season in recorded history causing billions of dollars of property damage and taking more than 130 lives – Jeanne alone caused the death of 1,500 people in Haiti, and more than 1,000 others missing.

Hurricane forecasters believe that we have entered into a global cycle of increased hurricane activity that may last more than twenty years, part of a natural 60 year cycle. The last cycle of intense activity ran from about 1910-1960 with a peak from the 1930s through the 60s. The inactive phase that followed ended in 1995.

"The increased activity since 1995 is due to an immense flow of Atlantic Ocean water, equal to about 100 Amazon Rivers, which controls the hurricane cycle. The flow is produced by the differences in the density of seawater, which depends on temperature (thermal) and saltiness or salinity (haline). – called the Atlantic "thermocline" circulation. (abstracted from *Post-Gazette National Bureau*, Michael Woods)

#### Volcanoes

At this writing, Mount St. Helens in Washington is erupting steam and ash following powerful tremors. A geologist from the U.S. Geological Survey said that this volcano had released more energy in about a week of seismic activity that it had since the devastating May 18, 1980 eruption. This impending eruption is expected to be much smaller than that of 1980.

In Japan, Mount Asama continues to produce minor eruptions, sending ash into an area northwest of Tokyo.

### Earthquakes

An earthquake measuring a magnitude of 6.0 rocked the area from Los Angeles to San Francisco. Many other earth movements were felt throughout the world.

### Floods

In a recent Post-Gazette article, Tim Collins, Director of the 3 Rivers 2<sup>nd</sup> Nature Program in the Studio for Creative Inquiry and Joel A. Tarr, Professor of History and Public Policy (both at CMU) asked what human actions increased the recent area flood's severity. Reviewing the severe floods of the past, they noted that the flood of 1763 destroyed Fort Pitt and was not surpassed for 173 years. The flood of 1936 that crested at 46 feet, surpassed the 1763 record and flooded 62% of the Golden Triangle. Other destructive floods were from Hurricane Agnes, 1972, and the 1996 flood, following huge snows and sudden thaws.

After the 1936 flood, major flood control dams at the headwaters of the Allegheny and Monongahela Rivers were constructed by the U.S. Army Corps of Engineers (in charge of flood control in the watersheds of the Pittsburgh's rivers). These reduced flooding on the main river stems; but flooding in the tributaries and communities along the banks seemed to be worsened by the structural stream improvements and overdevelopment. Naturally streams form a relatively shallow channel that breaches its banks every few years out onto an adjacent floodplain. Watershed based ecosystem services planning along with management of storm water in new developments and floodplain and wetland preservation are alternative actions that need to be addressed to prevent future losses. (Abstracted from *Post-Gazette, Sunday, Oct. 3, 2004, Pg. B1*)

### **GREAT LAKES TROUBLE**

Chemicals found in the fish, birds, and mammals that live in and around Lakes Erie and Ontario may prove hazardous to their health. The chemicals contain compounds used in coating furniture, repelling fabric stains, and preventing foods from sticking to pans.

This is the first study to find perfluorooctane sulfonate and perfluorooctanic acid in major bodies of water, according to Associate Professor Keri Hornbuckle, co-author of a report in the Aug. 1 edition of *Environmental Science & Technology*.

Concentrations found were very low and not likely to have direct toxic effects. But now it is known that natural waters may be a pathway for these compounds to reach aquatic food webs.

### **SUPERBUGS**

Strains of *Staphylococcus aureus* that are unfazed by the entire penicillin family and other first-line drugs are being increasingly seen by infectious disease experts around the country. Usually found in hospitals, prison inmates, and chronically ill, the resistant strains are now infecting healthy children, athletes and others with no hospital connections. This is considered to be a "new bug" – different from the hospital strain, and more dangerous than other staph. At high risk are those who get cuts and scrapes and who share close quarters and items such as soap and towels.

## **SMART TAGS**

Marlin Mickle, a University of Pittsburgh electrical engineer, has developed a “smart tag” – a Product Emitting Numbering Identification – PENI that is a passive radio-frequency identification tag. The tags are brainier than bar codes, hold more information, can relay information faster, and do not need to be passed under laser readers. The tags talk with scanners using radio waves and relay information stored on them.

## **DATABASE OF SCIENCE RESOURCES**

**Smart Money: Education and Economic Development** is a report from the Economic Policy Institute (EPI) that says the continued funding in education is a powerful catalyst for future economic growth. To be found at [www.epinet.org](http://www.epinet.org).

