National Association of Geoscience Teachers

Pacific Northwest Section

-LATE- FALL 2008

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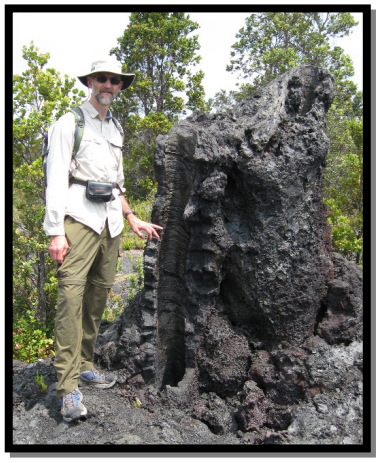

From the President

A recent visit to Hawai'i, the "big island" of our nation's 50th state, reminded me what a "must visit" place it is for geoscience teachers and students. In this letter, and continued in the next issue of this newsletter, I would like to share with you my impressions from one of the best Earth systems learning laboratories in the world. This letter focuses on experiencing the active shield volcanoes of the big island. In the next issue my focus will be on other aspects of Earth systems evolution in that remote island archipelago, including biological evolution.

Shield volcanoes, which form the Hawaiian islands, are the largest type of volcano known. Spending time on an active shield volcano is an eye-opening experience. Kilauea, with its ongoing eruptions, blatantly exhibits the first stages of the rock cycle, from magma to igneous rock. You can get as close to a basaltic lava flow on Hawai'i as you care to, and experience it full-on, from the sulfurous fumes clearing out your sinuses to your face turning red from the heat and, should you walk on a brand new flow, the bottoms of your feet getting uncomfortably hot through your Vibram-soled boots. On earlier visits my wife, Cheryl, and I have helped sample molten lava from a lava lake. Another time, we stood close to the point where lava enters the sea, watching the explosive results of the abrupt phase changes that occur when red-hot lava meets cold water. We did not hike out to the active lava flow this time, as our vacation schedule was largely devoted to snorkeling, swimming and relaxing over on the Kona coast.

Of course, you should check with the park rangers and geologists before you go to Hawai'i Volcanoes National Park on the Big Island. You should not put yourself, let alone your students if you bring some, too much at risk. A few years ago a teacher climbed up on the littoral cone where lava was entering the sea, the loose material failed beneath his feet, and he disappeared into the steam and pyroclastic zone, never to be seen again. Don't do that! Get close, but leave a reasonable margin of safety.

Even if you do not get close to any flowing lava, you can see the impressive steam plume and, with binoculars, littoral cone, formed where the flowing lava enters the sea. This is along the Puna coast, where fresh new land is constantly being created by solidifying lava. Pieces of the new land occasionally break off, in what are called bench collapses, and slide into the ocean. Every few decades, larger areas of Kilauea's flank, sloping toward the sea, slump abruptly during earthquakes along normal faults.

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In fact, it is theoretically possible that all of Kilauea Volcano may at some point undergo collapse and slide from the flank of its bigger, older sister shield volcano, Mauna Loa, and be redistributed out onto the ocean floor. Such huge sector collapses have happened in the geologic past on all of the Hawaiian islands. All of this demonstrates forcefully that the shape of the Earth's surface is a struggle toward equilibrium between processes powered by Earth's internal heat that build slopes upward, such as volcanism in this case, and the force of gravity that will always, in the end, pull things back down.

Besides the coastal zone, we spent time in Kilauea's East Rift Zone, hiking to a cinder cone in a *kipuka*, a zone of forest and soil that developed on older flows and is now surrounded by younger, less vegetated flows. From there we went to a lava shield, Mauna Ulu, which formed in 1969-1974 and has a range of now-solidified features, from a perched lava pond to a leveed lava channel to a precipitously deep, slightly steaming crater at the top. Mauna Ulu has a lava cast forest on its flanks, where standing trees caused pile-ups of the pahoehoe lava and left their marks in it. (I am standing next to a lava tree cast in the photo.) On Kilauea's recent lava flows there are places where you can find Pele's hair and Pele's tears (golden strands and black droplets of basaltic glass). While looking for those forms of glass you may encounter shelly pahoehoe, thin layers of glass that break easily and are sometimes stepped through – another reason not to wear shorts. Despite all the risks I have mentioned, Kilauea is still basically user friendly, particularly in comparison to an active stratovolcano. Did I mention that most of the slopes are not very steep?

