

May 2009 Newsletter of the AGU Near-Surface Focus Group

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Recent announcements of interest to the NS community (conferences, academic positions, graduate student opportunities etc.) can be found at the AGU NS-Focus Group Web Page: <http://nsg.agu.org>

AGU NS Membership as of January 2009:

Primary affiliation: 620 members; Secondary: 1754 members

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1. AGU 2009 Joint Assembly

The 2009 AGU Joint Assembly will be held May 24-27 in Toronto, Canada.

Information about the meeting can be found at <http://www.agu.org/meetings/ja09>.

Near Surface Geophysics and Hydrogeophysics sessions

Monday Morning Oral Sessions

H11C, Room 715B, starting at 8:00am. Hydrogeophysics: State of the Science I

H12A, Room 715B, starting at 10:30am. Hydrogeophysics: State of the Science II

Monday Afternoon

NS13B, NS13A, NS14A Back to Basics: Inversion of Electrical Resistivity Imaging Data (from Rosemary Knight).

This session was designed to have three parts: an oral session, then a poster session, then a discussion session. Unfortunately the scheduling is such that the oral and poster sessions are at the same time. Here's my proposed plan:

1) NS13B, Room 717B - Oral Session starting at 2:00pm. I suggest that we all (oral and poster presenters and attendees) start here in the oral session. This runs until 3:35pm.

2) NS13A, Hall E - Poster Session. This poster session is scheduled to start at 2:00pm. I propose changing the start time to 3:40pm, so that we can all head to the posters when the oral session ends.

3) NS14A, Room 717B - Discussion starting at 4:30pm. I plan to post on the door a change in the start time to 5pm to give us more time in the poster session. This final time period was booked to give us an opportunity to reconvene after the posters to talk about what was learned, ideas for continuing some form of community-based discussion of data inversion, sharing of data sets, adoption of standard data sets etc.

H13A, Hall E, starting at 2:00pm. Hydrogeophysics: State of the Science IV  
Posters H13D, Room 715B, Oral session starting at 2:00pm. Hydrogeophysics: State  
of the Science III

Tuesday Morning Oral Sessions

NS21A, Room 716B, starting at 8:00am. Near Surface Geophysics General  
Contributions I

Tuesday Afternoon Poster Sessions:

NS23A, Hall E, starting at 2pm. Near-Surface Geophysics General Contributions  
Posters II NS23B, Hall E, starting at 2pm. Near-Surface Geophysics for  
Applications in Civil Engineering I Posters

Wednesday Morning Oral Sessions:

NS31A, Room 717B, starting at 8am. Advancing the Use of Electrical Resistivity  
and Electromagnetic Methods for Near-Surface Applications NS32A, Room 717B,  
starting at 10:30am. Near-Surface Geophysics for Applications in Civil  
Engineering

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2. Social events at AGU JA

2.1 Monday, May 25, Evening Social at AGU JA (organizer Louise Pellerin) Come  
join your friends and colleagues for a Joint Hydrogeophysics Committee/NS Focus  
Group/Canadian Exploration Geophysical Society (KEGS) social event on Monday, May  
25th at Overdraught Irish Pub ([www.theoverdraught.ca](http://www.theoverdraught.ca)) 156 Front Street West (the  
Convention Centre is 255 Front Street West, so it is just a block east and across  
the street), Toronto, ON M5J 2L6, Canada, (416) 408-3925. We have space reserved  
from 6-8(9+) PM to enjoy pub food, beer (pay your own way) and each other's  
company. KEGS has graciously offered to sponsor the appetizers. Look forward to  
seeing you!

2.2 Tuesday, May 26, Student Social Event (from Elliot Grunewald) Come join your  
fellow near surface students Tuesday night for food and drinks at the Rivoli  
Restaurant and Bar, just a short walk from the Metro Toronto Convention Center.  
This student social event is being organized by Jess Reeves of Stanford  
University. Jess is also a Toronto native, so you will definitely be in good  
hands for a fun night out.  
Tuesday night at 6:30pm, Rivoli Restaurant and Bar, 334 Queen St W (about a 10  
min walk from the convention center). Remember students are also welcomed and  
encouraged to come to the broader NS social event Monday night at The Overdraught  
Pub.

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3. Vote for our AGU NS LOGO!

Voting is open until May 15 for the NS FG logo competition.  
View the submitted logos at [http://www.agu.org/focus\\_group/nsg/logo.html](http://www.agu.org/focus_group/nsg/logo.html) and  
follow online instructions to vote for your favorite one.

