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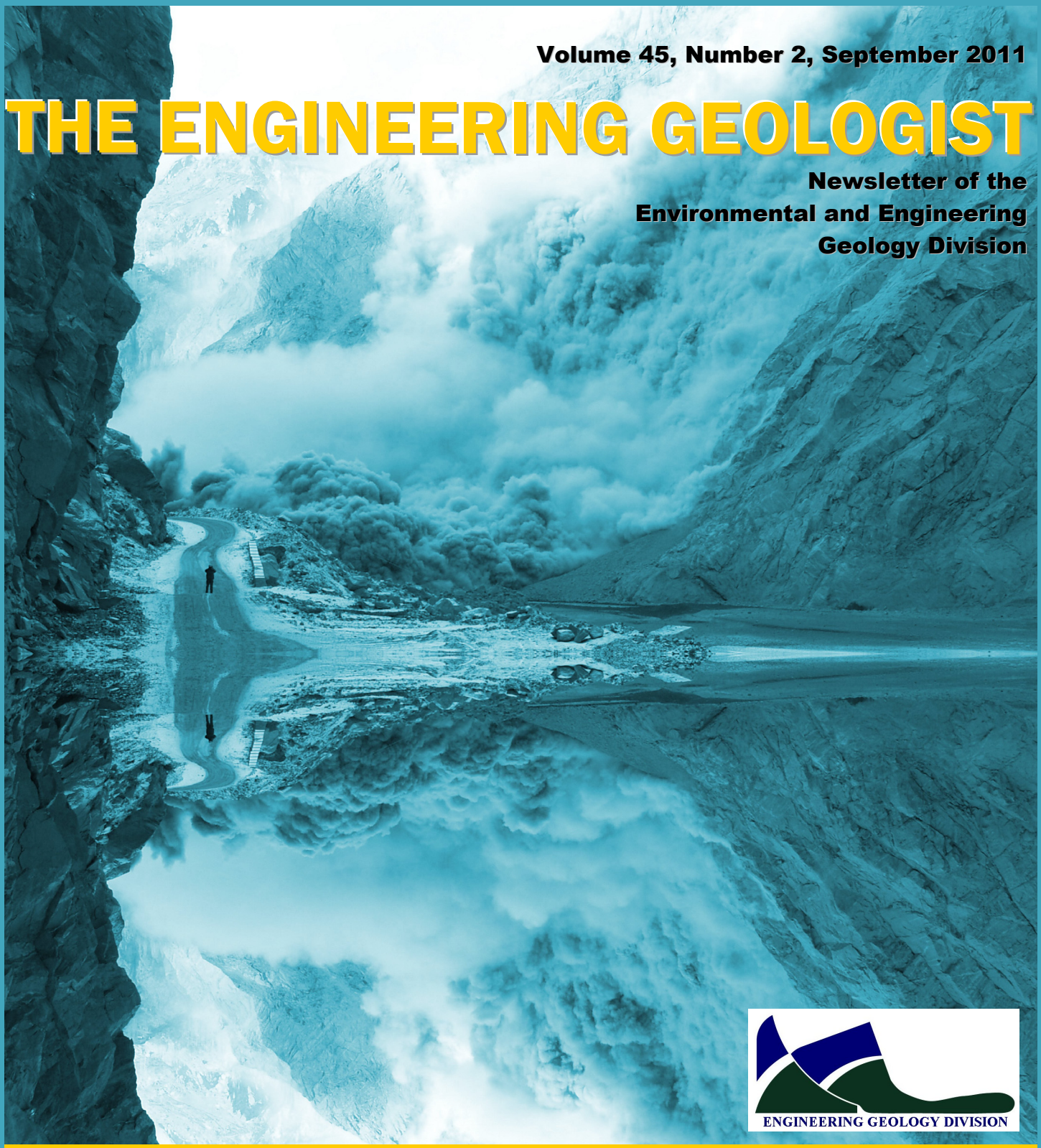
THE ENGINEERING GEOLOGIST

