American Geophysical Union

Near-Surface Geophysics Focus Group (NSFG)
Newsletter: April 2016

In Brief:

Recent announcements of interest to the near-surface community (conferences, academic positions, graduate student opportunities, etc.) can be found on the AGU Near-Surface Geophysics focus group website.

Early career scientists: Check out the NSFG early career website.

Follow NSFG on Facebook and Twitter @NS_AGU!

1. AGU Updates

1.1 Help NSFG benefit from the AGU Section and Focus Group Incentive Program!

Please consider giving to AGU so that NSFG can take advantage of the 2016 Donor Incentive Program. This tax-deductible gift will not only assist AGU but will support our focus group's initiatives. If only 5% of our members (i.e., about 20 people) give $50 or more in 2016, AGU will provide NSFG with $1000. If 10% of our members give $50 or more, AGU will provide $3000! Given that we are a small focus group, these extra funds would make a real impact on our efforts in support of students and early career scientists. Any donations to AGU qualify, regardless of which program you are supporting! To learn more, please visit the incentive program website or contact AGU's Development Department at development@agu.org or 202.777.7434.

1.2 Call for Session Proposals for 2016 Fall Meeting

The session proposal site for the 49th annual AGU Fall Meeting, in 2016, is now open. The deadline for submission is 20 April 2016, 11:59 P.M. Eastern Daylight Time.

Before submitting a session proposal, remember to read the guidelines to ensure that you have not missed important information that may hinder your submission, and make sure that your 2016 AGU membership dues are up to date. You can also search and view session proposals submitted by your colleagues. Letters of notification will be distributed in June 2016. Additional information on submission policies and guidelines can be found online.

1.3 AGU Honors Program Nominations

The AGU Honors Program recognizes individuals who have made outstanding contributions to the advancement of the geophysical sciences, to the service of the community, and to the public's understanding. Visit the AGU Honors Program online for opportunities to recognize deserving colleagues. Contact George Tsoflias, NSFG nominations committee chair, for more information.

1.4 Student Spotlights and Research Highlights

Interested in being highlighted, or know a student who should be? Please email Sarah Morton for more information about the Student Spotlight. Take a look at this month's Student Spotlight on Gabriel Gribler at the end of the newsletter.

We are also seeking research highlights that showcase use of near-surface geophysics in other AGU sections and focus groups. If you are interested in writing a short one-page highlight, please contact Burke Minsley.

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2. Near-surface geophysics participation in the National Geophysical Observatory for Geoscience (NGEO)

NSF has released a solicitation for "Management and Operation of the National Geophysical Observatory for Geoscience (NGEO)." The solicitation includes the statement: "*NSF also intends NGEO to provide a range of Frontier capabilities that will support experiments targeting future scientific goals (up to $9.0 million/year). Capabilities of interest include, but are not limited to, those that would provide support for cross-coastal Earth systems science; near-surface and critical zone geophysics; and atmospheric and cryosphere studies informed by geophysical methods.*" This solicitation thus represents a significant opportunity to jump-start (and fund) a national near-surface geophysics facility: NSF has set aside money specifically to fund new centers, and has identified near-surface and critical zone geophysics as a high priority for such a center.

Bob Detrick, president of IRIS, contacted Steve Holbrook (University of Wyoming) and asked whether the University of Wyoming would consider joining the main IRIS proposal to the NGEO solicitation, as a subcontractor to host a near-surface geophysics facility. In this case, a near-surface geophysics facility would be part of the omnibus proposal that would (in all likelihood) fund the successor programs to the PASSCAL Instrument Center and the Global Seismographic Network. Such a framework would place a national near-surface geophysics instrument pool under the governance structure of NGEO, which would follow on the structure of IRIS. IRIS is governed by committees made up from its membership and is, by design, receptive to broad community input. Community needs, formats for equipment sharing, and the structure and makeup of the intellectual pool needed to optimize use of a highly diverse equipment pool would be framed by committee.

Steve Holbrook and Sarah Kruse (University of South Florida) are looking to get input from the near-surface community to contribute to the NGEO proposal. Please send us your vision/ideas/comments on

- Key research questions in your discipline that would be advanced with integrated near-surface applications
- Community equipment and software needs for teaching and research
- Formats for equipment and software sharing to optimize use of a diverse pool
- Formats for sharing expertise and guidance on specialized equipment

Steve and Sarah are also submitting a proposal to NSF for a workshop to address these issues. We hope such a workshop will be held this fall.

Thank you for your time and thoughts.

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3. Journal Information and Special Issue Call for Papers

3.1 *The Leading Edge* special section: Hydrogeophysics

Deadline for manuscript submission: 15 May 2016

The Leading Edge (TLE) has announced the call for papers for a special section on hydrogeophysics scheduled for publication in September 2016. The special section will showcase applications of hydrogeophysics to quantitatively assess and monitor subsurface properties and processes. Contributions utilizing borehole, cross-hole, surface, and airborne methods to support the development and calibration of groundwater and contaminant transport models, monitor ecosystems, and sustainably manage groundwater resources are encouraged.

The paper submission deadline is 15 May 2016. Papers should be submitted directly to the guest editors below. Submissions guidelines for TLE are available online.

