National Association of Geoscience Teachers

Pacific Northwest Section

January 2006

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In this Issue:

Spring 2006 Section Elections: Call for Nominations!

Section elections for all officer and councilor positions will be held this spring. This is a call for position nominations.

- Are you interested in getting more involved with the Pacific Northwest Section of NAGT?
- Do you know someone who would make an effective representative for the section?

Well, here is **YOUR** chance to participate. We need your help in keeping this section alive and active. Please take a look at the various positions on the section website (**http://nagt.org/nagt/organization/northwest**) and please consider getting more involved. If there is something you would like to get involved with but you don't see a specific position for, like "*The Beer and Wine Manager*" for section events or "*Dancing & Entertainment Councilor*" for the lavish section cruises, or "*The Awesome Field Trip Coordinator*", or whatever… email us and we can take care of it. But get off your duff and get involved!

The **DEADLINE** for position nominations is **March 15th**. Send your nominations via either email or hardcopy to **Cassandra Strickland** (Section Newsletter Editor) at: cstrickland@yvcc.edu or mail to: YVCC, 500 W. Main St., Grandview, WA 98930.

A list of candidates and a call to vote will be presented in the spring section newsletter. Election results will be presented at the annual section meeting in June.

San Juan Island, one of the field trip destinations for this year's 2006 Section conference in Bellingham, WA, is famous for Orca whale pods, in addition to geology. Photo courtesy of the San Juan Island Chamber of Commerce.

Pacific Northwest Call for OEST Nominations

***Ron Metzger**, Southwestern Oregon CC*

With the onset of a new year, the Pacific Northwest Section of NAGT again makes the request for its membership to nominate K-12 educators for the prestigious NAGT Outstanding Earth Science Teacher award. At recent sectional meetings in Coos Bay and Wenatchee, several people mentioned worthy candidates. Now is the time to act and put together their applications. We doubled our nominations in 2005; let's see if we can nominate even more outstanding educators in 2006. For a copy of the application go to: **http://www.nagt.org/files/nagt/OEST.pdf**.

As a section, we have the opportunity to award state or provincial OEST honors to teachers in each of our regions. That's five outstanding educators. Simply put, that means we need nominees from: Washington, Oregon, Idaho, Alaska and British Columbia. Plus, we also recognize a sectional winner who will receive a number of society memberships, funds for meeting travel and classroom supplies, and much more.

Previously, nomination numbers for this award have been embarrassingly low for sections around the country, including ours. Indeed, in 2004 and 2005 the Pacific Northwest section awarded two sectional and one state award. It's time for our section to make a concerted effort to recognize not only a sectional winner, but also state and provincial winners as well. If you know someone that should be recognized, please submit the application by April 15, 2006 to: **Ron Metzger**, Southwestern Oregon Community College, 1988 Newmark Ave., Coos Bay, Oregon 97420. If you have any additional questions, please contact me at rmetzger@socc.edu.

State by State

British Columbia: *Nothing to Report*
Yukon: *Nothing to Report*
Idaho: *Nothing to Report*
Oregon: *Nothing to Report*

Alaska

Cathy Connor, State Councilor

2006 GSA/AAPG/SPE Joint Meeting. The Cordilleran Section, GSA, the Pacific Section, American Association of Petroleum Geologists, and the Alaska Section, Society of Petroleum Engineers will hold a joint meeting at the Hilton Hotel in **Anchorage Alaska**, **May 7-10th, 2006.** For session and field trip schedules and registration information, go to **http://anchorage2006.com** .

K-12/CC Geoscience Workshop, Anchorage, AK, May 2006. This workshop will focus on creating classroom activities using real-time seismic data and webcam images to interpret geologic activity along Alaska's subduction zone. For more information, see the article later this issue, or contact **Cathy Connor**, at cathy.connor@uas.alaska.edu

Alaska Society for Technology in Education (ASTE). "Cooking With Technology Conference**" Feb 27-28**, **2006**, **Anchorage**, AK, **www.aste.org** .

