

April 2010 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 April 2010:

Primary affiliation: 691 members; Secondary: 2316 members

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1. Call for 2010 Fall AGU Meeting Session Proposals: Submission Deadline May 27 (from Chester Weiss)

The May 27 deadline for proposing sessions at the 2010 Fall Meeting (December 13-17, San Francisco) is fast approaching. Please consider proposing a Near Surface (NS) session. A strong set of sessions will help NS maintain a significant presence at the Fall Meeting! It is also the perfect meeting to organize co-sponsored sessions with other disciplines that are well-attended at Fall AGU: Tectonophysics, Seismology, Volcanology, Mineral & Rock Physics, Biogeosciences, Cryosphere, Geodesy, Geomag & Paleomag, Education, Hydrology, etc.

Submitting a session proposal is easy - just requiring a short abstract and the contact details of a minimum of two conveners. The web site is

[http://www.agu.org/meetings/fm10/program/session\\_proposals.php](http://www.agu.org/meetings/fm10/program/session_proposals.php)

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2. Joint Assembly Meeting of the Americas, 08-13 August 2010, Foz do Iguassu, Brazil (from Juan Lorenzo)

Many thanks to all who have submitted abstracts and proposal sessions to the Iguazu 2010 Joint Assembly and in particular the NS focus. As of today we have seven (7) NS Sessions and 20

abstracts submitted. Please continue to stay involved and, especially, support your students to submit one of the following sessions.

Near Surface Geophysics sessions:

NS01: Near Surface Geophysics General Contributions (Conveners: Jandyr De Menezes Travassos and Juan Manuel Lorenzo)

NS02: GPR and EMI Developments and Applications in Agriculture (Conveners: Evert C. Slob, Sebastien Lambot, and Jandyr De Menezes Travassos )

NS03: Medical Geology (Convener: Ahmet Umran Dogan; Cosponsor: Biogeosciences)

NS04: Near-surface Geophysics for Prediction and Monitoring (Conveners: Jandyr De Menezes Travassos and Juan Manuel Lorenzo; Cosponsor: Natural Hazards)

NS05: Open Reference Data sets, Software and Control Test Sites (Conveners: Juan Manuel Lorenzo and Jorge Porsani)

NS06: Radioactivity in the Near Earth Surface Environment (Conveners: Joselene Oliveira and Fernando Brenha Ribeiro; Cosponsors: Volcanology, Geochemistry and Petrology;

Paleoceanography and Paleoclimatology; Biogeosciences; Natural Hazards; Hydrology)

NS07: Technological Developments in Near-surface Geophysics (Conveners: Sergio Luiz Fontes and Louise Pellerin)

The Meeting of the Americas (<http://www.agu.org/meetings/ja10/>) will be held 08-13 August 2010 in Foz do Iguacu, Brazil. The Iguazu World Natural Heritage Park will provide a spectacular backdrop to this Assembly which is sponsored by the most important Earth Science and Space Community Organizations of the Americas.

NS Program Committee for JA 2010 :

Jandyr Travassos, Brazil [jandyr@on.br](mailto:jandyr@on.br) [jandyr@on.br](mailto:jandyr@on.br) [jandyr@on.br](mailto:jandyr@on.br)

Juan Lorenzo, [gllore@lsu.edu](mailto:gllore@lsu.edu) [gllore@lsu.edu](mailto:gllore@lsu.edu) [gllore@lsu.edu](mailto:gllore@lsu.edu)

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3. SEG 2010 Denver, Colorado, 17-22 October: call for abstracts

3.1. Special NSGS sessions (from Jan van der Kruk)

The submission system for the 80th SEG Annual Meeting, Denver, Colorado (17-22 October) is open. This year we will have in addition to the regular sessions three special sessions: 1) Geohazards and Public Safety 2) Hydrogeophysics, and 3) Geophysics at the Community Scale. Please contact the chair man if you want to contribute to a special session. We are looking forward to a great Technical Program and hope that you can contribute to it by submitting your expanded abstract before the submission deadline of 7 April 2010. More information on meeting in general and the abstract submission procedure can be found at <http://abstracts.seg.org/den10>.

Geohazards and Public Safety  
(Rick Miller, [rmiller@kgs.ku.edu](mailto:rmiller@kgs.ku.edu))

Geohazards are found across a wide range of geologic settings, with varying degrees and types of risk to life and property. The number and type of geohazards are as vast and diverse as the different geologic provinces that span the globe. As our ability to conquer some of the most challenging of these frontier areas for economic development, habitation, recreation, and transportation, so comes the need to characterize the risks and ensure controls put in place that properly influence these environments. Near-surface geoscientists have been developing and using geophysics as a frontline tool for many years to both evaluate potential surface instabilities and threats in the presence of subsurface hazards as well as monitor the effectiveness of structures designed to harness and constrain natural forces. This area of study and practice includes an enormous range of applications and geophysical tools, which are continuously changing and evolving through time. Papers both invited and submitted under the standard SEG technical meeting open announcement, will be presented. Topics will include everything from slope stability in alpine regions to overpressured zones associated with gas hydrates. This will be a session with potentially broad society interest.

