



Near-Surface Views



Newsletter of the NEAR-SURFACE GEOPHYSICS Section of The Society of Exploration Geophysicists

Second Quarter 2014, Vol. 21, No. 2

Letter from the President

Dear members of the NSGS,

The announcement last month of the SEG Board's decision to discontinue the pursuit of a Near-Surface Subsidiary has made this past Quarter particularly challenging. We are extremely disappointed with the Board's decision because it has negatively impacted years of constructive work to develop and grow NS within SEG; this was achieved first through a Strategic Plan for NS and eventually by a proposed merger with a sister organization, the EEGS. This merged entity, which was in the final stages of approval (awaiting membership votes) would have been of tremendous benefit to the NS community in the US and abroad, and to SEG itself.



The decision by the SEG Board was entirely unexpected by both the NSGS leadership and by the members of the former Near Surface Task Force. An open letter from former NS Task Force members Peter Annan and John Bradford to the SEG Board is reprinted in this issue of the newsletter. Their words should carry extra weight as they are the two candidates for President Elect on the 2014-2015 SEG Board of Directors (<http://www.seg.org/media/news/news-announcements/2014/seg-elections-2014>).

As I wrote to you in my letter dated May 28 (reprinted in this issue in case you missed it), the NSGS Executive Committee remains committed to our members. For the immediate future, the NSGS will remain an independent entity and will act as the focal point for leadership of NS programs within SEG. We have requested a commitment from SEG to support us with staffing resources and the operational and financial shell to allow this process to start.

Regarding any future organizational structure for Near-Surface Geophysics within SEG, we see different possibilities. In order to develop a plan forward in a way that enables rebuilding of NS within SEG, we have asked SEG President Don Steeples and the Board to consider NS involvement in SEG strategic planning at the Board level. We are still awaiting a response on this request. However, it should be evident that a vibrant NS program within SEG requires both strong volunteer leadership and community engagement. We therefore look forward to your support and input. Please consider answering a few questions in this brief anonymous survey (<https://www.surveymonkey.com/s/9PBWCCQ>).

Although the unexpected developments have absorbed much of our time, I would like to share with you the details of a few other ongoing issues and deadlines.

First, I would like to draw your attention to the call for nominations for two NSGS awards, the Harold Mooney Award and the Frank Frischknecht Leadership Award. This is your chance to nominate those you feel are deserving of recognition by the section and its members. Please read the award descriptions further on in this newsletter and submit your nominations to me by July 1st.

Second, nominations for positions on the Executive Committee of the NSGS are now being accepted for President-Elect and Editor. Please read on for a description of the Duties of these committee members and consider volunteering for one of these roles.

Finally, I would like to give you a quick update on a range of meetings on the immediate and further horizons. The SEG Annual Meeting will this year be held in Denver from 26-31 October. See the following pages for more details on the technical program (headed by President-Elect John Lane), social events, and the student travel awards. One additional meeting on the horizon this year is the Near-Surface Geophysics workshop organized by the Brazilian Geophysical Society (SBGf) and SEG, from December 3-4 in Bahia, Brazil. In 2015, we are planning for the second Asia-Pacific NS Geophysics meeting from July 7-10 on the Big Island of Hawaii. This meeting, which will carry the theme Geohazards, is spearheaded by General Chair John Bradford of Boise State University and Technical Chair Sarah Kruse of the University of South Florida.

Best Regards,

Remke Van Dam

Michigan State University & Queensland University of Technology

rvd@msu.edu

Student Chapter Highlight: University of Tulsa Geophysical Society

SEG Student chapter President
Rafael Pabon Manzano

At the University of Tulsa, we have recently conducted several near-surface research projects using in-house capabilities in electrical, electromagnetic, ground penetrating radar and seismic methods. The projects we have worked on to date can be categorized as environmental, and reservoir characterization that are used to model fluid flow. Here we provide short overviews of two projects and present upcoming research as well as some fun pictures from our near-surface geophysics field methods course.

Electrical Resistivity Study

To characterize and map a small portion of the Arbuckle-Simpson carbonate aquifer, we conducted an electrical resistivity tomography (ERT) study in Johnston County, Oklahoma, USA. The primary objective of the project was to determine location, orientation, extent, and connectivity of near-surface faults and fractures to determine how they control groundwater flow in the study area.



Dr. Tapp (l), Alice Taylor (c) and Aiden Leddy (r), AGI Supersting resistivity equipment set up.

