



Association of Environmental and Engineering Geologists

Colorado Rockfall – Two Talks

Please note different location for November meeting:
AEG HQ, 3773 Cherry Creek Drive North, #290, Denver.
Arrive by 6:15 for easier building access.

CRSP 5.0 -- Colorado Rockfall Simulation Program Version 5.0

Ryan Bartingale and Jerry Higgins
Department of Geology and Geological Engineering, Colorado School of Mines

The Colorado Rockfall Simulation Program (CRSP) was developed in 1987 to estimate the velocity, energy, and bounce heights of rockfall, which in turn forms a basis for selection of designs for mitigation. Several revisions were issued in the following years, and the program has been widely used for rockfall design. A new version of CRSP (5.0) has been produced and currently is in testing. The program is based on a combination of Particle Flow Code and the Discrete Element Method for dynamic model simulation. This approach provides an accurate approximation to the equations of motion for rock and slope interaction and is an improvement on previous CRSP versions. CRSP 5.0 was calibrated with respect to rock velocity, energy, bounce height, and rollout. Program calibration was based on the results from previously completed rock rolling experiments and new data collected from mapping natural slopes. Rock rolling experiments have been documented using high-speed cameras to estimate rock velocity and kinetic energy. Natural slopes with rockfall distributed on the slope were mapped to obtain information on run out. Where present, rockfall scar marks on trees were used as a source of bounce height information. Calibration experiments compared the experimental and observational measurements to CRSP output. The program accurately estimates the velocity and kinetic energy of rocks rolling on slope material varying from soft clay to hard rock. It accurately predicts bounce heights, but may overestimate run out distance because of the use of spherical rocks in the modeling.

CDOT Rockfall Program Update

Ty Ortiz, Colorado Department of Transportation

Ty Ortiz will provide an update on CDOT's rockfall mitigation program. The Colorado Department of Transportation, recognizing the need to mitigate rockfall hazards along older highway rock cuts, funds rockfall mitigation of sites listed in the Colorado Rockfall Hazard Rating System (CRHRS). Rockfall mitigation funding is allocated according to the hazard ranking of the 756 rockfall sites in the CRHRS. As with most rockfall hazard rating systems used throughout the U.S., the CRHRS uses a combination of slope and roadway measurements, traffic data, and geology to characterize those areas considered to be chronic rockfall hazards.

MEETING DATE

THURSDAY
November 12, 2009

TIME

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

LOCATION

AEG
Headquarters
3773 Cherry Creek
Drive North
Suite 290
Denver, CO
See Map Below

COST

\$25 Members
\$27 Non-members
Students, free first
time then \$10

RESERVATIONS

meetings@aegrms.org

or

WWW.AEGRMS.ORG

**BY NOON,
TUESDAY
NOVEMBER 10TH**

REMEMBER: November meeting will be at AEG

Headquarters! Please arrive before 6:15pm. After that, it will be more difficult to flag someone down to let you in the building.

Words from the Chair

Greetings Rocky Mountain Section,

It was good to see many of you at the Annual Meeting in September. Following the meeting I also attended the Annual Board Meeting. The following are discussion items that may be of interest to Section members:



- **2011 Annual Meeting in Anchorage:** Volunteers are needed to serve on the Planning Committee for the 2011 Annual Meeting in Anchorage. Anyone interested in helping can contact Becky Roland (broland@aegweb.org) or Duane Kreuger (d_kreuger@geotechnology.com). And speaking of Alaska...
- **Want to get away?** The top two AEG members who recruit the most new members by the end of the year will receive a free round trip ticket on Alaska Airways or a free round trip ticket on Southwest Airlines, respectively.
- **2009 GSA Meeting in Portland:** AEG is looking for volunteers to staff the AEG booth at Geological Society of America (GSA) Conference in Portland, Oregon.
- **2010 GSA Meeting in Portland:** GSA has distributed a Call for Proposals, if anyone is interested in developing a session at the 2010 Meeting in Denver. Contact me for addition information.
- **Facebook Page:** The Student/Young Professional Support Committee (SYPS) has developed a Facebook Page called "New Geologist".
- **Joint Task Force Document:** Based on the discussion at the forum held at the Annual Meeting, AEG plans to have further discussion with ASCE Geo-Institute (GI) regarding basing the document on a more comprehensive and consistent Bodies of Knowledge (BOK) considering the existing ASCE (2008) document, existing documents from WA, OR and CA geologist licensing boards (and other states if available), and a draft document prepared by Keith Turner for an international consortium of engineering geology and geotechnical societies. If, after this discussion, the joint decision is to proceed with the revision process for the current draft document, then AEG will develop an ad-hoc committee tasked with addressing the comments of AEG in a redline version of the draft document to be submitted to ASCE GI and AIPG.
- **Copyright Transfer Agreement:** Contributors to AEG publications and the Website will be required to sign a copyright transfer agreement.
- **Electronic E&EG:** The *Environmental & Engineering Geoscience* journal will be distributed electronically soon. Paper copies will still be available, possibly for an additional fee. This additional fee will help offset an increase in AEG dues.

Words from the Chair (cont.)

- **Elimination of California Board of Geologists and Geophysicists (BGG):** The California BGG has been eliminated and its responsibilities transferred to the engineer's board, BPELS. Additional information can be found at the AEG website (www.aegweb.org). The California Sections of AEG have formed the California Association of Professional Geologists, which will file an injunction against BGG elimination. Financial/moral/etc. support would be appreciated to assist with the legal process. Donations can be sent to:

AEGSC-Political Action Fund
1772-J E. Avenida De Los Arboles, PMB #304
Thousand Oaks, CA 91362

Adam Prochaska
Rocky Mountain Section Chair

Section Member News

Ed Friend Travels to South Dakota School of Mines

Ed Friend of RJH Consultants, Inc. traveled to Rapid City, South Dakota, to the South Dakota School of Mines and Technology (SDSMT) to inform students of the many benefits of AEG and also present a technical talk about the affects of mine induced seismicity on an existing dam and landslide. Over 30 students and professors attended the presentation and the geological engineering program at SDSMT is starting to revitalize the student activities and encourage students to be a member and participate in a professional organization. Hopefully this outreach activity will be a good spring board to bring in more AEG student members.

