

**GEOBULLETIN**  
**MARCH 12<sup>TH</sup>, 2010**

GeoBulletin is distributed weekly, by E-mail. Contributions are requested! If you have a news item, a request, an announcement etc. email it to geodept@geology.wisc.edu or leave it at the office, Room 236 by Noon on Monday.

**Weeks Lecture**

**Speaker list - Winter/Spring 2010**

Date	Speaker	Faculty sponsor
Mar. 17/18	Scott Tyler	WANG CONFIRMED
Mar. 19	Chris Pearson	
Apr. 9	OPEN	
Apr. 16	John Craddock	GOODWIN CONFIRMED
Apr. 23	OPEN	
Apr. 30	John Eiler	VALLEY CONFIRMED
Apr. 30	BOV/spring banquet	
May 7	Emily Brodsky	FEIGL CONFIRMED

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**WEEKS LECTURE**

**PROF. SCOTT TYLER**  
**Department of Geologic Sciences and Engineering**  
**University of Nevada, Reno**

**Wednesday, March 17<sup>th</sup>, 1:20 PM. Weeks Hall, Room 140**

Distributed Temperature Sensing: A Transformative Technology in Water Resources and Ecology

Temperature represents a fundamental variable in almost every hydrodynamic, ecological or ecohydrologic study that can be imagined. Whether thermal energy represents a fundamental driver of processes, or is being used to trace fluxes of water, solutes and nutrients, measurement at high spatial AND temporal resolution has not been possible. While remote sensing can provide high spatial resolution, temporal resolution is limited without tremendous cost. Point sensors can provide high temporal resolution, and with the development of low cost self organizing sensor systems, the cost for spatial resolution has decline somewhat.

Fortunately, advances in Raman spectra fiber optic distributed temperature sensing (DTS) now allow for the measurement of temperature over kilometer scales at meter resolution, the measurement at temporal scales of 0.1-0.3 Hz; all at temperature resolutions of less than 0.05 °C. DTS has been described as a “transformative” technology

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in hydrology and ecology as it can provide granularity of data that has never been seen before. In this talk, applications ranging from stream/groundwater dynamics, air and water circulation cave environments as the use of DTS to measure snow dominated landscapes will be presented. In this talk, the basic theory of operation will be presented, along with several recent hydrologic applications to demonstrate the information capacity of the emerging technology.

**PROF. SCOTT TYLER**  
**Department of Geologic Sciences and Engineering**  
**University of Nevada, Reno**

**Thursday, March 18<sup>th</sup> - Noon, Weeks Hall, Room 140**

Theory and Application of Distributed Temperature Sensing to Hydrology: Operational Aspects of DTS

Starting in early 2010, the Center for Transformative Environmental Monitoring Programs (CTEMPs) will offer field deployable distributed temperature sensing systems (DTS) to the earth sciences community for research and education. In this talk, we begin with an overview of the theoretical aspects of both distributed temperature and distributed strain (acoustic) sensing. For hydrologic applications, we typically require higher precision and accuracy than existing industrial applications of DTS which has led to some disappointments, and fortunately more recently, advances in both instrument resolution and data interpretation. Techniques appropriate for the hydrologic and earth sciences community for deployment, calibration and interpretation will be presented in a roundtable format. Finally, the operational aspects of the CTEmps will be discussed and opportunities for collaboration investigated.

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**WEEKS LECTURE**

**CHRIS PEARSON**

National Geodetic Survey Geodetic Advisor for Illinois

**Friday, March 19<sup>th</sup>, 3:30 PM. Weeks Hall, Room 140**

Development of a tectonic model for deformation in the western US constrained by (mostly) GPS measurements

The western part of the United States is constantly deforming due to the boundary between tectonic plates that runs through this region. As a result, accurate surveying in the western US requires a model describing crustal velocities and earthquakes to allow survey measurements to be corrected for differential movement so that surveys conducted at different epochs may be compared. The National Geodetic Survey (NGS) has developed the HTDP (Horizontal time dependent positioning) software that enables its user to make these corrections.

This software must be updated periodically to address the displacements associated with each new earthquake. This seminar describes our efforts to develop a comprehensive model of deformation in the western US with particular emphasis for the geological results. I will also discuss our plans to update our model in Alaska

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**2010 Geologic Photo Contest**

Sponsored by the Undergraduate Geo Club

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### What:

A photo contest for you to show off that plethora of geology related photos to people who actually care.

