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2008 GSA Joint Annual Meeting Presidential Address:

A field geologist looks at a digital world

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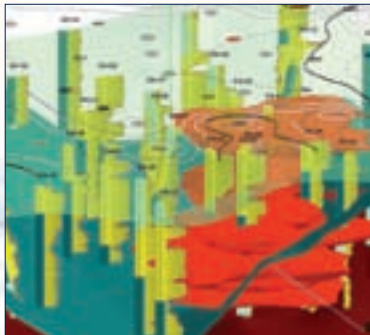
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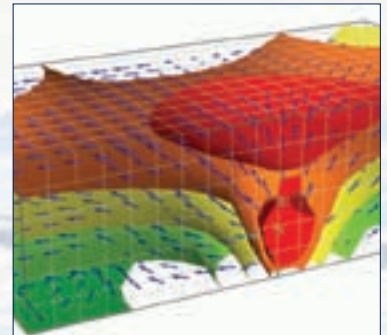
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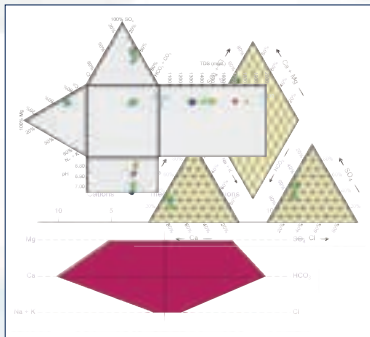


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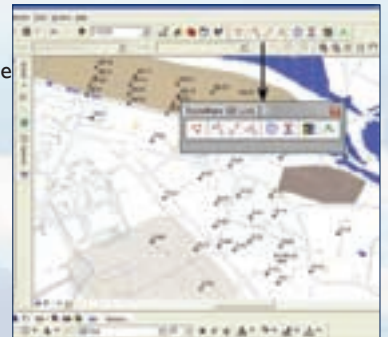
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SCIENCE ARTICLE

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 Judith Totman Parrish

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Erratum

The photo of the Dallas skyline published on p. 23 of the October issue of *GSA Today* (v. 18, no. 10) should be credited to Melissa Fenton rather than the Dallas Convention and Visitors Bureau. *GSA Today* regrets this error.

2008 GSA Joint Annual Meeting Presidential Address: A field geologist looks at a digital world

Judith (Judy) Totman Parrish, Dept. of Geological Sciences, Mines 322, University of Idaho, Moscow, Idaho 83844-3022, USA; jparrish@uidaho.edu.

We are living in a world that is changing at an ever-accelerating pace. In 2005, artificial intelligence engineer and futurist Ray Kurzweil provided some compelling documentation to show that we are turning the corner on an exponential curve of technological complexity and facility. The first part of an exponential curve looks linear, but once you turn that corner, everything changes, and projections that have been based on this linear portion are going increasingly wrong.

Kurzweil predicts a singularity, when humans and their technology will be indistinguishable, meaning, among other things, that all human knowledge will be downloadable directly into our brains and we will be able to process that knowledge with what

would seem now like infinite speed. If such a world comes to pass—and we are closer than you might think—what would be the role of the Geological Society of America? That is the subject of this paper.

Before I get into the role of GSA specifically, let me review a couple of trends. Science is becoming more democratic, and scientists are being gradually displaced as the sole primary producers in societal knowledge systems. As a former dean, I hear a rumbling noise approaching from behind that is the desire of our citizens to learn quickly, inexpensively, and on their own terms, not necessarily on the terms of the knowledge gatekeepers—us. If we don't respond, we will be made irrelevant. Based on my own observations and Kurzweil's trends, I believe we are much closer to this reality in some senses than we realize, and I believe we need to be thinking deeply and profoundly about how to stay ahead of these trends.

Five or more years ago, I started hearing colleagues and, especially, students complain when they had to go to the library. When I came out of administration and started getting seriously back into the literature again, I was astonished at how much I could access from my desktop, and now even I feel a slight disgruntlement when I have to interrupt my work to make the trek to the library, especially when it's snowy and icy. Of course, like everyone else, I have long been using the World Wide Web extensively. Note the contextual definition of "long"—barely 15 years.

If we're accessing information that way, so is everyone else. An active interest and participation in science by citizens

is becoming much more common. With increased access, people are doing their own analyses of the literature, and there has been a proliferation of Web sites tracking such analyses—right alongside Web sites that we would regard as reliable and authoritative, that is to say, Web sites that contain analyses by the knowledge gatekeepers. Those of us in academia know directly the challenge this presents, when students seeking knowledge stumble into plausible-sounding Web sites that present conclusions and hypotheses that are at variance with those of the established scientific community.

This means that the relationship between citizens and scientists is changing and changing quickly. First, students and others are far more likely to know about and expect answers

to information that contradicts the wisdom we attempt to present. This is both healthy and distracting. It is healthy because it keeps us on our toes and means people are engaged. But it is distracting because we often feel our time is wasted answering points

that we regard as spurious, and we sometimes feel dragged backward into issues we regard as settled but that in the minds of others are not.

Second, we are, as I have already alluded, being displaced as the sole primary producers of knowledge. In this era of what has been called post-normal science, society is no longer content for us to unilaterally choose and conduct our studies. There is a much greater interest in science at the front end, not only in what questions are asked but even how they are asked and what methods are used and the time frame within which the problems are resolved. If you don't believe this is happening, you aren't doing fish ecology on Native lands or fire ecology in logging communities or trying to start a new mine or remediate an old one. This change manifests itself in numerous ways; examples include the more-focused and shorter-time-frame research-funding initiatives at granting agencies or the participation of stakeholders in the definition of problems and the methodologies used to solve them.

And it also manifests itself in the conflict that arises—ever-increasingly it seems—between the scientists who conduct the research and the knowledge consumers who don't like the answers we come up with, particularly if they perceive that our political biases have interfered. Those who think this isn't important should look to our own institutions, where people who might be politically conservative are often not only shunned socially but scientifically as well. In my conservative state of Idaho, students frequently complain that the values their professors teach are contradictory to the values they were raised with, and they feel discriminated against. If we look

Kurzweil (2005) predicts a singularity, when humans and their technology will be indistinguishable, meaning that all human knowledge will be downloadable directly into our brains.

upon our own colleagues and students with suspicion because of their political views, why should we expect a different behavior from our fellow citizens toward us?

Imagine, now, this world in which every citizen is enhanced, every citizen has access to information as soon as it is produced, and every citizen is producing or has the potential to produce information. Where does that leave us?

GSA generates well-regarded journals and other publications; GSA also archives data—a very important function that I will return to because it may become vastly more important than it is now. We host meetings, where people can gather to present and discuss their science and, not incidentally, socialize, or to put it another way, celebrate the fact that we are a community that shares a common interest. GSA provides a venue for running field trips—opportunities to see new geology and discuss science as it is happening. We also provide educational materials for teachers and students and help our members stay connected with other societies and with Washington, D.C., through the activities of the executive director, officers, and volunteers.

Which of these activities will be needed in the world of post-normal science and technologically enhanced humans?

GSA already uses the Internet almost exclusively to provide educational materials and to stay connected with other societies, Washington, and our members around the world.

There will, I think, still be a place for venues in which to release information that has been transformed into knowledge and peer-reviewed. And even if we can download all human knowledge into our brains, that doesn't mean that the generation of new information will stop—indeed, it might speed up because we can spend more time on generating new data and less on trying to accumulate the background information all researchers must know to provide context and meaning to their new data. That new knowledge will have to somehow be encoded into what one might call the Universal Brain Access Database, or UBAD. So, one future role of GSA should continue to be the dissemination of new knowledge. Naturally, the information will be increasingly disseminated in electronic form, but we're already way down that track.

Archiving is also extremely important. Anyone who has been involved in trying to figure out the best direction to go in electronic journals knows that long-term accessibility to information preserved electronically is a major issue. Kurzweil pointed out that accessibility of old information is inversely proportional to the sophistication of the technology in which it is archived, with reading words on paper the easiest, onward to the greater difficulty of opening old word-processing files that haven't been upgraded with the installation of new versions of the programs. We can still read books written hundreds of years ago, but just try to read a file generated 15 years ago in, for example, MacDraw, if you haven't kept upgrading that file with new software. Kurzweil argued that only information someone cares about is preserved. As scholars, we know that important work might be ignored for decades then

suddenly gain relevance as new hypotheses about how the world works are formulated, and we know how important it is to maintain the chain of scholarly reasoning on a subject. Just as I might be frustrated because I suddenly find myself in need of an old MacDraw file that I can no longer read, we might also find ourselves in need of previous scholarship and insights that were largely ignored at the time of production but have taken on new significance. GSA cares about geological information, and I see professional societies taking a larger role in preserving the information that *they* care about more than anyone. After the singularity, as humans upgrade their personal brain software to run the knowledge they want, they might not maintain what they don't care about, and that information could be irretrievably lost from the UBAD. Libraries will be overwhelmed and have to do triage, as they do today, so it will be up to societies like GSA to make sure that information important to us is permanently accessible.

Will we continue to host meetings? Can we imagine never seeing our colleagues again? The answer to that already exists—the technological capabilities for virtual meetings increase every year, and the uses of virtual reality have also developed apace. These technologies have merged, though still rather crudely, and we can already go to conferences

without leaving our homes or offices. We can already enter this building and hall, see and greet each other, even shake hands or hug, go out for drinks—in other words, engage in all the activities that keep us connected as

Which of these activities will be needed in the world of post-normal science and technologically enhanced humans?

humans, all without leaving our families or spending the money to fly to some far off city—not to mention without adding more CO₂ to the atmosphere. Such virtual communities already exist, such as the one called Second Life®. Remember that the technology for such a community didn't exist—was barely conceived of—a scant 10 years ago. With such a community, you could be listening to my talk from the comfort of your living room and go to the talks that others give and be able to meet afterward for discussion. No more running around trying to catch talks adjacent in time but separated by the seeming miles of corridors in convention centers. Indeed, you could even replay a talk from a simultaneous session, because all this would, of course, be recorded. Even better—the person you are in the convention halls could look 15 pounds lighter and a little less gray!

But someone will have to organize all this, so GSA would still provide the service of constructing the meeting framework.

What about field trips? Field trip leaders have to run through the trips ahead of time and could record them as they go. Once the outcrops have been encoded, no reason not to do the field trips virtually as well, only without the long bus rides and lack of pit stops—definitely a boon for women and older men. Of course, some of the best conversations are on those long rides, so we might want to simulate them anyway using an enhanced version of Google Earth, but since we're at home, we can make our own pit stops without holding up the whole group. Oh, and we can always

have perfect weather, too. As with the meetings, GSA would provide the service of arranging these experiences, and a lot more people could attend.¹

I used to have some reservations about virtual communities in general, even those merely composed of chat rooms and forums. But I found myself caught up in a couple of such groups, composed in my case of pilots. I have become friends with fellow pilots all over the world, and I have met many of them in person. I'd say my friendships with those I've met are richer, of course, but the face time I've had with those friends could have been done virtually in the manner I've just illustrated.

What couldn't be easily duplicated, of course, is the challenge and joy of flying to where I met them. The same sense of adventure and desire for challenge is what drives a lot of geologists, too, so there are some experiences that those of us with the adventure gene will never want to give up—risk and unpredictability are part of the experience. But there are times when risk and unpredictability are just inconvenient—personally, I hate trying to lead field trips in pouring rain.

In closing, let me add one other thought. Kurzweil's key prediction included the idea that the singularity, which he posits will occur in 2045, will be so profound that we will be able to keep ourselves, including our biological bodies, if we wish, alive forever.

Barring accident, I will be only 95 in 2045, well within my potential life span, given my fortunate genetic inheritance. That means that I and others my age could be among the very first to have to decide whether we want to live forever. I think it must be in human nature to wonder about the possibility of living forever, and I would be surprised if there is anyone who hasn't dreamed of it. But we have always been secure in the knowledge that it is impossible. When that impossibility becomes a possibility, however small, the implications are pro-

found, and I would bet that many of you are saying to yourselves, as I did, "But I wouldn't *want* to live forever." But consider this: Wouldn't you love to see how Earth

Wouldn't you love to see how Earth processes really do play out over geologic time?

processes really *do* play out over geologic time?

REFERENCE CITED

Kurzweil, R., 2005, *The Singularity Is Near*: New York, Viking Press, 672 p.

¹ The previous three paragraphs were, in my oral address, presented by my avatar in Second Life®. To view the presentation, go to www.geosociety.org/pubs/PresAddress.htm.



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2008 Joint Annual Meeting Wrap-up

Jack Hess, GSA Executive Director



Wow, what an experience!

The 2008 Joint Annual Meeting in Houston marks the first time GSA has partnered in a risk or reward arrangement with other societies for an annual meeting. By almost any measure, the meeting was a great success, with a strong multi/interdisciplinary technical program, great field trips, and well-attended short courses and workshops. Featured speakers included former astronaut Harrison "Jack" Schmitt, climate change expert James Hansen, and water experts Peter Gleick and Sandra Postel. I believe that we achieved our vision "to highlight and stimulate discussions in areas of common interest across the diversity of disciplines and organizations represented."

A big thank you to GSA's Associated Societies and our meeting partners: the Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, the Gulf Coast Association of Geological Societies with the

Gulf Coast Section SEPM, and the Houston Geological Society.

The 2008 Joint Annual Meeting was an historic event, with just under 10,000 attendees. More than 500 sessions were held, and 5,500 abstracts were presented. The 17 field trips and 19 short courses had 350 and 400 participants, respectively. Going into the meeting, 100% of our room blocks were filled, and we expanded into six overflow hotels, for a total of 3,279 rooms occupied each night on our peak nights.

The exhibit hall almost doubled in size this year, with 446 exhibitor booths and 306 companies exhibiting. Seventy-seven schools participated in the Graduate School Information Forum.

University and college group and private alumni events were popular: 37 schools participated in the group alumni event, and 63 held private alumni receptions. Some of the private receptions were joint gatherings, bringing together two to four different schools.

Would we do a joint meeting again?

Of course we would.

Thanks especially to our Joint Program Committee: Carolyn Olson, Joint Program Chair; Rob Young, GSA Technical Program Chair; and committee members: (1) The Geological Society of America: Rob Young, Edwin Weeks, Curtis Monger; (2) Soil Science Society of America: Paul Bertsch; (3) American Society of Agronomy: Mark Alley; (4) Crop Science Society of America: Ken Quesenberry; (5) Gulf Coast Association of Geological Societies: Art Donovan; and (6) field trip chair, Gary Moore.

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UPCOMING AWARD, RECOGNITION & GRANT DEADLINES

Nomination forms and instructions are at www.geosociety.org/aboutus/honors-awards.htm or may be obtained from GSA Grants, Awards, and Recognition, P.O. Box 9140, 3300 Penrose Place, Boulder, CO 80301-9140, USA, +1-303-357-1028, awards@geosociety.org.

GSA is accepting nominations for the following awards and medals:

- **Penrose Medal**
- **Day Medal**
- **Young Scientist Award (Donath Medal)**
- **Honorary Fellows**
- **GSA Public Service Award**
- **GSA Distinguished Service Award**
- **Bromery Award for the Minorities**
- **Subaru Outstanding Woman in Science Award**
(Sponsored by Subaru of America, Inc.)

Nomination deadline: **1 February 2009**.

GSA Fellowship

The GSA Committee on Membership requests nominations of GSA Members to be elevated to GSA Fellow status. Any GSA Fellow may nominate up to two members per year (only **one** as a primary nominator), and a **GSA Member** who is not a Fellow may be a secondary nominator for up to **two** nominees per year.

Nomination deadline: **1 February 2009**.

AGI Medal in Memory of Ian Campbell

The AGI Medal in Memory of Ian Campbell recognizes singular performance in and contribution to the profession of geology. To submit a nomination, go to www.agiweb.org/direct/awards.html.

John C. Frye Environmental Geology Award

Supported by endowment income from the GSA Foundation's John C. Frye Memorial Fund.

In cooperation with the Association of American State Geologists, GSA makes an annual US\$1,000 cash prize award for the best paper on environmental geology published either by GSA or by one of the state geological surveys.

Nomination deadline: **31 March 2009**.

2009 National Awards

GSA Members are invited to nominate colleagues for the following awards, which are coordinated by the American Geological Institute (AGI).

- **William T. Pecora Award**
- **National Medal of Science**
- **Vannevar Bush Award**
- **Alan T. Waterman Award**

Nomination deadline: **1 February 2009**.

2009 Student Research Grants

Grants applications may be made online only; no paper applications or letters will be accepted. Go to www.geosociety.org/grants/gradgrants.htm to apply.

Submission deadline: **11:59 p.m. (MST) on 1 February 2009**.

2009 Post-Doctoral Research Awards

The following research awards are managed by the GSA Foundation. Learn more at www.geosociety.org/grants/postdoc.htm.

- **The Gladys W. Cole Memorial Research Award** for research on the geomorphology of semiarid and arid terrains in the United States and Mexico is awarded annually to a GSA Member or Fellow between 30 and 65 years of age who has published one or more significant papers in geomorphology. 2009 award: US\$9,900.
- **The W. Storrs Cole Memorial Research Award** for research in invertebrate micropaleontology is awarded annually to a GSA Member or Fellow between 30 and 65 years of age who has published one or more significant papers on micropaleontology. 2009 award: US\$9,100.

Application deadline for either award: **1 February 2009**.

2009 GSA DIVISION AWARDS

For details, see the December 2008 issue of *GSA Today* or go to www.geosociety.org/aboutus/honors-awards.htm.

Geoscience Education Division: Biggs Award for Excellence in Earth Science Teaching Award. To access the nomination form, please go to www.geosociety.org/awards/biggs.htm. Send nominations by **1 February 2009** to Paul Baldauf, Nova Southeastern University, Math, Science, and Technology Division, 3301 College Avenue, Fort Lauderdale, FL 33314, USA, pb501@nova.edu.

