GEOBULLETIN
MAY 1ST, 2009

Geobulletin is distributed weekly, on Wednesday by E-mail. Contributions are requested! Anything and everything (well almost) that you want to see in print. If you have a news item, a request, an announcement etc. email it to geodept@geology.wisc.edu. or leave it at the reception desk, Room 236 by noon on Mondays.

LECTURE SCHEDULE ---- All lectures (unless otherwise noted) are held on Fridays at 3:30 PM in AB20 (Laudon Lecture Hall). Coffee & cookies are served in the lobby starting at 3:15 PM.

May 1 - Laurent Charlet, (Univ. Grenoble) (SPONSOR: SAHAI)

PROF. LAURENT CHARLET
EARTH AND PLANETARY SCIENCES
UNIVERSITY OF GRENOBLE, FRANCE

Specialty Lecture

Friday, May 1st, 12:00 noon, Room A259, Weeks Hall

Clay minerals and the fate of prion proteins in soils

Soil may act as a reservoir for prion protein (PrP), the key protein involved in the disease known as transmissible spongiform encephalopathy (TSE) which include BSE "mad cow", deer CWD, or sheep scrapie. These diseases are characterized by long incubation periods, spongiform degeneration of the brain and accumulation of an abnormally folded isoform of the prion protein, designated PrP^{Sc}, in brain tissue. Since the active PrP residue has been shown to remain in soil for at least three years, soil may lead to horizontal transmission of the disease among deer and sheep. Field data collected in prion prone farmland (in Europe) or rangeland (in the USA) demonstrate the role of trace element deficiency (Cu) or excess (Mn, S) in TSEs outbreaks. In order to better understand the link between epidemiology and geochemistry, after briefly reviewing the structure of the Prion Protein, we shall discuss molecular models for PrP attachment to the clay basal plane obtained by molecular dynamics simulations. They demonstrate the anchorage of PrP^{sc} 92-138 protein to the clay basal plane via ten hydrogen bonds. Since PrP^{sc} is a polymerized misfolded isoform of PrP^{c} and since this misfolding may be linked to coordination change of the PrP metal centers, we used Cu as a molecular probe to investigate with ESR spectroscopy and ES-ICP-MS the P_5-Cu(II) complex coordination change upon adsorption, where the P_5 pentapeptide (PrP 92-96) stands for one of the five Cu binding site present in PrP. The study confirms that clay minerals have a high affinity for PrP, and demonstrates the "low pH" of clay interlayer wayer, i.e. in this case change in Cu coordination upon adsorption. Implications of sorption phenomena on PrP pathogenicity are discussed.

General Lecture

Friday, May 1st, 3:30 PM, Room 140, Weeks Hall

Arsenic in Bengal Groundwater from Field Scale to Molecular Modeling

Millions of river floodplain and delta inhabitants across SouthEast Asia rely on shallow tubewells to avoid drinking surface water that is highly contaminated with microbial pathogens. Sadly, the elevated arsenic content of groundwater from many of these wells slowly poison over 100 million villagers relying on inexpensive shallow tubewells (Smith et al, 2000). The level of exposure has caused widespread illness including deadly cancers and, significantly hampers the mental development of children.

We present an overview, based upon work carried out by our group and elsewhere (Charlet and Polya, 2006), of (i) the distribution of arsenic in these groundwaters in well characterized sites; (ii) the biogeochemical reactions/processes controlling the fate and transport of arsenic, understood by coupling laboratory experimentation with diffractometric (neutron, X-Ray), microscopic (AFM) and spectroscopic (XAFS, Mössbauer) studies; and (iii) human exposure routes.

Effective comprehensive remediation strategies need to consider these factors as well as: (iv) economic, cultural and political factors, including communication mechanisms; (v) current availability, development and implementation of various remediation strategies.

May 8 - Peter Visscher (SPONSOR: RODEN)
"Microbial mechanisms forming modern marine stromatolites - Using the present to predict the past"

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2009 GRADUATE SYMPOSIUM MAY 7-8, 2009

We are happy to announce that David Mickelson will be the keynote speaker for the Grad Symposium!

Glacial landscapes of Wisconsin, David Mickelson, Emeritus Professor

About 25,000 years ago glaciers covered about two thirds of the state. Our soils, landscape owes its existence to this former ice sheet. It is fitting that over 40 years ago Congress established the Ice Age National Scientific Reserve and the Ice Age National Scenic Trail, both of which highlight and protect glacial features. I am now working with 2 co-authors to write a book on the geology of the Trail and Reserve. In addition to describing the formation of various glacial processes and features, I will highlight opportunities for Ice Age Trail hikes and other activities.