Newsletter of the
Environmental and Engineering
Geology Division



ENGINEERING GEOLOGY DIVISION

INSIDE:

Message from the Chair …

John Jens, Chair
Engineering Geology Division

Many things come to mind about which to write. Earlier this year our division voted to officially change our division's name to be more in align with our sister organization, AEG, and our joint publication. After presentation to the GSA Council at the end of April for their approval, we are now officially the ***Environmental and Engineering Geology Division***. But I will continue to use the acronym of EGD, as I am sure many of you will, especially those of you who have been connected with the division much longer than I. There are other things division related, which I will touch on at the end of this little script.

As I mentioned in my article last January, one of my favorite sayings is Will Durant's, "Civilization exists by geological consent, subject to change without notice." This and the issues I wrote about have yet again been highlighted by recent events.

Photograph above: EGD Chair John Jens leads his NOVA Historical Geology class field trip as they examine a fanglomerate boulder. In the background is the Thoroughfare Gap (of Civil War fame).

Cover Photograph: Landslide dam, Karakoram region, Hunza River Valley, Pakistan
Modified from: www.pamirtimes.net/Inayat Ali

I teach as an adjunct at one of the campuses of our local community college, in addition to my full time job. Teaching geology has been a passion of mine since my days on active duty as a topographic engineer officer several decades ago. People NEED to know about this planet we live on! This being my fourth year as an adjunct I have had a number of challenges over that time but none like the start of this semester. Our first day of class was the day we on the East coast experienced an unusual event – a 5.8 earthquake. When the shaking did not stop after about 5 seconds, I was under my desk. As the shaking continued for a good 30 seconds more, I knew we were experiencing a HUGE event – well, huge for the east coast! Then something unbelievable happened. We were told to evacuate the building. What?! There had not been enough time yet to let things "settle down," in case of falling debris or an aftershock. After about 30 minutes word started to get around to go home. Ok, I can see the need to inspect buildings to make sure they are structurally sound and people wanting to make sure their loved ones were ok as well – the cell phone airways were jammed. I exchanged several texts with my sons as that seemed to work much better. We were allowed back in for a brief time to collect our things and then head home, but we were not allowed to stay and work. On my way out I did a cursory visual check of the walls and structure; I saw no cracks, nothing to indicate any kind of damage or even breakage between cement blocks. On my way home, I got a text alert-message that all of our college campuses were canceling classes for the rest of the day. Imagine that, a geology class on the east coast canceled by an earthquake! No doubt for a number of years geotechnical people will be busy doing engineering geology things involving earthquake hazards on the east coast until memories fade and people begin to believe that it is not such a hazard after all. All-

in-all we really did dodge that proverbial bullet, but that doesn't mean we shouldn't plan AND build for it. Doing so will also help mitigate other natural hazards, which could easily become catastrophes.

Just such an event was already under way as the east coast was beginning to make preparations for Hurricane Irene's landfall when the earthquake hit. Luckily, the event was not as powerful as predicted. Winds were not as strong as expected but were still powerful enough to leave nearly one million "customers" without electricity for a good part of a day. The storm surge was not any where near as high as had been anticipated. I tracked the NOAA tide gauges near our favorite vacation spot of Ocean City, Maryland, and was pleasantly surprised to see that when the eye passed over OC there was a low tide and there was only a surge of two feet, if one could even call it a surge. However, the rain that was dumped on the area caused some flooding but nothing like what was to follow yet only a week later. Slow moving Hurricane Lee coming in from the Gulf of Mexico slowed down even more to become a tropical depression then a tropical low. As it moved up the Appalachians it began to pump ocean moisture into the entire east coast area, still saturated from Irene. The result was rapid and extensive accumulation of rainfall in numerous small drainage basins, overwhelming both natural and man-made channels. For a brief time streets became run-off channels. One friend related to me that the parking lot where he worked was a temporary lake with four inches of water. One of our campuses was closed due to high water. Some areas experienced flash floods as culverts under the road were not adequate to carry the amount of flow and the road acted as a dam, causing flooding into several homes on either side. Bits of floating debris and bent foliage marked the high water line and direction of flow. The joke around has been "when do the locusts arrive?"