History of Geology Division: Mary C. Rabbitt History of Geology Award. For more information, please go to <http://gsahist.org/HoGaward/awards.htm>. Send nominations by **1 February 2009** to Stephen M. Rowland, University of Nevada, Dept. of Geoscience, Box 454010, Las Vegas, NV 89154-4010, steve.rowland@unlv.edu.

Geophysics Division: George P. Woollard Award. Submit nominations online by **15 February 2009** at http://geoscience.unlv.edu/pub/GSA_Geop/woollard.html.

Sedimentary Geology Division: Laurence L. Sloss Award for Sedimentary Geology. Send nominations electronically by **20 February 2009** to Paul Link, Sedimentary Geology Division, linkpaul@isu.edu.

2009

GSA Section Meeting Calendar

Southeastern Section

St. Petersburg, Florida, USA
12–13 March

Early Registration:

9 February 2009

South-Central Section

Dallas, Texas, USA
16–17 March

Early Registration:

9 February 2009

Northeastern Section

Portland, Maine, USA
22–24 March

Early Registration:

17 February 2009

North-Central Section

Rockford, Illinois, USA
2–3 April

Early Registration:

2 March 2009

Cordilleran Section

Kelowna, British
Columbia, Canada
7–9 May

Abstract deadline:

3 February 2009

Rocky Mountain Section

Orem, Utah, USA
11–13 May

Abstract deadline:

10 February 2009



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Section Meeting
attendance today!**

Coal Geology Division: Gilbert H. Cady Award. Send three copies of the nomination by **28 February 2009** to Glenn Stracher, East Georgia College, Division of Science & Mathematics, 131 College Circle, Swainsboro, GA 30401-3643, USA; +1-478-289-2073; stracher@ega.edu.

Quaternary Geology and Geomorphology Division: Don J. Easterbrook Distinguished Scientist Award. Send nominations by **2 April 2009** to Marith Reheis, U.S. Geological Survey, MS 980, Federal Center, P.O. Box 25046, Denver, CO 80225-0046, USA; +1-303-277-1843; mreheis@usgs.gov.

Quaternary Geology and Geomorphology Division: Farouk El-Baz Award for Desert Research. Send nominations by **2 April 2009** to Paul R. Bierman, University of Vermont, Dept. of Geology, Delehanty Hall, Burlington, VT 05405-0001, USA; +1-802-656-4411; pbierman@zoo.uvm.edu.



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2009 GSA OFFICER AND COUNCILOR NOMINEES

GSA's success depends on you—its members—and the work of the officers serving on GSA's Executive Committee and Council.

In late February, you will receive a postcard with instructions for accessing your electronic ballot via our secure Web site, and biographical information on the nominees will be online for you to review at that time. Paper versions of both the ballot and candidate information will also be available.

Please help continue to shape GSA's future by voting on the nominees listed here.

GSA Elections Start 13 March 2009

PRESIDENT

July 2009–June 2010
Jean M. Bahr
University of Wisconsin
Madison, Wisconsin, USA

VICE PRESIDENT

July 2009–June 2010
Joaquin Ruiz
University of Arizona
Tucson, Arizona, USA

TREASURER

July 2009–June 2010
Jonathan G. Price
Nevada Bureau of
Mines & Geology
Reno, Nevada, USA

COUNCILOR Position 1

July 2009–June 2013
Lisa D. White
San Francisco State
University
San Francisco, Calif., USA

COUNCILOR Position 2

July 2009–June 2013
George O. Linkletter
ENVIRON International
Corporation
Irvine, Calif., USA

COUNCILOR Position 3

July 2009–June 2013
Robert B. Finkelman
U.S. Geological Survey
Plano, Tex., USA

Cassandra Runyon
College of Charleston
Charleston, S.C., USA

Ricardo A. Astini
Universidad Nacional
de Córdoba
Córdoba, Argentina

J. Douglas Walker
University of Kansas
Lawrence, Kan., USA

Ballots must be submitted electronically or postmarked by 12 April 2009.

Applications wanted!

2009 STUDENT AWARDS & SCHOLARSHIPS



THE GEOLOGICAL SOCIETY
OF AMERICA®



Farouk El-Baz
Student Award,
2008 Joint Annual
Meeting.

FAROUK EL-BAZ STUDENT AWARD

Applications due **1 February 2009**

The Geological Society of America Foundation established the Farouk El-Baz Student Award to encourage and promote desert research in the broadest sense. According to GSA Fellow Farouk El-Baz, after whom the award is named, "Deserts have received far less attention than other types of landforms in geological studies. This award will encourage more students to pursue investigations of arid lands, which constitute over one-third of the land surface of our planet."

Up to two students will be awarded US\$2,500 each at the 2009 GSA Annual Meeting in Portland, Oregon, USA, based on proposals for arid land research and advisor recommendations. Recipients will be selected by a GSA International Division-appointed Committee.

Guidelines and the application form are online at <http://rock.geosociety.org/forms/el-bazGrant.asp>. Questions? Please e-mail awards@geosociety.org or call +1-303-357-1028.

ANTOINETTE LIERMAN MEDLIN SCHOLARSHIP IN COAL GEOLOGY

Applications due **15 February 2009**

The Coal Geology Division's Antoinette Lierman Medlin Scholarship provides monetary support and recognition to deserving students in coal science (origin, occurrence, geologic characteristics, or economic implications of coal and associated rocks). Each year, one award is presented for the completion of laboratory/analytical research (approx. US\$2,000), and a second award is presented for the completion of field work (approx. US\$1,500).

The laboratory/analytical research scholarship for the 2009–2010 academic year provides full-time students involved in coal geology research with financial support for their project for one year. Scholarship funds can be used for field or laboratory expenses, sample analyses, instrumentation, supplies, or other expenses essential to the successful completion of the research project. In addition, the scholarship recipient may be provided with a stipend to present research results at the 2009 or 2010 GSA Annual Meeting.

The recipient of the field study award for the academic year 2009–2010 will also be eligible for travel funds to present the results of his or her study at the 2009 or 2010 GSA Annual Meeting.

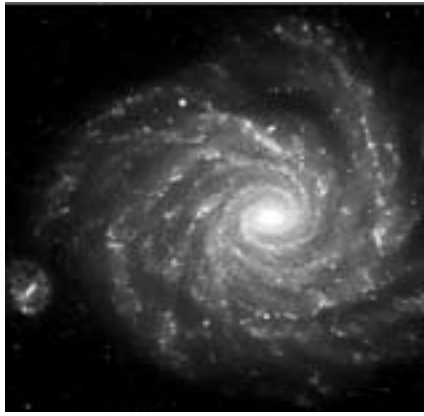
Students may apply for the scholarship award, the field study award, or both; however, only one award will be made to a successful applicant. Interested students should submit five copies of the following: (1) a cover letter indicating the award(s) sought; (2) a concise statement (no more than five double-spaced pages including references) of objectives and methods and of how the scholarship funds will be used to enhance the project; and (3) a letter of recommendation from the student's immediate advisor that includes a statement of financial need and the amount and nature of other available funding for the research project.

This scholarship was established as a memorial to Antoinette "Toni" Medlin, who for many years dedicated her efforts toward the advancement of coal geoscience and to the encouragement of students in coal geology. Scholarship monies are derived from the annual interest income of the Antoinette Lierman Medlin Scholarship fund, which is managed by the GSA Foundation.

Send application materials by 15 February to Jack C. Pashin, Geological Survey of Alabama, P.O. Box 869999, Tuscaloosa, AL 35486, USA, fax +1-205-349-2852, jpashin@gsa.state.al.us. A panel of coal geoscientists will evaluate proposals for the scholarship and the field study award, and applicants will be notified of the committee's decision by 2 April 2009.



Gas venting at the surface from an underground coal fire in Hazard, Kentucky. Courtesy of Glenn B. Stracher, 2007.



Our Milky Way galaxy is smaller and has better organized arms, but is not unlike the spiral galaxy NGC 1232. This image of NGC 1232 was obtained 21 September 1998 by the European Southern Observatory (available at <http://www.eso.org/outreach/press-rel/pr-1998/pr-14-98.html>). (Spiral Galaxy NGC 1232-VLTUT1 + FOTS1; ESO PR Photo 37d/98 [23 September 1998]; © European Southern Observatory; used with permission.)

STEPHEN E. DWORNIK STUDENT PAPER AWARD

Applications due **8 January 2009**

Please go to www.lpi.usra.edu/meetings/lpsc2009/ for instructions, an application form, and further information. The 2009 award applies to papers presented at the 40th Lunar and Planetary Science Conference on **23–27 March 2009** in The Woodlands, Texas, USA.

GSA's Planetary Geology Division encourages applications for the Stephen E. Dwornik Student Paper Award, established in 1991 to provide encouragement, motivation, and recognition to outstanding future planetary scientists. Two awards are given each year—one for the best oral presentation, the other for the best poster. Each student receives a citation and US\$500.

The award focuses on papers presented at the Lunar and Planetary Science Conference held each March in Houston. Student applicants must be (1) the senior author of the abstract (the paper may be presented orally or in a poster session); (2) a U.S. citizen; and (3) enrolled in a college or university, at any level of their education, in the field of planetary geoscience. Papers will be judged on the quality of the scientific contributions, including methods and results, clarity of material presented, and method of delivery (oral or display). The program is administered through GSA's Planetary Geology Division; the GSA Foundation manages the award funds.

HISTORY OF GEOLOGY STUDENT AWARD

Applications due **1 May 2009**

The History of Geology Division is offering an award of US\$500 for proposals for a student paper to be presented at an upcoming GSA Annual Meeting. The topic of the proposed paper may be, but is not limited to, (1) the history of geology; (2) a literature review of ideas for a technical work or thesis/dissertation; or (3) some imaginative aspect of the history of geology we have not thought of before.

This award, established in 2004, is made possible by a bequest from the estate of Mary C. Rabbitt. Consideration will be given to both undergraduate and graduate students who are in

good standing at the time of application, and the presentation at the GSA Annual Meeting may take place after graduation. Faculty advisor(s) may be listed as second author(s) but not as the lead author of the paper, and while both oral and poster presentations are acceptable, oral presentations are preferred.

Proposal guidelines and the application form are on the Division Web site at <http://gsahist.org/HoGaward/awards.htm>. If you have questions about the award, please contact the Division secretary-treasurer, Jane P. Davidson, jldhexen@unr.edu. Nominees need not be members of the History of Geology Division or of the Geological Society of America.



Photo by John Karachewski.

Last Call for Applications

2009–2010 GSA-USGS CONGRESSIONAL SCIENCE FELLOWSHIP



Work directly with national leaders, and bring your experience and expertise to bear on science and technology policy on Capitol Hill.

This Congressional Science Fellowship provides a rare opportunity to work at the interface between geoscience and public policy. Prospective candidates are GSA Members with a broad geoscience background and excellent written and oral communication skills. Minimum requirements: a master's degree with at least five years of professional experience or a Ph.D. at time of appointment. The fellowship is open only to U.S. citizens or permanent U.S. residents.

Find application information at www.geosociety.org/csf or contact Ginger Williams, +1-303-357-1040, gwilliams@geosociety.org. **Deadline for application:** 1 February 2009; selection of the next GSA-USGS Congressional Science Fellow will be made soon thereafter.

Put your academic and professional background, experience applying scientific knowledge to societal challenges, and passion for shaping the future of the geoscience profession to work in this coveted arena: *Apply today!*

www.geosociety.org/csf



2007–2008 Congressional Science Fellow Final Report

Maria Honeycutt

While the 2008 elections created tremendous anticipation on Capitol Hill this fall, my excitement was tempered by the realization that my tenure as the 2007–2008 Geological Society of America–U.S. Geological Survey Congressional Science Fellow was rapidly coming to an end. I am deeply indebted to GSA and the USGS for giving me the opportunity to work with a phenomenal host office (Senator Bill Nelson of Florida) and experience first-hand the application of science in our legislative process. This has truly been a life- and career-changing experience.

So, what's next? This deceptively easy question (which usually strikes fear in the hearts of outgoing Congressional Science Fellows) typically lacks an easy answer. After spending a year gaining insights into the formulation and implementation of science policy, what's the next logical step? What does one do with this type of experience?

The American Association for the Advancement of Science (AAAS), which manages the Science and Technology Policy Fellowship Program, tracks the professional whereabouts of program alumni. The AAAS estimates that in the year following the fellowship, roughly 40%–50% of Fellows continue in science policy. Of the remainder, half tend to return to their pre-fellowship professional sector and the others pursue completely new opportunities.

Although I had the option of returning to my pre-fellowship position as a consultant, I ultimately decided that I could not go back. My perspective on the environmental challenges our nation faces, as well as the role geoscientists can and must play in the policy dialogue, had changed too much for me to be content with resuming my former career.

Once I'd decided to remain in science policy, the question became, what do I do now?

During my year on the Hill, I made a habit of asking former Fellows and other colleagues about their career paths. I was amazed at the diversity of post-fellowship jobs that constitute the “next step” in a science-policy career. Common choices include staying on the Hill, working in government affairs for a non-profit or advocacy organization, becoming a registered lobbyist for particular interest groups or companies, or joining a think-tank that conducts independent policy analysis. Most of these positions are focused on the federal government, but there is also a vast array of jobs dealing with state, regional, and local issues.



As I conversed with colleagues involved in science policy for more than 10 years, I learned that mid-career moves were equally diverse and tended not to follow any sort of predictable pattern. People commonly cycled multiple times through positions on the Hill, in government, and with non-profit organizations. All found their work to be rewarding and valued the different perspectives gained in each job. This was good news, but I was still struggling to determine what next step would be best for me.

As the end of the fellowship approached, I tried to organize the dozens of career narratives swimming around in my head and define a typical career path within geoscience policy. In the aca-

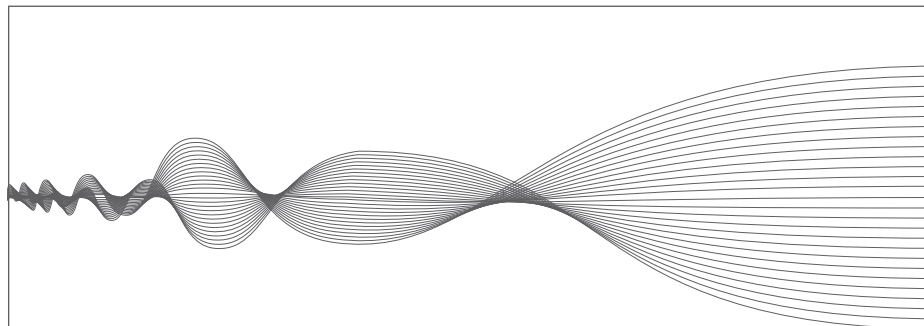
demographic and consulting worlds, the rungs of the career ladder and measures of productivity are relatively well defined. I figured that if I could identify discrete milestones in a science-policy career progression, I could better evaluate the opportunities before me and chart a course forward.

Unfortunately, the wealth of data and advice I received (and my analysis of it) failed to answer some critical questions. None addressed the question of what constitutes a lateral career move in science policy versus advancement (or regression). Few provided tangible metrics that I could use to gauge my effectiveness and thus my value in the field. How could I match my skill level with a potential position? How could I or my employer objectively judge my efforts?

After spending months trying to define the typical geoscience policy career path (as if there were only one), I concluded that I was looking for something that simply doesn't exist. While those involved in science policy must have some common skills and certain basic knowledge about government operations, where you go from there is really up to you. One's effectiveness is largely measured over years or over a career, not in annual personnel review cycles. Although failing to come up with a "typical" career track and concrete metrics was a little frustrating for me in the near term, I'm convinced that this outcome is actually a very good thing.

The best analogy I've come up with is that science-policy careers are like braided streams. Multiple parallel (but sometimes intersecting) tracks comprise a larger system aimed at bridging the gap between scientific research and public policy. No one track is necessarily superior to another, and it's relatively easy to shift course as your interests or the needs of decision makers change. The variety of potential professional experiences and the great flexibility with which members can acquire essential knowledge and skills both enhance the viability (and desirability) of science policy as a career field.

So after all this research, what's next? Much to my husband's relief, I eventually found an answer. I accepted a position working jointly with the National



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stableisotopes@gns.cri.nz

Location

National Isotope Centre
30 Gracefield Road
Lower Hutt 5010
PO Box 31312
Lower Hutt 5040
New Zealand
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F +64-4-570 4657



Oceanic and Atmospheric Administration's Coastal Services Center and Climate Program Office. With projects focusing on coastal hazards, climate change, and adaptation planning, I'll remain intimately involved in many geoscience policy issues. While I can envision staying in this type of role for the duration of my career, I'll certainly remain open to other opportunities in the years to come. After all, there is no single, ideal career path in geoscience policy, and that's a wonderful thing.

This manuscript is submitted for publication by Maria Honeycutt, 2007–2008 GSA–U.S. Geological Survey Congressional Science Fellow, with the understanding that the U.S. government is authorized to reproduce and distribute reprints for governmental use. The one-year fellowship is supported by GSA and by the U.S. Geological Survey, Department of the Interior, under Assistance Award No. 07HQGR0140. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. government. Honeycutt can be reached at mghoneycutt@gmail.com.

