



Near-Surface Geophysics Focus Group

Newsletter: March 2017

Dear Colleagues:

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

In this month's newsletter:

1. Upcoming Meetings at a Glance

2. Upcoming Events

- AGU Fall Meeting Session Proposal Site opens
- March for Science, April 22, 2017, in a city near you

3. Upcoming Deadlines

- March 10: Nominations for the Harold Mooney Award and Frank Frischknecht Award
- March 13: Online abstract submissions deadline for the spring Virtual Poster Showcase (VPS) for undergraduate and graduate students.
- March 15: Registration deadline for SAGEEP 2017.
- March 15: SEG Near Surface Geophysical Research Award application deadline
- March 31: Deadline for The Leading Edge Special Section on Unmanned Autonomous Vehicles (UAV)
- April 1: Abstract submission deadline for 4th ICEG
- April 1: Abstract submission deadline for SEG 2017
- April 1: The GSSI Student Grant application deadline

4. AGU Updates

- AGU Honors Program: Nominations Open

5. NSFG Student Spotlight: Robin Glas, Syracuse University

6. FYIs

- Position announcement
- NSGG Postgraduate Fieldwork Fund
- AGI report on The Geoscience Student Exit Survey report

Recent announcements of interest to the NSFG 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!](#)

Best regards,
Sarah Kruse
President, Near-Surface Geophysics Focus Group, AGU

Near-Surface Geophysics Focus Group (NSFG) February 2017 Newsletter

Upcoming Meetings at a Glance

Meeting (click to go to website)	Location	Meeting Dates	Submission	Registration
SAGEEP 2017	Denver, Colo.	19–23 March 2017	Closed	Early registration ends: 15 March 2017
3DEM-6	Berkeley, Cal	28-30 March 2017	Closed	Registration ends: 17 February 2017
European Geosciences Union General Assembly	Vienna, Austria	23–28 April 2017	Closed	Early registration ends: 16 March 2017
NovCare 2017	Dresden, Germany	6–9 June 2017	Closed	Early registration ends: 1 April 2017
3rd AGU-SEG Hydrogeophysics Workshop	Stanford, Calif.	24–27 July 2017	Closed	Registration opens: April 2017 Early registration ends: 31 May 2017
IAPSO-IAMAS-IGA 2017 Joint Assembly	Cape Town, South Africa	27 August to 1 September 2017	12 March 2017	Early registration ends: 16 March 2017
EAGE Near Surface Geoscience 2017	Malmö, Sweden	3–7 September 2017	15 April 2017	Early registration ends: 5 May 2017
4th ICEG	Al Ain, United Arab Emirates	9–12 October 2017	1 April 2017	TBA

Upcoming Events

- [AGU Fall Meeting](#) Session Proposal Site opens
2017 Fall Meeting [session proposals](#) are now being accepted. Session proposal deadline: 19 April, 11:59 P.M. ET. When submitting a proposals, Fall Meeting session conveners should consider four alternate session [format options](#), and if it the session fits into one of three collaborative [session options](#).

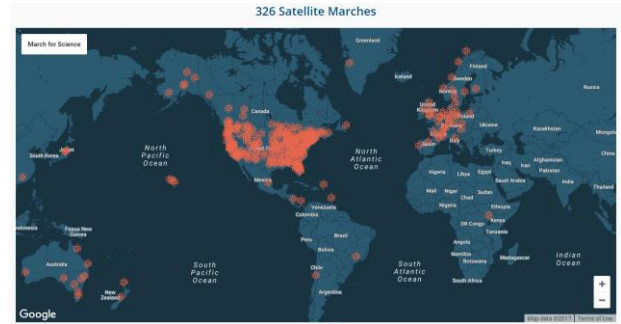
- [March for Science](#), April 22, 2017, in a city near you

The March for Science is a celebration of science. It's not about scientists or politicians; it is about the very real role that science plays in each of our lives and the need to respect and encourage research that gives us insight into the world. Nevertheless, the march has generated a great deal of conversation around whether or not scientists should involve themselves in politics. In the face of an alarming trend toward discrediting scientific consensus and restricting scientific discovery, we might ask instead, 'Can we afford not to speak out in its defense?'

The application of science to policy is not a partisan issue. Science should neither serve special interests nor be rejected based on personal convictions. At its core, science is a tool for seeking answers. It can and should influence policy and guide our long-term decision-making.