NOTE: Deadline for submitting expanded abstracts to the SEG annual meeting in Denver is consistent with the deadline for papers submitted to the TLE for consideration in a special section on Geohazards. This coincident call for papers will benefit both venues and allow annual meeting attendees to view at least a few of the papers to be presented at the conference in advance on the pages of the August TLE.

#### Hydrogeophysics

(Klaus Holliger, [klaus.holliger@unil.ch](mailto:klaus.holliger@unil.ch) & Andre Revil, [arevil@mines.edu](mailto:arevil@mines.edu))

Traditionally, aquifer characterization is based on the analysis of drill cores and geophysical borehole logs as well as the results of tracer and pumping experiments. Core and logging studies can provide detailed local information, but are inherently 1D in nature, whereas tracer and pumping tests tend to capture the gross average properties of a probed region. Without complementary information, these techniques may thus be inadequate for reliably characterizing laterally heterogeneous aquifers. The inherent gap in resolution and coverage between core/logging studies and pumping/tracer tests can be bridged by high-resolution geophysical techniques. The corresponding rapidly growing and dynamically evolving interdisciplinary field of research is now commonly referred to as hydrogeophysics. The proposed special session will focus on the latest developments and emerging trends in the use of geophysical methods for the characterization of aquifers and the long-term management of water resources. Given the inherent conceptual similarities of geophysical approaches to aquifer and reservoir characterization, particular attention will be attributed to geophysical approaches from the petroleum industry that can be adapted and transferred to applications in water resources.

#### Geophysics at the Community Scale

(Louise Pellerin, [pellerin@ak.net](mailto:pellerin@ak.net) & Jan van der Kruk, [j.van.der.kruk@fz-juelich.de](mailto:j.van.der.kruk@fz-juelich.de))

Geophysics has been used to deepen our fundamental understanding of the Earth's structure and processes. The predominant use of geophysics is the exploration of natural resources including oil and gas, minerals, and water. Near surface geophysical methods are used to investigate environmental, natural hazards and engineered structures. Applied geophysics can be a powerful

tool to deal with the current challenges of limited resources and environmental problems, and should be more connected with communities in need to benefit people and the environment around the world. Here, an interdisciplinary approach plays an important role. Challenges are the local conditions, the ease of implementation and the sustainability of the approach. Already, a number of initiatives within the geoscience community are bringing geophysics to the community scale. In this session, we wish to explore technical and non-technical advances that have been used to support communities in the developing world, and exchange ideas and experiences of students, universities, corporate entities and non-governmental organizations. In addition, we highlight work in progress in SEG Geoscience Without Borders and promote programs and processes that encourage geophysicists to partake in humanitarian activities.

### 3.2. Special Session (from Jeff Paine)

#### State-of-the-Art in Multi-Dimensional Electromagnetics: A Special Session in Honor of Gerald W. Hohmann

This special session honoring the late Gerald W. (Jerry) Hohmann invites contributions that focus on the role of advanced multi-dimensional forward modeling, inversion and field methods in geophysical applications of electrical and electromagnetic methods. The session covers implementation of new field systems and procedures to achieve dense lateral coverage, and the use of modern analytical and numerical techniques for interpretation or inversion of EM field data. Applications can range from hydrocarbon, mineral, geothermal and groundwater exploration, to environmental monitoring and carbon sequestration studies.

This announcement is for anyone considering, or who has completed, the submission of a paper to the SEG meeting. The SEG online system does not have a special-session selection feature. If you would like your paper to be presented in this session, please inform Louise Pellerin ([pellerin@ak.net](mailto:pellerin@ak.net)) and she will coordinate with SEG. Depending on the number of submissions both an oral and a poster session are possible. Deadline for abstract submission is April 7, 2010, at 5:00 p.m. Central Daylight Time.

Gerald W. (Jerry) Hohmann (Ph.D. 1970, University of California at Berkeley) was Professor of Electromagnetic Geophysics at University of Utah from 1977 until his untimely death in 1992 at age 51. Jerry was a pioneer in quantitative analysis of electromagnetic methods, and together with his mentor and fellow professor Stan Ward, built a world-class research effort in applied geophysics at this institution. Jerry's exacting standards were coupled with an easy-going nature that induced students to high achievement in a supportive environment.

This session is being organized by the Gerald W. Hohmann Memorial Trust for Research and Teaching of Applied Electrical Geophysics. The Trust sponsors career achievement awards and student scholarships with the SEG, and holds quadrennial international symposia on EM modeling and inversion.

GWHMT: George Jiracek, Mike Oristaglio, Louise Pellerin, Klaus Spitzer, and Phil Wannamaker

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4. Outreach opportunity for research funded by NSF under the American Recovery and Reinvestment Act: special edition of Science360 News Service and content for LiveScience.com for Earth Day, Thursday, April 22, 2010 (from Dana Topousis)

Message Received from NSF:

At the request of the White House, NSF is planning a special edition of our Science360 News Service and content for LiveScience.com for Earth Day, Thursday, April 22, 2010. We are especially seeking NSF-funded research stories under the American Recovery and Reinvestment Act that could be tied to Earth Day news. Specifically, we are requesting written stories (they don't have to be breaking news), audio, video, images, and blogs. These items could be work you're creating or, in the case of blogs and images, work that your researchers are planning. If you'd like NSF to promote your Earth Day coverage on NSF's Science360 News Service or to NSF's content on LiveScience.com, please let us know. Again, we would prefer Recovery Act-related stories, but would love to hear about other Earth Day coverage you're planning.

