



**NEAR-SURFACE GEOPHYSICS FOCUS GROUP  
NEWSLETTER: JULY 2014**

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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 website: <http://sites.agu.org/nsg/>

**Follow NSFG on Twitter @NS\_AGU!**

## **1. Call for Abstracts to the 2014 AGU Fall Meeting (from Xavier Comas)**

### ***Abstract Submission Deadline: 6 August 2014***

The call for AGU Fall Meeting abstracts is now open. All abstracts must be received by 6 August 2014, 23:59 EDT/03:59 +1 GMT The abstract submission tool is NEW this year. Please take a few minutes to review the tutorial and become oriented with the 2014 submission process at <https://agu.confex.com/agu/fm14/webprogrampreliminary/start.html>.

### **NEAR SURFACE GEOPHYSICS SESSIONS:**

#### **Advances in Exploration Geophysics**

Louise Pellerin, Green Geophysics, Berkeley, CA, USA, Kennedy O Doro, University of Tuebingen, Tuebingen, Germany and Darcy McPhee, USGS, Menlo Park, CA, USA

#### **Assessing Permafrost Change with Prospects for Human Adaptability and Commercial Exploitation**

Reginald Muskett, Geophysical Institute University of Alaska Fairbanks, Fairbanks, AK, USA and Alexander L Kholodov, University of Alaska Fairbanks, Anchorage, AK, USA

#### **Coastal Geophysical Studies: At the Transition between Land and Sea**

Juan Lorenzo, Louisiana State Univ, Baton Rouge, LA, USA and Bruce Smith, USGS, Lakewood, CO, USA

#### **GPR Advances for Subsurface Imaging**

Xavier Comas, Florida Atlantic University, Boca Raton, FL, USA, Remke Van Dam, Michigan State Univ., East Lansing, MI, USA and Georgios Tsoflias, University of Kansas, Lawrence, KS, USA

#### **Geophysical Methods for Groundwater Evaluation and Management**

Rosemary Knight, Stanford Univ, Stanford, CA, USA and John Lane Jr, USGS, Storrs, CT, USA

#### **Interpreting Geophysical Signals: What We Really See vs. What We Want to See**

Chi Zhang and Dimitrios Ntarlagiannis, Rutgers University, Newark, NJ, USA

#### **Near Surface Geophysics General Contributions**

Xavier Comas, Florida Atlantic University, Boca Raton, FL, USA and Bruce Smith, USGS, Lakewood, CO, USA

#### **Near-Surface Seismic Methods for Geohazard Assessment**

Laura Valentina Socco, Politecnico di Torino, Torino, Italy, Richard Miller and Georgios Tsoflias, University of Kansas, Lawrence, KS, USA

#### **Seismic Emission Due to the Propagation of Fluid-Driven Fractures**

Arash Dahi Taleghani, Louisiana State Univ. and Agricultural & Mechanical College, Baton Rouge, LA, USA, Juan Lorenzo, Louisiana State Univ, Baton Rouge, LA, USA and Joel LeCalvez, Schlumberger Oilfield Services, TX, USA

#### **The Seismoelectric Method: Going Together to the Next Level**

Niels Grobde, Delft Univ. of Technology, Delft, Netherlands, Andre Revil, Colorado School of Mines, Golden, CO, USA, Zhenya Zhu, MIT, Quincy, MA, USA and Evert Slob, Delft Univ. of Technology, Delft, Netherlands

#### **Use of Distributed Fiber Optic Sensing in Study of Geophysical Processes**

Tom Oliver Trevett Read, Univ. of East Anglia, School of Environmental Sciences, Norwich, United Kingdom, Nick Van De Giesen, Delft Univ. of Technology, Faculty of Civil Engineering and Geosciences, Delft, Netherlands, John Selker, Oregon State University, Biological and Ecological Engineering, Corvallis, OR, USA and Scott Tyler, University of Nevada, Geological Sciences and Engineering, Reno, NV, USA

