



AGU Near-Surface Focus Group Newsletter: July 2012

Dear Colleagues,

AGU has recently transitioned to a new association management system. To ensure that all Near-Surface members have received this month's newsletter -- which contains important and time-sensitive announcements -- we are redistributing the NS-FG newsletter this week. We apologize for any inconvenience this may have caused.

July 2012 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 July 2012:

Primary affiliation: 793 members; Secondary: 2881 members

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1. AGU Fall Meeting 2012 News:

1. 1. Call for abstracts: deadline 8 August 2012

Visit the [AGU Fall Meeting 2012 Web site](#) for information on deadlines, schedules, guidelines, registration information and more!

Come to the American Geophysical Union's 45th annual Fall Meeting! Join more than 20,000 Earth and space scientists, educators, students, and other leaders in San Francisco, California 3 – 7 December as they gather to present groundbreaking research and connect with colleagues.

The call for Fall Meeting abstracts is now open. All abstracts must be received by Wednesday, 8 August 23:59ET/3:59+1 GMT.

Prior to submitting an abstract, please review the full set of abstract submission [policies](#). All abstract submissions can be searched and viewed [here](#). The scientific program for the 2012 Fall Meeting will be finalized and available at the end of September.

1.2. Near Surface Geophysics sessions

NS001: Near Surface Geophysics General Contributions

Conveners: [Chester J. Weiss](#)

Description: This session provides the opportunity for contributions that fall within the broad spectrum of Near Surface Geophysics, but are not directly appropriate to any of the other sessions proposed for the focus group.

NS002: Advances in Airborne Electromagnetics

Conveners: [Bruce D. Smith](#), U.S. Geological Survey; [Jared D. Abraham](#), U.S. Geological Survey; [Paul A. Bedrosian](#), U.S. Geological Survey; [Esbén Auken](#), Aarhus University

Description: Applications of airborne electromagnetic (AEM) methods have broadened from mineral exploration to mapping geologic and hydrologic frameworks, evaluation of natural hazards, land use planning in agricultural development and assessment of relationships between the earth's subsurface and surface ecosystems from arctic to tropical settings. We invite presentations that describe advances in AEM which have extended applications resulting from improvements in measurement systems, data processing, and data inversion or modeling. This session is a collaboration between the Near Surface Focus Group and the Environmental and Engineering Geophysical Society.

NS003: Applied Geophysics in the Global Marketplace

Conveners: [Louise Pellerin](#), Green Engineering, Inc.; [Jerry McJunkin](#), Heritage Group Inc.

Description: We seek papers devoted to the extension of our understanding of who has needs for applied geophysics, what levels of education are required, what geophysical techniques are being used, what novel approaches are being applied, and what new technologies are around the corner or on the leading edge. In addition to the science and technology is the human story; what can be done, and is done, is dependent on the local infrastructure, politics, and ambitions of those applying these skills under conditions likely unknown to many. Students and professors can gain new understandings regarding what is the market demand for applied geophysics globally, where they fit in, what applications are of interest, what skills are needed, and where.

NS004: Developments and Practical Applications of the Multichannel Seismic-Data Surface-Wave Analysis Method

Conveners: [Richard D. Miller](#), University of Kansas; [Georgios P. Tsofilias](#), University of Kansas; [Julian Ivanov](#), University of Kansas

Description: This session will focus on recent developments and practical applications of the multichannel analysis of surface waves using both active and passive seismic sources for the purposes of 1-D, 2-D, and 3-D shear-wave velocity (V_s) profile estimations. Possible topics can include numerical developments in optimal field-parameter estimations, dispersion-curve imaging and modeling techniques, multi-mode interpretation and inversion, sensitivity analysis. Case studies with practical applications of the surface wave method alone or in joint inversion/analysis with other geophysical methods are welcome. This session is a collaboration with the near surface section of SEG.

NS005: Exploring the High-Resolution Record of Surface Processes in Near- and Inshore Water Bodies
Conveners: [Nicolas Waldmann](#), University of Haifa; [Mark E. Vardy](#), University of Southampton, National Oceanography Centre

Description: Marine and continental archives often present an excellent high-resolution record of recent (Holocene and Last Glacial) regional changes in climate, tectonic and surface processes. Litho- and biostratigraphies from cores and in situ geotechnical data from cone-penetrometer profiles, complemented by structural mapping using swath bathymetry, side-scan sonar and subsurface high-resolution seismic reflection imaging, are key techniques to explore these settings. In this session, we seek to showcase case studies using these and similar methods to the sedimentary succession of near-/inshore water bodies. In particular, we encourage contributions from authors who have taken a multi-disciplinary approach.

