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OREGON SECTION

NEWSLETTER

The Official Newsletter of the Oregon Section Association of Engineering Geologists

Dec., 2000

VOLUME 00, NUMBER 12

DECEMBER MEETING:

Speaker: **Tom Horning**

Talk: ***“Tsunami Hazards on the North Coast”***

Date: **Thursday, December 21, 2000**

Times:	6:00 PM	Social hour
	7:00 PM	Dinner
	8:00 PM	Presentation

Where: ***Lucky Labrador Pub***
915 SW Hawthorne, Portland

Menu: \$10/person; choice of the following:
Veggie Deluxe (Cucumber, tomato, sprouts, spicy cream cheese, guacamole,
zucchini & mushrooms on whole wheat rye)

The Gobbler (Turkey, spicy cream cheese, tomato & sprouts on rosemary roll)

The Vegetarian's Nightmare (Roast beef, ham, turkey, pepperoni, salami,
Swiss, lettuce, tomato, mayo & mustard on Italian white bread)

Reservations: Call David James, 503-684-3460 (ext. 226) by noon Friday (12/15/00)

“A reservation made is a reservation paid.” Please call to cancel if you can not attend. Thank you!

ABOUT THE SPEAKER:

Tom Horning is the sole proprietor of Horning Geosciences in Seaside, Oregon. For the last 6 years he has conducted geological hazard surveys, natural resource evaluations, and has taught on and off at Clatsop Community and Linfield Colleges. He returned to Seaside to set up business after a 15-yr career as an explorationist in the mining, geothermal, and oil industries. He attended Oregon State University as an undergrad and graduate student, studying geology, nuclear engineering, and chemistry. His MS thesis is on porphyry-skarn mineralization in southern Peru. Tom was born and raised in Seaside, lives in his family home near the mouth of the river, and has experienced three tsunamis there, the largest of which was the sea wave from the 1964 Good Friday-Great Alaskan Earthquake.

ABSTRACT:

The first crest of the tsunami from the 1964 Great Alaskan Earthquake struck Seaside, Oregon, at 11:35 PM, during dry, warm weather and low surf, approximately 4 hours after the main shock of the earthquake. Another smaller wave struck approximately 90 minutes later, and a third was observed around 10AM. The first wave caused the majority of damage, which amounted to \$225,000 (1964 dollars). This is in contrast to Crescent City, California, where the fourth wave caused the majority of damage and 14 fatalities. In Seaside, one heart-attack death occurred during the evacuation sirens, which were triggered as the wave surged into town. The crest arrived near the 12:39AM peak of a +8.6 ft MLLW high tide. Allowing for no wind or surf amplification of the +7.7 ft MLLW tidal elevation and based on documented run-up elevations of 12.5 ft NVGD (approximately 16 ft MLLW), the general tsunami run-up height was approximately 8.3 ft. This is about 2 ft above worst-case storm flood-tides of the past 50 years. Maximum run-up elevations of 21 ft NGVD occurred along the east side of the bay, resulting in a maximum tsunami run-up height of 17 ft. Tide gauges for the mouth of the Nehalem River, Oregon, and at Cape Disappointment, Washington, recorded wave heights of 11 and 5 ft, respectively. The wave propagated 2.5 miles up the largest river in Seaside, but only about 1.3 miles up the smaller. Two bridges were destroyed, two were damaged, and two buildings were sufficiently damaged to warrant their demolition later. The greatest damage was near the mouth of the river. Numerous homes were flooded, cars swept away, and buildings battered by driftwood logs. Water was as high as 7 ft deep in the living room of the worst damaged home. Pilings were ripped away from beneath the train trestle. An irregular 2 to 14-inch thick sand layer was distributed in the flooded areas near the mouth of the river. Silts were deposited in marshes farther up the river channels. The sand sheet was thickest where point bars or overbank levees formed adjacent to river channels or flooded roadways. Little sand was deposited in areas of higher flow velocity. Currents were estimated at less than 10 mph in flooded roadways. Logs up to 6 ft in diameter were transported by rolling, dragging, and floating in water as deep as 2 to 4 ft. Log and sand sheet distribution coincides closely. Dense foam, small detritus, grasses, branches, fish, ghost shrimp, earthworms, and household belongs were common among the resulting debris. Minor amounts of water sloshed over the Promenade in the middle of town. Although there was little surf the evening of the tsunami, observers report chaotic water conditions and surges in the flood. Reported sounds of the tsunami include: roaring jet planes, locomotives, deep rumbling, clattering hooves of horses on wooden bridges, and idling diesel log-truck engines. The later surges did not cause much damage, as they were smaller or occurred at lower tides. Few witnessed the second wave. Sand sheets near the mouth of the river have analogues from the 1700 AD Cascadia tsunami in peat bogs 2 miles farther up-river. The next Cascadia tsunami has a 10 to 20 percent chance of recurrence in the next 50 years probabilistically. The average run-up height of this tsunami is expected to range from 15 to 35 ft. It will most likely inundate the entire city, flooding it to depths of up to 15 ft. Evacuation time prior to first wave arrivals will be about 25 minutes.