Field Forum Scheduled

Structure and Neotectonic Evolution of Northern Owens Valley and the Volcanic Tableland, California

13–19 September 2009

Conveners:

David A. Ferrill, Southwest Research Institute, 6220 Culebra Road, San Antonio, Texas 78238-5166, USA, dferrill@swri.org

Alan P. Morris, Southwest Research Institute, 6220 Culebra Road, San Antonio, Texas 78238-5166, USA, amorris@swri.org

Nancye H. Dawers, Tulane University, New Orleans, Louisiana 70118, USA, ndawers@tulane.edu

Field excursions and discussions will be led by the conveners and the following individuals:

Patience Cowie, Fault evolution

Tim Dixon, Geodesy

Eric Kirby, Tectonic geomorphology

Fred Phillips, Geochronology

Ken Smith, Seismology

You are invited to express your interest to participate in a Field Forum that will explore one of the most active extensional–trans-tensional basins in the United States. Extensional deformation and basin development, mechanisms and rates of deformation, and the relationship between observable structural features and seismicity are key topics in structural geology and tectonics. Research into these topics has drawn geoscientists from numerous disciplines to northern Owens Valley and the Volcanic Tableland of eastern California. Superb exposure, rapid deformation, and the presence of the ~758,000 year old Bishop Tuff as a key marker horizon make this an ideal field laboratory for investigations into the structure and neotectonic evolution of an actively forming, continental trans-tensional basin. The past decade has seen a virtual explosion of this research, and lessons from northern Owens Valley have proven relevant to other extensional and trans-tensional systems around the world. We are organizing this five-day field forum to gather investigators from diverse disciplines to share results and explore the interrelationships between long-term deformation, geodetic measurements, seismicity, fault growth and interaction, and extensional and trans-tensional basin development in northern Owens Valley, California, USA.

Significance

The evolution of extensional basins, and the extensional and trans-tensional fault systems that bound them, are of increasing

interest to many geoscientists. Seismic hazard assessment in areas of extensional and strike-slip faulting rely on both geologic and geodetic evaluations in determining patterns of fault activity, rates of displacement, and seismic recurrence. Understanding extensional fault systems is crucial for hydrocarbon exploration and production in diverse settings, including active basins and passive margins worldwide. Also, analysis of faulting is of great relevance to groundwater resource assessment and to radioactive waste disposal at various sites worldwide, including Yucca Mountain, Nevada, USA. Motivated by these needs and interests, as well as the quest for understanding the western Basin and Range, the Eastern California shear zone, and the Sierra Nevada, many researchers have focused their efforts on northern Owens Valley, the Volcanic Tableland, and the adjacent Sierra Nevada Range and White Mountains. Recent advances here include geodetic strain measurements across Owens Valley and the surrounding region, detailed mapping of earthquake ruptures and geomorphological investigations of active faults, assessment of displacement partitioning in the region, fault scaling studies and analyses of fault architecture in the Volcanic Tableland, detailed investigations of fault zone deformation mechanisms and permeability in volcanic tuffs, and analyses of recent seismicity.

This field forum will review these research results and build on these investigations by addressing several questions:

- How does northern Owens Valley fit into regional tectonic models of the western Basin and Range?
- How do fault systems evolve?
- How do interactions between developing faults affect fault orientations and frequencies?
- Are structural geology, geodesy, tectonic geomorphology, paleoseismology, and seismology painting the same picture of the neotectonics of northern Owens Valley?
- How is transtension partitioned in the region and at what rates?
- What is the interplay between earthquakes and mappable geologic deformation observed in the field?

We anticipate that this field forum will consolidate recent research in Owens Valley; elevate the level of understanding of the structure and neotectonics of northern Owens Valley and the Eastern California shear zone, Walker Lane region; foster collaboration between researchers working in the area and related topics elsewhere; spark new ideas; and stimulate new investigations.

Logistics

The field forum will meet in Bishop, California, USA, which is located within about a 30-minute drive of each of the field sites. Field transportation will be by full-size 4-wheel-drive sport utility vehicles. Occasional evening discussions, likely to run about two hours each, will be held—the first for introductions and overview presentations and the second for a poster session to allow participants to present field forum-related materials for group discussion. Evening discussion sessions will be held at the White Mountain Research Station, just east of Bishop.

Special Issue of *Lithosphere*

The editors of GSA's new journal, *Lithosphere*, have indicated their support for a special issue focused on the field forum theme. Articles will be published electronically as they are completed and collected into a special issue after the field forum.

Expression of Interest

Due by 20 March 2009

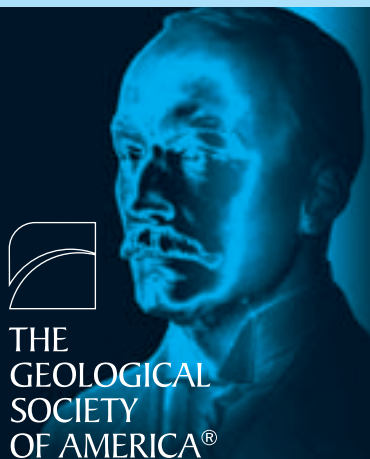
You can inform the organizing committee of your interest by sending an e-mail to David Ferrill, dferrill@swri.org. When responding, please indicate your level of interest (**definitely** wish to participate, **likely** participant, **possible** participant). Please indicate your area of specialization, your affiliation, and whether you are a graduate student, as well as your interest in submitting a manuscript for *Lithosphere*. Space for the forum is limited to 35 to 40 participants and it is expected to fill up quickly.

Registration and fees are still to be determined (please check www.geosociety.org/fieldforums/ for updates). The registration fee will cover hotel lodging for six nights (13–19 September), meals, guidebook, and all transportation to and from the Reno/Tahoe International Airport. Airfare to Reno is not included. Deadline for payment of registration fee: **13 July 2009**.

PROGRAM

13 September	Welcoming reception and overview presentations.
14 September	Structural development in the Volcanic Tableland: Faults and fault system architecture, pyroclastic units, volcanoclastic sediments, fault scaling relationships.
15 September	Basin-scale structure of northern Owens Valley and Volcanic Tableland, including the Sierra Nevada frontal fault system, Coyote Warp relay ramp, Volcanic Tableland rollover, and the White Mountain fault.
16 September	Tectonic geomorphology: Drainage evolution and sedimentation on the Volcanic Tableland, range-front topographic development, alluvial fan sedimentation, and implications for fault slip rates.
17 September	Paleoseismology, geodesy, and seismicity: Basin-margin faulting, intrabasinal deformation and fault kinematics (including right-lateral slip transfer between the Owens Valley fault and the White Mountains fault, between the Big Pine and Bishop regions).
18 September	Late Cretaceous to present: Long-term tectonic evolution and rates and patterns of deformation.
19 September	Departure: Drive from Bishop to the Reno/Tahoe International Airport for departing flights.

Penrose Conference & Field Forum Proposals Encouraged



PENROSE CONFERENCES

GSA's Penrose Conferences were established in 1969 to provide opportunities for the exchange of current information and exciting ideas in geology and related fields and to stimulate and enhance individual and collaborative research. Go to www.geosociety.org/Penrose/ for guidelines and a proposal form.

FIELD FORUMS

Have a great idea for a Penrose Conference that would be much more effective in a field setting or a field trip idea that captures the essence of new discoveries or a controversial topic? Then submit a Field Forum proposal! Field Forums provide an opportunity for the exchange of current knowledge and ideas that are well expressed by the geology of a specific area. Go to www.geosociety.org/fieldforums/ for proposal guidelines and more information.

Questions? Contact Becky Sundeen, +1-303-357-1041, bsundeen@geosociety.org.

SOUTHEASTERN

58th Annual Meeting
St. Petersburg, Florida, USA

12–13 March 2009



Evening Skyline, St. Petersburg, Florida, USA. Photo by Jamie Beverly from http://commons.wikimedia.org/wiki/Image:Skyline_StPetersburgFL.jpg.

The University of South Florida (USF) Dept. of Geology is hosting the 2009 GSA Southeastern Section Meeting (cosponsored by the USF Geology Alumni Society) at the Hilton St. Petersburg Bayfront Hotel in St. Petersburg, Florida, USA. The meeting area offers a variety of geologically interesting venues: excellent examples of covered karst, pristine and human-influenced coastlines, natural springs, sinkholes, and freshwater and saltwater wetlands.

For details on field trips, workshops, student opportunities, the guest program, and symposia and theme sessions, go to www.geosociety.org/meetings/. If you have questions or special requirements, please contact the meeting chairs: local committee chair, Jeff Ryan; ryan@shell.cas.usf.edu, +1-813-974-1598; technical program chair, Rick Oches; roches@bentley.edu.

REGISTRATION

Early Registration Deadline: 9 February 2009

Cancellation Deadline: 17 February 2009

Please register via link at www.geosociety.org/meetings/.

Note: **GSA will distribute all badges at the meeting;** no badges will be mailed.

REGISTRATION FEES (all fees are in U.S. dollars)

	Early	Standard	One-day
Professional Member	\$160	\$190	\$85
Professional Nonmember	\$190	\$210	\$120
Student Member	\$60	\$80	\$50
Student Nonmember	\$75	\$90	\$50
Professional Member 70+	\$80	\$100	\$50
K–12 Teacher	\$50	\$50	\$30
Guest or Spouse	\$30	\$40	N/A
Field Trip or Workshop only	\$40	\$50	N/A

On-Site Registration and Badge Pickup Schedule

Hilton St. Petersburg Bayfront Hotel, St. Petersburg, Florida, USA

Wed., 11 March, 4–9 p.m.

Thurs., 12 March, 7 a.m.–5 p.m.

Fri., 13 March, 7 a.m.–noon

TRAVEL

Airfares 10% below the lowest available AirTran one-way fare at the time reservations are made to Tampa International Airport (TIA) have been arranged through the AirTran Airways EventSavers Program. To get the discount, you MUST make your reservations through the AirTran EventSavers desk at +1-866-683-8368 using the event code **TPA031009** and referencing the 2009 GSA Southeastern Section Meeting.

Discounted rates using the group code **QGADT** have been arranged with SuperShuttle between Tampa International Airport and the convention hotel. Find further details at www.geosociety.org/meetings/.

ACCOMMODATIONS

Hotel Registration Deadline: 10 February 2009

A block of rooms has been reserved at the Hilton St. Petersburg Bayfront Hotel, 333 First Street South, St. Petersburg, FL 33701-4342, USA, at US\$189 per night plus tax for one or more occupants. Please request a reservation under “SE GSA 2009” when you call the Hilton St. Petersburg Bayfront reservation line, +1-727-894-5000 or +1-800-HILTONS.

TECHNICAL PROGRAM

Please check www.geosociety.org/meetings/ for full descriptions.

Symposia

1. **The State of Florida’s Geology.** Tom Scott, Florida Geological Survey.
2. **MARGINS Science at the End of the Decade.** Jeff Ryan, Univ. of South Florida.

Topical Sessions

1. **Geologic Maps, Digital Geologic Maps, Geophysical Maps and Derivatives from Geologic Maps (Posters).** Michael W. Higgins and Ralph F. Crawford, The Geologic Mapping Institute.

2. **Evaluating Educational Outcomes in Geoscience Courses and Curricula.** Laura Wetzels, Eckerd College; Dorien McGee, Univ. of South Florida.
 3. **Undergraduate Research (Posters).** *Cosponsored by the Council on Undergraduate Research—Geosciences Division.* Laura Guertin, Pennsylvania State Univ.—Brandywine.
 4. **Cave and Karst Studies in Florida (Posters).** Lee Florea, Western Kentucky Univ.; Jason Polk, Univ. South Florida.
 5. **Climate Events Recorded in Cave Speleothems.** Bogdan Onac and Philip van Beynen, Univ. of South Florida.
 6. **Morphodynamics of Coastal Depositional Systems.** Ping Wang, Univ. of South Florida.
 7. **Stresses and Strains within Passive Continental Margin Sedimentary Basins, Such As the Gulf Coast Sedimentary Wedge (Posters).** Allan Lowrie, Picayune, Mississippi.
 8. **Volcanology: A Southeastern Perspective.** Charles Connor, Diana Roman, and Paul Wetmore, Univ. of South Florida—Tampa.
 9. **Quantifying Coastal Vulnerability to Geohazards: Methods, Results, and Recommendations.** Randall J. Parkinson, RWParkinson Consulting.
 10. **Energy Geoscience Literacy: What Should Teachers, Students, and the Public Know?** *Cosponsored by the National Association of Geoscience Teachers.* William Witherspoon, Fernbank Science Center.
 11. **Paleobiology of the Atlantic and Gulf Coastal Plains.** Gregory Herbert and Shubhabrata Paul, Univ. of South Florida.
 12. **Correlation on a Passive Margin: Promises, Pitfalls, and Realities (Posters).** Peter Harries, Univ. of South Florida; Rick Oches, Bentley College.
 13. **Best Instructional Practices in College-Level Earth, Planetary, Ocean, and Atmospheric Science Courses: Large Class and Small Class Perspectives.** Mary Beck, Valencia Community College; Marianne O'Neal Caldwell, Hillsborough Community College.
 14. **Atoms to Orogens: Recent Developments in Tectonics and Provenance Studies Utilizing Isotopic Systems and Geochronology.** John S. Allen, Univ. of Kentucky; Paul A. Mueller, Univ. of Florida.
 15. **Event Sedimentation along the Gulf of Mexico.** *Cosponsored by Eastern Section SEPM (Society for Sedimentary Geology).* Douglas W. Haywick, Univ. of South Alabama.
 16. **My Best Student Field Experience ... Ever.** Douglas W. Haywick, Univ. of South Alabama; David T. Allison, Univ. of South Alabama
2. **The Geology and Evolution of the Florida Keys.** Fri.–Sun., 13–15 March. Cost: US\$470. Max.: 18. Al Hine, Univ. of South Florida; Gene Shinn, U.S. Geological Survey; William Precht.
 3. **Morphology and Stratigraphy of Barrier Islands, West-Central Florida.** Sat., 14 March. Cost: US\$65. Max.: 30. Ping Wang, Tanya Beck, Mark Horwitz, Tiffany Roberts, Univ. of South Florida.
 4. **West-Central Florida's Springs: Beauty, Problems, and Prospects.** Sat., 14 March. Cost: US\$65; includes lunch. Max.: 30. Harley Means, Florida Geological Survey; Dave DeWitt, Southwest Florida Water Management District.
 5. **Late Pleistocene and Holocene Strandplains in Northern Florida: Evolution and Optical Dating.** Sat.–Tues., 14–17 March. Cost: US\$320; includes breakfast, lunch, and dinner 15–16 March. Max.: 20. Jack Rink, McMaster Univ., +1-905-525-9140 ext. 24178; Kevin Burdette, McMaster Univ.

WORKSHOPS

1. **Using 3-D Models in Google Earth to Teach Plate Tectonics and Other Aspects of Geology.** Wed., 11 March, 8 a.m.–5 p.m. Steve Whitmeyer, James Madison Univ.; Declan DePaor, Old Dominion Univ.
2. **Starting Out in Undergraduate Research and Education: A Workshop for Early-Career Faculty and Those Seeking Academic Positions.** *Cosponsored by the Council on Undergraduate Research—Geosciences Division.* Lydia K. Fox, Univ. of the Pacific; Laura Guertin, Pennsylvania State Univ.—Brandywine.
3. **Helping K–12 Teachers Explore GSA Geoscience Resources.** *Cosponsored by the GSA Education Committee.* Wed., 11 March, 1:30–4:30 p.m. Refreshments provided. Chris McLelland, GSA, cmcllland@geosociety.org; Gary Lewis, GSA.

TRAVEL GRANTS

Application Deadline: 9 February 2009

Applications and information on student travel grants are online at www.geosociety.org/sectdiv/.

VOLUNTEERS

Please volunteer by 10 January 2009.

We rely on student volunteers to help meetings run smoothly, and the local committee and officers of GSA's Southeastern Section are pleased to offer free meeting registration in return for ~6 hours of work. Contact student volunteer coordinators Dorien McGee, dmcgee@mail.usf.edu, or Alain Volentik, avolenti@mail.usf.edu, for more information.



Evidence of earlier civilizations: Mounds built by the Tocobaga Indians near today's St. Petersburg, Florida, USA. Photo courtesy Visit St. Petersburg/Clearwater.

FIELD TRIPS

Anyone interested in proposing a field trip should contact field trip chair Peter Harries, harries@cas.usf.edu. For field trip details, go to www.geosociety.org/meetings/.

1. **The Central Florida Phosphate District—Stratigraphy to Ore Processing.** Wed., 11 March. Cost: US\$73; includes lunch. Max.: 50. Tom Scott, Florida Geological Survey; Harley Means, Florida Geological Survey.

NORTHEASTERN

44th Annual Meeting
Portland, Maine, USA

22–24 March 2009



Photo courtesy Convention and Visitors Bureau of Greater Portland.

Portland is located on a peninsula in Casco Bay along the Atlantic Ocean. Founded in 1786, this waterfront town mixes historic architecture with a modern business district. Portland's Fore River Sanctuary, an 85-acre preserve with trail access in four locations across the city, includes Jewell Falls and an extended lowland area, where salt water and freshwater marsh meet.

For up-to-the-minute details on this meeting, go to www.geosociety.org/meetings/. If you have questions or special requirements, please contact general chair **Arthur Goldstein**, agoldstein@une.edu; technical program chair **Robert G. Marvinney**, robert.g.marvinney@maine.gov; or secretary-treasurer **Stephen G. Pollock**, Pollock@usm.maine.edu.

REGISTRATION

Early Registration Deadline: 17 February 2009

Cancellation Deadline: 23 February 2009

Please register online via link at www.geosociety.org/meetings/.

REGISTRATION FEES (all fees are in U.S. dollars)

	Early		Standard	
	Full Meeting	One-Day	Full Meeting	One-Day
Professional Member	\$140	\$90	\$170	\$110
Professional Member 70+	\$70	\$50	\$100	\$70
Professional Nonmember	\$160	\$110	\$190	\$140
Student Member	\$45	\$35	\$65	\$55
Student Nonmember	\$55	\$45	\$75	\$65
K–12 Professional	\$45	\$30	\$55	\$40
Tuesday Water Conf. Only	N/A	\$55	N/A	\$65
Guest or Spouse	\$30	\$15	\$40	\$25
Field Trip only	N/A	\$30	N/A	\$30

LOCATION & ACCOMMODATIONS

Hotel Registration Deadline: 21 February 2009

The meeting venue is the Holiday Inn By the Bay, 88 Spring Street, Portland, Maine 04101, USA, where a block of rooms has been reserved at US\$125 + tax per night for up to four occupants. Please call the Holiday Inn reservation line, +1-800-345-5050, and request a reservation under “**NEGSA 2009.**” For directions and other information, please call +1-800-345-5050 or go to www.innbythebay.com.

