



THE GEOLOGICAL SOCIETY OF AMERICA

Geoscience Education Division

<http://gsaged.org/>

Winter/Spring 2007

From Your Newsletter Editor

Hello Everyone! First let me extend my sympathies to all of you not fortunate enough to live in Florida. The weather that many of you have had to endure this winter is above and beyond the call of duty. On the other hand, I just took my Coastal & Marine Geography students to the beach the other weekend for, um, “field work.” ☺ You may send your hate mail to the e-mail address below!

Let me also say that it was a pleasure to finally meet so many of you at the 2006 GSA Annual Meeting in Philadelphia in October. That is the first GSA meeting I have been able to attend in seven or eight years, and the first GED meeting I have ever attended. I will not let so much time slip by again. Despite some complaints I heard about the venue, it was a great meeting, and I remember now why I have always felt so at home at GSA.

As always, if you have any news items for the next GED newsletter, send them to me at mhafen@cas.usf.edu.

Mark R. Hafen
Department of Geography, University of South Florida

Message from Your GED Chair

Dear GED Members:

I was delighted to meet many of you at the 2006 GSA Annual Meeting where I assumed the duties of GED chair. I would like to take this opportunity to introduce you to the rest of the 2007 GED management board and, if you were unable to join us at the business meeting, to update you on several GED activities in the past year as well as our initiatives for this year.

The current management board includes:

- Chair: Heather Petcovic, heather.petcovic@wmich.edu
- 1st Vice-Chair: Kristen St. John, stjohnke@jmu.edu
- 2nd Vice-Chair: Elizabeth Nagy-Shadman, elizabeth.nagy-shadman@csun.edu
- Secretary-Treasurer: William Slattery, william.slattery@wright.edu
- Past Chair: Beth Wright, ewright@artic.edu

Kristen will be the Division’s representative to the Joint Technical Program Committee for the 2007 GSA Annual Meeting and will address questions related to the geoscience education technical program at the meeting. Questions related to the Biggs Award should be directed to Elizabeth. Please contact Beth if you are interesting in nominating yourself or someone else to stand for election to the management board for 2008. And please contact me with general questions or concerns about the Geoscience Education Division.

(**Chair’s Message** continues on page 2)

Chair's Message (continued from page 1)

Highlights of 2006:

1. Membership: As of 8/31/06, GED had 952 members. We are currently the 5th largest division. We are also the third fastest-growing division, and the largest of the fast-growing divisions.
2. Please join us in congratulating Gary Solar of Buffalo State College, recipient of the 2006 Biggs Award.
3. GED Activities at the 2006 GSA Annual Meeting included:
 - The NAGT/GED awards luncheon, which included presentation of the Biggs Award.
 - In addition to the Geoscience Education discipline oral and poster sessions, GED sponsored 21 education-related sessions. 277 abstracts in geoscience education were submitted to the meeting; this is the 2nd largest number of abstracts by discipline.
 - GED sponsored 7 short courses (out of 9 total), and 1 K-12 short course.
 - The first Teacher Day was organized by Barbara Cooper. 33 K-12 teachers participated in an urban geology field trip and share-a-thon to exchange classroom ideas and materials.
 - GED was a co-sponsor of the Educators' Social Reception.
4. GED sponsored Rosaly Lopes from NASA JPL as a keynote speaker at the National Science Teachers Association annual convention.

GED Initiatives for 2007:

1. Have the Biggs Award become the Division's named award. This will elevate the status of the award to be comparable to named awards for other GSA Divisions.
2. Sponsor Teacher Day at the 2007 Annual Meeting in Denver (please see page 7 of this newsletter for the call for Teacher Day volunteers).
3. Reach out to community college geoscience faculty to find ways to support their involvement with GSA and GED.
4. Work with the National Association of Geoscience Teachers (NAGT) to establish a new award for excellence in geoscience education research.