Washington

J. Hull, J. Tepper, State Councilors

Job Opening. Green River Community College has recently approved a new position in geology and oceanography. This new instructor will also teach in the Interdisciplinary Science series of courses for non-science majors. This is a full-time, tenure-track position. For more information, go to: **http://www.greenriver.edu/hr/facultyf.htm** .

Thank You for Your Help!

Thank you to all of the outstanding geoscience educators who contributed to this lengthy newsletter. For the next issue, if you would like to submit a news item or article, post a response to a past article, or write your own opinion piece, please send your submission to **Cassandra Strickland** at cstrickland@yvcc.edu, or 500 W. Main, Grandview, WA 98930. We welcome all contributions of interest to our geoscience community!

Mark Your Calendar! 2006 Section Conference, Bellingham, WA

***Bob Christman**, Western Washington University*

The Pacific Northwest, B.C. and Alaska NAGT Section will hold its annual Spring Meeting at the geology department of **Western Washington University** in **Bellingham**, on **June 22-25**, **2006**. An all-day geology field trip to San Juan Island (*see picture, page 1*) is being scheduled for Friday, June 23rd. Saturday will be devoted to meetings and papers with a banquet Saturday evening. It is anticipated that other field trips will be offered on Thursday, June 22nd and Sunday, June 25th. Watch for further information. Contact person: **Bob Christman**, Geology Dept 9080, WWU, Bellingham, WA 98225-9080, Telephone 360-650-3587, FAX 360-650- 7302, email xman@cc.edu.edu. You can also access the conference website at:

www.wwu.edu/NAGTPNW

Summer Education Opportunity on the Olympic Peninsula

***Jenny Thomson,** Eastern Washington University*

K-12 Instructors: Looking for something to do this summer that is both educational and fun? Join Eastern Washington University in a week-long (July 16 - 22) interdisciplinary (geology, botany, ecology, history) summer field trip to the Olympic Peninsula of Washington State. The course may be taken for credit (5) or audited by continuing education students. The trip is led by three instructors, two in geology and one in botany. For more information check out our web site and the contacts provided. **http://www.geology.ewu.edu/dept/sumtrp06.htm** .

Geoscience Workshop for Teachers

GSA/AAPG/SPE Joint Meeting, Anchorage

Using Real-Time Data to Interpret Alaskan Geology

***Cathy Connor,** University of Alaska*

The 2006 annual meetings of the Cordilleran Section, GSA, the Pacific Section, American Association of Petroleum Geologists, and the Alaska Section, Society of Petroleum Engineers will be held jointly at the Hilton Hotel in **Anchorage Alaska**, **May 7-10th, 2006**. The GSA Cordilleran Section meeting is offering a geoscience education session and poster opportunities (abstract deadline is Feb. 7, 2006; undergraduate submissions welcome, also), and a NAGT-sponsored geoscience workshop for teachers of K-12 or community college level.

During the geoscience workshop, teachers will learn how to create classroom activities that show how real-time measurements of an active subduction zone are made and what they tell earth scientists. We will combine volcanic seismic data available from the USGS's Alaska Volcano Observatory (AVO), webcam imagery of various Alaska volcanoes from on-site cameras, and seismic data from throughout Alaska obtained from the Alaska Earthquake Information Center (AEIC). Participants will also tour the AVO facilities in Gould Hall to get a sense of the science habitat and instrumentation in use. Co-organizers **Jennifer Adleman** (AVO) and **Dr. Cathy Connor** (University of Alaska Southeast) would also like to invite volunteers to man the NAGT booth during the meeting.

Need another reason to attend the workshop? The city of Anchorage, located in a natural setting of unparalleled beauty, is nestled between the wilderness of the Chugach Mountains and the two arms of upper Cook Inlet. Several field trips will be offered as part of the regular joint-meeting schedule; however, you don't have to participate to enjoy Anchorage's five mountain ranges and many active volcanoes, all easily viewed from the city.