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#### 4. Society of Exploration Geophysicists News

4.1 TLE Special Issue on Hydrogeophysics As many of you are aware SEG's The Leading Edge (TLE) publishes special sections each month highlighting immerging or active areas of applied geophysics. Coming in October the near surface community will have the opportunity to enlighten the entire geophysical community on the high quality and innovative nature of their work in hydrogeophysics. A hydrogeophysics special section is scheduled for the October 2009 issue of TLE. The deadline for submitting papers to be considered is June 18, 2009. If you have any questions, or would like to submit a paper for consideration, please contact Rick Miller [rmiller@kgs.ku.edu](mailto:rmiller@kgs.ku.edu).

#### 4.2 GEOPHYSICS call for papers

SEG invites papers on the topic of "Hydrogeophysics - Electric and Electromagnetic Methods" for publication in the July-August 2010 special section or supplement of GEOPHYSICS.

Hydrogeophysics is a rapidly evolving discipline of geophysical methods dedicated to revealing properties and monitoring processes in the vadose zone as well as in aquifers. The discipline is relevant for environmental, hydrological, and agricultural research and engineering. Key processes in the application areas are contaminant transport, sustainability of ecosystems and biodiversity, plant growth, and soil-atmosphere interactions. Groundwater is the key component in the subsurface pore volume, for which reason electric and electromagnetic methods are most suitable for addressing the problems related to shallow subsurface spatial and temporal variability, its inaccessibility, which hinders the observation of relevant processes, and its role in connecting atmosphere, surface, and groundwater/reservoirs.

Our principal aim is to review the theories of these techniques and their applications on various scales and within different geologic settings. With this special issue, we hope to foster a knowledge transfer and cross-fertilization among the different communities. Although we focus on electric and electromagnetic methods, including self-potential, induced polarization, nuclear magnetic resonance, the various EM methods, and ground-penetrating radar, we encourage related contributions, such as from electroseismic and seismoelectric methods. In addition, we are welcoming developments of new techniques for an improved characterization and monitoring of the shallow subsurface and groundwater-related processes, including those for biogeosystems.

For this topic, GEOPHYSICS invites papers describing the theory, application, and benefits of advanced methods of hydrogeophysics. The application scale may range from the pore scale to the field scale involving more than 1 hectare of surface area. In particular we welcome techniques that exploit the evolution of new passive and active electric and electromagnetic acquisition strategies and advanced data processing and inversion schemes that show an increase in computational speed. Finally, we also encourage papers that highlight case studies and thereby emphasize the practical aspects and illustrate the potential pitfalls, problems, and limitations of the applied techniques.

Interested authors should submit their manuscripts for review no later than 31 July 2009. In addition, the special section/supplement editors would like to receive a provisional title and list of authors as soon as possible. Authors should submit via the normal online submission system for GEOPHYSICS

(<http://mc.manuscriptcentral.com/geophysics>) and indicate that it is a contribution for the hydrogeophysics special section or issue. The submitted papers will be subject to the regular peer-review process, and the contributing authors also are expected to participate in the review process as reviewers.

We will work according to the following timeline:

-- Submission deadline: 31 July 2009

-- Peer review complete: 15 March 2010

-- All files submitted for production: 31 March 2010

-- Publication of issue: July-August 2010 Given the tight timeline for publication of this issue, GEOPHYSICS is going to strictly enforce author submission guidelines, covered in "Instructions to Authors" published in the January-February 2009 issue and on the SEG Web site

(<http://seg.org/geoinstructionstoauthors>). Please note that normal GEOPHYSICS page and color charges apply.

For specific questions, please contact the special section/supplement editors Jan van der Kruk ([j.van.der.kruk@fz-juelich.de](mailto:j.van.der.kruk@fz-juelich.de)), André Revil ([arevil@mines.edu](mailto:arevil@mines.edu)), and Evert Slob ([e.c.slob@tudelft.nl](mailto:e.c.slob@tudelft.nl)).

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#### 5. EEGS News: Call for FastTIMES Content: June Issue

The editors of FastTIMES, EEGS's electronic magazine for near-surface geophysics, are accepting articles, advertisements, and announcements through May 21 for inclusion in the next issue due to be published and distributed electronically in June. Articles on the application of geophysics to detect abandoned mines and discover suitable locations to store compressed air energy are welcome. The most recent issue of FastTIMES, is available for download from the EEGS website at [www.eegs.org/fasttimes](http://www.eegs.org/fasttimes).

