

December 2011 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](#).

AGU NS Membership as of December 2011:  
Primary affiliation: 740 members; Secondary: 2591 members

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1. 2011 Fall AGU Meeting
  - 1.1. Near-Surface Geophysics final session schedule

A total of 139 NS abstracts were received resulting in 6 oral sessions and 7 poster sessions. Approved Near-Surface Geophysics sessions for the [2011 AGU Fall Meeting](#) are as follows:

Monday, 5 December 2011:

- NS11B: Near Surface Geophysics General Contributions I: 8:00 AM - 10:00 AM; Room 3007
- NS11A. Hydraulically Fractured Systems and Thermo-Hydro-Mechanical Problems Relevant to Environmental Engineering Posters: 8:00 AM - 12:20 PM; Halls A-C
- NS12A. The Role of Mineral Water Interface in Understanding Geophysical Signals: 10:20 AM - 12:20 PM; Room 3007
- NS13A. From Pore-Scale to Basin-Scale: Geophysical Methods for Groundwater Evaluation and Management II: 1:40 PM - 3:40 PM; Room 3007
- NS14A. Novel Techniques Applied to Near-Surface Geophysical Problems I: 4:00 PM - 6:00 PM; Room 3007

Tuesday, 6 December 2011:

- NS23A. Near Surface Geophysics General Contributions II Posters: 1:40 PM - 6:00 PM; Halls A-C

Wednesday, 7 December 2011:

- NS33A. From Pore-Scale to Basin-Scale: Geophysical Methods for Groundwater Evaluation and Management I Posters: 1:40 PM - 6:00 PM; Halls A-C
- NS33B. Novel Techniques Applied to Near-Surface Geophysical Problems II Posters: 1:40 PM - 6:00 PM; Halls A-C

Thursday, 8 December 2011:

NS41A. Exploiting GPR and Seismic Wavefield Properties for Characterization of the Shallow Subsurface I: 8:00 AM - 10:00 AM; Room 3005

NS42A. Seismic Characterization of Unconsolidated Sediments I: 10:20 AM - 12:20 PM; Room 3005

NS43A. Exploiting GPR and Seismic Wavefield Properties for Characterization of the Shallow Subsurface II Posters: 1:40 PM - 6:00 PM; Halls A-C

Friday, 9 December 2011:

NS51A. Cryosphere Geophysics I Posters: 8:00 AM - 12:20 PM; Halls A

NS51B. Near Surface Geophysics General Contributions III Posters: 8:00 AM - 12:20 PM; Halls A-C

## 1.2. Hydrogeophysics final session schedule

Thursday, 8 December 2011:

H41D. Geophysics for the Critical Zone I Posters: 08:00-12:20; Halls A-C

H42F. Hydrogeophysics: Monitoring and Modeling of Hydrological Processes From Lab to Field Scale I: 10:20 AM - 12:20 PM; Room 2020

H43D. Hydrogeophysical Data Fusion for Estimation and Prediction in Hydrologic Systems I Poster: 13:40-18:00; Halls A-C

H43E. Hydrogeophysics: Monitoring and Modeling of Hydrological Processes From Lab to Field Scale II Posters: 1:40 PM - 6:00 PM; Halls A-C

H44B. Characterization and Noninvasive Imaging of Plant Roots and Other Hydrobiophysical Processes Across Scales I: 16:00-18:00; Room 3012

Friday, 9 December 2011:

H51A. Characterization and Noninvasive Imaging of Plant Roots and Other Hydrobiophysical Processes Across Scales II Posters: 8:00-12:20; Halls A-C

H52A. Geophysics for the Critical Zone II: 10:20-12:20; Room 3010

H52C. Hydrogeophysical Data Fusion for Estimation and Prediction in Hydrologic Systems II: 10:20-12:20; Room 3014

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## 2. Announcement: Help the Near Surface Focus Group Fund Make a Bigger Impact! (from Lu Pellerin)

Your support of fellow AGU Near Surface members and the next generation of student scientists is vitally important. With increased donations, we will be able to expand programing and NSFG initiatives to subsidize student tickets and registrations for Fall Meeting events, fund special student travel grants, honor distinguished and early-career NS member achievements, and provide travel support for NSFG award winners.

