



THE GEOLOGICAL NEWSLETTER

"NEWS OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY"

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The Geological Society of the Oregon Country

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www.gsoc.org

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VISITORS WELCOME AT ALL MEETINGS

CALENDAR

SEPTEMBER/OCTOBER ACTIVITIES

Friday evening talk, September 9, 2011, at 7:30 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University. Speaker Douglas W. Larson, limnologist and writer living in Portland, will present "Saving Lake Abert".

For more information about Larson's life and work on Lake Abert and other lake ecology studies, see Oregonlive.com article from February 2011, Craterlakeinstitute.com, Craterlakeinstitute.com and Americanscientist.org articles. Also see the December 2007 issue of *The Geological Newsletter* for "Doug Larson Gives GSOC a Tour Of Lake Origins," an article about a previous lecture to GSOC by Mr. Larson.

Join GSOC members at **Pizzicato Pizza, 1708 SW 6th Ave.**, at **6:00 p.m.** before the lecture for an informal dinner and conversation.

Free parking is available at Portland State University **Friday** nights after 5 p.m. in Parking Structure 2 on Broadway Ave. directly across from Cramer Hall and on level one of Parking Structure 1, bounded by Broadway and 6th Aves. and Harrison and Hall Streets.

Friday evening talk, October 14, 2011, at 7:30 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University. Speaker Roger Denlinger, USGS Cascades Volcano Observatory, will present "Catastrophic inundation and slow drainage: the story of the Missoula Floods".

Denlinger will present his computer model of the outburst floods from Pleistocene glacial Lake Missoula,

and compare the results to field observations of the actual results of the floods. For a recent article about the models, see Oregonlive.com.

FUTURE ACTIVITIES

Friday evening talk, November 11, 2011, at 7:30 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University. Speaker Scott Burns, Portland State University professor of Geology, will present “Our National Parks”.

Friday, December 9, 2011, will be the night of the 3rd Annual GSOC Christmas Party. The party will be held in lieu of the December Friday night meeting and attendance will be limited to GSOC members and their guests. The location will be at the Simon Benson House on the Portland State University campus. The program will include slide shows of this year’s field trips, food dishes-to-share as provided by the attending members, and music. Donations to help cover the venue rental are being accepted by GSOC Treasurer Richard Bartels. Food and other contributions to the event will be coordinated by GSOC Director Anne O’Neill.

Check the GSOC website (www.gsoc.org) for updates to the calendar.

BOARD MEETING NOTES

July 17, 2011

The meeting was called to order by President Rik Smoody at the home of Dave Olcott who graciously offered his home when today’s annual picnic was rained out. Board and GSOC members present also included Paul-Edison Lahm, Richard Bartels, Bev Vogt, Julia Lanning, Dawn Juliano, Anne O’Neil, Larry Purchase, Carol Hasenberg, Janet Rasmussen, and Jan Kem. The minutes of the June 11, 2011 board meeting were approved.

Treasurer’s report: Bart reported the current account balances to the board. Report was approved.

Field Trips

Janet recapped her successful Central Oregon Coast trip. Paul announced that the planning for “Downtown Portland Geology” walk is coming

along well. He will write a thank you letter to Doug Magedanz of the Architectural Heritage Center for the gift of two pieces of Meier & Frank “Georgian Room” marble and send a link to the “Virtual Tour” for the GSOC website. Rik announced that the President’s field trip planning is also moving apace. Rik has booked Pat Pringle for Friday and Chris Magril for the White River Saturday, but is still looking for an expert for Sunday. Additional campground information will be covered in the newsletter.

Old and New Business

Business manager report: Jan announced that the projector is now being kept at Bart’s house. Since Jan is going on vacation, Assistant Business Manager Ann will do the newsletter for September and October.

Mugs: Carol reports that the GSOC mugs should arrive next week. A consensus was not reaching on mug pricing and that question was tabled.

Website/Internet committee: Rik has found the answer to the question: where do we keep our online data (job duties, newsletter copies, inventory list, membership list, etc.): Google docs. Motion approved to port these documents to Google docs and report back to the board at the next meeting.

Board Votes by Email: Paul asked how the Secretary should record the results of board decisions made by email. Motion for email voting protocol approved as follows:

1. The board member who initially called the board vote by email will record the decision, the vote tally and the presence of quorum in an email tagged in the subject line. The Secretary will then upload this email to Google docs.
2. At the time of approval of the minutes at the next board meeting, the Secretary will present the email record of the vote for approval as to form only.

Carol will send an email recording the recent vote on mug design to Paul as an example.

Holiday Party (Ann): Date of party was set for December 9th, 2011 at the Simon Benson house:

- 6:30 p.m.-- Dinner/buffet
- 7:30 p.m.-- “Year in Review” in back room
- 8:30 p.m.-- Cookies/dessert.

Donations will be accepted for the room rental. Musicians are encouraged to volunteer for the Christmas chamber players. Dress code will be “dressy.”

