



# THE GEOLOGICAL SOCIETY OF AMERICA

## *Geoscience Education Division*

<http://gsaged.org/>

Summer 2007

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### **From Your Newsletter Editor**

Greetings everyone! I hope you are having a good summer, whether you be researching, teaching, or relaxing. After one of the most hectic school years I have ever encountered, I am taking some much-needed downtime this summer and only teaching one on-line course (albeit with 600 students enrolled). It has been wonderful thus far to work primarily from home and get caught up on the myriad things that took a back seat during the regular school year.

My university is currently revising its undergraduate general education curriculum, in response to our most recent accreditation review. Each academic department must certify its general education course offerings under new guidelines, which emphasize critical thinking, inquiry-based learning, and a variety of other learning dimensions, in our new Foundations of Knowledge Core Curriculum.

These general education courses are very important to our programs in Geography and Environmental Science & Policy. The courses not only provide a gateway to new majors in Geography and the Geosciences, but also generate significant student contact hours. This in turn generates money for our graduate programs in both majors.

As undergraduate program director, I spent much of this past school year marshalling through the certification of our gen. ed. courses. A key component to these approvals has been incorporation of Geographic Information Systems (GIS) exercises into the fabric of the courses, a tool which easily fulfills the criteria for developing both critical thinking and inquiry-based learning in students. As a "user" of GIS, and not a technical expert, I have been challenged well beyond my capabilities! But the reward has been rapid approval of our courses in the new curriculum, well ahead of other departments, giving us the opportunity to promote the Geosciences to new and current students.

As always, if you have items you would like included in the next newsletter, please e-mail them to me at [mhafen@cas.usf.edu](mailto:mhafen@cas.usf.edu).

Mark Hafen  
Department of Geography  
University of South Florida

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### **Chair's Message, Summer 2007**

Dear GED members,

I hope you all have had a pleasant spring and are looking forward to a good summer. It is hard to believe that the GSA Annual Meeting abstract deadline is approaching once again. As you begin to make plans for the meeting, I'd like to share an announcement pertaining to the Biggs Award, as well as several of the activities and events we have planned for this fall. I hope to see many of you at our technical and social events!

Starting in 2008, the Biggs Award for Excellence in Earth Science Teaching will become the GED's named award. Each GSA division is allowed one "named award," which is considered a GSA award; currently, the GED is the only Division established prior to 2001 that does not have a named award. The Division named awards are among the most prominent awards given by GSA. Recipients of the named awards are listed in the program for the presidential Address & Awards Ceremony at the Annual Meeting, and their photos and names are printed in *GSA Today* along with those of the GSA medal and award recipients. We believe that these changes will enhance the prominence of the award and serve to emphasize the importance of highest quality college geoscience teaching. Changes to the award

nomination deadlines and procedures will be posted on the GED webpage <http://gsaged.org/> and the GSA Division Award webpage <http://www.geosociety.org/aboutus/awards/divisions.htm> as they become available.

GED Events at the 2007 GSA Annual Meeting in Denver (dates and times to be announced):

- We are sponsoring a vibrant technical program in geoscience education. Please consider submitting an abstract to one of our GED-sponsored sessions. GSA now allows two volunteered abstracts, provided that one is a poster. The abstract deadline is July 10 at 11:59 pm Pacific Time. Please go to <http://www.geosociety.org/meetings/2007/> for more information or to submit your abstract.
- We are co-sponsoring the Geoscience Educators Social Reception - this will be a great opportunity to network with other geoscience educators.
- Please join us in honoring the 2007 Biggs Award and other award recipients at the NAGT-GED Awards Luncheon.
- The GED Business Meeting will be an opportunity to contribute to Division initiatives and socialize with other geoscience educators.
- We will be co-sponsoring the Share-a-thon booth, and Teacher Day. The Share-a-thon booth provides an opportunity to share your best teaching ideas, activities, and materials.

On behalf of the current management board, we are looking forward to seeing you in Denver.

Lastly, I would like to remind you to vote for our 2007-08 GED officers, including our new Second Vice-Chair. See the last page of this newsletter for the ballot, or vote online at <https://rock.geosociety.org/ballot/vote.asp?Name=ged>.

Cheers,  
Heather Petcovic  
2007 GED Chair

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## GSA Abstract Deadline Looming!

The deadline to submit abstracts for the GSA 2007 Annual Meeting in Denver is just around the corner! Abstracts must be submitted by July 10, 2007 (11:59 p.m. Pacific Time). Abstracts are to be submitted electronically via the GSA website at <http://www.geosociety.org/>.