Guest editors: Rosemary Knight and Burke Minsley

Coordinating editor: John Lane

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4. Tech-Transfer Courses and Training

4.1 Multichannel Analysis of Surface Waves (MASW) Workshop

Dates: 18–19 May 2016
Registration cost: free
Location: Kansas Geological Survey, Lawrence, Kans.
Website

SurfSeis 5 will be released shortly (we are expecting within a week or so). What's new? Passive data and single-record processing is now available with the high-resolution linear radon transform (HRLRT). Also available are varying topography, Scholte wave inversion, and more.

This free 2-day MASW workshop will provide an opportunity for geoprofessionals, geoscientists, and graduate students to gain knowledge about data acquisition, analysis, and interpretation of the seismic Rayleigh surface waves. The learning process will be facilitated by the use of SurfSeis software. The workshop is designed to address the current approaches for analyzing seismic data from both active and passive sources to obtain 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 to take place (weather permitting).

Day 2 will continue with the theoretical MASW overview covering surface wave inversion, multimode interpretation and inversion, inversion sensitivity, use of a priori information, the quality of inversion results, and the latest advancements for dispersion curve imaging, such as the high-resolution linear radon transform, challenging dispersion curve patterns, and more. Seismic data acquired on day 1 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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5. Upcoming Conferences and Workshops

5.1 Meetings Overview

Meeting (click to go to website)	Location	Meeting Dates	Submission	Registration
EGU General Assembly	Vienna, Austria	17–22 April 2016	*Closed*	*Open*
Japan Geoscience Union Meeting 2016	Chiba, Japan	22–26 May 2016	*Closed*	Early registration ends: 10 May 2016
4th International Workshop on Induced Polarization	Aarhus, Denmark	6–8 June 2016	*Closed*	Registration ends: 20 May 2016
Asia Oceania Geosciences Society 13th Annual Meeting	Beijing, China	31 July to 5 August 2016	*Closed*	Early registration ends: 18 May 2016
ASEG 25th International Geophysical Conference and Exhibition	Adelaide, Australia	21–24 August 2016	*Closed*	Early registration ends: 30 April 2016
35th International Geological Congress (IGC)	Cape Town, South Africa	27 August to 4 September 2016	*Closed*	Early Registration ends: 31 May 2016
EAGE Near Surface Geoscience 2016	Barcelona, Spain	4–8 September 2016	15 April 2016	Early registration ends: 15 July 2016
Society of Exploration Geophysicists Annual Meeting	Dallas, Texas	16–21 October 2016	1 April 2016	Registration opens May 2016

6. Student Spotlight: Gabriel Gribler, Boise State University

Gabriel Gribler is a first-year doctoral student in geophysics at Boise State University. As part of the Center for Geophysical Investigation of the Shallow Subsurface (CGISS), his dissertation research focuses on the applications and advancement of multicomponent surface wave processing techniques. After completing his Master's thesis at Boise State, his motivation to continue into the Ph.D. program was propelled by the question, "Now that we can easily collect multicomponent seismic data, what can we do with it?" Before starting graduate school, Gabe became fascinated with active seismic methods after taking Seismic Exploration as an undergraduate student at the University of Washington. His intense curiosity did not go unnoticed by the course's professor, Dr. Thomas Pratt, who connected Gabe with Dr. Lee Liberty at Boise State University. Since then, Gabe's enthusiasm and consistent curiosity has effectively helped him progress to where he is today.

As a seasoned AGU student member, Gabe has given both an oral presentation in 2014 and a poster presentation at the recent 2015 meeting. His 2014 work, "Multi-component body and surface wave seismic analysis using an urban landstreamer system: An integrative earthquake hazards assessment approach" (NS43B-04), combined surface wave, *P*-wave reflection, and refraction data in order to observe areas of high liquefaction potential in western Idaho. Gabe and other CGISS researchers constructed a landstreamer consisting of both vertically and radially oriented geophones to allow for rapid acquisition of the full elliptic motion of the Rayleigh wave surface wave. This ongoing project has been supported by the U.S. Geological Survey under Project Award G13AP00032.

With that question, "what can we do with [multi-component data]," lurking in his mind, he developed a polar coordinate mute to utilize both of these Rayleigh wave components simultaneously during processing. This mute can differentiate between prograde and retrograde motion to combine dispersion (frequency vs. phase velocity) information and yield a more coherent fundamental mode. Correctly identifying the fundamental mode is key to producing realistic shear wave velocity profiles and thus is critical for earthquake hazard studies. At the 2015 Fall Meeting, Gabe presented his continued efforts in multicomponent seismic acquisition and polar mute, "A polar coordinate approach to identify and remove higher mode Rayleigh waves" (NS41B-1938). His polar mute offers an alternative processing method for isolating higher mode surface waves that interfere with fundamental mode dispersion energy. This progressive research was recently submitted to *Geophysics* and is under review for 2016 publication.

If you are interested in learning more about active multicomponent seismic research at CGISS, please contact Gabe.

To contribute material to the NSFG newsletter, send an email to Burke Minsley.

Deadline: Material must be received five full business days before the first of the month.

Guidelines for submissions: All members are welcome to submit content of interest to the near-surface community. Please keep messages brief and provide contact information and (if available) a web address for additional information.

Get your message out to NSFG members faster.

You 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 who follow @NS_AGU will receive Twitter announcements, so make sure that you sign up!