GEOBULLETIN
APRIL 9TH, 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
Apr. 9	- NO WEEKS LECTURE	
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 JOHN CRADDOCK
Geology Dept., Macalester College

Thursday, April 15th 2010, 12:15 PM, Weeks Hall, Room A259

Deformation in southern Laurentia from 2.7 Ga to 250 Ma

Friday, April 16th 2010, 3:30 PM. Weeks Hall, Room 140

Dynamics of the emplacement of the Heart Mountain allochthon at White Mountain: Constraints from calcite twinning strains, anisotropy of magnetic susceptibility, and thermodynamic calculations

White Mountain is centrally located in the bedding-plane portion of the Eocene Heart Mountain

detachment and contains the only upper plate Mississippian Madison Group rocks that have been metamorphosed into marble. The marble rests upon the thickest (1 m) part of a carbonate ultracataclasite that marks the detachment. Thermodynamic and mechanical calculations based on possible frictional melting of calcite and other minerals, geochemical data, the characteristics of the carbonate ultracataclasite, and the geometrical characteristics of White Mountain suggest a possible initial upper plate emplacement rate of 126–340 m/sec and that the duration of the emplacement event was less than 4 min, too brief a time to develop an emplacement-related calcite twinning strain overprint in upper or lower plate carbonates. While the detachment-related carbonate ultracataclasite did not form by melting, it does preserve a magnetic fabric where Kmax is parallel to the detachment slip direction and records a westward and down paleopole (287° and 27°), where magnetite is the carrier mineral. The Eocene (49.6 Ma) paleopole for this latitude in North America was southerly and upward (0° and 45°). This brief and catastrophic detachment event produced a significant amount of CO_2 by flash heating. This report is the first to quantify the emplacement rate of the upper plate of the Heart Mountain detachment based on physical and geochemical parameters.

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2010 Geologic Photo Contest

Sponsored by the Undergraduate Geo Club

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 25th 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 or Lynsey Spaeth at 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

- NASA is accepting applications from science and engineering post-docs, recent PhDs, and doctoral students for its 22nd Annual Planetary Science Summer School
- Hydrogeologist (100%) -Wisconsin Geological And Natural History Survey
- GIA Laboratory-Laboratory Technician Position in Identification/Research Department
- Lectureship in Isotope Geochemistry -Lancaster University - Lancaster Environment Centre (LEC)
- The Gemological Institute of America seeks an Instrumentation Specialist/Metrologist
- Director's Postdoctoral Fellowships - Argonne National Laboratory
- 2010 Argonne Named Fellowships
- Postdoctoral Research Seismologist - Hawaiian Volcano Observatory
- 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)

JOB OPENINGS

NASA Planetary Science Summer School

NASA is accepting applications from science and engineering post-docs, recent PhDs, and doctoral students for its 22nd Annual Planetary Science Summer School, which will hold two separate sessions this summer (19-23 July and 2-6 August) at the Jet Propulsion Laboratory in Pasadena, Calif. During the program, student teams will carry out the equivalent of an early mission concept study, prepare a proposal authorization review presentation, present it to a review board, and receive feedback. At the end of the week, students will have a clearer understanding of the life cycle of a robotic space mission; relationships between mission design, cost, and schedule; and the tradeoffs necessary to stay within cost and schedule while preserving the quality of science. Applications are due 1 May 2010. Partial financial support is available for a limited number of individuals. Further information is available at http://pscischool.jpl.nasa.gov .

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HYDROGEOLOGIST (100%) -WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY
Position Description

Working Title: Hydrogeologist (100%)

Official Title: Geologic Survey Specialist

Geographic Areas Served: Dane County

Office Locations: 3817 Mineral Point Rd., Madison, Wisconsin

Type of Appointment:
This position is a fixed-term academic staff appointment in the University of Wisconsin-Extension's division of Cooperative Extension. Fixed-term academic staff appointments are made on an annual basis. An additional one-year renewal beyond the initial term is expected for this appointment, but is contingent upon continued funding by the project sponsor.

Position Purpose:
The Hydrogeologist will carry out analysis and interpretation of hydrogeologic data as part of a project to update and improve the Dane County Groundwater Model. The effort is a collaboration between the Wisconsin Geological and Natural History Survey (WGNHS), the U.S. Geological Survey (USGS), and the Capitol Area Regional Planning Commission (CARPC), as well as with various local units of government who have committed to funding the two-year project.

A current groundwater model for Dane County was developed in the early 1990s, but the tool developed over a decade ago no longer reflects the current state of modeling capability or our understanding of the county's hydrogeology. These shortcomings limit the current model's utility for current and future use. An updated model is needed to help answer the kinds of difficult questions being asked today. An updated groundwater model will also allow us to continue to build upon and leverage past efforts and successes as we move our planning, policies, and development practices forward.