PLENARY ADDRESS

Climate Change: Realities, Surprises, and Opportunities.
4 p.m., Sunday, 22 March. Paul Mayewski.

TECHNICAL SESSIONS

Please check www.geosociety.org/meetings/ for full descriptions.

Symposia

- Sea Level and Salt Marsh Ecogeomorphology.**
Cosponsored by the Eastern Section SEPM. Beverly Johnson, Bates College, bjohnso3@bates.edu; Julia Daly, Univ. of Maine at Farmington, dalyj@maine.edu.
- Orogenesis and Arc Collisions: From Models to Observations of Modern and Ancient Orogens.** Tim Byrne, Univ. of Connecticut, tim.byrne@uconn.edu; Cees van Staal, Geological Survey of Canada, cvanstaa@nrcan.gc.ca; Peter Koons, Univ. of Maine, peter.koons@maine.edu.
- Aspects of Transatlantic Research on Magma Systems.** David Gibson, Univ. of Maine at Farmington, dgibson@maine.edu; Dan Lux, Univ. of Maine, dlux@maine.edu; Martin Feely, National Univ. of Ireland, martin.feely@nuigalway.ie.
- Climatic Change: Perspectives and Insights from Hothouse and Icehouse Climates in Deep Time.** David Sunderlin, Lafayette College, sunderld@lafayette.edu; Kira Lawrence, Lafayette College, lawrenck@lafayette.edu.
- Modern Glacial Processes and the Glacial Sedimentary Record: In Honor of Joe Hartshorn.** *Cosponsored by the Eastern Section SEPM.* Carl Koteff, U.S. Geological Survey, ckoteff@cox.net; Tom Weddle, Maine Geological Survey,

thomas.k.weddle@maine.gov; Michael J. Retelle, Bates College, mretelle@bates.edu.

6. **Lakes and Environmental Change.** Brad Hubeny, Salem State College, bhubeny@salemstate.edu; Lisa Doner, Plymouth State Univ., donerl@mac.com.
7. **Provenance and Orogenic History of Ganderia: Key Element in the Mid-Paleozoic Accretionary History of the Appalachian Orogen.** Sandra Barr, Acadia Univ., sandra.barr@acadiau.ca; Cees van Staal, Geological Survey of Canada, cvanstaa@nrcan.gc.ca.
8. **The Boston Basin and Beyond: In Honor of Margaret D. Thompson.** Jean Crespi, Univ. of Connecticut, jean.crespi@uconn.edu, and Cathy Summa, Winona State Univ., csumma@winona.edu.
9. **Maine Groundwater: Sustainable Aquifer Use through Monitoring and Regulation.** Robert Marvinney, Maine Geological Survey, robert.g.marvinney@maine.gov; Carol White, C.A. White & Associates, cawhite@smemaine.com.
10. **Natural Hazards: Supporting Mitigation to Avoid Future Costs.** Laurence Becker, Vermont Geological Survey, laurence.becker@state.vt.us.
11. **Mineral Resources of the Northeastern United States and Eastern Canada.** William Kelly, New York State Museum–New York State Geological Survey, wkelly@mail.nysed.gov; Marian Lupulescu, New York State Museum–New York State Geological Survey, mlupules@mail.nysed.gov.

Theme Sessions

1. **Geologic Maps as Tools for Resource and Environmental Issues (Posters).** Robert G. Marvinney, Maine Geological Survey, robert.g.marvinney@maine.gov.
2. **From Road Salt to Arsenic and Other Environmental Contaminants in Hydrologic Systems.** Rudi Hon, Boston College, hon@bc.edu; Bill Brandon, U.S. EPA, brandon.bill@epa.gov; Joseph Ayotte, U.S. Geological Survey, jayotte@usgs.gov.
3. **GIS Applications in Geoscience Teaching, Research, and Map Production.** Dykstra Eusden, Bates College, deusden@bates.edu; Mark Swanson, Univ. of Southern Maine, mswanson@usm.maine.edu.
4. **Remote Sensing Applications to Geomorphology.** Patrick A. Burkhart, Slippery Rock State Univ., patrick.burkhart@sru.edu; Jack Livingston, Slippery Rock State Univ.
5. **Geoarchaeology: Sites, Substrate, Sources, and Context.** *Cosponsored by the Eastern Section SEPM.* Alice R. Kelley, Univ. of Maine, akelley@maine.edu; Allen Gontz, Univ. of Massachusetts–Boston, allen.gontz@umb.edu.
6. **Glacial and Paraglacial Coasts: Stratigraphy, Processes, and Geomorphology.** *Cosponsored by the Eastern Section SEPM.* Dan Belknap, Univ. of Maine, belknap@maine.edu.
7. **Rheology, Kinematics, and Strain Localization in Faults and Shear Zones.** Scott Johnson, Univ. of Maine, johnsons@maine.edu; Michael Williams, Univ. of Massachusetts–Amherst, mlw@geo.umass.edu; Christopher Gerbi, Univ. of Maine, christopher.gerbi@maine.edu.
8. **Advances in Stratigraphy and Paleontology of Paleozoic Dark Shales.** Alex Bartholomew, SUNY–New

Paltz, barthola@newpaltz.edu; Diana Boyer, SUNY–Oswego, dboyer@oswego.edu.

9. **Bioevents, Tectonics, and Sea-Level Change in Marine to Non-Marine Strata of Northeastern North America.** Sean Cornell, Shippensburg Univ., srcornell@ship.edu; Patrick McLaughlin, Wisconsin Geological Survey, pimclaughlin@wisc.edu.

The following Theme Sessions will run jointly with the Maine Water Conference.

10. **Habitat Restoration in North Atlantic Watersheds.** Karen Wilson, Univ. of Southern Maine, kwilson@usm.maine.edu; Noah P. Snyder, Boston College, noah.snyder@bc.edu; Ellen M. Douglas, Univ. of Massachusetts–Boston, ellen.douglas@umb.edu.
11. **Consequences of Climate Change on Water Resources: Finding Solutions to Tomorrow's Problems.** Charles Hebson, Maine Dept. of Transportation, charles.hebson@maine.gov.
12. **The Community-Based Conservation Model as Management Tool: Integrating Theory with Practice.** Teresa Thornton, Mitchell Center–Univ. of Maine, teresa.thornton@umit.maine.edu.
13. **Land Conservation and Management Strategies for Protecting Water Quality.** Jim Gooch, Trust for Public Land, jim.gooch@tpl.org; Wolfe Tone, Trust for Public Land.
14. **Using Monitoring Data to Influence Management and Conservation of Aquatic Ecosystems.** Tom Danielson, Maine Dept. of Environmental Protection–Bureau of Land and Water Quality, thomas.j.danielson@maine.gov.
15. **Competitive Demands for Groundwater Resources in the Northeast.** Martha Nielsen, USGS–Maine Water Science Center, mnielsen@usgs.gov.
16. **What's Different about Our Waters? Maine's Lakes and Streams in a Regional Context.** Peter Vaux, Univ. of Maine, peter.vaux@maine.edu; Sarah Nelson, Univ. of Maine, sarah.nelson@umit.maine.edu.
17. **Getting Back to Clean: Practices for Restoring the Quality of Urban Impaired Streams.** Donald T. Witherill, Maine Dept. of Environmental Protection, donald.t.witherill@maine.gov.
18. **Chemical, Biological, Hydrological, and Geochemical Aspects of Surface Waters and Groundwaters, and Their Policy and Economic Implications (Posters).** Ruth Hallsworth, Univ. of Maine, hallsworth@maine.edu.

WORKSHOPS

1. **Innovative Geoscience Education Using Tools and Models in Google Earth.** 8 a.m.–5 p.m., Sat., 21 March. Fee: US\$35; does not include lunch.
2. **Digital Mapping Techniques in the Geosciences.** 8 a.m.–5 p.m., Sat., 21 March. Fee: professionals, US\$35; students, US\$25. Max.: 12, lunch and transportation provided.
3. **Developing Competitive Proposals.** *Workshop subsidized by NSF ADVANCE.* 9 a.m., Sat., 21, March. Fee: professionals, US\$25; students, US\$15; does not include lunch.

4. **Using the Explore Geoscience Classroom Resources to Engage K–12 Educators in Teaching Geology.** 8–11 a.m., Sun., 22 March. Free. Gary Lewis, GSA, gLewis@geosociety.org.
5. **On The Cutting Edge Workshop: Pursuing an Academic Career.** 10 a.m.–4 p.m., Sat., 21 March. Fee: US\$25; includes box lunch. Rachel Beane, Bowdoin College, rbeane@bowdoin.edu, +1-207-725-3160.

FIELD TRIPS

For detailed field-trip information, go to www.geosociety.org/sectdiv/09semtg.htm.

1. **Coastal Storms, Sediment Budgets, and Mitigating Engineering in Saco Bay.** 9 a.m.–4 p.m., Sat., 21 March. Cost: professionals, US\$35; students, US\$20; includes transportation, lunch, and field guide. Max.: 40; min.: 10. Stephen M. Dickson, Maine Geological Survey–Augusta, stephen.m.dickson@maine.gov, +1-207-287-7174; Peter A. Slovinsky, Maine Geological Survey; Joseph T. Kelley, Daniel Belknap, Laura Brothers, Univ. of Maine.
2. **The Sebago Pluton and the Sebago Migmatite Domain, Southern Maine: Results from New Studies.** 8:30 a.m.–5:30 p.m., Sat., 21 March. Cost: professionals, US\$35; students, US\$20; includes transportation, lunch, and field guide. Max.: 30; min.: 10. Gary Solar, SUNY College at Buffalo, solargs@buffalostate.edu; Paul Tomascak, SUNY-Oswego, tomascak@oswego.edu.
3. **Geology Cruise around Inner Casco Bay.** Half-day, Sat., 21 March. Meet at Casco Bay Lines ferry terminal, 56 Commercial Street, Portland, at 12:30 p.m. for boarding.

Departure: 1 p.m.; return: 4 p.m. Cost: professionals, US\$45; students, US\$30. Max.: 200; min.: 40. Arthur M. Hussey II, Bowdoin College (emeritus), hussgeo@gwi.net, +1-207-666-5526.

SPECIAL EVENTS

Welcoming Reception. Sat., 21 March, 6–8:30 p.m. Holiday Inn By the Bay.

Northeastern Section of GSA Map Blast XI. Sun., 22 March, 7–9:30 p.m.

Association for Women Geoscientists Career Development Breakfast. Mon., 23 March, 6:30–8 a.m. Cost: professionals, US\$18; students, US\$9.

Conference Banquet. Mon., 23 March, 7–9 p.m. All attendees invited. Cost: professionals, US\$37.50; students, US\$12.50. Buffet with cash bar open 6–7 p.m.

STUDENT TRAVEL GRANTS

Application deadline: 18 February 2009

Travel grants are available from GSA's Northeastern Section in cooperation with the GSA Foundation and are open to all GSA Student Members who are currently enrolled in Northeastern Section schools and presenting oral or poster papers at this meeting. You must register for the meeting *before* the travel grant application deadline and apply online using the travel grant application form at www.geosociety.org/sectdiv/northe/08mtg/students.htm. Questions? Please contact the GSA Northeastern Section Secretary-Treasurer, Stephen Pollock, pollock@usm.maine.edu or go to www.geosociety.org/grants/negrant.htm.

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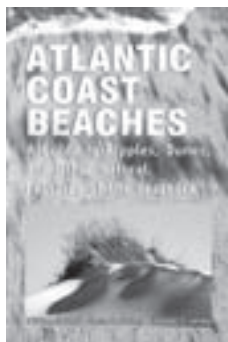
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NORTH-CENTRAL

43rd Annual Meeting
Rockford, Illinois, USA

2–3 April 2009

Rockford is so named for its location at a popular rock outcrop for fording the Rock River. The damming of the Rock River for power in 1853 after the arrival of the railroad helped make Rockford the third largest city in Illinois. Featured at this meeting: “Evening at the Burpee,” a reception at the Burpee Museum of Natural History—see Jane, a juvenile *Tyrannosaurus rex* now on display, plus learn more about the museum’s paleo-collections, including Petey, another juvenile *T. rex* now being restored.



View west across the Rock River toward downtown Rockford, Illinois, USA. Photo courtesy Rockford Area Convention & Visitors Bureau.

EXTENDED MEETING SCHEDULE

1 April: Workshops and Short Courses

2–3 April: Technical Sessions

4 April: Field Trips

For details on field trips, workshops, student opportunities, the guest program, and symposia and theme sessions, go to www.geosociety.org/meetings/ or www.niu.edu/geology/gsa/index.html. If you have questions or special requirements, please contact the meeting chairs: local committee chairs, Gene Perry, nccgsa@niu.edu, +1-815-753-7935; and Melissa Lenczewski, nccgsa@niu.edu, +1-815-753-7937; or technical program chairs, Jim Walker, jwalker@niu.edu, +1-815-753-7936; and Douglas Walker, ddwalker@uiuc.edu, +1-217-333-1724.

REGISTRATION

Early Registration Deadline: 2 March 2009

Cancellation Deadline: 9 March 2009

Please register at www.geosociety.org/meetings/. *Note:* **GSA will distribute all badges at the meeting;** no badges will be mailed.

REGISTRATION FEES (all fees are in U.S. dollars)

	Early	Standard	One-Day
Professional Member	\$160	\$180	\$110
Professional Nonmember	\$185	\$200	\$120
Student Member	\$40	\$50	\$25
Student Nonmember	\$75	\$85	\$60
Professional Member 70+	\$100	\$100	\$50
K–12 Teacher	\$35	\$35	\$20
Guest or Spouse	\$50	\$50	N/A
Field Trip or Workshop only	\$35	\$35	N/A

On-Site Registration and Registration Packet Pickup Schedule

Rockford Conference Center, Northern Illinois University (NIU), Rockford, Illinois, USA

Wed., 1 April, 4–8 p.m.

Thurs., 2 April, 7 a.m.–5 p.m.

Fri., 3 April, 7 a.m.–noon

ACCOMMODATIONS

Hotel Registration Deadline: 2 March 2009

Make your reservations via link on our Web site or use the phone numbers provided. Reference “The Geological Society of America” for block prices (single or double occupancy).

Clock Tower Resort and Conference Center, 7801 East State Street, Rockford, IL 61108, USA; +1-888-873-6581 or +1-815-315-4385. Block price: US\$104+tax per night.

Courtyard Marriott, 7676 East State Street, Rockford, IL 61108, USA; +1-815-397-6222. Reference “1-SVMUOT” along with GSA for the block price of US\$104+tax per night.

Hampton Inn, 615 Clark Drive, Rockford, IL 61107, USA; +1-815-229-0404. Block price: US\$109+tax per night.

Hilton Garden Inn, 7675 Walton Street, Rockford, IL 61108, USA; +1-815-229-3322. Block price: US\$119+tax per night.

WORKSHOPS & SHORT COURSES

All short courses and workshops will be held at NIU-Rockford on Wednesday, 1 April. Details are online at www.geosociety.org/meetings/.

1. **Introduction to Basis Map Making Using ArcGIS and Spatial Analyst.** 1 Apr., 8 a.m.–noon. Fee: US\$50. Max.: 15; min.: 7. Kingsley Allan, kingsley@illinois.edu, +1-217-333-0545.
2. **Approaches to Bridge the Gap between Geology and Engineering: Training to Maximize Engineering Soil Descriptions and Field Analysis.** 1 Apr., 1–5 p.m. Fee: US\$99. Max.: 40; min.: 5. Tim Kemmis, Midwest Geosciences, dan@midwestgeo.com, +1-763-607-0092; Dan Kelleher, Midwest Geosciences.
3. **Geology and Human Health.** 1 Apr., 1–5 p.m. Fee: US\$30. Max.: 40; min.: 10. Syed Hasan, Univ. of Missouri–Kansas City, chair of the International Medical Geology Association Education Committee, and second vice-chair of GSA’s Geology and Health Division, hasans@umkc.edu, +1-816-235-2976.
4. **Climate Change: Causes, Consequences, and Adaptations.** *Cosponsored by the National Association of Geoscience Teachers.* 1 Apr., 4–6 p.m. Fee: US\$15. Max.: 40; min.: 10. Allen Macfarlane, dowser@kgs.ku.edu; Sallie Greenberg, greenberg@isgs.illinois.edu.

SPECIAL SESSION

Protecting Public Health through Geological Understanding Panel Discussion. Thurs., 2 April, 8–11 a.m. Dick Berg, berg@isgs.illinois.edu, Mike Bacon, Winnebago County Health Department. This panel discussion brings together county health departments that have used or have need for geological information in their planning endeavors.

TECHNICAL SESSIONS

Symposia

1. **Water Resources in Karst Terranes of the Midwestern United States.** Sam Panno, panno@isgs.uiuc.edu, +1-217-244-2456.
2. **International Development and Geoscience.** Jeff Greenberg, jeffrey.k.greenberg@wheaton.edu.
3. **Application of Modern Techniques to Address Fundamental Problems in Planetary Geology.** Mark Frank, mfrank@niu.edu, +1-815-753-8395.
4. **Central American Volcanism—A Tribute to Bill Rose.** Jim Walker, jwalker@niu.edu, +1-815-753-7936; Rudiger Escobar Wolf, rpescoba@mtu.edu.
5. **Carbon Sequestration—Moving Carbon from the Atmosphere to the Lithosphere.** Ed Mehnert, mehnert@isgs.illinois.edu.
6. **Water Use and Availability in the Great Lakes Basin.** Scott Meyer, smeyer@uiuc.edu.
7. **Cultural Geology: Building Stones, Archaeological Materials, Terrain, Terroir, and More.** Joe Hannibal, jhanniba@cmnh.org; Tammie Gerke, erebus95@fuse.net.

