National Association of Geoscience Teachers

Pacific Northwest Section

WINTER 2010

This Issue Includes:

From the President

How can we teach geoscience using information technology? The Internet is being used as a learning tool by most students, not just those taking online classes. The question is: how can we as geoscience teachers make the best use of this information technology to help students learn geoscience? What would a freely available portal of digital geoscience learning resources, one that can be used at the college level, look like?

Investigators have looked into the efficacy of digital learning and determined that learning results can be similar in purely online classes when compared with purely in-person classes, and can be better in "hybrid" courses that combine online and in-person teaching and learning methods. The Andes physics tutoring program from Carnegie Mellon University has been a key component of some hybrid physics courses. Students using Andes do their algebra-based physics homework assignments online. Several studies report that those students do better on tests than those who perform traditional pencil-on-paper homework, which lacks built-in feedback and tips.

One thing seems clear. Regardless of the design of a course, and regardless of the results of education research, more and more students are going to make use of the digital tools to which they have access. We can put those tools to work educating, or we can spend time policing for cell phone use during class. Key to embracing information technology in geoscience teaching is the free availability of high-quality digital learning resources.

The Bill and Melinda Gates Foundation, jointly with the Ford Foundation and the State of Washington, is offering grants for college educators to create "open course libraries" for community college classes, including Introduction to Physical Geology. While the first reason mentioned in the grant rationale is to save money on textbooks, it goes on to argue that the open courseware should help to engage students in active learning and help raise the rate at which students pass the classes.

Open courseware is based on the idea that all scholarly and scientific information should be free to everyone, once it has gone from proprietary to published. The goal is for everybody to have equally free access, via the Internet, to the information and tools needed to achieve higher levels of knowledge. A related idea about learning and information technology is that knowledge is best developed by sharing in its construction, as an interactive process among people. This is called "E-Learning 2.0" (Wikipedia).

I have been unable to locate open courseware that combines the essential content and tools to teach introductory geology at the college level. Available content is of mixed quality and lacks tools for engaging students. Because I feel strongly that such content and tools are needed, I am taking advantage of the opportunity to apply for the grant to develop the Introduction to Physical Geology open course library. I envision a dynamic set of content and tools that will evolve as students and teachers work together to improve it. I'm excited about this approach to incorporating information technology into geoscience teaching. I'd like to hear what you think. Please drop me an email: **rdawes@wvc.edu**. ----*Ralph*

Musings From the Section VP:

Ron Metzger, Southwestern OR CC

So, as the hours quickly pass towards the midpoint of the academic year, I reflect upon a couple emails that passed back and forth over the past few days and conversations with coastal colleagues. It's amazing what we accomplish as we try and do more with less. I spoke with one of my colleagues about professional development and as he spoke I thought of what I have been able to balance the last year between NAGT meetings and the benefit of having GSA in the back yard. It made me realize how fortunate I've been to participate recently at the Northwest and National level. More important is the fact that I would be willing to pay to participate if I could make it work in the academic and personal schedule.

So, we have **Shawn Willsey** getting ready to **host in 2010** and an offer by **Mike Cummings** to coordinate a conference at **Malheur Field Station** (see comments elsewhere in the newsletter for both of these events.) Mike has indicated that at this point the timing is flexible- anytime from about June 15 to 26. I am interested in finding out what works best for all of you, so email me comments about timing between 2011 graduation dates, summer session and any timing preferences. Additionally, consider whether 2011 could be a field only meeting, if a conference day is important, and if we want to follow the recent four day pattern. As a financial frame of reference, food and lodging will run somewhere around $50/day total. Comments can be forwarded to me at **rmetzger@socc.edu**.

Outstanding Earth Science Teacher

Deron Carter, Linn-Benton CC

The **Outstanding Earth Science Teachers** (OEST) **2010 award** deadline is soon---please consider a nominating a teacher from your area. The OEST award recognizes K-12 Earth Science teachers. The Pacific NW Section of NAGT recognizes hard-working teachers from Alaska, the Yukon, British Columbia, Oregon, Washington and Idaho. 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! Online nomination forms, which are easy and quick to fill out, can be found at: **http://serc.carleton.edu/nagt/programs/oest.html**

You can also fill out the mail-in form at the end of this newsletter. For more information, please contact **Deron Carter**, Pacific NW **section OEST coordinator** at **carterd@linnbenton.edu**.

