

February 2009 Newsletter of the AGU Near-Surface Focus Group

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Assistant Professor in Hydrology / Near Surface Geophysics, University of Copenhagen

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>

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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>. Abstract submission deadline is March 4 ([http://www.agu.org/meetings/ja09/program/abstract\\_submissions.php](http://www.agu.org/meetings/ja09/program/abstract_submissions.php)).

The Near Surface Focus Group plans to hold a lunch and a social gathering with Hydrogeophysics. Dates and times of these events will be announced in upcoming newsletters.

NS Focus Group & Hydrogeophysics Sessions:

NS01: Near Surface Geophysics General Contributions

Convener: Sarah Kruse, University of South Florida, [skruse@cas.usf.edu](mailto:skruse@cas.usf.edu) This session provides the opportunity for contributions that fall within the broad spectrum of Near Surface Geophysics.

NS03: Near-Surface Geophysics - Back to Basics: Inversion of Electrical Resistivity Imaging Data

Conveners: Rosemary Knight, Stanford University, [rknight@stanford.edu](mailto:rknight@stanford.edu), and Chester Weiss, Virginia Polytechnic Institute and State University, [cjweiss@vt.edu](mailto:cjweiss@vt.edu) We are doing something new at the AGU Joint Assembly, 24-27 May 2009 in

Toronto: A "Back to Basics" (B2B) special session focused on inversion of resistivity data. The motivation for starting B2B sessions at AGU meetings - with increasing use of near-surface geophysical data for a wide range of applications, it is important to keep returning to the basics - talking about, and thinking about, the critical steps in the acquisition and interpretation of our data. We are delighted to have two invited speakers, Andrew Binley and Doug Oldenburg, who

will launch the B2B session by discussing their approach to the inversion of resistivity data and their thoughts about the need for, and challenges in, sharing of software and data. We will also have John Nimmo of the USGS talking about their use of resistivity data in their hydrogeologic study of the Mojave Desert.

The focus of this session: field and synthetic data posted on the NS website. All those presenting in the sessions are required to complete this "homework". The sessions will thus become an opportunity to compare and contrast various approaches to the inversion of the data sets. All submitted presentations will be poster presentations, preceded by an oral session where all participants have 3-minutes to introduce their work and summarize key points.

Electrical Resistivity Field Data Sets: Two 2D surface electrical resistivity field data sets are posted on the NS website [http://www.agu.org/focus\\_group/nsg/](http://www.agu.org/focus_group/nsg/) - see link in the top left corner. One was acquired during the monitoring of an infiltration test in the Mojave Desert; the other was acquired to map depth to bedrock in a stream in the H.J. Andrews Experimental Forest (Oregon). The README files contain all the information needed about the surveys.

Electrical Resistivity Synthetic Data Sets: Synthetic 2D resistivity data are also available for download and inversion on the NS website [http://www.agu.org/focus\\_group/nsg/](http://www.agu.org/focus_group/nsg/). Data were computed using the RES2DMOD forward modeling software for four models, each of which are variants on the depth to bedrock problem with differing degrees of structural/stratigraphic complexity in the region between the homogeneous bedrock and the surface of the Earth. For each model, apparent resistivity data for six electrode configurations (pole-pole, gradient, pole-dipole, dipole-dipole, Schlumberger and Wenner) are provided in RES2DINV file format. A summary figure of apparent resistivity for all array configurations and all models is also available on the NS website. If you have trouble accessing the data, please contact Rhett Herman ([rherman@radford.edu](mailto:rherman@radford.edu)). Any other questions about the data or the session, please contact Rosemary Knight ([rknight@stanford.edu](mailto:rknight@stanford.edu)).