There are again quite a few Geoscience Education-related sessions, many co-sponsored by GED. Below are some to which GED members can consider submitting abstracts:

**T43. Hydrogeological Research, Capacity Building, and Teaching in the Developing World. Oral:**

**Hydrogeology; Geoscience Education.** David K. Kreamer, Jonathan Levy

*Hydrogeological research and educational experiences in economically developing countries. Research emphasis on enhancing safe, sustainable drinking-water supplies. Educational emphasis on bringing students, faculty, and professionals together in the developing-world to advance understanding of water resource issues.*

**T62. Teaching Sedimentary Geology in the Twenty-First Century. Oral: Sediments, Clastic; Stratigraphy;**

**Geoscience Education.** GSA Sedimentary Geology Division; National Association of Geoscience Teachers; GSA Geoscience Education Division. Heather Macdonald, Thomas Hickson

*We encourage abstracts that showcase effective methods of teaching sedimentary geology in the classroom, laboratory, and field. This session will also present outcomes from the 2006 workshop "Teaching Sedimentary Geology in the Twenty-First Century."*

**T67. Understanding Mineral Resources: Educating the Public for Sustainable Mineral Resource Development. Oral: Economic Geology; Geoscience Education; Public Policy.**

Society of Economic Geologists; National Association of Geoscience Teachers; GSA Geology and Society Division. Judith L. Hannah

*How is minerals development portrayed in public education and the media? Explore ways for professional geologists and educators to work together to define realistic options for sustainable and environmentally sound mining in today's global economy.*

**T75. Tsunamis: Monitoring, Notification, Geology, Modeling, Education and Outreach: The State of the Art. Posters: Geophysics/Tectonophysics/Seismology; Geoscience Education; Public Policy.**

GSA Geophysics Division; GSA Geology and Society Division. Walter D. Mooney, Laura Kong, Annabel Kelly

*This session is open to all contributions concerning tsunami warnings, modeling, field research and public education. Experience gained in the Indian and Pacific Oceans, the Caribbean, and elsewhere is welcomed.*

- T119. *The Impact of Geoinformatics on Geoscience Research and Education.* Posters: Geoinformatics; Geoscience Education; Geophysics/Tectonophysics/Seismology.** GSA Geoinformatics Division; GSA Geoscience Education Division. Dogan Seber, Krishna Sinha  
*Discovery, integration and analysis of geoscience data is a prerequisite for a more comprehensive understanding of the Earth as a dynamic system leading to new paradigms in research and education.*
- T128. *Charting the Future of Geological and Environmental Science Undergraduate Programs.* Oral: Geoscience Education; Environmental Geoscience; Geoscience Information/Communication.** GSA Geoscience Education Division; National Association of Geoscience Teachers. Kristen E. St. John, S.A. Hovan  
*Discussion of the steps undergraduate geoscience programs are taking to define key variables, make pivotal decisions, and construct models for charting future successful paths for two- and four-year degree programs in an evolving academic world.*
- T129. *Teaching Climate Change and Energy Issues in the Classroom: An Imperative for Educated Citizens and Geoscientists.* Oral: Geoscience Education; Environmental Geoscience; Geoscience Information/Communication.** National Association of Geoscience Teachers; GSA Geology and Society Division; GSA Geology and Health Division; GSA Geoscience Education Division. George T. Stone, Andrew M. Buddington  
*Presentations will provide geoscience educators essential knowledge and methodologies for effectively communicating salient conclusions and predictions of climate change science and energy policy analysis in the classroom and the public arena.*
- T131. *Forensic Geoscience: Innovative Educational Strategies for Attracting Students to the Geosciences.* Posters: Geoscience Education; Geoscience Information/Communication; Public Policy.** GSA Geoscience Education Division. Elisa Bergslien  
*Innovative ways of attracting students, especially urban students, to geoscience. A chance for those with experience teaching forensic geoscience, or similar courses, to share information about what does and does not work in the classroom.*
- T132. *Innovative, Inquiry-Based Approaches that Bring the Field into the Classroom: Moving from Virtual Tour to Virtual Fieldwork.* Oral: Geoscience Education; Geoscience Information/Communication; Public Policy.** GSA Geoscience Education Division. Don Duggan-Haas, Robert M. Ross  
*Most virtual field trips are tours in which teachers point things out. This session focuses on virtual experiences that mimic actual fieldwork in which students figure things out through exploration, inquiry-based discussion and problem solving.*
- T133. *Innovative Approaches to Injecting Controversial Topics from the History of Geology into Today's Geoscience Education.* Oral: Geoscience Education; History of Geology.** GSA Geoscience Education Division; GSA Geology and Society Division. James H. Wandersee, Renee M. Clary  
*Investigates potential and actual impacts on students' geology learning resulting from innovative approaches to injecting controversial topics from the history of geology into today's geoscience education—across all phases: Classroom, laboratory, field, and online.*
- T134. *Professional Development for the Professional Developers: Aspects of Effective Teacher Professional Development Programs in the Earth Sciences.* Oral: Geoscience Education; Public Policy; Geoscience Information/Communication.** GSA Geoscience Education Division; GSA Geology and Society Division. Eric J. Pyle, Don Duggan-Haas  
*How can a professional development program be designed to address the multiple and varied needs of teachers of earth science? This session will explore the contemporary knowledge of earth science teacher professional development.*
- T135. *Early Undergraduate Research Experiences.* Posters: Geoscience Education.** GSA Geoscience Education Division; Council on Undergraduate Research; National Association of Geoscience Teachers. Laura A. Guertin, Linda Reinen, Jill Singer  
*Research experiences in the first two years of college provide students skill sets needed to succeed in upper-level research. This session highlights classroom to independent research projects in community colleges to research institutions.*
- T136. *Involving Students with Little Science Background in Authentic Research: Challenges and Victories.* Oral: Geoscience Education.** GSA Geoscience Education Division; National Association of Geoscience Teachers. Prajukti Bhattacharyya, Joy Branlund  
*In this session, two- and four-year college educators will share ideas for fostering research done by introductory students. The small-group and panel discussion format will help participants explore the topic.*

