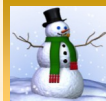


NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology
Please browse www.nwgs.org for more about us



Note date!

January 2012 Newsletter

Volume 26, Number 1

Note location—this month only!!!

January 19 Program Speaker (Joint AEG Meeting at [Ivar's Salmon House](#), Seattle)

Speaker: Tom Pratt, USGS @ UW Seattle

Title: Fracture mechanics at a large scale: Central Washington's faults, folds, and OWL

Abstract: The Yakima fold and thrust belt (YFTB) is a set of anticlines above reverse faults in the Miocene Columbia River Basalt flows of central Washington State. The YFTB is bisected by the ~1100-km-long Olympic-Wallowa geomorphic lineament (OWL). There is considerable debate about the origin and earthquake potential of the YFTB and OWL, which lie near six major dams and the Hanford nuclear site. The YFTB structures have been compared to "wrinkle ridges" formed by contraction during cooling on other planets and have been interpreted as a simple fold-and-thrust belt formed under N-S compression. The YFTB ridges are cored by faults whose depth of penetration has been debated, with a "thick-skin" model in which the faults penetrate to basement rocks being more recently favored over a "thin-skin" model in which the faults extend only to the base of the ~4-km-thick basalt flows. The OWL may be a major strike-slip fault zone, but lacks definitive evidence for or against substantial horizontal offset. Here I show that the trends of the YFTB anticlines relative to the OWL match remarkably well the trends of the principal stresses determined from Linear Elastic Fracture Mechanics modeling of the end of a vertical strike-slip fault. From this comparison and the termination of some YFTB anticlines at the OWL, I argue that the YFTB formed as splay faults caused by an abrupt decrease in the amount of strike-slip motion along the OWL. If this hypothesis is correct, the OWL and YFTB are likely interconnected, deeply-rooted structures.

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.**

Meeting location: [Ivar's Salmon House](#), 401 NE Northlake Way, Seattle, WA. 98105 ([map](#) & [directions](#))

JANUARY PROGRAM DINNER RESERVATIONS (this month only): NWGS members: **\$35**; Non-members: **\$40**; Full-time students : **\$10**. \$40 for LATE REGISTRATION. **Make your reservation by contacting AEG Secretary [Matthew Von der Ahe](mailto:secretary@aegwashington.org) at secretary@aegwashington.org (preferred), or if no email, by phone at (206) 718-9548. Please IDENTIFY yourself as an NWGS member, and indicate your choice for dinner (salmon, chicken, or tortellini). PAYMENT WILL BE MADE AT THE DOOR.**

Location: This month's meeting only: [Ivar's Salmon House](#) ([map](#)), 401 NE Northlake Way, Seattle, WA. 98105 ([directions](#)). Otherwise, we generally meet at the Talaris Conference Center east of the University of Washington campus (but NOT this month!).

Upcoming Speakers and Field Trips

February 8 Meeting: Eric Cheney, UW Earth and Space Sciences, The 3 1/2 geologies of greater Washington.

Spring, 2012 Field Trip: Steve Reidel, formerly of Battelle, Abandoned channels of the Pleistocene Columbia River, date TBA.

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

Announcements

- Please note that the **January meeting** will be a **joint meeting** with the Assoc. of Eng. Geologists (AEG) on **January 19** at [Ivar's Salmon House](#) on Lake Union in Seattle, this month only.
- The **dinner charge** has been raised to \$45 for members to cover costs. See details p. 1.
- Dinner and field trip reservations and payments may now be made on the NWGS [on the NWGS website](#) at www.nwgs.org!
- The 25 year anniversary symposium is now **rescheduled for May of 2013** due to the Society's pending application for non-profit 501 -3-C status. Please mark your calendar!
- NWGS Historian [Donn Charnley](#) requests any pre-1980s NWGS information. Contact him at donncharnley@frontier.com or 206.546.3868.
- **Next Board meeting:** TBA.

YOU would like to be involved!

Photo Spotlight



Oblique view looking north from about Selah towards Ellensburg of the central part of the Yakima fold belt. Note the anticlinal ridges and synclinal valleys that are cross-cut by the antecedent Yakima River, with well-developed encised meanders. (Google Earth image.)

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 geological topics, emphasizing those of the Pacific Northwest of fundamental scientific interest.

YOU would like to be involved!

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). Professional dues may now also be paid at www.nwgs.org.

YOU would like to be involved!

Recommended Readings

Reidel, S.P., Campbell, N.P., Fecht, K.R., and Lindsey, K.A., 1994, Late Cenozoic structure and stratigraphy of south-central Washington, in Lasmanis, R., and Cheney, E.S., eds., *Regional Geology of Washington State: Washington Division of Geology and Earth Resources Bulletin*, v. 80, p. 159-180.

Reidel, S.P., Fecht, K.R., Hagood, M.C., and Tolan, T.L., 1989, The geologic evolution of the central Columbia Plateau: in Reidel, S.P., and Hooper, P.R., eds., *Volcanism and tectonism in the Columbia River flood basalt province*, *Geological Society of America Special Papers*, v. 239, p.

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 [Julie Masura](#).

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