Want to see where this came from? See Page 5 for info. on this year's field trips, PNW Section Annual Meeting, in Twin Falls, ID!

Trigonictis jaw, photo by P. Gensler.

Elections for the Section

Our Pacific Northwest is one of the most active sections in the NAGT, thanks to your involvement in the yearly field conferences and this newsletter. We have had no shortage of volunteers, whenever an opportunity has risen. We need your active participation again. The time has come to nominate yourself or fellow members for several positions, including:

- Vice President- The Vice President's main role is to support the President in section activities, as well as organize the details of our yearly conferences.
- Secretary/Treasurer- Keeps records of section business, including finances, as well as reporting annual finances to the National NAGT.
- Editor- Prepares a 3 section newsletters per academic year and is responsible for disseminating information to the Section membership.
- State Councilors for Yukon, BC, WA, ID, AK and OR (2 for each state) - Councilors are the local representatives for our section, and keep track of upcoming Earth Science opportunities for their home state. Councilors should actively encourage membership in the section, and communicate with the Editor to distribute information.

The Vice President is the presumptive next in line for the presidency, so the honorable Ron Metzger will be your next President. This is according to NAGT bylaws. More detailed descriptions for each position can be found at:
www.nagt.org/nagt/organization/section-guidelines.html
Please send your nominations to **Cassie Strickland** (**cstrickland@columbiabasin.edu**.) Ballots will be included in the Spring newsletter, and new officers will be announced at the 2010 Annual Section Conference in Twin Falls, Idaho.

Alaskan Resources

Michael Collins, Alaska State Councilor

This list of links has been compiled as a resource for Alaskan educators and educators interested in Alaska.

- **Digital Planetariums**. The UAF Museum of the North and scientists at the UAF Geophysical Institute are joining forces to bring the state's only digital portable planetarium to communities in rural Alaska. For more information go to: **www.uaf.edu/news/headlines/20081114155829.html**
- **Aurora Borealis.** General information and predictions about the aurora from UAF: **www.gedds.alaska.edu/AuroraForecast**
- **Earthquake.** General information about earthquakes in Alaska, including recent earthquakes: **www.aeic.alaska.edu/Seis**
- **Volcanoes.** General information about volcanoes from Alaska Volcano Observatory, including recent eruptions: **www.avo.alaska.edu**
- **Alaska Science Forum**. Articles about science phenomenon in Alaska: **www.gi.alaska.edu/ScienceForum/**
- **Alaska Biological Science Center**: **www.absc.usgs.gov**
- **Alaska Science Teachers Association: www.aksta.org**

Community College at GSA and Upcoming 2YC events

Frank D. Granshaw, Portland Community College

This year's national GSA conference in Portland was a red-letter date for community college earth science. In addition to the customary NAGT and GSA GED events, 160 topical sessions (27 of which focused on geoscience education), and 23 short courses, this year's convention saw the first annual reception for two-year geoscience faculty and the first ever technical session on teaching community college earth science.

The reception, hosted by GSA's Education Committee and its Education and Outreach staff, was an opportunity for community college and other two year geoscience faculty to meet and discuss the issues, needs and questions that are unique to teaching at two-year institutions. Though the attendance was not large, the discussion proved to be lively and encouraging.

