



**American Geophysical Union  
Near-Surface Geophysics Focus Group (NSFG)  
Newsletter: October 2016**

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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 André Revil – Class of 2016 AGU Fellow



I am sure that the rest of the community will join me in congratulating André for his election as Fellow of the American Geophysical Union.

I, like many others, have benefited immensely from his insightful knowledge of fundamental hydraulic and electrochemical properties and the physical relationships that underpin a broad range of research questions in hydrogeophysics. His originality in experimental design and his infectious scientific curiosity are a source of inspiration to many in the community. He has provided the academic community with a coherent theoretical understanding of low-frequency electrochemical mechanisms in porous media that has transformed our ability to extract hydrological information about the subsurface using geophysical techniques. His skills are unique within the field, and his contributions to the academic community are unparalleled.

Only one in a thousand members are elected to AGU Fellowship each year, demonstrating the significance of this award. His nomination “for outstanding contributions towards the development of a unified model of hydraulic, electrical and mechanical properties of porous media” will serve as an excellent example of the immense scientific contribution that this honor represents.

All I ask now is that he slows down his paper writing to give us all a chance!

All of this year’s honorees will be celebrated at the annual Honors Ceremony and Banquet held on 14 December at the 2016 AGU Fall Meeting in San Francisco. Hopefully, many will be at Fall Meeting to congratulate André personally.

Andrew Binley,  
Lancaster, UK

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### 1.2 NSFG Luncheon at Fall Meeting – 40 Complementary Student Tickets Available

The NSFG will provide 40 complimentary student tickets to the Focus Group Luncheon, Tuesday, December 13th, 12:30-1:30PM. The first 40 students to register for the luncheon will receive the free tickets. Please register for the meeting and luncheon soon!

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### 1.3 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 via [email](#) or at 202-777-7434.

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## 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 Teddi Herring 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. The National Science Foundation 2017 Alan T. Waterman Award

The National Science Foundation (NSF) is pleased to accept nominations for the 2017 Alan T. Waterman Award. Each year, NSF bestows the Waterman Award in recognition of the talent, creativity, and influence of a singular young researcher. Established in 1975 to commemorate NSF's first director, the Waterman Award is NSF's highest honor for promising, early-career researchers.

Nominees are accepted from all sources, and from any field of science and engineering that NSF supports. The award recipient will receive a medal and an invitation to the formal awards ceremony in Washington, D. C. In addition, the recipient will receive a grant of \$1,000,000 over a 5-year period for scientific research or advanced study in any field of science or engineering supported by NSF, at any institution of the recipient's choice. We are especially interested in nominations for women, members of underrepresented groups in science and engineering, and persons with disabilities.

### Eligibility and Selection Criteria

A candidate must be a U.S. citizen or permanent resident. He or she must be 35 years of age or younger, or not more than 7 years beyond receipt of the Ph.D. degree, by 31 December 2016.

A candidate should have demonstrated exceptional individual achievement in scientific or engineering research of sufficient quality, originality, innovation, and significant impact on the field so as to situate him or her as a leader among peers.

Complete nomination packages, consisting of nominations and four letters of reference, are due by 21 October 2016. The nominations and letters must be received through the FastLane system. [Click here](#) to submit a nomination online.

Please contact [Dr. Sherrie Green](#), Program Manager for the Alan T. Waterman Award, or via telephone at 703-292-8040 if you have any questions. You may also [visit our website](#) for more information. A PDF version of the call for nominations is available [online](#).

The nomination of deserving colleagues is one of the most important and gratifying aspects of service in the scientific and engineering communities. Please help celebrate the contributions of a promising young researcher by submitting a nomination for the Alan T. Waterman Award.

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### 3. Journal Information and Special Issue Call for Papers

#### 3.1 Special Monograph on Levees and Dams: Advances in Geophysical Monitoring and Characterization

**Note:** In order to accommodate recent requests from authors, we have extended the deadline for manuscripts until **1 December 2016**.

This peer-reviewed volume will inform policy makers, engineers, and Earth scientists about the current and emerging role of geophysics in addressing environmental processes, assessments, and policy directions related to new and existing dams and levees.

Until recently, much of the focus of geophysicists has been confined to characterization and remediation, without consideration of the complex relationship between natural processes (e.g., floods) and human activities associated with the design and ongoing dependence on these structures. It is important to enhance communications between geoscientists, engineers, and policy makers to improve the way in which these structures are managed.

