

September 22, 2008

THE HEAD'S PERSPECTIVE

Hurricanes, and Weather and Climate Leaders Call on Washington to Better Protect the Nation from Climate Change and Severe Weather

This has been an active hurricane season in the Atlantic. "The 2008 Atlantic hurricane season has produced 10 storms so far, from Arthur to Josephine. Seven of those storms have struck the United States -- in a row. Those seven are the most consecutive named storms to hit the United States" (www.weather.com). The seven storms are Tropical Storm Cristobal, Hurricane Dolly, Tropical Storm Edouard, Tropical Storm Fay, and Hurricanes Gustav, Hanna and Ike. And the hurricane season isn't over yet.

Last month, weather and climate leaders called on the government to better protect the nation from climate change and severe weather. "Eight leading professional organizations in the field of weather and climate today called on the next administration and Congress to better protect the United States from severe weather and climate change. They issued five recommendations to reverse declining budgets and provide needed tools, information, and leadership to decision makers. The recommendations and supporting information have been provided to the presidential campaigns of John McCain and Barack Obama." (AMS Press Release, Aug. 19, 2008; <http://www.ametsoc.org/amsnews/2008weatherandclimateleaders.pdf>). The full report (<http://www.ucar.edu/td/transition.pdf>) contains five major recommendations and includes an estimated investment of \$9 billion dollars from 2010-2014:

1. *Observations.* Fully fund the nation's Earth observing system from satellite and ground-based instruments as recommended by the National Research Council.
2. *Computing.* Greatly increase computing power available for weather and climate research, predictions, and related applications.
3. *Research and Modeling.* Support a broad fundamental and applied research program in Earth sciences and related fields to advance present understanding of weather and climate and their impacts on society.

4. *Societal Relevance.* Support education, training, and communication efforts to use the observations, models, and application tools for the maximum benefit to society.
5. *Leadership and Management.* Implement effective leadership, management, and evaluation approaches to ensure these investments are done in the best interest of the nation.

"Given the costs of weather and climate disasters, we believe these are wise and critical investments," says John Snow, co-chair of the Weather Coalition and dean of the College of Atmospheric and Geographic Sciences at the University of Oklahoma."

UPCOMING MEETINGS

Wednesday, September 24

- Graduate Committee, CIVL 2201 (9:30 a.m.)

Friday, September 26

- ATMS Tea, CIVL 2201 (2:30 p.m.)

EAS SEMINAR

Thursday, September 25, at 3:30 p.m. in CIVL 1252: "Tsunamis: What We Have Learned." Emile Okal, Northwestern University

Refreshments at 3 p.m. in CIVL 2201

For more information, see the EAS online [calendar](#).

THESES DEFENSE

Wednesday, September 24, at 12 p.m. in CIVL 2201: "Characterization and Analysis of a Natural Wetland Receiving Agricultural Runoff." MS Defense by Linda Sylvester

OUR RECENT PUBLICATIONS

Singh, N., S.G. Bajwa, and I. Chaubey. 2008. Removal of surface reflectance from above-water visible-near infrared spectroscopic measurements. *Applied Spectroscopy* 62(9)1013-1021. (The abstract of this article can be obtained from the following link: <http://as.osa.org/abstract.cfm?uri=as-62-9-1013>.)

RECENT PRESENTATIONS

On September 10 and 11, Gabe Bowen and postdoc Casey Kennedy attended the annual National Geospatial Intelligence Agency academic research symposium in Washington DC. They learned about all kinds of interesting and unexpected research being supported by NGA, and Casey gave a short presentation on his ongoing work entitled, "Geographic and Seasonal Variation in Stable Isotope Ratios of Tapwater."

On September 18, Brenda Beitler Bowen gave an invited seminar in the IUPUI Department of Earth Science colloquium entitled: "How to Make a Martian Sedimentary Rock: Lessons from Earth Analogs."

Gabe Bowen presented a talk entitled, "Using Stable Isotopes to Assess Spatial Connectivity in Human-Environmental Systems: Background States, Climate Change Effects, and Human Travel and Trade" at Western Michigan University on September 26. The seminar was jointly sponsored by the Biological Science and Geosciences Departments.