If you are interested in attending the joint meeting, up-to-date information, including field trips and registration material, can be found at http://anchorage2006.com. If you would like to participate in the NAGT-sponsored workshop, or would like to volunteer, please contact **Cathy Connor** at (907) 796-6293 (cathy.connor@uas.alaska.edu**) or Jennifer Adleman** at jadleman@usgs.gov. Secondary science teachers in the local area (e.g. Anchorage, Fairbanks, Prince William Sound, Matanuska Valley et. al.) are particularly encouraged to join us!

http://www.geosociety.org/sectdiv/cord/06cdmtg.htm

Augustine volcano in Alaska's Cook Inlet, January 18, 2006. New pyroclastic flow deposits in the foreground.. Photo by John Eichelberger, Alaska Volcano Observatory / University of Alaska Fairbanks, Geophysical Institute.

2005 GSA National Meeting

Salt Lake City, Utah

***Frank D. Granshaw**, Portland CC*

As always, National GSA was a rich, exciting, informative, and exhausting time that contained much of interest to geoscience educators. This year's pre-conference session and workshop topics ranged from designing effective geoscience education research to teaching art with geology. During the main conference, attendees had a choice of over twenty geoscience education technical and poster sessions with themes such as geology in the national parks, using GIS and spatial analysis in interdisciplinary education, informal science education, strategies for teaching introductory geoscience in large lecture classes, and methods for assessing teaching and learning in the geosciences. I am always inspired by the enormous amount of creativity and dedication of my colleagues whenever I attend these events. Not surprisingly, there were two sessions and a hot topic talk dedicated to teaching evolution. These proved to be lively discussions that included a wide range of speakers most (but not all) of whom defended the teaching of evolution in the geosciences. It was interesting that Utah's major newspaper that week recognized the conference with an article titled "*Geologists dig in to defend evolution*". Unfortunately this was pretty much all that they said about the conference.

NAGT of course had a significant presence at the conference. In addition to national meetings and joint events with the GSA educational division, we maintained a booth on the conference exhibit floor. For members who have never been to a GSA conference before and are thinking about doing so in the future, I strongly encourage you to volunteer for a stint at the NAGT booth. It is an excellent opportunity to get to know geoscience educators from across the globe working in a wide variety of situations.

National GSA conferences provide national and regional NAGT members an opportunity to meet to discuss sectional and national business. As is our custom, the NAGT executive committee and council met on the Saturday prior to conference. The council meetings include both executive committee members and sectional representatives (presidents, VPs, or councilors). In addition to the customary administrative business, some of the key issues discussed in this year's meeting included:

- The upcoming NAGT position statement on evolution. Members should expect to see a draft of this some time in the near future.
- The state of NAGT's various publications and vehicles for communication. These include the Journal of Geoscience Education and the NAGT website. If you haven't looked at the latter recently, do so. **Cathy Manducca** has done an excellent job redesigning it. In regards to JGE, journal editor **Carl Drummond** described plans for putting JGE on-line.
- NAGT membership and how we are doing at addressing the needs at K-12 education. In particular the Atlantic Southeast and Far West sections have several programs that the rest of us can learn from.
- Improving the OEST (Outstanding Earth Science Teacher) program and how to provide support for OEST awardees.
- Cutting edge workshops and web based projects such as "Starting point" and "Earth Exploration Toolbook".
- The distinguished speaker series, a program that appears to have been quite active and successful this past academic year.

The Fordham Institute Report on State Science Standards

Andy Buddington, Spokane CC

The recently released **Thomas B. Fordham Institute** report, "*The State of State Science Standards*" (Gross, et al., 2005) evaluates and grades individual state science standards based on a long list of criteria. The report indicates some serious problems with individual state science standards, especially for the Pacific Northwest states. The "good news", however, is that many of the flaws in the standards can be easily fixed or rewritten. The bottom-line is that state science standards need the intimate involvement of what the report calls "bench" scientists and not just science educators. Here are some comments from the report findings. Please keep in mind that this report addresses science standards as a whole and not earth sciences specifically. For a detailed view of how your state fared, go to **http://www.edexcellence.net/institute/publication/publication.cfm?id=352#1129**. For a brief outline of earth science standards by state/province, see the article "**K-12 Earth Science, State by Province"**, later in this newsletter.