#### NS04: Advancing the Use of Electrical Resistivity and Electromagnetic Methods for Near-Surface Applications

Conveners: Yevgeniy A. Kontar, University of Illinois at Urbana-Champaign, [kontar@isgs.illinois.edu](mailto:kontar@isgs.illinois.edu), and Louise Pellerin, Green Engineering, [pellerin@ak.net](mailto:pellerin@ak.net)  
Electrical resistivity and electromagnetic methods can be used to obtain information about subsurface structure, properties, and processes for a wide range of near-surface applications. Over the past decade there have been significant advancements in all aspects of acquiring and interpreting field data. We invite presentations that describe theoretical, numerical, laboratory and/or field studies that demonstrate current capabilities and highlight important areas of ongoing and future research. We encourage presentations that illustrate the use of electrical resistivity and electromagnetic methods for mineral exploration, groundwater evaluation, monitoring of hydrologic processes, contaminant detection and remediation, geotechnical engineering, and others.

#### NS05: Near Surface Geophysics for Applications in Civil Engineering

Conveners: Christopher Phillips, Golder Associates Ltd., [cphillips@golder.com](mailto:cphillips@golder.com), and Giovanni Cascante, University of Waterloo, [gcascant@uwaterloo.ca](mailto:gcascant@uwaterloo.ca) The use of geophysical methods for civil engineering applications is investigated in this session. Technological advances in conventional methods, and the development of new methods, have led to an increase in the use of geophysical methods for civil

engineering applications. Civil engineering applications include forensic investigations of existing structures, utility location, assessment of pavement systems, and evaluation of site conditions for new construction projects. We encourage the submission of abstracts addressing new and innovative methods for civil investigations, as well as case study examples of more conventional methods highlighting the challenges and successes of the application of geophysical tools to civil engineering projects.

#### H15: Hydrogeophysics: The State of the Science

Conveners: Jan van der Kruk, Forschungszentrum Juelich, [j.van.der.kruk@fz-juelich.de](mailto:j.van.der.kruk@fz-juelich.de), and Anthony L. Endres, University of Waterloo, [alendres@sciborg.uwaterloo.ca](mailto:alendres@sciborg.uwaterloo.ca) Hydrogeophysics combines hydrogeological data and geophysical imaging, inversion and characterization techniques to provide insights into terrestrial processes and properties. In this way, a wide range of societal issues can be addressed such as soil and water resources management, contaminated sites assessment, remediation process monitoring as well as the impact of land use and climate change on terrestrial systems. This session will present recent advances in hydrogeophysical techniques and applications, ranging from the laboratory to the field scale. It will bring together hydrologists and geophysicists to discuss the latest developments in this interdisciplinary field, as well as to explore emerging areas of research. We encourage contributions focusing on (i) new measurement and inversion techniques, (ii) new applications, (iii) linkage of obtained geophysical properties to hydrogeological parameters, (iv) joint inversion, and (v) time lapse approaches. All hydrogeophysical applications are welcomed; in particular, studies concerning soil water content and root water uptake monitoring, preferential flow estimation, contaminant plume investigation, and microbial activity monitoring are encouraged.

#### H34: Contributions of Geophysical Measurements to Hydrogeological Models

Conveners: James A. Hunter, Natural Resources Canada, [jhunter@nrcan.gc.ca](mailto:jhunter@nrcan.gc.ca), Andre J.-M. Pugin, Natural Resources Canada, [apugin@nrcan.gc.ca](mailto:apugin@nrcan.gc.ca), and Susan E. Pullan, Natural Resources Canada, [spullan@nrcan.gc.ca](mailto:spullan@nrcan.gc.ca) Groundwater resources, assessments and modeling accuracy depend on the amount and the quality of the data available. As borehole water well data base have shown their limitations, the use of geophysical methods becomes essential for filling the data gaps for the modeling. We invite authors and groups to present their successes in using various geophysical methods that have contributed to a better groundwater flow modeling.

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## 2. Introducing the AGU NS Student Webpage:

[http://www.agu.org/focus\\_group/nsg/students](http://www.agu.org/focus_group/nsg/students)

We are excited to be launching a new page on the focus group website for students. This site will be used to collect and advertise information relevant to students including new degree programs, opportunities for fieldwork experience, a student forum, and much more. You will notice that for now information on the page remains sparse. We will be adding content over the next couple months, and invite anyone wishing to submit postings for the webpage to Elliot ([elliotg@stanford.edu](mailto:elliotg@stanford.edu)). We hope this resource will help to facilitate stronger communication and engagement between NS students and the focus group, and we welcome your suggestions for improving the page.