FROM OUR BUSINESS OFFICE

Recent Proposals (April-August 2008)

Beitler Bowen, Brenda: Petrological and Petrophysical Characterization of the Mount Simon Sandstone and Eau Claire Formation in Support of Phase III Sequestration Evaluation. Indiana University – \$114,259

Beitler Bowen, Brenda: Acid Saline Lake and Dune Deposition, Diagenesis, and Fossil Preservation: Using Modern and Ancient Analogs to Understand Mars. NASA – \$497,103

Beitler Bowen, Brenda: Depositional and Diagenetic Heterogeneities of the Mt. Simon Sandstone and Eau Claire Formation. Indiana Geological Survey – \$112,871

Benes, Bedrich; Gurney, Kevin R.: Development of CO2VIZ: A Visual Analytics System for the VULCAN Data Product. NSF – \$464,051

Bowen, Gabriel J.; Bowen, Brenda: Collaborative Research: Dynamics of PETM Climate, Water Cycle, and Ecological Change: Constraints from New Localities in Central Utah. NSF – \$309,091

Caffee, Marc; Granger Darryl E.; Muzikar, Paul: Facility Support: The Purdue Isotope Measurement Laboratory. NSF – \$3,796,111

Cushman, John H.: Modeling the Hydrology of Desiccation and Cracking of Shrinking Porous Media. NSF – \$345,520

Diffenbaugh, Noah; Bowen, Gabe; Bowling, Laura; Chaubey, Indrajeet: Climate, land use, and water quality: Improved understanding of storages, pathways, and extreme events. EPA – \$800,000

Filley, Timothy R.: Effects of Temperate Deciduous Tree Biodiversity on Biogeochemistry of Soil Organic Carbon. Ohio State University/NSF – \$56,154

Flesch, Lucy M.; Cushman, John: Using Microcontinuum Theory to Understand the Large-scale Continental Lithospheric Deformation. NSF – \$319,704

Freed, Andrew: Identification of Postseismic Transients in PBO GPS Time-Series. NSF – \$160,318

Gilbert, Hersh; Flesch, Lucy: Collaborative Research: Walker Lane Integrated Geological and Geophysical Lithospheric Experiment (WIGGLE). NSF – \$535,308

Granger, Darryl E.: An Isochron Method for Burial Dating with Cosmogenic Nuclide: Application to River Incision in Southern Africa. NSF – \$301,935

Gurney, Kevin R.: CAREER: A Highly-Resolved, Process-Driven Fossil Fuel CO₂ Inventory to Advance Carbon Science, Climate Science, Decision Making and Education. NSF – \$647,073

Haase, Jennifer: Renewed Funding: Update to the Evansville Urban Seismic Hazard and Liquefaction Hazard Maps. USGS – \$22,600

Haase, Jennifer; Nowack, Robert; Ramirez Julio: Evansville PSHA and Earthquake Scenarios in Support of Earthquake Training Exercises. USGS – \$69,053

Harshvardhan: Analysis of Marine Stratus Clouds to Assess the Adiabatic Cloud Model for Aerosol Indirect Effect Studies. DOE – \$355,306

Lasher-Trapp, Sonia G.: Entrainment, Ultragravit Particles, and Warm Rain Formation in Trade Wind Cumulus. NSF – \$20,806

Lasher-Trapp, Sonia G.; Trapp, Robert J.; Baldwin, Michael; Riggs, Eric; Weaver Gabriella: The Application of a Successful Research-based Laboratory Model to Atmospheric Science. NSF – \$150,000

Michalski, Greg: Nitrogen Cycling in the McMurdo Dry Valley Lakes: A multiple isotope approach. NSF – \$495,218

Michalski, Greg: Assessing the Sources of Coal Bed Methane in Lignite Deposits in Rajasthan, India, using Stable Isotope and Molecular Techniques. American Chemical Society – \$100,000

Michalski, Greg; Niyogi, Devdutta: Improved Assessment of HNO₃ and Particulate Transformation in Midwestern United States

using Isotopic and Agricultural Air Quality Model Analysis. USDA – \$400,000

Nowack, Robert: Travel Support for Robert Nowack to Participate in the Nuclear Explosion Monitoring BAA09 Seismic Merit Review Panel. U.S. Department of Energy – \$1,380

Ridgway, Kenneth D.: Collaborative Research: The Role of Crustal Heterogeneity in a Long-Lived Collisional Zone: Development of the Modern Denali Fault System. NSF – \$215,953