The March for Science champions and defends science and scientific integrity, but it is a small step in the process toward encouraging the application of science in policy. The most effective way to protect science is to encourage the public to value and invest in it. The best way to ensure science will influence policy is to encourage people to appreciate and engage with science. That can only happen through education, communication, and ties of mutual respect between scientists and their communities — the paths of communication must go both ways. Reach out to your community; share your research and its impact on

people's everyday lives. In turn, listen to communities and consider your research and future plans from the perspective of the people we serve. We must take science out of the labs and journals and share it with the world. AGU is a proud supporter of the March for Science!



Upcoming Deadlines

- **10 March:** Nominations for the Harold Mooney Award and Frank Frischknecht Award submission deadline
Harold Mooney Award

The Harold Mooney Award is presented by the SEG Near Surface Technical Section during its reception and dinner at the SEG annual meeting. The honoree is chosen by his or her peers through nominations from the membership and recommendation to the SEG Near Surface Executive Committee.

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

Frank Frischknecht Award

The Frank Frischknecht Leadership Award is jointly presented by the SEG Near Surface Technical Section and the [Environmental and Engineering Geophysical Society](#) (EEGS). The inaugural award was presented to Susan Pullan in 2005 at the EEGS annual meeting, the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP). The award alternates (on an approximately 18-month interval) between the SAGEEP meeting and the SEG Near Surface Reception and dinner at the SEG annual meeting.

The Frank Frischknecht Leadership Award is 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.

Prior to 2005, the SEG Near Surface Technical Section presented its own Frank Frischknecht Award in recognition of long-term, tireless and enthusiastic support of the near-surface geophysics community.

To review prior recipients please follow this [link](#).

All nominations should be submitted to ns@seg.org prior to 10 March 2017.

- **13 March:** Online abstract submissions deadline for the spring Virtual Poster Showcase (VPS) for undergraduate and graduate students. Encourage your students to submit abstracts at virtualposter.agu.org. To learn more about the benefits of participating in VPS, [watch this video](#) where a student and a faculty member share their experiences about the program.
- **15 March:** Registration deadline for [SAGEEP 2017](#).

The 30th Anniversary SAGEEP is being held in Denver, Colorado USA March 19-23, 2017 at the Denver Marriott City Center Downtown. This year, SAGEEP will be co-located with the National Ground Water

Association's (NGWA) spring meeting March 20 & 21, bringing together a diverse audience from a wide range of backgrounds. All technical sessions will be open to both groups. In addition to the SAGEEP technical program, the NGWA conference will feature talks and posters with a focus on two topic tracks: Applications of Hydrogeophysics to Groundwater Characterization, Monitoring, and Management & Deep Groundwater Applications. Visit the website for details on the technical program, luncheons, a special SAGEEP/NGWA Reception, short courses and all the [events and activities](#). For a schedule of events, access the Preliminary [SAGEEP 2017 Schedule at a Glance](#).

To register, visit the [SAGEEP 2017 Registration Information](#) web page for important instructions and have your login information handy to register online.

- **15 March:** SEG Near Surface Geophysical Research Award application deadline.

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. You may access the online application at <http://www.seg.org/apply>.
- **31 March:** Deadline for The Leading Edge Special Section on Unmanned Autonomous Vehicles (UAV)

The Leading Edge (TLE) announces the Call for Papers for a special section on UAVs scheduled for publication in July 2017. The special section will showcase applications of UAVs that contribute to geophysical, geological, geotechnical and infrastructure surveys and assessments. Contributions utilizing airborne, marine and surface platforms using conventional and novel sensors as well as innovative data analysis and multi-sensor data integration approaches are encouraged. TLE Submission guidelines are located [here](#):
Guest Editor: [Johannes Stoll](#)
Coordinating Editors: [John Lane](#) and [Tracy Stark](#)
- **1 April:** Abstract submission deadline for the 4th International Conference on Engineering Geophysics ([ICEG](#)), 9–12 October 2017, in Al Ain, UAE.

