The Rocky Mountain Section Newsletter

April 2011

Association of Environmental and Engineering Geologists

Student Night with the AEG Foundation
and
CSM Student Chapter Silent Auction
FRIDAY, April 8, 2011
Room 243, Berthoud Hall, CSM

MEETING DATE

Friday
April 8TH, 2011

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

LOCATION
Berthoud Hall
Room 243
Colorado School of Mines
1516 Illinois St.
Golden, CO 80401

COST
$25 Members
$27 Non-members

RESERVATIONS
meetings@aegrms.org
or
WWW.AEGRMS.ORG

BY NOON, TUESDAY
April 5TH

Swanson, N. R., Santi, P.M., 2011, *Comparison of Alluvial Fan, Colluvium, Debris Flow, Glacial Till, and Glacial Outwash Deposits Using Geotechnical and Geological Characterization, Durango and Montrose, Colorado*, Master of Science Thesis, Colorado School of Mines, Department of Geology and Geological Engineering.

ABSTRACT

Alluvial fan, colluvium, glacial till, glacial outwash, and debris flow deposits sampled in Durango and Montrose, Colorado were successfully discriminated using geotechnical properties. Similarity between glacial till and glacial outwash was shown, as was the dependence of the geotechnical characteristics upon the lithology of the gravels, and hence the parent geologic materials of the deposits. Geotechnical testing of these surficial deposits included particle-size analysis, Atterberg limits, specific gravity, angularity and shape of gravels, and uncompacted void content (UVC). Geological characterization involved classifying the lithology for all materials except alluvial fan deposits, which lacked sufficient gravel for characterization. Several strong regression relationships were recognized between lithology and angularity, the most significant of which are: 1) the angularity of gravels in glacial till and outwash is positively dependent on sandstone gravel content, 2) the plasticity index of the minus #40 sieve fraction of outwash is positively dependent on the metamorphic gravel content, 3) the amount of fines in outwash is positively dependent on sandstone and metamorphic gravel content and negatively dependent on carbonate gravel content, and 4) rounded and subrounded gravel content in outwash is dependent on the content of carbonate and volcanic igneous gravel. Particle-size analysis demonstrated that glacial till and glacial outwash have very similar particle-size distributions and that alluvial fan, colluvium, glacial deposits and debris flow deposits have different particle-size distributions that occupy distinct fields on a particle-size distribution graph. Debris flow deposits have the most coarse material (i.e. gravel) while colluvium and alluvial fan deposits have the most silt and clay-sized particles. Generally, alluvial fan, colluvium and debris flow deposits are more angular than glacial till and outwash.

Words from the Chair

Greetings Rocky Mountain Section,

I want to thank all of you who joined us on our field trip to the Argo Treatment Plant last month. The field trip was a great success and I think we all had fun during the tour and at lunch while learning about efforts to keep Clear Creek a safe and viable habitat.

April 15 and 16 I will be attending the Mid-year AEG Board of Directors meeting. If you have any concerns or questions you would like me to bring up at the meeting, please let me know.

On the next page is a brief questionnaire regarding your satisfaction with AEG and the Rocky Mountain Section. Please take a minute to fill it out and return it to me before April 15th. Send to chair@aegrms.org. Your responses will be very useful at the Board meeting to help plan the future direction of AEG. Thank you!

Nate Soule,
Section Chair

Sincere thanks to…
our generous 2011 Student Night sponsors:

Kimberlite Level ($500)	Dwaine Edington
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Quartz Level ($25)	Ed Friend David Bernard Jill Carlson

We still need sponsors! Please see the sponsorship form at the end of this newsletter

MEMBER INTERVIEWS
FOR MID-YEAR BOARD MEETING
2011

Member Name:

Type of Member (Active, Student, etc.):

Active in the Section (Y/N)?

Complete the appropriate questions below:

Why did you join AEG?

What does AEG provide that other organizations do not?

What single benefit motivates you to renew your membership?

STUDENTS: What do you think a professional organization will need to provide to keep you as a member once you graduate?

Local Geology Field Trips

Georgetown Debris Flows

Drive-by field trip – I-70, about 45 min to 1 hr west of Denver

As you drive on I-70 between Georgetown and the US-40/Empire Exit look at the slope along the westbound side of the highway. This is most easily and safely done when stuck in weekend traffic. On this stretch of highway there are several derbis flow channels carved into the talus and alluvial fan slopes along the highway. Most of these channels are easy to identify having levees along the sides of most of their length. Snow can outline the levees making them easier to see.

Debris flows are a complex mix of fast moving water and lots of sediment that when forced together in narrow channels interact with forces that can incorporate large rocks and debris that water alone cannot move. As a stream channel carrying a flow overflows with this material, levees are created on the sides since it is the confining dimensions of the channel itself that perpetuates the flow.

