



Near-Surface Geophysics Section

Newsletter: March 2018

Dear Colleagues:

The latest Near-Surface Geophysics Section newsletter is now available. Please follow this link to see the [full version online](#).

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Recent announcements of interest to the NSFG community (conferences, academic positions, graduate student opportunities, etc.) can be found on the [AGU Near-Surface Geophysics Section website](#).

Early-career scientists: Check out the [NSFG early-career website](#).

Follow NSFG on [Facebook](#) and Twitter [@NS AGU!](#)

Best regards,

Sarah Kruse

President, Near-Surface Geophysics Section, AGU

Near-Surface Geophysics Section March 2018 Newsletter

Upcoming Meetings at a Glance

Meeting (click to go to website)	Location	Meeting Dates	Submission	Registration
<u>SAGEEP</u>	Nashville, Tennessee	25–29 March 2018	Closed	Early registration deadline: closed
<u>EGU</u>	Vienna, Austria	8–13 April 2018	Closed	Early registration deadline: closed
<u>AOGS</u>	Honolulu, Hawaii	3–8 June 2018	Closed	Early registration deadline: 20 April 2018
<u>ICEEG2018</u>	Hangzhou, China	10–13 June 2018	Closed	Starting 1 January 2018
<u>80th EAGE Conference and Exhibition</u>	Copenhagen, Denmark	11–14 June 2018	Closed	Early registration deadline: 15 March 2018
<u>24th European Meeting of Environmental and Engineering Geophysics</u>	Porto, Portugal	9–13 Sept 2018	15 April 2018	TBD
<u>SEG</u>	Anaheim, CA	14–19 October 2018	By 1 April 2018	TBD

AGU Updates

- **Seeking Co-organized Session Proposals for 2018 Fall Meeting!**

The collaborative Fall Meeting session format co-organized session includes chairs from at least two sections and provides the most visibility to both communities. Using this format will benefit your session by increasing abstract submissions and in-person attendance. It will also benefit the Near-Surface Geophysics Section by increasing our visibility and building cross-disciplinary bridges. Please propose a co-organized session with this and another AGU section for the 2018 Fall Meeting. **The deadline is 18 April.** See the following infographic for more info. Contact Andy Parsekian if you have any questions, aparseki@uwyo.edu.

Do You Have a Collaborative Session Proposal?

Co-organized • Cross-listed • Co-sponsored

Does the proposal apply to AGU Sections other than the primary one to which it is being submitted? (Don't forget about the new GeoHealth Section!)



Is this proposal being submitted with co-conveners from the other applicable Section?



Then select "Yes" to being **co-organized** during the submission process and select up to four applicable Sections.



Truly Collaborative

Note: **Co-organized** sessions have to be approved by the Program Committee (PC) representatives of all Sections involved. If approved, this session will be listed under all **co-organizing** Sections during the abstract submission process.



Then select "Yes" to being **cross-listed** during the submission process and select up to four applicable Sections.



Used Only for Reference

Note: **Cross-listed** Sections will be used only for indexing purposes. If the proposal is approved, these **cross-listings** do not need to be approved by the PC but will be on the session for reference during the abstract submission process and in the program book.



Would the proposal be applicable to the membership or mission of other societies?



Then select the applicable **co-sponsoring** society when asked during the session submission process.



Does the session proposal fall under the below Sections and **co-sponsoring** societies? These requests will be reviewed by the **co-sponsoring** society. (For a complete list of Sections click on chart below.)

Society	Section
AMS	A, NG
EGU-GD	DI, NG
EGU-GMPV	VGP, NG
EGU-TS	T
GS	VGP
IAS	O, PP
JpGU	All S/FG
MSA	VGP, MR
SEPM	EP
SEG	NS



Then select "No" when asked for **co-organized**, **cross-listed**, and **co-sponsored** during the session submission process.

The 2018 SWIRL themes will be determined by the Fall Meeting Program committee, based on common cross-cutting themes that emerge from accepted sessions.