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POSITION OPENINGS:

- Postdoctoral Research Fellowship - Purdue University
- Crystal2Plate, a Initial Training Network financed by the European Union, is seeking (amongst others) a Postdoc ("Experienced Researcher", ER) to image upper mantle seismic heterogeneity and depth-dependent anisotropy in the western/central Mediterranean and the Gulf of California using surface wave modelling techniques and receiver functions.
- Seeking a student with strong quantitative skills to undertake hydrogeological/thermal data analysis and modeling of the central Alpine fault under the supervision of researchers at Victoria University of Wellington and GNS Science
- The Department of Geosciences at the University of Wisconsin - Parkside invites applications for an anticipated one-year lecturer position starting August 2009 with a possibility of renewal.
- National Museum of Natural History, Smithsonian Institution,Washington D.C. anticipates hiring a distinguished scientist to become the Director of the Global Volcanism Program and to conduct a research program in volcanology in the Department of Mineral Sciences.

- Full-time Term Stable Isotope Laboratory Position. The U.S. Geological Survey, Water Resources Discipline is now offering a full-time 13 months (extendable up to 4 years) technical position in the Isotope Tracers project in Menlo Park, California.
- UNIVERSITY OF OXFORD-Department of Earth Sciences- Postdoctoral Research Assistant: Experimental Petrology
- One of the essential activities in planetary science is planetary protection. NASA Headquarters maintains a constant need for a Planetary Protection Officer (PPO) to manage this important agency wide function
- Seismologist/Geophysicist - Rockville, MD
- The Division of Geological and Planetary Sciences at the California Institute of Technology (Caltech) invites applications for a post-doctoral scholar position in the Seismological Laboratory
- Wetlands Geology Specialist -Illinois State Geological Survey -Institute for Natural Resource Sustainability University of Illinois at Urbana-Champaign
- Visiting Environmental Assessments Specialist - Illinois State Geological Survey -Institute for Natural Resource Sustainability- University of Illinois at Urbana-Champaign

Postdoctoral Research Fellowship - Purdue University

The Isotope Ratio Ecology and Hydrology (IREH, www.purdue.edu/eas/ireh) group in the Earth and Atmospheric Sciences Department is soliciting applications for a full-time Postdoctoral Research Associate to conduct research on water resource assessment using light stable isotopes. The project will involve the development of sampling networks in the western USA and Mexico and GIS-based data analysis and modeling. A strong background in stable isotope (bio)geochemistry and/or hydrology and experience with GIS and geospatial data are requirements of the position. The Postdoctoral Associate must hold a Ph.D. at the time of appointment and must be a U.S. citizen.

The position offers competitive salary and benefits and is available Aug. 15, 2009 with an initial 1-year appointment and possibility for renewal up to 3 years. Applications will be reviewed beginning immediately and until the position is filled. To apply, please send a current CV and brief description of your research experience and interests to Gabe Bowen (gabe@purdue.edu).

All members of the IREH group have access to state-of-the-art IRMS instrumentation through the Purdue Stable Isotope lab (www.purdue.edu/eas/psi) and opportunities to interact and collaborate with a wide range of scholars through the Atmosphere-Surface Interactions EAS focus group (www.purdue.edu/eas/asi/) and the campus-wide Purdue Climate Change Research Center (www.purdue.edu/climate/).

Purdue University is an Equal Access/Equal Opportunity/Affirmative Action employer.

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Crystal2Plate, a Initial Training Network financed by the European Union, is seeking (amongst others) a Postdoc ("Experienced Researcher", ER) to image upper mantle seismic heterogeneity and depth-dependent anisotropy in the western/central Mediterranean and the Gulf of California using surface wave modelling techniques and receiver functions. The research will be embedded in the larger Crystal2Plate context: How does mantle convection produce, and is modified by, plate tectonics.

The Postdoc will be based at Utrecht University. Supervisors are Hanneke Paulssen (Utrecht University) and Goetz Bokelmann (Universite Montpellier 2), Collaborators are Claudio Faccenna (Universita Roma TRE), Taras Gerya (ETH Zurich) and Neil Reibe (CNRS-FAST, Paris). The postdoc position is for 2 years.

Following the conditions for EC Marie Curie programs, suitable candidates must (i) at the time of recruitment be in the first five years of their research careers, calculated from the start(!) of their PhD position, (ii) at the time of recruitment be in possession of a PhD degree or have at least 3 years of full-time equivalent research experience, (iii) have a non-Dutch nationality, and (iv) not have resided or worked in the Netherlands for more than 12 months in the 3 years prior to their recruitment.