Help the NSFG increase our impact by [making your donation](#) of \$200, \$100, or \$20 today! Any amount will be greatly appreciated. Thank you for your support!

Don't forget that all Supporting Members who donate \$120 or more in 2011 will have access to AGU's new and improved Donor Lounges at the 2011 Fall Meeting!

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## 3. Announcement: [SAGEEP 2012](#): abstract submission deadline extended to 19 December (from Bruce Smith)

SAGEEP 2012 Update: The deadline has been extended to 19 December for session and abstract submissions to the 25th Anniversary meeting of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) to be held in Tucson, AZ, 25-29 March 2012 at the Hilton El Conquistador Tucson, Arizona USA

- Conference Chair: Moe Momayez, University of Arizona
- Technical Chair: [Gail Heath](#), Idaho National Laboratory.
- [SAGEEP 2012 Web site](#)

AGU NS FG and SEG NSGS are supporting EEGS at SAGEEP 2012. The following sessions have been accepted, but submissions on other topics are still welcome:

#### AGU-EEGS joint session

- Development and Applications of Nuclear Magnetic Resonance Techniques for Near-Surface Investigations: Chair Kristina Keating
- Advances in the geophysical characterization and monitoring of fractured rock aquifers: Chair Lee Slater

#### AGU-EEGS-SEG joint session

- Induced Polarization: Chair Andre Revil

#### EEGS sessions

- Determination of Shear Wave Velocities for Geological and Engineering Applications: Chair Ahmed Ismail
- Hydrologic Applications for Borehole Geophysics-New Developments: Chair John Stowell
- Laboratory Measurements of Near Surface Geophysical Properties: Chair Craig Hickey
- Dam Safety-The Use of Geophysical Methods for its Diagnostics and Monitoring: Chair Chih-Ping Lin
- Munitions and Explosives of Concern - Instrumentation, Classification, and Application to Live Sites: Chair Ted Asch
- Proximal Soil Sensing: Chair Viacheslav Adamchuk
- Advances in Agricultural Geophysics: Chair Barry Allred
- Multichannel GPR Techniques, Advances and Case Histories: Chair Gianfranco Morelli

To volunteer to chair a session listed on the web site, which does not have a chair, indicate your interest on the [abstract submission site](#) or send an email to the Technical Chair.

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#### 4. Announcement: SEG-AGU Hydrogeophysics Workshop (from Jan van der Kruk)

From 8-11 July 2012, the SEG-AGU Hydrogeophysics workshop is organized at Boise State University, Boise, Idaho, U.S.A. The workshop addresses current hydrogeophysical approaches for determining/predicting/studying hydrologic properties and processes in both the saturated and unsaturated zones, at scales ranging from centimeters to watersheds. Through presentations of original research in our "General Sessions", and analysis and interpretation using shared hydrogeophysical datasets in our "Homework Sessions", the workshop will highlight the state of the science and critical future directions. We have defined topics for the General Sessions and will organize sessions around more specific topics with ~10 presentations in each session, based on the submitted abstracts. Our Homework Sessions will allow different investigators to independently analyze a shared dataset, with each homework designed to explore important aspects of acquiring, analyzing and interpreting hydrogeophysical data. In order to promote discussion, all accepted abstracts (for General and Homework Sessions) will be presented as posters, with a 3-5 minute oral presentation as an introduction. After viewing of posters, all sessions will reconvene for a panel-led discussion.

#### General Sessions

- Characterizing Near-Surface Structure and Properties
- Advances in Monitoring and Time-Lapse Imaging of Subsurface Processes
- Thinking About Scaling Up: Geophysical Methods at the Watershed Scale

#### Homework Sessions

- The Use of Electrical Resistivity Measurements for Monitoring Subsurface Processes: Quantifying Noise and Uncertainty
- The Ultimate Tomography Bake-Off Challenge Using Boise Hydrogeophysical Research Site Borehole Seismic and GPR Datasets
- Designing the “Perfect” Field Experiment

The abstract submission deadline is 21 March 2012 and the advance registration deadline is 7 June 2012. For more information please visit the [SEG-AGU 2012 Hydrogeophysics Workshop Web site](#). We are looking forward receiving your abstracts.

