Nov. 2, 2005 (Vol. 06, No. 3)

The Official
Newsletter
of the Oregon Section Association of Engineering Geologists

Serving Professionals in Engineering, Environmental, and Groundwater Geology

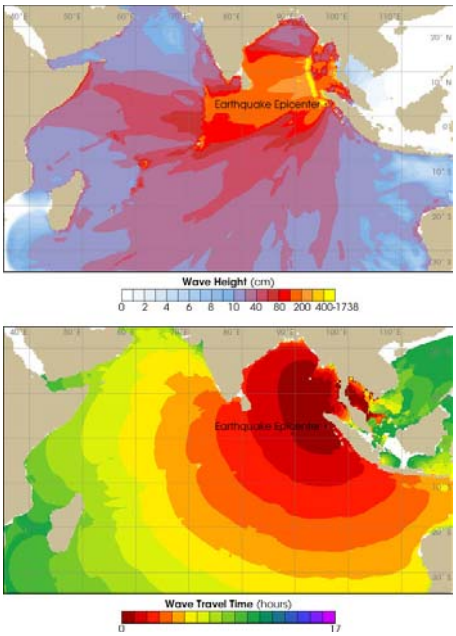
NOVEMBER 2005 SECTION MEETING

GUEST: YUMEI WANG, OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
PRESENTATION: SURVIVING GREAT EARTHQUAKE DISASTERS: LESSONS FROM THE 2004 SUMATRA QUAKE & TSUNAMI

This presentation will highlight the ASCE post-tsunami investigation in western Thailand, including lessons learned. It will compare the Sumatra quake to a future Cascadia earthquake and discuss actions needed.

EARTHQUAKE OVERVIEW. On December 26, 2004, a devastating earthquake occurred off the western coast of Sumatra, Indonesia, shaking millions of people who live around the Indian Ocean. This Sumatra earthquake had a moment magnitude of 9 or possibly higher, and was one of the largest earthquakes ever recorded. This earthquake triggered a destructive tsunami (series of waves), where in places, reached 100 ft run up heights, and it affected many of the coastlines around the Indian Ocean. The most severe damage occurred in low-lying coastal regions of Indonesia, Thailand, Sri Lanka and India. As days passed, the world was largely paralyzed by the unfolding disaster and the extent of the human toll. The tsunami destroyed much of what lay in its path and resulted in an international human tragedy with over one-quarter million fatalities. It, in fact, inflicted the heaviest tsunami casualty loss in recorded history.

Continued disaster relief will plague many countries for decades to come. The harshest lessons that were learned in this event is that nature's forces can be globally destructive, thousands of lives could have been spared with education, and our communities and infrastructure are as vulnerable as we design and construct them. As such, developing tsunami resistant building codes are critically important to avoiding future global disasters, research needs to be conducted and mitigation actions need to be taken.



ACTIONS NEEDED. When people and businesses can be impacted by building and lifeline failures from geologic hazards, DOGAMI has a societal role to play. This role can relate to: (1) community vulnerability, such as

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This Month's Meeting is on Tuesday November 15

Old Market Pub
6959 SW Multnomah Blvd
Portland (Garden Home), OR

6:00 pm Social
7:00 pm Dinner
8:00 pm Presentation

Pizza and salad
$13.00 dinner ($6.50 for students)

E-mail <glenda.christman@amec.com> with "AEG Reservations" in the subject line, or call 503-639-3400, by 4 pm Thurs. Nov. 10. There is a $2.00 surcharge for those who do not reserve by the deadline.

MESSAGE FROM THE CHAIR

What a way to start the new season. Dramatic time lapse photographs of the dynamic activity associated with the growing dome of Mt. St. Helens. Eruptions, earthquakes, and rockslides (oh my)! Much thanks to Steve Schilling from the Cascades Volcano Observatory for a great presentation.

