September 2011 Newsletter of the AGU Near-Surface Focus Group



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 September 2011:
Primary affiliation: 740 members; Secondary: 2591 members

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1. Report from the AGU Council Meeting, 17-18 August 2011 (from George Tsoflias, Vice-Chair NSFG)

The AGU council convened in Washington DC for a two-day business-packed meeting. This was the second council meeting since adopting the new AGU strategic plan and governance structure in June 2010. Updates on the Union's state were given by President-Elect and Council Chair Carol Finn, President Mike McPhaden and Executive Director/CEO Chris McEntee. AGU is taking a close look within, with the leadership examining how the council would organize itself and how the AGU would organize its science. The Mission Alignment Project (M:AP) team presented its ongoing work and insights on how to organize science and provide more ways for AGU members to affiliate; how to recognize and honor members; and how to optimize the functionality of the council. The M:AP team (including our own NSFG Chair Lu Pellerin) should be commended for their remarkable work that received strong support from the council. A highlight of the meeting was a proposal for the creation of AGU programs for addressing the needs of inter-/cross-/transdisciplinary science and science for the benefit of humanity; topics that resonate well with the near surface focus group community. The meeting closed with a look forward to the 2012 AGU elections. Although details still need to be worked out, NSFG will (for the first time) hold elections for its 2012-14 officers. Stay tuned for more information in the future.

George Tsoflias
Vice-Chair NSFG

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2. Report on abstract submissions to the AGU Fall Meeting 2011 (from Chester Weiss)

Total number of abstracts submitted to NS is 139. Total number submitted to the AGU is another record 20,087 with the largest contributions in Atmospheric Sciences (1939), Biogeosciences (1670), Hydrology (2537), Tectonophysics (1494) and Volcanology (1203). Based on these statistics, NS was allocated 6 oral presentation sessions for the 8 approved session abstracts. Note that the AGU Program Committee aims to distribute the sessions for a given Sections/Focus-Group over the entire week, and that this has been done for NS, too. As a consequence, the poster sessions for NS are distributed over the week with a goal of 19 poster presentations per day - the average number given the total number of posters in NS after oral allocations are made. Details of the final session schedule

will be released shortly by AGU, but please plan in advance that if you wish to have the complete NS experience at the meeting, you should plan on attending for the entire week. This goes for all sections and focus groups.

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3. Reminder: Near Surface Focus Group Luncheon at the Fall AGU Meeting (from Seth Campbell)

NSFG will sponsor students (as in previous years) to attend the NSFG luncheon at AGU. Details will be posted in the October newsletter as well as the NSFG facebook site. Email NSFG student representative, Seth Campbell if you would like more information at seth.campbell@umit.maine.edu

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4. Call for papers: Geotechnical Assessment and Geoenvironmental Engineering (from Janet Simms)

Special Issues in EAGE journal of Near Surface Geophysics and EEGS Journal of Environmental and Engineering Geophysics (JEEG)

Deadline for submission of abstracts: 15 October 2011

The past decade has seen a distinct change in the way geophysical methods are utilized to investigate geotechnical and geoenvironmental issues. Advances in instrumentation design, computer hardware and data processing software have all contributed to the development of novel and highly sophisticated geophysical techniques. In response to this rapid and exciting expansion of research, the Journal of Environmental and Engineering Geophysics and Near Surface Geophysics are producing a collaborative 'Special Issue on Geotechnical Assessment and Geoenvironmental Engineering' to showcase the state-of-the-art and the most pertinent research currently underway in the discipline.

This special issue is a joint venture of the European Association of Geoscientists and Engineers (EAGE), the publisher of Near Surface Geophysics and the Environmental & Engineering Geophysical Society (EEGS), the publisher of the Journal of Environmental and Engineering Geophysics, to promote and enhance communication between international research communities and ensure the widespread, effective dissemination of the latest work and results. To that end, online access of this issue will be made available to all EAGE NSGD and EEGS members.