The United Arab Emirates University (UAEU) and Al Ain City Municipality (AAM), in partnership with the Society of Exploration Geophysicists (SEG), are proud to announce the fourth edition of the International Conference on Engineering Geophysics (ICEG). This conference will take place 9–12 October 2017 on the grounds of the UAEU in the conference auditorium of the Crescent Building.
The objectives of ICEG 2017 are to concentrate on global innovation, creativity, advances, and new approaches in the field of engineering/environmental geophysics and in related fields. In addition to the core engineering/environmental and geotechnical focuses of this coming event, special sessions in related applications to archaeology, energy, and forensic geophysics will be held. Furthermore, international experts at the very cutting edge of their science or engineering will be delivering keynote presentations on their latest research, experiences, future goals for engineering/environmental geophysics, and raising public awareness on the critical role of near-surface geophysics.
- **1 April:** Abstract submission deadline for [SEG 2017](#)

The SEG International Exposition and 87th Annual Meeting in Houston will provide vast amounts of cutting-edge technical insight, high-level networking and new business development opportunities across multiple disciplines of the geosciences sector, including global oil, gas, mineral exploration, near surface, archeology, and more.

 - *2017 SEG Annual Meeting Archaeology Special Session Announcement*

The SEG Women's Network Committee is sponsoring a special technical session on "Near-surface Geophysical Methods for Archaeological Research" at the SEG annual meeting this September in Houston, Texas, USA. We seek submissions on geophysical method development and application to archaeology, as well as case studies on geophysical delineation and exploration of archaeological sites and culturally significant finds.

Both land and marine geophysical methods will be highlighted. For additional information Contact the Special Session chairs [Blair Schneider](#) and [George Tsoflias](#).

- **1 April:** The [GSSI Student Grant](#) application deadline
The GSSI Student Grant awards up to \$2,000 to AGU student members who have designated Near-Surface as one of their AGU affiliations. If funding exists, more than one award may be made in a year. In addition to the cash award, GSSI will make loaner equipment available for the winner(s) to use. GSSI will coordinate this equipment loan directly with the student winner(s) and will do their best to coordinate and make any necessary GSSI equipment available. This grant is being established through the generosity of Geophysical Survey Systems, Inc. (GSSI) in order to support AGU's Near-Surface Geophysics Focus Group's student scientists conducting field geophysical research using Ground-Penetrating Radar (GPR) and Electromagnetic (EM) methods.

AGU Updates

- **2017 AGU Honors Nominations Now Open**
Nominations for the 2017 AGU Union Awards, Fellows, Medals, Prizes and Section and Focus Group Awards is now open. We urge you to take this opportunity to nominate a student, a colleague, peer, or mentor whose achievements have made a difference in the Earth and space sciences. As part of the Section and Focus Group ownership and involvement in AGU's Honors program, you are urged to create Honors Nominating Committees, if these committees are not yet in place. The charge of this group is to identify who in your community has not been recognized for any of AGU's honors and should be. The goal is to increase diverse nominations in AGU's Honors Program on the number of nominations for women, international members and underrepresented groups. Visit the [AGU Honors Program online](#) and contact [George Tsoflias](#), NSFG Nominations Committee chair, for more information.

NSFG Student Spotlights and Research Highlights

Robin Glas, Syracuse University

During her initial career as a secondary school math and science teacher, Robin Glas worked hard to teach her students how the world is powered by physics and the hydrologic cycle. She passionately sought ways to integrate traditional textbook learning with teaching practices that took students outside of the classroom. She started teaching in Maine after receiving a Geological Sciences degree from the University of Maine at Orono and an MS in Education from the University of Southern Maine. Then in 2008, she took a new teaching position at the Lincoln American International School (LAIS) in La Lucila, Zona Norte, Argentina, where her curiosities and enthusiasm continued to grow.

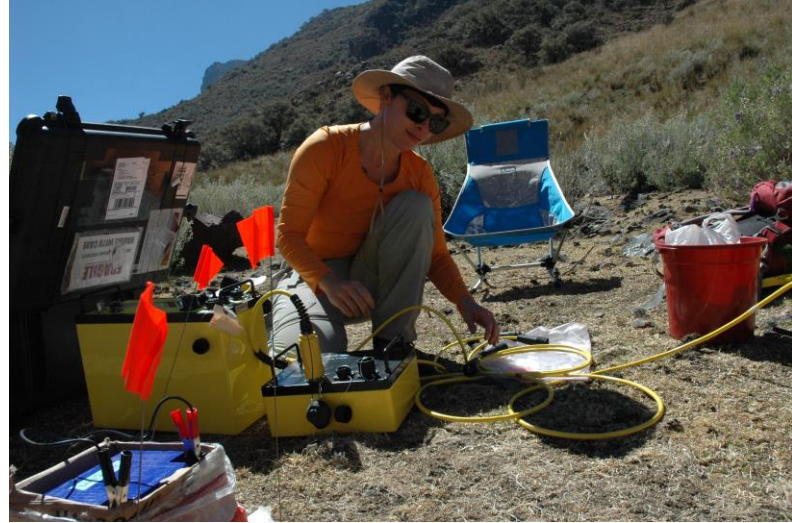
While abroad, she quickly became aware of the severe water pollution problems in Buenos Aires and the negative effects in the Riachuelo Matanza. As an educator, Robin felt she could use her classroom as a platform for informing students about the importance of water quality and established the first student environmental club, the Green Team. This group founded a co-op initiative between local NGOs and LAIS students to bring attention to these hazards and develop plans to improve their native environment. The formation of this group motivated her to investigate deeper into the science community in an effort to find ways she could more directly become involved with these environmental studies. Through this project, she was introduced to hydrogeophysical research by Dr. Laura Lautz at Syracuse University who was seeking a doctoral student to work in the Peruvian Andes. Robin grasped at this opportunity that combined her two passions with her experience in South American culture and language.