### Who can participate:

Anyone and everyone

### How long does this go on:

Submissions must be in by April 25<sup>th</sup> 2010

### Official Rules:

You may only enter 2 photos per category, ten photos total. All submissions must have the accompanying information:

Name of photographer, Category, Subject (what are you or who are you photographing), When, Where the photo was taken.

### Categories:

- Close up of geologic feature
- Black and White
- Group Photo
- Landscape
- Other – geology related – (Lab photos)

### \*How to Submit a photo:

Please submit all photos electronically through e-mail. Please only submit one e-mail per category which can contain both submissions for that category. Please title the Subject line of your e-mail with your last name and the category in which you would like to submit. Make sure you have all the accompanying information with your submission (Name of photographer, Category, Subject (what are you or who are you photographing), When & Where.). This information can either be in the body of the e-mail or in an attached text file. We will not accept submissions without this information (have to give credit where credit is due). Submissions can be sent either to Reba Heiden at [rmheiden@wisc.edu](mailto:rmheiden@wisc.edu) or Lynsey Spaeth at [lspaeth@wisc.edu](mailto:lspaeth@wisc.edu).

### Prizes:

At the end of the semester, all photos will be displayed publicly in Weeks Hall and will be judged based on category criteria through a voting process held in the beginning of May.

Prizes are yet to be determined; however winning photos will be combined into an annual calendar or poster calendar and sold for the holiday season through GeoClub. Winners will receive a calendar at no cost.

\*Prize donations, for the contest, will be greatly appreciated.

**\*Please be aware that by submitting a photo you agree to the public display and free usage of the photo by the UW Undergrad GeoClub.**

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## JOB OPENINGS

- [Director's Postdoctoral Fellowships - Argonne National Laboratory](#)
- [2010 Argonne Named Fellowships](#)
- [Postdoctoral Research Seismologist - Hawaiian Volcano Observatory](#)
- [Baylor University, anticipate a postdoctoral researcher position starting June 2010](#)
- [Postdoctoral Fellow in stable isotope analysis of tree-rings](#)
- [Research Fellow: Geochemical and Isotopic Tracers of Groundwater-Surface Water Interaction -School of Geosciences, Monash University\(Melbourne Australia\)](#)
- [Seismology faculty - Saint Louis University -Department of Earth and Atmospheric Sciences - Position Available, Fall 2010](#)
- [Surface Scientist - Description -The Surface Analysis Laboratory Team within Micron Technology utilizes a wide range of state-of-the-art surface analysis metrologies to support R&D and production activities world-wide](#)

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- The Departments of Geological Sciences and Science Education at Central Washington University invite applications for a full-time, tenure-track position at the Assistant/Associate Professor.

**JOB OPENINGS**

**Director's Postdoctoral Fellowships - Argonne National Laboratory**

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Candidates for the Director's Postdoctoral Fellowships are selected based on their research and academic accomplishments, and the strength of their research proposal. They will collaborate with Argonne scientists and engineers on existing programs and on new initiatives. All applicants must identify an Argonne employee (sponsor) who will write the nomination memo and present your case in front of the Postdoctoral Committee. The sponsor could be someone who is already familiar with your research work and accomplishments through previous collaborations or professional societies. If you have not yet identified an Argonne sponsor, visit the detailed websites of the various [Research Programs](#), [Research Divisions](#), and [Project Descriptions](#).

The candidates' application packages are reviewed by the Postdoctoral Committee. The deadlines to receive all the application materials are February 8, June 21, and September 13, 2010. Fellowships are awarded for a one-year term, with possible renewal for second year. The 2010 Fellowship carries a stipend of \$78,000 per annum.

**Candidate Eligibility:**

PhD requirements have to be completed by commencement of appointment. Candidates must have received their PhD recently.

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**How to Apply :**

Candidates must upload the following documents by clicking on the [application link](#).

- Research proposal ( $\leq 2$  pages)
- CV, including list of publications, abstracts and significant presentations
- Graduate School Transcripts
- Cover letter (optional)

If you DO NOT have all of the required documents at this time, you may come back to your application and upload them later.

To come back into your application, click on the [application link](#):

1. Enter in your email address for Username.
2. Enter in your Password.
3. Click on the 'Edit Registration' link (located on the bottom of the dialogue box).
4. Edit/Add any other information to your profile:

Upload a document (to upload a document, it must be of '.doc' or '.pdf' file type; document names cannot contain 'special' characters such as '&,@,#, etc)

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5. Click the 'Submit Registration' button to Apply.

