



NORTHWEST GEOLOGICAL SOCIETY

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



October, 2018 Newsletter

Volume 32, Number 6



October 9 Program Speaker

Speaker: Trenton Cladouhos, AltaRock Energy, Inc.

Title: Geothermal Energy: Past, Present, & Future

Abstract: Geothermal energy was first used to generate electricity over 100 years ago in Italy. Currently, the US is the biggest producer of baseload geothermal power, about 3500 MW, mostly in California and Nevada. That represents just 0.3% of the US generation. In smaller nations with relatively more volcanic activity, such as Kenya, Iceland, and the Philippines, the share of generation is above 25%. The limit to growth of geothermal power is not limited to difficulty finding the heat source, because everywhere on earth, there is heat below our feet. Rather, it is rare to find permeability anomalies that allow naturally-convecting hydrothermal systems to bring the heat near the surface. In these rare areas, wells can produce over 2000 gpm of hot water and generate 3 MW or more of electricity per well. Significant expansion of geothermal power will require technologies that can create permeability and an Enhanced (or Engineered) Geothermal System (EGS). An EGS can be created in rocks of any temperature, but the most economic approach may be to drill into super-hot rocks and produce supercritical water (>375 C).

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](#)



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 (see map p. 3): 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).

Upcoming Speakers and Field Trips

October 6 field trip: Tom Doe, Earth Hazards at Whidbey Island (a repeat of his February symposium field trip)

November 13: Seth Moran, USGS, Glacier Peak

December 10: Darrel Cowan, UW ESS (retired), [Roadside Geology of Washington](#)

May, 2019 field trip: Jim O'Connor, Missoula Floods terrain (tentative).

June 26-July 5 (tentative), 2019: Tom Williams, [GeoAdventures](#), Dolo-Slovo Rocks!, northern Italy/Slovenia (see Announcements on p. 2 for cost and registration details).

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

Please see the [NWGS website](#) for detailed announcements.

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

Announcements

- NWGS needs a **President-elect** right away. Please consider contributing your time and talent to our fabulous organization. The President-elect becomes President in 2019, but speaker and field trips are already lined up. Primary duties include Fall, 2019 speakers and running Board meetings starting in January.
- To be put on the **waiting list** for Tom Doe's **fall field trip** (10/6), Earth Hazards at Whidbey Island, please contact [Kathleen Goodman](#) immediately (cost: \$100 if you get in).
- Deadline to register and pay the \$800 deposit for the *Dolo-Slovo Rocks!* field trip is October 1!** Please send your deposit (personal or cashier's check only) to Williams GeoAdventures, 101 Ross St, #4, Cotati, CA. 94931 or use [Venmo](#). Balance of \$3150 is due April 1, 2019. For more information, contact [Kathleen Goodman](#) or Tom Williams at 707-953-6979.
- Next Board of Directors meeting: Oct. 9, 4:30PM, Talaris Conference Center.**

Photo Spotlight



Photo of pipeline and 700 HP, electric motor driving a line-shaft pump set at 1700 ft below ground surface. The pump produces 2000 gpm of 320 F water. It is one of 6 pumps at Blue Mountain Geothermal Field, a 29 MWnet power plant 30 miles west of Winnemucca, NV.

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: \$42; 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

Gladouhos, T. T., Petty, Susan, Bonneville, Alain, Schultz, Adam, Sorlie, Carsten, 2018, Super Hot EGS and the Newberry Deep Drilling Project, PRECEEDINGS, 43rd Workshop on Geothermal reservoir Engineering, Stanford University, Stanford, California, February 12-14, 2018, 13 p, sgp-tr-219, <https://pangea.stanford.edu/ERE/pdf/IGastandard/SGW/2018/Cladouhos.pdf>.

Cladouhos, T. T., Uddenberg, M. E., Swyer, M. W., Petty, Susan, and Nordin, Yini, 2015, Production Well Targeting at Newberry Volcano EGS Demonstration, GRC Transactions, Vol. 39, pp. 270-278, <http://pubs.geothermal-library.org/lib/grc/1032160.pdf>.

Swyer, M. W., Uddenberg, M.E., Nordin, Yini, Cladouhos, T. T., and Petty, Susan, 2016, New Injection Strategies at Blue Mountain, Nevada Through Tracer Test Analysis, Injection-Production Correlation, and an Improved Conceptual Model, PROCEEDINGS, 41st Workshop on Geothermal Reservoir Engineering, Stanford University, Stanford, California, February 22-24, 2016, SGP-TR-209, <https://pangea.stanford.edu/ERE/pdf/IGastandard/SGW/2016/Swyer.pdf>.

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 [Tom Colligan](#).

NWGS Board

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**HOW TO FIND THE NWGS MEETING SITE IN THE
PACIFIC BUILDING AT THE TALARIS CONFERENCE CENTER**