At the top of Kilauea volcano, Crater Rim Drive is currently closed and the floor of the caldera off limits to visitors. This is because the crater inside the caldera has acted up since the spring of 2008, spewing fumes and minor pyroclastics and glowing red at night. We spend a night in Volcano House, an old lodge on the rim of the caldera. From our room we saw the red glow of the crater through the window, lighting up the plume of condensed water vapor and aerosol, which rose high into the sky and spread away beneath a bright moon. It was a spectacular reminder of the dramatic nature of a shield volcano.

As geoscience educators, we are lucky that we can justify visiting Hawai'i for professional development, and can take a class there if we make the right arrangements. It is not all beaches and sunshine; in fact, the weather is often cool, rainy and cloudy up on Kilauea volcano. Our vacation there this summer was neither for professional development, nor for a class, just for rest and relaxation (i.e. we maximized our beach time). Now, however, I am reinvigorated by my impressions of Hawai'i and am actively pursuing an approach that will enable me to return on a professional basis. More about other lessons that Hawai'i teaches us about Earth systems next time.

Dr. Ralph Dawes, *Wenatchee Valley College*

Large Donation for the PNW Section

Joe Hull, Seattle Community College

[*This letter was received June, 2008.The Section thanks Mr. Kale for his incredible donation; his contribution will enable us to help fund future meetings, and help provide travel assistance.]*

This morning I had the great pleasure of representing NAGT at the monthly meeting of the staff of Boeing Employees Credit Union (BECU) in Tukwila, south of Seattle.

Ron Kahle (pronounced "kale") obtained his geology degree from Western Washington University in Bellingham. He is currently a facilities manager at the Boeing Employee's Credit Union complex in Tukwila. For the past decade, Ron has been visiting elementary and secondary schools in Washington, bringing rocks, minerals, fossils and enthusiasm for geology to kids.

In June of 2008, Ron was named employee volunteer of the month by BECU and received an award of $2,500 to be passed on to his favorite charity. He chose the Pacific Northwest Section of the NAGT to receive this very generous award, the largest donation our section has ever received.

Left to right: *Joe Hull, Ron Kahle & Tom Berquist.*

Kudos to Local Award Recipient

Lester Smith, a 2nd year student at Yakima Valley Community College in Yakima, WA, was this year's community college recipient of the NAGT's Dorothy Stout Professional Development Grant. Lester applied for and was awarded the grant to help him attend the August 2008 GSA Geoventures trip to the Big Island of Hawaii, led by **Dr. Jenny Thomson** (EWU) and **Dr. Bart Martin** (Ohio Wesleyan U.) Lester plans on majoring in volcanology, and will be continuing his studies at Portland State University in 2009.

Three Dorothy Stout awards are bestowed annually; one to a community college faculty member, one to a community college student, and one to a K-12 educator. This award supports participation in Earth science classes, workshops, meetings or field trips, or for purchase of classroom materials.

State by State

British Columbia, Yukon, Alaska, Idaho, Oregon & Washington

Idaho

State Councilor: Shawn Willsey

EarthScope 2009, Boise. The 2009 EarthScope National Meeting will be held in Boise, Idaho on May 13-15, 2009. Mini-workshops and field trips will be held on May 12. A longer field trip may be held May 15-17. More information can be found at:
www.earthscope.org/meetings/national_meeting_09

Oregon

State Councilors: Joe Graf & Tom Lindsay

National Science Teachers Association, Nov.20-22, 2008. The NSTA regional meeting will be held in Portland this Fall, at the Oregon Convention Center. Additional sessions and events will be held at the DoubleTree and Hilton Hotels. The theme of this year's conference is "Sustainable Science." For more information, including registration, go to: **www.nsta.org/conferences/2008por/**

Washington

State Councilors: Joe Hull & Jeff Tepper

WSTA, March 19-21, 2009
The spring conference of the Washington Science Teachers Association (WSTA) will take place March 19-21, 2009, in Moses Lake, WA. For more information: **www.wsta.net**

AMS Course Offerings

Michael Collins, AK State Councilor

Two introductory college-level courses are being offered by the American Meteorological Society, *AMS Weather Studies* and *AMS Ocean Studies*. Both course packages consist of a textbook, 'Investigations Manual', an accompanying website and course management system, and both are being offered in several formats, including traditional lecture/laboratory, completely online, and as a hybrid learning environments.