The technical session, Geoscience Programs at Community Colleges: Models for Success and Innovation, was co-chaired by **Eric Baer** of Highline Community College and myself (**Frank D. Granshaw**.) Over a period of two days 14 talks and 12 posters were presented by over two dozen two year college and university earth science faculty from across the country. Topics included earth system education at two year colleges, field education programs, community college-university collaborations, distance learning in geology, teacher education projects, service learning projects, and a host of other topics. Co-chairing this session was exciting and a real honor. We are especially appreciative of NAGT and GSA's Geoscience Education Division's enthusiastic support and sponsorship of the session, as well as NSF's generous financial support of the presenters. In regards to the latter, Portland Community College was awarded $29,000 by NSF to provide financial assistance for the session presenters to attend this year's GSA conference. NSF provided this support because they are especially interested in finding ways to better support CC science education. To acquire this information the presenters and other interested community college staff met during the conference with **Jill Karsten** (NSF program director for GEO Diversity and Education) as well as **Eric Riggs** and **Heather Houlton** (evaluators from Purdue's Center for Research and Engagement in Science and Mathematics Education) for a focus group / dinner reception at PCC's Sylvania campus.

In the aftermath of the conference, I've received a number of emails from the presenters about what comes next. There is obviously a strong desire to keep up the momentum from the conference. One exciting follow-up to GSA is planning a workshop that will be taking place at Northern Virginia Community College this summer. The goal of this workshop is to identify the issues, challenges, and opportunities inherent in teaching community college geoscience with the aim of building resources to support two-year college earth science. Our very own **Bob Filson** (Green River Community College) is one of the workshop conveners. You can find further information about this and other similar resources by going to the "Geoscience in Two-Year Colleges" web page at:
http://serc.carleton.edu/geo2yc/index.html.

NAGT TEACHING-IN-THE-FIELD COLLECTION, *Jenny Thomson, EWU*

If you're not aware of the web site devoted to Teaching in the Field, point your browser to: **www.nagt.org/nagt/field/index.html** Here you will find a Field Trip Collection featuring information about field trips offered across the country including the Pacific Northwest. Each trip provides information as to the intended audience, location, context, goals, design, notes and tips, assessment and evaluation, materials and handouts, and references. If you're planning your own trip or have a trip to contribute, this is the place to visit!

State by State:

British Columbia, Yukon, Idaho, Oregon & Washington

Alaska: *State Councilors:Cathy Connor, Michael Collins*

- ★ **Alaska Science & Engineering Fair**, **March 26-28**, 2010. The Alaska Science and Engineering Fair will be held at Begich Middle School in Anchorage, Alaska. Senior high finalists will have their expenses paid to attend the International Science and Engineering Fair event in San Jose, California in May 2010. For info: **www.alaskasciencefair.org**
- ★ **Fair within a Fair"** The **COSEE Ocean Science Fair** is held within the Alaska Science & Engineering Fair. Projects may be entered in both fairs at the same time. Entry deadline is April 15, 2010.
  www.alaskasciencefair.org/ASEF%20Pages/OceanScienceFair.htm
- ★ **Alaska Summer Research Academy, July 19-30**, 2010. Explore archaeology, earthquakes and more as part of the curriculum in ASRA summer program. Applications due Feb. 15-Mar.1, 2010. See **www.uag.edu/asra**
- ★ **2010 Alaska CoastWalk Marine Debris Removal and Prevention Challenge Grants.** Grants will be available for the purpose of organizing a CoastWalk beach clean-up event, implementing a cleanup of existing marine debris in coastal Alaska, or developing and implementing a prevention program. For more information contact: **Katie Spellman**, (907) 235-6667. Grant deadline is February 26, 2010.

Idaho: *State Councilor: Shawn Willsey*

- ★ **Idaho Academy of Science, March 11-13**, 2010. The Annual Meeting and Symposium of the Idaho Academy of Science with be held on the campus of the College of Southern Idaho in Twin Falls. More information can be found at: **www.csi.edu/iasSymposium/index.asp**

Washington: *State Councilors: Joe Hull & Jeff Tepper,*

- ★ **WSTA, March 12-14.** Washington Science Teachers' Association will hold its annual conference in Everett, WA on March 12-14 at H.M. Jackson High School. For information go to: **WSTA 2010.net** or **wstacc@gmail.com**.
- ★ **Northwest Geological Society**. The NWGS meets the 2nd Tuesday of the month at the Talaris Center in Seattle. March's guest speaker is **Dave Morgan**, who will talk about fossils of Washington State. **Paul Hammond** will speak in April on the structure of the CRB south of Snoqualmie Pass. Contact **Ginny Agnew** (**agnewv@msn.com**) for more information.