Over time, unexpected changes in the physical properties of these man-made structures may or may not compromise their integrity, and such questions require creative (and preferably noninvasive) assessment approaches. Monitoring and remediation of existing structures can be challenging because, often, failures are at a smaller scale and recertification procedures are at a larger scale than envisaged during construction or planning. New, efficient risk management approaches may benefit greatly from geophysical methods that can address these scaling issues.

We encourage innovative and substantiated geophysics-related ideas. Potential topics include, but are not limited to, placement of geophysical tools within the management policies of levees and dams; small and mid-sized laboratory experimental approaches; field characterization studies using electromagnetic, seismic, potential field, and integrated methods; inverse modeling; regional overviews as conditioned by climatic zones; statistical analyses and tools for improved management processes such as age strengthening or weakening of structures; and monitoring of important processes such as piping and fluid flow.

We expect the monograph to include 10–20 book chapters, each about 8–20 printed pages in length, containing color and/or black-and-white figures and tables.

**Timetable: Extended** submission deadline: 1 December 2016; Reviews and final manuscript: 1 June 2017; Expected publication: December 2017.

For suggestions on manuscript preparation, please see the [Springer submission guidelines](#). Upon submission of manuscript (email), please include the contact information for four potential reviewers.

Juan M. Lorenzo and William E. Doll, Editors. For all correspondence, please email [gllore@lsu.edu](mailto:gllore@lsu.edu), Subject: DAL

## 4. Upcoming Conferences and Workshops

### 4.1 Meetings Overview

Meeting (click to go to website)	Location	Meeting Dates	Submission	Registration
<a href="#">Society of Exploration Geophysicists Annual Meeting</a>	Dallas, Texas	16–21 October 2016	<i>Closed</i>	Registration open
<a href="#">AGU Fall Meeting</a>	San Francisco, California	12–16 December 2016	<i>Closed</i>	Early registration ends: 3 November 2016
<a href="#">SAGEEP 2017</a>	Denver, Colorado	19–23 March 2017	28 October 2016	<i>TBA</i>
<a href="#">European Geosciences Union General Assembly</a>	Vienna, Austria	23–28 April 2017	Opens 20 October 2016	Early registration ends: 16 March 2017
<a href="#">3rd AGU-SEG Hydrogeophysics Workshop</a>	Stanford University, California	24–27 July 2017	<i>TBA</i>	<i>TBA</i>

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### 4.2 SAGEEP 2017 to be colocated with the National Ground Water Association Hydrogeophysics and Deep Groundwater Conference – Abstracts due 28 October 2016.

The Environmental and Engineering Geophysical Society (EEGS) will celebrate the 30th anniversary of SAGEEP 19–23 March 2017 in Denver, Colo. For this landmark year, EEGS will join forces with National Ground Water Association (NGWA) and offer a colocated conference with NGWA’s Hydrogeophysics and Deep Groundwater conference, being held 20–21 March 2017. The NGWA program will focus on two broad tracks: Applications of Hydrogeophysics to Groundwater Characterization, Monitoring and Management and Deep Groundwater Applications. For more information, please email [staff@eegs.org](mailto:staff@eegs.org).

The [online abstract site](#) is open. During the online submission process, you will have the opportunity to identify your SAGEEP abstract as being of special interest to NGWA members and designated as an NGWA-relevant presentation. Technical Chair Elliot Grunewald recognizes that SAGEEP has previously extended abstract submission deadlines to accommodate authors. However, given the additional coordination required for the concurrent conference with NGWA, deadlines must be strictly observed, and the SAGEEP 2017 abstract deadlines will not be extended.

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### 4.3 Save the Date: The 3rd AGU-SEG Hydrogeophysics Workshop: Imaging the Critical Zone

Join us at Stanford University 24–27 July 2017.

In this workshop, we will bring together hydrogeophysicists and other Critical Zone scientists to explore new ways to work together, using recent advances in hydrogeophysics to address key scientific questions about the Critical Zone.

Organizing Committee: Rosemary Knight and Kristina Keating (co-chairs), Anja Klotzsche, Kate Maher, Daniella Rempe, Kamini Singha

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## 5. Position Announcements

### 5.1 Faculty Position: Seismology for Mineral Exploration, Laurentian University

As part of the recently announced [Harquail School of Earth Sciences](#) and [Metal Earth initiatives](#), Laurentian University in Sudbury, Canada, is advertising to fill four positions, in Exploration Targeting, Precambrian Geology, Earth Systems Modelling, and **Seismology applied to Mineral Exploration**. As a major part of their research program, the seismologist is expected to work on approximately 10 seismic reflection lines that are being planned to investigate the lithospheric structure in the Superior province of the Canadian Shield.

A link to descriptions of the positions and more details is [here](#).