**T137. *Involvement in Geological Research: Close Collaboration among the Faculty, Undergraduate and K–12 Students.* Posters: Environmental Geoscience; Geoscience Education; Geoscience Information/Communication.** GSA Geoscience Education Division. Nazrul I. Khandaker, Stanley Schleifer  
*For recruitment and retention of potential geoscience majors, faculty-supervised undergraduate and high school students involved in various aspects of geoscience topics are encouraged to present their applied research outcome to the diverse geoscience community.*

**T138. *Learning in the Field: Effective Strategies for Teaching Undergraduate Geology Outside the Classroom.* Oral: Geoscience Education.** GSA Geoscience Education Division; National Association of Geoscience Teachers. Jacqueline A. Smith, John I. Garver  
*We encourage presentations that explore approaches to teaching geology through field-based learning. Of particular interest are local projects linked to primary course objectives, sequences of projects with a common focus, and stand-alone thematic excursions.*

**T139. *The Future of Geoscience Field Courses.* Oral: Structural Geology; Geoscience Education; Geomorphology.** GSA Structural Geology and Tectonics Division; GSA Geoscience Education Division; National Association of Geoscience Teachers, GSA Geophysics Division, GSA Quaternary Geology and Geomorphology Division. Steven J. Whitmeyer, L. Scott Eaton, Charles Onasch, Lee J. Suttner  
*This session will focus on future directions of geoscience field camps. Principal themes will include traditional goals of teaching field geology and mapping, recent technological advances, and modern topics like geomorphology, geophysics, and environmental assessment.*

**T140. *Geosciences and Web 2.0—Blogs, Wikis, Podcasts, and Web Video.* Oral: Geoscience Information/Communication; Geoscience Education; Public Policy.** Ronald C. Schott  
*Professional geologists, geoscience educators, and interested amateurs explore the ways that "Web 2.0" technologies are currently being used, and how they might be leveraged in the future, to build richer online community in the geosciences.*

**T141. *Geology in the National Parks: Research, Mapping, and Resource Management.* Oral: Geoscience Education.** GSA Geology and Society Division. Bruce A. Heise  
*This session addresses the role of geoscience in the National Parks. Presentations are encouraged on geologic research, geologic mapping, paleontology, coastal geology, glacier studies, and resource management in National Parks, Monuments, Seashores, and Historic Sites.*

**T142. *Geology of Parks and Public Lands: Effective and Innovative Informal Earth Science Education for the Masses.* Oral: Geoscience Information/Communication; Geoscience Education.** National Park Service; Bureau of Land Management; Association of Earth Science Editors. Marion Malinowski, Jim F. Wood, Melanie V. Ransmeier, Monica Gaiswinkler Easton.  
*This session will explore programs and products (e.g., displays, publications, signs, Web sites, virtual and real field trips) for effective informal earth science education about the geology of parks, monuments, open spaces, and public lands.*

**T143. *Geoscience and the Community: An Exploration of Ways to Become Involved.* Oral: Geoscience Information/Communication; Geoscience Education.** GSA Geology and Society Division; American Geological Institute; GSA Geoscience Education Division; National Association of Geoscience Teachers. Michael A. Phillips, Linda Rowan  
*The geoscience perspective is often overlooked to the detriment of society. This session will present various ways geoscientists can promote our perspective through participation in the community and government with an emphasis on being proactive.*

**T144. *GeoScience Information: Making the Earth Sciences Accessible for Everyone.* Oral: Geoscience Information/Communication; Public Policy; Geoscience Education.** Geoscience Information Society. Claudette Cloutier  
*Informed decision making for a sustainable Earth depends on information being accessible to the public. Join us as we discuss how geoscience information is created, disseminated, organized, accessed, used, and archived.*

Kristen St. John  
James Madison University

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## GED Student Travel Grants

Students in geoscience education: Are you presenting at GSA this fall? This year, the Geoscience Education Division will offer several travel grants up to \$250 to student members who are presenting work at the 2007 GSA Annual Meeting in Denver. Grants will be awarded based on merit and financial need. To be eligible, you must be:

- A student member of GSA and the Geoscience Education Division in good standing – to join now, see <http://gsaged.org/> and click on “How Do I Join?”
- Presenting a poster or talk at the 2007 Annual Meeting in a geoscience education topical or discipline session.

To apply for the award, please send as a single email attachment:

- (1) Confirmation of your standing as a student member of the GED (member number)
- (2) A copy of your accepted abstract
- (3) A current CV, limited to 2 pages
- (4) A brief itemized budget and statement of your financial needs, including all other sources of funding.