Riggs, Eric; Haghghi, Kamyar; Sadowski, Mary; Sahley, Christie; Staver, John: Purdue Robert Noyce Scholars: Excellence in Rural High School STEM Teacher Education. NSF – \$749,613

Trapp, Robert J.; Baldwin, Michael; Diffenbaugh, Noah; Gluhovsky, Alexander: Resolving Complexity in Global Predictions of Local-Scale Hazardous Weather. James S. McDonnell Foundation – \$442,505

Tung, Wen-wen: CAREER: Quantifying the Predictability of Multiscale Convection-Coupled Tropical Variability-toward improved understanding and prediction from weather to climate scales. NSF – \$430,847

Recent Awards (January-August 2008)

Baldwin Michael; Trapp, Robert J.: An experimental, real-time prediction system for high-impact convective weather events. UCAR/NOAA – \$46,404

Bowen, Gabriel J.: Geographic and seasonal variations in stable isotope ratios of water. U. of Utah/DOD – \$71,817

Bowen, Gabriel J.; Miller, Christopher; Zhao, Lan; Zhang, Tonglin: Enabling end-to-end Geospatial Data Modeling Workflows via INPort: The Isotope Networks. NSF – \$831,573

Braile, Lawrence W.: REU Site: Summer of Applied Geophysical Experience (SAGE). NSF – \$525,000

Gilbert, Hersh: Collaborative Research: Structure of the Nazca Slab and Sierras Pampeanas. NSF – \$158,612

Gurney, Kevin R.: Exploration of the mechanistic relationship between improved regional North American inverse carbon fluxes and climate variability/trends. Northern Arizona University/NICCR – \$341,945

Gurney, Kevin R.: Resolving Net CO₂ Exchange in the Mid-Continent Region of North America by Comparing and Reconciling Results from Inverse Modeling and Inventory-Based Approaches. Colorado State University – \$20,551

Haase, Jennifer: SGER: Antarctic GPS radio occultation profiling from stratospheric balloons. NSF – \$133,793

Haase, Jennifer: SGER: Flight Tests and Validation of the New HIAPER GISMOS Radio Occultation System. NSF – \$78,876

Harshvardhan: Improving Vertical Profiles of Biomass Burning Emissions Using Satellite Observations and Numerical Modeling. NASA/NESSF08 – \$30,000

Haq, Saad S. B.; Flesch, Lucy: Extensional Deformation in Convergent Systems. NSF – \$211,874

Niyogi, Devdutta; Shepardson, Daniel: Making Sense of Global Warming: Model of Student Learning Via Collaborative Research. NSF – \$378,207

Nowack, Robert L.: Frequency-Dependent Characteristics of Regional Seismic Phases: Propagation of Pn in Western China. Air Force Research Laboratory – \$338,261

Nowack, Robert L.: Travel Support for Robert Nowack to Participate in the Nuclear Explosion Monitoring BAA09 Seismic Merit Review Panel. U.S. Department of Energy – \$1,380

Shepson, Paul: Douglas Martins, Fellowship. Bisland, Winifred B. Endowment – \$18,935

Trapp, Robert J.: Collaborative Research: Multi-scale and Multi-Platform Study of Tornadoes, Supercell Thunderstorms, and their Parent Environments in VORTEX2. NSF – \$57,768

Tung, Wen-wen: Collaborative Research: Quantifying predictability in nonlinear multiscale systems with application to tropical cyclone prediction. NSF – \$180,000

Zhuang, Qianlai: Quantifying Climate Feedbacks from Abrupt Changes in High-Latitude Trace-Gas Emissions. USDOE – \$90,000

ATMS TEA

For the ATMS tea on Friday, September 26 (CIVL 2201; 2:30-3:30 p.m.), Dr. Harshvardhan will lead a discussion on a recent article by Knox (*BAMS*, June 2008) regarding trends in U.S. enrollment in meteorology programs, number of degrees awarded, and employment.

ITAP NEWS

Last chance to buy into Steele cluster

ITaP secured very attractive pricing earlier this year for Dell 1950 dual quad-core, 2.33 GHz machines for the Steele community cluster. Steele is almost at capacity, and RCAC is planning on placing our last order from the Dell bid by the end of September.

There is room for a few nodes in Steele "A" (16GB memory machines with 160GB hard drives and Gigabit Ethernet connections) or Steele "D" (32GB memory machines with 160GB hard drives and both Gigabit Ethernet and InfiniBand connections) if anyone is interested in adding to or joining the Steele cluster. (There is an extra charge for the InfiniBand cards in addition to the node prices listed below.)