Jon White and Celia Greenman are Honored for Publication

AEG member Jon White and Celia Greenman are recipients of the 2009 John C. Frye Memorial Award for best GSA/AASG environmental geology publication. The award was given for the 2008 Colorado Geological Survey publication Engineering Geology 14, "*Collapsible Soils in Colorado.*" The award will be presented to Jon and Celia, October 20th, at the 2009 Annual Meeting of the Geological Society of America in Portland, OR.

Email from Margit Kurka (past AEG secretary, now living in Austria)

Hi everyone,

Sounds like the meeting in Lake Tahoe is fun. I really wanted to come, too, but guess the way is just a little far, especially since we just returned from the States a few weeks ago... Too bad....Hopefully next year. And maybe I can make it to one of the RMS meetings then. Please say hi to everyone I know... I always see what the RMS is up to, and really miss coming....

Things in Austria are good. Especially now with a beautiful fall, and some field work in the mountains coming up.... And with everyone back to school etc., we also finally had to settle down in Austria, after a summer full of travel, and routine is not bad for a change.

Take care!

Margit

One RMS Member Reports on Tours at Dinosaur Ridge

On October 7, Rocky Mountain Section member David Bernard gave a tour of Dinosaur Ridge to a troop of Boy Scouts (2nd year Webelos) who were earning their geology badges. Dinosaur Ridge is an exhibit along the Dakota Hogback west of Denver that contains numerous fossils exposed in the Morrison and Dakota formations. David taught the Boy Scouts about the different rock types and geologic history of the area as well as geologic principles in general. The boys displayed their potential as geologists by continually scrounging through the rocks along the ridge while asking “What’s this? ...Is this a fossil?” and in addition found a young rattlesnake in the process.

Have News to Report? Let us know!

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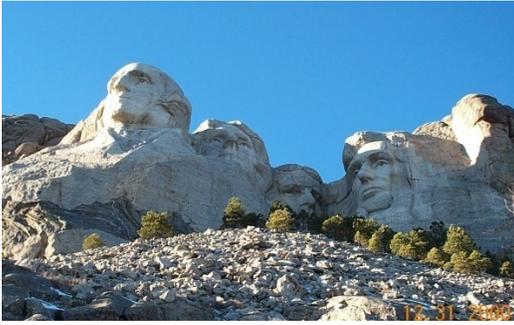
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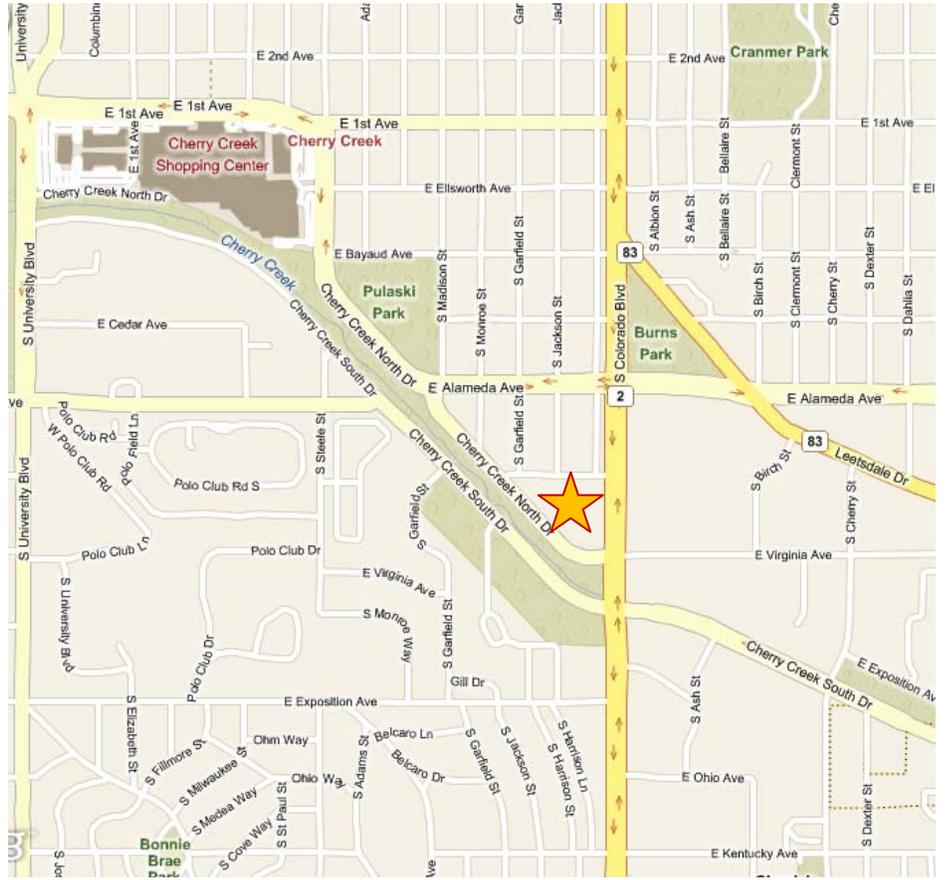
Student Chair

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Past Chair
Steve Compton
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