Next Meeting date & time: **Saturday, Sept 10th, 10:00 a.m.** at the **Smooty residence.**

Meeting Adjourned.

Respectfully submitted,
Paul Edison-Lahm, Secretary

SMUG MUGS

GSOC is proudly selling its new logo mugs. The mugs feature a GSOC logo on each side of the cup, plus the statement 'Supporting Geology in the Pacific Northwest since 1935' and the website address 'GSOC.org' opposite the handle. Pricing schedule is \$7 each, two for \$13 and four for \$25. Contact Richard Bartels or Carol Hasenberg for more information.



NEWPORT AT MIDSUMMER'S WEEKEND

Synopsis of the “Tidepools, Tsunamis, and Terraces” trip lead by GSOC Past President Janet Rasmussen, June 17-19, 2011

Guest field trip guides included Alan and Wendy Niem, George Priest, Karen Driscoll, and Patrick

Breshears
by Carol Hasenberg

Another great trip planned by our wonderful social organizer Janet Rasmussen. Janet’s gift is that she includes really fun people-oriented activities in her trips without neglecting the geology and natural sciences. We owe several great trips to her organizational skills.

The trip began at Janet’s house in Corvallis on the beautiful afternoon of Friday, June 17. There was some geology there, because Janet had gotten curious about a big rock in her backyard. Turns out that this rock is of the same intrusive “massive granophyric ferrogabbro” material that constitutes nearby Mary’s Peak, the highest point in the Oregon Coast Range. The rock is harder than the surrounding Eocene Siletz River Volcanics, and so it weathers slower and sticks out.

Onward and upward. Literally, as the GSOC car caravan ascended into the Coast Range on US 20 traveling from Corvallis to Newport. The route took the participants through the Siletz River outcrops and into the arch of the Coast Range, which is dominated from the Upper Eocene/Oligocene aged marine sediments of the Tye Formation. (Those of you who went on the 2003 GSOC field trip to the southern Oregon Coast will remember that we passed through the Tye on our way down the Umpqua Valley.) At first the sediments dipped to the east as the group traveled, but then leveled off and began dipping to the west, following the arch produced by the compressive forces in the forearc region of the Cascadia Subduction Zone.

At one particularly good roadcut exposing layers of Tye arkosic sandstone alternating with crumbly shales and clays the group stopped to observe. The current explanation for these layers is that the sandstone layers, which are 3-4 feet in thickness, are the result of turbidites (underwater landslides) from sediments coming off the Klamath Mountains, perhaps set off by earthquakes, and the clayey layers represent the slow deposition of fines between the catastrophic events. The clayey layers can produce some catastrophic events of their own

as landslides plague the highway construction and maintenance efforts along US 20.

On the way into Newport the group peeled off US 20 at Toledo to take the Yaquina River route into town. Along this scenic drive the GSOCers passed the pilings of the abandoned trestle for the old Yaquina Railroad, which took a lot straighter path along the river than the road does today. Arriving along the historic waterfront area in Newport, the group ascended to Highway 101 and travelled north to Beverly Beach State Park where Janet had organized a pot luck dinner in the Group Meeting Hall.

The dinner featured a grilled salmon caught by fisherman Dave Logsdon, who was a guest of the group at the meal. It was quite a feast. The dinner was preceded by a talk from biologist Karen Driscoll describing tidepool flora and fauna that the group would be seeing the following morning in the Otter Crest marine garden's tidepools. GSOC members took in a beautiful walk on Beverly Beach with the long midsummer light of the evening.

Next morning the group woke up to a steady drizzle. Donning rain gear and warm clothing, many of the members got up early to visit the tidepools with Karen Driscoll. This was one of the lowest tides of the year and so the group got to see a lot of good stuff.

Next the group came in from the rain for a presentation by Oregon State University professor emeritus Alan Niem, with assistance by his geologist wife Wendy Niem. Niem explained that the Oregon coast is so beautiful because the sandy beaches alternate with these dramatic basalt headlands. The headlands in the Newport area include Yaquina Head, Otter Crest, and Cape Foulweather. Niem first studied these formations under the tutelage of his old mentor Parke D. Snavely, Jr.

Snavely was a supporter of the "two-vent model" of how Miocene basalt was formed on the Oregon coast. Geologists of that era knew that the Columbia River flood basalts were spreading in eastern Oregon and Washington at the same time

and with similar composition to these coastal headlands, but could not see how they could have made it overland to the ocean. So the geologists labeled these basalts as "Cape Foulweather Basalt" and thought that they arrived by travelling up the Cascadia thrust fault or similar pathway and were related to, but not the same origin as, the Columbia River Basalts. This was supported by the fact that basalt dikes were found that had fed the formations and so it was thought that these extended to the melting zone below.