For additional information on Crystal2Plate and application for this position, as well as 11 other PhD and Postdoc positions, see the CRYSTAL2PLATE website: http://www.gm.univ-montp2.fr/CRYSTAL2PLATE/home.html

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We seek a student with strong quantitative skills to undertake hydrogeological/thermal data analysis and modeling of the central Alpine fault under the supervision of researchers at Victoria University of Wellington and GNS Science (see http://tinyurl.com/c87ze7 for project outline).

Details of the application process can be obtained from http://tinyurl.com/br6qdf/ or by emailing John Townend [john.townend@vuw.ac.nz]. Applications close 15 May 2009

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The Department of Geosciences at the University of Wisconsin - Parkside invites applications for an anticipated one-year lecturer position starting August 2009 with a possibility of renewal. Applications received by May 19th are ensured full consideration; the position is open until filled.

Detailed information can be found:
<http://newweb.uwp.edu/departments/human.resources/unclassified.positions/>http://newweb.uwp.edu/departments/human.resources/unclassified.positions/
To apply please send cover letter, vitae, and three letters of recommendation to:
Dr. Zhaohui Li, Chair of the Search Committee,

Geosciences Department
University of Wisconsin-Parkside -- Kenosha, WI 53141-2000

Email: <mailto:li@uwp.edu>li@uwp.edu
The University of Wisconsin-Parkside is an AA/EEO employer D/M/V/W

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National Museum of Natural History, Smithsonian Institution,Washington D.C. anticipates hiring a distinguished scientist to become the Director of the Global Volcanism Program and to conduct a research program in volcanology in the Department of Mineral Sciences. As a Federal employee, the successful candidate will be expected to serve as Curator making major contributions to the field of volcanology through research and publications, and to oversee the Global Volcanism Program's documenting and reporting of the world's volcanoes in order to develop a space/time understanding of global volcanism. U.S. citizenship is a requirement for the position. An official announcement of this position is expected in the coming weeks.

We invite potential candidates to send letters of interest and vitae to Dick Fiske (fisker@si.edu).

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The application time for the USGS laboratory position described below has been extended for one week. The new closing date is May 4th.

Full-time Term Stable Isotope Laboratory Position. The U.S. Geological Survey, Water Resources Discipline is now offering a full-time 13 months (extendable up to 4 years) technical position in the Isotope Tracers project in Menlo Park, California. The primary purpose of the position is to operate and maintain three Isoprimes and an Optima continuous-flow mass spectrometers and peripheral instruments (such as EAs and GCs), and to perform routine maintenance and minor repairs. The successful applicant will also share responsibility for sample login, sample tracking, and database management. Occasional field work is possible. The position is at the GS-9 ($55,015) or GS-11 ($66,562) level dependent on qualifications. Benefits include annual and sick leave. Qualifications includes a BA/BS in hydrology, geology, chemistry or a related field and/or experience operating and maintaining mass spectrometers and peripherals. For detailed vacancy announcement including specific qualification requirements and application procedures refer to the USAjobs website: http://www.usajobs.opm.gov/. USGS Vacancy # WR-2009-0275 for Physical Scientist, GS-1301-09 -11. Contact Stephanie Suekawa ph: 916-278-9392,

email: ssuekawa@usgs.gov. Applicants must apply via USAjobs by midnight Eastern time on the closing date, May 4, 2009. Applicants must be U.S. citizens. The USGS is an Equal Opportunity Employer.

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UNIVERSITY OF OXFORD-Department of Earth Sciences- Postdoctoral Research Assistant: Experimental Petrology

Salary Range Grade 7: £28839- £35469 (fixed term contract up to 36 months)

To work on a project entitled "Core formation, Hadean mattes and the timescale of Earth accretion" in the laboratory of Bernie Wood. The project will involve determining the partitioning of a wide range of elements between liquid metal and liquid silicate at high pressures and temperatures with the aim of constraining the processes and timescale of Earth accretion and core segregation. The successful applicant should have a Ph.D. in experimental petrology/geochemistry or in a related field such as materials science or analytical geochemistry. Experience in the use of high pressure methods such as the piston-cylinder and multianvil apparatuses is desirable as is familiarity with the electron microprobe and/or laser ICP-MS techniques.
The position is available immediately.

Further particulars can be found at: http://www.earth.ox.ac.uk/department/Exp-Petr.pdf
or from Mrs Sue Ling at (Sue.Ling@earth.ox.ac.uk), Department of Earth Sciences, Parks Road, Oxford OX1 3PR, UK. Informal enquiries may be addressed to Prof B.J. Wood (berniew@earth.ox.ac.uk) The closing date for applications is 8th May 2009.