## **2. Nominations for SEG Near Surface Geophysics Section Awards (from Remke Van Dam)**

The Near Surface Geophysics Section (NSGS) of the Society of Exploration Geophysicists (SEG) requests nominations for its two major awards: the Harold Mooney Award and the Frank Frischknecht Leadership Award. These awards provide a chance to honor those members of our community that have made outstanding contributions to the field of near-surface geophysics. This year, both awards will be presented at the SEG annual meeting in Denver. For full consideration, please submit your nominations to Remke Van Dam ([rvd@msu.edu](mailto:rvd@msu.edu)) by 15 July 2014. The nomination form should contain the name, title and affiliation of the candidate along with a statement describing the reasons for the nomination.

### ***Frank Frischknecht Leadership Award***

The Frank Frischknecht Leadership Award is jointly presented by the NSGS and EEGS. The award was established to recognize an individual who shows extraordinary leadership in advancing the cause of near-surface geophysics through long-term, tireless, and enthusiastic support of the near-surface geophysics community. Such leadership is often boldly displayed by an invention, a new methodology or technique, a theoretical or conceptual advancement, or a unique innovation that transforms the nature and capabilities of near surface geophysics.

### ***Harold Mooney Award***

The NSGS Harold Mooney Award honoree was originally presented in recognition of scientific and technical excellence and innovation leading to the advancement of near-surface geophysics. In 2005 the award definition was expanded; it is now presented to an individual in recognition of long-term, tireless, and enthusiastic support of the nearsurface geophysics community through education, outreach efforts, professional service, or development of opportunities with other professional disciplines that employ geophysics.

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## **3. SEG NSGS Executive Committee Openings (from Remke Van Dam)**

Nominations for positions of President-Elect and Editor on the 2014-2015 Executive Committee of the NSGS are now being accepted. For a description of duties please see the recent NSGS newsletter ([http://nsgs.seg.org/e-newsletter/2014\\_2/index.html](http://nsgs.seg.org/e-newsletter/2014_2/index.html)). Please submit nominations to Remke Van Dam at [rvd@msu.edu](mailto:rvd@msu.edu) by July 31, 2014. Self-nominations and expressions of interest are welcome.

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## **4. Earth Sciences Week 2014 Toolkits from Available from AGI (from Geoff Camphire)**

The American Geosciences Institute (AGI) is now accepting advance orders for the Earth Science Week 2014 Toolkit. The Toolkit contains educational materials for all ages that correspond to this year's event theme, "Earth's Connected Systems." Materials include the traditional program poster and school-year activity calendar, as well as resources from distinguished program. This year's Toolkit provides students with the opportunity to learn about the dynamic interactions of the planet's natural systems. Earth Science Week 2014 will be celebrated 12-18 October.

To learn more, please visit <http://www.earthsciweek.org/>. To order your Toolkits, please visit <http://www.earthsciweek.org/materials/>. You may also call AGIPublications to place your order at 703-379-2480.

## 5. NSGS Student Travel Grants Program for 2014 SEG Meeting (from Remke Van Dam)

The SEG-NSGS (Near Surface Geophysics Section) Student Travel Grants Program exists to support students seeking a career in near-surface geophysics to attend the SEG Annual Meeting. Each year a number of travel grants of up to \$500 (USD) may be awarded. Graduate students with research projects in near-surface geophysics are eligible. Preference will be given to students presenting oral or poster papers at the SEG Annual Meeting, and to those that have not previously received this grant. The applicant must be a student member of the NSGS. For details, see [http://nsgs.seg.org/e-newsletter/2014\\_2/segam.html](http://nsgs.seg.org/e-newsletter/2014_2/segam.html). **The deadline for submission is 3 August 2014.**

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## 6. Upcoming Special Issues

### 6.1 *The Leading Edge* special issue on Humanitarian Geophysics (from Louise Pellerin)

The December 2014 issue of *The Leading Edge* (TLE) will focus on Humanitarian Geophysics. Those working in any area related to Humanitarian Geophysics are encouraged to consider sharing their work. If you are interested in submitting an article for the special issue, please contact Louise Pellerin ([pellerin@greengeophysics.com](mailto:pellerin@greengeophysics.com)). **The due date for article submission is 15 Aug 2014.**