Inverse modeling of 2D electrical resistivity tomography (ERT) data with Wenner and dipole-dipole arrays acquired at two adjacent locations within the study area indicate shallow, fractured Arbuckle group (carbonate) rocks saturated with water adjacent to dry rocks. From electrical resistivity mapping results it is inferred that the Mill Creek block in the Arbuckle-Simpson aquifer is an isolated system, interacting with the northern segment of a silicate-based aquifer through dissolution faults and fractures.

Additional students will continue work on fluid flow characterizations of meander channel belts of the Ferron Sandstone to further refine and develop a model.

Electrical Tomographic Methods for Subsurface Mapping of Contaminant Transport Pathways - Tar Creek, Ottawa County, Oklahoma, USA.

PhD student Cas Bridge, will be using electrical tomographic methods to map subsurface contaminant migration pathways at the Tar Creek Superfund Site (TCSS). Project to begin fall 2014.

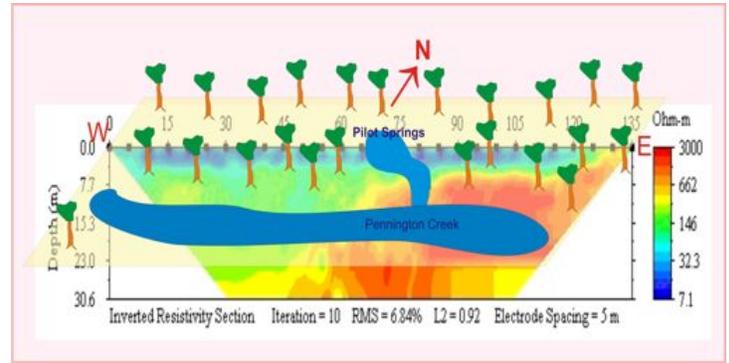
Background:

The site consists of forty square miles of above ground mining waste, hundreds of miles of underground tunnels, and over one thousand mine shafts. There is an estimated 6.7 million cubic yards of waste rock and 9 million cubic yards of fine tailings present within the boundaries of the substance releases have been occurring at the U.S. Environmental Protection Agency drainage (AMD) flowing from the mine shafts and boreholes.

The sulfide ores were hosted by the Boone Formation, which is 270 - 470 feet thick in comprised of alternating limestone and highly fractured and considered karstic. The Boone Formation, which was activities. Groundwater subsequently pumping ceased and has been shown to be AMD products. The geochemical and the TCSS have raised concern that transported away from the TCSS via Boone Formation outcrops in the eastern well as most of Delaware County, OK, and Contamination of springs and associated concern for local tribal members who use



Son Phan (l) and Erin Lewallen (r) ready to collect some GPR data!!



Location of Pilot Springs and Pennington Creek with respect to ERT profile CD. The orientation of the profile is W-E. Arrows shown in Pennington Creek and Pilot Springs indicate the direction of water flow.

Mississippian-aged Boone northeastern Oklahoma and is chert beds. The Boone aquifer is hosted by dewatered during mining filled the mine voids when highly contaminated with mobile geological conditions present at hazardous substances may be subsurface conduit flow. The portion of Ottawa County, OK as supplies water to local springs. biota via groundwater is a major these natural resources for



What seismic field work photos are complete without the hammer source trigger?

lead isotope ratios of various source materials to affected plant tissue. The subsurface pathways of preferential transport in the study area will be mapped using electrical resistivity tomography, which will allow for detailed hydrogeophysical modeling of the subsurface related to the fracture patterns in the study area. Data gathered will be used to constrain existing models of the hydrologic properties of the Boone aquifer and simulate contaminant transport in the subsurface. A variety of software platforms will be used for this purpose, including; PHREEQC, MODFLOW 2005, and ArcGIS.

The SEG Student Chapter at the University of Tulsa would like to thank the Near-Surface Geophysics Section of SEG for giving us a platform to highlight some of our near-surface geophysical research and fun pictures from our geophysical methods course. We would also like to thank the SEG Student and University Program for their support.

cultural and subsistence purposes. Data regarding confirmation of groundwater transport of contaminants away from the TCSS are limited: several springs discharging from the Boone Formation have been observed to produce yellow-orange precipitates and watercress growing in spring water has been shown to contain elevated concentrations of toxic metals. This project proposes to investigate the mechanisms and specific pathways by which metal transport may be occurring in the subsurface. Abundant wells, airshafts, mineshafts, and artesian springs at the site and downgradient offer opportunities to sample groundwater at various distances from the TCSS. This will allow for the construction of a hydrogeochemical model, which can be used to establish geochemical trends and evaluate metal loading to the surface environment as a result of metals released into groundwater at the TCSS.

