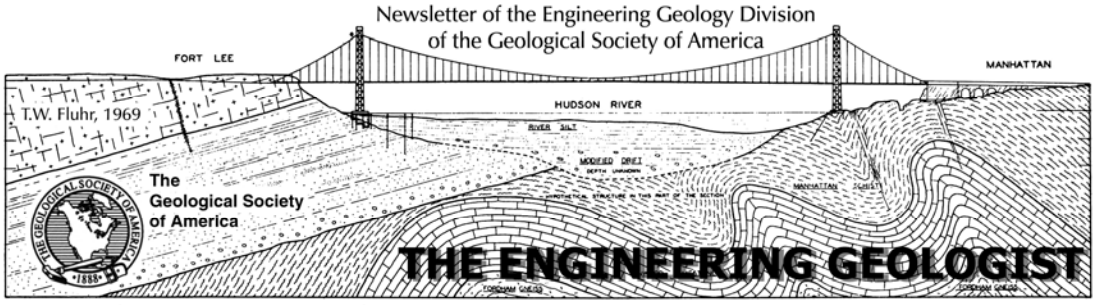
Newsletter of the Engineering Geology Division
of the Geological Society of America



THE ENGINEERING GEOLOGIST

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ANNUAL MEETING SPECIAL EDITION

Geological Society of America (GSA) Annual Meeting – Denver 2007

Once again, it is time for the Annual Meeting of the Geological Society of America (GSA) to convene in Denver, Colorado. The meeting will be at the Colorado Convention Center in downtown Denver from October 28th thru 31st. For details on logistics, general information and program, go to: http://www.geosociety.org/meetings/2007/index.htm.

The meeting theme, "2007 Earth Sciences for Society", draws attention to 2008 being declared the International Year of Planet Earth. As envisioned by its organizer, the International Union of Geological Sciences (IUGS), the International Year of Planet Earth will develop and advance earth science initiatives for a safer and more prosperous world for future generations. It is consistent with the GSA's stated mission to advance the geosciences in the service of humankind. EGD members will find many sessions of interest with this theme's emphasis on finding resources such as clean water, construction materials, as well as the need to address the continuing problems of contamination and natural hazards.

Deadline for Abstracts is 11:59 PM Pacific Time, July 10

Abstracts for technical sessions are required to be submitted electronically. The system is easy to use and is accessed through the GSA website at http://www.geosociety.org/meetings/2007/index.htm. Remember there is a non-refundable fee required at the time of submission. The fee is $18 for students and $30 for all others.

Things to Remember When Registering for the Meeting

When registering for the Annual Meeting, EGD members are urged to also include purchase of tickets for the EGD luncheon and awards ceremony. This is usually held early in the week. The large number of attendees and venue for the

Annual Meeting often makes it difficult to connect with old friends and colleagues. The EGD luncheon offers a wonderful opportunity to make sure you can talk with someone you might otherwise miss seeing.

Another annual opportunity for EGD members is to enjoy a great field trip. There are two field trips of particular interest. A pre-meeting field trip that should be of interest is:

The Beautiful Vail Valley: A Classroom in Geologic Hazards and Mitigation (410)
Cosponsored by Colorado Geological Survey.
Sat., 27 Oct.
Vincent Matthews, Colorado Geological Survey, Denver, Colo., +1-303-866-3028 vince.matthews@state.co.us; Jonathan White

If you are unable to participate in a field trip before the meeting, consider this Division-sponsored one after the meeting. It promises to be a most enlightening experience.

A GeoMystery Field Trip to the Anton Escarpment (422)
Cosponsored by GSA Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division.
Thurs., 1 Nov.
David C. Noe, Colorado Geological Survey, Denver, Colo., +1-303-866-2432 dave.noe@state.co.us.

Registration is also time to sign up for short courses. There are both some for practicing professionals to provide a more in-depth understanding of a topic and some for Faculty/Graduate Students which offer the chance to explore a topic that you would like to know more about. Both course types offer CEU credit that may applied to registration/certification continuing education requirements. Following are short courses that might be of particular interest to EGD members.

PROFESSIONAL COURSES

501. **Estimating Rates of Groundwater Recharge**
Sat., 27 Oct., 8 a.m.-5 p.m.
Rick Healy, U.S. Geological Survey; Bridget Scanlon, BEG, University of Texas at Austin.

Estimates of groundwater recharge are required to accurately assess water resources and evaluate aquifer vulnerability to contamination. This course will review theory, assumptions, uncertainties, advantages, and limitations of different approaches for estimating recharge rates. We will discuss physical, tracer, and numerical modeling techniques based on surface water, unsaturated zone, and saturated zone data. The course content is aimed at practicing hydrologists and advanced hydrology students.
Limit: 35. Fee: US$214; includes course materials and lunch. CEU: 0.8.

502. **Laser Ablation ICP-MS: Fundamentals and Applications to Geological, Environmental, and Biological Problems**
Sun., 28 Oct., 8 a.m.-5 p.m.
Alan Koenig, U.S. Geological Survey; Ian Ridley, U.S. Geological Survey.