**No Child Left Behind: A Toolkit for Teachers**, a publication re-released by the Department of Education that clarifies what it means to be highly qualified”. The revised edition is available at [www.ed.gov/teachers/nclbguide/nclb-teachers-toolkit.pdf](http://www.ed.gov/teachers/nclbguide/nclb-teachers-toolkit.pdf)

**Water on Tap: What You Need to Know** A free publication from EPA about how water is kept clean, where it comes from, and how to compare different kinds of water treatment devices. Online at [www.Pueblo.gsa.gov/cic\\_text/health/watertap/ontap.html](http://www.Pueblo.gsa.gov/cic_text/health/watertap/ontap.html)  
Or by calling 1-888-878-3256 or send your name and address to Water on Tap, Pueblo, CO 81009.

**GeoPlayer Mars Program** – from Geobusters, Inc. allows you to explore the red planet, fly through valleys and over craters on desktop PCs and lap-top computers. A 3-D interactive Mars demo. Download the 32MB at [www.geofusion.com/MarsDemo](http://www.geofusion.com/MarsDemo).

**Ride the Rock Cycle game** – for grades 5-6 to help students understand how a rock can move through different stages of the rock cycle. Online at [www.geologyonline/museum/state.il.us/tools/lessons/6.4/lesson.pdf](http://www.geologyonline/museum/state.il.us/tools/lessons/6.4/lesson.pdf)

**Smithsonian: Spotlight on Science** A weekly e-newsletter featuring the Institute scientists’ latest research and ongoing work including biodiversity and human cultures. Read online at [www.2.si.edu/research/spotlight](http://www.2.si.edu/research/spotlight)

**Stepping Up to Science and Math: Exploring the Natural Connections.** For K-4 teachers. Compiles 21 articles from NSTA’s award winning elementary school journal, Science and Children. Each article is labeled by grade level, skills and concepts addressed, and standards covered. The 180-page book is \$15.96 for members, \$19.95 for non-members of NSTA.

**Cornell University Library.** Collections open to the public. Catalog at <http://catalog.library.cornell.edu/>

**How Volcanoes Work.** Many references/websites with information about volcanoes and their eruptions. [http://www.geology/sdsu.edu/how\\_volcanoes\\_work/SideIndex.html](http://www.geology/sdsu.edu/how_volcanoes_work/SideIndex.html)

**Global Warming: Early Warning Signs** – A curriculum guide for high school courses, focusing on the society-environment interface. Developed by the Union of Concerned Scientists to accompany the world map [www.ckimatehotmap.org](http://www.ckimatehotmap.org)

## 2004 CALENDAR OF EVENTS

### NSTA's 2004 FALL CONVENTIONS

**Nov. 4-6**, Indianapolis, IN – “Racing Toward Excellence”

**Nov. 16-18**, Seattle, WA – “Soaring to New Heights in Science” \*

**Dec. 2-4**, Richmond, VA – “Journey Into Science”

Information at [www.nsta.org/conventions](http://www.nsta.org/conventions)

\* Linking Science and Literacy in the Classroom. A highly focused professional development topic event, in conjunction with the Seattle convention. Nov. 17, 2004, 8:30am-4:30pm Enrollment limited to 300. Cost \$65 includes lunch. Teachers must also be registered for the Seattle Convention.

**November 6, 2004** – The new Children’s Museum Opens with many new exhibits, a large Café and interactive art works. 412/322-5058

**PAEE Conference Nov. 11-14.** “Digging Deeper Into the PA Standards for Environment & Ecology”. Genetti’s Hotel & Conference center, Wilkes-Barre, PA Contact 3400 Discovery Road, Petersburg, PA 16669.

**NOW through June 2005 – Carnegie science Center – “Forces of Nature” .**

**November 18-19** - Energy in Schools Conference, Marriott Hotel, Albany NY. Contact Chris Mason 413/774-6051, Ext. 21 or 877/447-6527

**PSTA Annual Conference Dec. 2-3, 2004.** Hershey Lodge and Convention Center, Hershey, PA 717/533-3111

**HHMI’s 2004 Holiday Lectures on Science. “Science of Fat”.** Webcast live Dec. 2 and 3 at 10:00am ET. On demand after Dec. 7 at [www.holidaylectures.org](http://www.holidaylectures.org)  
Free on DVD and video April 2005.

**Looking Ahead: 2005**

**February 10-12** - NASTS – 20, Holiday Inn Harbor, Baltimore, MD – now the International Association for Science-Technology-Society (STS)

**March 31-April 3** - NSTA National Convention, Dallas, TX

## DIRECTIONS

**Claim Your Tax deduction:** Congress has extended the \$250 tax deduction for out-of-pocket classroom expenses incurred by teachers and paraprofessionals for the 2004 and 2005 tax years.

**Calling on “Young Inventors”** for students in grades 2-8 and their teachers. Invent a tool and win prizes. Each student who enters an idea will receive an entry gift, a personalized certificate, and a chance to win \$10,000 in savings bonds. Deadline for entries is March 15, 2005. Call 1-888-494-4994 or e-mail [younginventors@nsta.org](mailto:younginventors@nsta.org) to receive entry materials.

