

Association of Environmental and Engineering Geologists

The Rocky Mountain Section Newsletter

OCTOBER 2006

MEETING DATE

THURSDAY
OCTOBER 12TH, 2006

TIME

5:45 p.m. Social Hour
6:30 p.m. Dinner
7:30 p.m. Presentation

LOCATION

Berthoud Hall,
Colorado School of
Mines
1516 Illinois St.
Golden, Co 80401
See Map Below

COST

\$20 Members
\$22 Non-members
Students, Free first
time, then \$10

RESERVATIONS

Kristi Ainslie
(303) 264-1030
or
meetings@aeqrms.org
or
WWW.AEGRMS.ORG

**BY NOON,
TUESDAY
OCTOBER 10TH**

DEBRIS FLOW MITIGATION...AND WHAT WE'RE DOING ABOUT IT AT CSM

Dr. Paul M. Santi

Department of Geology & Geological Engineering Colorado School of Mines

In 1996, the American Red Cross estimated that landslides and debris flows caused \$2 billion damage and 25 to 50 deaths annually in the U.S. As development pressures force construction onto alluvial fans and within runout areas, these numbers will certainly increase.

Recently burned areas and regions with cloudburst-type rainstorms are particularly vulnerable. The need for effective and properly selected and designed mitigation methods for debris flows is at a critical level.

During the last several years, CSM worked to address this need through a series of research thrusts aimed at 1) obtaining accurate field measurements of flows, 2) improving our understanding of the sources of debris flow material, 3) predicting

debris flow properties, such as volume, velocity, runout, and rheology, 4) evaluating the effectiveness of various mitigation approaches, and 5) designing mitigation elements.

Using a slope profiler, we measured over 2,500 cross sections along the channels of 46 debris flows, thereby providing snapshots of progressive debris production and debris flow growth along the length of the canyon. From this data we can show that, for burned areas, nearly all of the debris came from entrainment of channel colluvium, with an average of only 3% coming from hillside rill erosion. The data also demonstrates the important contribution of debris from side channels, the amount of debris deposited as levees before the flow reaches the alluvial fan area, and the almost universal increase in erosion rate at some point along the path of the debris flow.

The debris flow volume data calculated from the cross sections allowed de-

velopment of a volume predictive model specific to the Western U.S. Based on this predictive model, there is a slight, but measurable reduction in debris flow volume from hillside treatments by mulch, seeding, and log erosion barriers. However, installation methods, density of treatment, and maintenance are critical to their success.

Other mitigation and design research includes development of decision support tools for post-wildfire treatment and for proper response and data collection for debris flows impacting highways. Channel and berm design procedures have been proposed, and future work is aimed at predicting boulder impact forces and inundation areas from fire-related debris flows.

PHOTOS ON PAGE 3





Words From the Chair

Greetings RMS-AEG.

A few reminders before I get onto the main points. First, do not forget to vote. The deadline is NOON October 12 (for email votes) and 7:00 PM at the regular meeting (for hand-delivered paper ballots). We do not have a candidate for Treasurer, so please write one in. Ballots are included in this Newsletter. Second, RMS-AEG is co-sponsoring volunteers for the Girl Scouts "Rocks and Roles" day at Dinosaur Ridge in Morrison on October 7. It's not too late to sign up to help out. Please see the information on our website and in the newsletter. Third, it's not too late to register for the annual meeting in Boston. Should be a great meeting. Fourth, don't forget to include a little extra for the Foundation when you send in your dues

(DO IT TODAY, or I may have to sic Susan Steele-Weir on you).

Congratulations to new parents Tim Petz, Margit Kurka, and Eileen Dornfest.

This is my final message from the Chair. It's been a truly wonderful experience leading this Section.

Every professional society depends on individual volunteers to ensure its vitality, viability, and that it serves the needs of its members. I am delighted to see the enthusiasm, dedication, and hard work among the many people I've met over the last year. Through their combined efforts, AEG is THE voice for applied geology. I am grateful to have played a small part in this effort.

