



NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology
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December, 2009 Newsletter

Volume 23, Number 8

December 8 Program Speaker

Speaker: Dr. Brittany Brand, Earth & Space Sciences, Univ. Wash.
Title: Tuff cones, tuff rings, and maars: A record of violent hydro-volcanic eruptions

Speaker Abstract: Hydrovolcanic eruptions occur when rising magma violently fragments while mixing with shallow surface water or groundwater. These eruptions, among the most violent on Earth, generate hundreds to thousands of explosions throughout the course of an eruptive event, lasting anywhere from days to years. Each of these explosions ejects a mixture of fragmented magma, pieces of country rock, gas, and water droplets. The solid materials either fall to the ground from tephra jets, or collapse to form pyroclastic density currents. The deposits of these eruptions build up rings of bedded tuff around the vent, recording both a wide variety of pyroclastic depositional mechanisms, and important changes in the eruptive style with time. We will discuss (1) settings under which explosive hydrovolcanic eruptions occur, (2) depositional characteristics that lend insight into the explosivity of an eruption, and (3) a wide variety of pyroclastic deposits, including *mega-dunes*; 200 m wavelength dunes associated with pyroclastic density currents from possibly one of the most energetic mafic hydrovolcanic eruptions ever documented. The work presented here improves the ability of volcanologists to interpret the deposits of these violent events, and provides a better understanding of eruption mechanisms, the mechanisms of pyroclastic deposition, and potential hazards.

5:30pm: No-host social hour
6:30pm: Buffet dinner
7:30pm: Speaker program
All are welcome to attend –
reservations are required
if coming for dinner.

PROGRAM DINNER RESERVATIONS: NWGS members: \$30; Non-members: \$35; Full-time students : \$10. Add \$5 for LATE REGISTRATION. Mail check to Ginny Agnew, 935 Pine St., Edmonds, WA. 98020 (must be received by Thursday prior to meeting). Contact her at 425-776-6151 or agnewv@msn.com.

If attending the speaker program only, a \$5 voluntary donation to help defray the meeting room cost is greatly appreciated.

Location: Pacific Dining Hall at the [Talaris Conference Center](#), 4000 NE 41st St., Seattle, WA. Ph 206-268-7000. **Directions:** See [on-line directions with map](#), or: from I-5 northbound or southbound in Seattle, take Exit 168B (NE 45th St.). Drive east on NE 45th St. past UW down the hill and past University Village. Turn south (right) onto Mary Gates Memorial Drive at the 5-way intersection. MGM Drive will curve east (left) and become NE 41st St. Continue several blocks to the [Talaris Conference Center](#) entrance on the north (left) side.

Upcoming Speakers and Field Trips

January Speaker: Richard Fiske, Smithsonian Institution, Submarine Pyroclastic Volcanism of the Izu-Bonin Arc (Japan).

Spring, 2010 Field Trip: Southern Cascades, Paul Hammond, 1st or 2nd weekend in June.

Summer, 2010 Field Trip: Possible field trip to the Jurassic coast of England, Julie Masura, late summer, TBA.

Fall, 2010 Field Trip: Holocene deposits of Mt. Baker, Dave Tucker, dates TBA.

Other Announcements

Your research posters are requested! POSTERS ARE WELCOME AND ENCOURAGED AT ALL MONTHLY GATHERINGS, whether at the undergraduate, graduate, or professional level!

Next Board Meeting: December 8, 4:30pm, [Talaris Conference Center](#).

Nominations are needed for NWGS President Elect for 2010. Please contact [John Figge](#) to nominate yourself or someone else!

Please see the [NWGS website](#) for detailed announcements.

Photo Spotlight

Photo of a littoral cone forming by the hydrovolcanic effects of lava entering the ocean on the southern shore of Kilauea volcano, Big Island of Hawai'i, 23 February, 1996. Hot lava rapidly boils the seawater, causing steam explosions and the accumulation of tephra such as ash, lipilli, spatter, blocks, and bombs around the ocean entry site and the formation of a littoral cone (*littoral*: shoreline). Photo by L. Keszthelyi (Hawaiian Volcano Observatory, 2009, USGS Photo Glossary of volcanic terms, <http://volcanoes.usgs.gov/images/pglossary/LittoralCone.php>).



Your geology photo submissions with captions are appreciated. Please email to Newsletter Editor [Tom Bush](#).

About NWGS

NWGS, a regional association of professionals, students & other persons interested in **geology**, provides a forum for the presentation and discussion of a wide range of geologic topics, emphasizing those of the Pacific Northwest or of fundamental scientific interest. **Program meetings**: 2nd Tuesdays, October through May in the Pacific Dining Hall at the [Talaris Conference Center](#) in Seattle (see 1st page). Anyone may attend the speaker program, but a reservation is necessary for those wanting dinner (see 1st page). **Field trips (members only)**: one in late spring/early summer and one in late summer/early fall, usually of 1-3 days in length. **Membership** is open to anybody with a professional or amateur interest in geology. **Annual dues**: Professional: \$30; Student: \$5. **To join or pay annual dues**: send a check payable to NWGS to Secretary [Dan Smith](#), 10203 40th Ave SW, Seattle, WA. 98146. Please include your name, address, home phone, email, and employer/affiliation (if any).

Recommended Readings

- Evarts, R.C., O'Connor, J.E., Well, R. E., Madin, I. P., 2009, **The Portland Basin: A (big) river runs through it**, GSA Today, Vol. 19, No. 9, 4-10.
- Froese, D.G., Zazula, G.D., Westgate, J.A., Preece, S.J., Sanborn, P.T., Reyes, A. V., Pearce, N.J.G., 2009, **The Klondike goldfields and Pleistocene environments of Beringia**, GSA Today, Vol. 19, No. 8, 4-10.
- Pelletier, J.D., 2009, **The impact of snowmelt on the late Cenozoic landscape of the southern Rocky Mountains, USA**, GSA Today, Vol. 19, No. 7, 4-11.

Please send your reading recommendations to Newsletter Editor [Tom Bush](#).

To report a change of email or postal address or request to be removed from mailings, notify Secretary [Dan Smith](#) at 206.937.5313. Questions or comments? Contact President [Donn Charnley](#) at 206.546.3868.

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