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### 3. Hydrogeophysics news: Niklas Linde elected Deputy Chair

Niklas Linde (European Representative and Liaison to European Groups on the NS Executive Committee) has been elected as the new Deputy Chair of the AGU Hydrogeophysics Committee (a sub-committee of the Hydrology Section). We congratulate Niklas on his appointment and look forward to the opportunities it will bring for enhanced collaborations between NS and the Hydrogeophysics Committee.

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### 4. Environmental and Engineering Geophysical Society News

4.1 SAGEEP 2009 in Fort Worth, Texas, March 29-April 2 The 2009 Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) will be held at the Renaissance Worthington Hotel in Fort Worth, Texas from March 29 through April 2. Online registration for SAGEEP and the concurrent sessions of Environmental and Engineering Geophysical University (for newcomers) is now open at [www.eegs.org/sageep/index.html](http://www.eegs.org/sageep/index.html) . The deadline for early-bird registration is March 9. The deadline for reduced hotel rate reservations is March 6.

4.2 A message from the JEEG Editor, Janet Simms The Journal of Environmental and Engineering Geophysics (JEEG) is the premier journal of the Environmental and Engineering Geophysical Society (EEGS). All topics related to geophysics are viable candidates for publication in JEEG, although its primary emphasis is on the theory and application of geophysical techniques for environmental, engineering and mining applications. The journal is a peer-reviewed scientific journal published quarterly, and is listed in the Science Citation Index. There is no page limit, and no page charges for the first ten journal pages of an article. The review process is relatively quick; articles are often published within a year of submission. Articles published in JEEG are available electronically via GeoScienceWorld and the SEG's EEGS Research Collection. Manuscripts can be submitted online at <http://www.eegs.org/jeege/index.html> .

### 4.3 Call for FastTIMES submissions

The editors of FastTIMES, EEGS's electronic magazine for near-surface geophysics, are accepting articles and announcements through February 21 for inclusion in the next issue, due to be distributed electronically in March. Articles on the role of geophysics in geotechnical investigations are especially encouraged. Visit [www.eegs.org/fasttimes](http://www.eegs.org/fasttimes) for author guidelines and submission instructions. Contact Jeff Paine ([jeff.paine@beg.utexas.edu](mailto:jeff.paine@beg.utexas.edu)) for more information.

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### 5. Assistant Professor in Hydrology / Near Surface Geophysics, University of Copenhagen

A position as Assistant Professor in Hydrology is open at the Department of Geography and Geology, University of Copenhagen with May 1, 2009 as the preferred starting date.

We are seeking a candidate with documented experience in research at an international level within the interdisciplinary area of hydrology and geophysics. The successful candidate will have a background in hydrology or hydrogeology and research experience in the application of geophysical methods to solving problems of relevance to hydrology. The preferred candidate will have research experience in field investigations and numerical modeling of hydrological processes and in acquisition, modeling and interpretation of geophysical data. The position will initially be associated to the research centre HOBE, see [www.hobecenter.dk](http://www.hobecenter.dk) for details.

The position involves teaching and supervision at undergraduate and graduate levels in the broad field of hydrogeology as well as in other fields of geology and physical geography.

The position is open from May 1, 2009, or as soon as possible thereafter.

Duties may include the successful applicant's own research, development of the field, assessment tasks, grant applications, and research management such as supervision and training of research fellows and other staff. The successful applicant must also teach, prepare and participate in examinations, and fulfill other tasks requested by the Department.

Information about the Department can be found at <http://www.geo.ku.dk> .

Inquiries concerning the position and how to apply can be made to Professor Karsten H. Jensen, Department of Geography and Geology, Øster Voldgade 10, DK 1350 Copenhagen K., Denmark; Phone (+45 35322484; E-mail: [khj@geo.ku.dk](mailto:khj@geo.ku.dk)).

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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). Do not submit e-mail attachments for distribution.

No virus found in this incoming message.

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