



Association for Women Geoscientists

Puget Sound Chapter

October 2001

Editor's Remarks

Greetings AWG-PS members! As you will no doubt notice, you have a new Newsletter Editor and Publications Chair. My name is Amanda Taub and I am thrilled to have this opportunity to be of service. This newsletter is packed with all sorts of announcements and reports. Please take a few minutes to read through it and then tell me what you think.

Elections were held for new officers and passage of our Chapter Bylaws. All officers were elected and the Chapter Bylaws were passed. This year we have two new officers: Shawn Blaesing-Thompson is the new Vice President and myself, Amanda Taub, is your new Editor. Other officers re-elected to the Board include Marcia Knadle, President; Jean Boucher, Secretary; Carla Whittington, Treasurer; and Lynn Hultgrien, Scholarship Committee Chair.

There are a lot of announcements and reports to look for this month in this newsletter. There is an announcement on the next all chapter meeting on Nov. 10th by Shawn Blaesing-Thompson. There is also a report on the May 16th meeting by Marcia Knadle. In addition, Lynn Hultgrien announces the 2001 AWG Puget Sound Scholarship. Lynn also asks that we open our pocketbooks and donate to this worthy scholarship. Also, please post the meeting and scholarship announcements around your department, campus, and/or work. We all need to get the word out about these opportunities.

Please be on the look out for membership renewal notices that should be coming soon in the mail. Please remember to renew and come on out to the meetings.

Do you have an announcement that you would like to make to the Chapter? Is there a topic you want to write about? If so, contact me and I will be certain to get it in the next newsletter. You can reach me at (509) 548-3466 or 203 W. Benton, Leavenworth 98826-1005 or ataub@co.douglas.wa.us.

I am taking a short poll on interest in sending these newsletters out by e-mail. How many people are interested in receiving their newsletter only by e-mail or in addition to the paper? Please let me know. Thanks!

Here are some web sites that I thought might be of interest to members.

These web sites are maps and information about Afghanistan

<<http://www.lib.utexas.edu/index.html>> - Finding Information on Afghanistan

<<http://www.lib.utexas.edu/resources/>> - Perry-Castañeda Library

<<http://www.lib.utexas.edu/maps/>> - Map Collection - Afghanistan

On the Seattle Times web site is an article dated March 18, 2001 titled "Seattle Goes Seismic." It is a list of books and movies that are seismically related. Check it out! <http://www.seattletimes.com>

If you would like to share any web sites, please contact me and I will include in the next newsletter.

Thanks!

The Association for Women Geoscientists Puget Sound Chapter presents:

**Report and Travelogue from the International Volcanology (IAVCEI 2001)
Meeting in New Zealand**

By Janet Tanaka, retired volcanic hazards management expert

She will be hosting a potluck lunch, so bring your favorite dish to share. We're all busy, and some will be coming a fairly long distance, so picking up a salad, sandwich makings, dessert, or beverages at a nearby grocery store deli will be just fine. There's a Safeway near the freeway, and a MegaFoods on Martin Way. The networking/social gathering is scheduled to begin at 12 noon and last until around 4 p.m., with the talk beginning around 2:30. Marcia Knadle will be arranging carpools from up north; please contact her at (206) 553-1641 or knadle.marcia@epa.gov by Nov. 8.

Saturday November 10th, 2001 near Olympia, Washington

At Janet Tanaka's house:
8009 18th Lane SE, Lacey, WA 98503
(360) 455-4607

Directions:

Take Exit 111 (the Marvin Road Exit) off I-5 and turn south onto Marvin Road. Go a few miles and cross the railroad tracks. Turn right onto Laurel Oaks (the gate should be open this time of day.) Turn right again and continue around the corner, where the street becomes 18th Lane SE. Janet's house is at the end of the street on the left.

If you have any dietary needs, questions, and/or comments otherwise, please feel free to contact Janet, or Shawn Blaesing-Thompson at (360) 867-9395 or sblaesing@home.com.

