



Association for Women Geoscientists

Pacific Northwest Chapter

Summer - August 2008

Message from the Editor

Submitted by Holly Glaser

Welcome to the Summer 2008 newsletter of the Pacific Northwest Chapter of the Association for Women Geoscientists. We share an interest in geology. The PNW region is lucky to have volcanoes, flood basalts, beaches, the mysterious Mima Mounds, and ice age flood scars - all within a reasonable distance for field trips. The newsletter shares information from the members, news on chapter activities, upcoming events and reviews of recent programs.

I'm pleased to move into a more active role in the chapter with this issue of the newsletter. I am very grateful to Marcia Knadle, Janet Masura and especially Shawn Blaesing-Thompson for helping me get started. Suggestions, write-ups on events or any other geological topics and announcements may be submitted for publication to editor@awg-ps.org. It's my hope that this newsletter will be both fun to read and informative. Please tell me how the newsletter and website can better work for you. The web page is in the process of being revised and improved. I think you will like the result, although there may be a few hiccups while this is happening.

AWG-PNW Chapter

Our chapter has just expanded. To continue the conversation about where our chapter is headed, please emailing your thoughts to the chapter President, Heather Vick (heatherk@seanet.com) or Marcia Knadle (marciaAWG@aol.com). If you have ideas for activities in the Portland area, contact Heidi Yantz (hyantz@gmail.com).

Upcoming Chapter Events

September 5-6 , 2008: "An AWG Exploration of Wine, Water and Basalt", Walla Walla WA:

- Meet in Walla Walla on Friday and Saturday September 5th and 6th for a one-day field trip to explore Columbia River basalts and Missoula flood deposits of southeastern Washington.
- We will gather late afternoon on the 5th for > a wine-tasting or two and then leave early the next morning for the field trip.
- Lodgings for two nights, transportation and lunch on > Saturday 9/6 are included at an estimated cost of \$130.00. Other meals > are at the participant's expense. The trip is limited to 21 > participants.
- A deposit is due on August 15th to reserve accommodations.

If you are interested, please contact Kirsten Nicolaysen for details:
Contact Information: Kirsten Nicolaysen, Whitman College
Email: nicolakp@whitman.edu Phone: 509-527-4934.

Fall, 2008 AWG-PNW-sponsored Geologic Hazards Workshop, Vancouver BC.

- Mindy Brugman (Environment Canada) and Cathie Hickson (CGS) are organizing an If you're interested in helping organize, speak, or otherwise participate in this event, please contact me. If you'd like to attend and don't have a passport to show at the border, you may wish to get a US Passport Card to speed border crossings:
http://travel.state.gov/passport/ppt_card/ppt_card_3926.html.

Summer Events

Next issue – All about the July 2008 Field trip to Scotland



At left, on the Isle of Skye, the roots of a basaltic volcano from when the Atlantic opened up.

Below, returning from Skye.



Report on the AWG-PNW and NWGS joint meeting, May 3, 2008

Submitted by Marcia Knadle

At this meeting we hosted **Susan Black** (UW-Tacoma) and awarded her the 2007 AWG-PNW Chapter Scholarship of \$1,000. We also took advantage of the NWGS Student Poster competition to award poster prizes to **Bre MacInnes** and **Tracy Li**. These awards include membership in AWG.

The Board honored one of our chapter founding mothers, Janet Cullen Tanaka, renaming the yearly scholarship as the **Janet Cullen Tanaka Scholarship**. She was the person who was most influential in getting the chapter organized and served as our first treasurer for 5 years. She insisted that we start giving out a scholarship in 1989. Janet Cullen Tanaka was the first person to really consider the effects of an eruption of Mt. Rainier on communities in the Puget Lowlands. These effects are detailed in her Master's thesis and in a fine trashy (and I mean that in a good way) disaster novel *Fire Mountain* (long out of print but usually available used at alibris.com). During her career as a geologic hazards management expert, she lobbied tirelessly for proper planning and mitigation.

In "retirement", Janet edited *Volcano Quarterly* and *VQ Online* for several years, and still keeps her hand in by writing books, currently a biography of Rocky Crandall and a book on women volcanologists to be called *Vulcan's Daughters*.

Presentation: Gas Hydrates of the Cascadia Margin

Professor Anne Tréhu, Oregon State University, College of Oceanic and Atmospheric Sciences

Abstract: Geophysical data suggest that gas hydrates are widespread in continental margin sediments, especially in accretionary complexes. However, quantification of the amount of gas present is difficult because gas hydrates are not stable at pressure and temperature conditions generally found on the Earth's surface. Recent ocean drilling cruises to central and northern Cascadia have provided key data for ground-truthing the geophysical data and for understanding the distribution and dynamics of gas hydrates formation in marine sediments.