Lastly, I would like to extend an apology to anyone who nominated themselves or another person to stand for election to the board last year. Due to the departure of Dave Mayo from the board, several nominations were lost. If you did not hear from us last year, please accept our apology and consider running for the board this year.

On behalf of the current management board, we are looking forward to serving the GED membership in the coming year.

Cheers,
Heather Petcovic
Chair, Geoscience Education Division

Spotlight on Earth Science

On September 18-19, the Department of Geology & Environmental Science at James Madison University (JMU) acted as host for a 1.5-day symposium titled "Spotlight on Earth Science," which highlighted current resources and technology available for Earth Science teachers. Teachers were invited to share effective practices learned in their program coursework through the two Math-Science Partnerships funded by the Virginia Department of Education. The symposium also allowed for a pooling of expertise among participants to begin defining and resolving the persistent issues in Earth

science education in Virginia. A total of 96 teachers, university faculty, curriculum supervisors, policymakers, and business/government/industrial representatives participated.

During the first day, concurrent sessions highlighted the individual courses offered by both VESC and ITEST, concentrating on Geology, Oceanography, Meteorology, and Astronomy offerings. The first day was capped off by a general speaker, Dr. Geoffrey Feiss, the Provost of the College of William & Mary. He provided a sense of mission, building on the discussion of what has worked and has been learned so far as a result of the MSP funding.

The second day utilized participants' experiences to refine the sense of mission of what the next steps should be for Earth science education in Virginia. Jump-started by a panel discussion from representatives of the two MSP projects, government, industry, and the VDOE, participants broke up into theme-related groups, where they brainstormed and compiled a list of what they saw as priority issues and potential response to the questions posed for each theme. As intended, the responses of each group were overlapping, such that, for example, issues of best practice had relationships to curriculum & assessment, and teacher education issues related to best practice.

Best Practices in Earth Science Teaching: One key to supporting knowing students' capabilities and interests as a best practice was the sharing of effective strategies within instructional communities, such that teachers become able to communicate on a variety of levels (school, division, and region). Participants also stated that building an Earth science-related skill set in students through experiential learning would allow students to build more general science habits of mind.

Curricular and Assessment Issues: An issue that arose from this group was the need for the SOLs to more fully reflect real Earth phenomena through data analysis, technological applications, and selecting or developing instructional materials that capture these elements. A concern was that the scope and sequence of Earth science, as currently reflected in the SOLs, was too much for students in Grade 9 to fully appreciate or learn. Suggestions were made to either move Earth science to a junior/senior level course, or to split the Earth science curriculum to provide a basic as well as an advanced experience for students – an Earth Science I and Earth Science II. Assessments should subsequently focus more on the relationships between concepts rather than on a vocabulary-based list without context.

Earth Science Teacher Education: A central concern for this group was the guidelines for certification, with teachers having either confusing or conflicting information. It was apparent that there was no clear, shared understanding of requirements at either the school division or the university level. With little clear understanding of VDOE requirements, or for that matter, NCLB requirements, the current framework does not appear to strongly support teachers pursuing an Earth science endorsement, nor is there any incentive for higher education institutions to even provide the relevant coursework. Participants also felt that the amount of work required of teachers was sometimes out of proportion with the recognition, with many participants feeling that a Master's degree in geoscience education would provide this recognition.

The two MSP projects, VESC and ITEST, were designed to address only one aspect of the growing Earth science issues in Virginia, namely the shortage in the supply of qualified Earth science teachers. Building on the successes of these projects, as well as the Spotlight symposium, the Virginia Math-Science Coalition has organized two task forces to more fully explicate the problems and potential solutions in Virginia Earth science education, as well as to devise graduate programs in geoscience education to suit the needs of students, teachers, and school divisions. In the long term, the Earth science community must cultivate policy links that are based on team-generated data, as well as developing external funding proposals.