Theme Sessions

1. **Applied Geology: Environmental, Hydrogeological, and Geotechnical.** Terry West, trwest@purdue.edu.
2. **Coal as a Viable Energy Resource.** Lindgren Chyi, lchiy@uakron.edu; Chen-Lin Chou, chenlinchou@hotmail.com.
3. **Quaternary Research in Wisconsin.** Kent Syverson, syverskm@uwec.edu, +1-715-836-3732; Randall Schaeztl, soils@msu.edu.
4. **Medical Geology.** David Clarke, dclarke@astate.edu, +1-870-680-4362.
5. **Polar Climate Change.** Reed Scherer, reed@geol.niu.edu, +1-815-753-7951.
6. **Vertebrate Paleontology.** Mike Henderson, michael.henderson@burpee.org; Michael Ryan.
7. **Environmental Biogeochemistry: Isotopes and Microorganisms.** Melissa Lenczewski, lenczewski@niu.edu; Liliana Lefticariu, lefticariu@geo.siv.edu.
8. **Easy-to-Incorporate Inquiry-Based Activities for the K–16 Classroom.** *Cosponsored by the National Association of Geoscience Teachers.* Carrie Wright, clwright@usi.edu, +1-812-465-1145.
9. **Backyard Field Trips: Inquiry-Based Activities within 100 Meters of Your Building.** *Cosponsored by the National Association of Geoscience Teachers.* Mark Francek, mark.francek@cmich.edu, +1-989-774-3323.
10. **Issues in Geoscience Education.** *Cosponsored by the National Association of Geoscience Teachers.* Kathleen Bower, kmbwer@eiu.edu, +1-217-581-6245.
11. **K–16 Collaboration, Outreach, and Engagement.** *Cosponsored by the National Association of Geoscience Teachers.* Allen Macfarlane, dowser@kgs.ku.edu, +1-785-864-2068; Annabelle Foes, afoos@uakron.edu.
12. **Sedimentary Event Histories and Controls on Timing and Patterns of Deposition in North American Phanerozoic Basins.** *Cosponsored by the Great Lakes Section SEPM.* James Day, jeday@ilstu.edu.

13. **Undergraduate Research (Posters).** *Cosponsored by the Council for Undergraduate Research.* Jeanette Pope, jpope@depauw.edu; Bob Shuster, rshuster@mail.unomaha.edu; Andrew Wulff, andrew.wulff@wku.edu.
14. **Fossils in Time and Space.** *Cosponsored by the Paleontological Society.* Shanan E. Peters, peters@geology.wisc.edu; Dana H. Geary, dana@geology.wisc.edu.
15. **Channel Response to Geology, Climate, and Land Use in Post-Glacial Landscapes.** Andrew Phillips, phillips@isgs.illinois.edu; Laura Keefer.
16. **Geochemical and Isotopic Studies of Rocks, Minerals, and Fluids.** Neil Sturchio, sturchio@uic.edu; Francesco Belluci.
17. **Paleozoic Fishes: Evolution, Paleoecology, Systematics, and Assemblages.** Chuck Ciampaglio, chuck.ciampaglio@wright.edu.
18. **Juggling Geologic Records: Innovative Approaches to Curation, Accessibility, and Educational Uses of Geological Specimens and Large Data Sets.** Patrick McLaughlin, pimcloughlin@wisc.edu.
19. **Sedimentary and Stratigraphy of Glacial Deposits.** Bryce Willems, bwillems@niu.edu; Jason Thomason.

FIELD TRIPS

All trips run on Saturday, 4 April. Fees are US\$60 per person per trip and include transportation, box lunch, and a guidebook of all the meeting field trips. Max.: 50; min.: 20 per trip. For descriptions and further information, go to www.geosociety.org/meetings/.

1. **Chicago's Landscape—A Product of Glacial and Coastal Processes.** 4 Apr., 7:30 a.m.–4:30 p.m. Michael J. Chrzastowski, Illinois State Geological Survey, chrzasto@isgs.illinois.edu.
2. **The Upper Mississippi Valley Pb-Zn District Revisited: Geology, Mining, and Cultural History, and a Look at Reclamation and Environmental Issues 30 Years after the Last Mine Closed.** 4 Apr., 7 a.m.–5:30 p.m. Bruce A.

Brown, Wisconsin Geological and Natural History Survey, babrown1@wisc.edu; Thomas C. Hunt, Univ. of Wisconsin–Platteville; Dave M. Johnson, Wisconsin Department of Natural Resources; Daniel D. Reid, Wisconsin Department of Transportation.

3. **Dunefields and Deglacial Environments of Northern Illinois.** 4 Apr., 7:30 a.m.–5 p.m. Art Bettis, Univ. of Iowa, art-bettis@uiowa.edu; Joe Krieg, Univ. of Iowa; Xiaodong Miao, Illinois State Geological Survey (ISGS); Hong Wang, ISGS; Brandon Curry, ISGS; Mike Konen, Northern Illinois Univ.
4. **The Possible Impact of Oceanic and Climatic Events on the Depositional Patterns of Silurian Rocks in Northeastern Illinois.** 4 Apr., 7 a.m.–6 p.m. Don Mikulic, Illinois State Geological Survey, mikulic@isgs.illinois.edu; Joanne Kluessendorf, Weis Earth Science Museum.

SPECIAL EVENTS

Welcoming Reception: Wed., 1 April, 6–8 p.m. at NIU Rockford Conference Center.

Keynote Lecture: Thurs., 2 April, 5–6 p.m. “Paleoclimate: Hadean to Holocene,” by John Valley, Univ. of Wisconsin–Madison. NIU Rockford Conference Center, main auditorium.

Evening at the Burpee: Thurs., 2 April, 6:30–9 p.m. International food buffet, beer, and cash bar provided.

Closing Reception: Fri., 3 April, 1–4 p.m. Refreshments and beer will be served.

STUDENT TRAVEL GRANTS

Find information and applications for student travel grants at www.geosociety.org/sectdiv/.

VOLUNTEERS

The local committee and officers of GSA's North-Central Section are offering free registration to a limited number of students in return for ~6 hours of work. Contact student volunteer coordinator Mark Frank, mfrank@niu.edu, for more information.



Rock Cut State Park, near Rockford, Illinois, USA. Courtesy Rockford Area Convention and Visitors Bureau.

2009 Section Meeting Mentor Programs

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DESCRIPTIONS

Roy J. Shlemon Mentor Program in Applied Geoscience

This luncheon provides an occasion for students to discuss career opportunities and challenges with professional geoscientists from multiple disciplines. Students will receive tickets for this FREE lunch in their meeting registration packets.

John Mann Mentors in Applied Hydrogeology Program

This event presents opportunities for students and recent graduates interested in a career in applied hydrogeology or hydrology to network with practicing professionals. Whether you've already decided to head down the hydro career path or would just like to know more about career options, this luncheon is for you! Students will receive a ticket for this focused, small-scale event and FREE lunch in their meeting registration packets.



SCIENCE ■ STEWARDSHIP ■ SERVICE

SOUTHEASTERN

St. Petersburg, Florida, USA

Shlemon Mentor Program Luncheons

Thurs., 12 March, 11:30 a.m.–12:30 p.m.
and 12:30–1:30 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Fri., 13 March, 11:30 a.m.–1 p.m.

SOUTH-CENTRAL

Dallas, Texas, USA

Shlemon Mentor Program Luncheon

Mon., 16 March, 11:30 a.m.–1 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Tues., 17 March, 11:30 a.m.–1 p.m.

NORTHEASTERN

Portland, Maine, USA

Shlemon Mentor Program Luncheons

Mon., 23 March, 11:30 a.m.–12:30 p.m.
and 12:30–1:30 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Tues., 24 March, 11:30 a.m.–1 p.m.

NORTH-CENTRAL

Rockford, Illinois, USA

Shlemon Mentor Program Luncheons

Fri., 3 April, 11:30 a.m.–12:30 p.m.
and 12:30–1:30 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Thurs., 2 April, 11:30 a.m.–1 p.m.

CORDILLERAN

Kelowna, British Columbia, Canada

Shlemon Mentor Program Luncheons

Thurs., 7 May, 11:30 a.m.–12:30 p.m.
and 12:30–1:30 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Fri., 8 May, 11:30 a.m.–1 p.m.

ROCKY MOUNTAIN

Orem, Utah, USA

Shlemon Mentor Program Luncheon

Mon., 11 May, 11:30 a.m.–1 p.m.

Mann Mentors in Applied Hydrogeology Luncheon

Tues., 12 May, 11:30 a.m.–1 p.m.



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GSA Foundation Update

Donna L. Russell, Director of Operations

GeoCorps™ America Geoscientists Working for Public Land Management and Protection

A Geological Society of America Education and Outreach Program

WHAT IS GEOCORPS?

Through its GeoCorps™ America Program, GSA places all levels of geoscientists—university students, professionals, and retirees—in temporary summer positions on U.S. National Parks, National Forests, and Bureau of Land Management (BLM) lands. Park, Forest, and BLM managers select education and interpretation, research, and resource management and protection projects that require geoscience expertise; GSA then actively recruits applicants for these positions through the Society's 21,000+ members, placing the most qualified applicants in the posted positions. Selected participants receive a US\$2,750 stipend and housing (or a housing allowance) for the summer, paid through GSA.

175 geoscientists nationwide, while it manages 192 million acres of land.

GSA's GeoCorps program has supported 113 National Parks, National Monuments, National Forests, and BLM lands since the program began in 1997 by placing 352 GeoCorps participants to work in the geoscience fields.

GeoCorps participants also benefit greatly by being provided a "real life," on-the-ground work or research experience to help enhance their careers. Participants work side by side with Park Service, Forest Service, and BLM field staff and are given invaluable training and work experience on active public land projects. Participants are also valuable resources to public lands staff by giving them up-to-date geoscience information.

WHO BENEFITS?

The need for geoscience expertise on America's public lands is great, with areas such as visitor education, resource management, site protection, geological hazards mitigation, and geoscience research not adequately addressed. For example, the U.S. National Park Service manages 80.7 million acres of land but only permanently employs 25 geologists. It also has over 1,000 interpreters on staff, but only a handful with a background in geology. The U.S. Forest Service has a staff of only

GEOCORPS PROJECT EXAMPLES

- Excavating and preparing fossil specimens
- Developing and presenting geology educational tours to park visitors
- Stream and erosion surveys for watershed assessments
- Glacial movement monitoring
- Paleontology research and database development
- Glacial lakes water quality monitoring
- Mapping soil and groundwater contamination

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GeoCorps™ America 2009

Application deadline: **1 February 2009**

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GSA's GeoCorps™ America program places GSA members in temporary positions across the country to assist the National Park Service, Forest Service, and Bureau of Land Management with geoscience projects, including paleontology, hydrogeology, glaciology, mapping and GIS, education, and geohazards. Participants receive a US\$2,750 stipend for a three-month position in addition to on-site housing or a housing allowance.

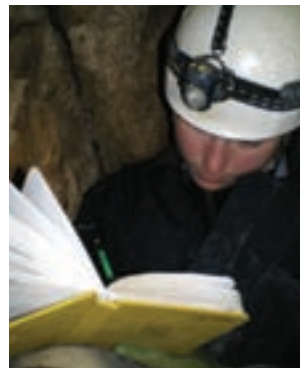
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Lynn Galston, GeoCorps education specialist and geologist at Oregon Caves National Monument, 2008.



Nellie Olsen, GeoCorps engineering geologist at White River National Forest, 2008.

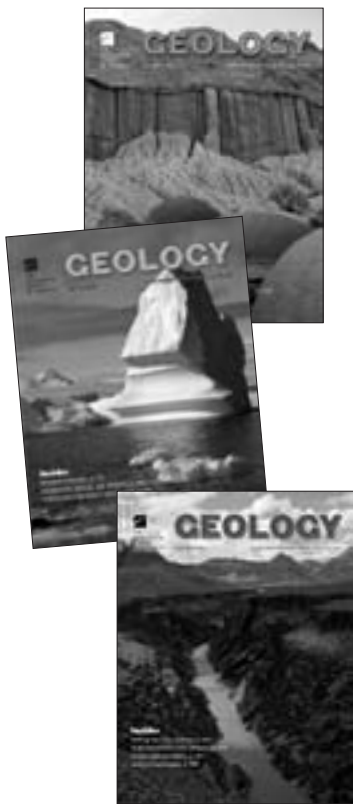


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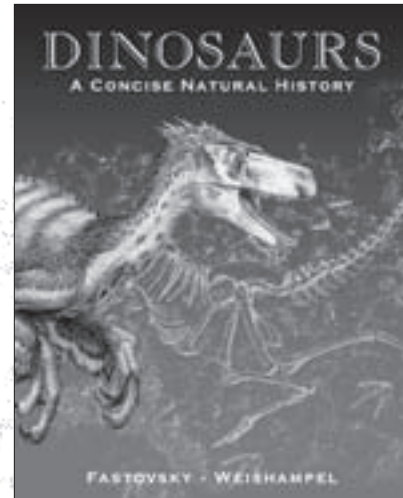
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We seek individuals from such fields as biology, chemistry, earth and planetary sciences, environmental sciences, and physics who have expertise and innovative insight into global change over a range of time scales and interactions between climate and biosphere. Important research frontiers in this area include interactions between biological and geochemical processes; carbon dynamics at the regional and global level; the feedbacks between global change and natural and/or managed ecosystems; and the interactions among agriculture production, energy usage, and the biosphere.

For information regarding application procedures, please see artsci.wustl.edu/About/facultyopenings-cares. Questions regarding the search process can be directed to Dr. Jonathan Chase, jchase@wustl.edu (Department of Biology), or Dr. T.R. Kidder, trkidder@wustl.edu (Department of Anthropology), co-chairs of the Search Committee.

Review of applications will begin immediately, but applications will be received until the positions are filled. Washington University is an Equal Opportunity and Affirmative Action Employer. Applications from women and underrepresented minority groups are strongly encouraged.

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strate excellence in teaching. In addition to Hydrology and Physical/Historical Geology, teaching duties could include Environmental Geology, Soils, or Environmental Science. See www.gcsujobs.com for required qualifications and application details. All applications must be completed online. For questions about the position, contact Dr. Al Mead, Chair, Geology Search Committee, Department of Biological and Environmental Sciences, Georgia College & State University, Milledgeville, GA 31061; al.mead@gcsu.edu, +1-478-445-1091; Fax: +1-478-445-5290. Position to begin 1 August 2009. Review of applications began on 5 December 2008 and will continue until the position is filled. Georgia is an Open Records state. The selected applicant will be required to submit to a background investigation. GCSU is an Equal Opportunity, Affirmative Action Institution committed to cultural, racial, and ethnic communities and compliance with the Americans with Disabilities Act. It is expected that successful candidates share in this commitment. Persons who need reasonable accommodations under the Americans with Disabilities Act to participate in the application process should contact the Division of Human Resources at +1-478-445-5596.

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The Department of Geosciences invites applications for a tenure-track faculty position at the Assistant or Associate Professor level. A Ph.D. degree in geosciences or related field with demonstrated experience in geochemistry is required. We seek an individual who shows the potential for outstanding achievement in research and teaching. The successful candidate will be expected to teach courses at the undergraduate and graduate levels, and establish an externally funded research program. Preference will be given to candidates with experience in petroleum systems science, and/or basin modeling and modeling of rock fluid interaction associated with basin evolution, although other specialties will be considered. Interdisciplinary research with existing Petroleum Engineering, Petroleum Geoscience and Environmental Science programs is encouraged. The University of Tulsa is a private, comprehensive university, and is a premier doctoral granting research institution committed to excellence in teaching, creative scholarship, and service to the University and community. The University is located within 100 miles of two major industry research labs. The city of Tulsa has a vibrant geological and geophysical community, and is home to the international headquarters of the American Association of Petroleum Geologists, Society of Exploration Geophysicists, and the Society for Sedimentary Geology. The Department of Geosciences hosts an array of analytical equipment, and has strong computing capability with all of the major, industry standard software packages. The University offers competitive salary and benefits packages. Minorities and women are encouraged to apply.

Send a letter of application stating research and teaching interests; curriculum vitae, and name and contact information for three references to Dr. Peter Michael, Department of Geosciences, The University of Tulsa, 800 South Tucker Drive, Tulsa, OK 74104-3189. Please direct inquiries to pjm@utulsa.edu. Application review will begin immediately and continue until the position is filled. The University of Tulsa does not discriminate on the basis of personal status or group characteristics including but not limited to the classes protected under federal and state law. The University of Tulsa is an EEO/AA employer.

ASSISTANT PROFESSOR OF GEOSCIENCES (GEOCHEMISTRY OF NATURAL WATERS) UNIVERSITY OF NEBRASKA-LINCOLN

Applications are invited for a tenure track position as Assistant Professor in the Department of Geosciences at the University of Nebraska-Lincoln. The successful candidate will be expected to participate in teaching and curricular development of undergraduate and graduate courses, to advise and direct graduate students, and to develop a rigorous research program that is supported by external funding. It is expected that the research program will include a field component that examines the chemistry of water in surface or shallow subsurface environments and water's interactions with minerals, rock, and organisms. The candidate should demonstrate strong potential for research and teaching and must hold a Ph.D. in Geosciences or a closely related discipline at the time of appointment. Female and ethnic minority candidates are strongly encouraged to apply.

The Sedimentary Geology and Paleontology, Meteorology/Climatology, and Hydrosphere Geosciences programs serve as the three primary units within the Department of Geosciences. The department offers B.S. degrees in Geology and Meteorology/Climatology, as well as M.S. and Ph.D. degrees in Geosciences. Additional information about our department can be found on our Web site: <http://geosciences.unl.edu>. The successful candidate will have the opportunity to participate in an active campus-wide Water Resources Research Initiative, which facilitates research and interdisciplinary forums, conferences, and other activities in water science, policy and law and has hired 11 new water faculty since 2004.

To apply, go to <http://employment.unl.edu> requisition 080940 and complete the "faculty/administrative form." Applicants must attach a cover letter, curriculum vitae, statements of research and teaching interests, and names of at least three references via the above Web site. We will begin to review applications on 15 January 2009, but the position will remain open until it is filled.