Message from the Chair (Dec. 2000)

November has been a very busy month for me. Besides an abnormally heavy workload, the CEG/PE professional overlap issue is a hot topic again. Some of the local geotechnical engineers have recently become aware of proposed ordinances for slope hazards at the City of Salem and Marion County. It is my understanding that some of them are disappointed: believing that these proposed ordinances would exclude them from work they have performed in the past. Some of them have even remarked that their work would become a recommendation by an engineering geologist.

As a result of an email from a local geotechnical engineer requesting responses, AEG Oregon Section Board provided the ASCE Oregon Section Geotechnical Group with an opinion that basically stated both engineering geologists and geotechnical engineers need to be involved in slope hazard studies, with experience being the most important qualification. Of the two professions, engineering geologists are the most likely to have specific education on slope processes and the recognition of slope hazards. Therefore, an engineering geologist should initially interpret the geology of a site and its surrounding area, and the influence that the geology has on the slope. Looking at the geologic “big picture” is a fundamental part of landslide hazard recognition.

The main issue is not CEG versus PE, it is how should agencies deal with slope hazards. After seeing homes and housing developments impacted by landslide failures, a few agencies in Oregon are basically trying to do a responsible job and regulate development within landslide hazard areas. The State of Oregon Department of Geology and Mineral Industries has recently published local maps that categorize landslide susceptibility, and the agencies are attempting to use these maps to recommend slope hazard assessments for areas of greater risk. They have also tried to be careful to draft ordinances that will not restrict services by engineers or geologists, but will require that studies are done by professionals with the correct qualifications.

Here is another thought: any development (a house, a dam, a road, whatever) occurs on the ground, and the ground is directly related to geology. The interpretation of site geology and its potential impact to development is engineering geology. Also, the interaction between the development and the ground is intimately connected for its design life, and without the knowledge of the engineering geology, its life could be very short. So, shouldn't the appropriate professional, being educated (and trained) in the interpretation of geology and slope processes, look at a site and interpret the slope hazards to provide information that could increase the design life of the development?

I look forward to seeing you at this month's meeting when we return to our new favorite location, the Lucky Labrador. I know it's close to the holiday weekend, but wouldn't it be fun to spend an evening with friends and associates prior to big family responsibilities, and where you can also learn something about tsunami hazards on the coast?

Thanks to Dave, Andrew, Ruth and Warren for helping with the opinion provided to ASCE

Charlie Hammond - AEG Oregon Section Chair

AEG CALENDAR

- Dec. 21 Location: Lucky Labrador Pub
 Speaker: Tom Horning
 "Tsunami Hazards on the Northern Oregon Coast"
- Jan. 18 Location: TBA
 Speaker: Gary Peterson, Squire Associates
 "Salem Landslide Study/Public Policy issue"

Courses offered in Winter Quarter at PSU:

Classes start January 8, 2001 and end March 24, 2001. The following courses are offered in geology, geography and civil engineering and might be of interest to our members. Many are offered in the evenings. For more information, call Scott Burns (503-725-33890 or email him at burnss@pdx.edu.

