

October 2007 Newsletter of the AGU Near-Surface Focus Group

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1. 2007 Fall AGU Near-Surface Geophysics Meeting Highlights – From Sarah Kruse

Near-Surface Geophysics investigations target the critical zone from the surface to depths of tens to hundreds of meters. A major theme at this year's meeting is the role of near-surface geophysics in natural hazards assessment. Papers illustrate active and passive techniques for fault, earthquake, volcano, sinkhole and tsunami investigations. Hazards specific to urban areas and archaeological sites are addressed (Near Surface Geophysics and Natural Hazards). In a session focused on high-resolution studies of active faults (Fault Imaging and Seismic Hazard Assessment), many studies integrate multiple methods in novel ways, including P and S-wave seismic techniques (land and marine, reflection and refraction), GPR, gravity, LIDAR, resistivity, and AMT (audio magnetotelluric). Presentations address seismic hazards based on fault geometry, historical seismicity, and slip rate. A Development and Applications of Airborne Methods session highlights new instrumentation, novel integrations of instruments, and new methods to facilitate geologic interpretation. Presentations illustrate the dramatic increase in resolution and applications of airborne geophysical data from regional tectonic studies to local ground water and volcanic landslide hazard assessments.

Other sessions highlight the role of geophysics in an even broader spectrum of near-surface processes. A predominantly student-led Biogeophysics session (with support from the National Science

Foundation) showcases the recent advances in the near-surface geophysics contribution to monitoring microbial processes. The Induced Polarization (IP), Self-Potential (SP), and Seismic-Electric Coupling for Near Surface Applications session combines recent advances in IP and SP modeling methods with general review papers that provide a comprehensive understanding and the current level of science. The Exploration of the Cryosphere Using Near-Surface Geophysical Techniques session will bring together the near-surface and cryospheric communities during the

International Polar Year. Highlights include, for example, 3D imaging of previously glaciated parts of the Norwegian shelf, mapping permafrost using geophysical methods, the latest methods and results in radioglaciology, and active source seismic methods.

NS Fall AGU statistics: 166 abstracts, 8 oral sessions, and 7 poster sessions (up from 94 abstracts in 2006).

2. Fall AGU Meeting Near Surface Geophysics Focus Group Events

Joint Near-Surface Geophysics and Hydrogeophysics Social Gathering:
Monday Dec. 10 6:15 pm, Hotel Utah, 500 4th Street at Bryant.

Near-Surface Geophysics Focus Group lunch, Tuesday Dec. 11, for all NS members and any others who are interested in attending. The cost is \$30, and will be listed on the registration form. Sign up for this event when registering for the Fall meeting.

3. Submit a Near Surface Geophysics (NS) Session Proposal for the 2008 Joint Assembly/Spring AGU Meeting

The 2008 Joint Assembly/Spring AGU meeting will be held May 26-30 in Fort Lauderdale, Florida. The deadline for Session Proposals is October 31. Session proposals can be submitted at <http://www.agu.org/meetings/ja08/program.html>.

The Near Surface Geophysics Focus Group enthusiastically welcomes session proposals on any area of Near Surface Geophysics, including multi-disciplinary topics that interface with the Sections and other Focus Groups that make up the broad AGU community.

4. Message from Rosemary Knight: Wanted – New Director of HMF-Geophysics

For the past two years I have been working with the NSF-supported CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences) to develop the Geophysics Module of the Hydrologic Measurement Facility.

The goal of HMF-Geophysics is to support and advance the use of geophysics in the hydrologic sciences. We are now starting Year 3 of a 3-year NSF grant that has provided funding for a full time research scientist (David Robinson in Year 1, Nigel Crook in Years 2 and 3) to work with me in developing and testing an operational model for HMF-Geophysics.