**Ripley’s Freaky Friday** – a free educational tool for JHS science and technology teachers; an online classroom companion program – designed to make learning about science and technology fun. Runs every week for 10 weeks from Sept. 17-Nov. 19. Support materials and a guided discussion group. More information or pre-register by sending email to [steveokeefe@epals.com](mailto:steveokeefe@epals.com)

**Free Membership in the American Institute of Aeronautics and Astronautics Educator Associate program** for K-12 educators: materials, financial resources, classroom experiences to improve students’ scientific literacy and advance the arts and science of aerospace. Apply [www.aiaa.org/education/index.hfm?edu=18](http://www.aiaa.org/education/index.hfm?edu=18)

**Call for Papers – Science Activities**, a quarterly science education journal seeks articles that describe teacher-tested projects, experiments, and curriculum ideas. Especially interested in hands-on activities that promote inquiry. For guidelines contact Cheri . Williams, Managing Editor, Science Activities, 202-296-6267 ext.1230 or email [sa@heldref.org](mailto:sa@heldref.org) Website is [www.heldref.org](http://www.heldref.org)

**Forces of Nature.** Opens at the Carnegie Science Center’s Rangos Omnimax Theater – until June 2005 [www.CarnegieScienceCenter.org](http://www.CarnegieScienceCenter.org) or call 412/237-3400

**Spaced out Project.** The world’s largest scale model of the Solar System – planned for 18 sites in the U.K. Not all bodies in the Solar System will be featured, but some larger asteroids will be incorporated. Due for completion in March 2005. Full details at [www.spacedout-uk.co.uk](http://www.spacedout-uk.co.uk)

**NSTA celebrates its 60<sup>th</sup> anniversary this year!** The elementary edition of Science Class focuses on Our Evolving Earth. For news see [http://science.nsta.org/enewsletter/2004-10/news\\_stories\\_elementary.htm](http://science.nsta.org/enewsletter/2004-10/news_stories_elementary.htm)

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**Drive a Mars Rover**

NASA has a website with an interactive program that enables the chance to drive NASA's Mars Rovers, Spirit and Opportunity, across the red planet. Frequently updated site with the latest pictures and data from Mars. Also animations and Martian trivia. See [www.nasa.gov/externalflash/m2k4/driveover/frameset.html](http://www.nasa.gov/externalflash/m2k4/driveover/frameset.html)

**Science, Math & Technology Competition**

eCYBERMISSION is a free web-based science, math and technology competition for students in grades 6-9. Student teams identify a problem in their community that is related to either Health and Safety, Arts and Entertainment, Sports and Recreation, or the Environment. Selecting a real-life problem encourages self-discovery and illustrates how science, math and technology apply to everyday life. Teams are encouraged to collaborate using discussion forums, chat rooms and instant messaging. Teams submit a Mission Folder – a write-up of their project and attached files - via the web to complete their entry. Teams must have 2-4 members from the same grade level; all schools are eligible. Each team must have an adult Team Advisor.

- 64 Regional Criteria Team Winners = \$2,000 Savings Bond per student
- 32 Regional First & Second Team Winners = \$3,000 Savings Bond per student
- 4 National Team Winners = \$5,000 Savings Bond per student
- 12 National Finalists = \$3,500 Savings Bond per student

All students receive a T-shirt and Certificate of Commendation

The competition officially begins September 1, 2004. Teams can register from that day to December 15, 2004 by visiting [www.ecybermission.com](http://www.ecybermission.com)  
Deadline for submitting a Mission Folder is February 21, 2005.

For further information visit the site above or e-mail [missioncontrol@ecybermission.com](mailto:missioncontrol@ecybermission.com)

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**Follow the Cassini Mission**

The Cassini orbiter and the Huygens spacecraft reached Saturn July 1, 2004. The orbiter will orbit Saturn and its moons for four years. The probe, Huygens, will dive into the murky atmosphere of Titan and land on the surface, providing scientists with vital data to help understand that mysterious, vast region.