Leading this Section has been made far easier by the level of support and dedication made by several key members. In particular, former Section chairs Darin Duran and Peggy Ganse and AEG Chief Staff Executive Becky Roland have attended many of the Section planning meetings and have provided invaluable advice. Our standing committee members Kristi Ainslie (Newsletter), Ed Friend (Newsletter), Jill

Carlson (Website), Eileen Dornfest (Field Trips) and Sean Harvey (Membership) have all done their jobs (and more) quickly, efficiently, on time, and under budget. Diana Cook (CSM Student Chapter Chair) has provided invaluable assistance in booking rooms for our meetings. Secretary Margit Kurka has done an outstanding job with keeping up with all of the Section records and correspondence and Treasurer Steve Compton has looked after the Section finances with a keen eye towards fiscal responsibility. Steve is moving up to Chair-Elect where I'm sure he will do a fine job. Finally, my thanks go out to Liv Bowden for serving as Chair-Elect for the past year. Best wishes to you in the upcoming year. Thanks to all for making my job a whole lot easier and a whole lot more fun.

ROCKS AND ROLES: WOMEN ON THE RIDGE

The third annual **Rocks and Roles: Women on the Ridge** will be on October 7, 2006. This all-day event (9:00 - 3:30) is sponsored by The Friends of Dinosaur Ridge and Girl Scouts Mile Hi Council. Two professional organizations are supplying volunteers to help: Association for Women Geoscientists and the Association of Environmental and Engineering Geologists.

We need women (and a few men) to help Girl Scouts earn badges and learn about geology. On October 7, two shifts of helpers (or an all day shift) will talk to girls either at scout sta-

tions or on Dinosaur Ridge stops. The shifts are from 8:45 - 12:15 and 12:00 - 3:30. You can choose a particular badge station or get trained to explain one of the stops on the Ridge.

Scout Badge Stations: Girl Scouts have specific things they need to learn to earn one or more badges that day. Scientists need to be at particular sites either at the visitor center or on the ridge to help the girls with their badge requirements. You can bring anything you would like to share, or Dinosaur Ridge can help set up tables to help the girls learn about:

Careers, History of Women in Science, Fossils, Ecology, Rock ID, Earthquakes and Volcanoes, Topography and Landforms, Geology

Dinosaur Ridge Stations: The Ridge

has 12 stations all set up to see real rocks with real fossils, which include footprints, bones, plant fossils and tons of interesting geological features. Spend your shift talking to the girls and their families about the rocks at your station. Some of the stations will have badge requirements, so we will need 2 geologists for each of those stations.

If you are interested in helping, please contact:

Clare P. Marshall
Discovery Day Liaison
Friends of Dinosaur Ridge
dinodiscovery@dinoridge.org
www.dinoridge.org

"We need women (and a few men) to help Girl Scouts earn badges and learn about geology."



"Campin' out in debris flow country" CSM graduate student Victor deWolfe demonstrates the conveniences offered at campsites in debris flow channels.



"Red Mountain" Debris flow path on Red Mountain near Glenwood Springs. This flow occurred following the 2002 Coal Seam Fire.

AEG 2006 Annual Meeting

AEG 2006 Annual Meeting

AEG-2006 "Northeast Engineering Geology: From Till to Fill" in Boston, Massachusetts; October 30 through November 4 at the Boston Park Plaza Hotel.

The Early Registration deadline for the AEG-2006 Boston Annual Meeting is fast approaching.

If you would like to save money, be sure to register before October 5 (next Thursday). After October 5, the registration costs will increase.

If you have not already registered, you may register one of three ways: fax your registration form to me at 951-776-1383; mail me your registration form with your check; or

through AEG's web page (www.aegweb.org) on the Internet.

Also be sure that you make your hotel reservations at the Boston Park Plaza Hotel -- 617-426-2000 -- no later than October 10. If you should encounter any problems making reservations through the hotel, be sure to call me as soon as possible (951-789-0271). Hope to see you in Boston!

Julie C. Keaton, AEG Meetings Director

"Northeast Engineering Geology: From Till to Fill"

2007 Landslide Conference

We will be hosting a local planning meeting on **October 12 at 4PM** in Room 205 in Berthoud Hall (Colorado School of Mines). This will be the first of many planning meetings to finalize details for the 2007 Landslide Conference in Vail in June.

This conference is the first of its kind, and AEG has taken the lead in making it happen. We are expecting participation from a number of national and international organizations, and early indications are that it will sell out!

We can always use additional volunteers, though. Please come join us for this meeting and see how you can participate in this international event!

