



NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology
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January, 2011 Newsletter

Volume 25, Number 1

January 11 Program Speaker

Speaker: Darrel Cowan, UW Earth and Space Sciences

Title: Active, possibly seismogenic, low-angle normal faults, Death Valley, California

Abstract: Death Valley, California, is a NNW-striking half-graben that is extending due to slip on active west-dipping normal faults along its eastern edge. The fault system includes gently dipping segments, which are popularly called *low-angle normal faults* or *detachment faults*. The hanging walls consist of upper Quaternary debris-flow and alluvial-fan strata; the footwalls are Proterozoic gneiss and carbonate rocks. We investigated the fault rocks developed along the detachments, which dip 19° - 30° , and relate their origin to total shear strain that increases upward to the principal slip surface. We present evidence that slip has occurred on the detachment faults, while they were at their present gentle dips, since about 120 Ka. We infer that the typical steep scarps at the mountain front, which all would interpret as having formed during earthquakes, indicate that the detachments are active. We hypothesize that seismic slip can nucleate on the detachments beneath Death Valley at seismogenic depths.

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.

PROGRAM DINNER RESERVATIONS: NWGS members: **\$35**; Non-members: **\$40**; Full-time students : **\$15**. Add \$5 for LATE REGISTRATION. Mail check to Ginny Agnew, 935 Pine St., Edmonds, WA. 98020 (must be received by Thursday prior to meeting). Contact her at 425-776-6151 or agnewv@msn.com.

If attending the speaker program only, a \$5 voluntary donation to help defray the meeting room cost is "required."

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.

Upcoming Speakers and Field Trips

February 8: Pat Pringle (Centralia College), topic TBA.

March 8: Sian Davies-Vollum (UW Tacoma Environmental Science Program), Making a Mudrock Sandwich.

April 12: Deb Kelly (University of Washington School of Oceanography), topic TBA.

May 10: John Dilles (Oregon State University) The Demise of Economic Geology

Spring, 2011 FT: TBA

Fall, 2011 FT: TBA

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

Contact webmaster Julie Masura if you have any announcements to post on the website.

Announcements

- 2011 dues are due! Please send your dues to Dan Smith (see **About NWGS** below).
- Congratulations to **John Balla**, whom membership approved at the December meeting as the next NWGS **President-Elect**!
- The NWGS Board recently approved a motion to hold a **25th anniversary symposium** on a non-football weekend in October of 2012 at UW campus. [Lars Gilmour](#) will chair the steering committee, so please contact him regarding how **you** would like to be **involved** in the preparations. Many tasks require *minimal time commitments*!
- NWGS open positions: **Poster Coordinator** and **Treasurer**. Please contact President [Julie Masura](#) to volunteer.
- NWGS needs your suggestions for 2011 **field trips**! Please contact Field Trip Coordinator [Greg Ferris](#) with your suggestions.
- **Happy Holidays** from the NWGS Board and Treasurer! See you in 2011.

Photo Spotlight



Photo of the Badwater Turtleback detachment fault, Death Valley, California. Photo submitted by D. Cowan.

Your geology photo submissions (~1MB) with captions are appreciated. Please email to Newsletter Editor [Tom Bush](#)

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.

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: \$30; Student: \$5. **To join or pay annual dues:** send a check payable to NWGS to Secretary [Dan Smith](#), 10203 40th Ave SW, Seattle, WA. 98146. Please include your name, address, home phone, email, and employer/affiliation (if any).

Recommended Readings

Bjornerud, Marcia, 2005, [Reading the rocks: the autobiography of the Earth](#), Cambridge: Westview Press , 237 p. (ISBN: 081334249X).

Hayman, N. W., Knott, J.R., **Cowan, D.S.**, Nemser, E., and Sarna-Wojcicki, A.M., 2003, Quaternary low-angle slip on detachment faults in death valley, California: *Geology*, v. 31.

Lord, Nancy, 2011, [Early Warming: Crisis and Response in the Climate-Changed North America](#), Counterpoint Press, Berkeley, 256 p (to be released January 11).

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](#).

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