



THE GEOLOGICAL NEWSLETTER

"NEWS OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY"

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The Geological Society of the Oregon Country

P.O. Box 907, Portland, OR 97207

www.gsoc.org

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VISITORS WELCOME AT ALL MEETING

CALENDAR

MAY ACTIVITIES

Friday evening talk, May 8, 2009, at 8 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University: Dr. William Orr, Professor Emeritus and Curator of the Condon Collection of fossils at University of Oregon, will present "New Tools, Taxa, Techniques".

No Wednesday evening seminar is planned for May.

FUTURE ACTIVITIES

Friday evening talk, June 12, 2009, at 8 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University: Dick Pugh, the Cascade Meteorite Laboratory, PSU will discuss his work with meteorites.

Join GSOC members at **Pizzicato Pizza, 1708 SW 6th Ave.**, at 6:30 p.m. before the lecture for an informal dinner and conversation. *Note new venue!*

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

GSOC Field Trip, June 19-20, 2009: "Waste, Wind and Water; Tapping Resources East of the Cascades." Information and registration form for this trip is located on page 34 of this newsletter. See the GSOC website (www.gsoc.org) for updated information.

GSOC President's Field Trip, August 1-3, 2009, plus optional August 4: "Geology and Hydrology of the Oregon High Cascades and Deschutes Basin." Join GSOC President Carol Hasenberg, with guest field trip leaders Richard Conrey, PhD, of Washington State University, Pullman, Ken Lite, Jr., RG, of Oregon

Department of Water Resources, and Barbara Rich, Environmental Health Scientist, of Deschutes County Planning Department. On our trip we will examine the geology of the High Cascades and Deschutes Basin from Mt. Hood to Bend, the groundwater system of the Upper Deschutes Basin in the La Pine area and the Crooked River Canyon, and groundwater issues of the Upper Deschutes Basin, and visit the High Desert Museum. Some moderate hiking will be done in the Crooked River Canyon. An optional extra day trip on August 4 will be led by GSOC's own Richard Bartels and Beverly Vogt in the Newberry National Volcanic Monument.

Transportation will be by car caravan/car pool with participants making their own arrangements. The trip will begin on the morning of August 1 near Timberline Lodge on Mt. Hood. Ogden Group Campsite in Deschutes National Forest has been reserved for the nights of August 1-4. Participants wishing to lodge indoors will need to make their own arrangements for the La Pine area. We suggest the following motel:

Best Western Newberry Station, 16515 Reed Rd and US Route 97, La Pine, Oregon. The motel is 14 minutes and 6.3 miles away south west of Ogden campground. The cost for a room is \$74.95 for two queen beds. Call (541) 536-5130 to reserve a room or reserve online at:

<http://www.bestwesternoregon.com/hotels/best-western-newberry-station/>.

Seven rooms have been set-aside for August 1 to August 4 under the GSOC name. Make your reservations soon, because any remaining GSOC rooms will be released to the public on July 1. Many other week-ends are already booked up at the motel.

UPCOMING ACTIVITIES FROM OTHER ORGANIZATIONS

Portland State University Geology Department Spring 2009 Seminar Series, Cramer Hall S17, 3:30-4:30 p.m.. Contact Martin Streck, 503/725-3379, streckm@pdx.edu, for further information, or refer to the department website:

<http://geology.pdx.edu/node/3>

- May 6, "Crustal magmatic systems: Dynamical causes and consequences of magma chamber evolution", Joe Dufek, Georgia Institute of Technology, Atlanta

- May 13, Thesis proposal presentations
- May 20, Topic "TBA", Ed Medley, Richard Jahns National Lecturer, GSA/AEG
- May 27, "A new look at the volcanic products of the Yellowstone hotspot trace", John Wolff, Washington State University, Pullman
- June 3, "Insights into the formation of basaltic magmas from the study of silicate melt inclusions", Adam Kent, Oregon State University, Corvallis

Oregon State University Department of Geosciences 2009 Spring Seminar Series, Thursdays, 4:00 pm, 108 Wilkinson Hall, unless otherwise noted.

http://www.geo.oregonstate.edu/events/SeminarSeries/Seminar_Current.htm

- April 30, Rick Conrey, Earth and Environmental Sciences, Washington State University, "Propagating rift in the Cascade Range"
- May 7, Mark Ghiorsio, OFM Research, Inc. and, Earth and Space Sciences, University of Washington, "Triggering explosive volcanic eruptions"
- May 14, Kathy Cashman, Geological Sciences, University of Oregon, "Physical controls on shallow magma evolution: the eruption of Paricutin Volcano, Mexico, 1943-1952"
- May 21, Scott Patterson, Earth Sciences, University of Southern California, "Unraveling the growth and evolution of magma chambers: the Tuolumne Batholith experiment"
- May 28, John Pallister, U.S. Geological Survey, Vancouver, TBA
- June 4, Adam Kent, Dept. of Geosciences, Oregon State University, "High resolution crystal records from Mount Hood and Mount St. Helens: The devil's in the details"