Alaska received an icy **F** by the study. "*Alaska's very spare documents fall repeatedly into unintelligible jargon. In places, political correctness dominates content or manner of instruction. The impression is given of more seriousness about native Alaskan cultures than about the whole of natural science.*" The Alaska summary concludes with "*We hope that the state's revised standards (adopted after our cut-off date) are better. They can hardly be worse.*" Yikes!

Idaho also received an overall **F** grade. The report states "*For earth and space sciences, the 3rd grade has material on the solar system, length of day, seasons, phases of the moon, and eclipses; 4th grade repeats it. Fifth grade calls for what amounts to the whole of earth systems science! "Investigate the interactions between the solid earth, oceans,*

atmosphere, and organisms." Under this there is some mention of water cycle, cloud types, and fossils for evidence of past life. There is also an introduction to the rock cycle and the composition and layering of the earth. This content is repeated at 6th grade. In subsequent grades there is a little expansion of content and more generalities about interactions, but insufficient detail in any of it to guide lesson planning or assessment." The investigators state plainly that the major problem with Idaho standards is the pervasive vagueness throughout all grade levels. A quick Google search reveals that indeed the Gem state is definitely scattered and vague in what there is to offer in helping guide educators.

Oregon received a big fat **F**. What gives here? Are the investigators a bunch of pompous scientific egotists? Well, here's a brief sniped from the report: "*Science, in Oregon's Academic Content Standards, is encompassed within a short, and in some respects obscure, grid format. It has the virtue of brevity tainted by the vice of inscrutability*." The report also states "*There are very few standards overall; they are broadly general and tend to be repeated at higher grade levels with little or no change. The science process standards are perfunctory and their development in higher grades suggests little expectation of student growth*." For you Oregonians that care, go to the report and read the gruesome details or see the summary below!

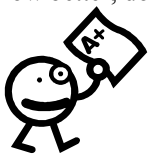
Washington received a **C**. Hooray for excellence and the Discovery Institute! Finally, a Northwest state that can be proud of their K-12 science standards. Sorry folks, it isn't that wonderful when you read what they have to say: "*The tone of Washington's science standards can be conveyed by its handling of science process. It is one of those states whose focus is on repetitive coaxing: "Learning in science depends on actively doing science. Active engagement in hands-on, minds-on science learning experiences enables students to make personal sense of the physical world.…" Of course educators who propagate such clichés (they are clichés now) do know—must know—that some important science (say, theoretical physics?) is not "hands-on" and that there is no such thing as "minds-off" science. But they feel, evidently, the need to fly the ensign.*"

British Columbia was left out of the study. A conspiracy of embarrassment I am sure. British Columbia would've undoubtedly scored high with an A or B because they learn from repeated mistakes coming from south of the 49th parallel. Well, maybe not, see the State by Province report below.

Other states of interest:

- California = **A** (was there any doubt?)
- Colorado = **B**
- Montana = **C**
- Nevada = **D**
- Wyoming = **F** (but they have a Vice President to be proud of!)
- Kansas = **F** (unintelligent design?)
- Massachusetts = **A** (yea for Liberals!)
- New York = **A** (yea again for Liberals!)
- Texas = **F** (all children left behind)

Well, there you have it. The Pacific Northwest is woefully behind in the development of K-12 science standards. At least that is what the Thomas B. Fordham Institute experts have to say. Well, we know better, don't we?



K-12 Earth Science, State by Province

Andy Buddington, *Spokane CC*

The following are brief outlines of where state and province earth science standards can be located online. The information provided frustratingly ranges from very detailed to extremely broad and useless. It also varies from state to province. Many thanks go to the state/province councilors for their help in putting this initial attempt together. Again, as the Fordham Report (see previous article, this newsletter) strongly indicates, we are way behind the curve when it comes to teaching earth science at the K-12 levels here in the Northwest. With so much to offer with regards to our natural geologic setting, we present so little at the K-12 level.