Eric Pyle
James Madison University

Drilling for Summer Internships

DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust) is a not-for-profit corporation whose mission is to provide leadership and technical support in subsurface sampling and monitoring technology for addressing topics of scientific and societal importance. Fifty-four research organizations are members of DOSECC.

DOSECC offers summer internships for undergrads, grad students, and primary and secondary school teachers. Details can be viewed at <http://www.dosecc.org>, then click on "Education and Outreach."

It should be noted that DOSECC has never had a teacher apply for an internship in the ~15 years of offering them. It is hoped that exposure in this newsletter will change that!

Dave Zur
DOSECC Education and Outreach Manager
(801) 585-9687

Explore Craters of the Moon this Summer!

Craters of the Moon National Monument, in Arco, Idaho, in conjunction with our partner the Sawtooth Science Institute, will be offering a "Craters of the Moon Geology Seminar" on Aug 10 & 11 this summer. Anyone interested in signing up for the seminar or for more information can contact the Sawtooth Science Institute at (208) 788-9686 or visit the website <http://imnh.isu.edu/ssi>.

For information about the seminar you can also call Doug Owen at (208) 527-3257 ext. 302.

Doug Owen
Park Ranger (Interpretation)/Park Geologist
Craters of the Moon National Monument and Preserve

GSA Cordilleran Section Meeting

We invite you to submit an abstract to and/or to attend the following theme session at the Cordilleran Section meeting in Bellingham WA, May 4-6, 2007. The session is entitled "Best practices for teaching introductory geology: Preparing future teachers and informed citizens." This session is designed to bring together presenters from universities and community colleges who have developed successful ways to teach earth science to non-science majors. Can we deal with the challenge of preparing future teachers and informed citizens in large lecture classes? What works in small classes? We also welcome presentations about how to best assess whether students are learning what we think we are teaching them.

The abstract deadline was Feb. 6, 2007, but more information about the meeting can be found at <http://www.geosociety.org/sectdiv/cord/07cdmtg.htm>.

Susan M. DeBari
Western Washington University

NAGT Goes Way Out West

The Far Western Section of the National Association of Geoscience Teachers (NAGT) will be holding a field conference open to all K-12 and college geoscience educators on March 17-19 in Palm Springs. The conference will be hosted by Fullerton College, College of the Desert, and CSU San Bernardino, and will be held at COD. More information is available at:

http://staffwww.fullcoll.edu/mwillis/NAGT_2007/NAGT_index.htm.

Field trips will be taken to Joshua Tree National Park, the San Jacinto Mountains and the Coachella Valley.

Garry Hayes
President, Far West Section
National Association of Geoscience Teachers

Hey, Michigan: What About Earth Science?

The Michigan legislature passed new high school graduation requirements for the state, making them much tougher (<http://www.michigan.gov/documents/mde/New MMC one pager 11.15.06 183755 7.pdf>). The science requirement to graduate from high school is now 3 science classes: Biology must be taken, then chemistry OR physics, then a third science (which can be earth science) from a list of electives.

Those of us who teach earth science were very sad to see that our subject was relegated to elective status. Although the new high school content expectations were written (http://www.michigan.gov/documents/Earth_HSCE_168206_7.pdf) and will test only on the four science subjects biology, chemistry, physics and earth science, there is no guarantee that a school district will elect to teach earth science. Hopefully the fact that 1/4 of the state test will have earth science on it will keep us on the list!

To me, this scenario has much broader implications. Earth science just lost some of its funding for placing instruments on satellites at a time when being able to monitor the Earth is essential, given the number of disasters that have occurred in the last few years.

Until Earth Science is considered to be a laboratory science, which is accepted by universities in their general education programs, we will always be relegated to that "rocks for jocks" type of class that is not a "real" science. Just because we are an applied science that integrates chemistry, physics and biology doesn't mean we are not an important science. Maybe we need to start pushing for that AP Earth Science class?

