

# NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology  
Please browse [www.nwgs.org](http://www.nwgs.org) for more about us

## January, 2025 Newsletter

Volume 39, Number 1

### January 14 Program Speaker

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

**Speaker:** Paula Burgi, USGS Mendenhall Postdoctoral Fellow

**Title:** The role of satellite data in modeling and monitoring earthquake-induced building damage and ground failure

**Abstract:** With the exponential increase in earth-observing satellites and other remote sensing systems in the last several decades, remote sensing data has provided unprecedented insight into a wide range of earth properties and processes. But, it can be difficult to sift through this enormous trove of data to find the most relevant or useful data for a particular application. In the first part of this talk, I will give an overview of the available remote sensing data that is relevant to geologic hazards, and in particular, ground failure. I will discuss the differences between observation systems, including active and passive observation, data gathering schemes, and signal bandwidth(s), followed by a discussion of the different types of signals we can extract from these observation systems. In the second part of this talk, I will dive more deeply into a particular remote sensing technique called InSAR (Interferometric Synthetic Aperture Radar) and discuss how it can be used to detect building damage and ground failure following an earthquake. Specifically, I will present my preliminary research results that explore the utility of pre- and post-earthquake InSAR coherence measurements to identify regions exhibiting surface property changes that we can use as a proxy for damage and failure.

### 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/](http://nwgs.org/meeting-registration/)) by the Thursday prior to the meeting.

**Catered menu:** Appetizer: samosas (df, veg) (gf available); Dinner: tandoori chicken (gf, df), vegetable bryani (gf, df), cod tikka masala (gf, df), butter chicken (gf), vegetable curry (vegan), naan (gf available); Dessert: assorted cookies.

**Location:** Fautleroy YMCA next to the Fautleroy UCC Church, West Seattle, 9140 California Ave SW, Seattle, WA. 98136. Use the parking lot on the north side of the building. Get [Google Maps driving directions here](#).

**Cost:** NWGS member dinner: \$40; Non-member dinner: \$50; Student dinner: \$10; Talk-only: \$10; Student talk-only: Free

### Upcoming Speakers and Field Trips

**February 11:** Ken Petrie, Senior Geologist, Weyerhaeuser, Carbon Capture and Sequestration Overview

**March 11:** Trenton Cladouhos, PhD, Quaise Energy, Super Hot Rocks and Geothermal Energy

**April 8:** Baptiste Journaux, Assistant Research Professor, UW, topic TBD

**May 13:** Akshay Mehra, Assistant Professor UW, Field based sedimentology and AI

**Spring FT:** George Bennett, Kurt Siegfried, and David Boyer, Cascade Quarry and Proctor Creek Mines near Gold Bar, WA., late April/early May

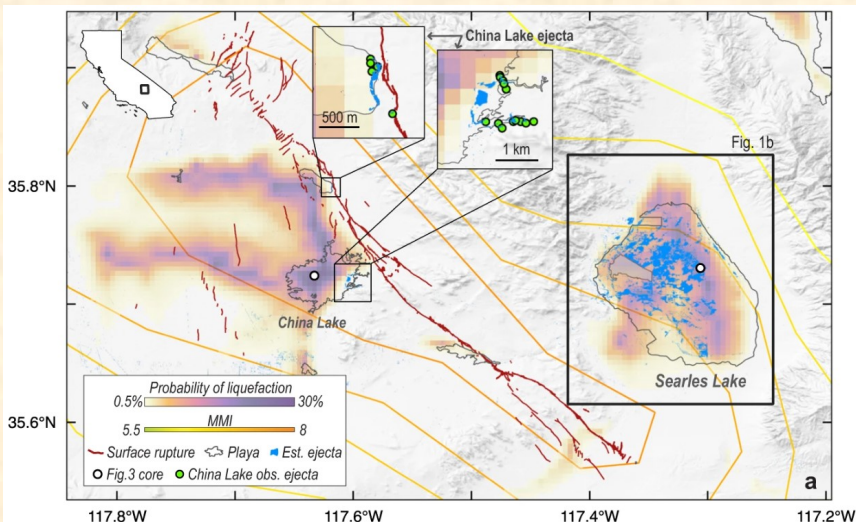
If you would like to volunteer to give a talk or lead a field trip for NWGS, please contact President [David Boyer](#).

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

## Announcements

- Please notice below that there is still **several Board positions** open. These include the critical **President Elect** position. This position is generally filled at the end of the calendar year and is essential for the smooth functioning of our gatherings. The primary responsibility is to start lining up speakers starting in a year, so it does not require a large time commitment. Please contact President [David Boyer](#) or any Board member for more information. Shared governance is critical for the continued viability of our organization.
- The **spring field trip** will be a visit to the **Cascade Quarry and Proctor Creek Mines** near Gold Bar, led by George Bennett, Kurt Siegfried, and David Boyer. The Cascade Quarry is a hard rock operation and has some excellent exposures along several benches. Proctor Creek Quarry is both a sand and gravel and hard rock operation. There is an excellent outwash exposure in the quarry (that is currently being mined) and there will be drill core and outcrop to look at that is related to the hard rock portion of the mine that is being permitted.
- The **COLDEX Center for Oldest Ice Exploration** is looking for student applicants for its NSF 2024 Research Experience for Undergraduates (REU) program. NSF COLDEX REU students are financially supported to present their research at TWO scientific meetings!. For more information and to apply, please visit [COD-LEX NSF REU](#).
- **Next Board of Directors meeting:** Tuesday, **January 7**, 6:00 pm via Zoom. Members are welcome to attend. Please email [nwgs.secretary.com](mailto:nwgs.secretary.com) for the Zoom link.

## Photo Spotlight



Ground failure triggered by the  $M_w$  7.1 2019 Ridgecrest, California, earthquake. Regional context, showing the U.S. Geological Survey (USGS) liquefaction prediction model and ShakeMap contours<sup>3</sup>, optically derived change detection using Sentinel-2 data (i.e., estimated ejecta), fault surface rupture<sup>4</sup>, and present-day playsas<sup>64</sup>. The dots show locations of the two geologic cores shown in Fig. 3a<sup>23</sup>. Insets show two areas with surface ejecta in more detail, with field observation of ejecta (i.e., observed ejecta) shown as green dots. From Burgi, and others, 2024 (cited below).

## 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 2<sup>nd</sup> 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 in 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!

## Recommended Readings

**Paula Madeline Burgi, Eric M. Thompson, Kate E. Allstadt, Kyle Dennis Murray, Henry (Ben) Mason, Sean Kamran Ahdi, Devin Katzenstein, 2024,** The influence of anthropogenic regulation and evaporite dissolution on earthquake-triggered ground failure, DOI [10.1038/s41467-024-46335-3](https://doi.org/10.1038/s41467-024-46335-3).

**Tolga Görüm, Hakan Tanyas, Furkan Karabacak, Abdüssamet Yilmaz, Serkan Girgin, Kate E. Allstadt, M. Lutfi Suzen, Paula Madeline Burgi, 2023,** Preliminary documentation of coseismic ground failure triggered by the February 6, 2023 Türkiye earthquake sequence, DOI [10.1016/j.enggeo.2023.107315](https://doi.org/10.1016/j.enggeo.2023.107315).

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

To update your account information,, go to [NWGS.org/membership](https://nwgs.org/membership).  
Questions or comments? Contact President [David Boyer](#).

## Board of Directors

**President** [David Boyer](#)  
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**Newsletter Editor & Publications** [Tom Bush](#)  
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