AMS Weather Studies investigates atmospheric phenomena using real-world current environmental data. *AMS Ocean Studies* is co-produced with the National Oceanic and Atmospheric Administration, and looks at the world ocean from an integrated 'Earth system' approach. Near real-time oceanographic data is delivered to support the course and is coordinated with learning investigations. For more information, call 1-800-824-0405 or email onlinewx@ametsoc.org (AMS Weather Studies) or email onlineocean@ametsoc.org (AMS Ocean Studies.)

OEST 2008 WINNERS!

Deron Carter, Linn-Benton CC

This year's winners for the Outstanding Earth Science Teacher are here! The Pacific NW Section and Washington State winner is **Jeff Hashimoto**, who teaches Earth and physical sciences at Ellensburg High School in Ellensburg, Washington. The Alaskan State winner is **Adam Low**, who teaches physical sciences and geology, Cordova High School in Cordova, Alaska. Adam was able to join us at this year's section conference, also. Great to meet you, Adam!

The Oregon State winner is **Jamie Rumage**. Jamie teaches Earth and physical science at Linus Pauling Middle School, in Corvallis, Oregon. Our Idaho State winner is **Robert Walker**, who teaches physical sciences at Fairmount Middle School, in Boise, Idaho.

Congratulations to all of the OEST winners; you are an inspiration to your students!

OEST 2009: Nomination Time

Deron Carter, Linn-Benton CC

The Outstanding Earth Science Teacher Award recognizes K-12 teachers in our section. If you know of any Earth Science teachers that deserve recognition then please consider nominating them. Online nomination forms can be found at **www.nagt.org/nagt/programs/oest-nom.html** and just take a moment to fill out. State winners receive a Journal of Geoscience Education (JGE) subscription and educational materials. The sectional winner receives a complimentary membership to the Geological Society of America (GSA), subscriptions to numerous scientific journals and magazines, a $500 travel stipend to attend GSA, and $500 for classroom improvement. Please take time to recognize these valuable members of the geoscience education community! Please contact **Deron Carter** (carterd@linnbenton.edu) if you have any questions.

A Look Towards 2009 & 2010: Volunteers?

Ron Metzger, Southwestern Oregon Community College

The 2008 meeting in Yakima went off in June without a hitch. Kudos to David Hyucke and Cassie Strickland for putting on a fantastic meeting. Next in line is **Vancouver** with **Brett Gilley** hosting. Get your passports ready!

With 2009 just around the corner, we are ready to start making plans for 2010. I'll make this short and sweet. At the Yakima meeting, **Suzanne Burd** said that she would be willing to consider hosting the meeting at **Columbia Gorge Community College** in **The Dalles**, **Oregon** by providing the facility and helping with logistics. One of the areas where Suzanne is interested in having some help involves the development of the program for the meeting.

With a short window of opportunity to work with, I have a couple questions for the section. First, most of you know that finding someone to host the annual conference can be a bit like pulling teeth. So, following the Portland and Yakima meetings that took place in close proximity, I am interested in finding out if there is anyone from a geographic region where the annual conference hasn't been recently that would be

interested in hosting, and maybe seeing if Suzanne would be willing to put a meeting in The Dalles on hold.

The second question is, if the meeting for 2010 is held at Columbia Gorge CC, is there anyone out there that would be interested in working with the scientific side of things? So, if you are interested in proposing an alternate host idea for 2010 (or beyond), or are willing to pitch in and help Suzanne coordinate a meeting in The Dalles then please drop me a line before the end of November at **rmetzger@socc.edu**. Thanks for your input.