Further studies of the Columbia River Basalt Group (CRB) were conducted by professor Marvin Beeson of Portland State University and several of his highly talented graduate students, including GSOC Past President Beverly Vogt. Beeson recognized that CRB traveled down the bed of the ancestral Columbia River to the coast. He decided that a "one-vent model" was more likely and that the CRB upon reaching the ocean flowed into the soft muds on the ocean floor and then spewed forth as dikes and sills by hydraulic pressure from a pool below the mud. The "Cape Foulweather Basalt" has been chemically identified as being part of the Ginkgo flow of the Frenchman Springs Columbia River Basalt.

The Niems have been further studying the basalt headlands and have fleshed in details of Beeson's idea. The Ginkgo basalt that comprises Yaquina Head is the result of the flow filling an underwater canyon, probably an outlet of the ancestral Columbia. Where the lava flowed into the water, it broke into quickly cooled fragments that were later cemented together to form the breccia that comprises the base of the headland. Atop the breccia sit monolithic flows that have either colonnade or hackly jointing patterns. Between Otter Crest and Cape Foulweather there are concentric ring dikes visible in the surf.

Between these headlands are outcrops of the Miocene-age Astoria Formation and below that the Nye Mudstone. These are susceptible to erosion and since the layers dip seaward many landslides occur. Atop these is an angular unconformity and horizontal marine terrace layers from the Pleistocene, about 80,000 years old. Erosion is a

real problem to beach-front property owners in Newport. Niem took the GSOC field trip out onto the beach and pointed out all the features in the Otter Crest area.

After a quick bite the group met former DOGAMI landslide and tsunami expert George Priest at the historic Nye Beach turnaround in Newport. Through a steady drizzle the group huddled below the remains of Jumpoff Joe, a headland comprised of the same marine terrace over Astoria over Nye. This feature has eroded dramatically over the last hundred years, and has destroyed one condo project in the recent past. Priest showed the group a landslide hazard map that DOGAMI produced to caution the citizens of Newport from getting too close to the edge of the bluff in their construction projects. Because it has negatively impacted property values in structures perched too close, it is a very sensitive document in the district.

After their all-day drenching, GSOC field trippers either retired to the nearest restaurant or hotel to warm up and dry off. Some of the campers had quite a challenge because their tents were sitting in puddles when they returned to the campground. But the ones that stayed coped with the challenges, and were rewarded with a dry day on Sunday, June 19.

The day began at Yaquina Head. The GSOC group met at the Cobble Beach marine garden area and took advantage of the low tide in the mid-morning. Folks who had been at the previous day's tidepool had tidbits of information on what to look for from Karen Driscoll's tutelage and showed other participants. The Gumboot Chiton was a particularly interesting find, and one specimen ate a

hermit crab while we observed it. Coralline algae was abundant in both encrusting and branched forms, as well as green anemone, purple urchins, and purple star. The author saw a sea pen lying with the other kelp and whatnot strewn about in the newly dried beach.

As described by Niem, the headland base was Ginkgo breccia and this was observed by the participants. The cobbles which comprised the beach were weathered out of the breccia and were extremely rounded and polished from the wave action. A bit like walking on ball bearings. A large sea stack of columnar basalt had distinct fan-shaped jointing patterns. Nesting birds crowded atop it included cormorants and common murre.

The last activity done on the trip was a tour of the NOAA research vessel Wecoma stationed in Newport and the recently opened NOAA headquarters there. Able Seaman Patrick Breshears took the GSOCers aboard for the tour, and showed them the laboratories, research and hoisting equipment, ship's engine, decks, quarters, galley and the control room. Breshears had grown up in Burns, but took to sea at a young age and loves his work.

GSOC members had a very memorable trip and wish to thank Janet and all the other guest speakers for their time and effort.

Additional Reading:

Oregon Coast National Wildlife Refuge
<http://www.fws.gov/oregoncoast/wildlife/seabird.htm#5>

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY ACTIVITIES:

ANNUAL EVENTS: President's Field Trip—Summer or Fall; Banquet—March; Annual Business Meeting—February.

FIELD TRIPS: About 4 per year. Fees: see field trip announcements on the calendar next page.

GSOC LIBRARY: Rm. 69, Cramer Hall, Portland State University. Open 7:00 p.m. prior to meetings.

PROGRAMS: Second Friday evening most months, 7:30 p.m., Rm. S17, Cramer Hall, PSU, SW Broadway at SW Mill St., Portland, Oregon.

MEMBERSHIP: Per year from January 1: Individual--\$25, Family--\$35, Junior (under 18)/Student--\$15. Membership applications are available on the website www.gsoc.org.

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TRIP LOGS: Write to the same address for names and price list.

APPLICATION FOR MEMBERSHIP THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Name _____ Spouse _____

Children under age 18 _____

Address _____ City _____ State ____ Zip _____ - _____

Phone (____) _____ - _____ Email address _____

Geologic Interests and Hobbies _____

Please indicate Membership type and include check for appropriate amount:

Individual \$25.00 _____ Family \$35.00 _____ Student \$15.00 _____

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