



NORTHWEST GEOLOGICAL SOCIETY

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

January, 2022 Newsletter

Volume 36, Number 1

January 11 Program Speaker

Zoom meeting link will be in the meeting reminder email to registered members prior to the meeting. If you are not a member, please email nwgs.secretary@gmail.com for the link.

Reservations are not needed (we may now host up to 500 participants!)

6:30pm: social hour small group break-out sessions; 7:30pm: announcements and speaker program

Speaker: Tim Walsh, Wash. Geological Survey (retired) & CREW (Cascadia Region Earthquake Workgroup), Quaternary Geologic History of the South Puget Sound and Nisqually Reach Area

Abstract: Recent mapping in the south Puget Sound Basin has demonstrated that the upper Pleistocene stratigraphy differs significantly from that exposed farther north in the Seattle area and that. Distal lacustrine advance outwash of the Vashon Drift (latest Wisconsin age) equivalent to the Lawton Clay in the Seattle area is conspicuously absent in most of the area, although anomalously young (<13,500 radiocarbon years) underlie Vashon Drift from the Nisqually Delta north to Tacoma Narrows. Fluvial and lacustrine sediments ("Olympia beds") immediately underlying the Vashon Drift range in age from ~33kya to radiocarbon-infinite. Pre-Olympia sands bearing tephra correlated to tephra of about 100kya and 200kya are interbedded with and underlain by glacial gravels (conspicuously lacking till) of both mixed and volcanic provenance. This suggests that glacial and nonglacial sediments of at least the last seven oxygen isotope stages are exposed above sea level. A pre-Olympia silt in this section that is reversely magnetized probably represents an excursion (Blake Reversed Subchron?) rather than Matuyama.

Reconnaissance mapping along the bluffs of the lower Nisqually River identified a sequence of gravel, sand, silt, clay, and diamicton dominated by volcanolithic clasts of Mt. Rainier or other Cascade Range source that can be traced to within one mile of Puget Sound. Paleocurrent indicators suggest a southerly source. Some boulders are glacially striated, suggesting that these sediments are, at least in part, Cascade (Mount Rainier) source alpine drift, and are interbedded with lahar deposits, lake sediments and alluvium. Large boulders (up to 8 ft. in diameter) near the base of the section are deeply weathered (notches with chisel end of hammer to a depth of at least several inches), although most cobbles and boulders have weathering rinds <1mm; this suggest both Late Pleistocene and early Pleistocene drifts (Colman and Pierce, 1981, U.S.G.S. Professional Paper 1210). We tentatively suggest correlations to Hayden Creek (stage 6?) and the apparently much older Wingate Hill or Logan Hill Drifts, which have not previously been recognized within 15 miles of here but which are widespread in the upper Nisqually and Cowlitz drainages. The upper part of this sequence is the prolific aquifer that supplies most of the municipal water in the Olympia area.

Farther south, between Tenino and Rainier, previous workers mapped an older drift, largely on the basis of greater erosion than the Vashon (OIS 2) ground moraine to the north. Lea mapped an older end moraine near Tenino and tentatively correlated it to Double Bluff Drift (OIS 6). The drift near Tenino is indeed pre-Vashon but the relatively eroded drift farther north is Vashon that was extensively modified by ice-marginal drainage shortly after glacial maximum. The steady, rapid retreat of the Vashon ice front resulted in construction of extensive unmatched terraces formed by streams bounded on one side by ice and cutting into moraine deposits on the other. The stream that deposited one of these terraces was probably fed by a glacial outburst flood (Tanwax flood of Pringle and Goldstein, 2002), that deposited abundant ice-rafted boulders as large as 2 to 3 ft in diameter in the Deschutes River valley and formed kettles near Offutt Lake. Mima Mounds in this area are confined to the terrace underlain by Tanwax Flood deposits.

JOIN THE PROGRAM VIA ZOOM! Join the program by clicking the link above. There is no cost, and a reservation is not needed. You may join for both the social hour and the speaker program, or just the speaker program. During the speaker presentation, your microphone will be muted by the program host, but it is your option as to whether or not to mute your camera. A Q&A session will follow the presentation. During the presentation, click the Chat link at the bottom of the screen to type a comment or question to the general audience, or the Raise my hand link to directly ask the speaker a question or make a comment and the host will call on you.

Click on the Zoom link above to join the meeting

See www.nwgs.org for the full Zoom information.

Upcoming Speakers and Field Trips

February 8: TBA

March 8: Kelsay Stanton, Topic TBA.

April 12: TBA

May 10: TBA

If you would like to volunteer to give a talk or lead a field trip for NWGS, please contact President [Matthew Porter](mailto:Matthew.Porter@nwgs.org).

Please see the [NWGS website](http://www.nwgs.org) for detailed announcements

Contact webmaster [Julie Masura](mailto:Julie.Masura@nwgs.org) if you have any announcements to post on the website.

Announcements

- NWGS has a new, modern website! You can now update your membership, access publications, and more at www.nwgs.org! Check it out!
- Tom Williams, Williams GeoAdventures (<https://www.geology-adventures.com/>), is leading his Scotland and Italy Dolomites trips again in 2022 (independent of NWGS).
- Tom Williams also has a second Grand Canyon raft trip available Aug 11-18, 2022. Contact him at the GeoAdventures website above if interested.
- Next Board Meeting:** Tues., Jan. 11, 5:30pm via Zoom.

NWGS needs great people like YOU!

Photo Spotlight



Chimney Rock looking southeast, Capitol Reef National Park, is one of the park's most iconic landmarks. It is composed of siltstone and mudstone red beds of the Triassic Moenkopi Formation, capped by the resistant basal Shinarump Conglomerate of the Triassic Chinle Formation. T. Bush photo.

About NWGS

The [Northwest Geological Society](#) is a non-profit educational organization which provides a forum for information and discussion on Northwest geology and related topics. The Society sponsors talks by leading academic and professional geologists at its monthly meetings, conducts field trips to locales of regional geologic interest, and publishes meeting summaries and field guides based on those activities. Membership is open to anyone interested in regional geoscience issues. **Program meetings** are the 2nd Tuesdays, October through May. **Until we are able to meet in person again, meetings will be held via Zoom (link sent via email to members; nonmembers contact the NWGS Secretary). Anyone may attend the speaker the speaker program at no cost, and a reservation is not necessary.** **Field trips (members only):** The Society sponsors two overnight field trips each year, in the fall and the spring, to locales of regional geologic interest. **(Suspended pending pandemic recovery.)** **Membership** is open to anybody with an interest in geology. **Annual dues:** Professional: \$55; Student: \$10. **To join or pay annual dues:** go to www.nwgs.org, or mail a check or money order to Northwest Geological Society, 4616 25th Ave NE #397, Seattle, WA. 98105. Please include your

Recommended Readings

Colman, S.M.; Pierce, K.L., 1981, Weathering rinds on andesitic and basaltic stones as a Quaternary age indicator, Western United States, U.S. Geological Survey Professional Paper, 1210, 56 p.

Pringle, P. T.; Goldstein, B. S., 2002, Deposits, erosional features, and flow characteristics of the late[1]glacial Tanwax Creek–Ohop Creek Valley flood—A likely source for sediments composing the Mima mounds, Puget Lowland, Washington [abstract]: Geological Society of America Abstracts with Programs, v. 34, no. 5, p. A-89.

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 [Chris Kimmel](#).

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