- G523 Computer Applications in Geology, TTh, 8:30-9:45, CH250, Ansel Johnson, 4 cr
G524 GIS for Natural Sciences. TTh, 12:00-13:50, NH 439, David Percy, 4 cr
G541, Groundwater Modeling, TTh, 17:15-18:30, CH 69, Ansel Johnson , 4cr
G571, Advanced Engineering Geology, MW, 17:15-18:50, CH69, Scott Burns, 4 cr
Geog 592, GIS II, TTh, 16:40-18:30 & lab, CH250, Rick Vrana, 4 cr
CE 542, In-situ Testing of Soils, MW, 16:00-17:50, SBII, 139B, Trevor Smith, 4 cr
(this course may be changed in meeting time so as not to conflict with G571)
CE546, Numerical Methods in Geotechnical Engineering, TTh, 18:00-19:50, SB2, 148,
Trevor Smith, 4 cr.
CE 570, Groundwater Modeling, TTh, 16:00-17:50, SB2, 148, S. Li, 4 cr
CE565, Watershed Hydrology, MW, 18:00-19:50, SB2, 139B, Roy Koch, 4 cr

Note on the Advanced Engineering Geology (G571). This is a case histories class that Scott Burns teaches every two years. He has 36 top consultants in the Portland area come in and discuss case histories that they have worked on, mainly in Oregon. Many of the case histories are written up in our book, Environmental, Groundwater and Engineering Geology: Applications from Oregon. It will serve as the text for the course and can be purchased at the PSU bookstore. For anyone who is new to Oregon, this course is an excellent introduction to Oregon Geology and to the practice of our profession in Oregon. It is an excellent way to meet the top professionals in our field in Oregon. A complete list of the speakers will be published in the January issue of the AEG newsletter. It will also be listed on the PSU website for geology after December 15th (www.geol.pdx.edu). For questions, call Scott Burns (503-725-3389).

In Memorium:

Our chapter will miss two members who have been active in the past. Both died this past summer.

Ken Walsh came to Portland State University as a graduate student in 1993 from Texas. He has the president of the student chapter of AEG and was active in all of our monthly meetings. He worked on the West Side Light Rail Tunnel, first as the assistant engineering geologist and in the last six months of the project as the engineering geologist for Parsons Brinkerhoff. He then moved to Seattle where he worked for Shannon and Wilson until his death last June during treatment for cancer in Texas. He never quite finished his thesis on the geology of the West Side Light Rail Tunnel. His advisors at PSU were Marvin Beeson and Scott Burns.

Harry Ludowise also passed away this past August. Harry lived in Vancouver and worked for many years for Federal Highways. He was an officer in our chapter in the 1980's. He got his M.S. in geology at Portland State.

Short News Items

Green Briefcases: Remember those green briefcase bags that we have left over from the Seattle annual meeting? Well, now is the time to pick one or more up for \$5.00 each. That's less than you spend for lunch! People that already have one say "they were worth the old price of \$10.00 and I am going to buy another!" Get one before they are all gone!!

E-Mail "Newsletter:" Oregon Section AEG will not send a "Paper Copy" of the newsletter to those that the E-mail address reaches unless they request the it. If you don't get the newsletter E-mail and want it that way please send me your E-mail address and I will add you to the list. This will save the Oregon Section significant costs in postage etc. To get on the E-mail lest contact: Dave Michael at [**dmichael@odf.state.or.us**](mailto:dmichael@odf.state.or.us)

Program Chair: David James is the "2001, Oregon Section Program Chair." He is still looking for spring presentations. Contact him if you have an interesting presentation to give. He can be reached at 684-3460 (ext: 226).

AEG Homepage: check it out: [http:// www.aegweb.org](http://www.aegweb.org)

The Board of Geologist examiners: 707 13th. St. SE, Suite 275 Salem, OR, 97301
Phone (503) 566-2837, Fax (503) 362-6393 e-mail: osbge@open.org
contact ***Susanna Knight***, Administrator for assistance with Board issues.

If you have NEWS items that you would like to include, please contact or E-mail Dave Michael – newsletter editor at dmichael@odf.state.or.us

SCE Congressional Fellow Report
November 2000

Not surprisingly, the unprecedented course of events surrounding the presidential election has created havoc in Congress. Being new staff on the Hill, I was told that I would help with the appropriations process until October 6th, Congress's target adjournment date. As you have probably guessed, I have been strung along day by day (for eight weeks now), as the whole nation has, but in a highly chaotic and politically tense environment.

My team (of three, including myself) takes the lead on energy, environment, transportation and appropriations, which constitutes a whole lot of work! To quote John Glenn (former Senator, first astronaut to orbit earth in 1962, and oldest person to space travel on the 1998 Shuttle Discovery trip), "'Compromise' is a dirty word to a scientist. To an engineer it means trading off conflicting requirements. In politics, it is the only way to get anything done." Alas, I'm working hard on transitioning towards the ways of politics.

