



The Official

OREGON SECTION AEG NEWSLETTER

<http://www.aegoregon.org>

April Meeting Details

Tuesday, April 15th

Location: Old Market Pub

6959 SW Multnomah

Portland, Oregon

6:00 pm Social

6:45 pm Dinner

7:30 pm Presentation

Dinner: Pizza & Salad

\$20 Dinner (\$5 Students)

Reservations:

mwegner@cornfortheconsultants.com
with "AEG Reservation" in
the subject line or 971-222-
2047 by 4 pm Thur. Apr. 10

There is a \$2 surcharge for
those who do not reserve by
the deadline

Upcoming Meetings:

May 20th Student Poster Night

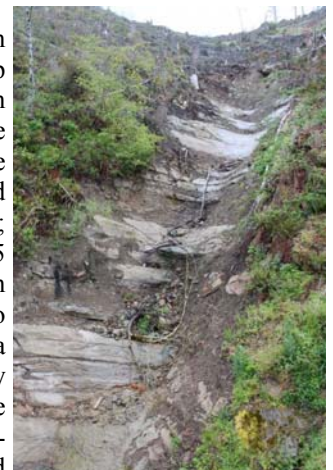


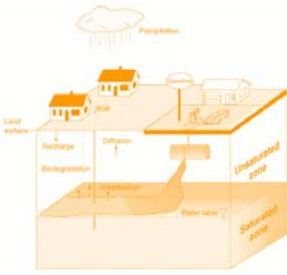
Debris-flow initiation and channel erosion captured by in-situ monitoring in the Oregon Coast Range:

Guest Speaker: Jeff Coe

As part of an effort to better understand controls on debris-flow initiation and downstream channel effects, the USGS landslide hazards group installed monitoring equipment in a steep, fresh clear cut in the Oregon Coast Range in September, 2012. The clear cut was underlain by the middle Eocene Tye Formation, a shallow dipping, locally massive sandstone with thin, interbedded mudstones. Installed equipment included rain gages, pressure transducers, and soil moisture sensors on hillslopes; and a laser (for measuring stage), pressure transducer, force plate, and 25 erosion bolts in the downslope channel. To characterize variability in rock strength in the channel, we used an N-type Schmidt hammer to measure 35 Schmidt R values at each bolt location. The channel has a distinct succession of steeply sloping bedrock surfaces (risers) and gently sloping bedrock surfaces (treads). Mudstone beds are located at the base of every riser greater than 30 cm in height. A prominent set of northeast-striking, near-vertical, tectonic fractures determined the locations and azimuths of smaller risers with sharp, steep faces.

On November 19, 2012, a debris flow mobilized from a translational landslide high in the basin. The debris flow had a minimum sediment volume of 650 m³, contained boulders up to about 1.5 m in diameter, and occurred following 120 mm of rainfall in 65 hours, about 35 minutes after the peak 10-minute rainfall intensity of 39 mm/yr. A hillslope pressure transducer at a depth of 90 cm near the headscarp recorded 0.3 m of positive pore pressure head at the time of failure. Bedrock erosion (vertical lowering of the bedrock) by the debris flow preferentially occurred on treads and ranged from 0.2 to 15 cm. Fracturing and plucking of weathering folia on treads resulted in lowering from 0.2 to 4.1 cm, and chipping and plucking of fracture bound blocks from the downstream ends of treads at the lips of risers resulted in lowering of 7 to 15 cm. Vertical lowering plotted with respect to Schmidt R values and local slope angle indicates that the eroded portions of treads are defined by a curving threshold line bound by R values ≤ 39 , and slopes $\leq 35^\circ$. This threshold demonstrates that local slope and rock strength (controlled by folia and fractures) can be used to predict patterns of erosion during debris-flow events. These results are consistent with normal stress and the normal component of flow momentum being higher on treads than on risers and suggests that thicknesses and attitudes of bedding, folia, and fractures need to be considered in studies of steep-land evolution.





