

December 2009 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: www.agu.org/focus_group/nsg/

AGU NS Membership as of June 2009: Primary affiliation 635 members; Secondary 2107 members

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1. 2009 Fall AGU Meeting, December 14-18 in San Francisco, California, USA
<http://www.agu.org/meetings/fm09/>

- 1.1 Near Surface Geophysics Focus Group Luncheon, 12:30 on Tuesday December 15
The NS luncheon at the Fall AGU meeting will be held from 12:30-13:30 on Tuesday December 15 at the Intercontinental Hotel (Union Square Room). This event is the opportunity to learn about NS activities, engage with the NS leadership and provide feedback on how the focus group can further support the needs of the NS community. The NS Chair, Lee Slater, will summarize the membership and focus group activities over the last year, along with plans for the next year. Other focus group officers will report on specific issues relating to their appointment duties. Elliot Grunewald, NS student representative, will speak about student related issues to what is expected to be a strong student turnout (resulting from generous sponsorship detailed below). Lee Slater and Estella Atekwana will report on their meeting with National Science Foundation (NSF) program managers to discuss funding opportunities for the near surface geophysics community within the NSF programs.
IMPORTANT NOTE: This is a ticketed event (\$35). Tickets were available during online advance registration to the meeting. AGU will have a small number of tickets available for

purchase on-site for a limited, first-come-first-served basis.

1.2 Joint Near Surface Geophysics Focus Group/Hydrogeophysics Social Event, 6:30 pm on Wednesday December 16

Continuing a well-established tradition, NS will couple with the Hydrogeophysics Committee of the Hydrology Section to hold a joint NS/Hydrogeophysics social event at The Hotel Utah (500 4th Street at Bryant - 4 blocks south along 4th Street from the conference center, <http://www.thehotelutahsaloon.com/contact.html#map>). This social event will begin at 6:30 pm on Wednesday December 16. This is a great opportunity to mingle with fellow near surface and hydrogeophysics colleagues in an informal setting.

1.3 AGU News for Students (from Elliot Grunewald, NS student representative)

1.3.1 NS Student Evening Social Event: 12/17, 7:00PM, at the Brickhouse Cafe & Bar

Come join your fellow NS students Thursday night at the Brickhouse Cafe & Bar (426 Brannan St. (415) 369-0222 www.brickhousesf.com). This is a great way to relax after your fourth day of talks and posters -- have a drink, meet other students in the NS group, and catch up with old friends. The Brickhouse is just a short 10 minute walk east of the Moscone center. See the NSwiki for more detailed directions.

1.3.2 New Idea: Impromptu Lunch Outings, 12:35 every day leaving from Moscone West

This year at AGU, we would like to try out a simple idea to encourage interaction among NS students -- impromptu lunch outings. We've chosen a central location where students can meet up after the morning sessions and head out for lunch together. Just make your way to the bottom of the staircase at the NE corner of Moscone West by 12:35. Students will congregate there and figure out where they want to grab lunch together. Some days, maybe most days, you won't have time or will have other things planned, but hopefully we can end up with a small group each day that can enjoy a quick bite together.

1.4 Supporting Student Presentations at AGU: Student Presentation Judges Needed (from Lee Slater)

AGU has a strong tradition of recognizing outstanding student presentations at its meetings through its "Outstanding Student Paper Award". However, the process relies on fair and effective judging of student papers by volunteers. Please support this important AGU activity by volunteering to act as a judge of student papers if you are approached by a session chair. With a relatively small focus group such as NS, it should be possible for all NS student presenters to be meaningfully evaluated on their work, such that our best NS student presenters get the awards they deserve. We hope to have three judges per student presenter. It is the responsibility of the session chairs to make sure that this goal is achieved. However, they will need the help of session attendees to make this happen. Please consider volunteering your support to a chair at the beginning of a session (e.g. if you plan to be present in a session for its duration) or helping if approached during the session by a chair.