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### 6.2 *INTERPRETATION* special issue on Geophysical Imaging and Interpretation of Outcrops

Outcrops have long been studied as analogs for rocks rich in natural resources, including hydrocarbons, minerals, and groundwater. Outcrops provide highly detailed information on facies assemblages, stratigraphy, textural and petrographic variability, and fracture patterns, among others. However, except in a few exceptional cases, this information is strictly two-dimensional. Geophysical tools allow for a "look behind the cliff," thus enabling 2D outcrop analog data to be extended into the third dimension. Such geophysical investigations can be operated from the cliff top, cliff face, and boreholes.

With the increasing demand for unconventional, geothermal, mineral and water resources as exploration targets there is a renewed interest in detailed outcrop studies. For this special section of Interpretation, we invite papers that focus on applying geophysical tools (e.g., seismic, ground-penetrating radar, and downhole geophysical logging) for imaging and interpretation of outcrops. We also invite papers that use Lidar and high-resolution outcrop imagery in combination with behind-the-cliff geophysical data or synthetics.

The focus of the work can be on geophysical imaging and modeling, 3D facies analysis and sequence stratigraphy, studies of deformation and faulting, mineralization, fracture zones, and high-resolution input for geological modeling of sedimentary and crystalline systems. Case studies for specific outcrop analogs are also welcomed.

Interested authors should submit their manuscripts for review no later than 30 August 2014. In addition, the special section editors would like to receive a provisional title and list of authors as soon as possible. Authors should submit via the normal online submission system for Interpretation (<https://mc.manuscriptcentral.com/interpretation>) and indicate that it is a contribution for this special section. The submitted papers will be subject to the regular peer-review process, and the contributing authors also are asked to participate in this process as reviewers.

#### **Submission Timeline for the Special Issue**

<b>30 Aug 2014:</b>	submission deadline
<b>26 Jan 2015:</b>	peer review complete
<b>9 Feb 2015:</b>	all files submitted for production
<b>May 2015:</b>	publication of issue

More information is available online at the following link:

<http://www.seg.org/resources/publications/interpretation/specialsections/2015-geo-img-outcrops>

### **6.3 *The Leading Edge* special issue on Near Surface Geophysics (from Dale Werkema)**

The February 2015 issue of *The Leading Edge* (TLE) will focus on Near-Surface Geophysics. Please consider a submission to this special edition. The widespread distribution of TLE will enable a broad impact of your contribution. Your research, experience, and expertise is on the cutting edge of near-surface geophysics and is greatly welcomed and encouraged to make the issue a success. The submission details are attached and a timeline of the submission is detailed below.

#### **Submission Timeline for the Special Issue**

- 15 Oct:** articles due to guest editor (GE)
  - 15 Oct–15 Nov:** GE reviews submissions
  - 15 Nov:** GE lets authors know approved, rejected, suggestions for revision
  - 15 Nov–1 Dec:** authors revise articles, return revision to GE
  - 1 Dec–15 Dec:** GE reviews revision, makes any final changes
  - 15 Dec:** revised articles due to TLE editorial staff, upload to SEG ftp site
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## 7. Upcoming Conferences and Workshops

### 7.1 SEG Annual Meeting

**Meeting Dates:** 26-31 October 2014

**Meeting Location:** Denver, Colorado

**Website:** <http://www.seg.org/web/annual-meeting-2014/overview>

#### **Near Surface Geophysics Technical Program at the SEG Meeting:**

##### **Surface-Waves (Oral Session)**

Monday PM; Room 4B; Session Chairs: Rick Miller (KGS), Valentina Socco (Politecnico di Torino)

##### **Reflection, Tomography, Interferometry and Statics (Oral Session)**

Tuesday AM; Room 4B; Session Chairs: Seth Haines (USGS), Said Mahrooqi (PDO)