Pacific Northwest Section of NAGT
Annual Conference – Twin Falls, Idaho
June 22 – 26, 2010

Shawn Willsey, College of Southern Idaho

This year's annual meeting for the Pacific Northwest section will be hosted by the **College of Southern Idaho** (CSI) in picturesque **Twin Falls, Idaho**. In addition to driving, flights arrive at the Twin Falls airport (via Salt Lake City) or you can fly to Boise and drive (~1.5 hours.) Lodging is available at area hotels or at the CSI dorms.

The scenic and deep Snake River Canyon forms the primary attraction in Twin Falls. At 486 feet, the Perrine Bridge is the tallest bridge in the Pacific Northwest and a popular spot for BASE jumpers. Area attractions include Shoshone Falls ("the Niagara of the West") located just four miles east of Twin Falls, Craters of the Moon National Monument, the rugged Sawtooth Mountains, Thousand Springs, Balanced Rock, and City of Rocks Natural Reserve. Outdoor activities include rock climbing, fishing, hiking, boating, whitewater rafting, spelunking, mountain biking, and rockhounding. For more tourist information, visit **www.visitsouthidaho.com/cake/** or **www.visitidaho.org/placestogo/southcentral.aspx**

Meeting Schedule

June 22 – **Trip 1**: City of Rocks National Reserve and Albion Range

June 23– **Conference Day** at College of Southern Idaho. Keynote by **Dr. John Shervais** on Snake River Plain deep drilling project.

June 24 – **Trip 2:** Effects of Volcanism and the Bonneville Flood in the central Snake River Plain, Part I

June 25 – **Trip 3:** Effects of Volcanism and the Bonneville Flood in the central Snake River Plain, Part II

June 26 – **Trip 4:** Hagerman Fossil Beds and Snake River whitewater trip

Call for submissions – Talks and Posters

Your participation on conference day is requested. If you are interested in presenting a talk, workshop, poster or panel discussion on conference day, please send a title and 250-word abstract to **Shawn Willsey** (**swillsey@csi.edu**). Submissions should focus on geoscience education or relevant geologic topics. Talks should be 15 minutes in length and posters should be no more than 3 feet tall by 4 feet wide. **The deadline for submissions is May 28th, 2010.**

Abstract Deadline May 28th

More information about this year's meeting can be found at the conference website: **www.csi.edu/NAGTconference/index.asp**

Field Trips

Trip 1: City of Rocks National Reserve and Albion Range

Leader: ***Kevin Pogue****, Whitman College*

From Twin Falls, we'll drive southeast to the Albion Mountains, a north-trending metamorphic core complex that is host to the Almo pluton, an Oligocene granite that forms the incredible domes and spires of the City of Rocks National Reserve and Castle Rocks State Park (See Figure 1.) We'll spend the morning in the parks viewing textbook examples of granite landforms and discussing the evolution of this spectacular landscape. After lunch, we'll head north along the range where we'll visit outcrops of Tertiary vitrophyre, Ordovician marble, Archean granite, and Proterozoic quartzite and schist. Weather and snow pack permitting, we'll end the trip by driving above timberline to the 9265 ft. glacially-carved summit of Mt. Harrison that features overturned quartzite beds and an amazing panoramic view that encompasses broad swathes of the Snake River Plain and Basin and Range provinces.

Figure 1. *City of Rocks National Reserve, photo by Kevin Pogue.*

This trip involved moderate hikes of up to two miles. Participants are encouraged to bring sunscreen, a hat, and water. A light jacket may be necessary for the high elevation portion of the trip. Lunch and snacks will be provided.

Trips 2 and 3: Effects of Volcanism and the Bonneville Flood in the central Snake River Plain

Leaders: ***Kurt Othberg*** *&* ***Dean Garwood****, Idaho Geological Survey*

The Snake River Plain of south-central Idaho records episodes of explosive Miocene rhyolitic volcanism associated with passage of the North American plate over the Yellowstone hot spot as well as Plio-Pleistocene basalt volcanism. This two-day trip includes stops to observe basaltic and rhyolitic rocks that form the **central Snake River Plain, evidence of volcanic events** and their effect on landscapes and stream dynamics, and depositional/erosional evidence of the Bonneville Flood.

