

# 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



## October 2012 Newsletter

Volume 26, Number 6



### October 9 Program Speaker

**Speakers:** Paul Kennard, Regional Geomorphologist, Mt. Rainier National Park, and Chris Magirl, Research Hydrologist, U.S. Geological Survey, Tacoma

**Title:** Goats to geoducks: Landscape response to climate change from the summit of Mount Rainier to Puget Sound

**Abstract:** Mount Rainier is an active volcano, and is considered the most dangerous mountain in the United States, because of its proximity to major cities. However, it is the more "everyday" risks such as floods, debris flows, and river aggradation (or filling) that are posing unprecedented challenges to people and roads at Mount Rainier National Park, and to the downstream communities.

Because of vast amounts of sediment sloughing off the mountain, Mount Rainier's rivers are aggrading - that is, the river beds, on average, are rising by natural processes. Recent aggradation has more than doubled in the last 10 years (to over 3 feet/decade). This means that for the same size storms, the flood potential is ever increasing, since the "capacity" of the river channel is reduced, as the channels fill in.

Ongoing glacial recession has exposed large volumes of oversteepened and very unstable sediment, promoting increased numbers of debris flows, compounding the flooding problems. Debris flows are destructive, sediment-laden slurries that move downhill by gravity. In areas affected by debris flows, large rivers near developed areas have aggraded an astounding 38 feet since 1910, and almost 6 feet in a single year. The park has had at least 16 debris flows since 2001, and there were multiple debris flows in 3 streams that had not had debris flows in hundreds of years. In 2006, there were 10 debris flows in two days, resulting in extensive damage to park roads and campgrounds, and closing the Park for 6 months.

To add insult to injury, climate change is expected to increase storminess, and further escalate debris flows and flooding. Stream flow records at Mount Rainier show a striking rise in the occurrence of large floods. Specialists predict further increases, as glaciers continue their rapid retreat due to global warming, making this a major management concern at Mount Rainier National Park.

**PROGRAM DINNER RESERVATIONS:** NWGS members: **\$40**; Non-members: **\$45**; Full-time students : **\$20**. \$45 for LATE REGISTRATION. Make your reservation and payment on-line at [www.nwgs.org](http://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 [Dan Smith](mailto:Dan.Smith@nwgs.org) at 206-937-5313 or [nwgeo@yahoo.com](mailto:nwgeo@yahoo.com).

*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](http://www.talaris.com), 4000 NE 41st St., Seattle, WA. Ph 206-268-7000. **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.

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](#)



### Upcoming Speakers and Field Trips

November 13: TBA.

December 11: TBA

January 8: TBA

February 12: TBA

March 12: TBA

Spring, 2013 Field Trip: TBA.

Fall, 2013 Field Trip: TBA

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

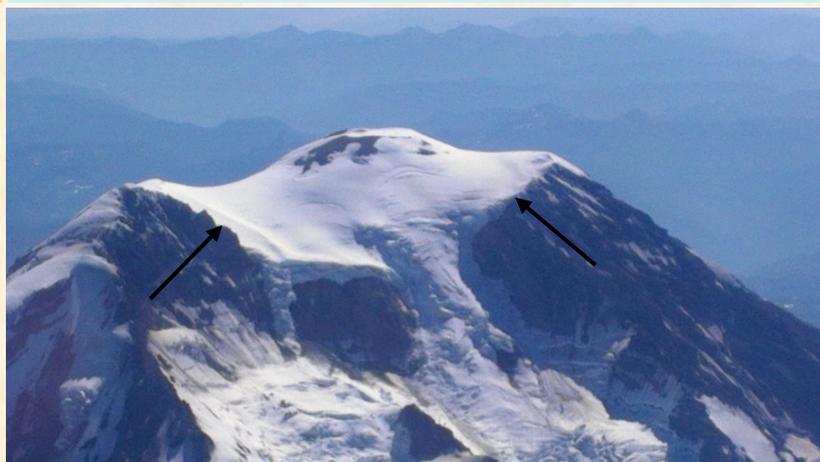
Contact webmaster [Julie Masura](mailto:Julie.Masura@nwgs.org) if you have any announcements to post on the website.

## Announcements

- The 25-year Anniversary Symposium is scheduled for **May 3-5, 2013 at the University of Washington**. More information will be coming out soon. Please mark your calendar!
- Please submit your suggestions for speakers or field trips to President Elect **[Kathy Troost](mailto:troostgeology@comcast.net)** ([troostgeology@comcast.net](mailto:troostgeology@comcast.net))
- NWGS Historian **[Donn Charnley](mailto:donncharnley@frontier.com)** requests any pre-1980s NWGS information. Contact him at [donncharnley@frontier.com](mailto:donncharnley@frontier.com) or 206.546.3868.
- **Next Board meeting: October 9, 4:30 P.M., Talaris Conference Center.**

*YOU would like to be involved!*

## Photo Spotlight



The summit of Mt. Rainier looking roughly east from a commercial airliner. The view shows the rim of a crater (arrows) produced by an eruption approximately 5,000 yrs B.P., which also produced the Osceola lahar that inundated the White River valley and southeastern portions of the Puget lowland. The summit (within the crater) is a resurgent volcanic dome built subsequent to the eruption. Although lahars pose a threat to property and lives downslope, much more frequent but smaller volume climate-change-induced debris flows and other effects create great challenges as well. Photo by T. Bush, 15 July, 2012.

## 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:** 2<sup>nd</sup> Tuesdays, October through May in the Pacific Dining Hall at the **[Talaris Conference Center](#)** in Seattle (see 1<sup>st</sup> page). Anyone may attend the speaker program, but a reservation is necessary for those wanting dinner (see 1<sup>st</sup> 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 **[Dan Smith](#)**, 10203 40<sup>th</sup> Ave SW, Seattle, WA. 98146. Please include your name, address, home phone, email, and employer/affiliation (if any). Professional dues may now also be paid at [www.nwgs.org](http://www.nwgs.org).

*YOU would like to be involved!*

## Recommended Readings

Pringle, P. T., 2008, **[Roadside geology of Mt. Rainier National Park and vicinity](#)**, Washington Department of Natural Resources Information Circular 107, 200 p. (purchasing or downloading information is available at [http://www.dnr.wa.gov/ResearchScience/Topics/GeologyPublicationsLibrary/Pages/pub\\_ic107.aspx](http://www.dnr.wa.gov/ResearchScience/Topics/GeologyPublicationsLibrary/Pages/pub_ic107.aspx)).

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 Secretary **[Dan Smith](#)** at 206.937.5313. Questions or comments? Contact President **[Julie Masura](#)**.

## NWGS Board

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