Since starting her PhD at Syracuse in 2014, Robin has been awarded an EMPOWER NSF Fellowship (https://www.nsf.gov/awardsearch/showAward?AWD_ID=1449617) and the Syracuse University Water Fellowship to support her work using seismic and electrical methods to characterize the aquifer structure in the proglacial valleys of the Cordillera Blanca, the largest concentration of tropical glaciers in the world. This region is undergoing growing levels of water stress induced by retreating glaciers subsequently endangering dry season

water supplies to nearby agriculture, industry, and municipalities. Robin has presented this ongoing project at AGU in 2015 ([H13E-1601](#)) and 2016 ([NS43C-1937](#)) with an upcoming paper at SAGEEP in March 2017 titled, “Alpine groundwater storage in the tropics, using hydrogeophysics to constrain boundary conditions for future groundwater models in the Cordillera Blanca, Peru.” The combination of electrical resistivity and seismic refraction profiles have allowed her to start imaging the aquifer in order to understand where flow is being restricted by changes in the soil matrix. She is also actively working with the Peruvian National Water Authority to provide hydrogeological interpretations of their data while further developing her own skillset and professional network.

Her growing abilities as an aspiring surface water hydrogeophysicist can also be attributed to her knowledge in music performance and producing, which she acquired through the Berklee School of Music online program. This experience has helped strengthen her foundation in signal processing and develop techniques in filtering and understanding amplitude characteristics that are directly translatable to her geophysical work.

Robin will be graduating in May 2018 with a desire to continue exploring the depths of groundwater investigations using surface and borehole geophysical methods. For more information about imaging tropical alpine catchments and groundwater availability applications, please contact [Robin Glas](#).



**Interested in being highlighted, or know a student who should be? Please email [Sarah Morton](#) 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

Near Surface Geophysics Position Announcement

- **The Geophysics Department at Sandia National is seeking Postdoctoral researcher**

The Geophysics Department at Sandia National Laboratories is soliciting applications for a postdoctoral appointment in computational electromagnetics. The successful applicant will have demonstrated excellence in forward modeling of electromagnetic induction and DC resistivity and inversion of field data for 3D electrical conductivity. The successful applicant will initially support existing department R&D efforts within these areas and will be expected to provide their expertise to Sandia mission area programs and ultimately help define, develop and execute novel, high-impact, cross-disciplinary team efforts within them that advance the state of the art. This will be accomplished by pursuing funding opportunities via a competitive internal laboratory-directed research and development proposal process and competitive proposal processes for both internal and external customers within Sandia’s mission area programs. The successful candidate will be expected to increase both Sandia’s and their own impact and standing in these programs by producing high-quality results, which can include limited-distribution deliverables, publications in peer-reviewed journals, patents, conference presentations, reports, etc., depending on customer requirements. The successful applicant will be expected to perform their work according to Sandia values, which include serving national needs, delivering with excellence, respect for others, teaming, and scientific integrity.