SWIRL themes will not be selected by conveners during the session proposal phase. More information will be available in May.

fallmeeting.agu.org/2018/swirls/

- AGU Elections: Call for Near-Surface Geophysics Section Nominations**

Later this year, AGU will elect its next set of officers for the 2019–2020 term, and the nomination process is now underway. We are looking for possible candidates for Near-Surface Geophysics Section president-elect and secretary. If you are interested in being considered or would like to nominate another member, please send an email to [Fred Day-Lewis](#). As you consider those opportunities, it will be helpful to review AGU's [strategic plan](#) and the [leadership criteria and job description](#) for Council members (section president and president-elect serve on the AGU Council). The email should include some information about the possible candidate: name, job title, employer, AGU section affiliation(s), email and phone number, and link to website/CV, if possible. It would also be helpful to know why you are nominating yourself or the other member—what strengths do you think the nominee brings to the table? Nominations should be submitted by 15 March.
- AGU Honors Program: Nominations Deadline 15 March 2018**

The AGU Honors Program recognizes individuals who have made outstanding contributions to the advancement of the geophysical sciences, to service to the community, and to the public's understanding. Nominations for the 2018 AGU Union awards, Fellows, medals, prizes, and section and focus group awards should be submitted by **15 March**. We urge you to take this opportunity to nominate a student, a colleague, a peer, or a mentor whose achievements have made a difference in the Earth and space sciences. Visit the [AGU Honors Program online](#) for more information.
- Geophysical Survey Systems Inc. (GSSI) Student Research Grant Applications**

The Geophysical Survey Systems Inc. (GSSI) Student Research Grant awards up to \$2,000 to AGU student members to support field geophysical research using ground-penetrating radar and electromagnetic methods. For more information visit the AGU [research grants and awards page](#) or the GSSI online application information.
- ESSOAr: A New Earth and Space Science Server for Preprints and Conference Presentations**

AGU is developing a server for the international Earth and space science community to accelerate the open dissemination of Earth and space science preprints and rich conference presentations with an advisory board of other international Earth and space sciences societies. Sign up for updates [here](#).
- AGU Approaches Its Centennial**

In 2019 AGU will celebrate its Centennial and will focus on worldwide events and programming that recognizes the value and contributions of Earth and space science over the last century and how the science will continue to add value in everyday life in the future. As we approach this milestone, AGU wants to reflect on the past 100 years of achievement and discovery and look forward to the impacts to come. We're excited to announce that the oral history group Story Corps will be at the Fall Meeting to help us record and capture the scientific and personal stories of our sciences. The nonprofit podcast focuses on stories about humanity, and they are coming to the meeting to help tell your stories! If you know of a personal story that should be shared, we want to hear about it. [Nominate someone](#) today!

NSFG Student Spotlights and Research Highlights

[Sarah Morton](#) is currently a fourth-year Ph.D. student of geotechnical engineering at the University of Kansas. There she focuses primarily on surface seismic wave research but for a variety of applications, including seismic hazard, subsidence monitoring, and man-made tunnel imaging.

During Sarah's master's degree at the University of Connecticut, her work included using the multichannel analysis of surface waves, the horizontal-to-vertical spectral ratio, and downhole seismic methods at 30 field sites across Hartford County, Connecticut, in order to map Vs30 (average shear wave velocity to a depth of 30 meters). This project was part of a larger investigation started by the New England State Geologists to update the seismic hazard maps in New England. State geologists first created liquefaction potential maps and seismic hazard classifications using surficial materials

maps; Sarah's job was to collect Vs30 values (using National Earthquake Hazards Reduction Program classifications) to see if they categorized in the same or different surficial-based hazard classes. Shortly after, Sarah was asked to take on the initial investigation in Connecticut to test different near-surface seismic methods and see which were the most feasible for collecting velocity profiles across the area. She jumped at the opportunity to do this project because of her longtime interest in earthquakes and her desire to help communities be better prepared for potentially destructive earthquakes.

Sarah's Ph.D. research focus has shifted slightly from her master's degree and now concentrates more on subsidence and better understanding the mechanics and stages of void migration. To investigate this, she has been conducting time-lapse passive surface wave seismic work in southcentral Kansas to monitor the potential breakdown of the Hutchinson Salt; this area is greatly susceptible to sinkhole development, so they are monitoring a small area with various wells to determine which areas are the most at risk. If that weren't enough, the other half of her dissertation concerns tunnel detection as part of a larger Department of Defense collaborative grant to develop better tools to image clandestine (or man-made) tunnels. For this Sarah is investigating multicomponent surface wave imaging techniques to see if she can capture if and how the soil behavior and stress field change after a tunnel is constructed.