We invite papers reporting on: Novel measurement, assessment and monitoring techniques; Application of new and emerging geophysical methods; Innovative data processing and visualization techniques; Modeling and inversion of geophysical data; Integrated geophysical imaging and characterization approaches; Geophysical estimation of engineering parameters; Novel and interesting case histories

Subjects can be related, but not limited, to the following topics: site and geomaterials characterization (including non-destructive testing of concrete), soil and rock erosion, slope stability, liquefaction potential, infrastructure assessment, urban planning, foundations, subsidence, collapse, compressible soils, organic soils, landfills, buried waste, contaminated soil deposits, obstructions, unknown conditions, undetected utilities, pseudo-karst features (utilities, tunnels and abandoned mines), sinkholes, caves, groundwater, detection and mitigation of leakage in dams, earthquake hazard mitigation, earthquake ground motion prediction, bridge scour, highways and road construction, deep mine geology and orebody delineation, ground control, archaeological and historical sites.

The guest editors of this special issue will ensure both its topical focus and conformity with the high quality standards of Near Surface Geophysics and the Journal of Environmental & Engineering Geophysics.

Authors are encouraged to contribute high-level technical research papers. Please inform the EAGE Editorial Office, Ms. Wendel van der Sluis (ws@eage.org), about your intention to contribute and provide a one-page abstract by 15 October 2011.

Timeline:
Submission of extended abstracts Deadline 15 October 2011

Invitations to submit full papers: Before 15 December 2011
Submission of full papers: Deadline 1 April 2012
Review full paper submissions: April–December 2012
Publication: June 2013

Editors-in-Chief:
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5. Call for papers: GPR2012 (from Jan van der Kruk)

The 14th International Conference on Ground Penetrating Radar (GPR2012) will be held on June 4-8, 2012. Tongji University in Shanghai, China is the host institution (General Chair: Prof. Xie Xiongyao, xiexiongyao@tongji.edu.cn).

The goal of GPR2012 is to provide an international forum for scientists, engineers, and all kinds of GPR end users to discuss and exchange the advancement of GPR technology (advanced modeling, processing, inversion, and novel GPR systems and antennas) and its applications in hydrogeophysics, geophysical exploration and mining, archaeology and geology, civil and geotechnical engineering, concrete, pavement and material characterization, etc.

The deadline for submitting abstracts (limited to 300 words) is November 15, 2011

The deadline for the Camera ready paper (4 to 6 pages) submission is February 15, 2012

For more information, please visit www.gpr2012.org.

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6. Call for abstracts: Second International Workshop on Induced Polarization in Near-Surface Geophysics, Colorado School of Mines, CO, USA (from André Revil)

Dear Colleagues,
please find some information regarding the Second International Workshop in Induced polarization organized this year at the Colorado School of Mines. Don't hesitate to share this information with your colleagues.
Thank you
André Revil

Web site for registration and abstract submission:
http://csmspace.com/events/polargeo/
Dates: Monday 31 oct. to Wed. Nov. 2nd 2011 (3 full days)
Location: The Green center, Golden CO at the Colorado School of Mines, CO, USA
Number of attendees: limited to 100 participants
Deadline for registration: September 14th, 2011

Information:
Second International Workshop on Induced Polarization in Near-Surface Geophysics Colorado School of Mines, CO, USA.
Organizing committee: André Revil (arevil@mines.edu); Andreas Kemna (kemna@geo.uni-bonn.de), Lee Slater (lslater@andromeda.rutgers.edu); Binley, Andrew (a.binley@lancaster.ac.uk); Ernst Niederleithinger

(Ernst.Niederleithinger@bam.de); Konstantin Titov (kt_496@mail.ru); Kenneth Hurst Williams (khwilliams@lbl.gov

Induced polarization (IP) or complex resistivity is a non-intrusive geophysical method used to image the subsurface. Although historically developed to detect ore bodies, the IP method has more recently emerged as an exciting technology in the emerging field of hydrogeophysics and biogeophysics. In particular, literature over the last decade has conclusively demonstrated the unique potential of the IP method as a geophysical imaging tool for characterization hydraulic properties and monitoring of biogeochemical transformations in the subsurface. These recent developments have been in part driven by considerable improvements in instrumentation, macroscopic modeling and tomography techniques and the understanding of the microscopic origin of IP at the pore scale levels. However, there is still a gap in our fundamental understanding of IP mechanisms and a unified theory is still missing. Consequently, the full potential of the IP method as a non-invasively subsurface imaging tool has not been exploited. One fundamental problem is that various polarization mechanisms exist and may overlap in the frequency range of laboratory and field measurements.

