# NORTHWEST GEOLOGICAL SOCIETY

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

## *November, 2025 Newsletter*
**Volume 39, Number 7**


## November 11 Program Speaker (New meeting location-see below!)

**5:30pm: No-host social hour; 6:30pm: Dinner**
**7:30pm: Speaker program (reservations here, see below for details)**

**Speaker:** Anna Ledeczi, 5th Yr PhD Student, UW Earth & Space Sciences
**Title:** Structure and Properties of the Cascadia Plate Interface
**Abstract:** The Olympic Subduction Complex (OSC) in the central Olympic Mountains is a deeply exhumed continuation of the offshore modern accretionary wedge of the Cascadia subduction zone. Metamorphic grade and thermochronology reveal that the OSC's central core likely accreted by underplating at seismogenic depths. We characterize a previously unknown ~450-m-wide belt of block-in-matrix mélange containing an anastomosing system of fault strands, which in turn include discrete principal slip surfaces consistent with brittle-frictional, likely coseismic, deformation. The lithologies are deep marine turbiditic sandstones and mudstones without other elements of ocean plate stratigraphy. Raman spectroscopy of carbonaceous material refines peak paleotemperatures to 260-280 °C, consistent with exhumation from seismogenic zone conditions. We interpret these structures as a composite fault zone that records both fast slip and slow distributed deformation during the seismic cycle through coeval coseismic brittle-frictional and interseismic viscous deformation. The mélange formed by granular flow, pressure solution, alignment and growth of phyllosilicates, and crystal plastic deformation, while the fault strands are dominated by concentrated cataclasis, brecciation, and veining. We interpret this fault zone as an exhumed paleomegathrust interface, the first direct analog for the modern Cascadia subduction zone. The absence of basalt indicates that the megathrust fault was localized within the incoming plate stratigraphic sequence, facilitating sediment underthrusting, similar to offshore structures observed via seismic reflection imaging in Cascadia and elsewhere today. This exposure presents an exhumed model for plate interface systems hosted entirely in sedimentary rock even at mid-seismogenic depths. It is therefore a revealing potential analog useful in constructing models of seismogenic zone deformation and rupture processes.

### IN-PERSON PROGRAM DINNER RESERVATIONS!

**Cost:** NWGS member dinner: $40; Non-member dinner: $50; Student dinner: $10; Talk-only: $10; Student talk-only: free
**To register for attending in-person:** please **make your reservation here** (nwgs.org/meeting-registration/) by the Thursday prior to the meeting.
**Catered menu**: Our menu is still in the works as we work on the details of our next meeting at this new location, but it no doubt will be satisfying for all.

➡ **New Location:** Hotel 116, 625 116th Ave NE, Bellevue, WA. 98004 (**Google Maps driving directions**). Park in the hotel parking area, enter near or through Woods Coffee to a small lobby, then up the stairs to the ballroom.

## Upcoming Speakers and Field Trips

**Dec 9**: Kathleen Goodman, WSP, Ophiolites on Cypress Island.
**Jan 13**: TBD
**Feb 10**: TBD
**Mar 10**: TBD
**Spring Field Trip**: Jim Miller & Kathy Troost, Olympic Peninsula landslide and eroding terrace at Rialto Beach, April 10-12.

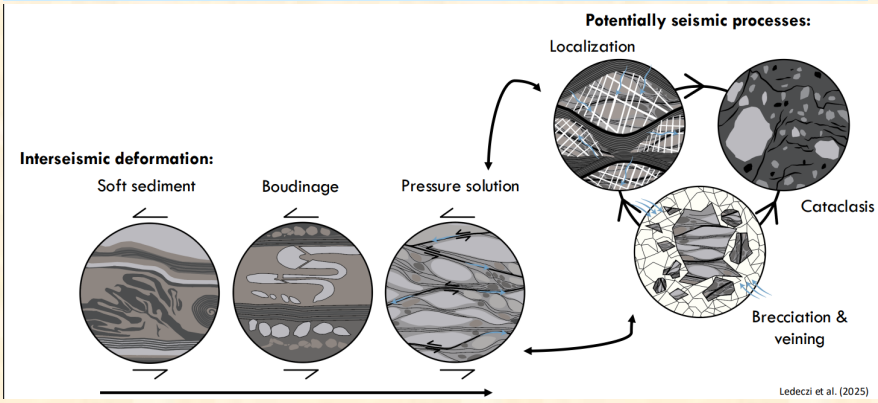
If you would like to volunteer to give a talk or lead a field trip for NWGS, please contact President David Boyer.