Applications should be sent to Heather Petcovic at [heather.petcovic@wmich.edu](mailto:heather.petcovic@wmich.edu), and must be received by September 1, 2007 for consideration. Notification of grant status will be made prior to the September 24 registration deadline, and awards will be made following confirmation of attendance at the Annual Meeting. *Faculty, please direct your students' attention to this opportunity!*

Heather L. Petcovic  
Western Michigan University

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## Share Your Knowledge at GED Share-a-thon

At the Geological Society of America's 2007 Annual Meeting in Denver, the GSA Geoscience Education Division and the Education Committee will sponsor a Share-a-thon booth where items about education in the geosciences can be displayed and/or distributed.

The Education and Outreach department would like to invite each of you to consider contributing to the booth this year. Contributions can include lesson plans, activities, items to be handed out to visitors, informational brochures or posters, or even demonstrations for educators.

Please contact Chris McLelland at [educator@geosociety.org](mailto:educator@geosociety.org) if you would like to set up a time for a presentation or demonstration. We will set up a schedule of activities as the time approaches. We would appreciate it if groups or individuals would bring their items to the share-a-thon booth at the time of the meeting – there will be some room to store extra supplies of materials under the tables, and Chris will be restocking the booth as needed.

If you can't be at the meeting, we will be able to take a certain number shipments at headquarters and bring them over (please contact Chris about this as soon as possible). Thank you for your participation and enthusiasm!

Christine V. McLelland  
GSA Distinguished Earth Science Educator in Residence

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## Workshop at Carleton Prepares Pre-Service Teachers

As the focus on developing our nation's scientific workforce intensifies<sup>1</sup>, more geoscience departments are recognizing teacher preparation as an integral part of their work. Skilled geoscience teachers can excite and engage K-12 students in the geosciences, present geoscience as a rewarding career path, and ultimately contribute to a better understanding of key geoscience problems among the public. Our ability to achieve these goals starts with the quality of our teacher education programs.

To address the growing demand for better prepared teachers of earth science, twenty-three educators met at Carleton College (MN) May 10-12, 2007 to compare geoscience courses designed for pre-service K-12 teachers. This meeting was sponsored by the National Association of Geoscience Teachers, and funded by the National Science Foundation (grant EAR-0304762).

The workshop had three main goals: (1) build a community of educators involved in K-12 geoscience teacher preparation, (2) examine the spectrum of ways in which geoscience teacher preparation courses are designed, and (3)

compile and publish course descriptions and peer-reviewed course activities in a format accessible to other educators. The workshop program, course and activity collections, and summary documents are available at the workshop website: <http://serc.carleton.edu/teacherprep/workshops/workshop07/index.html>.

While there was wide variety in the format and content of the courses discussed at the workshop, several common themes emerged that participants identified as particularly important in supporting future teachers:

- A central focus on understanding what science is and how it is done, either through course activities or authentic investigations.
- An emphasis on the relevance of geoscience learning. The importance of relevance as a motivator for learning is widely recognized<sup>2</sup>. Teachers in particular need a deep understanding of relevance to motivate their own students.
- Focused course content that is purposefully chosen to align with state and/or national science standards so that future teachers become aware of what they are expected to teach.
- Opportunities for students to reflect upon the process of their own learning (metacognition). Developing metacognition is a critical step in enabling independent learning<sup>2</sup>, a fundamental skill for teachers who need to stay current in both science and pedagogy.
- A learning environment that increases students' confidence in their abilities to both learn and teach science. A lack of confidence is known to hinder science teaching particularly at the elementary level<sup>3</sup>.
- Instruction that allows students to make a connection between the content they are learning and the ways in which they will teach it in the future.

Participants took steps to continue building a community of K-12 geoscience teacher educators. Priorities established by participants included: updating and maintaining the Teacher Preparation website and list-serve, authoring a white paper and report on the importance of preparing future geoscience teachers, proposing a special issue of the *Journal of Geoscience Education* related to teacher preparation, and pooling resources to clearly ascertain best practices in geoscience teacher preparation.

If you teach or plan to teach geoscience to future teachers and would like to join our list-serve, please visit the website.

#### References:

<sup>1</sup>National Academy of Sciences, 2007, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academies Press, Washington, D.C.

<sup>2</sup>National Research Council, 2000, *How People Learn*, National Academy Press, Washington, D.C.

<sup>3</sup>Tilgner, P.J., 1990, Avoiding science in the elementary school, *Science Education*, v. 74, p. 421-431.

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\*Scott Linneman, Geology Department, Western Washington University, Bellingham, WA

\*Cathy Manduca, Science Education Resource Center, Carleton College, Northfield, MN

\*indicates workshop co-convener

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## New England NAGT Annual Meeting

The New England Section of the NAGT is organizing its annual meeting and conference, "Sharing Best Practices in Geoscience Teaching," to be held October 13, 2007 at Manchester Community College, Manchester, CT.