Additionally, students will determine the provenance of bioaccumulated lead in watercress by comparing



Will Sanger(l) and Sercan Ozoy (r) ready to rock and roll with the Promis HLEM. "Look mom, no hands."



Letter to the membership announcing negative SEG Board vote on NS Subsidiary

May 28, 2014

Dear members of the NSGS and colleagues,

Over the past three years, you have received numerous updates regarding development of a closer working relationship and merger with the Environmental and Engineering Geophysical Society (EEGS) in a new-to-form Near-Surface Subsidiary of the Society of Exploration Geophysicists (SEG). We strongly believed that such a merger was in the best interests of NSGS and EEGS members, the SEG, and the broader near-surface geophysics community. With your support, this process was in its final phase.

To my surprise, on May 13th, I was informed by SEG President Don Steeples that, due to unforeseen budget constraints, the SEG Board of Directors had voted “to discontinue pursuit of a Near-Surface Subsidiary and the hiring of a Director, Near Surface”. This vote has effectively ended negotiations with the EEGS and thus a possible merger of the two organizations.

The NSGS Executive Committee is extremely disappointed with this decision, as a great opportunity has been lost. On behalf of the NSGS Executive Committee, I wish to acknowledge the Near-Surface Task Force members of both SEG and EEGS, whose vision and tireless efforts brought our two organizations closer together.

Despite this highly unexpected situation, the NSGS Executive Committee remains committed to our members. As we work to define our options for a path forward that will best enable NSGS to serve the near-surface community we welcome and encourage comment from you. We very much hope that you will continue to support us in this quest.

Please contact me with your thoughts and questions regarding this development and way forward.

Sincerely,

Remke Van Dam

Open letter to the SEG Board from SEG President-Elect Nominees

May 31, 2014

To: SEG Board members;

Regarding: Recent Board decision terminating investment in NS

We were dismayed to learn of the Board's recent decision. This decision to terminate consideration of an NS subsidiary with no forward plan is interpreted in the NS community as a total rejection of the NS strategy developed with the SEG Board's full support over the past 4 years.

The following are some of the strongly held perceptions and opinions in the broader community:

- NS SEG members question if the SEG is the right place for NS geophysics (some members have indicated they will walk away from SEG).
- NS members of the SEG (not just EEGS) anticipated a formal home for NS under the SEG umbrella; this path has disappeared with no alternate given. (Some might argue that a technical section will suffice but the volunteer leadership is not convinced.)
- Backtracking on two fundamental pillars of the negotiated EEGS agreement is interpreted as just an indirect route for termination of the EEGS merger.
- The SEG Board's decision-making process appears flawed; either decisions are being made without regard for outcome or with a demonstrable lack of accurate information and clear communication (poor information management).
- The SEG's ability to manage the message and be strategic in communication of decisions is ineffective. This decision has been on the street for nearly a month with no clear rationale that can be defended by even the staunchest SEG advocates.

As members of the NS Task Force team engaged in attempting to give life to a new era for NS within SEG using an EEGS-NSGS merged entity, we have been engaged in the details and are very knowledgeable of the facts. At times, we were disenchanted with the slow speed of decision making on the EEGS side. In fact, we recommended to the SEG Board last September to move on with the NS initiative without EEGS. The Task Force was then dissolved; subsequently, we were surprised when the SEG Board re-opened the EEGS merger discussion. This was followed by a near unanimous vote to accept the EEGS counteroffer and fund a costly NS Director staff position.

The current about face is thus truly concerning and calls into question the credibility of the SEG as a professional organization. Further, the rationale provided for the abrupt termination indicated cost, subsidiary complexity, and new EEGS demands; these explanations are at odds with facts as we know them.

We feel that the SEG Board may not have been cognizant of the ramifications of its decision; we therefore request the Board to take ownership and proactively show leadership in remediating the damage caused and in rebuilding NS community trust in the aftermath. This request pre-supposes that there is still Board commitment to building a vibrant NS component within SEG!

We both accept that the decision has been made and that we need to move ahead quickly to limit the fall-out. We have been in communication with the current NSGS leadership who have written to President Steeples expressing their concerns and asking for the opportunity to present a plan forward at the next SEG board meeting in August. We strongly endorse this initiative and we trust that the SEG Board will use this opportunity to provide true leadership in the NS area.