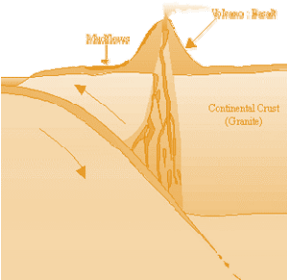
Bio: Jeff Coe

Jeff Coe is a research geologist with the US Geological Survey Landslide Hazards Group in Golden, Colorado. Jeff's research has covered a wide variety of landslide topics in the western United States, with an interlude of a few years to map and analyze landslides following Hurricane Mitch in Guatemala. His current research focus is on understanding initiation and growth of debris flows through instrumental monitoring and field investigations, and on the development and application of methods to quantify landslide hazards using long-term field and monitoring observations, as well as historical records.



Message from the Chair

This month is the annual AEG mid-year Board Meeting in Denver, CO. There are a number of proposed changes related to the overall Board, primarily in its composition and size. Its current size (about two dozen since each Section provides its own Board member) is deemed fairly unwieldy and makes it difficult to be agile and react to changing conditions. If any of our AEG Oregon Section members have any questions, thoughts, or would like more information, please let me know prior to the Board Meeting, taking place the last weekend in April.

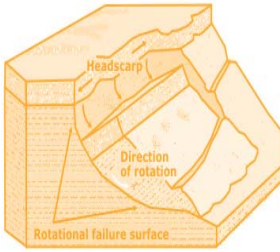


As Scott Burns indicated in his editorial in the March newsletter and communicated directly to me by a faculty member, some in the Geology Department at Portland State University have indicated that they do not see AEG as being much of a benefit to their students. AEG Oregon Section should see to it that we make every effort to demonstrate that PSU's geology students (and of course WOU's students) are well received by the professional community when it comes to May's Student Night, summer internships, and employment opportunities. AEG encourages PSU Geology faculty to come on out to any of our local or national meetings and develop connections to local geology practitioners and to provide faculty stewardship needed for the AEG student chapter. We know that we'll see their terrific and dedicated students; hopefully we'll see some new PSU faculty faces soon at the local meetings.

I understand that the meeting at Hopworks was a success with a great turnout and a very informative talk from Laura Maffei regarding litigation and the various processes that occur during an expert witness trial. Gary Luce, AEG National President, was also there to give a brief presentation on the state of AEG...thanks Gary! This venue was in a new location, back in SE Portland versus our typical venue in SW Portland; did you like the new location? Good to mix it up? Was it harder or easier to get there? Did you come for the first time in a while, or did you skip it because it was harder to get to? We don't know the answers to these questions, so please provide feedback to the Board on the venues and the locations so we'll know better how to meet the needs of our members. Our next meeting will be back at the Old Market Pub on April 15 with Jeff Coe speaking on a naturally occurring, instrumented debris flow channel and the erosive effects on the bedrock. See you there!

Darren Beckstrand, CEG
Cornforth Consultants





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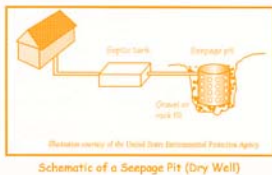
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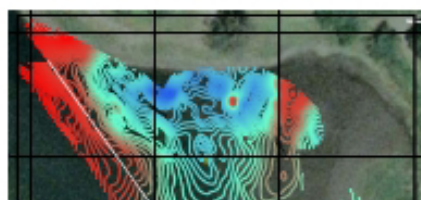


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SURFACE MAGNETOMETER SURVEYS
&
BATHOMETRIC SURVEYS



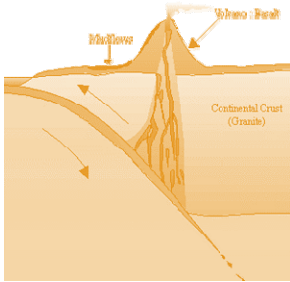
MAGNETOMETER & ELECTROMAGNETIC SURVEYS

GRAVITY SURVEYS

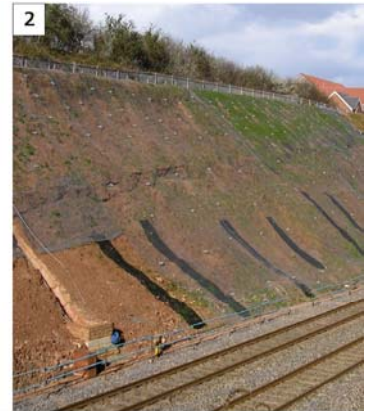
RESISTIVITY SURVEYS

“Keen observation is at least as necessary as penetrating analysis”