In these slopes along this stretch of highway the upper portions of the slopes are rock and appear to concentrate storm runoff into limited portions of the talus/fan slopes below. The material on these slopes is mostly soil and rocks only cobble size at most. The concentrated runoff easily incises this slope while incorporating it into the flow. The range of sand and gravel size of the talus probably also contributes to the ability for debris flow to form.

This is a simple field trip that can easily be used to liven a commute or a long ride in weekend ski traffic.

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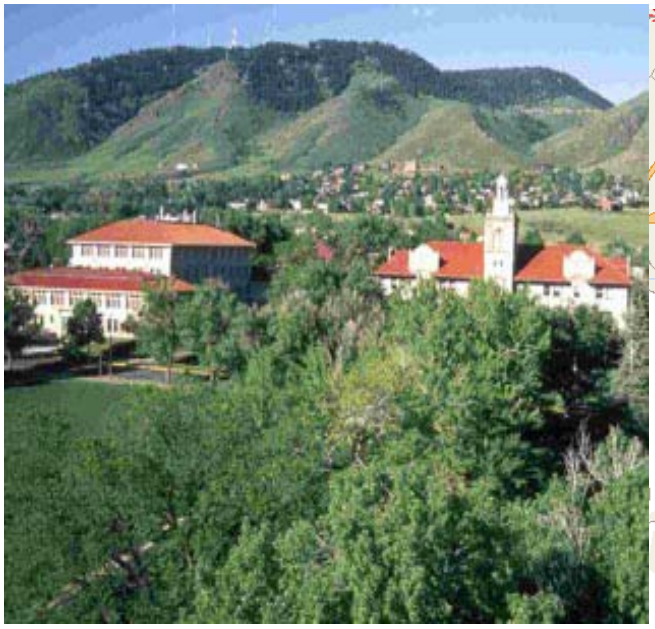

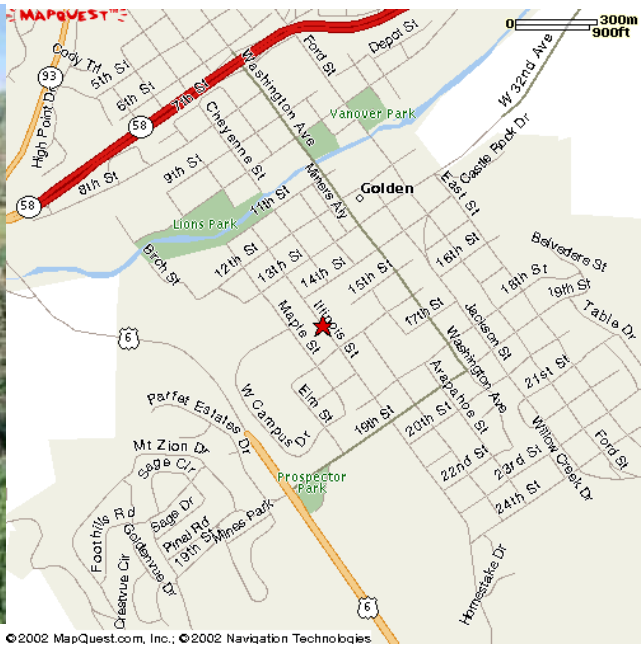

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ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

AEG Student Night

Friday April 8, 2011
5:30-9:00 PM
Berthoud Hall, Room 243
Colorado School of Mines, Golden, CO

The Association of Environmental & Engineering Geologists (AEG) represents professionals in the field of environmental and engineering geology in the greater Denver area and throughout the Rocky Mountain region. AEG is hosting our Annual Student Night Banquet, where environmental and engineering geology students from across the Rocky Mountain region will present their research as part of this well-attended networking event.

We would like to invite you to participate as a sponsor for the event. This is an exciting opportunity for you to gain recognition for your firm and support student participation in the Rocky Mountain Section of AEG. This event also serves as an excellent recruiting opportunity, as the region's best and brightest students will be in attendance. You are invited to participate at the following sponsorship levels:

SPONSORSHIP OPPORTUNITIES	
Kimberlite Level	**$500**
Rhodochrosite Level	**$250**
Molybdenum Level	**$100**
Galena Level	**$50**
Quartz Level	**$25**

All sponsors will be listed in the Student Night Program, on a poster at the meeting, in the section newsletter, and on the section website (www.aegrms.org). All students who attend this meeting receive complimentary admission so this event would not be possible without the support of our sponsors. We thank you in advance for your generous support!

RESERVATIONS

☐ Individual or ☐ Corporate sponsorship

☐ Kimberlite Level ($500) Name of Sponsor _____

☐ Rhodochrosite Level ($250) Name of Contact _____

☐ Molybdenum Level ($100) Address _____

☐ Galena Level ($50) _____

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Please RSVP your sponsorship by email, mail or fax no later than **March 21, 2011.**
Email StudentNight@aegrms.org, fax this form to 303.866.4445, Attn: Jill Carlson, or mail, along with your check (or you may pay for your sponsorship at the meeting) to:

AEG-RMS
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Lakewood, CO 80228-0663