The University of Nebraska has an active National Science Foundation ADVANCE gender equity program and is committed to a pluralistic campus community through affirmative action, equal opportunity, work-life balance, and dual careers. For further information, contact Dr. Richard Kettler, Search Committee Chair, by e-mail, phone, or mail: rkettler1@unl.edu, +1-402-472-0882; Department of Geosciences, University of Nebraska-Lincoln, 214 Bessey Hall, Lincoln NE 68588-0340.

ASSISTANT PROFESSOR, PHYSICAL GEOGRAPHER DEPARTMENT OF GEOSCIENCES MURRAY STATE UNIVERSITY

Full-time tenure-track position to begin August 2009. **Qualifications:** Ph.D. required. ABDs with a documented plan of completion by appointment date will be considered. Excellent teaching skills including use of modern classroom technologies required. Must demonstrate research potential in Physical Geography as evidenced by publication or other scholarly activity. Experience with remote sensing and/or GIS methodologies required. **Responsibilities:** Teach introductory courses in the geosciences and upper-level courses in the candidate's area of expertise. Conduct research, pursue external funding, and supervise undergraduate and graduate student research. **Application Deadline: 20 February 2009. To Apply:** Submit a letter of interest, curriculum vitae, statement of teaching and research interests, copies of transcripts, and three letters of reference to Dr. Haluk Cetin, Chair, Search Committee, Department of Geosciences, Murray State University, Murray, KY 42071, +1-270-809-2085. Women and minorities are encouraged to apply. Murray State University is an equal education and employment opportunity, M/F/D, AA employer.

TENURE-TRACK FACULTY POSITION EARTH AND ENVIRONMENTAL SCIENCE UNIVERSITY OF WISCONSIN-EAU CLAIRE

Earth and Environmental Science Education position available 24 August 2009. A completed Ph.D. in geology, environmental science or a closely related discipline is required at the time of appointment. This position requires a demonstrated ability to teach an inquiry-based, laboratory and field intensive, introductory Earth and Environmental Science course for the General Education program and education majors (grades 1-9). Area of specialization is open, but should be focused on earth and environmental sciences, including but not limited to: the interface of geology and biology, environmental remediation, microbes in the environment or earth resources.

Interested individuals should provide a letter describing their background, qualifications for the position, and a statement of both teaching and research interests, a curriculum vitae and unofficial copies of university transcripts. This packet should be sent electronically via e-mail (PDFs strongly preferred) to GeologyHire@uwec.edu. Three individual referees must submit letters of recommendation electronically or by mail addressed to J. Brian Mahoney, Chair, Department of Geology, University of Wisconsin-Eau Claire, Eau Claire, WI 54702-4004.

For a complete position description, call +1-715-836-3732 or visit www.UWEC.edu/Geology. A criminal background check will be required prior to employment. UW-Eau Claire is an AA/EEO employer and encourages applications from women and minorities.

**ASSISTANT OR ASSOCIATE PROFESSOR
HYDROCARBON GEOSCIENCE, GEOLOGY AND
GEOPHYSICS DEPARTMENT AND ENERGY &
GEOSCIENCE INSTITUTE, UNIVERSITY OF UTAH**

The Geology and Geophysics (GG) Department and the Energy & Geoscience Institute (EGI) at the University of Utah invite applications for a tenure-track faculty position in GG at the Assistant or Associate Professor level, beginning 1 July 2009. The successful candidate will bring expertise in hydrocarbon energy research and will develop a strong, externally funded and internationally recognized research program involving students and industry. Teaching responsibilities will include development of new undergraduate- and graduate-level courses and integration with existing courses in GG's Petroleum Industry Career Path. The appointee will participate in collaborative efforts between GG and EGI. The GG Department and EGI share thriving research and academic programs in petroleum geology and geophysics and allied areas of the geosciences, including EGI's Corporate Associate program. The position will have offices at both organizations, and communication and leadership skills as well as teamwork experience are important. We also offer state-of-the-art facilities including the new Frederick A. Sutton Building. More information can be found online at www.earth.utah.edu and www.egi.utah.edu.

The area of specialization is open but possibilities include geologic interpretation of geophysical data, new methodologies for subsurface imaging, petrophysics, rock fracture mechanics, reservoir characterization and engineering, multiphase fluid flow, and geostatistical modeling. Multiple opportunities for collaboration and funding exist, including capitalizing on emerging interest in unconventional resources.

Candidates must have a completed Ph.D. at the time of appointment and a strong record of research and publication. Applications are being accepted now; review of applications will begin on 15 January 2009, and will continue until the position is filled. Applicants should submit an application letter indicating research, teaching and programmatic interests and agenda, curriculum vitae, and names and contact information of three professional references to:

Chairs of the Hydrocarbon Geoscience Search Committee, Geology and Geophysics Dept., University of Utah, 135 South 1460 East, WBB 719, Salt Lake City, UT 84112.

Complete applications may also be sent in PDF format by e-mail to Kristin.Christensen@utah.edu. Questions can be addressed to Cari.Johnson@utah.edu or Ray.Levy@egi.utah.edu.

The University of Utah is an equal opportunity/affirmative action employer, encourages applications from women and minorities, and provides reasonable accommodation to the known disabilities of applicants and employees.

The University of Utah values candidates who have experience working in settings with students from diverse backgrounds, and possess a strong commitment to improving access to higher education for historically underrepresented students.

**ASSISTANT PROFESSOR, SOIL SCIENCE
OR LOW-TEMPERATURE AQUEOUS
GEOCHEMISTRY
UNIVERSITY OF TENNESSEE AT CHATTANOOGA**

The Department of Physics, Geology and Astronomy at The University of Tennessee at Chattanooga invites applicants for a tenure-track appointment at the rank of Assistant Professor to begin in August 2009. We seek a soil scientist or a low-temperature aqueous geochemist who is committed to undergraduate teaching and research. Additional strengths in the areas of clay mineralogy and/or physical hydrology are also desired. The successful candidate must have a Ph.D. in geology or related field by the time of appointment and should demonstrate familiarity with modern research and geochemical tools and techniques. Teaching responsibilities will include introductory courses in geology, upper-level courses in areas of expertise, and supervision of undergraduate research.

Applicants should send a letter of application describing their qualifications, statements of teaching philosophy and research interests, a current curriculum vitae, official transcripts, and three letters of recommendation to Dr. Habte G. Churnet, Head, Department of Physics, Geology and Astronomy, MC 6556, 615 McCallie Avenue, The University of Tennessee at Chattanooga, Chattanooga, TN 37403. Review of application materials will begin 15 January 2009 and will continue until the position is filled. The University of

Tennessee at Chattanooga is an equal employment opportunity/affirmative action/Title VI & IX/Section 504/ADA/ADEA institution.

**VISITING ASSISTANT PROFESSOR
SEDIMENTOLOGY AND STRATIGRAPHY
DICKINSON COLLEGE**

The Dickinson College Geology Department invites applications for a one-year position as a Visiting Assistant Professor to begin fall 2009. The successful candidate will be committed to teaching excellence in the liberal arts tradition and will be field-oriented with broad interests in geosciences beyond their specialty. Teaching responsibilities will include sedimentology/stratigraphy and topical introductory courses. Demonstrated success in student-faculty undergraduate research is highly desirable. Completion or near completion of a Ph.D. in the earth sciences is required.

Our curriculum emphasizes project-based learning with a strong field component. This is greatly facilitated by our location in the folded Appalachians, at the northern terminus of the Blue Ridge, and near the Triassic rift basins. The department has excellent analytical (GFAAS, SEM-EDS, XRD, XRF, TC-IC, digital 3-component seismometer, and well field for hydrogeologic investigations) and computing facilities including a GIS lab. More information can be found on the college and department Web pages at www.dickinson.edu/departments/geol/. Dickinson College is a highly selective private liberal arts college in south-central PA within easy drive of the New York-Washington, D.C., Metro corridor. Dickinson is committed to diversity and we encourage candidates who will contribute to meeting that goal to apply. Applications and nominations for women and minorities are strongly encouraged.

To begin the application process, please go to the following Web site: <https://jobs.dickinson.edu/applicants/Central?quickFind=50518>.

Applications should include a cover letter describing teaching and research interests and philosophy, curriculum vitae, and addresses for three referees. For further information please contact Dr. Jeff Niemitz at niemitz@dickinson.edu. Review of applications will begin on 1 March 2009.

**METEORITICS/PLANETARY SCIENCE
TEXAS CHRISTIAN UNIVERSITY**

The Department of Geology invites applications for a tenure-track assistant professor position in meteoritics/planetary science beginning Fall 2009. This person will be responsible for curating the Monnig Meteorite Collection, conducting research in meteoritics, and teaching planetary science and related courses. The Monnig Collection is one of the finest university meteorite collections in the world. Curatorial duties will include acquisition of new specimens, care of the collection, and participation in outreach programs. An annual acquisition budget will be available for enhancement of the collection. An active research program in meteoritics will be expected. Although analytical facilities are limited on site, annual funding will be provided for off-campus instrument time and travel to other labs. Teaching would generally consist of one course per semester, together with supervision of graduate students. For more information about the Department of Geology and the Monnig Collection, see our Web sites at www.geo.tcu.edu and www.monmignuseum.tcu.edu.

To apply send a vita, statement of teaching interests, proposed research program, and contact information for three references to R.E. Hanson, Chair, Department of Geology, Box 298830, Fort Worth, TX 76129. Review of applications will begin 1 February 2009, and continue until the position is filled. A Ph.D. in meteoritics or related fields is required at the time of appointment and postdoctoral experience is preferred. TCU is an EEO/AA employer and encourages a diversity of applicants.

**VISITING FACULTY POSITION
PETROLOGY/GEOCHEMISTRY
DEPT. OF GEOLOGY, COLORADO COLLEGE**

The Department of Geology at Colorado College invites applications for a one-year non-tenure track position in Petrology/Geochemistry/Volcanology, to begin in August 2009.

The faculty visitor will teach an Introductory Petrology course; a course in Igneous Petrology or high temperature geochemistry; and courses in the candidate's areas of specialization. Appointments will be at the

assistant professor level for candidates holding a Ph.D. The Ph.D. or ABD is a requirement for employment.

Applicants must be committed to high-quality innovative undergraduate teaching, including field-oriented courses. The Block System of education at Colorado College, in which professors teach and students take only one course at a time for 3-1/2 weeks, lends itself to field and project-based teaching. The visitor will teach 6 out of 8.5 blocks in the academic calendar. The Department has excellent field equipment and laboratory facilities for teaching and research in all geological disciplines. Information on the positions, facilities, and Department is on line at www.coloradocollege.edu/dept/GY/.

Undergraduate research is an integral part of the Colorado College Geology curriculum; thus a willingness to advise research in the candidate's areas of expertise is highly desirable. The Geology Dept contributes to CC's Environmental Sciences program, and possibilities may exist for candidates to participate in teaching/advising in that program. The ability to teach GIS and/or to integrate GIS into courses is advantageous. Colorado College is committed to increasing diversity of the community and curriculum. Candidates who can contribute to that goal are particularly encouraged to apply.

Applicants should send statement of teaching and research interests, curriculum vitae, and names and addresses of three referees by February 3, 2009 to: Christine Siddoway, Chair, Colorado College, 14 E. Cache la Poudre, Colorado Springs, CO 80903, USA, +1-719-389-6717; e-mail: geology@coloradocollege.edu. The search will remain open until the visitor positions are filled.

The Colorado College welcomes members of all groups, and reaffirms its commitment not to discriminate on the basis of race, color, age, religion, sex, national origin, sexual orientation, or disability in its educational programs, activities, and employment practices.

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Opportunities for Students

Graduate Studies in Geological Sciences at the University of Delaware—The Department of Geological Sciences invites applications for M.S. and Ph.D. degree programs in Geology. Students have access to state-of-the-art field equipment and advanced laboratories. Fellowships, research assistantships, and teaching assistantships are available for qualified applicants. Student opportunities exist in research areas including: Hydrogeology, Geomicrobiology, Earth Surface Processes, Coastal Geology, Sediment Dynamics, Quaternary Geochronology, and Subsurface Geologic Methods. Visit us on the Web at www.geology.udel.edu/

For additional information contact the Chair of Graduate Admissions, Dr. Art Trembanis, at art@udel.edu. Applications may be completed online at www.udel.edu/gradoffice/applicants.

Summer Internships Available in Scientific Drilling. DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust) invites students to apply for summer 2009 internships in scientific drilling. The internships promote student involvement in projects where drilling has provided data and materials for study. Interns can undertake research related to ongoing or past drilling efforts. The internships are open to college students (graduate or undergraduate) and primary and secondary schoolteachers, worldwide. Applicants do not have to be attending a DOSECC Member Institution to be considered for this award. Internship funding will be available in the summer of 2009 and budgets of \$2000 to \$5000 are appropriate. Applications must be received by 1 March 2009 and awardees will be announced 1 April 2009. For additional information, consult the DOSECC Web site, www.dosecc.org/html/internship.html, or e-mail David Zur, DOSECC's Education and Outreach Manager, at dzur@dosecc.org.

Research Experiences in Solid Earth Science for Students (RESESS)—a paid summer internship position for undergraduates. Research Experiences in Solid Earth Science for Students, RESESS If you're interested in exploring the fields of geology and/or geophysics, the RESESS program could be for you. RESESS is a paid, multi-year, summer research internship program for undergraduate science, math, and engineering students. The main goal of RESESS

is increasing diversity in the geosciences. RESESS combines structured mentoring, research experience, and a supported learning community to advance students to graduate school and beyond. The first year's research is done with a scientist at University of Colorado Boulder or the United States Geological Survey in Golden, Colorado. Subsequent summers may be spent with researchers across the country.

Students who will have completed their sophomore or junior year before summer 2009 and are enrolled in a science, math, or engineering program are eligible to apply. Deadline: 1 February 2009. Find more information and the application online at <http://resess.unavco.org/> or contact Susan Eriksson at eriksson@unavco.org, +1-303-381-7466. RESESS is managed by UNAVCO in partnership with the USGS and IRIS. The National Science Foundation is a major funding sponsor.

Summer Job for Paleontology Students. The Standing Rock Sioux Tribe seeks to hire 2-4 students (graduate preferred) for the summer 2009 (May to September) to prospect for fossils on the South Dakota portion of the Standing Rock Indian Reservation. Students need to be able to identify a variety of vertebrate and invertebrate fossils, plant, and micro fossils. Must be able to jacket and pedestal fossils found in the field. Living conditions are rustic. Students will be provided or reimbursed for food, supplied with water and a tent and all supplies necessary to complete field work. Salary ranges from \$1500 to \$2000 per month. Interested students please e-mail Adrienne@srstwater.com for more application information.

Graduate Student Opportunities, Ohio University. The Department of Geological Sciences at Ohio University is seeking qualified students for its graduate program beginning September 2009. The department offers programs leading to an MS degree in Geological Sciences with areas of emphasis including paleontology, stratigraphy/sedimentology, hydrogeology, geochemistry, geomorphology, planetary geology, geophysics, and tectonics. Prospective students are encouraged to contact faculty directly to discuss potential research topics. Qualified students are eligible to receive teaching assistantships that carry a full tuition scholarship and a stipend. For program and application information, visit the department Web site at www.ohiou.edu/geology/ or contact the graduate chair, Greg Springer (springeg@ohio.edu), for additional information.

2009 Student Research Grants

Students must be GSA Members to apply and may only receive a grant once at the master's level and once at the Ph.D. level. Those who have applied for grant funding but have not received a grant are welcome to apply again. The maximum award per grant is US\$4000.

The GSA student research grant application process is available online only; no paper applications or letters will be accepted. Apply online at www.geosociety.org/grants/gradgrants.htm beginning the end of November 2008. Online submission must be completed by Sunday, 1 February 2009, at 11:59 p.m. (MST).



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For further information on the 2009 Research Grants Program, go to www.geosociety.org/grants/gradgrants.htm, call +1-303-357-1028, or e-mail awards@geosociety.org.

Coming in February to *GSA Today*

- * **Science Article:** A shift from lithostratigraphic to allostratigraphic classification of Quaternary glacial deposits, by M.E. Räsänen et al.
- * **ROCK STARS:** Israel Cook Russell (1852-1906), by K.R. Aalto
- * **Final Announcements:**
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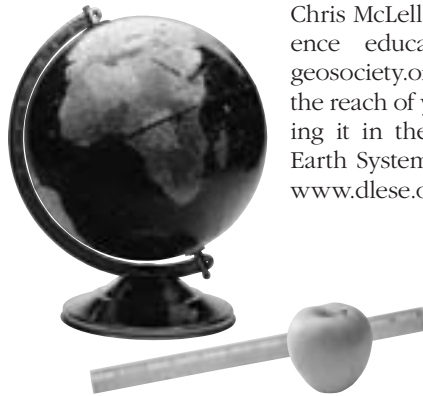
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Go to www.geosociety.org/educate/, complete our lesson plan template (Microsoft Word format), then send it via e-mail to Chris McLelland, GSA's earth science educator, at educator@geosociety.org. GSA will extend the reach of your work by including it in the Digital Library for Earth System Education (DLESE; www.dlese.org).



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Call for Papers



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The Geological Society of America is now accepting manuscripts for *Lithosphere*, a journal to be launched this year. *Lithosphere* will focus on tectonic processes at all scales that affect the crust and upper mantle, from the surface to the base of the lithosphere, and will highlight research that addresses how the surface, crust, and mantle interact to shape the physical and chemical evolution of the lithosphere at all spatial and temporal scales.

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Lithosphere

Lithosphere welcomes contributions from a wide variety of earth science disciplines, including (but not limited to), structural geology, geodynamics, geophysics, seismology, tectonic geomorphology, petrology, and geochemistry, as well as results from integrative, interdisciplinary projects (e.g., Canada's Lithoprobe, EarthScope in the United States). The journal particularly encourages articles that address how complex systems in the solid Earth operate and how coupling between those systems occurs.