Anne Tréhu gave a fascinating and reassuring talk about gas hydrates in general and along the Cascadia margin. First she explained what gas hydrates are (methane trapped in a water ice cage) and where they occur (in underwater areas within a certain depth range and at the surface in very cold areas). In order for gas hydrates to form, the temperature and pressure must be optimal, and there needs to be a source of methane seeping into the soils or sediments. Once gas hydrates are brought out of their stability zone, the water melts and the methane is released gradually – or more quickly if set on fire. (She showed a film clip of a man holding the burning “ice” in his ungloved hand). Unless a research crew is prepared to immediately put the sample in a cooled and pressurized chamber, the gas hydrate will disappear, which is one reason why few people have studied gas hydrates. Anne has done research in two areas along the Cascadia margin, off Vancouver Island and off the coast of Oregon. In these areas, gas hydrates have been dredged and cored. She also showed what they look like in seismic profiles. Anne thinks that the volume of gas hydrates occurring in the oceans worldwide has been greatly overestimated by assuming that they exist everywhere in the stability zone. However, only in places where sufficient methane exists (mostly seeping up from deeper organic-rich sediments) can gas hydrate deposits form.

Doomsday scenarios have been predicted where global warming raises ocean temperatures and lowers the stability zone, suddenly and catastrophically destabilizing gas hydrate deposits. Anne explained that while the methane would eventually be released, large bubbles would not reach the ocean surface, instead dissolving into the ocean water. Her talk included pictures of methane bubbles rising from the ocean floor and disappearing (dissolving) into the water as they rise. In this case, the methane is most likely coming from below the gas hydrate stability zone and migrating up through cracks in the sediments. Some of the methane eventually reaches the atmosphere and contributes to global warming, but it doesn't happen suddenly. The main catastrophic event from the destabilization of gas hydrates happens when tectonic activity elevates sediments on the continental slope above the stability zone. Then, destabilization can cause underwater landslides, but probably not large enough to cause tsunamis.

Anne also spoke about the challenges associated with exploiting gas hydrates as an energy source. Currently, in the Arctic where onshore near-surface deposits of gas hydrates exist, efforts are underway to extract methane by injecting warm water into boreholes and capturing the released gas. The challenges are much greater for undersea deposits. There, gas hydrates can exist as granular material in coarse sediments (essentially as matrix in sand deposits) or, more commonly as veins in fine-grained sediments. The potential for extraction from sands is considered technically much easier and is being explored. Anne's current research is focused on the “silent” earthquakes occurring along portions of the Cascadia Subduction Zone that were previously assumed to be locked

(http://seattletimes.nwsources.com/html/localnews/2004148942_earthquake28m.html).

Perhaps we can convince her to come back sometime and talk about that research!

The Cascades Volcano Observatory open house on May 3 2008 was a rare treat that happens every few years. The staff provided a warm welcome to the public, and shared their love of the job and fascination with volcanoes by opening the labs and demonstrating how their equipment works, discussing the work that is ongoing and doing hands-on volcano building.



The heat and blast of the Mt St Helens eruption is displayed by the curved, charred, bent and shattered tree trunk at the entrance.

The equipment used to measure volcanic heat, ground position and gases has to be tough to take these conditions.

Sensors are mounted on a metal platform with legs, called a spider, and lowered into the crater to send out information as long as possible. The spider in this picture was retrieved after it got too hot in the crater

Volcanic eruptions took place next to the CVO, directed by Carolyn Driedger. Carolyn is a former member of AWG and was this chapter's Scholarship Committee Chair. Marcia Knadle is on the right standing in the ejecta from several eruptions. There was an enthusiastic crowd of kids who helped to show everyone how this was done.



Pre-Eruption Instruction



Post- Eruption

Review of "The Role of Women in the History of Geology"

Submitted by Janet Cullen Tanaka

The Role of Women in the History of Geology, C.V. Burek & B. Higgs, Editors

Geological Society Special Publication 281, London, 2007
333pp, 21 articles, including illustrations and bibliographies

Here is a book that every AWG member should read. Why? To be literate in the early women geologists, to be inspired by their example, and to wonder how in the heck they managed fieldwork in those long skirts.

The editors have compiled stories on 21 of the world's first women geologists; their trials and triumphs in a man's world and those who helped them become what they were. The collection in this book deals mainly with the late 18th century, 19th century, and early 20th. The background is the development of geology in Europe, especially Great Britain, as well as Australia and North America.

Most of the women profiled were research assistants, cartographers, and illustrators for their geologist husbands. Some became university professors, science librarians, teachers in girls schools, and museum curators. The fields most commonly engaged in were paleontology, botany, conservation, hydrogeology, stratigraphy, and a few in geophysics.

Most of the bios were personal and quite interesting. However, most readers will be drawn to the stories of the women in their particular fields. Compilers of "women's studies" will find a rich field in the trials and triumphs, struggles and successes, inspirations and explorations, and of the many contributions of women to the science of geology... most previously unknown and generally unrecognized outside of their particular field or geographical area.