The Hydrogeologist will work with the Survey's Water and Environment Group and will assist the permanent WGNHS and USGS scientists in developing and using the new model. In the first year of the project, the focus of work will be on collecting, compiling, and interpreting hydrogeologic data for Dane County and surrounding areas. The second year of the project will focus on building, calibrating, documenting, and using a new three-dimensional numerical groundwater flow model for the county.

Primary Duties/Essential Job Functions:
- Data and Modeling (60%)
    - Compile hydrogeologic data from well logs, drilling records, outcrop study, literature review, and other sources
    - Study and correlate geologic and geophysical logs
    - Construct water-table, potentiometric, and isopach maps
    - Develop hydrogeologic cross-sections
    - Interpret water chemistry and environmental isotopes
    - Prepare data layers for groundwater flow model
    - Assist with construction and calibration of groundwater flow model

Primary Duties/Essential Job Functions (continued):
- Field work (20%)
    - Assist in the field with geophysical logging, streamflow measurement, well installation, water-level measurement and other field operations
- Communications (20%)
    - Report writing, record keeping, database upkeep, model documentation
    - Communicate with project partners, funding agencies, and the public
    - Present project findings
- Assist the WGNHS staff with other projects or activities as needed
- Other duties as requested by the State Geologist

Working Conditions:
- Make individual arrangements for transportation adequate to meet position responsibilities and essential job functions, including eligibility to drive State vehicles
- Assume regular travel throughout Dane County

- Perform outdoor fieldwork including travel to field sites over potentially difficult terrain
- Work outdoors in inclement weather under hot, cold, or wet conditions

Key Relationships:
This position is accountable to the Hydrogeology Group Leader at WGNHS. This position will work in close collaboration with the staff of USGS.

Qualifications:
To be considered eligible for this position, you must meet all of the following minimum qualifications:
- Master's degree in geosciences or a related field with emphasis in hydrogeology
- Relevant experience in hydrogeology or groundwater analysis
- Demonstrated expertise in hydrogeologic analysis, including subsurface correlation, aquifer analysis, construction of hydraulic head maps, and interpretation of hydraulic gradients
- Demonstrated expertise with numerical simulation of groundwater flow, especially using the MODFLOW packages
- Familiarity with geographic information and graphic systems
- Demonstrated writing ability
- Ability to carry out field work such as streamflow measurement, water-level measurement, drilling assistance, and similar duties.
- Knowledge and skills to effectively interact with people from different cultural backgrounds, including those associated with race, ethnicity, national origin, religion, socioeconomic status, age, gender, disability, sexual orientation, and other aspects of human diversity

Additional knowledge, skills and abilities desired:
- Two or more years of post-college experience in hydrogeology or groundwater analysis
- Ability to communicate ideas effectively orally, in writing and through educational technology
- Ability to organize work and to work productively with indirect supervision
- Demonstrated ability to perform as part of a project team

Position Description Clarification:
This position description represents a general outline of job duties, expectations, responsibilities and qualifications. It is not intended to be comprehensive in nature. In addition, this position is likely to evolve over time and therefore this position description may not fully reflect the precise nature of the position at a future point in time.

Position Benefits:
Excellent State of Wisconsin benefits, including retirement, health insurance, vacation, sick leave, and other insurances.

APPLICATION PROCEDURE AND DEADLINE:
To receive full consideration, application materials must be received by **May 4, 2010** and include **all** of the following:
- **Cover letter** (up to two pages) that summarizes how you meet the minimum qualifications of this position. In your summary, please provide evidence of how you meet each of the minimum qualifications. Examples of evidence include formal education or coursework, training, professional work history, volunteer work, research, and any related life experiences. Please note that your response will be evaluated for content and written communication skills.
- **Professional resume**, including related education, professional work history and volunteer experience.
- **Contact information for three (3) professional work references**, including at least one person who has been your immediate supervisor. For each reference, please indicate the nature of your professional relationship and include the person's title, e-mail address and telephone number.
- **Final college transcripts** for each of your degrees. Unofficial copies are acceptable at this point in the process. Official transcripts are required upon hire.
- Applicant Survey Form
- Optional Confidentiality Form. Under Wisconsin Statutes, if asked, UW-Extension is required to provide a list of all nominees and applicants who have not requested in writing that their identities remain confidential. The identities of all finalists must be released upon request.

Application materials that do not comply with these instructions are incomplete and will not be considered. Applications will continue to be accepted until the screening process is complete.