Through her time as a student, Pathways Intern at the U.S. Geological Survey (USGS), and research assistant at the Kansas Geological Survey, Sarah has proven to be a dedicated and highly capable researcher. Echoing this sentiment, in 2016 Sarah received the William B. Hambleton Student Award for Excellence in Research from the Kansas Geological Survey! Outside of research, Sarah is very active in the near-surface geophysics and greater geoscience communities. Previously, Sarah has served as student representative for AGU's Near-Surface Geophysics Section and was Osage student chapter president within the Association for Women Geoscientists (AWG). Currently, Sarah is highly involved with the Near-Surface Geophysics Section of the Society of Exploration Geophysicists (SEG), for which she is the communications lead and a member of the Anaheim Subcommittee for the 2018 SEG Meeting. Sarah has also continued her work with AWG as the South Central regional delegate.



Sarah has been to the AGU Fall Meeting a handful of times (2013, [2014](#), and [2015](#)) and has found that the meeting is an incredible opportunity not only to see people you used to go to school with or old colleagues but to meet many new people while talking about the research you love. She also finds that AGU is a great place to find and introduce ways to better our science and propel the world forward.

After finishing her Ph.D. (anticipated May 2019), she plans to continue her current work at the Kansas Geological Survey. As her career progresses, Sarah hopes to continue to work on research projects at an institution associated with a university. Although not wanting to be a professor at this time, she plans to work and advise students in a nonclassroom setting in the hope of passing on the geophysical skill she has developed throughout her career.

The seventh grader with a deep fascination for plate tectonics and a particular fondness for digging hand samples has grown quite a bit, with this past December marking her marriage to her longtime boyfriend. The two of them met while he was a summer intern and she was a Pathways Intern at the USGS in 2013. Congratulations, Sarah!

For more information about near-surface applications of surface seismic methods, please contact [Sarah Morton](#).

**Interested in being highlighted, or know a student who should be? Please email [Matthew Sirianni](#) for more information about the Student Spotlight. 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 [Chi Zhang](#).*

FYIs

- **Employment Opportunity: Postdoctoral Research Fellow in Geophysics**

The Geophysics Unit within the Department of Earth Sciences, Uppsala University, intends to recruit a new junior coworker on a 2-year postdoctoral contract. Applications are invited in any area of solid Earth physics.

Uppsala University is a comprehensive research-intensive university with a strong international standing. Our mission is to pursue top-quality research and education and to interact constructively with society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has 42,000 students, 7,000 employees, and a turnover of 6.7 billion Swedish krona.

The Department of Earth Sciences is one of the most complete such academic departments in Europe including geophysics, geology, paleontology, hydrology, meteorology, and natural resource science. Our research focuses on subjects that range from the Earth's core to the atmosphere, on scales from submicroscopic structures in minerals to the formation of mountains and oceans. We have teaching at undergraduate and graduate levels. Our courses offer a wide range within the geoscience area, and several of the department's programs have received the highest rating in evaluations by the Swedish National Agency for Higher Education (Högskoleverket) and the Swedish Higher Education Authority (Universitetskanslersämbetet). For more information, please visit www.geo.se.

The Geophysics Unit is Sweden's leading solid Earth physics research environment and consists today of about 50 coworkers, including about 15 Ph.D. students and 10 junior coworkers with recent Ph.D.'s. The unit runs the Swedish National Seismic Network, consisting of about 70 permanent broadband stations, and has an extensive equipment pool for passive and controlled source seismic and electromagnetic field studies. Current and recent activities include, e.g., induced seismicity related to mining and underground construction, geothermal heat extraction, and injection of fluids, including carbon dioxide. Other significant areas of research are the development of innovative processing procedures for reflection seismic data, multidimensional inversion methods for seismic tomography and electromagnetic data, joint inversion methods, and numerical modeling. For more information about the Geophysics Unit, please visit www.geo.uu.se/research/geophysics/.

Research profile and duties: The postdoc is a research position. The research direction of the postdoc will be defined together with the successful candidate. Some information on the profile of the Geophysics Unit is given above.

Requirements: The holder of a postdoctoral researcher position must have a Ph.D. degree in geophysics or the equivalent. The Ph.D. degree must have been obtained at the start of employment and no more than 3 years prior to the application deadline; however, periods of, e.g., sick leave or parental leave are deducted from this 3-year period.