The meeting was well attended, despite the low number of reservations. I appreciate that this was the first meeting of the year and I hope it was the reason that a lot of us forgot to call in our reservation. However, it is hard for us to plan with the restaurant and to order the appropriate quantity of food without a realistic headcount. If you are pretty sure you are going to attend the meeting, please email Glenda Christman with AMEC at glenda.christman@amec.com, or call 503-639-3400, and make a reservation. Glenda actually prefers emails and if you could, please include "AEG Reservations" on the subject line.

I would like to congratulate and welcome aboard the newly elected officers for the AEG Student Chapter at Portland State University. I had the opportunity to chat with their newly elected President **Marina Drazba** and Vice President **Zeitel Gray**, along with several other students at the meeting. It was great to see the large contingent of PSU students at the last meeting.

I am sure most of you are aware that the proposed name change to the Association of Environmental & Engineering Geologists was approved. However, I recently learned some more information from AEG Corporate that I thought I would pass on. This is the second time in AEG history, a name change has been approved by the membership. The organization, originally founded in 1957 as the California Association of Engineering Geologists (CAEG), responded to growth and geographic expansion with the first name change in 1963 as CAEG became the Association of Engineering Geologists (AEG).

The latest name change, the Association of Environmental & Engineering Geologists, became official at the AEG Corporate Business Meeting on September 22nd in Las Vegas, NV. Independent legal counsel tallied balloting results, with 68% of the votes supporting the name change.

I hope to see you all this month to hear Yumei Wang (DOGAMI) give her presentation on the Asia Quake and Tsunami.

Brent Black

AEG Oregon Section Chair

OREGON STATE BOARD OF GEOLOGIST EXAMINERS

PUBLIC NOTICE Meeting of the State Board of Geologist Examiners

The regular meeting of the Oregon State Board of Geologist Examiners is scheduled for Friday, November 11, 2005 at 8:00 AM. The Board meeting will be held in Ashland, Oregon on the campus of Southern Oregon University, The Hannon Library, Meese Room. The Board will hold a working lunch during the meeting. Following the meeting, the Board will tour the Science Building led by Professor Charles Lane, RG.

A Work Session will commence at 7:00 PM on Thursday, November 10, 2005 in The Garden Room of the Plaza Inn and Suites, downtown Ashland.

During the regular meeting, the Board will hear examination administration updates, financial reports, committee reports and law enforcement matters. They may also consider examination appeals, legislative activities, and Administrative Rule review. Executive Session may be convened to consider confidential issues of the Board.

Meetings of the Board are open to the public. Parties interested in the regulation of registered professionals or the practices of geology and engineering geology are invited to attend. For additional information or directions to the meeting location, please contact the Board office as follows:

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understanding earthquake and tsunami hazards and their impacts to communities; (2) education, tsunami warning systems and local emergency response; (3) construction practices, rebuilding, and how to best allocate limited resources; and, (4) further studies for government, university and private researchers. Oregon's political and engineering leaders, including DOGAMI, must provide better information on how to "build smart" and how to develop and implement policies that encourage safer communities.

Because lifelines are critically vital to communities, determining and adopting acceptable lifeline

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performance objectives and standards are urgently needed. This information can help communities design for continuity in basic services during and immediately following emergencies. Many lifelines are necessarily in areas that will be impacted by tsunamis--water wells, waste-water outfalls, roads and bridges are a few examples. Measures to cope with seawater intrusion and tsunami deposits in lifeline design need to be researched and implemented in future codes. Foundation scouring, lateral wave and debris loads also need to be considered.

Tsunami-resistant building codes for coastal Oregon should be adopted by the state, when such codes are available. Tsunami-resistant structures require research and integration into the building codes for low-lying coastal communities. Certain types of structural elements have shown to perform well (elevated, reinforced concrete) and these should be tested using the rigorous methods, such as in wave tanks or complex numerical modeling. Structures should include a variety of buildings and sea walls with wave deflection and scouring controls. Tsunami building codes should be carefully applied to limited important structures.