The model for HMF-Geophysics that has evolved is one central CUAHSI node, typically with one Research Scientist and a faculty PI who acts as the Director of HMF-Geophysics. The central CUAHSI node should be located at an institution with ongoing research activities in the area of near-surface geophysics. The central CUAHSI node applies to NSF for funding with a formal agreement with CUAHSI to provide support for members of the hydrologic community. The

central CUAHSI node conducts feasibility studies with ~4-5 hydrologists each year to determine how/if geophysical methods could be used in addressing their hydrologic science questions. For each feasibility study, the Research Scientist and/or PI from the central CUAHSI node makes an initial site visit, then plans and conducts ~2-5 weeks of field work, with follow-up data processing and analysis. The cost of the feasibility study is covered by the central CUAHSI node, with the expectation that the hydrologist provides whatever support they can in terms of field assistance, accommodation etc. If the feasibility study is a success, HMF-Geophysics assists in setting up a research partnership between the hydrologist and a geophysicist (typically an affiliated node, defined below) who has the expertise required to take on a full-scale research project. These researchers use the results of the successful feasibility study to apply for funding to conduct the full-scale project.

An essential part of HMF-Geophysics is the wide-spread support we have received from the near-surface geophysics community. There are now 13 individuals at universities and the USGS who have offered to make their equipment and/or expertise available to assist HMF-Geophysics. We refer to these individuals as affiliated nodes. Through our affiliated nodes we have 63 pieces of equipment, in most cases available for loan for HMF-Geophysics activities as long as insurance, shipping, and a small wear & tear charge is covered.

In December 2007, a proposal will be submitted to NSF requesting the next three years of support to further develop HMF-Geophysics, building on the successful model now in place. We are looking for a new Director for HMF-Geophysics. In addition to leading the central CUAHSI node, this person acts as the champion for HMF-Geophysics, providing a liaison to CUAHSI, NSF, and to the scientific community (academic, government, private sectors), supports and oversees the development/operation of new nodes. In addition, this person is responsible for participating in the overall HMF effort serving on the HMF PI team, and will be expected to organize town halls at meetings, and facilitate educational workshops and short courses.

I will continue as Director until September 2008, then will assist in an advisory role as Past-Director for the next three years. I have truly enjoyed my time as Director - and encourage all of you to consider taking this on. It is interesting and rewarding, and a wonderful opportunity to get to better know others in the near-surface geophysics and hydrology communities. Below is the announcement sent out from CUAHSI soliciting applications for HMF-Geophysics. Feel free to contact me if you have questions. rknight@pangea.stanford.edu or 650-736-1487

Rosemary Knight

Dear Colleagues,

The Consortium of Universities for the Advancement Of Hydrologic Science, Inc. (CUAHSI) is seeking collaborators for the Geophysics Module of its Hydrologic Measurement Facility (HMF-Geophysics), based on experience from an NSF-funded pilot project. The objective of HMF-Geophysics is to enable hydrologists to better use near-surface geophysical techniques as an integral part of their research. The primary service of HMF-Geophysics is to perform short-term feasibility studies to assess the applicability of various geophysical techniques for hydrologic

problems. CUAHSI plans to submit a proposal to the Hydrologic Science Program for HMF-Geophysics Module before the December 1, 2007 deadline.

Additional services include:

- consulting with hydrologists on possible approaches;
- education of the hydrologic community about near-surface geophysics through presentations at professional meetings, development of educational materials, and organization of workshops; and
- identification and engagement of geophysicists at other institutions who are interested in collaborating with hydrologists on projects.

Scientists interested in collaborating on HMF-Geophysics should send a two-page NSF-style curriculum vitae and a statement of interest (no longer than 3 pages) detailing experience in near-surface geophysics and hydrologic field studies, their vision of how they can contribute to achieving the goals of HMF-Geophysics, and examples of community service and engagement in community activities to exdir@cuahsi.org <<mailto:exdir@cuahsi.org>> .

Applications are due no later than* *Tuesday, October 15, 2007.

For more information on this Opportunity, please see <http://www.cuahsi.org/docs/NoO-Geophysics.pdf>

Thank you for your continued interest and assistance.