Sandra Rutherford
Eastern Michigan University

Climate Project Speaker Available

GSA member Mindy Kimball recently completed training as a volunteer presenter with the Climate Project, a nonprofit organization founded by Al Gore after the success of his movie "An Inconvenient Truth." Mindy joined 200 other volunteers at a 3-day training session in Nashville and is now qualified and authorized to present "the slideshow" that was featured in Al Gore's movie.

GSA member Dr. Richard Alley was the scientist on-hand during the training. To date there are 800 volunteers from across the United States who have received this training. Mindy's goal is to present

"the slideshow" at least 10 times over the next year. She lives in the Hudson River Valley area of New York and would be very excited to be a no-cost speaker for any group, club, school, or audience of any size. To contact Mindy about presenting, or to have her refer you to a presenter in your area of the country, please e-mail her at geomindy@gmail.com.

Mindy Kimball

MARGINS Education Mini-Workshop

Editors Note: due to my lateness in publishing this newsletter, the deadline to apply for this program has passed. My apologies! However, I've included it in the newsletter for your future reference.

What: MARGINS Education Mini-Workshop: Bringing MARGINS Science to the Classroom

When: April 5-6, 2007, Arlington, VA.

Who: Convened by Cathy Manduca (Carleton College), Jeff Ryan (University of South Florida) and Don Reed (San Jose State University)

More Info: <http://www.nsf-margins.org/EPO/Workshop07.html>

Application Deadline: February 16, 2007 ☺

This workshop will bring together scientists, educators and members of the MARGINS Steering Committee to identify critical content and initiate development of web-based MARGINS "Mini-Lessons" for use in undergraduate teaching. The aim is to engage the MARGINS research and educational community in the generation and testing of multidisciplinary learning materials derived from MARGINS science.

Key goals of the workshop are to:

- document ways in which MARGINS science is currently being used in teaching;
- create development teams for larger-scale (i.e., full lab or classroom session-scale) "Mini-Lessons" for each of the four MARGINS research initiatives (RCL, S2S, SEIZE and SubFac; <http://www.nsf-margins.org/>); and
- develop a plan for testing these materials in our own teaching.

Workshop participants will be asked to contribute an example of their use of MARGINS data or research in their own teaching to the website and to participate in creation or review of additional teaching materials.

This Workshop is sponsored by the MARGINS Education and Public Outreach program funded by NSF. It will take place after the MARGINS Steering Committee (MSC) Meeting and is scheduled for April 5-6 in Arlington, VA. Participants will gain insight into the current state of MARGINS science through presentations by MSC members on the four MARGINS Initiatives, and on the varied data repositories and information resources where MARGINS results can be accessed.

We encourage applications from scientist and educators interested in the education and outreach of the MARGINS initiatives to undergraduates. For information on the Workshop and to apply online, visit the Carleton College host server of this program (<http://serc.carleton.edu/margins/overview.html>).

Applications due February 16, 2007. NSF funding will pay for double occupancy hotel rooms. Limited funds are available to support travel. The MARGINS Office website is at <http://www.nsf-margins.org/>.

Jeff Ryan
University of South Florida

Cochise Keeps on Rockin'

For visual aids and resources for your physical geology or historical geology classes, go to the Cochise College Geology Instructional Resources website at <http://skywalker.cochise.edu/wellerr/aawellerweb.htm>, or do a Google search for *cochise geology*; the first website on the list will be the Cochise College Geology Home Page.

There are now 6700 copyright free geology photos of rocks, minerals, fossils, gemstones, meteorites and virtual geology field trips, 1300 more photos than last year. The areas of greatest growth have been Photos of Fossils and student presentations on physical and historical geology topics. There is also a photographic tour of the underground Copper Queen mine in Bisbee, Arizona. By March 2007 there will be hundreds of additional photos added to the website regarding the 2007 Tucson gem and mineral shows. If you have not yet been to this website, you need to go there and peruse the illustrated physical geology vocabulary and large organized collections of geology-related links.