The first day (Trip #2) will begin at the summit of a large shield volcano just north of Twin Falls where the development of the central Snake River Plain and the course of the Bonneville Flood will be observed and discussed. From there, we will move downstream investigating basalt flows, changes in depositional energy from the Bonneville Flood, lava-dammed lake deposits, pillow deltas, and young mass wasting deposits in the Snake River Canyon.

The second day (Trip #3) will begin at the 212-foot Shoshone Falls to examine exposed rhyolite along with the erosional evidence carved by the Bonneville Flood. The trip will then visit Balanced Rock and paleosols and recent mass wasting in Salmon Falls Creek canyon. We will then travel to the confluence between Salmon Falls Creek and the Snake River where dramatic landform changes have occurred as a result of interactions between volcanism and fluvial processes. The trip will conclude by examining two amphitheater-shaped box canyons that feed into the Snake River.

Both trips involve light to moderate hiking of up to two miles. Participants are encouraged to bring sunscreen, a hat, and water. Lunch and snacks will be provided.

Trip 4: Hagerman Fossil Beds National Monument and Snake River Whitewater
Leader: ***Phil Gensler**, Hagerman Fossil Beds NM*

Hagerman Fossil Beds National Monument is located along the Snake River about 35 miles west of Twin Falls. The monument was set apart in 1988 and consists of 4,300 acres of Glenns Ferry Formation that preserves the world's richest known Pliocene-aged fossil deposit. In the Hagerman area, the Glenns Ferry Formation largely represents a deltaic environment of ancient Lake Idaho where the remains of over 100 species of fossil vertebrates have been identified. The monument is perhaps best noted for the Hagerman Horse Quarry from which over 200 individual horses (Equus simplicidens) have been recovered.

This field trip will include stops at the Hagerman Fossil Beds Visitors Center in downtown Hagerman, the monument paleontology lab, and a trip to one of the monument's fossil localities (See figure 2.) Topics covered include the history, geology and paleontology of this National Park Service unit.

After lunch, we will travel on guided rafts down the Hagerman stretch of the Snake River, a six mile section of amazing scenery, flat water, and whitewater (up to Class III.) In addition to abundant wildlife, the river provides great exposures of recent volcanism and hydrovolcanism, Bonneville Flood deposits, and recent mass wasting features.

The morning portion of this trip will include a hike of up to half a mile in an open, exposed region. Participants are encouraged to bring sunscreen, a hat, and water. For the afternoon river trip, participants should also bring Teva or similar sandals and quick drying shorts/swimsuits. Dry bags and life jackets will be provided by the guides. Lunch and snacks will be provided.

For registration materials and submitting talk and poster information, please go to the conference website: **www.csi.edu/NAGTconference/index.asp**

Scablands to Islands: A Transect of WA
Summer Field Trip Opportunity through EWU

Jenny Thomson, Eastern Washington University

Scablands to Islands: A Transect of Washington – Instructors: Drs. Buchanan, **O'Quinn** and **Thomson**. This is an eight-day field class to explore the spectacular natural history of the Pasayten Wilderness, North Cascades National Park, Mt. Baker Wilderness and the San Juan Islands. The course will emphasize the varied and complex geology along a transect across the North Cascades that illustrates the assemblage of an active continental margin. We will also have the opportunity to examine the effects of climate, topography, fire history and elevation on vegetation as we travel from the dry shrub steppe of eastern Washington to the alpine meadows of the high Cascades to the lush forests of western Washington. **July 10 – 17, 2010**. For information and contact information please visit: **www.ewu.edu/x58597.xml**

GEOVENTURES for Students! 2010
Geology on an Active Hot Spot, Hawaii

Jenny Thomson, Eastern Washington University

Geology on an Active Hot Spot – Instructors: **Dr. Jenny Thomson**, Eastern Washington University and **Dr. Bart Martin**, Ohio Wesleyan University