Additionally, the package must contain:

- Nomination memo ( $\leq 2$  pages) from Argonne sponsor (with copy to Division Director)
- Three letters of recommendation from other than Argonne staff

These letters must be sent directly via e-mail to [Director-Postdoc@anl.gov](mailto:Director-Postdoc@anl.gov). Letters must be in a PDF file from the individual(s) with a signature on official letterhead. **In the subject line please include the name of the candidate.**

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**2010 Argonne Named Fellowships**

Candidates for the Argonne National Laboratory Named Fellowships must display superb ability in scientific or engineering research and must show definite promise of becoming outstanding leaders in the research they pursue.

Fellowships are awarded for a one-year term, with possible renewal up to three years. The 2010 Fellowship carries a stipend of \$78,000 minimum per annum with an additional allocation of up to \$20,000 per year for research support and travel. The Fellows, who will be competitively selected by a special fellowship committee, are given the freedom of associating with Argonne scientists in a research area of common interest.

**How to apply**

Your application requires the following documents:

- Nomination memo ( $\leq 2$  pages) from ANL sponsor (with copy to Division Director)
- Research proposal ( $\leq 2$  pages)
- Three letters of recommendation from other than Argonne staff
- CV
- List of publications, abstracts and significant presentations
- Graduate School Transcripts

The sponsor could be someone who is already familiar with your research work and accomplishments through previous collaborations or professional societies. If you have not yet identified an ANL sponsor, visit the detailed websites of the various [Research Programs](#), [Research Divisions](#), and [Project Descriptions](#).

**Send all application material to : [Named-Postdoc@anl.gov](mailto:Named-Postdoc@anl.gov) by Monday, November 15, 2010. In the subject line please include the name of the candidate.**

For your security, please **do not include** the following information in your CV:

- Date of birth
- Place of birth
- Social security number

One application is sufficient to be considered for all Named fellowships.

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The nominator and referees should send their letters directly via e-mail to [Named-Postdoc@anl.gov](mailto:Named-Postdoc@anl.gov) . Letters must be in a PDF file from the individual(s) with a signature on official letterhead.

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**Postdoctoral Research Seismologist - Hawaiian Volcano Observatory**

Postdoctoral fellow, Center for the Study of Active Volcanoes (CSAV), UH Hilo (HI, USA), one-year appointment, to begin May 1, 2010, with renewal dependent on performance and availability of funds. The incumbent will be based at the United States Geological Survey's Hawaiian Volcano Observatory (HVO).

We seek a motivated individual to work with the HVO seismic group on a range of possible seismic/volcanic research projects that will integrate with and compliment ongoing HVO research topics and cataloging of seismic volcanic activity. These include, but are not limited to, identifying and characterizing volcanic tremor sources, real-time quantification of station quality and network status, algorithms for real-time earthquake location, joint infrasound and seismic processing, and imaging techniques to constrain three-dimensional seismological structure using broadband and short-period seismic data. HVO's ongoing seismic network upgrades will provide the opportunity to assist in the design and installation of new seismic stations and communication networks that are critical for real-time seismic data monitoring.

Qualifications: Ph. D. in geophysics. Experience with real-time seismic data processing systems, earthquake cataloging, digital signal processing, data visualization, or seismic imaging and tomographic techniques strongly desired. Experience with field deployment of digital seismic networks and the ability to participate in field station visits (e.g., able to lift and carry batteries, equipment, etc.) is also desired.

The position offers a stipend of \$5000/mo to qualified individuals. To apply: Please submit letter of application, resume, and documentation of status of Ph.D. degree along with names of three professional references to: Dr. Donald Thomas, CSAV, University of Hawai'i at Hilo, 200 W. Kawili St., Hilo, HI 96720-4096 ([dthomas@soest.hawaii.edu](mailto:dthomas@soest.hawaii.edu)).

For additional information please contact: Dr. Donald Thomas ([dthomas@soest.hawaii.edu](mailto:dthomas@soest.hawaii.edu)), Dr. James Kauahikaua ([jimk@usgs.gov](mailto:jimk@usgs.gov)), or Dr. Paul Okubo ([pokubo@usgs.gov](mailto:pokubo@usgs.gov)).

This position announcement will remain open until filled.

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**Baylor University, anticipate a postdoctoral researcher position starting June 2010.** Postdoctoral researcher will collaborate with Dr. Sascha Usenko (analytical chemistry) and Dr. Boris Lau (environmental engineering) studying the fate and transport of emerging contaminants in aquatic systems. Highly motivated candidates with a PhD degree in relevant science and/or engineering disciplines will be considered. Successful applicants must possess a strong publication record and excellent English communication skills. Qualified applicant will be funded with competitive stipend, benefits, and travel support to attend professional meetings. The duration of this position is one year, with the possibility of renewal, contingent upon performance and funding availability. Review of applicants will continue until the position is filled. However, full consideration will be given to those applications submitted by March 31, 2010.