Some of my thoughts about all the flooding in our 300 million year old mountains have been: "I wonder just how much material is being removed? And what would the deposition of that material look like in the geologic record compared with the many other 'normal' years of deposition?"

All of these things are not unfamiliar to us as geologists but are even more prevalent to us as engineering geologists. Discovery, investigation, delineation of natural hazard-prone areas is what engineering geologists do. But knowledge of these things is not enough: we need to be proactive in disseminating the information, which may mean our involvement in the public information and [shudder] policy arenas.

Now, I would like to return to those challenges I was saying I've had at the start of this semester. All the earth processes we've experienced in the last couple weeks is only the framework. One of my students is blind. That's correct, blind. I have had color blind students before but not a blind student. I sent emails out to a number of contacts in academia and to a couple of geology-oriented listservs for ideas how to assist this student to learn as much geology as possible. I won't detail all of the help I have received; suffice it to say that I have received a number of novel ideas and even contact information for a practicing geologist who is blind.

One of the points I make to my students is that geology is a science of observation: describe what you see and then make an interpretation so that it makes sense. I quickly realized that having different students describe their visual observations to their blind fellow student was a powerful way to reinforce this maxim. I'll explain to my students that we humans like to put things in categories which may not always have sharp sides or boundaries. We in the geologic community look to build common definitions so that when we communicate with others in our field, or across fields, we have common frames of reference and we know what others are talking about – assuming they are using the same definitions. The definitions are our descriptions and the resulting word we

use is the interpretation of those processes which form our idea into which we then categorize similar events.

Landslides: A subject near and dear to the hearts of many engineering geologists. Indeed, the study of them is what many of you do. Having also served on our Burwell committee a few years ago, I know that a lot has been done to further their study and to provide some classification of them. Indeed, the E.B Burwell, Jr. award for the last four years has been given to publications on this very subject. So as I begin my talk to my class about weathering, erosion and mass wasting, I will ask, "What is a landslide?" then I will show a series of images to evoke the entire range of volumes and motions involved – images which are probably racing through your minds right now as you read this and relate to the concepts and definitions which you have been studying over a number of years. But this year I must keep in mind I have a blind student and will need to describe what each of those events would look like. Could you do the same and keep it in terms that are simple and descriptive?

A subject of a number of our previous issues of this newsletter has been the dwindling numbers of our members. GSA has announced that our membership is over 25,000. Yet a significant number of those people are not affiliated with any of our 17 divisions. Is mentoring the way to get people interested? Engaging people in the description of concepts may be the way to look at it. Describing and drawing were the trade and art of the geologist in the field. Photographs and computer aided mapping have become the impressive tools upon which we rely, but they have become a bane for us as they take away our ability to describe and sketch as a way to firmly implant, right there in the field, what is going on. I learned more geology from my mentor, who was a civil engineer, than I have from any geologist. He taught me to truly describe what I see in a stereo model and then advance to "now how did that come about."

You are all doing great things. Please, continue to do so. We have the oldest division in GSA and one of the most distinguished. You can continue to keep it that way and you can also strengthen it with your continued support. Mentor a geologist look to understand how this planet works.

It has been a pleasure and honor to have been your chair for this last year. But as I said in my January message, you get out of an organization what you put in – I will continue to help EGD where I can.

Roy J. Shlemon Scholarship Awards

Please encourage students to apply for the **Shlemon Scholarships**. These awards are given to graduate students to support thesis research within the broad field of engineering geology. At least two $1000 scholarships will be awarded; one for Master's level and one for Doctoral level research. The program is competitive and there is no guarantee of funding. The Scholarship Awards Committee strongly encourages women, minorities, and persons with disabilities to participate fully in this program. Eligibility is restricted to student members of the Engineering Geology Division.