University of Oregon Department of Geological Sciences, Spring 2009 Weekly Seminar Series t Wednesdays, 4:00 to 5:20 pm in 110 Willamette Hall. Tea and cookies are served in Cascade 200 beginning at 3:30 p.m.. Refer to department website for more information:

<http://www.uoregon.edu/~dogsci/news/about>

- May 6 - Mark Ghiorso (University of Washington), "Triggering Explosive Volcanic Eruptions"
- May 13 - Unscheduled
- May 20 - Mike Oskin, topic TBA
- May 27 - Hubert Studigel (Scripps Institution of Oceanography), topic TBA

Cascades Volcano Observatory Lunch Colloquium, 2009. Brown bag talks at 11:30 in Mount St. Helens Room, generally on Thursdays. Informal and open to all. Address is 1300 SE Cardinal Court, Building 10, Suite 100, Vancouver, WA.
<http://vulcan.wr.usgs.gov/News/Announcements/CVOLC.html>

- Thursday, May 7, 2009, Steve Ingebritsen, USGS Menlo Park, "Hydrogeochemical monitoring in the Cascades"
- Thursday, May 14, 2009, Nick Beeler, USGS/EHZ (could be moved or cancelled), "Constraints on earthquake nucleation from laboratory faulting experiments and small earthquakes"
- Thursday, May 21, 2009, Geoff Plumley, USGS Denver, topic to be determined (something regarding ash leachates)
- Thursday, May 28, 2009, Juliet Crider, Western Washington University, "Deformation and Gravity at Mount Baker"

The Effects of the Ice Age Floods on the Portland Region

Synopsis of the April 10, 2009, lecture by geologic enthusiast Rick Thompson with assistance from spouse Sylvia Thompson
 by Carol S. Hasenberg

Kudos for arranging this talk should go to GSOC Vice President Larry Purchase, who timed it well with the **congressional approval for the Ice Age Floods National Geologic Trail**, a project which has been at least ten years in the making, with participation by several GSOC members. Speaker

Rick Thompson has also been active in the Ice Age Floods Institute, and has studied the effects of the floods on the Portland region for a number of years. He is also writing a book about his research which will be released soon.

The Ice Age Floods are referred to in the literature by a number of **different names**. They are often called the Bretz Floods in reference to J. Harlan Bretz, who first proposed and defended the idea of a catastrophic flood creating the scablands of Washington in 1923. They are also frequently referred to as the Missoula floods, because the Ice Age lake responsible for the floods is called Lake Missoula after its location near Missoula, Montana. The name adopted by the National Park Service is Ice Age Floods, so this terminology for now seems to be the more official one.

The Ice Age Floods occurred around 13,000 to 15,000 years ago. There were **many repetitions** of the flood event, although it is believed that the first flood was the biggest and most destructive, since it carried the most debris with it. GSOC has done several field trips looking at Ice Age Floods features in the last ten years, including trips to the Columbia Gorge, Wenatchee, Washington, Camassia Nature Preserve, Erratic Rock State Park, etc. The Ice Age Floods Institute (www.iafi.org) is having a field trip this month (May 2) which was announced at the meeting. Refer to their website for other upcoming events.

Thompson began his talk by describing the **overall path of the Ice Age Floods** and the geological/geographic setting. The floods happened because a lobe of the continental glacier which covered Canada during the last ice age blocked the Clark Fork River in Montana, creating a huge lake. The level of Glacial Lake Missoula rose until the lake's surface approached that of the glacier, about 2000 feet deep. Then the ice dam was destabilized by its tendency to float, and broke free, and the huge lake behind it spewed out across the plains of eastern Washington.

The water roared out of its outlet with a violence that is too grand to imagine, creating enormous flood features that can only be appreciated for what

they are from an airplane or from space. The path that it followed was across the plains of eastern Washington to the Grand Coulee, and south through a 1500 foot elevation drop to Wallula Gap, a constriction in the Columbia River pathway that the water took two weeks to escape. Then the water went westward down the Columbia River pathway to the ocean. During this process the water was constricted at the Wallula Gap northeast of Hermiston, Oregon; the Columbia River Gorge; and the Kalama Gap northwest of Portland. Each time it was constricted the water backed up into an enormous but very temporary lake. It backed up 100 miles eastward into the Snake River valley, and down the Willamette Valley to Eugene, Oregon. The water sculpted the Columbia River Gorge and elsewhere with its palette of 540 cu. mi. of water, 20-40 cu. mi. of ice from the glacier, and 50 cu. mi. of debris.