Baylor University is a private university located in Waco, Texas. Chartered in 1845, it is the oldest university in Texas. Ranked among the top 100 national universities, the University is classified by the Carnegie Foundation as research university with high research activity. It provides access and training to state-of-the art research facilities situated in the newly opened \$103 million Baylor Sciences Building ([www.baylor.edu/bsb](http://www.baylor.edu/bsb)). The postdoc will be part of a multidisciplinary team of environmental engineers, ecologists, geoscientists, toxicologists and microbiologists from a newly formed Institute of Ecology, Earth, and Environmental Sciences ([www.baylor.edu/tieees](http://www.baylor.edu/tieees)).

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Please apply at <https://jobs.baylor.edu>

Baylor is a Baptist university affiliated with the Baptist General Convention of Texas. As an Affirmative Action/Equal Employment Opportunity employer, Baylor encourages minorities, women, veterans, and persons with disabilities to apply

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**Postdoctoral Fellow in stable isotope analysis of tree-rings**

With the project we aim to better understand stable isotope variations in tree-rings from extreme locations (near elevational and northern tree-lines). While mainly statistical methods have been used for climate reconstruction so far, it is understood that a correct representation of the isotope fractionation steps in trees can result in more reliable climate reconstruction. With this goal the successful candidate will be involved in lab- and field-work as well as evaluation and modeling of isotope data of various ecosystem compartments from soil to leaf to stem. Compound-specific isotope analysis will be applied to investigate fractionation steps within the plant and improve the understanding of the climatic information contained in various stem components.

Your profile -You have a PhD in physics, chemistry or environmental sciences and have worked with stable isotopes as a tool to decipher past climate signals from tree-rings or other archives. You have practical knowledge of isotope analysis as well as experience with data analysis and isotope models. Experience in compound-specific isotope analysis is a bonus.

For further information please contact: [matthias.saurer@psi.ch](mailto:matthias.saurer@psi.ch) or [rolf.siegwolf@psi.ch](mailto:rolf.siegwolf@psi.ch)

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**Research Fellow: Geochemical and Isotopic Tracers of Groundwater-Surface Water Interaction  
School of Geosciences, Monash University (Melbourne Australia)**

A three year Postdoctoral Fellowship in the School of Geosciences, Monash University (Melbourne Australia) is available immediately as part of the National Centre for Groundwater Research and Training (NCGRT). The research involves the study of groundwater-surface water interaction and environmental issues in a coastal environment (coastal lakes, rivers, estuaries) at a range of temporal and spatial scales using a variety of geochemical and isotopic tracers (including major ions, stable isotopes, and radiogenic isotopes) coupled with physical hydrogeology. The project involves several staff members and students at Monash University and elsewhere in the NCGRT and offers ample opportunity for collaborative work. The aims of the broader project are to quantify the water balance in the coastal environment, to better understand nutrient and metal cycling in the intertidal zone, to assess issues associated with acid sulfate soil generation, and to assess the impacts of future environmental or landuse change on the groundwater and surface water.

The successful applicant will have a PhD and experience in the application of isotopic and geochemical tracers to understand hydrological processes. They will also have experience in designing and carrying out field sampling programs, evidence of the ability to carry out collaborative research, good publication record relative to experience, and good communication skills.

Remuneration package: \$78,828 - \$93,609 pa Level B (includes employer superannuation of 9%)

This role is a full-time position, however flexible working arrangements may be negotiated. Monash offers a range of professional development programs, support for research, study and overseas work, generous maternity leave and flexible work arrangements.

Enquiries to [ian.cartwright@sci.monash.edu.au](mailto:ian.cartwright@sci.monash.edu.au) (please be careful and not reply to the ISOGEOCHEM list)

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**Seismology faculty - Saint Louis University -Department of Earth and Atmospheric Sciences - Position Available, Fall 2010**

Assistant or Associate Professor, Seismology. Saint Louis University, a Catholic, Jesuit institution dedicated to student learning, research, health care, and services, invites applications for a tenure-track faculty position in the Department of Earth and Atmospheric Sciences (EAS), to begin in the Fall semester 2010.

We seek a person with a Ph.D in geophysics or related earth science who will contribute to the growth of undergraduate and

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graduate programs in geosciences. A commitment to integrate teaching excellence with an active, externally funded research program is essential. Research interests should be in the general field of seismology and complement existing faculty expertise in EAS. We encourage applicants whose research is in one or more of the areas of global seismology, regional seismology (including regional seismic networks), or exploration geophysics. It is possible that a highly qualified person can be hired at the Associate Professor level.