Roy J. Shlemon **Meeting Awards** are given to graduate and undergraduate students to encourage participation in field trips and short courses held at annual and sectional meetings. Participation on field trips is especially encouraged. The only criteria are that you must be a student member of the Engineering Geology Division of GSA and making satisfactory progress toward your degree. In the event that requests for awards exceed available funding, requests for attending field trips will be given preference over requests for short courses.

Details and applications for both types of awards may be found at the EGD website (http://rock.geosociety.org/egd/index.html), under the "Scholarships" tab.

SCIENCE UPDATE

EGD Sponsored Sessions at 2011 Annual GSA meeting

The EGD is sponsoring or co-sponsoring an extensive list of events at the Annual GSA meeting October 9-12 in Minneapolis. We have sorted these by type and time below to help you plan your meeting schedule.

Field trips:

Southeastern Minnesota Karst Hydrogeology: New Insights from Data Loggers, Tracing, LiDAR, and Hydrophysics Saturday, 8 October 2011, 7:30 AM-9:00 PM

Subterranean Twin Cities Tuesday, 11 October 2011, 1:00 PM-5:00 PM

Short courses:

GSA Short Course 514: Introduction to the Acquisition, Visualization, and Interpretation of Airborne LiDAR Data Saturday, 8 October 2011, 8:00 AM-5:00 PM

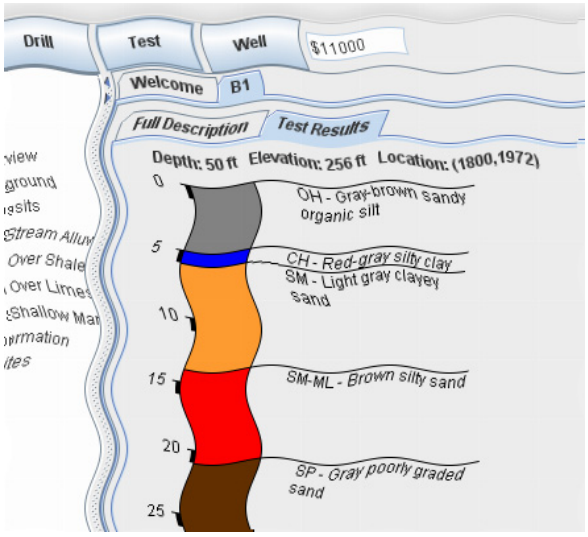
Technical Sessions:

Date	Time	Session
Sun 10/9	8-12	T90 - Gas Bubbles and Dissolved Gases In Groundwater
Sun 10/9	1:30-5:30	T80 - Environmental Problems in Karst Terranes/Terrains and Their Solutions - in honor of James F. Quinlan, Ph.D. T92 - Buried Valley Aquifers: What Do We Know and How Do We Move Forward for Sustained Groundwater Management? T135 - Quaternary Geology and Its Applications: In Honor of David M. Mickelson
Mon 10/10	8-12	T79 - Analytic Modeling of Groundwater Flow: Advances and Applications T94 - Advances in Characterization of Groundwater Flow Processes
Mon 10/10	1:30-5:30	T193 - Complexity in Modeling: How much is too much? T89 - Innovative field investigations to assess natural attenuation and engineered remediation of subsurface contamination
Tues 10/11	8-12	T42 - Sediment Transport in Modern and Ancient Environments T88 - Identification and quantification of groundwater flow using heat as a tracer T118 - International Development and the Geosciences T197 - Seeing the True Shape of the Earth: Quantitative and Qualitative applications of Airborne Lidar
Tues 10/11	1:30-5:30	T189 - Geological Mapping: Key to Successful Management of Water and Land Resources
Wed 10/12	8-12	T99 - Hydrogeology of Glaciated Terrain: Linking Glacial Geology, Quaternary History, and Groundwater Research T206 - STEMming the Tide: How Can We Promote Science Literacy?
Wed 10/12	1:30-5:30	T201 - Intersection of Geology and Health: Impacts of Geologic Materials on Public Health T204 - Advances in characterizing sources and release of naturally occurring trace elements to aquatic systems and groundwater