Rick
Richard P. Hooper, PhD
CUAHSI
2000 Florida Avenue, NW
Washington, DC 20009
202-777-7306 (phone)
202-777-7308 (fax)

5. September issue of FastTIMES available online

The September issue of FastTIMES is currently available for free; download from the Environmental and Engineering Geophysical Society website at http://www.eegs.org/fasttimes/latest_issue.cfm. There are several items that may be of interest to AGU NS members, including calls for nominations for the Frischknecht and new Early Career awards, a group order for a book on Groundwater Geophysics published by AEG-India, and a request for input into the SAGEEP 2008 technical program. It's best to download the document to a computer and then view it with Adobe Reader rather than viewing it within the browser window.

The deadline for material for the December issue is November 15, so if you have anything you wish to contribute, please send the submissions to Jeff Paine, (jeff.paine@beg.utexas.edu) President, EEGS.

6. Academic Position Announcements:

6.1 FACULTY

6.1.a. Endowed Chair Position in Exploration Geophysics, Boone Pickens School of Geology Oklahoma State University

The Boone Pickens School of Geology at Oklahoma State University (OSU) invites applications and nominations for a distinguished geophysicist with demonstrable international reputation and strong research background to fill The Boone Pickens Chair in Exploration Geophysics position at the associate or full professor level. Applicants are required to have a Ph.D. degree in geophysics or related field at the time of appointment.

The applicants should have a broad background in the geophysical sciences especially in seismic reflection techniques applied to oil exploration. The School also will consider applicants with an expertise in crustal scale reflection seismology. Specific research areas may include, but are not restricted to, seismic data processing and quantitative seismic analysis, seismic attribute analysis based on rock physics, or processing and inversion for 4D applications. Applicants must have a strong research and publication record, a demonstrated ability to attract external funding, and be tenurable at the time of appointment. Salary and benefits will be competitive and commensurate with experience and future potential.

The successful candidate will be expected to pursue a vigorous research program, as well as a strong record of publication and funding. The candidate will supervise M.S. graduate students and develop courses in his or her specialty and participate in the development of an anticipated Ph.D. program in the School of Geology. In addition, they will participate in teaching introductory geology courses.

The successful candidate will join a faculty of eleven geoscientists, including two other geophysicists, and will be part of a strong petroleum geology and tectonics research group that include six other faculty and has close ties to the petroleum industry. The School of Geology has a well equipped geophysical laboratory with a Geometrics 48 channel seismograph, an Iris Syscalpro 10 channel resistivity system, an AGI Supersting resistivity system, a Scintrex C-G5 gravimeter, a Geometrix control source audio magnetelluric system (Stratagem), a Pulse Ekko GPR system, a Geonics EM-34 system, a Geometrics 858 Cs vapor magnetometer, and state of the art software for processing both potential field and seismic data. In addition the School has recently constructed the Devon Teaching and Research Laboratory, which contains state-of-the-art 3-D image processing facilities.

Applicants are encouraged to submit a complete vita/resume, statement of research and teaching interests, and a list of five references, including names, phone numbers, e-mail addresses, and complete mailing addresses to: Geophysics Search, Boone Pickens School of Geology, 105 Noble Research Center, Oklahoma State University, Stillwater, Oklahoma 74078-3031. Phone: (405)-744-6358. Fax: (405) 744-7841. Screening of candidates will begin in January 2008 and will continue until the position is filled.

Inquires about this position may be directed to Dr. Estella Atekwana at the above address (estella.atekwana@okstate.edu). More information on OSU and the Boone Pickens School of Geology can be found on the web <http://www.pio.okstate.edu> and <http://www.okstate.edu/geology> respectively.

Oklahoma State University is an Affirmative Action/Equal Opportunity Employer. People from underrepresented groups are strongly encouraged to apply for this position.