Report from the May 16, 2001 joint meeting with the Washington Hydrologic Society

This meeting was well attended, drawing about 10 people each from AWG Puget Sound Chapter and the Washington Hydrologic Society. In addition to the presentation summarized below, we presented the 2001 AWG-Puget Sound Scholarship check for \$1000 to this year's recipient, Eliza Ghitis (please see related story).

Adventures in Site Characterization - Moses Lake Wellfield Superfund Site Presented by: Marcia Knadle, U. S. EPA

The Moses Lake Wellfield Contamination site, being investigated by the U.S. Army Corps of Engineers under a Superfund Interagency Agreement with EPA, is located in the Columbia River Basalt province, about 20 miles southeast of the lower end of the Grand Coulee. Spokane Flood deposits and Yakima Basalts underlie it. The site was the location of the former Larson Air Force Base, which was closed in 1966. The base extended over an area of nearly 14 square miles, and housed numerous facilities. During the 1950s the Larson Air Force Base was considered to be of tactical value for nuclear weapons missile construction and deployment for Russian targets. Aircraft maintenance and Titan missile construction required the use of the degreasing solvent trichloroethylene (TCE). During the 1950s and 1960s, TCE was commonly disposed of directly to the ground.

Glacial sediments and the underlying Yakima Basalts govern the hydrogeology of the site. These glacial sediments, called "Pleistocene alluvium", are primarily composed of coarse heterogeneous sands and gravels, and blanket the surface of the site at thicknesses between 75 and 100 feet. Underlying the alluvium over much of the site is the Ringold Formation, mostly lacustrine clays, silts and fine sands, which are present at varying thicknesses. The Ringold Formation rests on the Wanapum Formation (the upper portion is an aquifer termed the a-basalt for this investigation), which is underlain by an aquitard called the B-basalt. The water table is approximately 75-100 feet below the ground surface. The average rate of water movement through the Pleistocene alluvium is approximately 1,000 feet per day (ft/day), and only about 0.01 ft/day through the Ringold formation. The a-basalt serves as an aquifer, and is contaminated with TCE. Water moves through the a-basalt at an average rate of 100 ft/day. The underlying b-basalt functions as an aquitard throughout the area, and is probably composed of the colonnade and entablature of the Roza Basalt, a thick flow with relatively few cooling fractures. In some portions of the site, the Ringold Formation is missing or very thin and sandy, and the Pleistocene alluvium functionally lies directly above the a-basalt.

The site is a closed Department of Defense facility now owned by non-federal entities; as such, the U. S. Army Corps of Engineers (USACE) is the responsible party. In 1998, the USACE Seattle District Office took over management of the site, and initiated a remedial investigation in 1999. Twenty-five wells were installed in 1999, most in pairs with one well intersecting the Pleistocene alluvium, and one intersecting the top of the a-basalt. An additional 23 monitoring wells were installed in 2000, mostly located down gradient of potential source areas. Surface soil sampling and soil gas surveys were also conducted at many potential source areas.

These investigations revealed TCE distributed primarily in the a-basalt aquifer. Sources identified with the data collected revealed the presence of one large source (buried sumps at the original Liquid Oxygen facility [LOX]) and three TCE plumes. A maximum concentration of 48 (parts per million by volume) ppmv TCE was encountered in shallow soil gas next to the LOX facility and 120 ppmv at the depth of the sumps, and a maximum sump water concentration of 250 ppm. A well down gradient of the LOX facility has just been constructed and is being sampled (*update -- it came up non-detect, i.e. < 0.5 (parts per billion) ppb!*). Aside from the LOX facility, the maximum concentration detected in groundwater was 60 ppb, derived from sources that are not defined.

The three main plumes observed in connection with the former Larson Air Force Base all occur in the a-basalt, with only traces of TCE found in the overlying alluvium, probably because of the relatively high groundwater flow rates. Two of the plumes flow off the former base into areas where they can affect domestic and privately owned public water supply systems.