The Department offers undergraduate and graduate degrees to the PhD level in Geophysics and Meteorology, undergraduate and MS degrees in Geology, and undergraduate degrees in Environmental Science and Environmental Studies. For more details, visit the EAS website at [www.eas.slu.edu](http://www.eas.slu.edu)

All applications must be made online at <http://jobs.slu.edu> and must include a cover letter, curriculum vitae, a two-page statement of teaching, research and professional goals, and the names and complete contact information of at least four references. Review of applications will begin immediately and continue until the position is filled. Further inquiries may be sent to [geosearch@eas.slu.edu](mailto:geosearch@eas.slu.edu)

Saint Louis University is an Affirmative Action, Equal Opportunity Employer (AA/EOE), and encourages nomination and application of women and minorities.

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**Surface Scientist - BOI22399 Description -The Surface Analysis Laboratory Team within Micron Technology utilizes a wide range of state-of-the-art surface analysis metrologies to support R&D and production activities world-wide.** Additionally, the laboratory is involved with development activities to maintain the metrology capability available to the Micron community at the highest possible level.

As a Surface Scientist at Micron, you will be responsible for performing surface analyses in support of Micron activities and collaborating with other Micron team members on a variety of R&D and production related projects.

Your responsibilities will include, but are not limited to, the following:

- Using good judgment, initiative, flexibility, and problem solving skills to deal with a wide range of routine and non-routine situations.
- Driving improvement in process and/or equipment changes.
- Developing and implementing new strategies and procedures as they relate processes and equipment in surface analysis.
- Researching, gathering, and analyzing information related to specific assignments within your technical discipline. Recommending process or equipment changes to improve lab metrics.
- Interpreting results and conducting quantitative analyses.
- Interpreting results of new or modified equipment or processes.
- Supporting manufacturing requests as needed using a variety of analytical metrologies, primarily utilizing XRD, XRR, XPS, and TOF-SIMS.
- Establishing clear and strong lines of communication allowing a quick response to customer requirements.
- Interacting positively within the group and with other organizations.
- Constant and consistent communication with customers as well as their lead regarding projects, procedures, troubleshooting methods, etc.
- Demonstrating proficient knowledge of data collection and analyses to contribute to group objectives.
- Contributing to the fulfillment of group objectives.
- Executing projects within guidelines defined by management.
- Regularly reviewing data and direction with supervisor.
- Demonstrating sound data analysis and judgment.
- Presenting reports and findings with appropriate conclusions and recommendations.

**Qualifications**

Successful candidates for this position will have:

- Knowledge of structural and chemical analysis through coursework or experience.
- Hands-on experience with X-ray diffraction. (Preferred)
- Knowledge of and experience with computer programming, Matlab and Visual Basic experience preferred.

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- The ability to thrive in both an individual and team-based work environment.
- The ability to be self-motivated and take ownership of assigned projects.
- An aptitude and interest in instrument repair and maintenance.
- Excellent computer application skills, particularly with Microsoft Office and instrument control software.
- The ability to work in a flexible manner that allows for changes in assignments and priorities depending upon the identified needs of the laboratory.

Education:

Bachelor of Science Degree in Chemistry, Physics, or Material Science, Masters Degree strongly preferred

Job : Chemistry

Primary Location : North America-US-Idaho-Boise

Relocation Provided : Yes

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The Departments of Geological Sciences and Science Education at Central Washington University invite applications for a full-time, tenure-track position at the Assistant/Associate Professor level beginning September 16, 2010. The faculty member will hold a joint appointment between the two departments. Responsibilities include teaching science methods and appropriate geological sciences courses and developing a program of scholarship that incorporates undergraduate and Master-level graduate students. Applicants in all disciplines of research in geological sciences are invited to apply. A Ph.D. in Geological Sciences or closely related field with experience/potential for developing science education programs OR a Ph.D. in Science Education with coursework equivalent to a Master's Degree in Geological Sciences is required. For more information visit [www.geology.cwu.edu](http://www.geology.cwu.edu) or [www.cwu.edu/~scied](http://www.cwu.edu/~scied). To apply go to <https://jobs.cwu.edu>. Screening begins 3/19/10 and continues until position is filled. Central Washington University is located in Ellensburg, population 17,000, which provides one of the finest living environments in the Pacific Northwest. AA/EOE/Title IX Institution.

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\*\*\*\*\* **HAVE A GREAT WEEKEND** \*\*\*\*\*