Karl Terzaghi



1. Slope stabilisation, Switzerland
2. Slope stabilisation, UK
3. Rock slope stabilisation, Australia

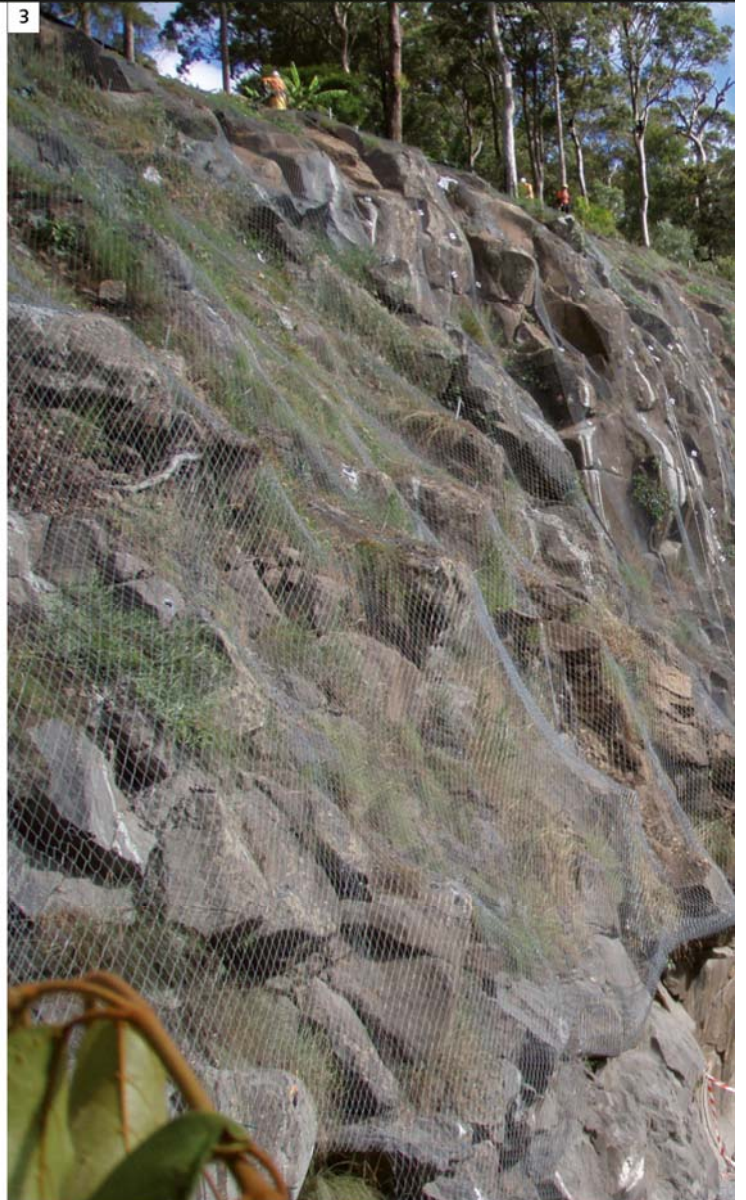


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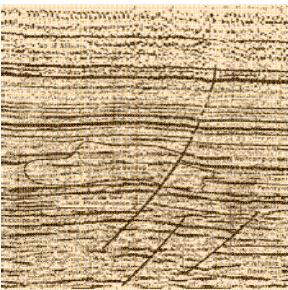
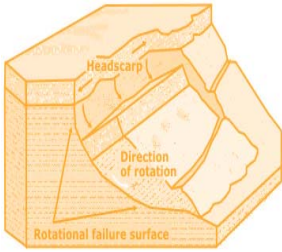
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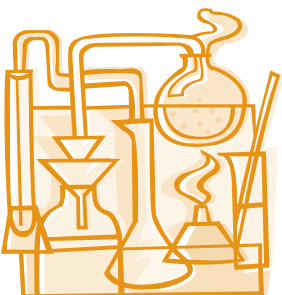