QUALIFICATIONS WE REQUIRE

=====

* Ph.D. in Geophysics, or closely-related discipline, with an emphasis on modeling

QUALIFICATIONS WE DESIRE

=====

1. Ability to be granted and maintain a DOE Q-level clearance, or to commit to taking steps toward this ability, including becoming a U.S. citizen
2. Demonstrated research experience in the following technical fields: theoretical geophysics; seismology; infrasound; electromagnetic methods; inverse theory, modeling and optimization, including full waveform inversion; uncertainty quantification, mathematical geophysical analysis; continuum mechanics; geophysical signal processing; compressive sensing; processing and analysis of field-collected data sets
3. Strong organizational, written, oral, and presentation skills, including the ability effectively communicate scientific/engineering concepts and results at multiple levels (highly technical to high-level/programmatic)
4. Demonstrated ability to work effectively both individually and on teams
5. Demonstrated ability to adapt to change
6. Demonstrated ability deliver high-quality results on-time and on-schedule under challenging circumstances
7. Demonstrated ability to help customers define requirements and technical path forward
8. Demonstrated experience defining and executing research and development efforts, from the proposal writing stage to delivery and dissemination of results
9. Demonstrated proficiency in a Unix environment and with Unix shell scripting
10. Demonstrated experience in high-performance scientific computing
11. Demonstrated proficiency with FORTRAN, C, C++, Julia, MPI, OpenMP, Python, MATLAB
12. Post-graduate professional geophysics R&D experience

ABOUT OUR TEAM

=====

The Geophysics Department at Sandia National Laboratories develops and implements geophysical techniques for investigating the earth's atmosphere, surface, and subsurface. We concentrate on solving problems important to the nation in the areas of defense, energy, nonproliferation, climate, and homeland security. The department staff has a broad range of expertise in seismology, electromagnetics, atmospheric acoustics, muon detection, electronics, computer modeling, and treaty monitoring. This breadth enables us to attack a wide variety of problems ranging from algorithm development and computer modeling, technology design, and bench-scale experimentation, field experiments, data collection, processing, and interpretation. Leading edge seismic, electromagnetic data modeling and inversion, and their applications, are an important focus for the department. The Department also sustains the capability to evaluate and train on technology and processes for treaty verification, border security, rotational seismology, unattended ground sensor development, design, implementation, and interpretation of research-oriented geophysical (seismic, acoustic, and EM) and geological field experiments. The Department also manages and further develops the Facility for Acceptance, Calibration and Testing (FACT) Site, a 45-acre facility (with access to an additional 400 acres) used by Sandia National Laboratories/New Mexico (SNL/NM) to test and evaluate geophysical instrumentation which is used by the United States for treaty verification and monitoring nuclear explosions.

SECURITY CLEARANCE

=====

No clearance required.

This position does not currently require a Department of Energy (DOE)-granted security clearance.

Sandia will conduct a pre-employment background review that includes personal reference checks, law enforcement record checks, and employment and education verifications. Further, employees in New Mexico must pass a U.S. Air Force background screen for access to the work site. Substance abuse or illegal drug use,

falsification of information, criminal activity, serious misconduct or other indicators of untrustworthiness can cause access to be denied or terminated, rendering the inability to perform the duties assigned and resulting in termination of employment.

If hired without a clearance, and one subsequently becomes required or you bid on positions that require a DOE-granted security clearance, a pre-processing background review that includes personal reference checks, law enforcement record and credit checks, and employment and education verifications may be conducted prior to a required federal background investigation. Applicants for DOE-granted security clearances must be U.S. citizens and be able to obtain and maintain the appropriate DOE security clearance as required for the position.

- **PhD opportunity at Laurentian University MT traverses**

Laurentian University is a recognized leader in mineral exploration research and is among the top Canadian universities in research funding for Economic Geology and in Applied Geophysics from the Natural Sciences and Engineering Research Council (NSERC).

With CAD \$104 million in funding provided by the Canada First Research Excellence Fund (CFREF) and through strategic partnerships with 5 Canadian universities, 6 government geological surveys and 3 international research centres, Laurentian University will conduct Metal Earth - the largest ever mineral exploration research project undertaken in Canada. Metal Earth seeks to identify and understand the processes responsible for Earth's differential metal endowment during the Precambrian. This research initiative aims to transform our understanding of Earth's early evolution and how we explore for metals.

Metal Earth will be led by the Mineral Exploration Research Centre (MERC), at the Harquail School of Earth Sciences (HSES), that is housed in the Willet Green Miller Centre at Sudbury. MERC is a semi-autonomous research centre at Laurentian established in 1997 and comprises an internationally-recognized group of researchers from HSES, academia, industry and government.

PhD student in magnetotelluric studies

Metal Earth is seeking a PhD student to participate in magnetotelluric (MT) surveys along multiple traverses. The student will participate in the planning and acquisition of the data and will be responsible for the processing, inversion and interpretation of the data. Metal Earth is a multidisciplinary project and the MT interpretation and inversion can draw on information from seismic data, geological mapping, gravity and magnetic studies, geochemical data etc. Candidates with experience or willingness to work in a large team are encouraged to apply. The research projects are fully funded for four years (\$30K/yr which includes a Laurentian Graduate Assistantship. Tuition and fees are deducted from this funding).

