NORTHWEST GEOLOGICAL SOCIETY

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

February, 2016 Newsletter

Volume 30, Number 2

February 9 Program Speaker

Speaker: Rob McCaffrey, Portland State University
Title: GPS Velocity Field Mapping for Active Tectonics of the Pacific Northwest

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.**
► Reservations here

Abstract: Geodetic, geologic and paleomagnetic data reveal that Oregon has been rotating for at least 15 Ma clockwise at 0.3 to 1.0 °/Ma about an axis near the Idaho-Oregon-Washington border, while northeast Washington is relatively fixed. The Yakima fold and thrust belt (YFTB) forms the tectonic boundary between rotating Oregon and central Washington. We obtained high-accuracy, high-density geodetic GPS measurements in 2012 and 2013 that are used with earlier GPS measurements to characterize YFTB kinematics. The new results show that the deformation associated with the YFTB starts in the south at the Blue Mountains Anticline in northern Oregon and extends north of the Frenchman Hills in Washington, to the vicinity of the epicenter of the 1872 Mw 7.0 Entiat earthquake and north to 49N. At the eastern boundary of the YFTB, faults and earthquake activity are truncated by a north-trending, narrow zone of deformation that runs along the Pasco Basin and Moses Lake regions near 240.9E. This zone, abutting the Department of Energy Hanford Nuclear Reservation, accommodates about 0.5 mm/yr of east to northeast shortening. A similar zone of N-trending transpression is seen along 239.9E (Hog Ranch anticline) where there is a change in the strike of the Yakima folds. The modern deformation of the YFTB is about 600 km wide from south to north and internally may be controlled by pre-existing crustal structure.

PROGRAM DINNER RESERVATIONS: NWGS members: **$40**; Non-members: **$45**; Full-time students : **$20**. Add $5 for LATE REGISTRATION. Make your reservation and payment on-line at **www.nwgs.org** (or mail your payment to ***Northwest Geological Society, 4616 25th Ave NE #397, Seattle, WA. 98105*** (must be received by Thursday prior to meeting). Contact Secretary Beth Tanner with questions about dinner reservations.
If attending the speaker program only, a $5 voluntary donation to help defray the meeting room cost is requested.
Location: Pacific Dining Hall at the Talaris Conference Center, 4000 NE 41st St., Seattle, WA., 98105. **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. We meet in the Pacific Dining room on the left (**SEE MAP ON P. 3**).

Upcoming Speakers and Field Trips

March 8: Lydia Staisch, USGS, Methods of absolute age control on geologic materials.
April 12: Dottie Metcalf Lindenburger, UW, Geology from 200 miles above and 65 feet below: an astronaut's and aquanaut's perspective, and Mellissa Rice, WWU, NASA's exploration of Mars.
May 10: Matt Taylor, UW, Stone tool evolution through pre-history.
Spring, 2016: There may be a field trip to a local quarry. Details TBA.
Fall, 2016 Field Trip: Eric Cheney, Geology of the Republic area and the Okanogan Metamorphic Core Complex, September or October. Details TBA.

If you would like to volunteer to give a talk or lead a field trip for NWGS, please contact President Grace Winer.

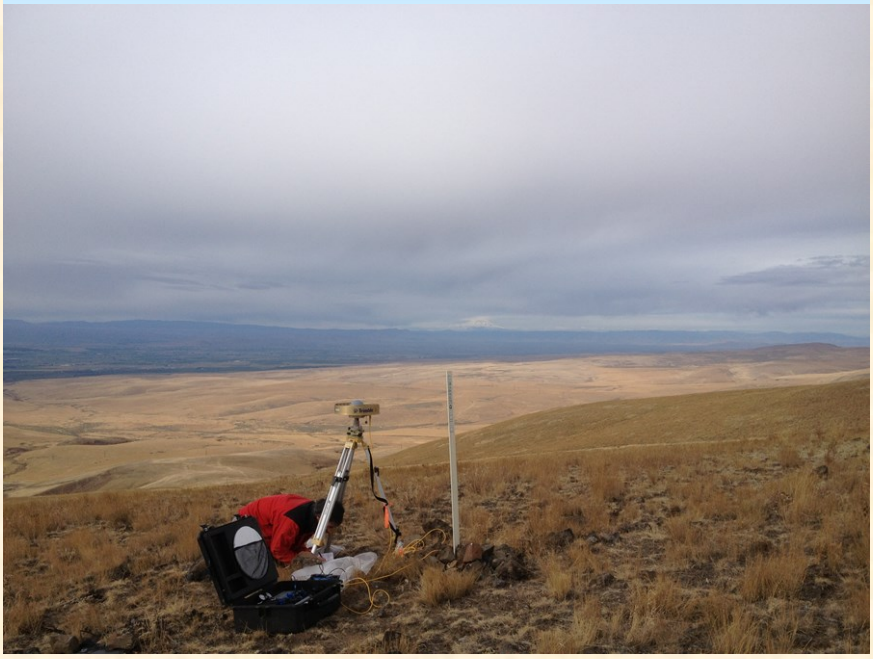
Please see the NWGS website for detailed announcements.
Contact webmaster Julie Masura if you have any announcements to post on the website.