We propose that advancement in the IP technique requires that geophysicists gain a better understanding of the considerable amount of work that has been done in disciplines other than geophysics on electrochemical polarization mechanisms. Such work is not well integrated into the geophysical literature. Yet low-frequency induced polarization is commonly known under other names in other disciplines including "AC impedance spectroscopy" or "low-frequency dielectric spectroscopy" in electrochemistry, material sciences, biology, and colloidal chemistry. In order to bridge these different disciplines, we believe that an international workshop is needed with keynote speakers working in different and complementary domains including electrochemistry, colloidal chemistry, and cell biology to favor cross-fertilization between disciplines.

This workshop will be the continuation of a previous workshop entitled 'International Workshop on Induced Polarization in Near-Surface Geophysics', held in Bonn, Germany, on 30 September/1 October 2009 (http://ipworkshop.geo.uni-bonn.de/). The aim of that workshop was to present recent developments and applications of the method for near-surface hydrogeological and environmental investigations. The second workshop will specifically focus on improving our understanding of the mechanisms generating IP signals in the Earth.

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7. Reminder: SEG 2011 Annual Meeting in San Antonio, TX, September 18-23 (from James Irving)

SEG 2011 Annual Meeting in San Antonio, TX, 18-23 September

The SEG Annual Meeting is approaching rapidly and the technical program is in the process of being finalized and published. Approximately 50 near-surface abstracts were submitted this year, which has allowed us to build a great NS program consisting of three oral sessions ("Hydrogeophysics", "Surface Waves", and "Environmental and Geotechnical Applications"), and one poster session for general NS contributions. In addition, the NS program will be complemented by a post-convention workshop entitled "Geophysics Applied to Geohazards and Public Safety". Further information about the sessions and the post-convention workshop will be provided on the NSGS Web site.

The NSGS will be holding its annual reception during SEG on Tuesday, September 20 at the Iron Cactus Mexican Grill (200 River Walk, Suite 100, San Antonio, Texas) in the Agave Room starting at 7 pm. There is no charge for SEG-NS Section members. Non-members can join on the spot and students are particularly welcome. Student membership is free! In addition, all members are welcome to share their ideas at the NSGS business meeting to be held right before the reception at the convention center (location and time to be announced).

For questions or suggestions please do not hesitate to email James Irving, Klaus Holliger, or Jan van der Kruk.

We are looking forward seeing you in San Antonio!

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8. Report from IWAGPR2011 & Special Issue (from Jan van der Kruk)

From June 22-24, the International Workshop on Advanced GPR was organised in Aachen, Germany.
Jan van der Kruk (Research Center Jülich), Klaus Reicherter (RWTH Aachen), Sebastien Lambot (UCL Louvain) organized the workshop with sponsorships from IGM GmbH / IDS Pisa, 3D Radar, GSSI, Sensors & Software, Allied Associates geophysical Ltd., Mala Geoscience and Elegant Mathematics. The goal of the workshop is to spread knowledge about GPR technology and its use, as well as, to provide a unique possibility to participants to exchange ideas about the advances in their work and discuss their results.

Approximately 120 scientists from academia, government and industry attended from 19 different countries. More than 60 presentations were presented in nine oral sessions and one poster session covering a wide range of advancements in GPR techniques and applications including hydrogeophysics; advanced modeling, processing and inversion; mining, archaeological and geological applications; concrete, pavement and material characterization; and novel GPR systems and antennas
(see the online program: www.fz-juelich.de/iwagpr2011 <program>).

We thank all the members of the scientific review panel who reviewed all the 4-6 page extended abstracts, which are published in the workshop proceedings and are now also accessible at IEEE Xplore:
http://ieeexplore.ieee.org/servlet/opac?punumber=5954679 .