6.1.b. Boise State University, Tenure Track Faculty Position in Geophysics

Boise State University invites applications for two tenure track faculty positions in geophysics. The positions will be filled at the rank of Assistant Professor or higher and we encourage both early career stage and senior level applicants. Boise State has a recognized program in near-surface geophysics and our faculty actively conducts research in the fields of inverse theory, wave propagation and imaging, computational geophysics, and field methods. We are interested in building on this core of expertise with the goal of becoming an international center of excellence in near-surface geophysical research and education. We encourage applications from individuals interested in contributing to this vibrant and progressive program. For further information about our faculty, research and teaching programs, and exceptional resources for conducting geophysical research, please visit our websites at <http://earth.boisestate.edu> and <http://cgiss.boisestate.edu>.

Boise State is a growing institution (>19,000 students) serving Idaho's metropolitan center. As the state's capital and business, financial and cultural center, Boise is consistently recognized as one of America's best places to live. A favorable cost of living, coupled with moderate climate and a wide variety of cultural and recreational opportunities, contribute to an outstanding quality of life for our faculty. A vibrant scientific community draws from the faculty of the University, regional high-tech industries, and numerous state and federal agencies.

Qualifications: A Ph.D. in geophysics or a related field such as applied physics, applied mathematics, or engineering is required at the time of appointment. Excellent teaching skills and research experience in academia or industry demonstrated by past patents, publications, and success in funded research are significant factors in the selection process. The applicant must demonstrate potential to obtain, or currently have, an externally funded research program.

Responsibilities: The successful applicant will develop an internationally recognized program in near-surface geophysics supported by external funding. Active and collegial participation in the continued growth and development of the geophysics program through research and teaching are

required. We encourage candidates to establish collaborative research efforts, provide research opportunities for students, and deliver courses at both undergraduate and graduate level.

* *

Application Procedure: Please apply online at <https://cgiss.boisestate.edu/~pm/FacultySearch/> where you will upload a cover letter, curriculum vitae, statement of research and teaching interests, and contact information for at least three references. Please reference Search Numbers AS-0007-78 and AS-0008-78.

Review of applicants will begin November 1 and will continue until finalists are identified. Applications received after that point may be considered if the position is not filled from the finalist pool. For additional information contact: geopsearch@boisestate.edu.

Boise State is an EOE/AA institution and is strongly committed to achieving excellence through cultural diversity. The University actively encourages applications from women, persons of color, and members of other underrepresented groups. Veteran's preference/.

6.1.c. Tenure-Track Assistant Professor: Near Surface Geophysics

Rutgers University-Newark seeks to fill a full-time, tenure-track position at the rank of Assistant Professor for Fall 2008 in the area of environmental/near surface geophysics. We seek candidates with expertise in near surface geophysical methods for the study of environmental processes occurring in the upper ~100 m of the Earth. Desirable areas of specialty include (but are not limited to) hydrogeophysics and biogeophysics. Candidates who could take advantage of unique opportunities resulting from our urban environmental setting on the doorstep of New York City are particularly encouraged to apply.

Excellent opportunities exist for collaboration with current faculty in near surface geophysics, soil geochemistry and ocean-atmosphere interactions. Establishing a vigorous, externally funded research program and advisement of MS/PhD students is essential. Effective teaching is required with a maximum teaching load of 3 courses per year.

Send a letter of application, a CV and arrange for 3 letters of reference to Dr. Lee Slater, Search Chair, Dept. of Earth and Environmental Sciences, Rutgers University, Newark, NJ 07012 or lslater@andromeda.rutgers.edu.

Rutgers University is an equal opportunity/affirmative action employer.