Announcements

- Sadly, long-time member, friend, and former NWGS President **John Whitmer** passed away on Jan. 13 at the age of 92. **Please see the memorial on page 3.**
- **Five spots** have opened up on the **Geology of Scotland** field trip on June 21—July 1, 2016!!! Please contact Kathleen Goodman to be added to the trip immediately if you wish to go!!! Trip cost will be ~$3,000 plus airfare.
- The 2018 NWGS Symposium is just a couple short years away. Please consider being part of the all-important planning team, including Chair of the committee.
- If you have an unusual rock, please bring it to show!
- Next Board Meeting: Tuesday, Feb. 9, 4:30pm, Talaris Conference Center.

YOU would like to be involved!

Photo Spotlight



GPS marker on south side of Rattlesnake Hills looking south over Yakima Valley toward Horse Heaven Hills. Tending to the equipment is PSU student Matt Lancaster. (Photo by R. McCaffrey)

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 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 Beth Tanner, 4616 25th Ave NE #397, Seattle, WA. 98105. 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

McCaffrey, R. and R.W. King (2015). Contemporary strain rates across the Yakima fold and thrust belt estimated with GPS: Collaborative research with Portland State University and Massachusetts Institute of Technology (NEHRP Report) http://earthquake.usgs.gov/research/external/reports/G12AP20021.pdf

McCaffrey, R., R. W. King, S. J. Payne, and M. Lancaster, Active Tectonics of Northwestern US inferred from GPS-derived Surface Velocities, *J. Geophys. Res.*, 118, doi:10.1029/2012JB009473, 2013.

Wells, R., and **R. McCaffrey**, Rotation of the Cascade Arc, *Geology*, 41, 1027-1030, doi: 10.1130/G34514.1 2013.

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 Membership Chair George Bennett . Questions or comments? Contact President Jim Miller.

NWGS Board

President	Jim Miller, GeoEngineers
President Elect	Scott Calhoun, Independent
Past President	Grace Winer, Lindblad/Nat. Geog.
Secretary	Beth Tanner, Windermere Real Estate
Treasurer	George Bennett, Bennett Consulting
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Field Trip Coordinator	Kathleen Goodman, AMEC
Newsletter Editor & Publications	Tom Bush, Pierce College Puyallup
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Facebook Pagemaster	Eric Baer, Highline CC

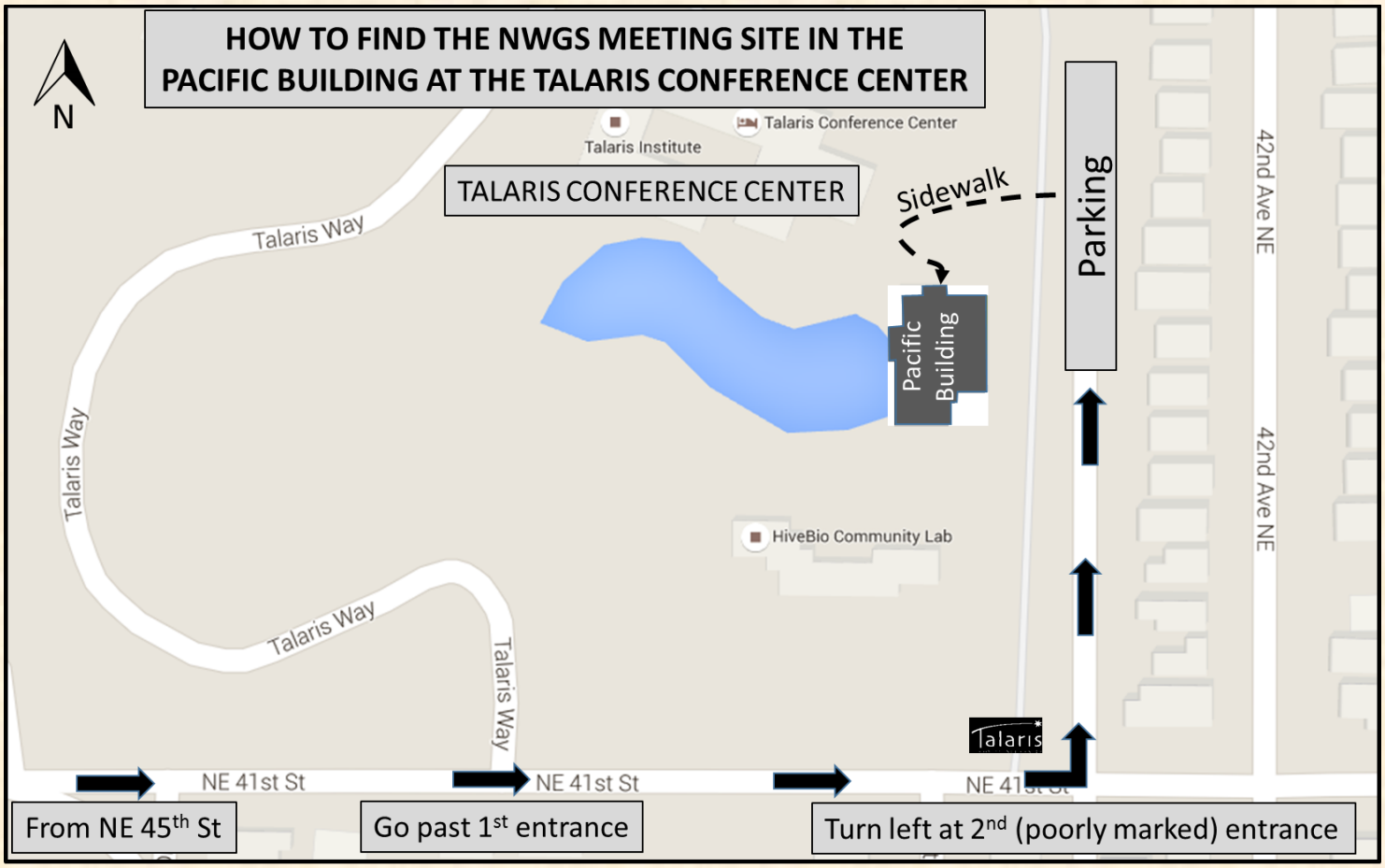
In Memory of Dr. John Whitmer
July 27, 1923—January 13, 2016