The response to this geology website has been phenomenal. There have been three quarters of a million hits from 5000 cities in 150 countries since October 2005.

Roger Weller
Cochise College

GED Needs YOU! Call for Nominations

The Geoscience Education Division of the Geological Society of America is seeking candidates for the position of 2008 Second Vice-Chair to join the current GED management board:

- Heather Petcovic, outgoing Chair
- Kristen St. John, incoming Chair
- Elizabeth Nagy-Shadman, incoming First Vice-Chair
- Bill Slattery, Secretary-Treasurer

The job of second vice-chair entails management board planning work and supervising the Biggs Award process. The second vice-chair moves up each succeeding year to first vice-chair, chair, and past chair, so the position is a four-year commitment. It's a great way to get to know your colleagues in the geoscience education world and to learn more about how GSA works.

All GED members are eligible to serve on the board. If you are interested in running for this position, or if you would like to nominate someone else, please respond to GED Past Chair Beth Wright (ewright@artic.edu) by **March 1, 2007**. We will request a brief bio and statement for the ballot.

Heather L. Petcovic
Western Michigan University

GED Needs You AGAIN! Call for Teacher Day Volunteers

Do you have a favorite geology field trip in the Denver region? Are you interested in reaching out to Denver-area K-12 teachers? If so, we are looking for volunteers to assist with organizing Teacher Day activities for the Fall 2007 Annual Meeting in Denver.

Volunteers are needed to:

- Lead a half- to full-day field trip for K-12 teachers to explore geology accessible from the Denver metro area;

- Organize a share-a-thon where teachers can exchange classroom activities and ideas.

Please help us make this year's Teacher Day a success. If interested, or for more information, contact GED Chair, Heather Petcovic: heather.petcovic@wmich.edu or 269-387-5380.

Heather L. Petcovic
Western Michigan University

Biggs Award: Call for 2007 Nominations

Call for nominations for the GSA 2007 Biggs Award for Excellence in Earth Science Teaching.

The deadline to nominate talented earth science instructors and faculty for the 2007 Earth Science Biggs Teaching Award is **June 9, 2007**. The Biggs Award was established by GSA to reward and encourage teaching excellence in beginning professors of earth science at the college level.

Eligibility: Earth science instructors and faculty from all academic institutions engaged in undergraduate education who have been teaching full-time for 10 years or less. (Part-time teaching is not counted in the 10 years.)

Award: An award of \$750 is made possible as a result of support from the Donald and Carolyn Biggs Fund, the GSA Geoscience Education Division, and GSA's Science, Education & Outreach Programs. This award also includes up to \$500 in additional funds, to attend the awards presentation at the GSA Annual Meeting.

Procedure: Nomination form, instructions, and past recipients can be found at <http://www.geosociety.org/aboutus/awards/biggs.htm>.

Please spread the word and make your nominations soon. On behalf of the Geoscience Education Division, THANK YOU!

Elizabeth Nagy-Shadman
Second Vice-Chair, GSA Geoscience Education Division
California State University – Northridge
elizabeth.nagy-shadman@csun.edu

UBC to Improve EOS Teaching and Learning

The Department of Earth and Ocean Sciences (EOS) at University of British Columbia is excited to announce funding for the start of a major new collaboration with the Carl Wieman Science Education Initiative. The goals of this multi-year project are to improve science teaching and learning within our department by developing new, creative teaching and learning tools, implementing appropriate assessments aligned with teaching and learning goals, and building expertise within EOS that will sustain our commitment to excellence in teaching and learning for many years to come. We are tremendously excited about this opportunity to improve science education for the general public as well as for future professionals in earth, ocean, and atmospheric sciences. In the coming months, we anticipate hiring new people with EOS-related backgrounds plus passion for and experience in the teaching and learning of science.

For more information, contact Sara Harris (sharris@eos.ubc.ca).

Sara Harris
University of British Columbia