Date	Time	Session
Sun. Posters	9-6	T28 - Basic and Applied Aspects of Clays and Clay Minerals in Continental Settings
Mon. Posters	9-6	T100 - Exploration of Karst Aquifer Systems Using New and Innovative Techniques and Methods T145 - Geology in the National Parks: Research, Mapping, Outreach, and Resource Management
Tues. Posters	9-6	T7 - Exploring Subsurface Terranes and Buried Basins of Eastern and Central North America – Geology, Geophysics, and Geochronology T67 - Landslides and Debris Flows: Understanding Past, Present and Future Events T68 - Water and Sediment Dynamics in Agricultural Landscapes: Towards Prediction of Watershed Sediment Yield T97 - Advances in Understanding at the Groundwater-Surface-Water Interface and Challenges for the Future: A Reflection on Tom Winter's Legacy
Wed. Posters	9-6	T188 - Geologic Maps, Digital Geologic Maps, and Derivatives from Geologic and Geophysical Maps

TANTALIZING TECHNOLOGY

While we do not advocate for any specific software packages, sometimes it may be difficult to get a sense of what is out there. To help with this, the following list includes some sites, resellers, or catalogs that serve as clearinghouses for multiple types and brands of software packages.



http://www.ggsd.com/ The Geotechnical and Geoenvironmental Software Directory (GGSD) catalogues 1773 programs and lists 907 worldwide suppliers and publishers of these programs

http://www.rockware.com/ Vendor / distributor

http://www.scientificsoftwaregroup.com/ Vendor / distributor

http://www.ndsu.edu/pubweb/~sainieid/software/software_list.shtml Geology software

http://en.wikipedia.org/wiki/Category:Geology_software Wikipedia page with links to 24 packages

http://www.geologicresources.com/software.html Commercial reseller, links to specific software packages

http://www.uh.edu/~jbutler/anon/macsoft.html Links To Geosciences Freeware/Shareware

DIVISION AWARDS

Read Any Great Papers or Books lately? Nominate It for the Burwell Award!

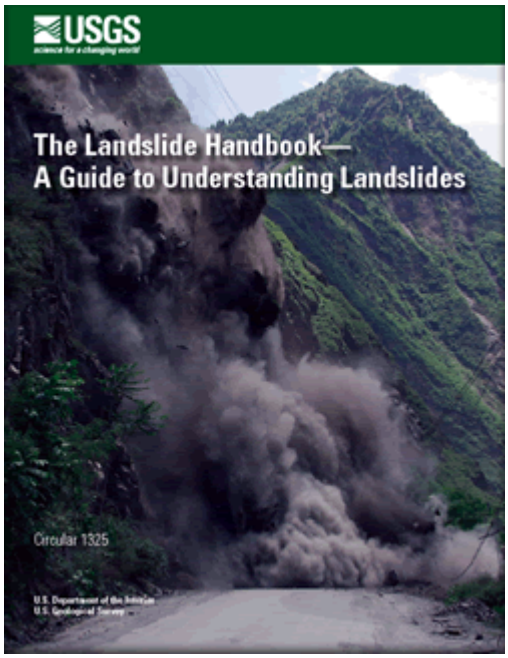
The Edward Burwell, Jr., Award, established by the Division in 1968, honors the memory of one of the founding members of the Division and the first chief geologist of the U.S. Army Corps of Engineers. It consists of an embossed award certificate. This award is made to the author or authors of a published paper of distinction that advances knowledge concerning principles or practice of engineering geology, or of related fields of applied soil or rock mechanics where the role of geology is emphasized. The paper that receives the award must (1) deal with engineering geology or a closely related field, and (2) have been published no more than 5 years prior to its selection. There are no restrictions as to the publisher or publishing agency of the paper. The author or authors of the selected paper need not be a member(s) of the Engineering Geology Division or of the Geological Society of America and need not be a resident(s) or citizen(s) of the United States.