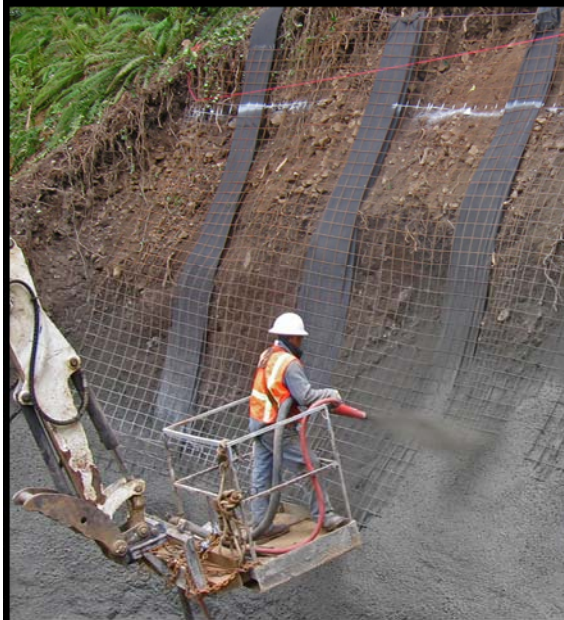
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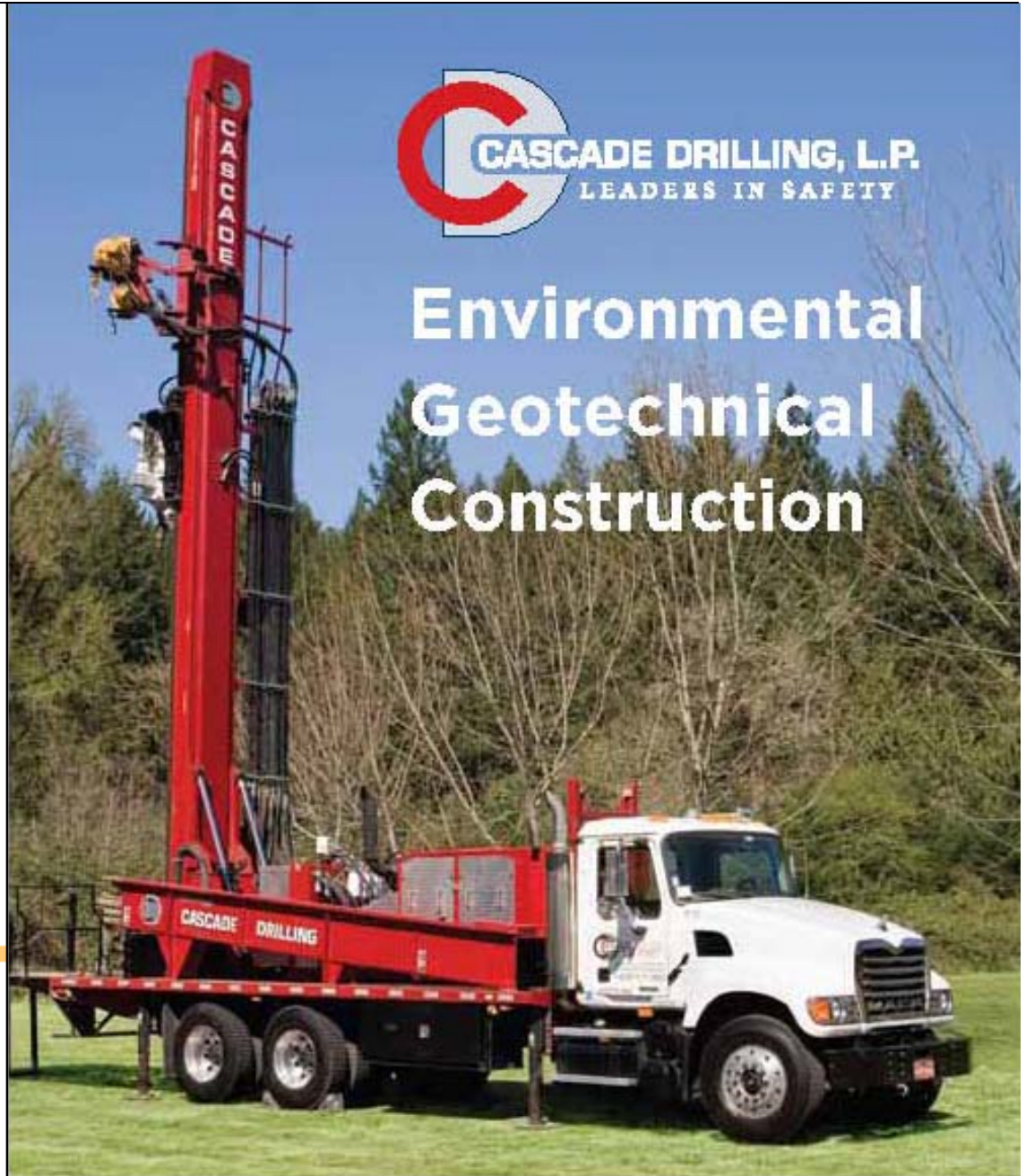
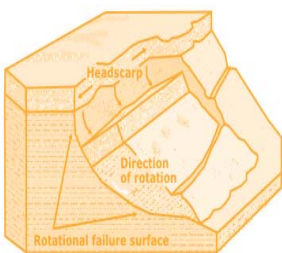
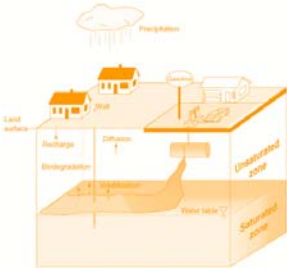
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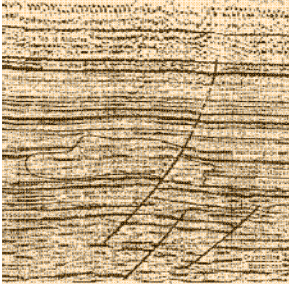