1.5 Fall AGU Near-Surface Sessions [MS = Moscone South; MW = Moscone West]

NS13A: Urban Geophysics I, Posters, MS, Mon, Dec 14 - 1:40 PM

NS22A: Urban Geophysics II, Oral, MW 3005, Tue, Dec 15 - 10:20 AM

NS23A: Near-Surface Geophysics General Contributions I, Posters, MS, Tue, Dec 15 - 1:40 PM
NS31A: Advanced Inverse Strategies for Improved Characterization and Assessment of Groundwater, Mineral, and Petroleum Resources I, Posters, MS, Wed, Dec 16 - 8:00 AM
NS31B: Back to Basics: Measurement of Electrical Properties of Rocks and Sediments I, Posters, MS, Wed, Dec 16 - 8:00 AM
NS33A: Near-Surface Geophysics General Contributions II, Oral, MW 2016, Wed, Dec 16 - 1:40 PM
NS41A: Advanced Inverse Strategies for Improved Characterization and Assessment of Groundwater, Mineral, and Petroleum Resources II, Oral, MW 2016, Thu, Dec 17 - 8:00 AM
NS42A: Back to Basics: Measurement of Electrical Properties of Rocks and Sediments II, Oral, MW 2016, Thu, Dec 17 - 10:20 AM
NS44A: Near-Surface Geophysics General Contributions III, Oral, MW 2002, Thu, Dec 17 - 4:00 PM

1.6 Hydrogeophysics Sessions [MS = Moscone South; MW = Moscone West]

H33A: Characterization of Soil Moisture Dynamics and Plant/Soil Water Interactions I Posters, Wed, Dec 16 - 1:40 PM
H41H: Characterization of Soil Moisture Dynamics and Plant/Soil Water Interactions II, Oral, MW 3007, Thu, Dec 17 - 8:00 AM
H42A: Characterization of Soil Moisture Dynamics and Plant/Soil Water Interactions III, Oral, MW 3007, Thu, Dec 17 - 10:20 AM
H43C: Innovative Field and Theoretical Methods for Hydrogeophysical Characterization of Aquifers I, Posters, MS, Thu, Dec 17 - 1:40 PM
H51F: Remote Sensing and Hydrogeophysics Applications for Modeling of Land Surface Hydrological Processes I, Posters, MS, Fri, Dec 18 - 8:00 AM
H51K: General Hydrogeophysics I, Oral, MW 3011, Fri, Dec 18 - 8:00 AM
H52B: General Hydrogeophysics II, Oral, MW 3011, Fri, Dec 18 - 10:20 AM
H53B: General Hydrogeophysics III, Posters, MS, Fri, Dec 18 - 1:40 PM
H53J: Innovative Field and Theoretical Methods for Hydrogeophysical Characterization of Aquifers II, Oral, MW 2003, Fri, Dec 18 - 1:40 PM
H53L: Remote Sensing and Hydrogeophysics Applications for Modeling of Land Surface Hydrological Processes II, Oral, MW 3009, Fri, Dec 18 - 1:40 PM
H54D: Remote Sensing and Hydrogeophysics Applications for Modeling of Land Surface Hydrological Processes III, Oral, MW 3009, Fri, Dec 18 - 4:00 PM

1.7 NS Co-Sponsored Sessions [MS = Moscone South; MW = Moscone West]

H11A: Advances in the Quantitative Characterization of Karstic and Fractured Aquifers I, Posters, MS, Mon 08:00
IN11A: Challenges in Achieving Earth System Model Interoperability, Posters, MS, Mon 08:00
P11D: Mars Radar Investigations: Observations, Supporting Theoretical, Field, and Lab Work, and Future Opportunities I, MS 307, Mon 08:00
T12B: Fault Processes in Nature and Laboratory: From Microscale to 3-D Regional Observations and Models I, MW 2007, Mon 10:20
T13F: Fault Processes in Nature and Laboratory: From Microscale to 3-D Regional Observations and Models II, MW 2007, Mon 13:40
H14A: Advances in the Quantitative Characterization of Karstic and Fractured Aquifers, II, MW

3007, Mon 16:00

H14B: Challenges and Progress in Regional Groundwater Flow, Transport and Reactive Transport Modeling, MW 3009, Mon 16:00

T14B: Fault Processes in Nature and Laboratory: From Microscale to 3-D Regional Observations and Models III, MW 2007 Mon 16:00

S21A: Monitoring Temporal Changes of Earth's Properties with Seismic Waves I Posters, MS, Tue 08:00

T21D: Fault Processes in Nature and Laboratory: From Microscale to 3-D Regional Observations and Models IV Posters, MS, Tue 08:00