The meeting will include talks, workshops, field trips, and lunch with a speaker. Abstract submissions were encouraged from the following theme areas:

- 1) Teaching K-12 Geosciences
- 2) Teaching Undergraduate Geosciences
- 3) Teaching with Local Geology & Environment

The conference website is: <http://www.nagt.org/nagt/organization/new-england/index.html>. CEUs will be available for K-12 teachers who attend. We will send out registration announcements by September 1, 2007.

Christine Witkowski  
NAGT-NE Vice President, Conference Program Coordinator



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## Cindy Fong Is Shining Star

Cindy Fong received the 2007 AstroDay Excellence in Teaching Award for K-16 educators on April 21, 2007, during AstroDay 2007 at the Prince Kuhio Mall in Hilo, Hawaii. Cindy Fong teaches 8th grade Earth and Space Science as well as being the Robotics Club Advisor at Hilo Intermediate School, Hilo, Hawaii. The AstroDay web site can be found at <http://astroday.net/>.

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## Gibsons Sponsor Week of Science

Husband and wife team Betty and Gail Gibson are doing a "week of science" program (Minerals & Rocks, Volcanoes & Earthquakes, and Dinosaurs) for grades 1-5 at Mill Springs Academy in Alpharetta, GA, beginning 14 May 2007. The largest class size is 8, so opportunities abound for involved learning by the students. Betty and Gail have a trailer-load of microscopes and telescopes being transported, and the back of their Suburban will be full of hands-on & show-and-tell items.

*[Editor's Note: The GED Newsletter anxiously awaits a write-up of their experiences!]*

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## Atwater to Address Ancient Tsunami

Geoscientists from Illinois and beyond are invited to hear Dr. Brian Atwater deliver his IRIS/SSA Distinguished Lectureship presentation on *The Orphan Tsunami of 1700 - A Trans-Pacific Detective Story* at Waubonsee Community College in Sugar Grove, IL. The lecture will take place on Wednesday evening 24 October 2007 at 7 p.m. in the Waubonsee CC auditorium. The presentation is free, but we would appreciate anyone who is interested to sign up in advance. For questions or further information, please contact David Voorhees: [dvoorhees@waubonsee.edu](mailto:dvoorhees@waubonsee.edu), <http://chat.wcc.cc.il.us/~dvoorhee/>, or 630.466.2783.

David H. Voorhees  
Waubonsee (IL) Community College

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## Coal Fire Geology

A new book, [Geology of Coal Fires: Case Studies from around the World](#), edited by CGD First Vice-Chair Glenn B. Stracher, is being published by the GSA Engineering Geology Division (Reviews in Engineering Geology, V. 18).

This book includes chapters devoted to spontaneous combustion, greenhouse gases, mineralogy and petrology of coal fires, geophysics of coal fires, and public policy. It will be available in November or December 2007. Order forms for the book will be available at the 2007 GSA Annual Meeting in Denver.

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## Innovative Intro. Geology Text by Reynolds et al.

Stephen Reynolds (Arizona State University) and co-authors have written a new college-level introductory geology book that was designed from the ground up using results from cognitive and educational research. The design of the book takes into account cognitive load, observation-first learning cycles, a figure-centered approach, the integration of text and figures, and authentic inquiry.

In addition to writing, illustrating, and laying out the book, the authors did the GeoWall and other media, presentations, instructor's guide, and assessment items, so that all these aspects are tightly articulated. The assessable goals and learning objectives are listed on each two-page spread, and were written before the book.

The co-authors of the book include Julia Johnson, Mike Kelly, Paul Morin, and artist Chuck Carter. The book, called [Exploring Geology](#), is published by McGraw-Hill. Samples from the book can be seen at <http://www.mhhe.com/reynoldsreview>.

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## Virtual Course Promotes Student-Directed Learning

### **Introduction**

Connecting graduate students with experts in a given discipline is vital to their success and often challenging due to logistics, financial costs and scheduling. Rapid advances in internet video-conferencing now allow multiple participants to meet simultaneously and to engage in real-time discussion. Utilizing internet video-conferencing technology, we designed a graduate-level seminar course to enable students to directly engage in scientific discussion with experts on the theme of volcano instability.

Conducted under the auspices of the Earth Hazards (EHaz) Consortium ([www.geo.mtu.edu/EHaz/index.htm](http://www.geo.mtu.edu/EHaz/index.htm)), the Spring 2007 Volcano Instability course connected 9 previously disparate groups in a combined learning and cultural experience, and followed on from a similar class offered last year (Mann et al, 2006; Rose and Stix, 2006). Course participants (including guest speakers, students and university professors) used Marratech internet video-conferencing software ([www.marratech.com](http://www.marratech.com)) to meet twice weekly with the objective of promoting student-directed learning. Many universities share the experience through this approach, allowing an advanced graduate class that normally contains only 4-8 students on one campus to become a class of 50 or more dispersed over many campuses.

### **Course Mechanics**

The course involved a total of 78 participants that included students, professors and scientists from 9 universities and organizations in Canada, France, Mexico, Russia, UK and USA. The Marratech software provides a multi-faceted interactive environment in which participants can view each other and display Microsoft Word, PowerPoint and Adobe PDF files on a common “white board”. Students in the class came from university groups that comprised both graduate and advanced undergraduate students. The language spoken during the class was English, although there were two groups whose first language was Spanish and one group whose first language was French.