The available Dell 1950 configurations and prices are:

Name	Configuration	Price
16GB:	16GB memory, 160GB hard drive	\$2014.51
32GB:	32GB memory, 160GB hard drive	\$2881.17
CMS:	16GB memory, 2 1TB hard drives	\$2486.14
Login:	16GB memory, 2 160GB hard drives Redundant power supply	\$2120.38
NMI:	16GB memory, 2 1TB hard drives Redundant power supply	\$2556.04

If you have any questions or would like to place an order, please send e-mail to rcac-cluster-purchase@lists.purdue.edu. If placing an order, please include the quantity and configuration of the machines you would like to order, that you'd like to add the machines to the Steele Cluster, and the Purdue account number to which the order should be charged. We would like to have all the order information back by Monday, September 22nd, so we can place the order by the end of the month.

October is National Cybersecurity Awareness Month

The University's Information Technology Networks and Security group will host the third annual National Cybersecurity Awareness Month series of discussions. This year's events will focus on the security of mobile devices. See <http://www.purdue.edu/securepurdue/training> for event details.

Purchasing a Workstation

Q: I need to purchase a new workstation. What is recommended?

A: When purchasing a new workstation, EAS IT support recommends utilizing the discounts available at Purdue's SMARTcomputing website. There are offerings for both desktop and laptop systems.

The base desktop configuration is currently a Dell Optiplex 755 workstation with a 2.66GHz processor,

2GB memory, 80GB drive, and a 19" flat screen display for \$1040. Upgrades are available for many options.

The SMARTcomputing website may be found at: <http://www.purdue.edu/smartcomputing/hardwaresoftware.cfm>.

EAS is a participant in the Purdue campus-wide SMARTcomputing Program. This program will provide standardized support for deploying computers and maintaining up-to-date applications and security software. The program will allow each IT support unit to share software support tasks across the campus and is expected to make support more efficient. SMARTcomputing promotes purchasing a limited number of computer models, which will further enable EAS IT staff to provide more effective technical support and better turnaround time for hardware and software related issues.

Please contact the EAS IT support staff when considering a new computer purchase. We would be happy to assist with configuring a workstation which meets your needs and to help locate the best discounts.

EAS/PRIME LAB HOG ROAST

The annual EAS/PRIME Lab hog roast and bonfire is set for Saturday, September 27th, at the Grangers' house.

All undergrads, grads, faculty, and staff are invited. Family, friends, and kids are more than welcome. We will supply 100 pounds of spit roasted pig, plus some cornbread and fixings. We'll also smoke a few chickens for those who cannot eat pork. Please bring something to share. We plan on taking the pig off the spit around 5:30, and the bonfire will continue into the night. (I am told that this year we will be torching the old field camp toilet.)

We'll begin cooking on Friday night. If anyone wants to pitch in with the cooking, please contact Darryl Granger (dgranger@purdue.edu).

Directions: From West Lafayette, take 231 S across the river and turn right at State Road 25 W. Continue for about 3 miles (just past the gas station). Look for a white farmhouse on the left and a big red barn.

We hope to see you there!

A NOTE FROM OUR ACADEMIC COUNSELOR

Career and Internship Opportunities with the U.S. Department of State

Information Session on Friday, **September 26**, at 11:30 a.m. in GRIS 166. Brian Flora, Foreign Service Officer and U.S. Diplomat in Residence from the U.S. Department of Foreign Services will be discussing internships and career opportunities available with the U.S. State Department. This is a great opportunity for students who want to travel the globe and serve as a representative of the United States. U.S. citizenship required.

OLS Career Fair

September 30 from 10 a.m. – 3 p.m. in the PMU South Ballroom. For the list of companies, visit: http://www.tech.purdue.edu/ols/career/job_fair.cfm.

SEG Scholarship

Please see the flyer at the end of this newsletter with information about the scholarships and application from the Society of Exploration Geophysicists for graduate and undergraduate students. Applications are accepted now through February 1.

Reminder

Today, **September 22**, is the last day to drop a class with just student and advisor signatures.