Rosemary Knight, James Irving, Rob Jacob, Lee Liberty, Kamini Singha, and Jan van der Kruk

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5. Announcement: 21<sup>st</sup> EM Induction Workshop, 25-31 July 2012, Darwin, Australia (from Graham Heinson)

The [21st Electromagnetic \(EM\) Induction Workshop](#) is the premier event for researchers around the world to exchange latest developments in the field of geophysical-electromagnetism. The Workshop is important for both the international research community and for the many sectors of industry and government that use EM methods for mineral, petroleum and geothermal energy exploration, groundwater and environmental resource evaluation, geohazards monitoring and many other applications. The last few workshops have been held in Cairo (2010), Beijing (2008), Barcelona (2006) and Hyderabad (2004).

We are expecting about 250 delegates, from all around the world. A particular attraction is that we have an excellent series of reviews by some of the most influential and important international researchers, more details on the [21s EM Induction Workshop Web site](#). These reviews include some of the very best people in terms of mineral, petroleum and water exploration, joint inversion, cloud and parallel computing, and petrophysics. As this Workshop is held in Australia, we are emphasizing the industrial applications in resource evaluation, but there is always a very strong research element in data processing, modelling and petrophysics.

These are very social and inclusive workshops. The philosophy is to have one series of presentations in the morning (either the Reviews, or papers by students and early career researchers) and posters in the afternoons (about 250) that are left up all week. There are social events that will be included in the registration. We are also planning a 2-day splinter workshop on the geophysical (and particularly the electrical conductivity) signature of cratons from around the world after the main meeting (1st and 2nd August), hoping to have about 30-50 active participants. I've attached the program of events.

Please contact the Chair of the Local Organizing Committee, [Graham Heinson](#) for more details.

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6. Call for session proposals: AOGS-AGU (WPGM) Joint Assembly, 13–17 August 2012, Singapore

The AOGS-AGU (WPGM) Joint Assembly 2012 in Singapore will be held at Resorts World Sentosa. Situated on the sun-kissed island of Sentosa, it is the premier venue to welcome you for this memorable occasion. You are invited to convene Sessions in one of the following Sections: Atmospheric Sciences (AS); Biogeosciences (BG); Hydrological Sciences (HS); Ocean Sciences (OS); Planetary Sciences (PS); Solar & Terrestrial Sciences (ST); Solid Earth Sciences (SE); Interdisciplinary Working Groups (IWG)

Important dates:

Session Proposals Submission deadline: 5 December 2011, 23:59 (GMT +8)  
Acceptance Notification: 22 December 2011  
Abstracts Submission: Opens 15 January 2012; Closes 12 March 2012  
Acceptance Notification: 9 April 2012  
Author Registration Deadline and Early Bird Rate Deadline: 4 June 2012

Information and Assistance – Please contact:

[Meeting Matters International](#)

Tel: (65) 6472 3108 | Fax: (65) 6472 3208

Address: 1 Commonwealth Lane, #06-23 ONE COMMONWEALTH, Singapore 149544

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## 7. Open positions:

### 7.1. Staff Geophysicist at Vista Clara Inc., Mukilteo, WA

Vista Clara is seeking a motivated geophysicist with 0 to 5 years of experience to conduct Nuclear Magnetic Resonance (NMR) groundwater investigations and develop growth in commercial groundwater services. This position provides opportunities to participate in the growth of a dynamic and focused environmental technology firm, perform geophysical field surveys using state-of-the-art technology, participate in innovative applied research under federally-funded grants, and contribute to technological advancements in groundwater characterization and management.

**Key Areas of Responsibility:** Develop, plan, and perform geophysical surveys as part of federally-funded research projects and commercial groundwater services. Field surveys will use advanced borehole and surface-NMR instrumentation developed at Vista Clara as well as traditional geophysical methods; Analyze and interpret geophysical data sets and generate written reports for clients; Provide customer training on use of NMR instrumentation and assist in field-testing of new geophysical equipment; Contribute to marketing operations by designing promotional materials and participating in direct marketing of groundwater services products to new customers.