##### **Hydrogeophysics (Oral Session)**

Wednesday AM; Room 4B; Session Chairs: Kristina Keating (Rutgers U.), Ryan Swanson (Colorado School of Mines)

##### **Integrated Methods, Joint Inversion, ERT/EM, and Hazards (E-poster Session)**

Tuesday PM; Room 404 ; Session Chairs: John Bradford (Boise State Univ.), Louise Pellerin (Green Geophysics)

##### **NS Developments and Applications (Poster Session)**

Wednesday PM; Session Chairs: John Lane (USGS), Julian Ivanov (KGS)

#### **NSGS Social Events**

##### **Near Surface Geophysics Luncheon**

Tuesday 28 October 2014, 11:30 AM to 1:30 PM; Location: Convention Center

##### **Near Surface Geophysics Evening Social**

Tuesday 28 October 2014, 7:00 PM to 11:00 PM; Location: Katie Mullen's Irish Restaurant & Pub

**NSGS Student Travel Grants Program** – Please refer to item 5 of this newsletter for details.

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### 7.2 SAGEEP 2015

**Meeting Dates:** 22-26 March 2015

**Meeting Location:** Austin, Texas

**Website:** <http://www.eegs.org/Annual-Meeting-SAGEEP/SAGEEP-2015>

Plans are underway to host the 2015 Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) in Austin, Texas next spring. Local organizers Jeff Paine (General Chair), Doug Laymon, and Dennis Mills are working with EEGS staff to infuse a uniquely “Austin” experience into the 28<sup>th</sup> edition of SAGEEP, while simultaneously putting together a strong technical program under the guidance of Brad Carr (Technical Chair). Be sure to make early plans to attend; Austin is a very popular spring destination and flights and rooms fill up quickly. Please send an email to Jeff ([jeff.paine@beg.utexas.edu](mailto:jeff.paine@beg.utexas.edu)) if you would like to be on an informal email list for information about the conference as it develops. If you have an idea for a technical session, workshop, or short course, now is a great time to suggest it to Jeff or Brad ([bcarr1@uwyo.edu](mailto:bcarr1@uwyo.edu)). See you in Austin next spring!

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### **7.3 Geophysical Methods for Permafrost Characterization and Monitoring**

**Workshop Dates:** 6-8 August 2014

**Location:** Fairbanks, Alaska

**Instructors:** John Lane, Fred Day-Lewis, and Martin Briggs (USGS), Seth Campbell and Tom Douglas (CRREL)

This three-day workshop (USGS-OED-WRD-GW1829) will provide an overview of geophysical methods for permafrost characterization (i.e., depth, thickness, spatial extent) and monitoring (i.e., time-lapse imaging). The course comprises lectures, data-analysis exercises, and field surveys. Participants will gain practical field experience using a variety of geophysical instruments, including ground penetrating radar, electrical resistivity, passive seismic, and electromagnetic induction. Participants will analyze field data and gain hands-on experience using state-of-the-practice software for data processing and visualization. Instructors include scientists from the U.S. Geological Survey and Army Corps of Engineers Cold Regions Research and Engineering Laboratory. The target audience for the course includes hydrologists, engineers, environmental scientists, and geologists. No prior experience with geophysical methods is required. The course is open to USGS, other Federal agency, State, and University personnel or students.

For additional information, please contact Fred Day-Lewis: [daylewis@usgs.gov](mailto:daylewis@usgs.gov) or 860.487.7402 x21

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### **7.4 Multichannel Analysis of Surface Wave (MASW) Workshop (from Mary Brohammer)**

**Workshop Dates:** 14-15 August 2014 *or* 6-7 November [two workshops] - Registration is free

**Location:** Kansas Geological Survey (KGS), Lawrence, Kansas

**Workshop Website:** <http://www.kgs.ku.edu/software/surfseis/workshops.html>

The free two-day MASW workshop will provide opportunity for geo-professionals, geoscientists, and graduate students to gain knowledge about acquisition, analysis, and interpretation of the seismic Rayleigh surface waves. The learning process will be facilitated by the use of SurfSeis software (<http://www.kgs.ku.edu/software/surfseis/index.html>). The workshop is designed to address the current approaches for analyzing seismic data from both active and passive sources for obtaining shear-wave velocity ( $V_s$ ) estimates for the near-surface.