H21J: Rocks, Fractures, Fluids, and Life: Insights from Subsurface Observatories I, MW 3005, Tue 08:00

S23B: Observation and Analysis of Natural and Induced Microearthquakes I Posters, MS, Tue 13:40

S23C: Monitoring Temporal Changes of Earth's Properties with Seismic Waves II, MW 2005, Tue 13:40

V23D: Volcanic Dynamics: Temporal Changes of Physical Properties at Volcanoes with and without Surficial Activity I Posters, MS, Tue 13:40

S24A: Monitoring Temporal Changes of Earth's Properties with Seismic Waves III, MS 104, Tue 16:00

H31F: Defining, Measuring and Modeling Hydrological Connectivity Across Scales: Macropores to Landscapes I, MW 3011, Wed 08:00

S31E: Observation and Analysis of Natural and Induced Microearthquakes II, MW 2005, Wed 08:00

V31G, Volcanic Dynamics: Temporal Changes of Physical Properties at Volcanoes with and without Surficial Activity II, MW 2020, Wed 08:00

H32A: Defining, Measuring and Modeling Hydrogeological Connectivity Across Scales: Macropores to Landscapes II, MW 3011, Wed 10:20

S32B: Observation and Analysis of Natural and Induced Microearthquakes III, MW 2005 Wed 10:20

V32B: Volcanic Dynamics: Temporal Changes of Physical Properties at Volcanoes with and without Surficial Activity III, MW 2020, Wed 10:20

V33F: Volcanic Dynamics: Temporal Changes of Physical Properties at Volcanoes with and without Surficial Activity IV, MW 2020, Wed 13:40

IN41A: Earth and Space Science Informatics General Contributions I Posters, Thu 08:00

S41E: Topography Effects in Ground Motion Predictions: From Numerical Modeling to Engineering Design I, MW 2005, Thu 08:00

S42B: Earthquake Strong Ground Motions I, MW 2005, Thu 10:20

C43A: East Antarctica: Climate, Glaciology, and Geoscience in Earth's Farthest Frontier I Posters, MS, Thu 13:40

C43B: Observatories, Instruments and Autonomous Systems in Polar Regions I Posters, MS, Thu 13:40

IN43E: Earth and Space Science Informatics General Contributions II, MS 102, Thu 13:40

S43A: Earthquake Strong Ground Motions II Posters, MS, Thu 13:40

S43B: Topography Effects in Ground Motion Predictions: From Numerical Modeling to Engineering Design II Posters, MS, Thu 13:40

H52C: Shallow and Deep Geothermal Energy II, MW 3009, Fri 10:20

C54A: Observatories, Instruments and Autonomous Systems in Polar Regions II, MW 3014, Fri 16:00

1.8 Workshop at Fall AGU for Tenure-Track Faculty: Preparing for Tenure

Sunday, December 13, 2009, 9 am to 5 pm at Moscone Convention Center, San Francisco, in association with the American Geophysical Union (AGU) Fall Meeting. (You do NOT need to register for the meeting to attend the workshop).

This one-day workshop, part of professional development program, On the Cutting Edge, is designed to help tenure-track geoscience faculty make their strongest case for tenure. Workshop discussions and activities will focus on analyses of CVs, personal statements (narratives), and teaching materials that may be used as supporting documentation in tenure applications.

Participants will have the opportunity to get feedback and advice on their own preparation towards tenure. In addition, participants will have the opportunity to review several examples of successful geoscience tenure packages from range of institutions.

Workshop conveners: Kristen St. John (Department of Geology & Environmental Science, James Madison University); Mark Leckie (Department of Geosciences, University of Massachusetts, Amherst

Cost is \$50 and includes breakfast and lunch.