The following are areas that I will focus my attention during my fellowship:

? Smart Growth, with possible connection to Boston's "Big Dig."

? Environmental issues: the Clean Water Act, including combined sewer overflows (CSO), sanitary sewer overflows, and wet weather watersheds and appropriations, with a focus on CSO cases; superfund and brownfields; persistent organic pollutants (POPs), mercury, and so on.

? Appropriations on the following appropriation bills: Energy and Water; Transportation; Interior; Veterans affairs- HUD; Treasury-postal; Labor, HHS, and education; Commerce; and Agriculture.

? Miscellaneous work on energy, including the strategic petroleum reserve, transportation and Massachusetts issues.

Typical work includes conducting research and writing briefings, speeches, and position statements on the above listed.

Despite having two significant opponents, Edward M. (Ted) Kennedy was easily re-elected (for the seventh full term) to Senate office on November 7th by a 73% margin. Senator Kennedy invited his staff to celebrate at his victory party in Boston, which I found most entertaining.

Sen. Kennedy has an interesting background, which I briefly summarize. Sen. Kennedy was first elected to the Senate in 1962 to complete the term of his brother President John F. Kennedy. Senator Kennedy is the third most senior Senator (after Strom Thurmond, who turns 98 next month! and Robert Byrd), is the senior Democrat on the Health, Education, Labor and Pensions Committee, and is the senior Democrat on the Immigration Subcommittee of the Judiciary Committee.

His national priorities are Social Security, Medicare, public school improvements, and tax cuts for working families as well as fighting for cleaner water and cleaner air. He secures substantial funds for civil engineering-related projects in his home state of Massachusetts, including the Big Dig among others. One of his landmark achievements is the Health Insurance Portability and Accountability Act of 1996, which makes it easier for those who change their job or lose their job to keep their health insurance.

Respectfully submitted,

Yumei Wang, P.E.
2000-2001 Fellow

Cordilleran Section, Geological Society of America Corvallis, Oregon, May 13-15, 2002 GEOLOGY IN THE PUBLIC EYE

Call for Field Trips and Session Topics

The 98th Annual Meeting of the Cordilleran Section, Geological Society of America will be held at Oregon State University, with the Department of Geosciences as host. The site will be the new CH2M Hill Alumni Center on campus.

The meeting will be held jointly with the Northwest Energy Association, the Oregon and Washington chapters of the Association of Engineering Geologists, the Cordilleran Section of the Paleontological Society, and the National Association of Geoscience Teachers.

Field trips will precede and follow the meeting, with a comprehensive field trip guide published by the Oregon Department of Geology and Mineral Industries.

FIELD TRIPS PROPOSED AS OF NOVEMBER 2000

1. Lahars, landslide dams, and flood effects, Deschutes River, Oregon: 3-day raft trip, postmeeting (Jim O'Connor, Gordon Grant)
2. Geomorphology and hydrology of the H.J. Andrews Forest watershed. 1 day (Fred Swanson, Julia Jones)
3. Paleodune age, origin, and archaeology, central Oregon coast. 2 days, overnight in Florence (Curt Peterson, Chuck Rosenfeld, Courteny Cloyd)
4. Petrology and tectonics at a propagating rift in the Oregon Cascade Range: 2-day premeeting, overnight in Redmond (Rick Conrey, Ed Taylor)
5. Bimodal volcanism and tectonism of the High Lava Plains, Oregon. 3-day postmeeting (Brennan Jordan, Martin Streck, Anita Grunder)
6. Active faults of eastern Oregon: 2 days. (Ray Weldon)
7. Landslides at Kelso, Washington, and Portland, Oregon (AEG): 1 day. (Scott Burns)
8. Stratigraphy and tectonics of the Oregon Coast Range (NWEA-AAPG). 2 days (Ray Wells, Alan Niem)
9. Josephine and Coast Range ophiolites, California-Oregon. 2 days. (Greg Harper)
10. Southwest Washington beaches and spits. 1 day. (G. Gelfenbaum)
11. Hydrogeology of Deschutes Basin, an arc-related young sedimentary basin (Dave Sherrod)

SPECIAL SESSIONS AND SYMPOSIA AS OF NOVEMBER 2000

1. Presenting geology to the public in national and state parks (Bob Lillie, Carolyn Driedger)
2. The evolving Pacific Northwest landscape: Geomorphic and ecologic controls, constraints, and conundrums in the Quaternary (Gordon Grant, Steven Lancaster, Shannon Hayes)
3. 30 years of hydrogeomorphic and landscape evolution monitoring at the H.J. Andrews Research Station, western Cascades, Oregon. (Fred Swanson, Julia Jones)
4. Topographic development of the terrestrial Cascadia forearc (Andrew Meigs, Steven Lancaster)