How to apply: The application should contain a cover letter mentioning the research area, a CV, a brief research statement, and a publication list. The applicant should arrange to have two letters of recommendation, and contact information for the letter writers should be included in the application.

In an overall assessment of the applicant’s qualifications, parental leave, part-time work relating to care of children, union assignments, military service, or the like are to be regarded as work experience and should therefore be mentioned in the CV.

Uppsala University strives to be an inclusive workplace that promotes equal opportunities and attracts qualified candidates who can contribute to the university’s excellence and diversity. We welcome applications from all sections of the community and from people of all backgrounds. Within this category a majority of the employed are men; therefore, we particularly encourage women to apply.

- **SEG Near Surface Research Award**

The Near-Surface Geophysics Section of SEG is the founding supporter of the SEG Near Surface Geophysical Research Award endowment. The intention of this annual award is to provide a research grant(s) in support of an undergraduate or graduate student in good standing, enrolled in a relevant academic program at an accredited institution, and engaged in near-surface geophysics research. The award is intended to offset expenses directly related to the awardee's near-surface geophysics research, including field data acquisition, laboratory studies, specialized computer software, or other general activities related to the completion of the research program. Deadline: 15 March 2018.

- **Submit your SEG abstract now through 1 April**

This year the SEG Annual Meeting will feature an even wider array of proposed near-surface technical sessions, panel discussions, and workshops. It’s a meeting you won’t want to miss!

Technical Sessions – see the full topic descriptions [HERE](#)

Coupled above and below-ground monitoring using geophysics, UAV, and remote sensing

Near-surface modeling using tomography

Petrophysical relationship - link hydrologic parameters with geophysical signals

Developments and applications of active and passive source surface wave methods (Special Session)

Coastal zone geophysics

Noise attenuation techniques in near-surface seismic surveys

Airborne geophysics

Near-surface geophysics applied to archaeological research (Special Session)

Near-surface imaging of structures

Site amplification (earthquakes engineering/seismology)

Agricultural geophysics

Natural hazard mitigation: Geophysics and NDT for site and material characterization

Geophysics for study of past hazardous events (the past is the key to the future)

Aquifer storage and monitoring - *co-sponsored session with NGWA*

Hydrologic impacts of natural resource extractive activities - *co-sponsored session with NGWA*

Hydrogeophysics with emphasis on water for humanity

Hydrogeophysics - *co-sponsored session with AGU (Special Standing Session)*

Engineering geophysics (Special Session)

Infrastructure and underground tunneling

Tunnel and void detection

Geoscientists *Without Borders*® and humanitarian geophysics

Workshops

Surface Wave Methods

Workshop for anyone interested in learning about the multichannel analysis of surface waves technique or **SurfSeis** software.
****NOTE – this is a preconference workshop.**

Advances in geophysical tomographic methods

Geophysical tomography is increasingly becoming an indispensable tool to the geoscientist for inferring spatially continuous are not limited to advances in regularization strategies, data error modeling, uncertainty quantification, model order reduction techniques, methods for evaluation of data worth, etc.

Hydrogeophysics

Workshop can be based on demonstration of how remote sensing and geodesy can correlate well with geophysical methods of underground water exploration.

Advances in unmanned airborne system (UAS) geophysics

The use of unmanned systems (UAS), or drones, to support subsurface properties and processes. While the last two decades have witnessed tremendous advances in geophysical tomographic methods, the challenges of solution nonuniqueness resulting from limited, noisy observations coupled with incomplete understanding of the target phenomenon still hamper our ability to accurately infer subsurface models from geophysical measurements.

Objective: The objective of this workshop is to assemble experts in the field of geophysical tomography to discuss the challenges and advances in geophysical tomographic methods. Topics worthy of discussion include, geophysical surveys and acquire geophysical data is growing rapidly. The ability of UAS to rapidly acquire high-resolution georeferenced data with little or no environmental impact is driving platform and sensor innovation and already impacting how geophysical surveys are planned and executed.

At this workshop, leaders in the design and operation of UAS platforms and sensors will showcase recent advances in the field. Case histories will be provided by experts using UAS to support a wide range of geophysical survey methods (magnetic, electromagnetic, gravity, gamma ray spectrometry, ground-penetrating radar, and seismic). The workshop will provide attendees with an overview of the UAS state-of-the-art for geophysical mapping applications and insights into developments, trends, and issues affecting this rapidly growing field.