NS006: Geophysical Imaging of Fractures and Fluid Flow: Advancing from Detection to Measurement
Conveners: [Georgios P. Tsofilias](#), University of Kansas; [Matthew W. Becker](#), Cal State Long Beach

Description: While significant advances have been made in the geophysical detection of fractures, quantitative measurement of fracture properties that control the flow of fluids, as well as monitoring of flow and transport, remains elusive. This session will present the latest developments in the remote characterization of fracture properties. We encourage theoretical and experimental contributions at laboratory and field scales using surface and borehole geophysical methods. We seek contributions from varied backgrounds, e.g. groundwater, geothermal, CO₂ sequestration, and hydrocarbon resources that highlight recent advances and future directions in fracture characterization and monitoring of flow and transport.

NS007: Geophysical Methods for Groundwater Evaluation and Management

Conveners: [Rosemary J. Knight](#), Stanford Univ; [John W. Lane](#), United States Geological Survey

Description: Effective, sustainable management of groundwater resources requires accurate knowledge of groundwater recharge, storage, and withdrawal. In this session we focus on the application of geophysical methods using subsurface, surface, airborne, or satellite sensors to quantify subsurface properties and processes. Of interest are examples related to all aspects of groundwater management including, but not limited to, development of hydrostratigraphic models, assessment of aquifer properties, evaluation of groundwater quantity and quality, monitoring of natural/managed processes. All approaches are of interest including laboratory and field experiments, theoretical and numerical modeling.

NS008: Joint Inversions and Other Strategies to Integrate Multi-Disciplinary Geophysical Data

Conveners: [Max Moorkamp](#), University of Leicester; [Peter G. Lelievre](#), Memorial University; [Bjvrn Heincke](#), GEOMAR

Description: Combination of complimentary data sets typically reduces the ambiguity of inversion results and facilitates interpretation. Hence, integration of multi-disciplinary data has become popular in many disciplines like hydrogeophysics, mineral exploration, sub-basalt/sub-salt problems and studies of the deep crust and mantle. Still, many questions remain: Which types of data should be inverted together? How to balance their influence in the inversion? How can we assess the differences between joint inversion, cooperative inversion and other integrated interpretation strategies? This session welcomes any research using joint inversion or other approaches to combine different types of geophysical data.

NS009: Shallow Seismology of the Vadose-Saturated Zone

Conveners: [Juan Manuel Lorenzo](#), Louisiana State Univ; [John W. Lane](#), United States Geological Survey

Description: Unsaturated soils can be highly heterogeneous, non-elastic, dispersive and anisotropic so that usable predictive models are heuristic, and only narrowly suited to specific field sites. Under field conditions low seismic bandwidth may deter model testing. However, observable attenuation, V_p/V_s ratios, are often used to determine the influence of fluids on soil conditions. We welcome submissions to this session that provide new

theoretical and computational frameworks for granular unsaturated media from the broad community, novel approaches in the laboratory and/or experimental results that exploit both passive and controlled source seismic methods to yield better predictive models for seismic velocity from fluids in the shallow subsurface.

1.3. Hydrogeophysics sessions

H029: A Vision for the Future: Exploring the Value of Geophysics in Hydrology

Conveners: Kamini Singha, Stephen M Moysey, Niklas Linde; Penn State University, Clemson University, University of Lausanne

Description: Important theoretical, computational, and technological advances have occurred in hydrogeophysics over the past two decades; however, hydrologic prediction remains a difficult problem due to spatial heterogeneity, temporal variability, and feedbacks between physical, chemical and biological processes occurring over multiple scales. We invite visionary perspectives, insightful retrospectives, or broadly applicable discussions that illuminate outstanding hydrologic problems and promising geophysical methodologies. All areas of research are welcomed, including watershed hydrology, subsurface hydrology, and biogeochemistry.

H030: Hydrogeophysics: Lab to Field Scale Characterization

Conveners: Steven Meyerhoff, Joseph Doetsch, Andrew Parsekian; Colorado School of Mines; Berkeley Labs; Stanford University.