This eight-day field course (excluding two travel days) on the Big Island of Hawaii will serve to introduce participants to plate tectonics, hot spot volcanism, and the geologic features and hazards associated with living on an active volcano. We will discuss volcanic edifices, eruption styles, magma evolution, and see features such as various types of lava flows, lava lakes, fault scarps, rifts, craters and calderas and active lava flows. The trip is designed for college-level students and/or those wishing for a continuing education experience who have had at least an introductory geology course or who may interested in pursuing a degree in geology. The primary learning goals for are: (1) to familiarize students with basic, introductory-level concepts and processes in geology and, in particular, volcanology; (2) for students to learn to make and record observations in the field and to understand the connectivity between geology and humans living on an active volcano. July 30 – August 8, 2010. GSA student members $985 (not including airfare to and from Hilo, HI). Trip sponsored by GSA and Subaru, Inc. For contact and registration information please visit **www.geoventures.org**

Cordilleran Section/AAPG Joint Meeting
May 27-29th, 2010 Anaheim, CA

The 2010 GSA Cordilleran Section/AAPG joint meeting will be held Thursday May 27th through Saturday May 29th, 2010, in Anaheim, California. The meeting is hosted by Cal State Fullerton Geological Sciences and the Pacific Section of AAPG. If you have an idea and would like to chair a theme session or a symposium contact **Jeff Knott** at **jknott@fullerton.edu**.

Malheur Field Station, Burns, Oregon
2011 Pacific NW NAGT Section Meeting

Mike Cummings, Portland State University

The **2011 Section meeting** will take place at **Malheur Field Station** located near Burns, Oregon. Malheur Field Station is located on the Malheur National Wildlife Refuge established by President Theodore Roosevelt in 1908. The technical program will include field excursions in the High Lava Plains and north Basin-and-Range Provinces and will focus on high desert hydrogeology, including Malheur National Wildlife Refuge (coordinated with Refuge staff), Miocene age widespread pyroclastic flows (Rattlesnake and Devine Canyon welded tuffs), late Holocene basalt flows at Diamond Craters, and geothermal systems of the Alvord Desert. Days will be spent in the field exploring this high desert landscape. Evening sessions will consist of presentations/poster sessions. Meals and lodging will be provided at the Malheur Field Station. Bring your own bedding! Round trip transportation from Portland by state vans is available. For information, contact **Michael Cummings**, Department of Geology, Portland State University (**CummingsM@pdx.edu**.)

REGISTRATION FORM

National Association of Geoscience Teachers – Pacific Northwest Section
Annual Meeting: June 22 – 26, 2010
College of Southern Idaho, Twin Falls, Idaho
www.csi.edu/NAGTconference/index.asp

Name:_____ **Email Address:** _____

Affiliation: _____

Mailing Address:_____

Phone: _____

Name (as you would like it to appear on your Name Tag):
Line 1 _____
Line 2 _____
Line 3 _____

Tuesday, June 22nd - Field Trip - City of Rocks and Albion Mountains ($40) $ _____
Includes copy of City of Rocks geology book, "Etched in Stone"

Wednesday, June 23rd - *Conference Day Registration* ($30) $ _____

Wednesday Evening, June 23rd – Conference Dinner ($30) $ _____

Thursday, June 24th Field Trip - Snake River Plain Trip #1 ($30) $ _____

Friday, June 25th Field Trip - Snake River Plain Trip #2 ($30) $ _____

Saturday, June 26th Field Trip - Hagerman Fossil Beds and afternoon Snake River whitewater trip ($60) $ _____

TOTAL: $ _____

Registration is due by JUNE 2, 2010
(Late registrations will be charged an extra 20%)

Please make enclosed checks payable to the ***College of Southern Idaho***
Mail this form and payment to:
Business Office
College of Southern Idaho
PO Box 1238
Twin Falls, ID 83303-1238
For more information, contact Shawn Willsey at swillsey@csi.edu or 208-732-6421

Business Office Use Only:
01-1810-4655 G5Y