**Minimum Qualifications:** B.S. or M.S. in geophysics, or a related field (i.e. civil engineering, hydrology). Recent graduates will be considered and are encouraged to apply; Exceptional written and oral communication skills; Significant domestic and international travel required; Must be able to work outside in all weather conditions; Must be able to lift up to 50 lbs.

**Preferred Qualifications:** Field experience in geophysics and/or groundwater hydrology; Demonstrated ability to organize and manage field projects; Proficient with Matlab

More information on this job posting and contact information can be found on the [Vista Clara career Web page](#).

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### 7.2. Technical staff position in applied electromagnetic geophysics, Sandia National Lab, NM

The Geophysics and Atmospheric Sciences Department at Sandia National Laboratories in Albuquerque, NM, is soliciting applications to fill a technical staff position in the area of applied electromagnetic geophysics. Applications are sought from individuals with demonstrated excellence in the theory and advancement of classical electromagnetic geophysical methods and who are interested in contributing to and originating cross-disciplinary research teams focused on outstanding problems in energy resource characterization; homeland security; and national defense. Current projects include electromagnetic and electro-seismic assessment of petroleum resources and shallow and deep tunnel detection. The successful candidate will be expected to provide technical expertise to these program areas, to pursue additional funding opportunities through industrial sponsorship and/or peer-reviewed proposal

competition, and to maintain a record of vigorous scientific and technical achievement through regular contributions in the peer-reviewed literature.

Job Details: The successful candidate will be a team member on a variety of applied research projects for government and industrial energy, security, and defense clients. Activities cover the spectrum from theory to application, including algorithm development, computer modeling, data inversion, field demonstration, and instrumentation development. Position requires some fieldwork and limited travel.

For more details on these and other positions, please visit [Sandia's careers Web page](#) and search for job posting ID# 639152 or keyword geophysics.

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### 7.3. Assistant Professor in geophysics, University of New Mexico, NM

The [Department of Earth and Planetary Sciences](#) at the University of New Mexico invites applications for a tenure track faculty position at the rank of Assistant Professor in the field of geophysics. The position is a full-time, probationary appointment leading to a tenure decision. The successful candidate will be expected to develop an active program of extramurally funded research in geophysics, supervising and supporting graduate students, and teaching at the graduate and undergraduate level. We seek candidates with expertise in any area of geophysics. Candidates with demonstrated research expertise that complement existing departmental strengths are especially encouraged to apply. Areas of particular research interest include, but are not limited to: active tectonics, lithospheric structure, solid earth geophysics, applied/exploration geophysics, hydrogeophysics, and shallow subsurface/ environmental geophysics.

Minimum qualifications are a Ph.D. in Geosciences or a related field at the time of appointment, targeted for August 2012. Preferred Qualifications are: demonstrated publication record in peer-reviewed journals; demonstrated commitment and energy to establish a vigorous and externally funded research program in a research area that complements existing research in the Department; demonstrated commitment and energy to establish a vigorous and externally funded research program; Research area that complements existing research in the Department and demonstrated commitment to collaborative science. The Department of Earth and Planetary Sciences is on the main campus of the University of New Mexico, close to Los Alamos National Laboratory and Sandia National Laboratories. The University is the largest and most comprehensive of the state's institutions of higher education and is both a Carnegie Very High Research University and a federally-designated Hispanic-Serving Institution. Located in Albuquerque, the largest and fastest growing metropolitan area in the state, the University of New Mexico features a growing campus that reflects the cultures and diversity of the Southwest and fosters an excellent work environment for its faculty and learning environment for its students. The Department of Earth and Planetary Sciences has a faculty of 20 and offers undergraduate degree programs in both Earth Sciences and Environmental Science, and M.S. and Ph.D. degree programs in Earth Sciences

The application package, containing a letter of interest, resume, a statement of teaching and research interests, and the names of three references with contact information, should be submitted electronically to [UNM Jobs](#). For best consideration, all materials must be received by 31, January, 2012. However, the position will remain open until filled. For questions regarding the application process please contact [Paula Pascetti](#), Search Coordinator, Department of Earth and Planetary Sciences (Tel: 505 277-1633). Women and under-represented minorities are strongly encouraged to apply. The University of New Mexico is an equal employment opportunity/affirmative action employer and educator.