You can build your own Cassini-Huygens spacecraft. Further information can be found at <http://nasaexplores.com/extras/cassini> Two paper model plans can be found at <http://saturn1.jpl.nasa.gov/kids/activities-model-challenge.cfm>

(note: both are challenging)

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**The International Union of Geological Sciences (IUGS)** has selected an International Year of Planet Earth titled “ Earth Sciences for Society in the Period 2005-2007”. This

effort will be a joint initiative with the United Nations, UNESCO, and others. Topical research themes include:

Water for a Thirsty Planet  
Disaster Mitigation  
Earth and Health  
Earth and Climate  
Mineral and Energy Resources  
Oceans and Coasts  
Megacities

An outreach program will focus on education in the Earth Sciences. For information see [www.iugs.org](http://www.iugs.org)

### **Send Rocks**

Students can send rock samples from their region of the world to NASA scientists for help in understanding the red planet. NASA will use a special tool like the one on the Mars Rover to tell what your rock is composed of – and then students/teachers can make comparisons of their rocks to the ones on Mars. NASA will post a picture of your rock on the web and give you a report of what kind of rock it is, send an official certificate and Mars sticker. See [www.marsprogram.jpl.nasa.gov/rockworld](http://www.marsprogram.jpl.nasa.gov/rockworld)

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### **Earth Science Week Celebration**

“Living on a Restless Earth” is the theme of this year’s Earth Science Week October 10-16, 2004 with a focus on the dynamic processes that affect our Earth and may even affect our community. The American Geological Institute and a main sponsor, U.S. Geological Survey, are producing materials and resources for teachers. 204 Earth Science Week information kits cost \$4.95 and include posters, bookmarks, classroom activities, and interactive CDs – for elementary-college – to help you plan your own celebration. To order a kit and subscribe to a free Earth Science Week newsletter see [www.earthscienceweek.org](http://www.earthscienceweek.org)

**International Task Force** – NSTA President Anne Tweed has established this task force, led by Michael Padilla, President Elect. The charge is to investigate and recommend a strategic plan in support of an enhanced international role for NSTA. To learn more visit: <http://science.nsta.org/enewsletter/2004-10/international.html>

**World Year of Physics** – for information visit <http://www.physics2005.org>  
E-mail [vinya@aps.org](mailto:vinya@aps.org) for information about receiving the Newsletter with information about:

Reduced Gravity Competition  
Physics on the Road Grants  
PhysicsQuest sign-up  
Rocket Contest  
Physics Talent Search

Recreating Earth's Measurement  
And more – from [sathyash@aps.org](mailto:sathyash@aps.org)

**Our Evolving Earth – from NSTA Science Class**

**As NSTA celebrates its 60<sup>th</sup> Anniversary**

Instead of dry, dusty naming of rocks - find ways to stimulate student interest in our planet and what it can teach us.

Our Evolving Earth in the News – <http://www.nsta.org/mainnews> for article summaries.

For more information: [http://science.nsta.org/enewsletter/2004-10/news\\_stories\\_elementary.htm](http://science.nsta.org/enewsletter/2004-10/news_stories_elementary.htm)

**For information usually found in the PRECOSEP insert,  
please visit:**

[www.sacp.org](http://www.sacp.org)

[www.ssp-pgh.org](http://www.ssp-pgh.org)

**Thanks to our contributors:**

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- ❖ PPG Industries Foundation
- ❖ Spectroscopy Society of Pittsburgh/Society of Analytical Chemists of Pittsburgh (SSP/SACP)
- ❖ University of Pittsburgh
- ❖ Western PA Unit – Herb Society of America



The Pennsylvania NASA Educator resource Center continues to distribute a variety of NASA resources provided through the Goddard Space Flight Center. These include posters, lithographs, bookmarks, teacher guides, and fact sheets. Videotapes are available for viewing and copying, All resources are FREE (except for postage charges for large quantities).

Contact Jane Konrad, Director, for help with resources and workshop plans. 412/648-7315 or email [konrad@pitt.edu](mailto:konrad@pitt.edu) See the Math/Science Collaborative Journal for a listing of scheduled MARS workshops this summer.

To locate NASA resources available online visit [www.pitt.edu/~nasa](http://www.pitt.edu/~nasa) Many can be downloaded for your use.

## **Mid-Atlantic Regional NASA Spacegrant Meeting**

In September, NASA affiliates attended a Regional Mid-Atlantic NASA Spacegrant Meeting at the University of Delaware. Bob Gabrys, Goddard Space Flight Center – Education Programs Office, outlined the new areas of focus for NASA and encouraged active participation in attracting a stronger workforce in STEM careers. Affiliates discussed opportunities for NASA related programs during the coming year.



Robert Gabrys and Jane Konrad



L-R Lisa Brown, Dir. PA NASA Spacegrant Consortium, Susan Finger, CMU, Charylene Philp, NoCentral Math/Science Colaborative, Jane Konrad, PA NASA ERC, U. Pittsburgh

## **Triple E Seminars for Elementary Teachers**

Jane Konrad presented a session on the Mars Rover Exploration , “ Looking for Evidence of Past Water Activity – Comparing the Geology of Earth and Mars” at the Triple E Seminars sponsored by the DOE – Bruceton, PA. Thirty one elementary teachers attended.

Look for a December workshop announcement coming soon---expanding the session on Meteorites - Antarctica given by Robert Witkowski at the seminar. Sample give-aways were enthusiastically received.