Send nominations by February 1 for the E.B. Burwell, Jr. Award to James McCalpin at mccalpin@geohaz.com. Check the EGD website at http://rock.geosociety.org/egd/index.html for updated Burwell information.

Reviews in Engineering Geology – Looking for Future Volumes

EGD is the only Division in the Geological Society of America with its own book series, Reviews in Engineering Geology. Volumes in the Reviews series cover a wide range of environmental and engineering geology topics. Each volume is a collection of individual papers including case studies focused around a particular environmental or engineering geology theme or topic. Landslides in the Seattle, Washington area, deep repositories and the geology of coal fires around the world are among the topics covered in recent volumes of the Reviews series. EGD tries to have, at least, one volume issued per year in this series. Individuals who are willing to serve as editors or co-editors for a volume should submit a proposal describing the subject being covered in their proposed volume to Syed (hasans@umkc.edu). He can provide further details on the publication process.

2011 Burwell Award Winner



The Burwell selection committee is proud to recognize and outstanding publication by **Lynn Highland** of the USGS and **Peter Bobrowsky** of the Geological Survery of Canada as the 2011 Award Winner. The Circular is entitled "The Landslide Handbook – A guide to understanding landslides," published by the U.S. Geological Survey and available for free download at http://pubs.usgs.gov/circ/1325/.

This is an innovative volume targeted at the non-technical community charged with emergency management, landslide mitigation and public education in both developed and developing countries, including lay persons interested in a comprehensive introduction to landslide hazards. The Handbook features detailed graphics, illustrations and photos from all over the world to emphasize the global nature of landslide hazards and threats to life and property; and so that the user can more easily visualize landslide processes and impacts, along with methods of mapping, monitoring and mitigation.

2011 Distinguished Practice Award

Gardiner W. Cross is recognized for his performance in bringing geologic observation and deduction most prominently into the gasworks cleanup arena over the last two decades. His expertise led to his appointment as Section Chief for the New York State Department of Environmental Conservation Manufactured Gas Plant Program. The world now looks to the NYSDEC led by the work of Gardiner for the example and the courage to characterize, evaluate and interpret geologic gasworks sites and waste conditions in the delicate diplomacy of Manufactured Gas Plant site remediation.

2011 Meritorious Service Awards

Please join us in congratulating and thanking two individuals for extended service to the division:

J. David Rodgers: for support to the Division over a number of years

Jerome V. DeGraff: as newsletter editor for the last 13 years, and other support to the division and GSA

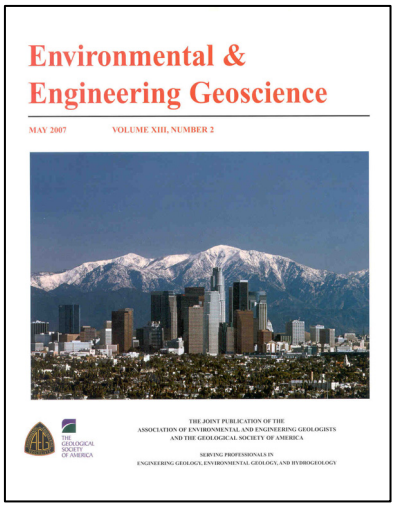
2011 Roy J. Shlemon Scholarship Award

The Roy J. Shlemon Scholarship Awards have been awarded since 2000 to graduate students with the best research proposals within the broad field of engineering geology. The primary role of this awards program is to provide partial support of master's and doctoral thesis research in engineering geology. This year one master's level student was selected to receive the scholarship.