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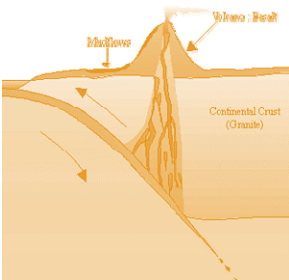
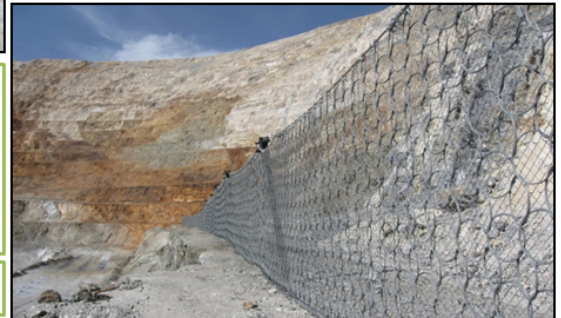
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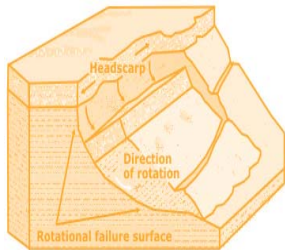
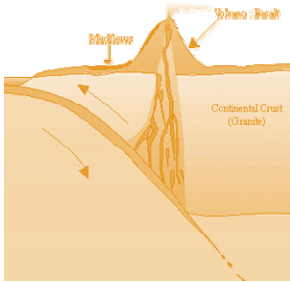
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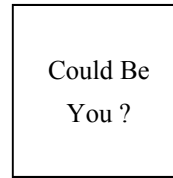
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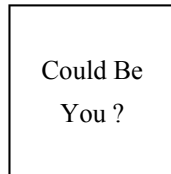
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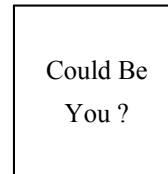
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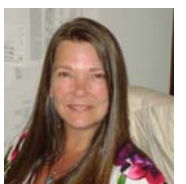
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