Please send your submissions to a member of the editorial team - Moe Momayez ([moe.momayez@arizona.edu](mailto:moe.momayez@arizona.edu)), Jeff Paine ([jeff.paine@beg.utexas.edu](mailto:jeff.paine@beg.utexas.edu)), or Roger Young ([ryoung@ou.edu](mailto:ryoung@ou.edu)). Please direct advertising inquiries to Jackie Jacoby ([staff@eegs.org](mailto:staff@eegs.org)).

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#### 6. Student Hydrogeophysics Field Blog from India (from Stephen Moysey)

Clemson graduate student Dan Matz will be keeping a field blog over the next 5 months while he works on a water resource project in rural India. The project will feature EM induction and traditional hydrologic measurements for investigating soil moisture and groundwater changes during monsoon. Through the blog Dan will be communicating the excitement and frustrations of fieldwork, while also documenting his personal experiences working in a very poor and underdeveloped region. We are hoping that the blog will be an effective way for students (and the public) to get insight into the practical side of hydrogeophysics and increase interest in our field - particularly for applications in developing countries. Note that the blog is interactive - Dan will be directly responding to posts by viewers. Please help us out by forwarding this message to students in your departments.

The site for the blog is: <http://dansindiablog2009.blogspot.com/>.

The blog is part of a project sponsored by the SEG Foundation through the Geoscientists Without Borders program. More information about the project can be found at the website <http://www.clemsongwb.info/>. Questions or comments regarding the project should be forwarded to Stephen Moysey ([smoysey@clemson.edu](mailto:smoysey@clemson.edu)).

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7. Post Doctoral Positions at Lawrence Livermore National Laboratory

The Atmospheric, Earth, and Energy Division of LLNL is currently seeking qualified applicants for two postdoctoral positions. The description is below and can be found on our website: [https://jobs.llnl.gov/prod\\_index.html](https://jobs.llnl.gov/prod_index.html)  
We are interested in people who have good knowledge of geophysical techniques for exploration and reservoir monitoring (including CO2 sequestration). We specifically need people with electrical methods experience and geomechanical experience. Both positions require computational modeling.  
The specific posting is #8351.

NOTE: This is a two-year term appointment with the possibility of extension to a maximum of three years. Eligible candidates are recent PhDs within five years of the month of the degree award at the time of employment offer.

NATURE AND SCOPE OF JOB

The Computational Physics Group within the Atmospheric, Earth and Energy Division (AEED) in the Physical and Life Sciences Directorate, has an immediate opening for a postdoctoral scientist to do original and independent research in one or more aspects of computational geophysics, geology, and basic energy sciences. The successful candidate will perform computational modeling and field studies utilizing state-of-the-art geomechanical tools to study fault and fracture network activation in response to fluid injection into the subsurface. The successful candidate will have access to LLNL's extensive computer facilities, specialized laboratory facilities and field equipment. The postdoctoral scientist will report to the Computational Physics Group Leader within AEED.

ESSENTIAL DUTIES

- Conduct original and independent research in computational geophysics, geology, and basic energy sciences. Organize and analyze data from research.
- Understand the essential physics interactions that take place when geophysical materials are subjected to loading.
- Perform large scale simulations, analyze results and compare to laboratory and field data.
- Publish both programmatic reports and peer-reviewed publications summarizing research findings. Present results at program meetings and national conferences.
- Work as part of a scientific team and interact with physicists, geologists, seismologists, and chemists to design and implement research projects.
- Ensure all assignments are performed in accordance with ES&H, security, and business practice requirements and policies.

ESSENTIAL SKILLS, KNOWLEDGE AND ABILITIES

- Recent PhD in physics, geology, geophysics, basic energy sciences, or associated engineering fields.
- Demonstrated creativity to develop and implement computational strategies, with exceptional ability and knowledge in the applicant's area of specialization.
- Knowledge of the development and/or application of three-dimensional continuum or discrete element codes.

- Knowledge of remote sensing techniques to measure crustal deformation such as InSAR.
- Knowledge of stochastic inversion processes for geophysical datasets.
- Good knowledge of modern computer systems, computational tools, languages and hardware configurations.
- Ability to work effectively both individually and in a team-oriented environment.
- Experience writing and presenting reports, publications, and proposals.
- Effective verbal and written communication skills.

SPECIAL REQUIREMENTS

Pre-Placement Medical Exam: None required Pre-Employment Drug Test:

External applicants selected for this position will be required to pass a post-offer, pre-employment drug test.

Anticipated Clearance Level: None

Jeffery J Roberts

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To contribute material to the NS-letter send an e-mail to:  
George Tsoflias [tsoflias@ku.edu](mailto:tsoflias@ku.edu)

DEADLINE: Material must be received 2 full business days prior to the first of each month.

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). E-mail attachments cannot be distributed.