



NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology
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May, 2010 Newsletter

Volume 24, Number 5

May 18 Program Speaker (Note change to 3rd Tuesday for the poster session)

Speaker: Dave Montgomery, Professor, ESS Dept., UW

Title: Suspected mega-landslides on Mars

Abstract: Unresolved controversies in Martian geology surround the role of active tectonics and a wetter climate early in Mars history, and particularly the history and amount of liquid water at or near the surface. Among the various lines of evidence brought into such debates are the massive landslides along the walls of Valles Marineris, which generally have been interpreted as resulting from marsquakes, and therefore necessitating active tectonics, under either wet or dry conditions. We analyze Valles Marineris landslides using digital elevation data from the Mars Orbiter Laser Altimeter (MOLA) and find that a relief limit consistent with the intact strength of evaporites or other weak sedimentary rock defines an upper bound to the length and relief of unfailed slopes, as would material with the strength properties of basalt lithology subjected to ground accelerations of about 0.2 g. In contrast to prior interpretations of Valles Marineris landslides, we propose an alternative, complementary hypothesis that does not require significant pore-water pressures or ground acceleration based on the close correspondence between back-calculated material strength properties and values consistent with portions of the chasm walls at least locally being composed of relatively weak materials, such as potentially frozen evaporites and/or mixtures of ash fall or flow deposits, ice, hydrated salts and lava flows. (From Bigot-Cormier, F., Montgomery, D.R. Valles Marineris landslides: Evidence for a strength limit to Martian relief? Earth Planet. Sci. Lett. (2007), doi:[10.1016/j.epsl.2007.05.028](https://doi.org/10.1016/j.epsl.2007.05.028).)

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: **\$35**; Non-members: **\$40**; Full-time students : **\$15**. 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 "required."

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

Spring, 2010 Field Trip: Paul E. Hammond, Portland State University, Stratigraphy and structure of Grand Ronde Basalt in the Naches River area, south-central Washington, June 12-13, 2010. Contact [Greg Ferris](#) to register (see p. 2).

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

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

Contact webmaster [Julie Masura](#) if you have any announcements to post on the website.

Announcements

- **Dinner rates have increased** by \$5, effective immediately. Please note new rates above.
- **The May meeting is student poster night!** If you are a student with a research project, bring your project poster to the **May 18 meeting (3rd Tues.)!** There will be several categories (high school, community college, upper class, graduate student), with prizes for each level! All entrants receive free dinner! Register with , [Lars Gilmour](#) or contact him (see p. 2) for more information. **Big prizes!!!**
- **Dave Tucker** has a [field trip web site](#). Please check it out at www.nwgeology.wordpress.com.
- **Scott Burns**, PSU, will present *Terrior in the Pacific Northwest*, 5/8, 3PM, Port Townsend, as a fundraiser for the **Port Townsend Marine Science Center**. Contact JoAnne Heron, 360-385-5582 x101 to pre-register.
- **Next Board Meeting:** (date?), 4:30pm, [Talaris Conference Center](#).

Photo Spotlight



Mt. Woodring and nearby peaks in the Grand Tetons of Wyoming are composed of 2.8 Ga gneiss & 2.4 Ga granite, with prominent stream terraces of the Snake River in the foreground. Photo by T. Bush.

Your geology photo submissions (~1MB) with captions are appre-

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 Treasurer [Dan Smith](#), 10203 40th Ave SW, Seattle, WA. 98146. Please include your name, address, home phone, email, and employer/affiliation (if any).

Recommended Readings (kindly submitted by John Whitmer)

Bolhar, Robert, and Ring, Uwe, 2001, **Deformation history of the Yolla Bolly Terrane at Leech Lake Mountain, eastern belt, Franciscan Subduction Complex, California Coast Ranges**, GSA Bulletin, vol. 113, no. 2, p. 181-195.

Grove, Karen, 1993, **Latest Cretaceous basin formation within the Salinian terrane of west-central California**, GSA Bulletin, vol. 105, no. 4, p. 447-643.

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

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