Panel Discussions

A Near-Surface Geophysics Career Panel

Industry, academic, and government near-surface geophysics professionals will lead a discussion on their current career paths. Panel members will share their stories of how they rose to the position they are in right now. They will highlight obstacles they encountered and overcame throughout their journey from student to professional, providing attendees with insight on how they too can prepare for their upcoming careers in near-surface geophysics.

Members of this panel will be near-surface geophysics professionals ranging from early-career to senior scientists to give students a wide array of information and perspectives. This three- to five-person panel will feature members who hold positions as engineering/environmental geophysicists, government researchers, and university faculty.

Panelists should prepare a short introduction of themselves, including name, place of work, job description, how long they have been in the near-surface field, and where they graduated from. It is preferred they share their experience on how they obtained their first job in near-surface and the path they took to get to where they are today whether they worked at various institutions or stayed within the same section to date.

Near-Surface Geophysics for Groundwater Management

Improved groundwater management is becoming a critical issue in many parts of the United States and the world, owing to competing demands for this depleting resource and increasing threats to groundwater quantity and quality. Near-surface

geophysical methods can play an important role in evaluating and monitoring this resource and mitigating risks associated with groundwater exploitation.

The purpose of this panel is to bring together a cross section of stakeholders who can share sector-specific perspectives on groundwater issues and, through interaction with technical experts on the panel, receive feedback on how near-surface geophysics and hydrogeophysics in particular can address their needs and priorities. International representation on the panel is also sought.

Among the potential sectors to be represented are mining, agriculture, oil and gas, public utilities, and legal and regulatory institutions. Possible discussion topics include aquifer exploration and mapping, oil field–produced water disposal, saltwater incursion in coastal areas, water laws and regulation, and transboundary groundwater rights.

The intended outcome of the panel is twofold: to provide sector representatives with an awareness of geophysical tools that can address their needs with regard to groundwater management and, for geophysical companies and service providers, to facilitate access to potentially expanded market opportunities.

Challenges of Working in the Coastal Zone

Due to the environmental sensitivity of the coastal zone, there are numerous regulations existing to protect the environment from the hazards associated with geophysical work in the coastal zone.

The panel should include government regulators, practicing geophysicists from major energy companies and from smaller businesses, consultants, and local governments to discuss the issues regarding geophysical work in the coastal zone. There is a need to have a balanced discussion covering the overwhelming importance of the coastal zone to society for survival, including commercial productivity (natural hazards, natural resources, energy, transportation, communication, etc.), and for recreation.

- **8th International Conference on Environmental and Engineering Geophysics**

The Chinese Central Government put forward the goal of the construction of urbanization in China—“Three 100 Million People.” In the next 10 years, China's urbanization process will run at the highest speed in the history of China. The near surface is the most complex, sensitive, and fragile part of the Earth. The near surface furnishes the vast majority of necessary materials for human living. As a result, China's urbanization relies on a “healthy” and sustainable near surface. Because of broad applications of geophysical techniques in the environmental and engineering fields, they are of great significance for the sustainable development of human society. To promote the communication of environmental and engineering geophysical problems and provide a world-class forum for new technical advances, developments, and applications in environmental and engineering geophysics, the 8th International Conference on Environmental and Engineering Geophysics (ICEEG2018) will be held on the campus of Zhejiang University in Hangzhou, the most beautiful city in China, from 10 to 13 June 2018. We sincerely welcome leading experts, international media, young professionals, and students to contribute to and attend the meeting. This conference will offer an opportunity to all geophysicists and engineers to present recent achievements, including case studies and theoretical studies in related techniques, software, and instruments. Expanded abstracts should not exceed six pages (including figures) and be in the abstract format of the SEG annual meeting.

- **5th International Workshop on Induced Polarization**

The 5th International Workshop on Induced Polarization will take place 3–5 October 2018 at Rutgers University in Newark just outside of New York City. The focus of the fifth workshop is to critically evaluate the information content of induced polarization data based on the last decade of theoretical, laboratory, and field-scale developments. Further details of the 5th International Workshop on Induced Polarization will be announced on the [website](#) as the program is developed by the technical [committee](#). For now, please mark your calendars and hold the date.

To contribute material to the NSFG newsletter, send an email to [Chi Zhang](#).

Deadline: Material must be received 5 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 via 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!