Description: Subsurface characterization of hydrological parameters is traditionally based on core analysis and well test data gathered from subsurface locations. Without complementary data, traditional hydrologic measurement techniques are often inadequate for characterizing heterogeneity. Additional information to adequately characterize subsurface heterogeneity can potentially be gained through geophysics. In view of this, we encourage contributions that cover all hydrogeophysical investigations. Topics might include: characterization of hydraulic properties and processes, contaminant migration, geomechanical nature of aquifer materials, relevant biological and geochemical properties and processes, and uncertainty assessment.

1.4. Other sessions

H050: Geophysics for the Critical Zone

Conveners: Peter Dietrich, Barry Jay Allred, Ulrike Werban, Steffen Zacharias; Helmholtz Centre for Environmental Research - UFZ, USDA/ARS Soil Drainage Research Unit, Helmholtz Centre for Environmental Research -UFZ, Helmholtz Centre for Environmental Research - UFZ

Description: We will address the state of the art of geophysical techniques applied for mapping and monitoring of the pedosphere and unsaturated vadose zone. There is particular interest in the use of proximal sensing technologies for prediction of soil properties and observation of dynamic processes within the unsaturated zone. Geophysical techniques are widely used in Digital Soil Mapping. Furthermore, in the context of environmental modelling, there is a growing demand to provide multi-scale information. However, results are often limited to qualitative information and results are ambiguous. Reliable quantification is a major challenge. A promising approach is multi sensor mapping combining, e.g EMI, ERT, GPR, passive gamma radiometry, TDR, cosmic ray probes etc.

H023: Remote Sensing, Modeling, and Ground-based Monitoring of Groundwater Resources

Conveners: Bridget Scanlon, Univ Texas Austin; Richard Taylor; Laurent Longuevergne, CNRS - Geosciences Rennes; Jessica Reeves, Stanford University.

Description: Increasing reliance on groundwater underscores the importance of monitoring changes in fluxes to and from aquifers and storage in aquifers. This session seeks papers on studies using satellite and airborne approaches for monitoring storage changes (GRACE) and fluxes (ET, recharge, discharge e.g. using MODIS and Landsat) and land subsidence (e.g. using InSAR), mostly in response to climate extremes (floods and droughts) and water use (e.g. irrigation). Studies that ground reference satellite and airborne data with in situ monitoring are strongly encouraged. Studies using multiple satellites and monitoring data for model calibration/assimilation to better solve mass balance and aquifer behavior are welcome.

Co-sponsors: Geodesy (G); Global Environmental Change (GC); Near SURface Geophysics (NS); Societal Impacts and Policy Sciences (SI).

A complete list of NS co-sponsored sessions can be found on the [AGU Fall Meeting 2012 Web site](#) by selecting Near Surface Geophysics as a co-sponsor under the general search tab.

2. Announcement: Near-Surface Focus Group Early Career subcommittee (from Nedra Bonal)

The Near-Surface Focus Group is forming a subcommittee to support Early Career scientists. This subcommittee will represent the unique interests and concerns of scientists in the early stages of their careers. Please contact [Nedra Bonal](#) if you would like to participate or for more information.

3. Reminder: SEG-AGU Hydrogeophysics Workshop (from Jan van der Kruk)

SEG-AGU Hydrogeophysics Workshop, 8–11 July 2012, Boise State University, Boise, Idaho, U.S.A.

This hydrogeophysics workshop addresses a wide range of current hydrogeophysical approaches for determining, predicting, and studying hydrologic properties and processes in both the saturated and unsaturated zones at scales ranging from centimeters to watersheds. The three main sessions focus on "Characterizing Near-Surface Structure and Properties", "Thinking About Scaling Up: Geophysical Methods at the Watershed Scale", and "Advances in Time-Lapse Monitoring". In addition, the inversion results of the homework data are discussed in the "Tomography Bake-Off" session. In total, more than 60 contributions will be presented. The invited speakers are: Andreas Kemna, "On the Use of Complex Resistivity Imaging to Estimate in-situ Hydraulic Conductivity", Tim Munday, "Groundwater Resource Assessment in Outback Australia-Going from the Local to the Regional Scale Using Airborne Hydrogeophysical Methods", and Johan Huisman, "Coupled Hydrogeophysical Inversion of Time-Lapse Geophysical Data".