The University of Oxford is an equal opportunities employer

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Post-doctoral position in experimental low-temperature geochemistry/mineralogy

A post-doctoral research fellowship in experimental low-temperature (< 150 o C), elevated pressure (< 1 kbar) geochemistry/mineralogy is available starting in September, 2009 in the Department of Earth and Environmental Sciences at the University of Illinois at Chicago. The position is available for one year, but a second year is very likely.

The successful applicant will investigate (1) the interaction of clay minerals with CO2 -brine mixtures at pressures to 1 kbar and (2) the interaction of minerals associated with ophiolites with CO2 in a saline environment as a function of temperature (to 150 o C) and pressure (<1 kbar), both projects using newly developed X-ray environmental chambers. These studies are part of a program on carbon dioxide sequestration.

Send resume, reference list, and cover letter to:
Prof. S. Guggenheim
Dept of Earth and Environmental Sciences
University of Illinois at Chicago, mc 186
Chicago, IL 60607 USA

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One of the essential activities in planetary science is planetary protection. NASA Headquarters maintains a constant need for a Planetary Protection Officer (PPO) to manage this important agency wide function. Although the PPO reports to the SMD Associate Administrator (Dr. Ed Weiler), it is organizationally part of the Planetary Science Division. I am delighted to announce that today (17 April) we have posted a Civil Servant opportunity for PPO at NASA Headquarters. I would like to urge all interested parties to get on this right away since the deadline for applications is coming up quickly. I can guarantee that the PPO will be part of a vibrant organization at an exciting time. Its my job to fill the sky with planetary missions so there will be plenty to do.
The position can be found at: http://jobsearch.usajobs.gov/ftva.asp?opmcontrol=1537457 Please note that **applications are due Friday May 1**.

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Subject: (Job) Postdoctoral Position in Seismology at Caltech

Postdoctoral Position in Seismology at Caltech

The Division of Geological and Planetary Sciences at the California Institute of Technology (Caltech) invites applications for a post-doctoral scholar position in the Seismological Laboratory. Applicants with an interest in computational and regional observational seismology, or aspects of real-time seismology are encouraged to apply. The research goals include synthesizing earthquake data from the extensive database of the Southern California Seismic Network to improve our understanding of earthquake physics and fault systems in southern California. Real-time seismology research goals include developing new real-time methods for determining high precision hypocenters and other earthquake parameters, to facilitate rapid interpretation of ongoing earthquake sequences.

The position will involve research in computational and regional observational seismology, including: 1) applying state-of-the-art methods to relocated the southern California seismicity and refine 3D tomographic crustal models; 2) developing new approaches to determine focal mechanisms and state of stress in the crust to improve our understanding of the seismotectonics; 3) applying the refined hypocenters and focal mechanisms to improve our understanding of earthquake physics and statistics; and 4) participate in various aspects of moment tensor determination and finite source seismology adapted for real-time processing.

A recent Ph.D. in seismology, earthquake engineering, or a related discipline is required. Experience in analysis of earthquake data is also required. Some programming skills in languages, such as C, C++, Java, Matlab, or scripting languages, are highly desired.

The position is available as of May 1, 2009. Funding is available for one year with a possible renewal for a second year, depending on performance and availability of funding. Scholars are eligible to participate in Caltech's health and dental program. Applications will be considered until the position is filled. For additional information, please contact Dr. Egill Hauksson, hauksson@gps.caltech.edu.
Applicants should send a CV, a brief statement of research interests and experience, and arrange to have three letters of recommendation sent electronically to Marcia Hudson at: marcia@gps.caltech.edu.

Caltech is an Affirmative Action/Equal Opportunity Employer. Women, minorities, veterans, and disabled persons are encouraged to apply.

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Wetlands Geology Specialist -Illinois State Geological Survey -Institute for Natural Resource Sustainability University of Illinois at Urbana-Champaign .
This position is based at our 1808 Woodfield, Savoy, Illinois, location.

We are seeking an individual(s) (up to two, depending on pool of applicants and programmatic need) to conduct hydrogeologic studies of wetlands, wetland mitigation sites, and other natural areas.

Responsibilities: Conduct field work, including installing wells and instruments, surveying, and field testing. Assist project participants with field work. Download and maintain various field instruments. Measure surface and ground water levels. Maintain field equipment and vehicles. Enter and upload field data and performs quality control checks. Collect, review, and evaluate field and file data. Contribute to hydrogeologic characterization site reports.