The guest speaker was recognized as a cutting-edge scientist at the forefront of research in their field of expertise. In all, 14 guest speakers participated including: Falk Amelung (University of Miami, USA), Eliza Calder (University at Buffalo, USA), Gerardo Carrasco (Universidad Nacional Autónoma de México, Mexico), Dave Clague (Monterey Bay Aquarium Research Institute, USA), Corey Froese (Alberta Geological Survey, Canada), Jeff Johnson (University of New Hampshire, USA), Oleg Melnik (Lomonosov Moscow State University, Russia), John Pallister (USGS Cascades Volcano Observatory, USA), Mike Ramsey (University of Pittsburgh, USA), Paul Segall (Stanford University, USA), Lee Siebert (Smithsonian Global Volcanism Program, USA), Hugh Tuffen (Lancaster University, UK), Sylvie Vergnolle (Institut de physique du globe de Paris, France) and Benjamin van Wyk de Vries (OPGC de Clermont-Ferrand, France).

The Volcano Instability course website ([www.geo.mtu.edu/EHaz/VolcanoInstability\\_class/index.htm](http://www.geo.mtu.edu/EHaz/VolcanoInstability_class/index.htm)) served as the medium for the transfer of core information required for the class. At least one week before the first weekly meeting, a selection of articles and an electronic presentation were provided by the guest speaker and posted on the website. The students were then tasked with reviewing the materials prior to the discussion meetings. Additionally, after each meeting, recordings were posted to allow participants the opportunity to review the discussion. The material presented was part of new research work and was often still in press or review. For some groups with limited library resources, the website provided a unique resource of current research articles and ideas that were vital for ongoing graduate research activities.

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Students were charged with the overall moderation of the discussions and each week one university group was assigned with the role of “moderator.” This approach directly engaged students in scientific discussion and encouraged social interaction. Prior to the first weekly meeting, students were encouraged to meet as a group within their home universities and propose basic questions and identify themes for discussion.

The first weekly meeting was held on a Tuesday for 60 minutes and included all multi-university students and professors. The objectives were to: (1) discuss background related to the presentation; (2) develop themes related to the presentation; and (3) focus and prioritize important questions for the speaker during the second meeting.

The second weekly meeting was held on a Thursday for 90 minutes and included all EHaz class participants, professors and the guest speaker. The objective of this session was to have a student-led scientific discussion with the guest speaker. Following a brief introduction at the beginning of the second meeting, the moderator invited each university group in turn to present a question to the speaker. Questions were displayed on the whiteboard to ease language barriers, and a student from a given group posed the question to the class. The speaker would then reply and lead the class to relevant graphics in the presentation, shared through the Marratech browser. Following the speaker’s reply, the moderator invited follow-up questions from all participants. This invitation for response was an essential driving force behind the momentum of the discussion, and allowed students to enter the discussion spontaneously.

### **Summary**

The EHaz Volcano Instability course demonstrated an inexpensive and innovative approach to teaching across international boundaries. Using web-conferencing technology, students and experts are connected in a novel virtual classroom environment. The opportunity to interact with experts in a given field is usually restricted to a few serendipitous occasions. In some cases, geographical isolation can mean that experts rarely travel to these academic institutions, denying students the opportunity of direct exposure. This course however, brought 14 experts directly to 64 students and professors.

As evidenced by overwhelmingly positive course evaluations, the course was a success and students responded that the approach was stimulating and conducive to learning. In addition, participants were able to interact with other groups all over North America, which provided cultural enlightenment and professional understanding.

The Marratech environment provides all the tools one would find in a classroom, so there is potential to teach classes interactively; either bringing experts to the classroom, or allowing instructors to teach their class from a distance. This new style of teaching has great potential for application over many disciplines to allow students and experts to interact. This dynamic interaction will ultimately raise the standard of instruction and motivate students to self-guide their learning experience to levels of greater understanding.

Detailed articles on the activities of the EHaz program are currently in preparation. More information on the 2007 EHaz multi-university course on Volcano Instability can be found at: [www.geo.mtu.edu/EHaz/VolcanoInstability\\_class/index.htm](http://www.geo.mtu.edu/EHaz/VolcanoInstability_class/index.htm).

### **Acknowledgements**

The following people played a central role in the evolution of the class and are acknowledged for their efforts: E. Calder, D. Chard, H. Delgado, T. Domínguez, C. Helo, P. Lins, D. Moran, J. Roberge, M. Smith, J. Stevenson, N. Varley and G. Williams-Jones. The EHaz consortium consists of six research-based universities in the United States (Michigan Technological University, University at Buffalo), Canada (McGill University, Simon Fraser University) and Mexico (Universidad Nacional Autónoma de México, Universidad de Colima), and is funded by the U.S. Department of Education, Human Resources and Skills Development Canada, and the Secretaria de Educación Pública of Mexico, as part of the North American Free Trade Agreement.