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### 5.2 Postdoctoral researcher – Critical Zone Geophysics

This is a 12-month appointment (Jan 2017 to Dec 2017). Closing date 30 October 2016.

In January 2016, as part of the UK Newton Fund activities, NERC in collaboration with the National Natural Science Foundation of China (NSFC) agreed to support five projects under the theme “[Using Critical Zone Science to Understand Sustaining the Ecosystem Service of Soil & Water \(CZO\)](#)”. The five projects address a broad range of challenges facing the sustainability of ecosystem services of soil and water in China and address specific research questions at a range of spatial and temporal scales. Each project has adopted specific experimental methods to address the research questions posed. Recently, funds were made available by NERC to provide dedicated geophysical equipment and research staff to support experimental investigations in all five projects.

We are now seeking to appoint a postdoctoral researcher to join the research team and take a lead in geophysical investigations at the five study sites in China. We anticipate a focus on the use of ground penetrating radar (GPR), electrical resistivity tomography (ERT) and electromagnetic induction conductivity mapping in order to provide 2D and 3D models of the subsurface. You will be based at Lancaster but involved in extensive field experiments at the Chinese field sites, the data from which will be used to develop plot-scale, and ultimately watershed-scale, models.

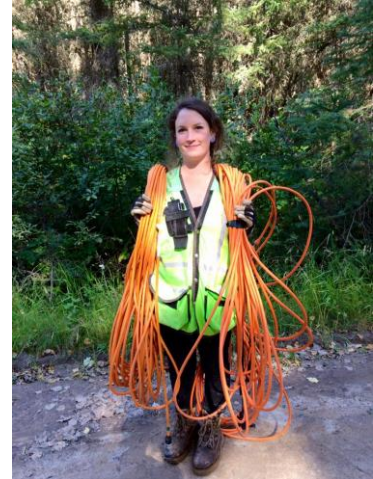
For more details of the post and the application procedure, see [online](#).

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## 6. Student Spotlight: Teddi Herring, University of Calgary, Canada

Second-year doctoral student Teddi Herring has always been fascinated with problem solving. In her high school physics class, she realized that math and physics could be used to understand and even make predictions about earth surface processes. As she became exposed to more and more real-world applications, she decided to pursue a degree in geoscience at the University of Calgary. Her faculty supplied her with a wide geophysics curriculum, but the course that stood out to her the most was Environmental Geophysics. This class affirmed her decision to participate in geophysical research through the number of opportunities that near-surface geophysics could be applied to.

Although she was enthralled by all the research projects she studied, electrical resistivity methods captivated her interest the most. Thanks to this class, Teddi's doctoral research has focused on using electrical resistivity tomography (ERT) for industry-related issues.



Her distinct interest in industry earned her the [Mitacs Accelerate Fellowship](#), where she dedicates half her time to the Canadian environmental consulting company Matrix Solutions, Inc. Through this program, she is monitoring sites, such as landfills, tailing ponds, and fracking ponds, that are susceptible to saline contaminant leakage. One of the sites Teddi is studying contains a fracking pond that is located in a region where seasonal freezing and thawing processes are prevalent. Her research is working to account for these seasonal variabilities in her ERT corrections, which are integral for identifying where these leaks are originating in the subsurface. At the AGU 2015 Fall Meeting, Teddi presented some of her preliminary investigations from a fracking pond where potential leakages pose a high-level environmental threat to the surrounding area and groundwater conditions. Since ERT is highly sensitive to saltwater concentration, it served as an ideal method for long-term imaging and time-lapse monitoring of this continuing issue. She constructed 3-D electrical conductivity models using both surface and borehole ERT measurements in order to simulate how the known contaminant plume migrated through the subsurface based on field measurements of temperature, plume geometry, and hydrological properties. This initial study has created a foundation for the bulk of her dissertation work and allowed her to focus her work by analyzing the limitations and advantages of the field methodology.

Looking to the future, Teddi anticipates a career in either academia or the environmental consulting world. Her inquisitive personality has motivated her to not only investigate solutions to her own research questions, but also learn about other areas of near-surface geophysics and their capabilities to make joint interpretations. For the past 4 years, Teddi has been a teaching assistant for the University of Calgary's Geophysics Field School, a weeklong field camp that exposes students to various geophysical field methods, data processing, and interpretation. She believes this provides a unique opportunity for students to learn different field methods and broaden their understanding of how classroom theories can be directly applied to solve real-world problems. Teddi's strong mathematical background and personal interests have propelled her to help teach students to think more algorithmically to further develop their ability to think critically.

If you would like to learn more about ERT applications to saline contaminant problems, please [contact Teddi](#).

**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 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!