This course will cover the basics of laser ablation ICP-MS as applied to a wide range of geological, environmental, and biological samples. Both fundamentals of the technique and applications to minerals, fluid inclusions, teeth, bones, corals, tree rings, rock and ore powders, and others will be presented. Instructors will cover these topics by including practical information about how these applications are tackled and what future directions are possible. New directions for LA-ICP-MS, such as isotopic analyses by multi-collector ICP-MS and bulk analysis by large spot capable LA systems will also be covered. The course is intended for those already using laser ablation and those just interested in learning more about the technique.

Limit: 30. Fee: US$262; includes course materials and lunch. CEU: 0.8.

FACULTY AND GRADUATE STUDENT COURSES

503. **Three-Dimensional Geologic Mapping for Groundwater Applications**
Sat., 27 Oct., 8 a.m.-5 p.m. *Cosponsored by GSA Geology and Society Division; GSA Hydrogeology Division.*
Richard C. Berg, Illinois State Geological Survey; Harvey Thorleifson, Minnesota Geological Survey; Hazen Russell, Geological Survey of Canada.

There is an increasingly pressing need for high quality 3-D geological information about shallow deposits as attention to environmental and land-use issues, as well as evaluation of regional groundwater systems and their long-term sustainability, continue to grow. Demands for this information are becoming increasingly compelling, but there is a continuing lack of high-quality data, maps, and models. This workshop focuses on experimenting with new ways to deal with large data sets, integrating data of variable quality with high-quality data, and developing methods to construct 3-D geologic models that can be used for hydrogeologic modeling.

Limit: 55. Fee: US$61; includes course materials and lunch. CEU: 0.8.

506. **New Tools for Quantitative Geomorphology: Extraction and Interpretation of Stream Profiles from Digital Topographic Data**
Sun., 28 Oct., 9 a.m.-5 p.m. *Sponsored by NSF Geomorphology and Land Use Dynamics; GSA Quaternary Geology and Geomorphology Division.*
Kelin Whipple, Arizona State University; Cameron Wobus, University of Colorado; Eric Kirby, Pennsylvania State University; Benjamin Crosby, Idaho State University.

Empirical data from rivers around the world demonstrate a positive correlation between steepness (gradient normalized to drainage area) and the rate of rock uplift. This short course will teach graduate student,

professional, and faculty participants how to utilize a set of integrated GIS and numerical analysis tools to exploit this relationship and extract semi-quantitative estimates of rock uplift rates from digital elevation models (DEMs). We will discuss how to obtain and preprocess raw DEM data; how to use our software to create GIS-based maps of river steepness, concavity, and knickpoint locations; and how to interpret these data for tectonic analysis.
Limit: 20. Fee: US$30; includes course materials and lunch. CEU: 0.7.

507. **Processing and Analysis of GeoEarthscope and Other Community LiDAR Topography Datasets**
Sat., 27 Oct., 9 a.m.-5 p.m.
Ramon Arrowsmith, Arizona State University; Chris Crosby, Arizona State University; David Phillips, UNAVCO.
LiDAR—Light, Distance, and Ranging (also Airborne Laser Swath Mapping-ALSM) topographic data are of broad interest to earth scientists. Many datasets are or will be available freely to the scientific community, especially for fault systems in the western United States via the GeoEarthscope project. These data have exciting and powerful applications in geomorphology, active tectonics, and geoscience education. Participants in this course will learn about LiDAR technology, access to publicly available datasets, software and hardware considerations for working with the data, data processing (raw or classified point clouds, digital elevation models, other derived products), and approaches for analyzing the data to answer their research questions.
Limit: 20. Fee: US$180; includes course materials and lunch. CEU: 0.7.

CALL FOR PAPERS! Help Make Division-Sponsored Sessions a Success!!

There are a number of technical sessions that are sponsored or co-sponsored by the Engineering Geology Division. The EGD Management Board has worked hard to ensure that the technical program will have many interesting talks and sessions for Division members to attend. This year there is not an EGD-sponsored Pardee keynote symposia. But there are many technical sessions that will benefit from EGD members choosing to offer abstracts and make presentations at the Annual Meeting. This is not only an opportunity to share some interesting and informative findings from your investigations, it is also a chance to advance the environmental and engineering geology field by sharing that experience with other professionals and students. Don't assume that just because you see a session that sounds interesting to you that it will be part of the final program. That will depend on receiving enough volunteered papers to make it happen. So if you don't have something suitable for presenting this year, please encourage your co-workers, students and/or colleagues to submit an abstract. The following is a listing of technical sessions sponsored or co-sponsored by the Engineering Geology Division. For details on about a particular session, contact one of the session advocates named in the description.

Whether the session is for oral or poster presentation is noted at the end of the description. Please take special note of the several different sessions being offered in tribute to the career and contributions of Dr. James E. Slosson. (NOTE: When submitting an abstract, be sure to include the technical session number listed before the technical session title.)