5. **Public policy, floods, aquifers, and river dynamics in the Willamette Basin, Oregon (Peter Wampler, Jim O'Connor)**
6. **Forearc basin development, microplate rotation, and tectonics of the Tertiary Cascadia margin (Ray Wells)**
7. **Hazards and risks from Cascade volcanoes Britt Hill, Ed Taylor**
8. **Uplift, erosion, and topography of a steady-state orogenic belt: The Olympic Mountains of Washington (Mark Brandon, Frank Pazzaglia, Sean Willett, Dave Montgomery)**
9. **New active fault database for the Pacific Northwest (Pat McCrory)**
10. **Unraveling the Tertiary stratigraphy and structure of the Pacific Northwest: Implications to hydrocarbon occurrence and underground gas storage (NWEA/AAPG theme session) (Jack Meyer, George Sharp, Bob Deacon)**
11. **Engineering geology case histories: State of the art and state of practice in the Northwest (AEG theme session) (Scott Burns)**
12. **Coastal processes: Landslides, dunes, wave erosion, and active faults and folds (Curt Peterson, Scott Burns, George Priest)**
13. **Active tectonics at Cascadia: Geodesy (Herb Dragert, Chris Goldfinger)**
14. **Active tectonics at Cascadia: Continental shelf and slope and accretionary prism (Chris Goldfinger, Bob Yeats, Bob Embley)**
15. **Active tectonics at Cascadia: Deformation across the plate margin onshore (Ray Weldon, Gene Humphreys, Mark Hemphill-Haley)**
16. **Third decadal symposium on the geology of Washington (papers to be published by the Washington Division of Geology and Earth Resources; Eric Cheney, Ray Lasmanis)**
17. **Symposium on the geology of Oregon in honor of George Walker (Martin Streck)**
18. **Geographic information science (Dawn Wright)**
19. **Physical volcanology, petrology, and geochemistry of the volcanic Cascades (Kathy Cashman)**
20. **Workshop and field trip on hydrothermal gold deposits. (John Dilles, Cy Field)**
21. **Tertiary biostratigraphy of the Pacific Northwest (Paleontology Society theme session and field trip; Liz Nesbitt)**
22. **Jurassic ophiolites of southern Oregon and northern California (Greg Harper)**

SHORT COURSES

1. **3D seismic: Jack Meyer, Bob Lillie, Seismic Micro Technology: Detailed cross sections, smart contouring, and more**
2. **Geographic Information Science: Introduction to ArcView; GIS applications in natural resources. Michael Wing**
3. **Parks and plates workshop and short course. Bob Lillie**

Proposals for additional field trips should be sent to Dr. George Moore at OSU, mooreg@geo.orst.edu Proposals for technical sessions should be sent to Dr. Andrew Meigs at meigsa@geo.orst.edu

Corvallis in mid-May is delightful, with rhododendrons and azaleas in bloom, good weather for field trips, a new meeting facility, reasonably priced accommodations, and fantastic geology!!

AEG "Oregon Section" - OFFICERS

Area codes are 503 unless noted:

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MEMBERSHIP

For application forms for Membership in AEG (Member, Associate, Affiliate, or Student), call Tim Blackwood the membership chair at (503) 684-3460 (w). He will also have copies at the monthly meetings. Membership is on a calendar year basis. If you are an AEG member, headquarters will also collect our Oregon Section dues of \$10, which just covers our newsletter costs. If you would like to subscribe to the local newsletter (comes out 9 times a year) without being an AEG member, fill out the form below and mail to Dave Michael. Note: the following form is only for people and organizations that wish to subscribe to the Oregon AEG Newsletter without being members of AEG.

APPLICATION FOR OREGON SECTION, AEG "NEWSLETTER MAILINGLIST ONLY":

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Mail form and \$10 to Dave Michael c/o ODF NWOA, 801 Gales Creek Rd. Forest Grove OR 97116

***ANNOUNCEMENT OF OUR NEXT
MEETING***

***Dec. 21, 2000
AEG***

*Dave Michael, Editor
Oregon Section, AEG
c/o ODF NWOA
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