Thanks in advance for partnering with us this Earth Day.

Best wishes for spring,

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Dana Topousis

Acting Division Director, Public Affairs National Science Foundation  
(703) 292-7750

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5. European Meeting of Environmental and Engineering Geophysics, Zurich, Switzerland (from Niklas Linde)

6 - 8 September 2010 16th European Meeting of Environmental and Engineering Geophysics  
Zurich, Switzerland

Extended abstracts should be submitted before \*18 April 2010 \*More information:

<http://www.eage.org/events/index.php?evp=3149&ActiveMenu=2> \* \*

On behalf of Swiss applied geophysicists, I am pleased to invite you to Near Surface 2010, the 16th European Meeting of Environmental and Engineering Geophysics to take place in Zurich on 6 – 8 September 2010.

The conference will be held in the main building of ETH, which was built in the 1860's based on a design by the famous ETH Professor of Architecture, Gottfried Semper. This classic building overlooks the fashionable city of Zurich with its breathtaking views of the Swiss Alps. Numerous high quality bars, cafés, restaurants, discos and nightclubs can be found throughout the city. The pleasant ambience of central Zurich is enhanced by pedestrian-only streets and cobblestone alleys on either side of the picturesque Limmat River. For those conference participants and spouses who are interested in hiking and mountaineering, it is possible to travel

by rail or road from Zurich to the high mountains in less than 35 minutes; September is often the optimum month (great weather and few tourists) to visit the Alps. For those who wish to experience diverse cultures, Switzerland's borders with Germany, France, Austria, Italy and the tiny Principality of Lichtenstein are all within a short distance of Zurich.

ETH has a well deserved academic reputation. In recent global assessments, it has been consistently ranked as the top university in continental Europe. The most famous graduate of ETH was none other than Albert Einstein! He is one of twenty-one Nobel Prize Winners to have been associated with ETH during their student and/or professional careers. Although not a Nobel Prize winner, the contribution of former ETH Professor of Geophysics Fritz Gassmann (Gassmann theory and equation) to our understanding of wave propagation through porous media was a landmark in applied geophysics. The current ETH group of environmental and engineering geophysics dates from 1992. Two of its former employees are now professors at the University of Lausanne, the other major centre of Swiss geophysics. Research activities at the two Swiss centres of applied geophysics range from theoretical and algorithmic developments to applications of state-of-the-art geophysical methods in archeological, geological, hydrological, engineering, environmental and hazard-related investigations.

In addition to the feast of lectures and posters that will cover many areas of environmental and engineering geosciences, conference participants will also have the opportunity to attend a \*hydrogeophysics workshop \*that will be given by a world-class group of environmental and engineering geophysicists. It will also be possible to visit \*an active hydrogeophysics test site\* or a spectacular \*Alpine underground rock laboratory\* in which a wide variety of geoscientific experiments are being conducted as components of numerous national and international radioactive waste disposal programmes.

Near Surface 2010 will be an ideal venue for you to learn about the latest developments in environmental and engineering geosciences, to network with new and existing colleagues and to experience a vibrant European city and the nearby Swiss Alps.

Alan Green

Chairman of the Local Advisory Committee, Near Surface 2010

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#### 6. Ph.D. Position in Electromagnetic Geophysics: The Institute of Geophysics at the University of Lausanne

The Institute of Geophysics at the University of Lausanne has an opening for a doctoral student in the field of electromagnetic geophysics. The selected student will develop techniques for time-lapse and stochastic inversion of radio and audio magnetotelluric data with applications to hydrology. The position is funded for three years and the starting date is June 1, 2010 or a later date to be decided upon. The successful candidate should hold a MSc degree in geophysics, physics, environmental engineering or computational hydrology. He/she should have a keen interest and preferably some experience in scientific computing, geophysical and/or hydrological forward modeling and inversion. We are a dynamic international research group working on a

wide variety of topics in environmental and computational geophysics. Basic knowledge of French is an advantage, but not a requirement. Our institute is well equipped, evolving dynamically, and scenically located on the shores of Lake Geneva, a region of outstanding beauty that offers a vibrant cosmopolitan atmosphere and a very high quality of life.

To apply, please send a cover letter clarifying your overall motivation for entering a PhD program together with your curriculum vitae and the names, telephone numbers, and e-mail addresses of two referees to Prof. Niklas Linde, Institute of Geophysics, Amphipôle Building, University of Lausanne, 1015 Lausanne, Switzerland or e-mail to: [niklas.linde@unil.ch](mailto:niklas.linde@unil.ch). The deadline for submission of applications is April 30, 2010.

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To contribute material to the NS-letter send an e-mail to:  
Xavier Comas [xcomas@fau.edu](mailto:xcomas@fau.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 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