A statewide tsunami risk study along coastal Oregon is needed. Critical facilities, such as schools, fire, police and hospitals, should be prohibited or have strict building codes in tsunami inundation zones. In Oregon, new facilities are required to meet higher performance objectives; however, existing facilities urgently need to be mitigated to ensure basic community preparedness. Also, facilities with large occupancies, hazardous materials, and other sensitive parameters should be required to meet higher performance objectives.

A tsunami warning system that provides warning to Cascadia residents from Cascadia earthquakes is needed. The current system is being improved to provide warning for distant (far field) tsunamis but will not help with Cascadia tsunamis.

FUTURE RESEARCH AREAS. As this was one of the most damaging earthquakes and tsunamis in recorded history, it provides a unique learning opportunity, which will require extensive international research, documentation and action. The magnitude and extent of the societal implications are still largely unknown. However, this event is sure to have far reaching effects. The tsunami warning notification (or lack of), emergency response and communication efforts, isolated communities, international cooperation, rebuilding in terms of appropriate design (e.g., high occupancy basements in tsunami zones are not safe) and land use, and economic recovery issues and more are areas that earthquake professionals and community leaders must address in a collaborative fashion.

Although much has already been learned, there is yet much more to be learned. Scientists and engineers will gain knowledge about the seismotectonic setting, earthquake parameters, fault slip, ground motions, geotechnical observations, tsunami generation and propagation, tsunami inundation characteristics, tsunami warning systems and more. Engineers will learn about design, performance and mitigation of infrastructure and buildings. This will include which lifelines are most critical to communities and in recovery efforts and what are the reduced capacities and the rates of recovery for specific lifelines. Emergency managers will learn about communication, preparedness, emergency response and recovery for both short and long term conditions. As an example, in the aftermath of this event, the search and rescue activities were prolonged due to the geographic reaches of the tsunami. Also, social and economic impacts, such as shelter, food, medical and psychological aid, social mobilization of public services—debris removal, media involvement, and land-use planning and rebuilding, play an important role. Relevant information should be applied to regions, such as the Pacific Northwest's Cascadia Subduction Zone.

PRESENTER's BIO. Yumei Wang's expertise is in science,

IN MEMORIAL

Sigmund D. Schwarz, highly respected Engineering Geologist and Geophysicist, and founding member of the Washington State Section of AEG, passed away on Tuesday October 4th in Kirkland, Washington, at the age of 77. He was raised in Portland, Oregon and graduated from Benson Polytechnic High School in 1947. He earned a degree in geology at Oregon State University in 1952. He married Mary Kay Reeves of Lebanon, Oregon in 1952. From 1952 to 1954 he served as a Lieutenant in the U.S. Air Force at Fairchild Air Force Base, Spokane, Washington.

Sig began his professional career as a geologist/geophysicist with the Oregon State Highway Department. In the 1950's Sig and colleague Boyd Bush pioneered the development of geophysical exploration techniques for highway locations, bridge foundations, landslides and blast vibration studies. They founded Geo-Recon of Oregon, Ltd., an innovative geophysical exploration company. In 1958, Sig and Mary Kay moved to the Seattle area and Geo-Recon became a subsidiary of Shannon & Wilson, Inc.. Sig was a Principal and Senior Geologist/Geophysicist with Shannon & Wilson until 1979, and then continued as a private consultant at S.D. Schwarz & Associates, Inc. in Kenmore, WA until his retirement to Astoria, OR in 2002.

During his distinguished professional career, Sig conducted over a thousand geophysical projects using a variety of land, marine, borehole, tunnel, and airborne remote sensing techniques. This work was associated with site investigations for many major projects including over 100 dam sites and 20 nuclear power plant sites. The projects included large buildings, railroads, bridges, tunnels, harbors, mining projects, industrial plant sites, land and marine pipelines, groundwater and hazardous waste site studies in North, Central, and South America, the Marshall and Philippine Islands, and Thailand. All of these activities were conducted with a sense of adventure, fun, and good humor so much appreciated by those who had the good fortune to work beside him.