We gratefully acknowledge the support of our Sponsors: U.S. National Science Foundation, Geometrics, GeoTomo, Mt. Sopris, Zonge Int'l, Vista Clara, Geotomographie, Sensors & Software, Advanced Geosciences Inc, and Geonics.

The workshop will be limited to 80 participants and only a few places are left. For more information, visit the [SEG-AGU 2012 web site](#).

We are looking forward to seeing you in Boise.
Rosemary, James, Rob, Lee, Kamini & Jan

4. Announcement: SEG SAGEEP 2013: session proposals now being accepted (from Bruce Smith)

Session proposals are now being accepted for SAGEEP 2013 to be held in Denver, Colorado, USA, 17–21 March. The deadline for all session proposals is Monday, 11 September 2012. Proposals will be reviewed by the Technical Program Committee on a rolling basis. A current list of accepted sessions will be maintained at the [SAGEEP 2013 webpage](#). Each session will have at least two co-chairs. If you are interested in co-chairing an existing session, please contact the session proposer or a member of the technical program committee. Call for abstracts and expanded abstracts will be announced shortly. The number of sessions at the meeting is limited so early submission of proposals is encouraged and will allow ample time for solicitation of presentations.

[Mike Powers](#) is general chair and [Bruce Smith](#) is technical chair for the meeting which will be at the Denver

Marriott at the Tech Center (a short ride on the light rail south of Down Town Denver).

Members of the AGU NSFG are invited to submit proposals for joint NSFG/EEGS sessions. [Juan Lorenzo](#) has joined the technical session committee and will assist in organization and development of NSFG oriented sessions. Joint sessions at SAGEEP 2012 last year on Nuclear Magnetic Resonance and Characterization of Fractured Rock Aquifers were well attended. NSFG/AGU members submitting session proposals for 2013 are asked to identify the submission as a joint session. Session proposals can be submitted via the [SAGEEP 2013 webpage](#).

5. Open positions:

5.1. Tenure-track Assistant Professor at National Taiwan Ocean University

Assistant Professor of Graduate Institute of Applied Geosciences, National Taiwan Ocean University. Graduate Institute of Applied Geosciences seeks applicants for a full-time, tenure-track faculty position effective from 1 February 2013, in the area of Earth Sciences, Geophysics, Geological Sciences. Applicants should have proven teaching ability in undergraduate and graduate courses, and demonstrated strong potential for outstanding accomplishments in research. Teaching in Mandarin Chinese or English (or both) is required. A curriculum vitae including a list of publication, teaching courses (with at least two course outlines), a statement of research interests, and two to three recommendation letters to: Professor & Director [Min-Te Chen](#) (Institute of Applied Geosciences, National Taiwan Ocean University, Keelung 20224, Taiwan). The application deadline is 31 July 2012.

5.2. Tenure-track Assistant Professor in Shallow Earth Geophysics, University of Hawaii at Manoa

Building upon its strengths in hydrology and geophysics, we invite applicants for this full-time position in Shallow Earth Geophysics. The new hire will have expertise in geophysical field methods as applied to hydrology, hydrogeophysics, geothermal and/or hydrothermal processes. Additional interest in geomorphology, coastal processes, or geologic hazards would be regarded favorably; initiatives in those areas would allow an applicant to further capitalize on opportunities in Hawaii. Areas of expertise could include potential fields, electrical and/or magnetic methods, radar, LiDAR, and seismology. The full range of platform technologies will be considered: land, sea, air, and space-mounted. The new hire will join an entrepreneurial research group with international recognition in geology, geophysics, and geochemistry.

The successful candidate will demonstrate the capability for innovative, high quality research, and for effective teaching and mentoring of undergraduate and graduate students. They are expected to develop and sustain an outstanding research program and contribute to the department's educational mission. Applicants must have a Ph.D. in geology and geophysics or other relevant disciplines received no later than appointment date. Informal inquiries should be directed via e-mail to the [Geophysics Search Committee Chair](#).

Additional Information:

We encourage applicants who will pursue novel applications to problems in Earth and environmental science, especially those that pertain to Hawaii's unique setting. Many opportunities exist for collaboration in various research fields represented within G&G and in SOEST, including the Hawaii Institute of Geophysics & Planetology and the Dept. of Oceanography, such as hydrology, marine geology and geophysics, geodynamics, sedimentary geology, volcanology, engineering geology, and structural geology. Additional collaborative opportunities are present with faculty in other units at UH including the Water Resources Research Center, College of Tropical Agriculture and Human Resources, Civil and Environmental Engineering, and Geography Department.