Formats will include:

- short research contributions (letters) of new and innovative ideas and concepts;
- longer research articles with complete presentations of field-based and other data sets, experimental results, theoretical analyses, or numerical simulations;
- review articles that facilitate communication among disciplines;
- brief overviews of articles in the issue; and
- special issues or sections devoted to a topic.

For information on article submission and other updates, please follow the *Lithosphere* links at

www.gsa-journals.org



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by Uwe Ring



Special Paper 445

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GSA Today science articles: Hot topics and recurring themes, 1998 to 2008

Kristen E. Asmus, *GSA Today* Managing Editor, kasmus@geosociety.org

INTRODUCTION

Over the past 10 years, *GSA Today* has printed 111 peer-reviewed science articles, which were selected by the science editors for their timeliness, accessibility to a broad audience of geoscientists, and focus on current topics in the earth sciences. *GSA Today* is posted online from 1995 to present, and all science articles are open-access via link at www.geosociety.org/pubs/.

The purpose of this review is to provide readers with a perspective on those issues and topics that have shaped our community over the past decade as well as the future evolution of the earth sciences. I first recount the topics most commonly addressed in *GSA Today* through a review of key words (see Table 1), followed by abstracts and comments on one or two science articles from each of the past 10 years. The list of papers is a personal one; selection was based on what seemed to me to be key issues and on the success of the papers in communicating to the broadest audience possible.

Table 1 records the top 50 key words in abstracts from 1998 to 2008. In order to have made the top-50 list, a word would have had to appear in at least seven of the 111 abstracts. Key words from Presidential Addresses were not included in Table 1 because most do not have abstracts.

The geological terms used most often were sediments (36 times), crust (33), and water (32), with references to surface/surficial processes (29), ocean/oceanic (29), and models/modeling (27) following close behind. Words that usually come to mind when one thinks of geology didn't have enough hits to make the list, like dinosaurs (two), soil (four), resources (three), or gems (zero). "Mountain" had just 11 occurrences in the abstracts; the mountains referenced most

Table 1. 50 common keywords from *GSA Today* science article abstracts, 1998–2008

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
No. of science articles for each year (111 total)	10	11	12	12	10	9	8	10	9	10	10
Keywords (no. of articles)											
Antarctic (7)	3	1	1	1	–	–	–	–	1	–	–
Archean (14)	2	–	2	2	2	1	–	2	1	–	2
Basin (20)	–	2	3	3	4	–	–	1	3	1	3
Cambrian/ Precambrian (9)	2	–	2	1	1	–	–	–	1	–	2
Carbon/radiocarbon (13)	2	2	1	–	2	1	1	1	2	1	–
CO ₂ (8)	1	1	–	–	–	2	2	1	–	–	1
Climate (20)	1	3	3	3	2	2	1	–	2	3	–
Coast (8)	–	1	1	1	1	–	1	–	1	2	–
Continent (29)	4	2	2	4	2	4	1	3	2	3	2
Cretaceous (11)	–	1	1	2	2	1	–	2	–	2	–
Crust (33)	3	1	4	5	4	4	1	3	2	2	4
Deformation (16)	1	–	2	5	2	2	1	1	–	1	1
Earthquake (13)	–	–	3	1	3	2	–	–	2	–	2
Environment (19)	1	2	4	1	1	–	1	1	2	2	4
Erosion/eroded (12)	–	1	–	–	1	2	–	2	2	3	1
Evolution of Earth (13)	1	–	–	3	1	1	1	3	–	2	1
Evolution of life (14)	2	2	4	1	2	–	–	1	–	1	1
Extinction (8)	1	–	2	1	1	–	1	1	–	–	1
Fault/faulting (13)	–	1	3	1	1	3	2	–	–	1	1
Fossil/assemblage (10)	2	1	2	1	2	–	–	–	1	–	1
Geomorphology (7)	–	1	–	1	–	–	1	2	–	1	1
Glacial/glaciation (13)	3	–	1	1	1	2	1	1	1	–	2
Global warming/ climate change (13)	1	2	2	–	1	2	1	–	1	2	1
Greenhouse (7)	1	1	1	–	–	2	1	–	1	–	–
Hazards (7)	–	–	1	1	1	1	2	–	1	–	–
Human/ anthropogenic (12)	1	–	1	1	1	–	2	2	1	2	1
Image/imaging (11)	2	–	2	1	–	–	2	2	1	1	–
Isotope/isotopic (14)	1	1	2	1	1	1	–	2	3	2	–
Landscape (9)	2	–	–	–	1	1	–	2	1	1	1
Lithosphere (18)	1	–	1	3	3	2	–	1	2	2	3
Magma (17)	1	–	1	4	3	1	2	3	–	1	1
Mantle (23)	1	–	2	4	6	1	–	3	1	2	3
Marine (18)	2	2	3	2	3	–	1	–	1	1	3
Mineral (10)	–	1	1	3	–	1	1	1	1	1	–
Models/modeling (27)	1	4	3	6	1	4	2	–	1	3	2
Mountain (11)	1	1	–	2	3	–	–	–	2	–	2
Ocean/oceanic (29)	2	4	3	2	4	2	–	1	4	2	5
Orogeny/orogenic (14)	1	2	1	1	2	3	–	1	1	1	1
Proterozoic/ Neoproterozoic (16)	4	1	2	3	3	–	–	1	1	–	1
Rocks (21)	3	1	1	5	1	2	1	–	3	4	–
Sea level (15)	1	–	3	1	3	1	2	1	1	2	–
Sediments (36)	2	2	4	6	5	–	2	3	3	4	5
Seismic (23)	1	1	4	2	4	1	4	1	3	1	1
Strata/stratigraphic (22)	3	1	–	2	3	1	–	1	4	5	2
Subduction (14)	1	–	1	4	2	1	–	2	1	1	1
Surface/surficial (29)	2	2	4	4	3	2	1	2	5	2	2
Tectonic (24)	3	3	3	3	2	1	–	2	3	3	1
Temperature/°C (16)	2	2	1	–	3	2	1	1	2	–	2
Terrane (9)	2	1	–	1	2	–	–	1	–	1	1
Water (32)	3	3	3	3	4	2	4	4	3	2	1

Note: Key words counted only once per abstract. The April 1998 *GSA Today* included four related science articles; key words for that month are from the titles only. Presidential Address articles are not included in these totals as most do not include an abstract.

often were the Himalaya (five articles) and the Rockies (four articles); Yucca Mountain was the focus of two articles.

The most-often-mentioned location outside of the United States was the Antarctic, with seven articles (see the April 1998 issue for a four-part treatment of the Antarctic Sirius Group). Canada was also a popular location of study, with five occurrences, and China and Tibet combined were featured in eight abstracts.

A TEN-YEAR RETROSPECTIVE

1998

Environmental change, geoindicators, and the autonomy of nature

Antony R. Berger (Jan. 1998, v. 8, no. 1, p. 3–8; <ftp://rock.geosociety.org/pub/GSAToday/gt9801.pdf>).

Abstract: Geological indicators of rapid environmental change provide a conceptual framework for assessing changes in the abiotic components of landscapes and ecosystems resulting from natural processes or human actions. The application of geoindicators to monitoring of landscape conditions, particularly in state-of-the-environment reporting and long-term ecosystem research, can help earth scientists to contribute more effectively to these interdisciplinary efforts. Geoindicators may also help to remind policymakers and the general public of the reality of natural change and the common difficulty of distinguishing it from human modifications.

Note

Berger's Table 1 lists 27 "geoindicators" of environmental change, with the caveat that they be modified and amended as necessary over time. Berger is clear that both natural *and* anthropogenic change should be scrutinized, writing that "anthropogenic stress on the environment ... is rightly the central concern ... [but] natural change and its effects on land and the biosphere tend to be overlooked" (p. 5). In his final paragraph (p. 7), Berger calls for geoscientists to develop "better ways to assess changes to the landscape, whatever the cause" because "society must not only reduce unsustainable human activities but must also adjust to natural fluctuations."

Gas hydrates: Greenhouse nightmare? Energy panacea or pipe dream?

Bilal U. Haq (Nov. 1998, v. 8, no. 11, p. 1–6; <ftp://rock.geosociety.org/pub/GSAToday/gt9811.pdf>).

Abstract: Recent interest in methane hydrates has resulted from the recognition that they may play important roles in the global carbon cycle and rapid climate change through emissions of methane from marine sediments and permafrost into the atmosphere, and in causing mass failure of sediments and structural changes on the continental slope. Their presumed large volumes are also considered to be a potential source for future exploitation of methane as a resource. Natural gas hydrates occur widely on continental slope and rise, stabilized in place by high hydrostatic pressure and frigid bottom-temperature conditions. Change in these conditions, either through lowering of sea level or increase in bottom-water temperature, may trigger the following sequence of events: dissociation of the hydrate at its base, weakening of sediment strength, major slumping, and release of significant quantities of methane in the atmosphere to affect enhanced greenhouse warming. Thus, gas-hydrate breakdown has been invoked to explain the abrupt nature of glacial terminations, pronounced ¹²C enrichments of the global carbon reservoir such as that during the latest Paleocene thermal maximum, and the presence of major slides and slumps in the stratigraphic record associated with periods of sea-level lowstands. The role of gas hydrates in controlling climate change and slope stability cannot be assessed accurately without a better understanding of the hydrate reservoir and meaningful estimates of the amount of methane it contains. Lack of knowledge also hampers the evaluation of the resource potential of gas hydrates, underscoring the need for a concerted research effort on this issue of significant scientific importance and societal relevance.

Note

This is the only *GSA Today* article in the past ten years that deals directly with a potential energy resource (methane hydrates) as well as climate change. You can still read Haq's 25 May 1999 testimony on these issues before the House Committee on Science Subcommittee on

Energy and Minerals at www.nsf.gov/about/congress/106/bhaq990525.jsp.

1999

Hurricanes Dennis and Floyd: Coastal effects and policy implications

Robert S. Young et al. (Dec. 1999, v. 9, no. 12, p. 1–7; <ftp://rock.geosociety.org/pub/GSAToday/gt9912.pdf>).

Abstract: Tropical systems Dennis and Floyd impacted eastern North Carolina in 1999, the fourth and fifth storms in three years to make landfall in this area. All five storms were very similar in strength (wind speed); however, the effects on the coast were quite different. In addition to absolute storm strength, morphological changes to the natural environment were controlled by the forward speed of the storms, orientation of the shoreline relative to storm track, underlying geology, impacts of recent storms, and associated rainfall. Damage to buildings was a function of the placement of structures with respect to the shoreline and the removal of weaker buildings by previous storms. On the basis of these observations, we recommend a new Hurricane Impact Scale, which will allow prediction of possible storm impacts and comparisons of coastal impacts in other Hurricanes.

Each additional Hurricane demonstrates that our society does not have a forward-looking plan for dealing with coastal storms. Instead, we typically repair and rebuild in place, and continue the upward spiral of property damage in storms. Although the dollar amount of property damage will be low from these storms, the public must bear the cost of cleanup and repair of infrastructure.

Note

Published more than five years before Hurricane Katrina, this article cites the lessons to be learned from the "the legacy of Bertha, Fran, Bonnie, Dennis, and Floyd" (p. 6): (1) the need for a proactive plan for dealing with coastal storms rather than "the typical response [of] cleanup and complete rebuilding, maintaining the status quo"; and (2) a new Hurricane Impact Scale that includes the cost to local citizens of infrastructure repair.

Recommended reading: See "Katrina's unique splay deposits in a New Orleans neighborhood" (v. 16, no. 9, p. 4–10; ftp://rock.geosociety.org/pub/GSAToday/gt0609_NWS.pdf) and "Submergence of

ancient Greek cities off Egypt's Nile delta—A cautionary tale” (Jan. 2004, v. 14, no. 1, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0401.pdf>).

2000

Evaluating global warming:

A post-1990s perspective

David S. Gutzler (Oct. 2000, v. 10, no. 10, p. 1–7; <ftp://rock.geosociety.org/pub/GSAToday/gt0010.pdf>).

Abstract: Globally averaged surface-air temperature warmed approximately 0.5 °C during the twentieth century, and the rate of warming has accelerated considerably since about 1980. Proxy climate data suggest that current global temperatures are warmer than at any time in the last millennium. As this trend persists, the likelihood increases that the warming is due at least in part to anthropogenic inputs of atmospheric greenhouse gases. There is no debate over the measured increases in greenhouse gas concentrations, or the anthropogenic origin of these increases, or the direct radiative effect of increased greenhouse gas concentrations.

Public debate and policy development on global warming are stuck, however, in part because it remains exceedingly difficult to specifically attribute current global warming to increases in greenhouse gases, or to make confident predictions of the rate and spatial variability of future warming. Attribution and prediction of global warming both depend on large-scale modeling, and the complexities associated with simulating the climate system are so great that conclusive attribution and prediction will probably not be reached for some time. These uncertainties tend to overshadow the higher degree of certainty associated with observational evidence for global warming. The scientific community should acknowledge that the attribution and prediction problems will not be resolved to the satisfaction of policy makers in the near future, and should instead work toward establishing new paradigms for partnership with policy makers, with greater emphasis on observations of past and present climate change.

Note

Gutzler notes that the six warmest years out of a 120-year period from 1880 to 1999 “all occurred in the 1990s” (p. 1; see also his Fig. 2, p. 4) and writes, “The debate over *detection* of climate change is drawing to a close ... [but] it remains

extraordinarily difficult to *attribute* the warming trend to any particular forcing function with sufficient certainty to satisfy policy makers” (p. 5). The “Recommendations and Conclusions” section (p. 6) warns, “We will not truly be able to attribute global warming to greenhouse gas increases until the climate has already warmed a great deal relative to pre-twentieth century temperatures,” and ends with a call for the geoscience community to advance “our ability to model the climate system with sufficient confidence to assuage skepticism and debate on those issues.”

2001

Grand challenges in earth and environmental sciences: Science, stewardship, and service for the twenty-first century

Mary Lou Zoback (Dec. 2001, v. 11, no. 12, p. 41–47; <ftp://rock.geosociety.org/pub/GSAToday/gt0112-presAddr.pdf>).

Note

This millennial Presidential Address from GSA's 2000 Annual Meeting in Reno, Nevada, USA, presents six challenges for geoscientists in the coming decades. There is no abstract; what follows is a brief summary.

Zoback begins, “A measure of our future success as earth scientists will depend on our ability to help our global society find and implement effective solutions to environmental problems,” (p. 41) and then presents six “Grand Challenges in Earth and Environmental Science”:

1. Answer the question, “Are steady increases in global temperature ... in the past 150 years simply an expression of natural variability, or are they a direct result of mankind's activities that have resulted in an increase in greenhouse gases?” (p. 41);
2. Understand “biogeochemical cycles such as the carbon or nitrogen cycle,” which is “fundamental to understanding how larger natural systems, such as the global climate system, function” (p. 42);
3. Recognize “that actions of man have deliberately or inadvertently perturbed natural systems” (p. 43), including urban weather (see Zoback's Fig. 4, p. 44, depicting urban sprawl for Atlanta, Georgia, USA) and local, regional, and global water cycles;

4. Identify “geologic, chemical, or biologic parameters or a suite of parameters that can indicate the health or biodiversity of an ecosystem” as well as come up with systems to “monitor or measure” these parameters in order to understand “the effectiveness of our ... efforts at restoration or remediation” (p. 44);
5. Build “complex computer models of natural systems that can forecast impending disasters” (p. 44); and
6. “Refocus society's desire for absolute guarantees from science and replace it with an acceptance that most solutions are uncertain and will carry some level of risk and also some level of environmental consequences” (p. 45).

Further, under the heading “What Should We Do?” Zoback calls on the earth science community to become active participants in “one of the grandest scientific, technological experiments of the twenty-first century ... [to] tackle safe, long-term isolation of high-level radioactive waste” (p. 46).

2002

Eocene meridional weather patterns reflected in the oxygen isotopes of Arctic fossil wood

A. Hope Jabren and Leonel Silveira Lobo Sternberg (Jan. 2002, v. 12, no. 1, p. 4–9; <ftp://rock.geosociety.org/pub/GSAToday/gt0201.pdf>).

Abstract: The spectacularly preserved *Metasequoia* wood excavated from the Fossil Forest site of Axel Heiberg Island (Canadian High Arctic) provides a unique window into the $\delta^{18}\text{O}$ value of Eocene meteoric water via the analysis of fossil cellulose. Seventeen fossilized *Metasequoia* individuals yielded cellulose with $\delta^{18}\text{O}$ (Vienna standard mean ocean water [VSMOW]) values ranging from 17.1‰ to 21.4‰ and with a mean value of 19.9‰—strikingly low compared to modern trees of all latitudes. Using established biosynthetic relationships for plant cellulose, we reconstructed the $\delta^{18}\text{O}$ (VSMOW) value of Eocene meteoric water to be -15.1‰ on Axel Heiberg Island—a value similar to previous determinations of Eocene terrestrial water using varied paleoenvironmental indicators. A wholly temperature-based interpretation of these isotopic results would predict a mean annual temperature of

-2.7 °C, but this is incompatible with extremely high forest productivity. Instead, a calculation of isotopic fractionation in moisture transported from the Pacific Ocean north across North America explains the simultaneous arrival of warm air and isotopically depleted moisture in the Eocene Arctic; we suggest that these meridional weather patterns were caused by the absence of a Polar Front during the ice-free Eocene.

Note

This is the only paleontological and climatological study in *GSA Today* focusing on a species of Earth's flora rather than fauna.

2003

An alternative Earth

Warren B. Hamilton (Nov. 2003, v. 13, no. 11, p. 4–12; <ftp://rock.geosociety.org/pub/GSAToday/gt0311.pdf>).