The **action of the flood on the Portland landscape** was profound. Effects from the floods included water-carved channels and cliffs, huge boulders dropped by flood water and icebergs in the flood, huge gravel bars located far above the level of today's rivers, and scablands where soil was stripped from higher areas and heavy deposits of sediment. Water poured out of the Columbia River Gorge and fanned out in the Portland valley. Rocky features at the mouth of the gorge such as Cape Horn were exposed by water rushing past at 60 miles per hour and five hundred feet deep.

Channels were carved between the harder rock features, such as Rocky Butte and Mt. Tabor, due to water rushing into the Portland valley. Subsequently the water backed up at Kalama and the rising waters found gaps to flow further south into the Willamette Valley. Additional channels were carved where Lake Oswego now sits, the current Tualatin River channel, the Carver gap, and Oregon City. Thompson showed the audience many diagrams of the carved channels with their steep sides. The Tonquin channel near Sherwood was carved particularly deeply by an underwater tornado-like feature called a kolk. As the floodwaters cleared the Kalama Gap, the floodwater lake in the Willamette valley traveled back through the Portland area and on to the Pacific Ocean.

Channels were carved from the passage of these waters in a different orientation from the first group. The steep base of the Tualatin Mountains in downtown Portland is one of these features.

As the waters slowed and then receded in the Willamette and Portland valleys, they left behind enormous quantities of **sediment and debris**. The rich topsoil in the Willamette valley was deposited there by the floods after being stripped from flooded regions of eastern Washington. Many icebergs were stranded in the valleys and when they melted, they left behind the rocky debris they had carried from their Canadian origins. Unusual granite boulders and even meteorites scattered throughout the region are legacies of the floods. The Willamette meteorite is one such "glacial erratic". Gravel bars such as the Alameda Ridge in Portland are also flood deposits. The floods were so deep and devastating in the Portland region that there are few areas that were not entirely reworked during these events.

References and Additional Reading:

Ice Age Floods Institute website includes information about the Ice Age Floods National Geologic Trail:

<http://www.iafi.org/>

David Alt, Glacial Lake Missoula and Its Humongous Floods, Mountain Press Publishing Company, Missoula, Montana, 2001.

BOARD MEETING NOTES

April 10, 2009

GSOC members present included Carol Hasenberg, Larry Purchase, Beverly Vogt, Richard Bartels, Jan Kem, Dave Olcott, Clay Kelleher, and Rosemary Kenney.

The board reviewed field trip policies for the upcoming trips. Field trips are limited to GSOC members only, and liability waivers will be required. Our policy for minor attendees was also reviewed. Because the upcoming June trip has a limited attendee requirement, it was felt that having

a registration form and deadline was necessary. Other preparations for the field trips were discussed.

A possible third field trip for late August was discussed and is being researched.

Tara Schoffstall announced that there will be no Wednesday night seminars until summer, and then she will probably schedule for them earlier in the day, and possibly on Fridays instead of Wednesdays.

The Board members discussed putting the Newsletter on the website, and concerns were raised that doing that might keep people from joining. It was pointed out that younger people get their information from the internet, and posting the newsletter there may get more of them interested in GSOC. The matter will be resolved at the next meeting. Comments from the general membership are welcome about this issue.

Publicity was discussed. Tara is working on a GSOC bulletin board website www.gsoc2.proboards.com that members can use and will help her be able to contact media outlets around the state. She will explain more about it at a later meeting when we have enough time. Jan prints out the calendar and posters for Rosemary and sends out copies of the calendar to the Oregonian. Rosemary puts the calendar and posters at PSU and DOGAMI, and Larry posts info at BPA.

The next Gem and Mineral show is scheduled for Sept. 18-20 at Hillsboro Fair Grounds, and GSOC will have a table there.

Next Board meeting is 10 a.m., June 6, 2009, at Bev and Bart's house (4841 SW 60th Place). NOTE CHANGE OF LOCATION.

Beverly Vogt, Secretary

VOLCANIC NEWS FROM ALASKA

Redoubt Volcano news from USGS Alaska Volcano Observatory:

<http://www.avo.alaska.edu/activity/Redoubt.php>

The latest bulletin from the website reads:

“Redoubt Volcano Latest Observations
2009-04-17 09:52:40

“The 2009 eruption of Redoubt continues. Seismicity remains elevated and satellite images continue to see a thermal signal from the lava dome. Clouds currently obscure the web cameras. Based on yesterday's clear views, a plume of water vapor, volcanic gas, and possibly very minor ash is likely rising above the volcano.