Sig was a founding member of the Washington State Section of the Association of Engineering Geologists (AEG), a Fellow of the Geological Society of America, and a member of numerous other professional associations. He was an active member of the Rotary Club in Kenmore, WA and Astoria, OR. His other interests included aviation, gold mining, photography, the Lewis & Clark Memorial, and his many, many friends.

Sig was preceded in death by his loving wife of 45 years, Mary Kay, in 1997. He is survived by his three children, Linda Schwarz, of Mountlake Terrace, WA; David Schwarz and daughter-in-law, Michele Dallaire, of Marysville, WA; daughter, Sally Beahan and son-in-law, Scot Beahan, two grandchildren, Tyler Beahan and Mackenzie Beahan, of Bothell, WA; brother, G. Robert (Bob) Schwarz and sister-in-law, Loretta Schwarz, of West Linn, OR; sister-in-law, Eleanore Reeves, of Santa Ynez, CA; a nephew and four nieces. He is also survived by his companion of seven years, Alberta Putnam, of Fair Oaks, CA.

His final resting place is at Floral Hills Cemetery, Lynnwood, WA. Donations in Sig's memory may be sent to the Norman R. Tilford Fund for Field Study (Scholarship), c/o Association of Environmental & Engineering Geologists, P.O. Box 460518, Denver, CO 80246, (or www.AEGweb.org), the Fort Rebuild Fund, Fort Clatsop Historical Assoc., 92343 Fort Clatsop Rd., Astoria, OR 97103; or the Evergreen Air Museum, 500 NE Captain Michael King Smith Way, McMinnville, OR 97128-8877.

Sig and Warren Krager, summer 2004

AEG OREGON CALENDAR

Dec 13: Jack Spadaro, AMEC, Bioremediation ICN
Jan 17: Joint meeting ASCE host
Feb 21: Ian Madin, DOGAMI, Digital Map Portland and Oregon
Mar 21: Steve Mumma, Geobrugg, Debris Flow Barrier Study at Oregon Test Site and San Bernadino
Apr 18: Student Night
May 16: Dr. Darrel Schmitz, topic to be announced

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engineering, and technology policy; natural-hazard analyses and risk reduction, and sustainable development. Since 1996, Yumei has been the supervisor of the Geohazards Section at the Oregon Department of Geology and Mineral Industries where she concentrates on lowering earthquake and landslide risks. Yumei served a one-year term as a Congressional Fellow for Senator Ted Kennedy in Washington DC. The fellowship was hosted by the American Association for the Advancement of Science (AAAS) and was funded by the American Society of Civil Engineers (ASCE). Yumei has influenced public policies in her expertise areas as well as in the environment, energy, and transportation in both the state and federal government. Most recently, she led a task force that culminated into earthquake preparedness Senate Bills 2, 3, 4 and 5, which was developed into law in August 2005. She has over three-dozen technical publications, serves on several advisory commissions and committees, and has spoken at many conferences. She is adjunct faculty at the Portland State University Civil and Environmental Engineering Department. Before arriving to Portland in 1994, she consulted in geotechnical engineering in the San Francisco area, California. She earned her master's degree in Civil Engineering at the University of California in Berkeley in 1988 and her bachelor's degree in Geological Sciences at the University of California at Santa Barbara in 1985.

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News items are invited and should be sent to: Charlie Hammond, OR Section AEG Newsletter Editor, Cornforth Consultants, 10250 SW Greenburg Road, Portland, OR 97223, e-mail: <or.aeg.news@cornforthconsultants.com>, phone (503) 452-1100. Electronic media is preferred. Deadline for submittal is Friday three weeks before each meeting.

Advertising: business card $10/mo, $100/yr; ¼ page $30/mo, $200/yr; ½ page $35/mo, $350/yr.

Please notify Charlie if you have a change to your email or mailing address.

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