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## References

1. Mann, C.P., Delgado Granados, H., Durant, A., Escobar Wolf, R., Girard, G., Hernandez Javier, I., Cisneros, C., Rose, W., Salinas Sánchez, S. and Stix, J. (2006) Earth Hazards Consortium: a unique approach to student-centered learning, *Eos Trans. AGU*, 87(52) Fall Meet. Suppl. Abstract ED21A-1222.
2. Rose, WI and J Stix, 2006, Experimental Multi-university Graduate Class in Volcanology, *EOS Trans AGU Vol 87*, no 20, 16 May 2006.

Adam Durant, Michigan Technological University, USA  
Crystal Mann, McGill University, Canada  
John Stix, McGill University, Canada  
Bill Rose, Michigan Technological University, USA

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## Vote in the 2007-08 GED Officer Election

The ballot for 2007-08 GED officers follows the candidates' biographies. Please be sure to vote by August 31, 2007. If you wish, you may vote online at <https://rock.geosociety.org/ballot/vote.asp?Name=ged>.

**Chair. Kristen E. K. St. John.** Marine sedimentology; paleoceanography; geoscience education. Education: BS Geology, Furman University; MS Geol, PhD Geology, Ohio State University. Professional Experience: Appalachian State University, Assistant Professor 98-04, Associate Professor 04; James Madison University, Associate Professor 05-present. Concurrent Positions: Sedimentologist, ODP Legs 163 & 173, IODP Expd 302. Professional Affiliations: GSA since 91; AGU, NAGT, Sigma Xi, VAST, NCSTA. GSA Service: GED 1st Vice-Chair 06-07, 2nd Vice-Chair 05-06; Lead Organizer Educ Prog, ESP2. Additional Service: JGE associate editor 04-present, NSF CCLI review panel 05; US Advisory Committee on Sci Ocean Drilling 05-07. Honors/Awards: 100 Scholars Research Award Appalachian State 02. Research Interests: Cenozoic ice-rafting histories.

**First Vice-Chair. Elizabeth A. Nagy-Shadman.** Tectonics; geoscience education. Education: BA Geology, University of Colorado; MS Geology, PhD Geology, Caltech. Professional Experience: IPG-Paris, Postdoc Fellow 97-99; Syracuse University, Postdoc Fellow 00-01; Jordan-Elbridge CSD, 10th Grade Earth Science Teacher 01-02; CSU Northridge, Assistant Professor, 'Teachers for a New Era' Faculty 03-present. Professional Affiliations: GSA member since 91; NAGT; NSTA. GSA Service: GSA Campus Representative since 04. Honors/Awards: CSUN Research, Scholarship, & Creative Activity Award 06-07; Châteaubriand Postdoc Fellowship 97-98; NSF Intl Research Fellow Award 98-99. Research Interests: Improving science education for pre-service K-12 teachers; science misconception studies; use of student response technology; continental and transitional plate tectonic study using structural and field geology, geochronology, paleomagnetism, volcanology, and isotope geochemistry.

**Secretary-Treasurer. William Slattery.** Education: PhD, City University of New York, Earth & Environmental Sciences; MA Teaching, St. Peter's College; BS Geology, Jersey City State College. Professional Experience: Former K-12 science teacher; presently Associate Professor, Wright State University; Director of the MS in Teaching (Earth Science) Program designed for practicing K-12 educators; numerous State education committees; consultant, Center for Educational Technologies, Wheeling, WV. Professional Affiliations: GSA member since 91; NSTA, NAGT. GSA Service: GED Secretary-Treasurer, 01-present.

*(Candidate biographies continue on the next page)*

***Second Vice-Chair Candidates (vote for one):***

**Paul E. Baldauf.** Tectonics; science education. Education: BA Geology, Univ. of Tennessee; MS & PhD Geology, George Washington Univ. Professional Experience: CDM Federal Programs, Project Geologist, 88-89; Heidelberg College, Assistant Professor Geology, 98; Union Institute & University, Professor/ Faculty Adviser, 98-present. Concurrent Position: Univ. at Buffalo, Lecturer, 03-present. Professional Affiliations: GSA member since 1988; NAGT, CUR. Research Interests: Andean tectonics, elementary and secondary science education.

Statement of Interest: For the past nine years, I have been working for a nontraditional university in Florida called Union Institute & University. Our undergraduate students are mostly first generation college students and come to our university with weak skills in science. Most of our students are education majors and will become teachers in Dade and Broward Counties, the 4th and 5th largest school districts in the country. I've been a leader within my institution in research and policy issues in science education, pedagogy, and underserved students. I would like to bring my knowledge of these issues to the GED management board and learn more about what my colleagues are doing around these issues.