How To Apply

To apply, submit (a) a cover letter, (b) a curriculum vitae which includes a summary of educational background, previous research and teaching experience, and a list of publications and research funding, (c) a

statement of current and future research and teaching interests, and (d) the contact information (postal addresses, phone numbers, and email addresses) for at least three references and official transcripts (copies are acceptable with applications, originals are required upon hire).

Applicants are encouraged to include in their research statement, plans for possible collaborative research with G&G, SOEST and other university faculty. The cover letter should be addressed to the Geophysics Search Committee. To view the University of Hawaii job description of the vacancy announcement, please visit WORKATUH.HAWAII.EDU.

[Submit application](#) to:

GG Faculty Search
Department of Geology and Geophysics
University of Hawaii at Manoa
1680 East-West RD. POST 701
Honolulu, HI 96822

[Electronic submissions](#) are preferred. Review of applications will begin on 1 June 2012. The University of Hawai'i is an Equal Opportunity/Affirmative Action Institution. We encourage applications from individuals of all backgrounds and perspectives

5.3. Postdoctoral researcher in electrical geophysics

The Near Surface Geophysics group at Rutgers University (Newark, NJ) seeks a postdoctoral scientist to work on both laboratory and field-based projects directed towards improving understanding of the electrical geophysical signatures associated with hydrogeological and biogeochemical processes in the subsurface. Our work is interdisciplinary so applicants that have experience in geophysics, geochemistry and/or microbiology are preferred. We seek a motivated individual to take the lead on 2-3 existing projects in our group that best match the applicant's interests and skillsets. Opportunities exist to work on a variety of projects including (1) biogeophysical signatures of crude oil degradation in the subsurface, (2) geophysical characterization/monitoring in fractured rock environments, and (3) development of laboratory and borehole geophysical instrumentation for near surface hydrogeophysical and biogeophysical applications. The initial appointment is for 1 year but extendable subject to availability of funds. Statements of interest should be sent to [Lee Slater](#) and [Dimitrios Ntarlagiannis](#).

5.4. Two PhD positions at University of Haifa, Israel

For our new research group in "Geological Processes in Sedimentary Basins" at the Dr. Moses Strauss Department of Marine Geosciences, the Leon H. Charney School of Marine Sciences of the University of Haifa, Israel, applications are invited for two 3 year funded PhD positions. One opening deals with studying "Gas seepage and slope stability in the Eastern Mediterranean" while the other opening aims studying the "Sequence stratigraphy and sediment dynamics in Lake Chad". In this research, the student will apply state-of-the-art software packages for subsurface imaging and modeling in order to understand geological and environmental processes shaping these basins. The successful candidates should ideally hold a MSc degree in geophysics, physics, environmental sciences or related discipline. Experience with geophysical methods is preferred. Successful candidates are expected to show broad earth science.

Applicants should send a cover letter explaining their fit and motivation for the position, curriculum vitae and the names, telephone numbers, and e-mail addresses of two references to [Nicolas Waldmann](#). Applications are considered until the position is filled.

5.5. Two PhD positions in Hydrogeophysics at Florida Atlantic University

The Department of Geosciences at Florida Atlantic University (FAU) has two openings for doctoral students in the field of Hydrogeophysics. The selected students will participate in research to investigate carbon dynamics in the Everglades using hydrogeophysical techniques. Each position is funded at the research assistantship level for three years and the starting date is August 2012. The successful candidates should ideally hold a MSc

degree in geophysics, physics, environmental sciences or related discipline. Experience with hydrogeophysical methods is preferred. The two projects have an important outdoors component, for which fieldwork skills are desirable. The selected students will join the recently opened FAU/USGS/UF joint facility in the Davie Campus of FAU which combines state-of-the-art facilities for Everglades science research to support both laboratory and field-based studies in the Everglades.

Applicants should send a cover letter explaining their fit and motivation for the position, curriculum vitae and the names, telephone numbers, and e-mail addresses of two referees to [Xavier Comas](#). Review of applications will begin 11 June 2012.

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

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