Workshop overview:

<http://serc.carleton.edu/NAGTWorkshops/earlycareer/otherworkshops/tenure09/overview.html>

Registration page:

<http://serc.carleton.edu/NAGTWorkshops/earlycareer/otherworkshops/tenure09/registration.html>

2. AGU's 2010 Voluntary Contribution Campaign (from Sally Scwettman - AGU Annual Gifts Manager)

Last year, members of the Near Surface Geophysics Focus Group contributed \$1,470 to AGU's Voluntary Contribution Campaign. In 2008, due largely to member donations like these, AGU facilitated career development events attended by 600 students, hosted 75 K-12 teachers at Fall Meeting workshops, and sponsored 31 members' visits with U.S. policy makers. Additionally, voluntary contributions allowed AGU to provide travel grants to 135 deserving students to present their research for the first time at an AGU meeting. These programs are essential for AGU's relevance and vitality. I know Near Surface Geophysics members want AGU to do more. Please join me in supporting AGU's efforts to strengthen our scientific society by making a gift to the 2010 Voluntary Contribution Campaign. You can make your gift when you renew your AGU membership, or you can give today at:

https://www.agu.org/givingtoagu/making_your_gift.php

3. Joint Assembly Meeting of the Americas, 08-13 August 2010, Foz do Iguassu, Brazil

Greetings to all!

The Meeting of the Americas (<http://www.agu.org/meetings/ja10/>), will be held in 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. We are working hard to make the NGS sessions a success. It would be interesting to cover as much as possible of its range of applications, such as mining, environmental, climate history, engineering, human safety, etc. But, we also NEED YOUR INPUT! Here are three WAYS in which YOU can help

- A. PROPOSE A SESSION: Deadline: 31 December, 2009 11.59 ET
- B. SUGGEST AN INVITED SPEAKER
- C. SUBMIT AN ABSTRACT: Deadline: March 31, 2010.

In order to help you along here are SOME suggested sessions you may consider to promote, or you can PROPOSE your own session and conveners. We will be glad to help you along with the process. Students are encourage to participate!

Section 1. Near Surface Geophysics- Recent Advances and the Road Ahead

- a) GPR, shallow Seismics, EM, gravity, magnetic, surface and borehole; passive and active methods.
- b) Advances in processing,: Imaging, Acquisition Noise Analysis and Removal, Modeling and Inversion.
- c) Novel management of Anisotropy and Heterogeneity
- d) The dynamic near surface: Time lapse approaches.

Section 2. Near Surface Geophysics: Data Quality Improvement and Case Histories

- a) Passive and active methods like GPR, Seismics, EM, gravity, magnetic on the surface and in borehole.
- b) New acquisition and survey designs.
- c) Environmental and engineering applications

Regards, NGS Representatives:

Jandyr Travassos, Brazil (jandyr@on.br)

Juan Lorenzo, (gllore@lsu.edu)

4. Call for Seismic and GPR Abstracts: EGU Meeting, Vienna, Austria, May 2 to May 7, 2010

We would like to draw your attention to session SM5.5 "Imaging the shallow subsurface with seismic and GPR methods" at the EGU meeting held in Vienna, Austria from May 2 to May 7, 2010.

Session description: Seismic and ground-penetrating radar (GPR) methods are widely applied in high-resolution geophysical investigations of the shallow subsurface. Technological progress with regard to data acquisition and processing and methodological developments in forward and inverse modeling for interpreting seismic and GPR data continuously improve and offer new possibilities for resolving fine-scale heterogeneities. We invite you to submit both methodological papers and case studies, which demonstrate the applicability of these methods. Conveners: Lars Nielsen (University of Copenhagen), Klaus Holliger (University of Lausanne) and Hansruedi Maurer (ETH Zurich)

Abstract deadline is January 18. The scientific programme and other practical information can be found on the meeting homepage: <http://meetings.copernicus.org/egu2010/>

On behalf of the conveners,
Lars Nielsen

5. Biogeophysics session at the Goldschmidt 2010 conference in Knoxville, Tennessee June 13-18th

Recently, various geophysical techniques have been applied to characterize geochemical changes associated with microbial activity. To further encourage dialog between geophysicists and biogeochemists, we are hosting a Biogeophysics session at the Goldschmidt 2010 conference in Knoxville, Tennessee June 13-18th (<http://www.goldschmidt2010.org/index>). Our session, titled "Biogeophysics: Novel Tools and Methods for Observing the Effects of Biogeochemistry", is programmed under Theme 15: Microbe-Mineral Interactions. This session welcomes submissions concerning novel techniques for observing microbial activity at any scale. We also encourage the submission of abstracts concerning the incorporation of geophysical techniques into existing geochemical and reactive transport models.