**Bruce E. Herbert.** Environmental science; geoscience education. Education: Colgate Univ., BA Chemistry; Univ. of California – Riverside, MS Soil Science; Univ. of California – Riverside, PhD Soil Chemistry. Professional Experience: US Peace Corps, Fiji Islands 82-84; Texas A&M, Dept. of Geology & Geophysics, Asst. Professor 92-97, Assoc. Professor 97-06, Coordinator for Undergraduate Programs 99-03; Assoc. Director Geosciences, IT in Science Center 02-present; Professor Biogeochemistry 06-present. Professional Affiliations: GSA member since 96. Service: College Board Science Standards for College Success Committee 06-08; Univ. of Wisconsin System-Wide Change, An Experimental Study of Teacher Development & Student Achievement in Elementary Science, member Advisory Board 06-present; School Science & Math, associate editor 04-present; NSF science education advisory boards 05-06; Texas A&M Academy for Educator Development, member 00-present. Honors/Awards: NAGT Distinguished Lecturer 05-06. Research Interests: Environmental science; geoscience education; information technology in geoscience education; my own goal is to develop programs that integrate my scientific research and educational activities in such ways as to build synergy between these two major activities of an academic life.

**Eric J. Pyle.** Geoscience education; igneous/metamorphic petrology. Educ: BS Earth Science/Geology, UNC-Charlotte; MS Geology, Emory Univ.; PhD Science Education, Univ. of Georgia. Professional Experience: Georgia Geol. Survey, Contract Geologist 84-86; Monroe (NC) HS, Science Teacher 86-92; UNC-Charlotte, Dept. of Geography & Earth Science, Instructor 89-92; Univ. of Georgia, Rsrch Asst 92-95; West Virginia Univ., Dept. of Curriculum & Instruction, Asst. Professor 95-01, Assoc. Professor 01-04; WVU Dept. of Geology & Geography, Adjunct Assoc. Professor 02-04; James Madison Univ., Dept. of Geology & Env'tl Science, Assoc. Professor 05-present. Professional Affiliations: GSA 88-90 & 05-present; NSTA, ASTE, NARST, WVSTA, VAST, NAGT, NESTA, Sigma Xi. Service: Chair, NSTA Special Education Advisory Board, 99-02; NSTA District VIII, Director 00-02; WVSTA, President 03-04; Chair, VAST Earth Science Committee 06-present. Honors/ Awards: Gustav Ohaus/NSTA Innovations in Science Teaching 99; WVU Foundation Outstanding Teacher 02. Research Interests: Earth science teacher preparation & professional development; inquiry in Earth science; Earth science curricula design; motivating adolescents in science education. Statement of Interest: The Geosciences occupy a unique position among the sciences, and this has rarely been a prominent one. The value of geoscience education on all academic levels is being questioned on many fronts, and in a time of both dynamic global scientific awareness and change, we can ill-afford to not answer these challenges. I had the honor of presenting at the first dedicated GSA Geoscience education session in 1988 as an Earth science teacher. Nearly twenty years later, there remains considerable work to be done, and as a part of the GED management team, it will be my mission to not let the challenges go unanswered.

**Ballot Instructions.**

This is the ballot for the election of 2007-08 officers for the **GSA Geoscience Education Division**. *Please refer to the candidate biographies which accompany this ballot.* Vote for no more than one candidate for each office. Submit your vote in one of the following ways:

1) **By Mail:** Vote on the paper ballot below. Complete the bottom section of the ballot. Mail the completed ballot to: Geological Society of America, PO Box 9140, Boulder, CO 80301, Attn: Division Ballot. Ballots must be **received at GSA by August 31, 2007 or**

2) **By Fax:** Vote on the paper ballot below. Complete the bottom section of the ballot. Fax the completed ballot to GSA, Attn: Division Ballot, at (303) 357-1074. Ballot must be **received at GSA by August 31, 2007 or**

3) **Online:** Vote online at <<https://rock.geosociety.org/ballot/vote.asp?Name=ged>>. Log onto the ballot using your GSA member number (given on your mailing label) **or** your e-mail address (which will work *only* if your e-mail address is in your GSA member record). For assistance, please contact GSA at <[gsaservice@geosociety.org](mailto:gsaservice@geosociety.org)> or (303) 357-1000 (option 3) or tollfree in the U.S. at (888) 443-4472. Electronic votes **must be submitted by August 31, 2007.**

**Ballot – Geoscience Education Division.**

Vote for no more than one individual for each office.

**Chair:** (one-year term)

- Kristen E. K. St. John                       Write-In \_\_\_\_\_

**First Vice-Chair:** (one-year term)

- Elizabeth A. Nagy-Shadman                       Write-In \_\_\_\_\_

**Second Vice-Chair:** (one-year term) (**vote for one**)

- Paul E. Baldauf  
 Bruce E. Herbert  
 Eric J. Pyle  
 Write-In \_\_\_\_\_

**Secretary-Treasurer:** (two-year term)

- William Slattery                                       Write-In \_\_\_\_\_

Your Name (printed) \_\_\_\_\_

Your Signature (required) \_\_\_\_\_

Your GSA Member Number (required)\* \_\_\_\_\_

\* Given at the top of your mailing label. For assistance, please contact GSA at <[gsaservice@geosociety.org](mailto:gsaservice@geosociety.org)> or (303) 357-1000 (option 3) or tollfree in the U.S. at (888) 443-4472.