To apply, please forward your application and cover letter to Chantal Duval (cduval@laurentian.ca). The application should include: a CV including a list of publications, transcripts, contact details, and the names of three referees. The deadline for applications is February 28th 2017, but applications will be accepted until all positions have been filled.

For additional information regarding Laurentian University, MERC, and Metal Earth please visit merc.laurentian.ca/metalearth, or email Richard Smith rsmith@laurentian.ca

Laurentian University is an a bilingual (French-English), tri-cultural institution, and an equal opportunity employer that is strongly committed to employment equity and diversity within its community. Laurentian University especially welcomes and encourages applications from members of visible minorities, women, Aboriginal persons, members of sexual minorities and persons with disabilities. Applicants may self-identify as a member of an employment equity group. All qualified candidates are encouraged to apply. However, Canadians and permanent residents will be considered first for these positions.

- **PhD position in computational geophysics on 3D inversion of time- and frequency-domain controlled source electromagnetic (CSEM) data at Uppsala University.**

The Centre for Interdisciplinary Mathematics (CIM) at Uppsala University conducts interdisciplinary research between the mathematical sciences and other areas of science and industry. CIM offers training and expertise in mathematical modeling and computer simulation, see [here](#). We are looking for a PhD student in 3D modelling of controlled-source electromagnetic fields in applied geophysics.

The successful candidate will be given ample opportunity to develop skills in electromagnetic field theory, numerical methods such as finite-element and finite-difference methods, numerical linear algebra and gradient-based inversion techniques (e.g. non-linear conjugate gradient methods or quasi-Newton methods), parallel programming, acquisition and processing of electromagnetic field data and interpretation of multi-dimensional resistivity models inverted from electromagnetic data. The applicant should have a university degree at MSc level in geophysics, computer sciences, applied mathematics, physics or similar. A solid basis in mathematics and physics and adequate knowledge of programming languages (e.g. MATLAB, C++ or modern FORTRAN) are requirements. Experience with parallel computations will be an advantage. Knowledge of geologic and tectonic processes will be considered an advantage. Further, it is an advantage to have a valid driver's licence (class B or higher).

For detailed information, please refer to this [link](#), and this [one](#). For any further questions, please contact [Thomas Kalscheuer](#).

- The Near Surface Geophysics Group of the Geological Society of London has a funding opportunity for fieldwork support, for postgraduates (PhD, MSc, MRes) conducting a near-surface geophysical field survey as part of a research project. Postgraduates registered at UK universities can apply for up to £1000 through the scheme. The deadline for applications is **31st May 2017**: applications are made by emailing [Dr Adam Booth](#) (University of Leeds) with a 2-page project description (including budget breakdown), CV and support statement from the supervisor. Questions regarding the full scheme may also be directed to Dr. Adam Booth.

- From American Geosciences Institute Public Relations – *New Geoscience Student Exit Survey Reflects Evolving Opportunities for Recent Graduates*

Alexandria, VA - The American Geosciences Institute (AGI) Workforce Program announces the release of its annual [Status of Recent Geoscience Graduates](#) report. The report details the results of the 2016 Geoscience Student Exit Survey, documenting trends in geoscience coursework, enrollment, student experiences, as well as a recent shift in hiring patterns for new graduates.

The Geoscience Student Exit Survey received responses from 483 students at 156 geoscience schools or departments, comprising 333 bachelor's graduates, 78 master's graduates, and 70 doctoral graduates. The aggregated responses are visualized in several ways, including as a [Sankey diagram](#), which shows the flow of students through the higher education system and underscores the incredible value of experiences like field camp, research, and internships as stepping stones to employment.

As discussed in the [2016 Status of the Geoscience Workforce](#) report, the recent downturn in the oil and gas industry changed the dynamics in hiring of new graduates. Job prospects for 2016 graduates, especially for bachelor recipients, saw a shift away from direct employment in the energy industry and into the environmental and engineering consulting field. The oil and gas industry maintained robust hiring at the master's level, but stepped back from its hiring of doctorate recipients, likely as the master's level was providing sufficient supply. As for doctoral degree recipients, they most commonly find jobs with educational and research institutions - unchanged from previous years.

The complete report is available online as a free download [here](#). A print version can be purchased from amazon.com for \$15 [here](#).

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!