Abstracts can be submitted between January 1st and February 21st 2010. For inquiries, feel free to contact the session conveners: Aaron Regberg (aregberg@psu.edu), Peter Schillig (schillig@ku.edu) or Dr. Kristina Keating (kmkeat@andromeda.rutgers.edu).

6. SEG News: Near Surface Seismology Short Course, Houston Tx, February 8-9 2010

Society of Exploration Geophysicists (SEG) Continuing Education Courses: [Near-Surface Seismology](#) Short Course

Instructor: Gregory S. Baker (Univ. of Tennessee)

This course is designed to provide background information to help professionals assess or use near-surface seismic methods. This intensive course will cover (1) basic near-surface seismic theory, (2) instrumentation: including sources, seismographs, and sensors, (3) seismic refraction: including fan shooting, generalized reciprocal method (GRM), and refraction tomography, (4) seismic surface waves: including spectral analysis of surface waves, (SASW) and multichannel analysis of surface waves (MASW), (5) seismic reflection: including common-offset and common-midpoint (CMP), and (6) seismic data integration and interpretation, including pitfalls and case histories.

Register by January 1 to avoid a late fee. For more information, visit: <http://www.seg.org/>

7. Position in Hydrogeophysics / Hydrogeology, Senior Member of Technical Staff Position, Sandia National Laboratories, Carlsbad, NM, USA

The Waste Isolation Pilot Plant (WIPP) is the U.S. Department of Energy (DOE) deep geologic repository for defense-related transuranic (TRU) and mixed waste. WIPP is the world's only licensed and operating deep geologic repository for the disposal of TRU waste. The repository is located in a Permian bedded-salt formation 26 miles east of Carlsbad, NM. WIPP is operated by Washington TRU Solutions, under contract to the Department of Energy's Carlsbad Field Office (CBFO). Sandia National Laboratories (SNL) is the scientific advisor to the CBFO for the WIPP. Sandia's advisory responsibilities include investigations and monitoring of repository performance, long-term, probabilistic performance assessment (PA) of the repository with respect to regulatory requirements, impact assessments of modifications to the repository design and waste inventory, periodic recertification of the WIPP, and optimization of the national transuranic waste complex.

The Repository Performance Department (06712), part of Sandia's Carlsbad Programs Group (CPG), maintains experimental, modeling, and hydrologic monitoring capabilities to support the DOE in assuring uninterrupted compliance of the WIPP with a variety of federal and state regulations. The selected individual will conduct field investigations (geophysical and hydrogeological) of the presence and extent of shallow groundwater near the WIPP surface facilities and of recharge and cross-formation leakage in karstic terrain west of the WIPP site, and may also participate in hydraulic well testing and well-test analysis. Tasks will also include development and implementation of appropriate conceptual models, selection and modification of appropriate numerical simulation codes, conducting simulations, and presentation of results to internal and external customers. The position is in Carlsbad, NM. Occasional travel to Albuquerque is expected. The selected individual may also participate in other DOE projects and water-related projects for other clients.

Required qualifications: A PhD or equivalent degree in hydrogeology, (hydro)geophysics, applied mathematics, or engineering with experience in mathematical modeling and numerical simulation of geophysical and/or hydrogeological processes. Experience must include development of conceptual and numerical models, model calibration, pre- and post-processing of data, data analysis, interpretation, and reporting. Demonstrated excellence in the technical field as well as superior oral and written communication skills are mandatory, as is the ability to function effectively within a diverse team. Residence in Carlsbad, NM is mandatory.

Desired qualifications: Proficiency using Linux, VMS, and Microsoft Windows operating systems; programming in Fortran and C++; expertise with (hydro)geophysical and vadose zone modeling; field experience with hydrogeophysical techniques and with aquifer testing; experience in coupling between hydrological, geophysical, and geomechanical processes; expertise in parameter estimation, geostatistics and uncertainty analysis; experience in conducting technical programs within a regulatory environment; site characterization and/or laboratory experimentation for derivation of model parameters. Experience with stringent QA/QC requirements, such as those associated with the WIPP or Yucca Mountain projects, is highly desirable. Familiarity with modern methods of well-test analysis (e.g., pressure derivatives) is also desirable.

U.S. citizenship is not required.

Contact: Dr. Christi Leigh, Sandia National Laboratories, 4100 National Parks Highway, Carlsbad, NM 88220, cdleigh@sandia.gov, 505-845-0407

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