“AVO will have two field crews working in the vicinity of the volcano today.

The volcano remains at aviation color code ORANGE and alert level WATCH. Renewed explosive activity could resume with little warning, likely generating an ash plume and a lahar.”

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Waste, Wind and Water Field Trip – June 19-20, 2009

GSOC Director Dave Olcott and Vice President Larry Purchase, trip co-leaders

Trip Participation Policies: If you plan on participating in this trip, please contact Dave Olcott by phone at (503) 695-5219, or email at daveolcott46@yahoo.com, to determine whether the trip roster is still open **AND** send in your registration form by June 12th. The trip is limited to 20 participants, and the participation list will only consider those registrants who have paid for the trip. **There will be no refunds after June 12th. All participants must be GSOC members or their guests.** Minor participants under 18 years of age are required to have permission in writing from a parent or legal guardian; and **minors must be accompanied by a responsible adult GSOC member** designated by their parent or legal guardian. Letter of permission must be attached to this registration form. Participants must fill out and sign a liability/medical waiver at the meeting point before proceeding on the trip. Minor participants will need the signature of a parent or legal guardian to participate.

Fee: \$25, includes trip reading packet, guest speakers and entry into the site tours. All meals, lodging and transportation arrangements and costs will be the responsibility of the participants.

Itinerary: GSOC board members Dave Olcott and Larry Purchase will be leading a 1 1/2 day field trip examining three operations in northern Gilliam, Sherman and Wasco Counties. We will visit Columbia Ridge Landfill, Klondike and Biglow Canyon Wind Farms, and ground-water supporting cherry production south of The Dalles, noting geologic connections to and constraints of each operation. Friday morning we will travel up Phillipi Canyon, viewing the Phillipi cataract and Bretz flood deposits in the John Day River Canyon. Since this field trip will travel through prime dryland wheat and sweet cherry producing areas, we will incorporate some educational stops focusing on these crops (maybe a few samples of the latter). The car caravan will **depart from Lewis and Clark State Park** (off of I – 84 on the east side of the Sandy River) at 7:00 am(sharp!!!) on June 19th and spend the night in The Dalles. We will start Saturday's trip at 8:45 am, meeting at Safeway beneath the Starbucks sign(520 Mt. Hood St., The Dalles). Richard Bartels will lead a time of geologic reflection and contemplation at The Mint urban winery on Friday evening.

Needs and Things to Do if you plan to go:

- Call/email Dave Olcott **AND** send in registration form and payment
- Bring appropriate clothing and footwear – may be hot, cold, wet, muddy and/or windy
- Bring water, sunscreen, sunglasses, and hat, and sack lunch/snacks for Friday and Saturday
- Make carpool arrangements, meal arrangements and lodging arrangements (lodging for Friday night June 19)
- Join GSOC if you are not a member and want to participate (paper work will be available Friday morning)

REGISTRATION FORM FOR WASTE, WIND AND WATER FIELD TRIP 2009 June 19-20, 2009

NOTE: Fill out one registration form for each participant.

Participant name _____ minor? _____

If participant is not a GSOC member, name GSOC sponsor _____

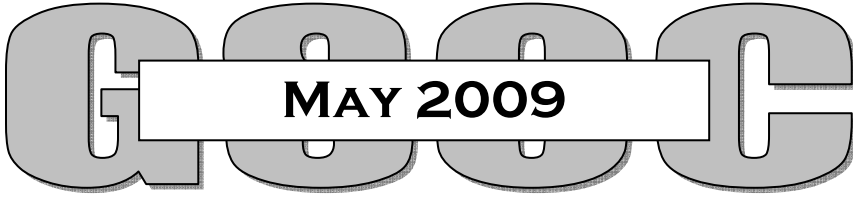
If participant is a minor, name designated GSOC accompanier _____

Address of participant _____

City _____ State _____ Zip _____ - _____

Phone (____) _____ - _____ Email address _____

Fee: \$25, includes trip reading packet, guest speakers and entry into the site tours. All meals, lodging and transportation arrangements and costs will be the responsibility of the participants. Send this form and payment to:
GSOC, PO Box 907, Portland, OR 97207-0907, by **June 12, 2009**.



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GSOC MINI-CALENDAR

MAY ACTIVITIES

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FOR DETAILS, SEE INSIDE

Registration for Waste, Wind and Water Field Trip Inside