Vancouver, BC: PNW NAGT 2009
Plan on attending! June 16-20

Brett Gilley, UBC

Section members: please start making plans (passport!) for next year's PNW Section conference. The University of British Columbia in Vancouver, BC, will host our meeting June 16th through 20th, 2009. Possible field trips may include:

- **Geology of the Vancouver area, including geohazards and a look at Olympic preparations. Led by Brett Gilley.** This trip is an introduction to the Vancouver area, as well as an excellent resource for local K-12 earth science instructors.
- **Huntingdon Fm., led by Dr Peter Mustard**. We will visit the best exposure of the Huntingdon formation, the local Chuckanut equivalent, and see excellent exposures of fluvial sandstones. This trip may include a tour through the local brick-making plant, which has been described as 'disturbingly cool' by local geologists!
- **Cascade Volcanology, Whistler and Pemberton areas. Led by Dr. Kelly Russell** – This two day trip will take participants through the incredible geology of the northern Cascades and Coast Range, heading up to the popular tourist areas of Whistler and Pemberton. Geology of Whistler…isn't this trip reason enough to attend our 2009 section meeting?

The meeting will also include a formal day of talks and posters. More information will be provided in the next section newsletter (Jan/Feb.) If you would like more information at this time, or you would like to submit an early abstract, please contact **Brett Gilley** at **bgilley@eos.ubc.ca**.

Vancouver, BC. Image courtesy of Vancouver Tourism

2009 NWSA Annual Meeting, Seattle
Theme: The Pacific Northwest in a Changing Environment"

Pat Pringle, Centralia College

The 81st Annual Meeting of the Northwest Scientific Association will be held March 25-28th, 2009, at the University of Washington. The meeting includes symposia, technical sessions and field trips. Topics include geology, climatology, oceanography, forest resources, lichenology, paleontology, botany, ecology, fisheries, wildlife, geography, collections management, Elwha River restoration, seismology and technology, natural hazards, stream restoration, and engineering geology.

If you are interested in presenting or would like more information, please contact **Dr. Katherine Glew** at **kglew@u.washington.edu.** The meeting format includes 20 min talks with 3-4 speakers on a related topic per session. Abstracts are due January 15th, 2009. For more information, including abstract submittal, visit:
www.vetmed.wsu.edu/org_NWS/Files/2009 meeting/2009 meeting announcement.htm

Highlights of the Yakima 2008 PNW NAGT Annual Conference

Cassie Strickland, Columbia Basin College

The 2008 Annual conference of the Pacific Northwest Section of the NAGT was co-hosted by Yakima Valley CC and Columbia Basin College. Rather than write lengthy reports of all the great talks and field trips we enjoyed, I will instead let the photographs chronicle our time. Again, I would like to thank all of our field trip leaders and presenters. To purchase a conference guidebook for $25.00, please visit our section website:
www.nagt.org/nagt/organization/northwest/guidebooks.html

As requested by audience members, **Dr. Marie Ferland** has put together a list of resources for teaching climate change. To download this list, please go to:
www.columbiabasincollegegeology.com/ PNW_NAGT_TeachingCC_Resource List.doc.

For a detailed list of GPS coordinates from the White Pass field trip led by Pat Pringle and Dr. Paul Hammond, visit:
www.columbiabasincollegegeology.com/NAGT_FT_Stops.xls

If you missed the 2008 Yakima conference, I urge you to make it to Vancouver in 2009. The University of British Columbia Vancouver will be hosting our next annual conference; it promises to be the best yet!

Images of the 2008 Pacific Northwest Section Meeting, Yakima, WA. More images are posted in the html version of this newsletter.

Left: Dr. Steve Reidel talks about the structural evolution of the Yakima Fold Belt.
Right: Thrust fault in Columbia River Basalt layers, Umtanum Ridge, Yakima Fold Belt.

Left: Brett Gilley, White Pass, south-central Cascade Mts.

Right: Group shot with Mt. Rainier in background.

Left/Right: Terroir of the Yakima Valley. Dr. Wade Wolfe (right) discusses viticulture at the WSU Ag. Research Station vineyards.