T8. **Role of Geology in Planning and Mitigation of Natural Hazards**
GSA Engineering Geology Division; Association of Environmental and Engineering Geologists (AEG); GSA Geology and Health Division; GSA Geology and Society Division
Syed E. Hasan

The session aims at gathering experts from a diverse field comprising geoscience, engineering, public policy, emergency planning and management, health, pollution control, and hazard forecasting to discuss lessons learned from major hazards and their mitigation. Oral.

T18. **Hydrogeomorphic Responses of Convulsive Events**
GSA Quaternary Geology and Geomorphology Division; GSA Engineering Geology Division; GSA Sedimentary Geology Division
J.J. Major, Christopher S. Magirl

Earthquakes, landslides, large storms, hurricanes, volcanic eruptions, wildfires and other “convulsive” events can provoke significant hydrogeomorphic responses. This session seeks theoretical, empirical, and field contributions that examine all scales of hydrogeomorphic responses to such events. Oral.

T71. **Modern and Ancient Fire Systems: Implications for Geomorphology, Sedimentology, Coal Geology and Paleontology**
GSA Engineering Geology Division; GSA Coal Geology Division; Paleontological Society
Andrew C. Scott, Susan Cannon, Ian J. Glasspool

Widespread occurrence of charcoal contributes to our understanding of ancient fire systems and also impacts on coal quality. This session highlights current understanding of modern and ancient fire systems and its relevance to earth science. Oral.

T72. **Debris Flow Prediction: Probability, Magnitude, Travel Distance and Impact**
GSA Engineering Geology Division
Susan Cannon, Paul Santi

Recent research has provided numerous models for prediction of debris-flow behavior for use in hazard assessments. The session will focus on modeling of debris flows and the application and refinement of these models. Oral.

T74. **Slope Stability of Sedimentary Strata Subject to Differential Weathering**
GSA Engineering Geology Division
Abdul Shakoor, Paul M. Santi

Stratigraphy consisting of alternating hard and soft layers is highly susceptible to differential weathering and undercutting. This session will focus on investigation, design, analysis, and remediation of slope stability problems in such sedimentary sequences. Oral.

T76. **Three-Dimensional Geological Mapping for Engineering and Environmental Geology Applications**
GSA Engineering Geology Division; Association of Environmental and Engineering Geologists (AEG); GSA Geology and Society Division
A. Keith Turner, Carl W. Gable, Harvey Thorleifson

This session emphasizes applications of 3D geological mapping and modeling to site investigations and projects; including innovations in model creation, interfaces with design tools and process model applications, visualization, and data sharing and dissemination. Oral.

T77. **Forensic and Engineering Geology Case Studies: A Tribute to James E. Slosson**
GSA Engineering Geology Division; GSA Geology and Society Division
J. David Rogers, David M. Abbott

In order to learn by experience, this session solicits case studies across the spectrum of environmental and engineering geology topics. This session is to honor Jim Slosson's contributions to forensic geoscience. Oral.

T78. **Geology and Public Policy: A Tribute to James E. Slosson**
GSA Engineering Geology Division; GSA Geology and Society Division
Jeffrey R. Keaton, Susan D. Halsey, Christopher Mathewson

This session honors Jim Slosson's contributions to public service, covering the challenges of government-supported geoscience, building code development and enforcement, standards of practice, licensure, client advocacy versus practice in the public interest, and professional ethics. Oral.

T79. **Landslide Processes, Case Studies and Issues: A Tribute to James E. Slosson**
GSA Engineering Geology Division; GSA Geology and Society Division
Jerome DeGraff, Susan Cannon, Jerry Higgins

Case studies of landslides: processes, histories, physical description, hydrogeologic effects, mitigation, and techniques for hazard recognition are welcome in this session to honor Jim Slosson's work on slope movement. Oral.

T80. **Active Faulting, Neotectonics, Paleoseismology: A Tribute to James E. Slosson**
GSA Engineering Geology Division; GSA Structural Geology and Tectonics Division
Wanda Taylor, Keith Sverdrup, Vincent S. Cronin

This session to honor Jim Slosson's work on seismic safety will concentrate on studies concerning the recognition or description of faults active in the Neogene, or characterization and mitigation of seismic hazards. Oral.

T109. **Mélanges: Processes of Formation and Societal Significance**
GSA International Division; GSA Structural Geology and Tectonics Division; GSA Engineering Geology Division, GSA Sedimentary Geology Division
John Wakabayashi, Yildirim Dilek

This session explores advances in the study of mélanges. We seek to bring together researchers from around the world, spanning a wide range of geoscience disciplines, including structural, sedimentary, and engineering geology. Oral.

T146. **Geologic Mapping: Innovations and Interoperability (Posters)**
GSA Engineering Geology Division; GSA Geology and Society Division; GSA Hydrogeology Division; GSA Quaternary Geology and Geomorphology Division; Association of American State Geologists
Harvey Thorleifson, David Soller, Richard Berg, Peter Lyttle

This session will highlight innovations in geological mapping by showing new mapping, strategies for managing data, new methods for publication and Web accessibility, applications, and how digital procedures have advanced the effectiveness of mapping worldwide Posters.

See you in Denver this October!