In conjunction with the IWAGPR2011 workshop, we are assembling a Special Issue of the journal Near Surface Geophysics focused on "Ground-penetrating Radar for Hydrogeophysical and Subsurface Property Modelling and Inversion". For more information see www.fz-juelich.de/iwagpr2011

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9. Reminder: AGU Chapman Conference on Remote Sensing of the Terrestrial Water Cycle: Deadline for Abstracts and Travel Grants

Dear Colleague:
On behalf of the Program Committee, we write to remind you that the deadline for the receipt of abstracts and applications for travel support for the AGU Chapman Conference on Remote Sensing of the Terrestrial Water Cycle (19 – 22 February 2012) is 27 October 2011.

Travel support is still being worked out and we hope we have funds to support (a) Students (b) Early Career Scientists and (c) Mid-career scientists.

Confirmed Speakers include:
Dennis Lettenmaier (U Washington), Jay Famiglietti (U C Irvine), John Melack (U C Santa Barbara), Tom Farr (JPL), Tom Raupach (CSIRO), Yann Kerr (CESBIO, France), Arthur Hou (NASA GSFC), Gunther Bloeschl (Vienna), Jerad Bales (USGS), Piniping Xie (NOAA), Wade Crow (USDA), Tom Jackson (USDA ARS), Eric Wood (Princeton), Kevin Trenberth (NCAR), Gail Skofronick-Jackson (NASA GSFC)

For further details about the Chapman Conference visit the AGU Chapman Conference on Remote Sensing of the Terrestrial Water Cycle Web site.

Venkat Lakshmi (Convener)

Program Committee: Mike Cosh, Doug Alsdorf, Peter van Oevelen, Matt Rodell, Martha Anderson, George Huffman, Bill Kustas, Jared Entin, Juraj Parajka

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10. Announcement: SAGEEP 2012: Making Waves: Geophysical Innovations for a Thirsty World (from Bruce Smith)

Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2012:

Making Waves: Geophysical Innovations for a Thirsty World; March 25-29, 2012 ; 25th Anniversary meeting at the Hilton Tucson El Conquistador Tucson, Arizona USA; Call for Sessions/Abstracts announced soon at www.eegs.org. Meeting Chair: Moe Momayez University of Arizona Email: moe.momayez@arizona.edu and Technical Chair: Gail Heath Idaho National Laboratory Email: gail.heath@inl.gov

AGU joint sessions at the 2011 SAGEEP meeting included magnetic resonance sounding methods and cold regions geophysical mapping.

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11. Open positions:

11.1. Associate professor/Senior Lecturer in Applied Geophysics at Uppsala University

Applied geophysics covers a broad spectrum of geophysical methods for investigating the physical state of the Earth's crust. Traditionally, electromagnetic methods have been important for mineral prospecting while seismic methods have been important in the petroleum industry. During recent decades, the fields of application of these methods has expanded considerably and now both methods are applied within the fields of mining and petroleum geophysics. In addition, applied geophysics has become an important component in environmental applications and in studies of large scale crustal structure. At geophysics program at the Dept. of Earth Sciences the research emphasis is on crustal structure mapping, development of geophysical methods, tectonic processes, mapping and monitoring of CO2 and nuclear waste storage sites, mineral prospecting and near surface geophysics. There is close cooperation with researchers on the national and international level within the fields of tectonics, hydrogeology, hydrogeophysics and scientific drilling.

Appointment period: Permanent.

Nature of duties: Teaching of geophysics and engineering geophysics at basic, advanced and postgraduate levels, research and administration. Teaching duties include course responsibility, course administration and supervision of postgraduate students. Other duties include dissemination of information about research and development in the research field as well as following the development in the society relevant for the research and education at the Department.

Qualifications required: To be eligible for a position as associate professor, the applicant must hold a Ph.D and, unless there are special exceptional circumstances, have completed suitable pedagogical training for teaching at university level or have corresponding qualifications and pedagogic proficiency. According to the appointment regulations of Uppsala University it is also a general requirement that teachers have any other skills which are necessary to carry out their duties proficiently. The ability to teach in Swedish or English is a requirement. The holder is expected to be able to teach in Swedish within two years.