Masters Level - $1250
Daniel R. Pratt, Colorado School of Mines
Landslide Hazard and Risk: A Landslide Hazard Rating System of the State of Colorado

As an example of the excellent work funded by the Shlemon Scholarships, review our 2008 scholar's thesis at http://gradworks.umi.com/14/84/1484278.html, where Steven Sobieszczyk at Portland State University used LiDAR to map 401 landslides and then conduct turbidity monitoring to investigate sources of suspended sediment.

Call for Papers!



Please submit your technical articles to our journal! Environmental and Engineering Geoscience is jointly published by our division and by the Association of Environmental and Engineering Geologists. As a member journal to Geoscience World, it has experienced a recent surge in accessibility and exposure. Check out recent publications at http://eeg.geoscienceworld.org/.

Richard H. Jahns Distinguished Lecturer

The Jahns lectureship, established in 1988, is sponsored by the Association of Environmental and Engineering Geologists and GSA's Environmental and Engineering Geology Division. Its purpose is to provide funding for distinguished engineering geologists to present lectures at colleges and universities in order to increase student awareness of careers in engineering geology. The lectureship is named in honor of Richard H. Jahns (1915–1983), an engineering geologist who had a diverse and distinguished career in academia, consulting, and government.

2011–2012 Richard Jahns Distinguished Lecturer

Scott F. Burns

GSA Fellow Scott Burns has been named the 2011–2012 Richard H. Jahns Distinguished Lecturer in Engineering Geology. Burns is a professor of geology at Portland State University (PSU), where he specializes in engineering and environmental geology, soils, geomorphology, Quaternary geology, and terroir. He just finished his 21st year of teaching at PSU and his 41st year of teaching at the university level (including in Switzerland, New Zealand, Washington, Colorado, and Louisiana).

Burns received his B.S. and M.S. degrees from Stanford University, and earned his Ph.D. at the University of Colorado. He holds registrations in Oregon (RG & CEG) and a license in Washington (LG) and is a consultant and expert witness for legal cases. Burns has authored or co-authored more than 80 articles and 200 published abstracts as well as two books. His diverse research topics include landslide debris flows; radon and earthquake hazard mapping; heavy metals and trace elements in soils; loess stratigraphy; slope stability; the Missoula Floods; biogeomorphology; alpine soil development; and terroir.

Burns' accolades include the 2011 GSA Public Service Award and the 2006 GSA Environmental and Engineering Geology Division Meritorious Service Award. He has served as chair of the Environmental and Engineering Geology Division and as treasurer for 12 years of GSA's Quaternary Geology and Geomorphology Division. Burns was 2002–2003 president of AEG and vice president of IAEG (North America) from 2006 to 2010.

Burns has also won many awards for outstanding teaching, with the most significant being the Faculty Senate Chair Award at Louisiana Tech University in 1987; the Distinguished Faculty Award from the PSU Alumni Association in 2001; and the George Hoffmann Award from PSU in 2007. He actively helps local TV and radio stations and newspapers bring important geological news to the public.

The main talk being offered by Burns is "Urban Landslides—Challenges to Forensic Engineering Geologists."

Other talks on the following topics can also be arranged: "Cataclysms on the Columbia, the Great Missoula Floods"; "Engineering Geology Challenges on the Cascadia Margin, Pacific Northwest, USA"; and "The Mystery of Terroir—The Relationship of Geology, Soils, and Climate to Wine." All talks are suitable for technical, professional and general audiences.

To make arrangements for talks, please contact Scott Burns directly at burnss@pdx.edu or +1-503-725-3389. Descriptions of these talks are posted on the AEG website (www.aegweb.org) and the GSA Environmental and Engineering Geology website (http://rock.geosociety.org/egd/index.html).