One such public water supply well that taps the a-basalt provides water with TCE concentrations that exceed the maximum concentration limit (MCL) of 5 ppm. USACE is installing a new, deeper well this summer to replace the water supplied by this system. USACE is also installing and maintaining whole-house granular activated carbon filtration systems on 5 other private domestic wells producing water near or above the MCL. Several years ago, the City of Moses Lake sealed off the a-basalt zone in large production wells inherited from the former base that were open to the entire Wanapum Formation, eliminating the TCE concentration in water pumped. Although contamination of the a-basalt is fairly well defined now, there does not currently exist a regulatory mechanism by which to restrict construction of new water supply wells in this aquifer. About 10 new wells a year are being constructed in areas of current and potential future contamination. EPA and USACE are exploring options with the Washington State Department of Ecology, Washington State Department of Health, and the Grant County Health Department for at least warning people developing lots and educating local drillers to reduce the potential for future exposures.

Llyn Doremus (WHS) and Marcia Knadle (AWG-PS)

Puget Sound Chapter Scholarship 2002 Contributions Needed

The Puget Sound Chapter Scholarship award was founded in 1989. It was established to aid undergraduate women intent on pursuing a career in the earth sciences. Recipients are chosen on the basis of their commitment to a geosciences career, financial need, and academic achievement.

Help us make the award of a \$1000 scholarship to a deserving student in 2002 possible. Please consider sending a tax-deductible contribution made payable to "AWG Foundation" (be sure to write "Puget Sound Scholarship" on the memo line) to:

Martha F. McRae
AWGF Treasurer
1125 East 6th 1/2 St.
Houston, TX 77009-7329

Even small contributions add up and make a big difference to a struggling student. They also help AWGF retain its 501(C)3 status by helping meet the requirement that the Foundation receive at least 33% of its income from individual contributors. Thank you for your generosity and support in the past years!

Lynn Hultgrien
Chair, AWG Puget Sound Chapter Scholarship Committee

Eliza Ghitis Receives 2001 AWG Puget Sound Scholarship

Eliza Ghitis was named recipient of the 2001 AWG Puget Sound Chapter's Scholarship and received a one-year membership in AWG. This award, founded in 1989, was established to aid undergraduate women who intend to pursue a career in the earth sciences. Recipients are chosen on the basis of their commitment to a geosciences career, financial need, and academic achievement.

Our choice was Eliza Ghitis, a Seattle Central Community College student. Her mentor, Dr. Joseph Hull, described her as enthusiastic for whatever project or task she tackles; praised her truly outstanding academic work; and expressed her high potential for making significant contributions to geology. Inspired by a geology class, along with work as a watershed educator and volunteer stream restoration, Eliza has returned to school after a hiatus of eleven years. In addition to our scholarship, she relies on her work as an administrative assistant and some financial aid to fund her studies. In 2002, she plans to transfer to the University of Washington for a degree in geology. Eliza is interested in both geology and ecology and would like to apply her degree to environmental restoration, possibly through fluvial geomorphology.

On May 16, 2001, at a joint meeting of the AWG Puget Sound Chapter and Washington Hydrologic Society, we presented Eliza with her \$1000 scholarship. She gave an articulate and heart-felt acceptance speech. In all about 20 people attended, participants included members of the Puget Sound Chapter of AWG and her advisor at Seattle Central Community College, Joe Hull. We wish Eliza the very best in her continuing studies and her eventual career in earth sciences.

This award is possible due to the generous members and friends of the Puget Sound AWG Chapter who contributed to this scholarship and to the AWG Foundation, which supplies matching funds. In addition, the USGS Cascades Volcano Observatory and Highline Community College assisted with scholarship announcements and fundraising support. Thank you for continuing to help make this annual event a success.

Lynn Hultgrien
Chair, AWG Puget Sound Chapter Scholarship Committee



(On right: Eliza Ghitis, 2001 AWG-PS Scholarship Winner. On left: Lynn Hultgrien, Chair of AWG-PS Scholarship Committee. Photo taken by: Marcia Knadle.)

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