Nancy

ABOUT THIS NEWSLETTER:

This weekly newsletter is the place to look to keep up with departmental happenings, announcements (seminars, student group events, scholarship and award deadlines, departmental committees), job and grant opportunities, and anything else you need to know about the department. It should cut down on the glut of email and other forms of separate announcements – **if it is in the newsletter, we assume you know about it** and no other reminders are needed. Past issues will be available on our departmental web site (www.purdue.edu/eas/). Material for inclusion in the newsletter should be submitted to Gina Richey (grichey@purdue.edu) by **Friday noon** of each week for inclusion in the Monday newsletter.

For answers to common technology questions and the latest updates from the EAS Technology Support staff, please visit <http://www.purdue.edu/eas/resources/it>.

Also, as an additional resource for information about departmental events, seminars, deadlines, etc., see our departmental calendar at <http://calendar.science.purdue.edu/eas/seminars>.



Scholarship Program Apply Online at: <http://foundation.seq.org>



Scholarship applications for the 2009–2010 school year will be accepted starting **1 September**. Applications must be accompanied by official transcripts and two letters of recommendation. Open to undergraduate or graduate students with above average grades.

2009/2010 school year funds September 2009 through July 2010. If you will graduate in or before September 2009, you are not eligible for a scholarship.

Related Links: [Scholarship Online Application](#)
[2008-2009 Scholarship Recipients](#)

In 1956 the Society of Exploration Geophysicists began a program of encouraging the establishment of scholarship funds by companies and individuals engaged or interested in the field of geophysics. SEG saw the need for a more appropriate organization and caused the SEG Foundation to be organized.

The number of scholarships available depends chiefly upon the number of sponsors and the amounts they contribute. For the 2008-2009 academic year, the Foundation awarded 176 scholarships totaling US\$484 545. This represented 83 renewals of scholarships to students on a continuing basis and 93 scholarships to recipients receiving grants for the first time. In addition to general scholarships, other scholarships are available to students who meet specific criteria.

Related Links: [SEG Scholarships Brochure \(474K PDF\)](#)

The amount of contributions ranges from a few dollars by individuals to as high as several thousand dollars by sponsors of full scholarships. The awards to recipients range from US\$500 to US\$14 000 per academic year, with average awards being approximately US\$2700 per academic year. The term of each scholarship is one academic year; however, some scholarships may be renewed based upon certain criteria and approval of the SEG Scholarship Committee.

Any recognized college or university which offers courses of study in applied geophysics or a closely related field may be chosen by the recipients, subject to requirements for admission and any restrictions specified by the sponsor of the scholarship.

Applications and supporting documents must be received by 1 March of the year in which the award is made.

If you have any questions about the SEG Scholarship Program, please contact the SEG Foundation at scholarships@seg.org or (918) 497-5500.

[Apply online](#)

[Download application form \(PDF\)](#)

The SEG Scholarship Committee selects the recipients of the awards. The committee is composed of eight members of the Society of Exploration Geophysicists, who are appointed by the Chairman of the committee. Members of the committee or members of the Foundation Board of Directors are not allowed to participate in the selection of recipients of awards sponsored by themselves or their companies.

Administration of each scholarship is turned over to the school attended by the recipient. The school retains custody of the funds, authorizing withdrawals by the student and remitting to the student any residual amount upon the satisfactory completion of the term of the scholarship. The school is requested to report the recipient's grades to the Foundation Office at the end of each semester.

A scholarship may be withdrawn and any unused balance refunded to the Foundation if:

1. The holder changes his or her college courses from those directed toward a career in applied geophysics to another field of study;
2. The holder enrolls in a different school and/or pursues a curriculum other than what he or she listed at the time of initial application, and no longer meets the requirements set forth by the sponsor of the scholarship;
3. The holder fails to remain in good scholastic standing; to this end, the holder must see that a report of his or her grades is furnished to the Scholarship Committee at the end of each semester;
4. The holder conducts himself or herself in such a way as to embarrass the Society of Exploration Geophysicists or the sponsor of the scholarship.

General requirements for eligibility:

1. A student must intend to pursue a college curriculum directed toward a career in applied geophysics or a closely related field, such as geosciences, physics, geology, or earth and environmental sciences.
2. A student must meet one of the following requirements:
 - (a) Attending high school and planning to enter college next fall;
 - (b) An undergraduate or graduate college student whose grades are above average.
3. Certain scholarships administered by the SEG Foundation may impose additional eligibility requirements, as set forth by the sponsors of those awards.