How to apply: See www.personalavd.uu.se/ledigaplatser/1507associate.html

Application deadline: 30 September 2011

11.2. Professor (W2) for Hydrogeophysics at Forschungszentrum Juelich and Stuttgart University

The Faculty of Civil and Environmental Engineering of the University of Stuttgart and the Forschungszentrum Jülich invite applications for the position of a Professor (W2) for Hydrogeophysics (appointment as Professor at the University of Stuttgart, academic leave of absence and secondment to the Forschungszentrum Jülich), starting as soon as possible. The Professor is intended to contribute to strengthening the development and application of hydrogeophysical measurement methods for the improved characterization and monitoring of terrestrial hydrosystems. In particular, electrical geo-physical measurement methods are to be advanced in co-operation with the Central Institute for Electronics (Zentralinstitut für Elektronik) of the Forschungszentrum Jülich and adapted to hydrological applications. Electrical resistivity and impedance tomography, self-potential measurements and magneto-electrical imaging techniques are of especial importance. The joint appointment (following the Jülich model) is intended to extend and intensify co-operation between the Forschungszentrum Jülich in the field of

terrestrial process monitoring (TERENO) and the University of Stuttgart in the field of modeling flow and transport processes in heterogeneous porous media on various scales.

The professor is expected to focus on research in the field of modeling flow and transport processes in heterogeneous porous media on various scales as incorporated in the research area "Earth and Environment" of the Helmholtz Association as well as to cultivate close links with the Water Research Centre (Wasserforschungs-zentrum) at the University of Stuttgart. In addition, close co-operation with existing research initiatives such as the International Research Training Group "Non-linearities and Upscaling in Porous Media" (NUPUS) would be welcomed. One of the professor's tasks is to develop the teaching profile and hold courses in the field of hydrogeophysics in both the German- and the English-language bachelor and master study programs of the Faculty of Civil and Environmental Engineering.

Written applications should be sent no later than October 15th, 2011, to Prof. Dr.-Ing. habil. Christian Moormann, Head of Search Committee, Institut für Geotechnik, Uni-versität Stuttgart, Pfaffenwaldring 35, 70569 Stuttgart, Germany. More information can be found here: http://www.uni-stuttgart.de/jobs/angebote/job707.html

11.3. Post-doc in geophysics with focus on reflection seismic methods at Uppsala University

Applied geophysics covers a broad spectrum of geophysical methods for investigating the physical state of the Earth's crust. Traditionally, electromagnetic methods have been important for mineral prospecting while seismic methods have been important in the petroleum industry. During recent decades, the fields of application of these methods has expanded considerably and now both methods are applied within the fields of mining and petroleum geophysics. In addition, applied geophysics has become an important component in environmental applications and in studies of large scale crustal structure. At geophysics program at the Dept. of Earth Sciences the research emphasis is on crustal structure mapping, development of geophysical methods, tectonic processes, mapping and monitoring of CO2 and nuclear waste storage sites, mineral prospecting and near surface geophysics. There is close cooperation with researchers on the national and international level within the fields of tectonics, hydrogeology, hydrogeophysics and scientific drilling.

Appointment period: 2 years starting 15 January or as agreed upon with the possibility of a further employment as Researcher for 2 years.

Nature of duties:
Include research and planning of research in geophysics with special emphasis on reflection seismic methods. The post-doc will participate in field work, data processing and interpretation activities in conjunction with externally financed projects. Focus will be on projects related to CO2 storage, mineral prospecting and development of seismic processing methods. This is a research position, but teaching up to 20% may be part of the duties.

Qualifications required:
To qualify for appointment as post-doc you must have a PhD. Priority is given to applicants who have completed their PhD within 3 years of the application deadline. Furthermore, according to Uppsala University's general employment regulations, it is also a requirement that teachers possess the necessary skills and qualifications to carry out their duties proficiently.

How to apply: See www.personalavd.uu.se/ledigaplatser/2059postDOC.html

Application deadline: 31 October 2011

11.4. Post-doc Position in Hydrogeophysics at Forschungszentrum Juelich

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 this website: http://www2.fz-juelich.de/icg/icg-iv/index.php?index=3; and/or contact: Dr. Sander Huisman (s.huisman@fz-juelich.de) or Prof. Dr. Ir. Jan van der Kruk, j.van.der.kruk@fz-juelich.de).

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