Submit application materials to Cooperative Extension Human Resources at:
a) ces.jobs@uwex.edu (preferred method); OR
b) 432 N. Lake Street, Room 249; Madison, WI 53706

Please note that a criminal records review will be conducted prior to employment. In compliance with the Wisconsin Fair Employment Act, convictions and pending charges will be considered only as they relate to this position.

Equal Opportunity:
As an affirmative action employer, UW-Extension provides equal opportunity in programs and employment; and is strongly committed to maintaining a climate supportive of respect for differences and equality of opportunity. UW-Extension does not discriminate on the basis of age, race, creed, color, disability, sex/gender, sexual orientation, national origin, ancestry, religion, marital status, identity as a veteran, disabled veteran, Vietnam veteran or any other military service, arrest record or non-program related conviction record. ***We promote excellence through diversity and encourage all qualified individuals to apply.***

Materials will be made available in alternative format upon request. Please call 711 if you are hearing or sight impaired and need assistance. Direct inquiries concerning equal opportunity to: UWEX Workforce Equity and Diversity; Room 501; 432 N. Lake Street; Madison, WI 53706.

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GIA Laboratory-Laboratory Technician Position in Identification/Research Department
The Identification/Research Department at the GIA Laboratory in New York invites applications for laboratory technicians. The laboratory seeks individuals to perform routine gemological work and advanced gemological testing in support of Identification Services. The successful candidate will support other gemologists and researchers by working as a team on the analysis, identification, and investigation of gem materials. The laboratory technician will be expected to assist with data collection and interpretation by independently operating various analytical instruments, including an infrared spectrometer, X-ray fluorescence spectrometer, UV-visible spectrometer, and Raman spectrometer. Responsibilities will include helping maintain testing equipment.
A B.S. or M.S. in geology, physics, chemistry, materials science, or a related field is required. A background in mineralogy or earth sciences is preferred. Please submit a cover letter and resume to:
Attn: Human Resources
NYrecruiters@gia.edu
Visit www.gia.edu for further information about GIA.

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Lectureship in Isotope Geochemistry -Lancaster University - Lancaster Environment Centre (LEC)
Ref: A044 Salary: £31,671 - £35,646

Closing Date: 23 April 2010

As part of an ongoing programme of investment and development, LEC wishes to make 4 new academic appointments to respond to a range of emerging global challenges and to further strengthen current levels of investment in key areas of excellence and impact:

The Lancaster Environment Centre (LEC) is one of the largest centres of its kind in Europe, bringing together academics from across Lancaster University, together with scientists from the Natural Environment Research Council's Centre for Ecology and Hydrology, the Environment Agency and a growing community of business partners onto the University campus.

The quality of our international research, evidenced by a very successful outcome to the 2008 RAE is mirrored by the quality of our teaching and the commitment to ensure our work impacts well beyond traditional academic boundaries.

This post spans our Environmental Geosciences and Catchment and Aquatic Processes themes. The successful applicant will bring knowledge of the application of isotope geochemistry to earth surface processes and/or biogeochemical cycling. They will contribute to multidisciplinary undergraduate and postgraduate programmes.

As with the other posts in this latest round of development, we are keen to use this post to broaden our established research excellence, maintain and grow our undergraduate and postgraduate taught portfolio, consolidate the department's international strategy (with emerging foci in Brazil and China) and better exploit less traditional income steams in addition to continued strong participation in research council response mode and thematic programmes.

Informal inquiries may be made to the Head of Department and Director of LEC, Professor Graham Harris, tel. 01524 510520, email g.p.harris@lancaster.ac.uk

For further information and to apply online, please visit: http://hr-jobs.lancs.ac.uk/Vacancy.aspx?ref=A044

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The Gemological Institute of America seeks an Instrumentation Specialist/Metrologist (or Measuring Devices Specialist) to supervise the performance of our 3-D non-contact measurement devices and other measuring devices, and to plan, organize, and conduct research for the purpose of resolving measuring challenges of the Institute. The job location is in New York, New York. This position requires a Bachelor in engineering, science or equivalent. A good background in testing and measuring as well as calibration of devices based on analysis of data is needed. Strong computer skills are expected. Some international travel is required.
Please submit a cover letter and resume to:
Attn: Human Resources
NYrecruiter@gia.edu
Visit www.gia.edu for further information about GIA

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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.

How to Apply :

Candidates must upload the following documents by clicking on the application link.

- Research proposal (≤ 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)

5. Click the 'Submit Registration' button to Apply.
   Additionally, the package must contain:

- Nomination memo (≤ 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 . 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 (≤ 2 pages) from ANL sponsor (with copy to Division Director)
- Research proposal (≤ 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 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.

The nominator and referees should send their letters directly via e-mail to 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).

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

This position announcement will remain open until filled.

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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 or 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 NGCRT 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 (please be careful and not reply to the ISOGEOCHEM list)

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