6.2 POST DOCTORAL FELLOWSHIP in Biogeophysics

Duration: 12 months

Location: Geosciences Hydrosiences Material and Construction laboratory (GHYMAC),
University of Bordeaux (33) France

Description:

In the context of a French Program on Biogeophysics, a one year postdoctoral fellowship is available for a non-French candidate. This program is funded by the French Research Ministry (INSU-EC2CO), supported by the French Agency for Environment and Energy Management (ADEME) and is composed of 5 French laboratories. Biogeophysics is an emerging discipline that aims to investigate the effects of geomicrobiology/biogeochemical processes on geophysical signals measured on contaminated sites. The candidate will work on both laboratory and field experiments with geoelectrical methods (DC, SP and SIP) in context of contamination. The candidate must have a good autonomy and adaptability to work in a multidisciplinary context with geophysicists, geochemists and microbiologists.

Qualifications required:

Applicants must have obtained a Ph.D. degree related to the geophysical domain by the start of the appointment but preferably not have received their degree longer than 4 years prior to applying.

Required skills:

-geophysics (electromagnetics, potential fields) -notions of chemistry and microbiology -numerical methods -programming (C, Comsol, Matlab) -liking of experimental work (laboratory and field) - fluent French or English

Salary : about 1800 euros

How to Apply : Those wishing to apply should send a CV with a current list of publications, a statement of research interests, and the names and addresses of three academic references to individual faculty members to Dr. Véronique Naudet (v.naudet@ghymac.u-bordeaux1.fr).

6.3 PhD STUDENT FELLOWSHIPS Available in Landslide Geophysics at Colorado School of Mines

Colorado School of Mines (CSM) has been awarded a grant from the Department of Education's prestigious GAANN program that provides 3-4 graduate fellowships beginning 2007 to 2010. We seek applicants who wish to pursue PhD degrees in the area of "Landslide Geophysics" Specific research topics are: (1) shallow groundwater (unsaturated) velocity mapping, (2) subsurface failure surface (fissures) mapping, and (3) subsurface geologic mapping. Fellows are encouraged to pursue non-invasive geoelectrical methods such as self-potential, electrical resistivity, ground penetration radar, and induced polarization to determine the configuration of water flow in unsaturated zones.

Fellowships are available through the following programs (areas):

Geophysics (Hydrogeophysics)

Engineering Systems (Soil physics)

Interdepartmental collaboration is encouraged. Fellows will also be affiliated with the US Geological Survey's Landslide Hazard Program (<http://landslides.usgs.gov/>). Fellowships include full payment of tuition and fees, a stipend up to \$20,000 per year, plus funds for conference travel and educational supplies. CSM is recognized nationally and internationally as a leading institution for learning and research in earth-related disciplines. CSM is located in Golden, Colorado, in the foothills of the Rocky Mountains with ready access to mountain recreation and the city attractions of Denver. For more information, contact the program faculty:

Dr. Andre Revil* *(Geophysics) [303-273-3518, revil@cerege.fr, arevil@mines.edu, <http://www.andre-revil.com/index.html>];

Dr. Ning Lu* *(Civil Engineering) [303-273-3654, ninglu@mines.edu, <http://egweb.mines.edu/faculty/ninglu/Default.html>];

Dr. Jonathan Godt* *(US Geological Survey) [303-273-8626, jgodt@usgs.gov, <http://landslides.usgs.gov/people.php#Godt>].

Applicants, who have completed a Master's degree, and members of underrepresented groups in earth sciences and engineering, are especially encouraged to apply. Applicants must be U. S. citizens, U.S. nationals, or permanent U.S. residents.

AGU NS-Focus Group Web Page: http://www.agu.org/focus_group/nsg/index.html

To contribute material to the NS-letter e-mail to:

George Tsoflias tsoflias@ku.edu

DEADLINE: Material must be received 2 full business days prior to the first of each month. Failure to meet the deadline will likely result in missing the next issue.

GUIDELINES FOR SUBMISSIONS:

All members are welcome to submit content of interest to the NS community. Please keep messages brief and provide contact information and (if available) a hyperlink for additional information. AGU requests formatting of e-mail messages to be as simple as possible (no bold characters (use ALL CAPS instead), no color font, or other special formatting of text and paragraphs). Do not submit e-mail attachments for distribution.