BULLETIN BOARD

Meetings of Interest

Oct. 2, 2011 – Oct. 6, 2011
2011 Pan-Am CGS Geotechnical Conference
Toronto, Ontario, Canada

Oct.3, 2011 – Oct. 9, 2011
The Second World Landslide Forum
Rome, Italy

Nov. 2, 2011 – Nov.5, 2011
The 13th Congress on Engineering and Environmental Geology
Sao Paulo, Brazil

Sept. 15, 2012 – Sept. 23, 2012
55th AEG Annual Meeting
Hilton Hotel, Salt Lake City, UT

GSA Regional Meetings
http://www.geosociety.org/meetings/

South-Central — 7–9 March, Alpine, Texas

Northeastern — 18-20 March, Hartford, Connecticut

Cordilleran — 29-31 March, Queretaro, Mexico

Southeastern — 1–2 April, Asheville, North Carolina

North-Central — 23–24 April, Dayton, Ohio

Rocky Mountain — 9 –11 May, Albuquerque, New Mexico

GSA National Meetings

2012 - Charlotte, NC: 4–7 November
2013 - Denver, CO: 27–30 October
2014 - Vancouver, BC, Canada: 19–22 October
2015 - Baltimore, MD: 1–4 November

From the Editor …

I hope that you found some useful things in this newsletter. My goal is to make it worth your while to read. If you have any comments, suggestions, or ideas for columns or articles, please contact me at psanti@mines.edu.

Paul Santi, Editor
The Engineering Geologist

BULLETIN BOARD

11th International & 2nd North American Symposium on Landslides

Banff Springs Hotel in Banff, Alberta, Canada, June 2 to 8, 2012

Located in Banff National Park, a UNESCO World Heritage site, the conference is set in the heart of the Canadian Rocky Mountains and provides a stunning venue for the international landslide community to convene and share. This location is ideally situated to stage a series of pre-, post- and mid-conference field trips will provide delegates with a taste of the culture, geology and landslides issues of Western Canada and the Rocky Mountains.

The local technical committee, in partnership with the international advisory panel, have developed a program of sessions and plenary lectures to highlight the advancements and state-of-the-art in landslide research and practice from around the globe. In addition field trips, workshops, social events and the partner program will make this meeting an unforgettable event.

Additional details about the conference can be found on the ISL/NASL web site at www.isl-nasl2012.ca. Conference papers will be published in a proceedings volume.

The meeting will follow the same successful format at the 1st North American Symposium on Landslides held in Vail, Colorado in 2007. Technical sessions will be held on Monday, Tuesday, Thursday and Friday. Participants will be able to choose from a range of technical excursions to be held on Wednesday. The web site provides additional information on lodging, registration fees and meeting registration. It also permits signing up for an E-newsletter to be kept up to date on conference news. The meeting is designed to provide a stimulating forum for geoscientists, engineers, planners, economists, program managers, and other decision makers concerned with landslide hazards and their impact on society. Both the location and the caliber of technical speakers should make this a worthwhile and memorable meeting.

Engineering Geology Division Contacts

2010 2011 Management Board

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Secretary: Norm Levine (levinen@cofc.edu)
Member-at-Large: Dennis Staley (dstaley@usgs.gov)
Past Chair: David Rogers (rogersda@mst.edu)

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GSA Sectional Meeting Division Coordinator
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Ali Sadr
Paul Santi
Chester (Skip) F. Watts

Richard H. Jahns Distinguished Lecturer Award
John Jens
Bill Schulz
(Bruce Hilton and Jennifer Bauer, AEG Representatives)

Roy J. Shlemon Scholarship Awards Committee
Robert A. Larson, Chair
Scott Burns
Jerome V. DeGraff
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2010-11 EGD Management Board

THE ENGINEERING GEOLOGIST

The Engineering Geologist is a publication of the Engineering Geology Division of the Geological Society of America. It is issued twice a year, to communicate news of interest to members of the Division. Issues of the newsletter may be accessed at: http://rock.geosociety.org/egd/index.html.

Contributions to The Engineering Geologist are most welcome, and should be directed to the Editor. Submission as Word documents or jpg photographs is most expedient.

Paul M. Santi, Editor
Department of Geology and Geological Engineering
Colorado School of Mines
Golden, CO 80401

voice: (303) 273-3108
email: psanti@mines.edu

January Issue Deadline
January 10, 2012