Our colleague, friend, and former NWGS President Dr. John Whitmer passed away on January 13 at the age of 92. He was born in Spokane, Wash., where he spent much of his youth, but he graduated from Billings High School, Montana, in 1941. It was during his freshman year of high school in Spokane before moving to Montana that a teacher there inspired what would be a lifelong passion for geology. John went on to attend college at Montana State College in Bozeman, where he majored in electrical engineering, but this was disrupted by World War II. He ended up in Oregon and in 1946 was accepted into the University of Oregon Medical School. After interning in Minnesota, he moved to Grants Pass, Ore., where he went into general practice. It was there that he discovered the mountains and spent much of his time hiking and climbing. In 1955, he moved to Buffalo, Wyo., where he started his own private practice and explored the Big Horn Mountains. In 1957 he moved to Laramie, where he started taking geology classes from the University of Wyoming. While there, he was thrilled to visit the site of the 1959 Madison Canyon earthquake and landslide with three of the university's geology professors just two weeks after the event . In 1961, John moved to Palo Alto, Calif., where he entered specialty training in psychiatry at Stanford. In 1964, he moved to Lakewood, Wash., where he worked at the Veterans Hospital until his retirement in 1994. After his retirement, he and his wife, Judy, moved to the Providence Point retirement community in Issaquah, where he lived until his passing. Judy preceded John in death in 2014.

After John's retirement, his passion for geology led him into teaching . He started teaching geology classes for retirees at the Providence Point Communiversity, focusing on the geology of the Pacific Northwest. In 1994, he also started teaching geology for TELOS, a retiree program with Bellevue College's Continuing Education department. In addition to teaching geology to captive audiences in the classroom, John lead his retiree students on countless field trips around the Pacific Northwest.

John was active in several geological societies, including the Geological Society of America, the Tobacco Root Geological Society, the Ice Age Floods Institute, the Geological Society of Oregon Country, and the Northwest Geological Society (NWGS). He had been an NWGS member since 1965, and served as the Society's president in 2007. He also served as the NWGS newsletter editor from 1990 to 2008. John gave two memorable and interesting talks at the Society's monthly meetings, one on Iceland in 1993, and one on outstanding landforms and outcrops in 2005. Some of John's students have become loyal NWGS members. While attending NWGS meetings, John was commonly known to stand up at NWGS gatherings and assert that "the Northwest Geological Society is the greatest enhancement to the quality of life in the Pacific Northwest." John was also commonly overheard saying that he has lived a charmed life. No doubt all would agree, and we at NWGS were fortunate that he shared his charm with us.

Newsletter Editor Tom Bush


HOW TO FIND THE NWGS MEETING SITE IN THE PACIFIC BUILDING AT THE TALARIS CONFERENCE CENTER
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Talaris Institute
Talaris Conference Center
TALARIS CONFERENCE CENTER
Sidewalk
Parking
Talaris Way
Talaris Way
Talaris Way
Talaris Way
Pacific Building
HiveBio Community Lab
42nd Ave NE
42nd Ave NE
Talaris
NE 41st St
NE 41st St
NE 41st St
From NE 45th St
Go past 1st entrance
Turn left at 2nd (poorly marked) entrance