Qualifications: Required: Bachelor's degree in geology, physical geography, or related discipline, with two years of related experience beyond the degree. Familiarity with reading and interpreting aerial photographs and geologic and topographic maps. Ability to accurately collect, analyze, and interpret data from various information sources. Ability to write comprehensive technical reports. Ability to prioritize, organize, and handle heavy workloads with multiple deadlines. Ability to use sound judgment in decision-making. Strong interpersonal skills to develop good working relationships. Ability and willingness to effectively contribute and lead as part of a team. Proficiency in word processing and spreadsheet software. Must be able to conduct field work alone in wetlands in both rural and urban settings, some of which may be under adverse conditions (e.g. inclement weather, remoteness, and moderate physical exertion). Ability to travel overnight for up to one work week at a time.

Must have a valid driver's license. Must be able to lift and manipulate field equipment and other items weighing up to 50 pounds over uneven terrain.

Preferred: Master's degree in geology, physical geography, or related discipline. Coursework in geomorphology, glacial geology, soil science, and/or sedimentology. Knowledge of the wetlands regulation process. Experience with field techniques and equipment. Experience with surveying and/or basic hand and power tools. Experience with graphics, geographic information systems, relational databases, and/or geodatabases.

This is a regular full-time 12-month position. The starting date is negotiable after the closing date. Salary is commensurate with experience.

Applications must be received by May 1, 2009. To apply, all candidates must submit an online profile through jobs.illinois.edu by the close of the posting period. Qualified candidates must upload a letter of application which details qualifications noted above, résumé, working e-mail address, and the names, addresses, phone numbers, and e-mail addresses of three professional references. All requested information must be submitted for your application to be considered.

For further information please contact:**Lori Walston, Human Resources - Illinois State Geological Survey - 217-244-2401**

www.isgs.illinois.edu

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Visiting Environmental Assessments Specialist - Illinois State Geological Survey -Institute for Natural Resource Sustainability- University of Illinois at Urbana-Champaign
This position is based at our 203 West Curtis Road, Savoy, Illinois, location.

We are seeking an individual(s) (up to two, depending on pool of applicants and programmatic need) to perform environmental site assessments and evaluate potential environmental hazards and risks for Illinois Department of Transportation infrastructure improvement projects.

Responsibilities: This position will involve conducting on-site inspections and interviews; collecting, reviewing, and evaluating site-specific historical, laboratory, geological, and environmental data; synthesizing and analyzing collected data; writing reports detailing the findings; and participating in other geologic/environmental research.

Qualifications: A background in the geosciences or environmental sciences with a bachelor's degree in geology, environmental science, engineering geology, civil or environmental engineering, physical geography, or related discipline. Individuals working toward a bachelor's degree may be considered, but the degree must be obtained by the starting date. Experience performing fieldwork. Ability to interpret maps. Ability to accurately collect, analyze, and interpret data from various information sources. Ability to evaluate potential environmental hazards and risks. Ability to write comprehensive technical reports. Ability to prioritize, organize, and handle heavy workloads with multiple deadlines. Ability to use sound judgment in decision-making. Strong interpersonal skills to develop good working relationships. Ability and willingness to effectively contribute and lead as part of a team. Proficiency in word processing, spreadsheet, and graphics software. Ability to work independently with off-site supervision. Ability to travel, including up to a work week of consecutive nights of overnight travel, and conduct field work, some of which may be under less than ideal conditions (inclement weather, remoteness, site security concerns, moderate physical exertion, heavy traffic). Must have a valid driver's license. Must adhere to the IDOT property assessment program health and safety plan, which includes having or acquiring 40-hour OSHA hazardous waste site worker training, followed by 8-hour annual refresher training, and undergoing annual physical examinations as part of the medical monitoring program for hazardous waste site workers (all provided at the expense of the project). Must be willing, with appropriate training, to work in areas of potentially unknown hazardous materials.

This is a temporary full-time 12-month position. Position may become a regular position at a later date depending on funding and programmatic need. The starting date is negotiable after the closing date. Salary is commensurate with experience.

Applications must be received by May 1, 2009. To apply, all candidates must submit an online profile through jobs.illinois.edu by the close of the posting period. Qualified candidates must upload a letter of application which details qualifications noted above, résumé, working e-mail address, and the names, addresses, phone numbers, and e-mail addresses of three professional references. All requested information must be submitted for your application to be considered.

For further information please contact:**Lori Walston, Human Resources - Illinois State Geological Survey -217-244-2401**

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