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### 7.4. Junior Faculty Position in Applied and Exploration Seismology, University of Lausanne

The [Faculty of Geosciences and Environment](#) at the University of Lausanne has an opening for a position at the junior lecturer level in the field of applied and exploration seismology. This position is geared

towards recent PhD graduates with some postdoctoral experience. The new faculty member will be expected to: (i) teach a variety of courses covering the full breadth of applied and exploration seismic methods to undergraduate- and graduate-level students in the earth and environmental sciences, (ii) supervise undergraduate- and graduate-level students, and (iii) develop an externally funded and internationally recognized research program.

Applications from any domain of applied and exploration seismology that will reinforce and/or complement current research activities in applied and environmental geophysics are welcome. Interest and experience in other applied geophysical methods as well as in rock physics would be an asset. The successful candidate will have a well documented track record of independent research in her/his domain of specialization.

Prior knowledge of French is an advantage, but not a requirement for this position. An adequate command of this language for teaching purposes is, however, expected at the latest two years after the beginning of the appointment. This is a great opportunity for a highly motivated and dynamic young scientist with a dedication to excellence in both research and teaching to join one of the leading applied and environmental geophysics groups and to benefit from its dynamic atmosphere and very good infrastructure. The campus of the University of Lausanne is scenically located on the shores of Lake Geneva, a region of outstanding natural beauty offering a vibrant cosmopolitan atmosphere and an exceptionally high quality of life. For further information regarding the details of this position please contact Professor [Klaus Holliger](#). The University of Lausanne wishes to promote the access of women to academic careers and hence strongly encourages applications from qualified female candidates.

Application deadline: 20 January 2012

Starting date: 1 September 2012, or at some later date to agree upon.

Applications are to be submitted both by [e-mail](#) and by paper copy (Faculty of Geosciences and Environment, University of Lausanne, to the attention of the Dean, Amphipole Building, CH-1015 Lausanne, Switzerland). The application material must include a cover letter, a curriculum vitae, a publication list, a statement of research and teaching goals, and the names and contact information of three referees.

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#### 7.5. Postdoc Position in Hydrogeophysics

In the framework of the Helmholtz Water Alliance which aims at the establishment of a strategic, sustainable competency alliance in Germany in order to be able to address the major challenges for water research in the future, we are seeking for a Hydrology graduate, Physics graduate, Geophysics graduate, or Engineering graduate for a postdoc position in the field of Hydrogeophysics

Tasks: The focus will be on advancing hydrogeophysical methods for catchment-scale hydrological studies by joining the established expertise in the areas of advanced high-resolution subsurface imaging and the use of geophysical data to improve hydrological models. This research will provide additional insights in hydrological processes active at the core research sites of the TERENO-RUR observatory (e.g. Selhausen, Rollesbroich, Wüstebach). We envision the simultaneous use and further development of a suite of robust geophysical methods, with a main focus on electrical resistivity tomography (ERT), electromagnetic induction (EMI), and ground penetrating radar (GPR). The candidate should set-up and maintain a vigorous geophysical monitoring program

Requirements: We are looking for highly motivated individuals who have completed a PhD in Hydrology, geophysics, physics or electrical engineering not more than three years ago. The candidate should have experience in hydrological and/or geophysical field work and programming experience in MATLAB. The successful candidate will also be expected to have a good knowledge of English, and to initiate and conduct his/her own research projects in a structured and systematic manner, as well as work well in a team. Thorough training will be offered upon commencement of work. The position involves a fixed-term

contract of two years, with the possibility of extension.

For more information, visit the [IBG Web site](#); and/or contact: Dr. [Sander Huisman](#) or Prof. Dr. [Ir. Jan van der Kruk](#).

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

[Xavier Comas](#)

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 web address 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.