The differing social/academic climates from country to country are also enlightening considering the progress of women in general. Some were acceptable to scientific societies only because they were sisters or daughters of geologists. Yet others cracked the quartz ceiling through their own worthy and extensive efforts.

Following are some excerpts from different chapters.

"In the 1850's and 1890's there was a rather romantic view of the subjects to which women could apply themselves. Natural history was one such subject... and they joined natural history and field clubs in the thousands... However, the scientific efforts and contributions made by women at this time were often ignored or scorned by the established male-dominated scientific organizations...the labours/research of these women was presented in one of two ways. Firstly... in a dream-like manner [in paintings]...A second representation of the scientific role of women was to portray them in a light-hearted [read that sexist] way, which were ...that their activities were of little scientific value, but kept the men amused." (p. 97)

"The beginnings of women being employed as research scientists in their own right can be traced back to an indomitable woman collector/researcher associated with the British Museum...Dorothea Minola Alice Bate (1878-1951) who, in 1898, walked into the hallowed halls and demanded a job." She got it. (p. 107)

Florence Bascom (1842-1945) was "the first woman to be hired by the United States Geological Survey...as an assistant geologist." (p. 123) "Although Bascom emerges as a pioneer for US women in geology, her entrance into the was not made without extensive networking...rely[ing] on previous male contacts to gain entrance into a man's discipline." (p.124)

The book presents many other firsts of women in geology. However, with the exception of Anne Phillips, who studied the volcanics of the Auvergne (and has a conglomerate named for her), there is no mention of women in volcanology. My search goes on.

Reviewed by Janet Tanaka
Pacific NW Chapter, AWG

Opportunities

The position of Scholarship Chair is open. Since this position is not elected, please contact Heather Vick if you are interested in encouraging women to work in geology and recognizing students who excel.

Chapter Elections are coming up. Open elected positions this year include president, vice-president, and secretary. The incumbents are willing to shuffle to keep positions filled, but new blood is always welcome. If you're interested in serving the chapter, whether in an elected position or an appointed capacity, please contact Heather Vick.

Consider volunteering as a Science Fair Judge at the 2009 Washington State Science and Engineering Fairs. Training is provided for this event, which has students from K-12. Please contact Kirsten Nicolaysen (nicolap@whitman.edu) if you're interested in judging. Travel expenses can be reimbursed, including one night's lodging for the state fair. The three fairs will be:

- Mid-Columbia Regional Fair, Kennewick (March 13)
- South Sound Regional Fair, Pacific Lutheran University (March 21 – tentative date)
- Washington State Science and Engineering Fair, Bremerton (April 3-4).

We are working to refill our scholarship account with the AWG Foundation after awarding prizes.

The good news is that students were recognized by the chapter and encouraged to continue in geology. More good news is that the chapter needs to raise just \$500 to qualify for matching funds from the Foundation, which is a 501(c)(3) corporation, to award \$1000 in prizes. This donation is tax deductible to the extent allowed by law. If you would like to add to the scholarship fund, please make out checks to "AWG Foundation" and be sure to write "PNW Chapter Scholarship" on the memo line. Thank you! Checks for the chapter scholarship should be sent to:

Lorraine Manz
AWG Foundation Treasurer
Attn: AWG-PNW Scholarship
P.O. Box 7364
Bismark, ND 58507-7364

Membership Announcements

- The chapter welcomes three new members: **Susan Black, Bre MacInnes and Tracy Li.** Susan received the AWG-PNW chapter scholarship and Bre and Tracy had winning posters at the last meeting.
- Holly Glaser has been awarded certification as a Geographic Information Systems Professional, or GISP, by the GIS certification Institute. The process is based on peer review of a portfolio of experience, education and service. Working professionals with eight years of experience may be 'grandfathered' through 2008. California, New Jersey, Ohio, Oregon and North Carolina have already endorsed this certification. Holly has been a member of the chapter and will be serving as Publications Chair and Webmistress. Please bear with her as she learns the ropes.
- Shawn Blaesing-Thompson has an update on her relocation "We made the move with the

cats, dogs, kid, husband, and two cars to Iowa at the end of May. After much searching and living with family we finally moved into our place in Ames August 1st. Chaos commences, but things are slowly coming together. My job is slowly picking up speed as we try to work out the details of what my position might entail. I am working for the USDA Ag Research Service at Iowa State U helping to integrate technology (GIS and database development) into the researchers daily work flow. My husband is teaching a 100 level lecture for the geoscience department at the college and looking for other work to fill his time. We are trying to get Abby settled into a new neighborhood and hopefully school soon. As if that is not enough we are preparing for a new little human to join us in late March. May the adventures never end. I am excited to continue working with AWG, even though there is not a chapter in Iowa, as the North Central region delegate. Best wishes and feel free to be in touch at mudnmaps@gmail.com or shawn.blaesing@ars.usda.wa.gov

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