Abstract: The standard Earth of geodynamics and geochemistry is rationalized from assumptions that the mantle is compositionally inverted—still-unfractionated lower mantle beneath volatile-depleted upper mantle—and that material circulates easily from bottom to top. Multidisciplinary data better fit a less-volatile and less-radioactive planet wherein depleted lower mantle, fractionated early and irreversibly, is decoupled from upper mantle plus crust that evolve and circulate separately. Early Archean fractionation produced global(?) felsic crust and refractory upper mantle. Later Archean granite-and-greenstone upper crust formed atop this ancient crust, which remained hot and weak; distinct continents and oceans did not exist, and upper mantle was much hotter than now. Plate tectonics began ca. 2.0 Ga when continents could stand above oceans and oceanic lithosphere could cool to subduction-enabling density and thickness. Upper mantle has since become more fertile and new increments of continental crust more mafic as continental crust has been progressively diminished by recycling into cooling mantle. Plate circulation is driven by subduction, which is enabled by density inversion produced by sea-water cooling from the top of oceanic lithosphere, is self-organized, and is confined to upper mantle. The matching rates of hinge rollback and of advance of fronts of overriding plates are

keys to dynamics. Slabs sinking broadside from retreating hinges drive both subducting and overriding plates and force seafloor spreading in both shrinking and expanding oceans. An Antarctica-fixed framework depicts prediction-confirming “absolute” plate motions that make kinematic sense, whereas hotspot and no-net-rotation frames do not. Plumes from deep mantle, subduction into deep mantle, and bottom-up convective drive do not exist.

Note

Hamilton's overview perfectly summarizes what makes his *GSA Today* article unique (p. 11): “The Earth described here differs profoundly from that accepted as dogma in most textbooks and research papers.” Be sure to read Hamilton's four “major stages in Earth evolution” on pages 11–12, and check out the Comment and Reply on this article, published March 2004, by linking to them at www.geosociety.org/pubs.



Figure 1. Nov. 2004 cover; drawing by Ray Troll.

2004

Geology, geomorphology, and the restoration ecology of salmon

David R. Montgomery (Nov. 2004, v. 14, no. 11, p. 4–12; <ftp://rock.geosociety.org/pub/GSAToday/gt0411.pdf>).

Abstract: Natural and anthropogenic influences on watershed processes affect the distribution and abundance of salmon across a wide range of spatial and temporal scales, from differences in species use and density between individual pools and riffles to regional patterns of threatened, endangered, and extinct runs. The

specific impacts of human activities (e.g., mining, logging, and urbanization) vary among regions and watersheds, as well as between different channel reaches in the same watershed. Consequently, recognizing and diagnosing the nature and causes of differences between historical and contemporary fluvial and watershed conditions and processes can require careful evaluation of both historical and spatial contexts. In order to be most effective, the contribution of geomorphological insights to salmon recovery efforts requires both assessment protocols commensurate with providing adequate knowledge of context, and experienced practitioners well versed in adapting general theory to local settings. The substantial influences of watershed processes on salmon habitat and salmon abundance indicate the need to incorporate insights from geology and geomorphology into salmon recovery efforts.



Figure 2. Jan. 2005 cover: Incidences of lead poisoning in children in Indianapolis, Indiana, USA, from 1992 to 1994.

2005

Urban lead poisoning and medical geology: An unfinished story

Gabriel M. Filippelli et al. (Jan. 2005, v. 15, no. 1, p. 4–11; <ftp://rock.geosociety.org/pub/GSAToday/gt0501.pdf>).

Abstract: The intersection between geological sciences and human health, termed *medical geology*, is gaining significant interest as we understand more completely coupled biogeochemical systems. An example of a medical geology problem largely considered solved is that of

lead (Pb) poisoning. With aggressive removal of the major sources of Pb to the environment, including Pb-based paint, leaded gasoline, and lead pipes and solder, the number of children in the United States affected by Pb poisoning has been reduced by 80%, down to a current level of 2.2%. In contrast to this national average, however, about 15% of urban children exhibit blood Pb levels above what has been deemed “safe” (10 µg per deciliter); most of these are children of low socioeconomic-status minority groups. We have analyzed the spatial relationship between Pb toxicity and metropolitan roadways in Indianapolis and conclude that Pb contamination in soils adjacent to roadways, the cumulative residue from the combustion of leaded gasoline, is being remobilized. Developing strategies to remove roadway Pb at the source is a matter of public health and social justice, and constitutes perhaps the final chapter in this particular story of medical geology.

Note

GSA’s Geology and Health Division was established in the spring of 2005, shortly after the publication of this article, but this remains a unique topical contribution to *GSA Today*.

2006

Katrina’s unique splay deposits in a New Orleans neighborhood

Stephen A. Nelson and Suzanne F.

Leclair (Sept. 2006, v. 16, no. 9, p. 4–10; ftp://rock.geosociety.org/pub/GSAToday/gt0609_NWS.pdf).



Figure 3. Sept. 2006 cover: Car exhumed from the post-Hurricane Katrina levee breach sedimentary deposits in New Orleans, Louisiana, USA.

Abstract: On 29 August 2005, storm surge from Hurricane Katrina entered the drainage canals in the northern part of the city of New Orleans, Louisiana, USA. Although the floodwalls and levees on these canals were not overtopped, the surge resulted in three levee breaches that flooded 80% of the city. The southern breach on the London Avenue Canal resulted in a blast of water that displaced a house in front of the breach and buried parts of the neighborhood with up to 1.8 m of sandy sediment derived from remobilization of subsurface late-Holocene marsh and beach deposits. These deposits are a rare but spectacular example of crevasse splay deposits in an urban environment. Approximately 26,380 m³ of material, varying in size from fine sand to gravel-size clay balls, along with various human-made objects, was deposited mostly as planar strata, with some small- and medium-scale cross-strata showing climbing bed forms that were deposited on and around obstacles, such as cars and houses. This unique splay deposit has no preservation potential, and this paper reports the first (and probably only) results from the study of its morphology and sedimentology.

Note

Written by a team from New Orleans’ Tulane University, this is one of the first geoscience papers published about the aftermath of Hurricane Katrina. It includes a map drawn during post-hurricane field work that illustrates the extent of the splay deposits in a neighborhood near the London Avenue Canal breach as well as photos taken Feb. 2006 of remaining deposits.

2007

Birth of a mud volcano: East Java, 29 May 2006

Richard J. Davies et al. (Feb. 2007, v. 17, no. 2, p. 4–9; <ftp://rock.geosociety.org/pub/GSAToday/gt0702.pdf>).

Abstract: On 29 May 2006, an eruption of steam, water, and, subsequently, mud occurred in eastern Java in a location where none had been previously documented. This “pioneer” mud eruption (the first to occur at this site) appears to have been triggered by drilling of overpressured porous and permeable limestones at depths of ~2830 m below the surface. We propose that the borehole provided a pressure connection be-

tween the aquifers in the limestones and overpressured mud in overlying units. As this was not protected by steel casing, the pressure induced hydraulic fracturing, and fractures propagated to the surface, where pore fluid and some entrained sediment started to erupt. Flow rates remain high (7000–150,000 m³ per day) after 173 days of continuous eruption (at the time of this writing), indicating that the aquifer volume is probably significant. A continued jet of fluid, driven by this aquifer pressure, has caused erosion and entrainment of the overpressured mud. As a result, we predict a caldera will form around the main vent with gentle sag-like subsidence of the region covered by the mud flow and surrounding areas. The eruption demonstrates that mud volcanoes can be initiated by fracture propagation through significant thicknesses of overburden and shows that the mud and fluid need not have previously coexisted, but can be “mixed” within unlithified sedimentary strata.

Note

This is the first major scientific article published on the event, which buried four villages in eastern Java, Indonesia. See a follow-up article in the August 2008 issue of *Geology*, “Triggering of the Lusi mud eruption: Earthquake versus drilling initiation” by M. Tingay et al. You’ll also find pictures and extended coverage in May 2008’s *Geoscientist* (v. 18, p. 24–27).

Is agriculture eroding civilization’s foundation?

David R. Montgomery (Oct. 2007, v. 17, no. 10, p. 4–9; <ftp://rock.geosociety.org/pub/GSAToday/gt0710.pdf>).

Abstract: Recent compilations of data from around the world show that soil erosion under conventional agriculture exceeds both rates of soil production and geological erosion rates by from several times to several orders of magnitude. Consequently, modern agriculture—and therefore global society—faces a fundamental question over the upcoming centuries. Can an agricultural system capable of feeding a growing population safeguard both soil fertility and the soil itself? Although the experiences of past societies provide ample historical basis for concern about the long-term prospects for soil conservation, data compiled in recent studies indicate that no-till farming could reduce erosion to levels close to soil production



Figure 4. Oct. 2007 cover: U.S. Dept. of Agriculture image from 13 May 1936 of Dallas, South Dakota, USA.



Figure 5. Feb. 2008 cover: Shanghai, People's Republic of China, 2007.

rates. Similarly, organic farming methods have been shown to be capable of preserving—and in the case of degraded soils, improving—soil fertility. Consequently, agricultural production need not necessarily come at the expense of either soil fertility or the soil, even if recent proposals to rely on conventionally grown corn for biofuels exemplify how short-term social and economic trade-offs can de-prioritize soil conservation. Like the issues of climate change and loss of biodiversity, ongoing global degradation and loss of soil present fundamental social challenges in which the slow pace of environmental change counter-intuitively makes solutions all the more difficult to adopt.

Note

David Montgomery (also author of 2004's "Geology, geomorphology, and the restoration ecology of salmon" [v. 14, no. 11, p. 4–12]) was awarded a MacArthur Fellowship in September 2008 for exceptional achievement and promise.

2008

Are we now living in the Anthropocene?

Jan Zalasiewicz and 20 others

(Feb. 2008, v. 18, no. 2, p. 4–8; <ftp://rock.geosociety.org/pub/GSAToday/gt0802.pdf>).

Abstract: The term *Anthropocene*, proposed and increasingly employed to denote the current interval of anthropogenic global environmental change,

may be discussed on stratigraphic grounds. A case can be made for its consideration as a formal epoch in that, since the start of the Industrial Revolution, Earth has endured changes sufficient to leave a global stratigraphic signature distinct from that of the Holocene or of previous Pleistocene interglacial phases, encompassing novel biotic, sedimentary, and geochemical change. These changes, although likely only in their initial phases, are sufficiently distinct and robustly established for suggestions of a Holocene-Anthropocene boundary in the recent historical past to be geologically reasonable. The boundary may be defined either via Global Stratigraphic Section and Point ("golden spike") locations or by adopting a numerical date. Formal adoption of this term in the near future will largely depend on its utility, particularly to Earth scientists working on late Holocene successions. This datum, from the perspective of the far future, will most probably approximate a distinctive stratigraphic boundary.

Note

This article received an exceptional amount of media attention, as well as interest from both Parliament (UK) and the U.S. House of Representatives. Articles appeared in *Science Daily*, *Discovery-Channel.com*, *The Australian*, *Telegraph.co.uk*, *NationalGeographic.com*, the *Christian Science Monitor*, *Wired*, *Money Times*, the *Edmonton Journal*, the

Vancouver Sun, and more. As of this writing (November 2008), five of the six "GSA Today in the News" articles listed on the *GSA Today* home page at www.gsjournals.org are related to this article, and it has been on our list of the top-five most-viewed *GSA Today* articles since its publication.

A geological and geophysical context for the Wenchuan earthquake of 12 May 2008, Sichuan, People's Republic of China

B.C. Burchfiel et al. (July 2008, v. 18, no. 7, p. 4–11; <ftp://rock.geosociety.org/pub/GSAToday/gt0807.pdf>).

Abstract: On 12 May 2008, a magnitude 7.9 earthquake ruptured the Longmen Shan margin of the eastern Tibetan plateau. This event occurred within the context of long-term uplift and eastward enlargement of the plateau. The area has numerous geological features not typical of active convergent mountain belts, including the presence of a steep mountain front (>4 km relief) but an absence of large-magnitude low-angle thrust faults; young high topography (post ca. 15 Ma) and thickened crust but low global positioning system (GPS) shortening rates (<3 mm/yr); and no coeval foreland subsidence. In our interpretation, crustal thickening beneath the eastern Tibetan plateau occurred without large-scale shortening of the upper crust but instead is caused by ductile thickening of the deep crust in a weak (low-viscosity) layer. Late Cenozoic shortening across the Longmen Shan could be as little as 10–20 km, with folding and faulting mainly accommodating differential surface uplift between the plateau and the Sichuan Basin. The earthquake of 12 May probably reflects long-term uplift, with slow convergence and right-slip, of the eastern plateau relative to the Sichuan Basin. GPS-determined rates in the vicinity of the 12 May event suggest an average recurrence interval of ~2,000–10,000 yr.

Note

The rapid date to publication of this article after the Sichuan earthquake shows the editorial flexibility of *GSA Today* in addressing timely events of geologic importance. This article was received on 4 June 2008, peer-reviewed, and accepted on 7 June 2008, going to press just three weeks later. This article has remained one

of the top-five most viewed *GSA Today* articles since its publication.

CONCLUSIONS

I invite readers to have a look at the past ten years of *GSA Today* articles (or even farther—*GSA Today* is online beginning from 1995, and copies of articles are available back to 1991) and comment on the selections herein or on

other themes or stand-out articles that may have been missed. Letters to the editor are welcome and can be sent via post to *GSA Today*, P.O. Box 9140, Boulder, CO 80301-9140, USA, or by e-mail to kasmus@geosociety.org. Please keep your letter to 300 words or fewer. *GSA Today* reserves the right to edit letters for space and clarity.

GSA TODAY'S RECURRING THEMES

Over the past 10 years, *GSA Today* has also published a few articles with recurring themes. All articles are open access at www.geosociety.org/pubs.

JELLY SANDWICHES & CRÈME BRÛLÉE

See the April 2008 issue of *Geology* (v. 36, no. 4, p. 331–334; doi: 10.1130/G24424A.1) for another article in this “series”: “Toasting the jelly sandwich: The effect of shear heating on lithospheric geotherms and strength,” by Ebbe H. Hartz and Yuri Y. Podladchikov.

Strength of the continental lithosphere: Time to abandon the jelly sandwich?

James Jackson (Sept. 2002, v. 12, no. 9, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0209.pdf>).

The long-term strength of continental lithosphere: “jelly sandwich” or “crème brûlée”?

E.B. Burov and A.B. Watts (Jan. 2006, v. 16, no. 1, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0601.pdf>).

GRAND CANYON SAND

Floods and sandbars in the Grand Canyon

Ivo Lucchitta and Luna B. Leopold (Apr. 1999, v. 9, no. 4, p. 1–7; <ftp://rock.geosociety.org/pub/GSAToday/gt9904.pdf>).

Is there enough sand? Evaluating the fate of Grand Canyon sandbars

Scott A. Wright et al. (Aug. 2008, v. 18, no. 8, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0808.pdf>).

WHAT DROVE THE PHANEROZOIC CLIMATE?

Celestial driver of Phanerozoic climate?

Nir J. Shaviv and Ján Veizer (July 2003, v. 13, no. 6, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0307.pdf>).

CO₂ as a primary driver of Phanerozoic climate

Dana L. Royer et al. (Mar. 2004, v. 14, no. 1, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0403.pdf>).

CAN YOU INTERPRET THIS?

Both of the following articles include a “mystery graphic” to be interpreted by the reader. Check them out online.

Experimental stratigraphy

Chris Paola et al. (July 2001, v. 11, no. 7, p. 4–9; <ftp://rock.geosociety.org/pub/GSAToday/gt0107.pdf>).

What do you think this is? “Conceptual uncertainty” in geoscience interpretation

C.E. Bond et al. (Nov. 2007, v. 17, no. 11, p. 4–10; <ftp://rock.geosociety.org/pub/GSAToday/gt0711.pdf>).

Journal Highlights

JAN./FEB. GSA BULLETIN

- Raiding the lost Arc
- Shuttle diplomacy in the Archean
- Martian deformation is thin-skinned
- Crack relaxes New England granites



DECEMBER GEOSPHERE

- SHRIMP-y systematics at Angel Lake
- Piggybacking across the basin
- Extended evolution of the south Balkan system
- Playful paleoevents in southwestern sediments



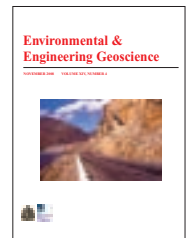
JANUARY GEOLOGY

- An orogen looks at forty
- Trying to reason with earthquake season
- Fault tango in Tibet
- Lahontan breeze



NOVEMBER ENVIRONMENTAL & ENGINEERING GEOSCIENCE

- Graduate drains landslides
- Leaky pavement?
- Designing debris deflectors
- Soil amplifies quake waves
- Fissures follow failure



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GSA's internationally recognized journals and books rely on the expertise of dedicated science editors who ensure stringent peer review, maintain excellent content, and provide leadership in determining the future course of GSA publications.

▶▶ Desirable characteristics for successful candidates include

- a broad interest and experience in geosciences;
- international recognition;
- a progressive attitude and willingness to take risks and encourage innovation;
- familiarity with many earth scientists and their work;
- a sense of perspective and humor;
- organized and productive;
- willingness to work closely with GSA headquarters staff;
- ability to make decisions;
- familiarity with new trends in geosciences; and
- willingness to consider nontraditional research in the geosciences.

▶▶ GSA is currently soliciting co-editor applications and nominations for the following:

- *Geosphere*—four-year term beginning July 2009
- *Geology*—four-year term beginning January 2010
- *GSA Today*—four-year term beginning June 2010

Each editor will work out of his or her current location at work or at home. GSA provides some funding for each position; for specifics, please contact Jeanette Hammann, +1-303-357-1048, jhammann@geosociety.org. If you wish to be considered, please submit a curriculum vitae and a brief letter describing why you are suited for the position. To nominate a fellow geoscientist, please submit a letter of nomination and the individual's written permission and CV. Send nominations and applications to Jeanette Hammann, GSA Publications, P.O. Box 9140, Boulder, CO 80301, USA, jhammann@geosociety.org. Nominations or applications received by 20 February 2009 will be given first consideration.

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