*Please see the NWGS website for detailed announcements.*
*Contact webmaster Matthew Porter if you have any announcements to post on the website.*

## Announcements

- Several **Board members are still seeking replacements**, including Secretary, Treasurer, and Newsletter Editor. Please contact President David Boyer or the Board member directly for more information. Shared governance is critical for the continued viability of our organization.
- Field trip coordinator Kathleen Goodman is working on a field trip to **Cornwall & Devonshire** and possibly **Wales** in the summer of 2027. Please contact her to be put on her list of interested folks. No payment is required yet, cost TBD.
- Be ready to join an amazing **field trip to the Olympic Peninsula** led by Jim **Miller and Kathy Troost**, April 10-12, 2027, where they are monitoring "a really cool landslide" and will visit an eroding terrace at Rialto Beach.
- Next **Board of Directors meeting**: Tuesday, **November 4**, 6:00 pm via Zoom. Members are welcome to attend. Please email nwgs.secretary.com for the Zoom link.

## Photo Spotlight




Prograde, interseismic deformation is a sequence of (bottom from left to right) soft sediment deformation, formation of block-in-matrix fabric, and slip and pressure solution along shear surfaces and phyllosilicate growth. Meanwhile, potentially seismic processes like localization, cataclasis, and brecciation and veining overprint and cycle with interseismic processes. Modified from Ledeczi and others, 2025.

## 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 at the Fauntleroy YMCA in West Seattle, 9140 California Ave SW, WA. 98136. Reservations are required to attend in-person (Member dinner: $40; Non-member dinner: $50; Student dinner: $10; Talk-only: $10; Student talk-only: free).

**Field trips (members only):** The Society sponsors two overnight field trips each year, one in the fall and one the spring, to locales of regional geologic interest.

**Membership** is open to anybody with an interest in geology. **Annual dues**: Professional: $55; Student: $10. **To join or pay annual dues**: go to the NWGS website, or visit our website for more details. We look forward to seeing you soon!

## Board of Directors

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|---|---|
| President | David Boyer, Weyerhaeuser |
| President Elect | Jackson Lundgren, AESI |
| Past President | Maria Parente, Pierce County Library |
| Secretary | Amy Knudson |
| Treasurer | Pam Osterhout, Floyd I Snider |
| At-Large Board Members | Tom Bush, Pierce College Puyallup<br>Tom Colligan |

## Recommended Readings

**Ledeczi, A.M**, Tobin, H.J., Chen, T.W., Mulcahy, S.R., and Condit, C.B., 2025, Structure and properties of the Cascadia plate interface: Evidence from a newly described exhumed paleomegathrust in the Olympic Subduction Complex, GSA Bull., https://doi.org/10.1130/B38335.1.

Cunetta, N. S., Mulcahy, S. R., Schermer, E. R., and Smit, M. A., 2025, Early Jurassic subduction initiation recorded in the Easton metamorphic suite, Northwest Cascades (Washington, USA), GSA Bulletin, vol. 137, pp. 4431-4450. https://doi.org/10.1130/B38167.1.

Please send your reading recommendations to Newsletter Editor Tom Bush.

## Other Personnel

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| Membership Chair | Open |
| Field Trip Coordinator | Kathleen Goodman, WSP |
| Newsletter Editor & Publications | Tom Bush, Pierce College Puyallup |
| Webmaster | Matthew Porter, AESI |

*To update your account information,, go to NWGS.org/membership.*
*Questions or comments? Contact President David Boyer.*