On Day 1 a theoretical overview of the MASW method (active and passive) will be presented, participants will be familiarized with the SurfSeis software package, and field data acquisition from both active and passive sources is scheduled take place (weather permitting).

Day 2 will continue with the theoretical MASW overview covering surface-wave inversion, multi-mode interpretation and inversion, inversion sensitivity, use of a-priori information and quality of inversion results, latest advancements for dispersion-curve imaging—such as the high-resolution linear Radon transform (HRLRT), challenging dispersion-curve patterns, and more. Day-1 acquired seismic data will be analyzed. Participants are encouraged to bring samples of their own data for discussion as time permits.

Attendees are expected to bring their own laptops.

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## 7.5 Upcoming SEG Workshops and Conferences with a NS Focus or Component:

### 1st SEG/SBGf Workshop on Near Surface Geophysics

**Meeting Dates:** 3-4 December 2014

**Meeting Location:** Salvador, Brazil

**Website:** <http://www.seg.org/events/upcoming-seg-meetings/salvador2014>

### 2nd Asia-Pacific Near Surface Geophysics Conference

**Theme:** Geohazards

**Meeting Dates:** 7-10 July 2015

**Meeting Location:** Waikoloa Village, Hawaii, USA

**Website:** <http://www.seg.org/events/upcoming-seg-meetings/salvador2014>

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## 8. Position Announcements

### 8.1 PhD Student Position in “3D GPR Full-Waveform Inversion” (Forschungszentrum Jülich GmbH)

In the IBG-3, advanced modeling and inversion algorithms are developed and applied for a wide range of studies using ElectroMagnetic Induction (EMI) or Ground Penetrating Radar (GPR) systems. The primary objective of this project is to develop and extend existing 2D full-waveform inversion algorithms for 3D GPR data with the ultimate goal of obtaining quantitative information on hydrogeophysical properties. Specific components of the project will include: (i) improving the forward model used in the inversion, (ii) writing a new algorithm to accommodate the full-waveform inversion of 3D surface GPR data, (iii) recording, processing and inverting two GPR data sets, one acquired under controlled conditions and one acquired from a hydrogeological TERENO test site. The project offers the unique opportunity to connect novel full-waveform techniques to real data in a state-of-the-art computational environment.

#### Requirements:

- University degree in geophysics, physics, electrical engineering, computational geoscience, or related natural sciences with a good final grade; preferably with knowledge in wave propagation techniques
- Advanced knowledge of numerical methods
- Experience in (parallel) programming preferably in C/C++ and/or Fortran
- Strong English writing and communication skills.

#### We Offer:

- Working in an interdisciplinary environment as well as excellent facilities for hydrogeophysical research and numerical simulation and inversion studies
- Opportunities to being part of the national and international scientific community

For further information please contact Prof. Dr. Jan van der Kruk, e-mail: [j.van.der.kruk@fz-juelich.de](mailto:j.van.der.kruk@fz-juelich.de)

Please send your application – quoting the reference number D045/2014 – with the relevant documentation to: Mr. K. Beumers, Institut für Bio- und Geowissenschaften, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany, e-mail: [k.beumers@fz-juelich.de](mailto:k.beumers@fz-juelich.de).

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**TO CONTRIBUTE MATERIAL TO THE NSFG NEWSLETTER SEND AN E-MAIL TO:**

Stephen Moysey ([smoysey@clemsn.edu](mailto:smoysey@clemsn.edu))

DEADLINE: Material must be received 5 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.

**GET YOUR MESSAGE OUT NS MEMBERS FASTER:**

You will no longer need to wait until the end of the month to share an important or time-sensitive contribution to the newsletter. Appropriate contributions to the newsletter will also be shared ASAP via Twitter. Please note that only NSFG members that follow [@NS\\_AGU](#) will receive Twitter announcements, so make sure that you sign up!