Hope to see you there! Becky Roland, AEG



13TH ANNUAL

**I
P
E
C** International petroleum environmental conference

13 Years of Addressing Issues and Solutions in Exploration, Production and Refining

October 17-20, 2006 « San Antonio, Texas
Crowne Plaza Riverwalk Hotel

For more information, go to:
www.cese.utulsa.edu
click on Conferences/IPEC

Conference Organized by The University of Tulsa, CESE: the Integrated Consortium for Energy and the Environment, ICEE • 918-631-3088 • cese@utulsa.edu

New Parents, Congratulations



Carson Petz



Isabella Kelley Dornfest
Born: August 19th

**“The Evolution
of Colorado’s
Geotechnical
and
Geotechnical
Engineering
Practice”**

GEO-volution

[GEO-volution: The Evolution of Colorado’s Geotechnical and Geotechnical Engineering Practice](#)

The 2006 geotechnical seminar, a continuation of the biennial series presented by the Geotechnical Group of the ASCE Colorado Section, CAGE, AEG, and the ASCE Geo-Institute, will be presented on **Friday, November 10th, 2006** at the Sheraton Denver West Hotel located at 360 Union Boulevard in Lakewood. The goal of the seminar is to enhance the technical knowledge of local geotechnical engineers and geologists in areas of current regional interest. This year’s theme was chosen to focus on Colorado’s storied past, the difficult engineering challenges overcome by its early population, the current state of local geotechnical and geological engineering practice, and ideas that will carry our practice into the future. The presentations will provide perspectives on Colorado’s unique geology, on geotechnical and geological engineering for the challenging ground conditions present in Colorado, on emerging trends in the local engineering practice, and on current solutions to Colorado’s diverse geo-problems.

Mark your calendars! Click [here](#) for your registration form. [Sponsor and exhibitor](#) registrations are also available. Sponsorships are still welcome, and we still have room for exhibitors (first come, first served!)

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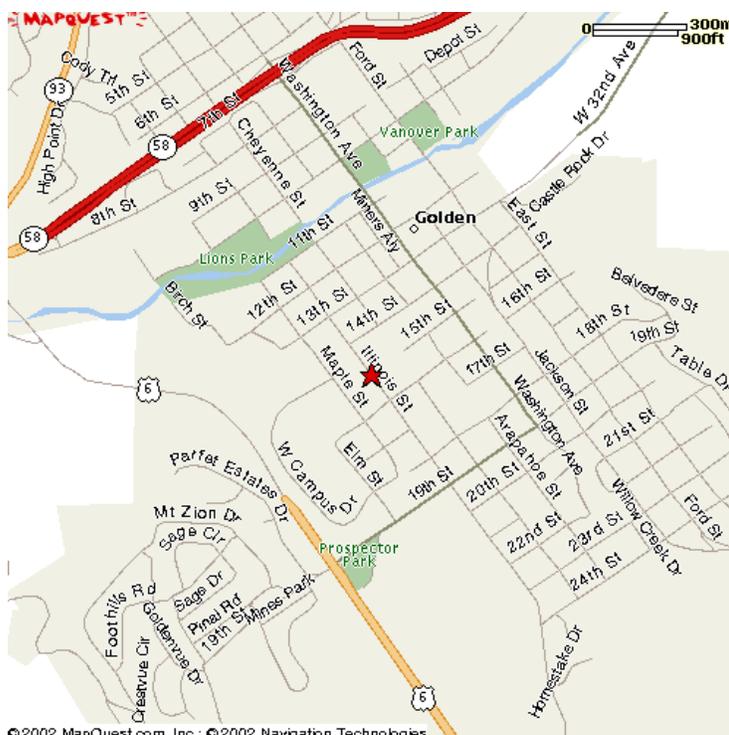
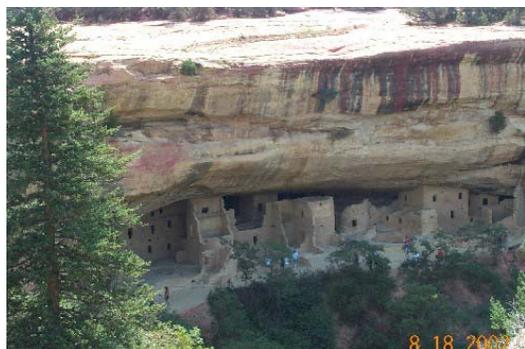
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AEG ROCKY MOUNTAIN SECTION
BALLOT FOR FALL 2006/SPRING 2007
OFFICERS

E-mail to Dwaine Edington, chair@agrms.org, by October 12, 2005, or bring to one of the AEG-RMS meetings on either September 14, or October 12, 2006.

CHAIR-ELECT:

_____ Steve Compton

_____ (write in)

TREASURER:

_____ (write in)

SECRETARY:

_____ Margit Kurka

_____ (write in)

Liv Bowden was elected Chair-elect last year and will be taking over as Chair for Fall 2006/Spring 2007.