Alaska:

Alaska content standards for science can be found at the following sites:

- http://www.educ.state.ak.us/ContentStandards/Science.html
- http://www.ankn.uaf.edu/Publications/Translating/index.html

For a very broad presentation of Alaska Earth Science standards for the different grade levels, go to:

http://www.eed.state.ak.us/tls/Frameworks2/teachers/science/start/d.html

British Columbia:

In B.C., no special certification is required to teach earth science at the K-12, only an undergraduate degree and a one year teaching certificate. Theoretically, a teacher would teach their specialty in high school but in practice this does not always happen (for example the geology teacher at the high school level may actually teach art). The provincial government has standardized exams at grades 10 and 12. Approximately twenty percent of the grade 10 science curriculum is earth science. Grades 11 and 12 have specific geoscience courses.

To examine what earth science topics are taught at specific levels, go to either:

- Grades 8 through 10: http://www.bced.gov.bc.ca/irp/science810/scatoc.htm
- Grades 11 and 12: http://www.bced.gov.bc.ca/irp/esg/apa.htm

For grades K though 7 there is one PDF file of Earth science outcomes (see page 5):

http://www.bced.gov.bc.ca/irp/sciencek7/scik7_lo.pdf

Clearly, our friends to the north are in the same boat we are. I guess we (the United States) lead by example and they follow like sheep? Sorry, it's just a jab back at the B.C.'ers for always giving us a hard time at the annual conference.

Idaho:

Idaho's K-12 earth science standards are written in an incredibly vague and nebulous manner (which made this assignment even more onerous). Many of the standards are repeated from one grade to the next and therefore don't build upon prior knowledge and understanding. Such broad language might lead teachers to question "Where should I begin?", with respect to lesson and activities planning..

To learn about Idaho's earth sciences standards, follow these links:

- Grades 6 through 8: http://www.glencoe.com/correlations/PDFs/9746ID.pdf
- Grades 9 through 12: http://www.glencoe.com/correlations/PDFs/9774ID.pdf

Unfortunately, information regarding teacher endorsements or training certificate requirements in Idaho could not be found for this report. Idaho, with some of the richest earth science history of any state in the country, clearly has some catching up to do with regards to the teaching of earth science to its youth.

Oregon:

Earth Science is one of the four areas in science identified by the National Science Standards (also: biology, chemistry and physics). In Oregon, these areas are tested at the 10th grade level with a Certificate of Initial Mastery examination (CIM), although the Earth Science course work normally takes place at the middle school level and is generally not revisited in high school. To teach Earth Science in Oregon, no degree specialization is required at the middle school level. At the high school level, a certificate of Integrated Science, rather than one of Earth Science, qualifies one to teach.

The standards for the State of Oregon that specifically apply to the Earth Sciences can be found at the following link. Please note, the italicized text refers to those areas "that may appear on the 2005-07 Oregon Statewide Assessment," but should be interpreted to mean are required to be taught.

http://www.ode.state.or.us/teachlearn/subjects/science/resources/sci-tls200507.pdf

Washington:

Earth Science is part of the curriculum in almost all grades up through 9th, but receives the greatest emphasis in grades 3, 5, 7 and 9. Specific topics covered at each grade level are listed in the WA Grade Level Expectations (GLE), available on-line at:

http://www.k12.wa.us/CurriculumInstruct/Science/default.aspx

The earth science course requirements and endorsement for K through 12 teachers in Washington are:

- Elementary teachers are NOT required by statute to specifically take Earth Science (though many take GEOL 101). See the following link for more details: http://www.wce.wwu.edu/Resources/Endorsements/ElementaryEducation.html
- Middle and high school teachers seeking a General Science endorsement must take at least Physical Geology and Historical Geology. See the following link for details: http://www.wce.wwu.edu/Resources/Endorsements/Science.htm
- Teachers seeking an Earth Science endorsement are basically required to major in geology and must also take coursework that includes oceanography, astronomy and meteorology. For details see the following link: http://www.wce.wwu.edu/Resources/Endorsements/EarthScience.html

Finally, the Earth Science components are testable on the Science WASL at grades 5, 8 and 10 (the % ES shifts from year to year depending on the topic of the scenarios selected). For more details see the following link: http://www.k12.wa.us/assessment/WASL/Science/default.aspx

Check out our Section Website!

http://www.nagt.org/nagt/organization/northwest

Membership & meeting information, Guidebooks, past newsletters & more!