Since we are the two President Elect candidates as well as former NS task force members, we feel that we must share these observations and comments with the Board. While some may be disconcerting and debatable, they are the perceptions that we all will need to address moving ahead.

John Bradford and Peter Annan
SEG President-Elect nominees

2014 SEG Annual Meeting - Sessions and Events

NS was given two oral sessions, one 'mini' oral session (ePoster), and one traditional poster session. In addition, we have the SEG/AGU standing session on Hydrogeophysics. Each session has 8 presentations, for a total of 40 accepted papers, including the hydrogeophysics session.



Session Details:

Surface-Waves (Oral Session) Monday PM; Room 4B

Rick Miller - Kansas Geological Survey
Valentina Socco - Politecnico di Torino - DIATI

Reflection, Tomography, Interferometry and Statics (Oral Session) Tuesday AM; Room 4B

Seth Haines - US Geological Survey
Said Mahrooqi - Petroleum Development Oman - PDO

Standing Session 4: Hydrogeophysics Wednesday AM; Room 4B

Kristina Keating - Rutgers University
Ryan Swanson - Colorado School of Mines

Integrated Methods, Joint Inversion, ERT/EM, and Hazards (Eposter) Tuesday PM; Room 404

John Bradford - Boise State Univ.
Louise Pellerin - Green Geophysics

NS Developments and Applications (Poster session) Wednesday PM; Poster Venue Area

John Lane - US Geological Survey
Julian Ivanov - Kansas Geological Survey

NOTE: Talks in the oral and e-poster sessions will be 25 minutes long, including 5 minutes for questions and transition to the next presentation.

Student Travel Grants

The SEG-NSGS Student Travel Grants Program exists to support students seeking a career in near-surface geophysics to attend the SEG Annual Meeting. Each year a number of travel grants of up to \$500 (USD) may be awarded. Graduate students with research projects in near-surface geophysics are eligible. Preference will be given to students presenting oral or poster papers at the SEG Annual Meeting, and to those that have not previously received this grant. The applicant must be a student member of the NSGS. To apply, submit a one-page summary of geophysics coursework and career plans, and submit a copy of the expanded abstract of the SEG Annual Meeting presentation. More details about the application procedure including submission instructions can be found at <http://nsgs.seg.org/student-travel-grants.php>.

The deadline for all student annual meeting travel grants is 3 August 2014.

Call for Award Nominations

The SEG-NSGS has two major awards: the Harold Mooney Award and the Frank Frischknecht Leadership Award. These awards provide a chance to honor those members of our community that have made outstanding contributions. For the awards to be effective we need active participation from our membership to generate nominations.

Please read the following award descriptions and submit your nomination by email to Remke Van Dam (rvd@msu.edu). The nomination form should contain the name, title and affiliation of the candidate along with a statement describing the reasons for the nomination. Nominations should be received by July 15, 2014, for full consideration. This year, both awards will be presented during NSGS social events at the SEG annual meeting.

Frank Frischknecht Leadership Award

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

Harold Mooney Award

The NSGS Harold Mooney Award honoree is chosen by his or her peers through nominations from the membership and recommendation to the NSGS Executive Committee. The award was originally presented in recognition of scientific and technical excellence and innovation leading to the advancement of near-surface geophysics. In 2005 the award definition was expanded; it is now presented to an individual in recognition of long-term, tireless, and enthusiastic support of the near-surface geophysics community through education, outreach efforts, professional service, or development of opportunities with other professional disciplines that employ geophysics. Last year's winner was Lee Slater of Rutgers University.

(For a complete list of previous winners, see <http://nsgs.seg.org/section-awards.php>)

Call for Executive Committee Nominations

Nominations for positions on the Executive Committee of the NSGS are now being accepted for the positions of President-Elect and Editor. Since the offices of President and Past-President are filled by the President-Elect and President from the previous year, President-Elect is in effect a three-year position. The duties of these committee members include the following:

The President-Elect shall:

- a. Assume the duties of the President in the absence of that officer, and become President for the remainder of the term in event of death or resignation of that officer.
- b. Be responsible for the Technical Programs of the Section.
- c. Determine the date and time for Regular Meetings and for Special Meetings as directed by the Executive Committee.

The Editor shall:

Oversee all publications activity of the Section:

- a. Communicate news at least twice per year to all members via post or electronic means.
- b. Propose and, subject to the approval of the Executive Committee, arrange for the publication of journals and/or special publications including books, handbooks, guides, and educational material.

Please submit nominations to Remke Van Dam (rvd@msu.edu) by July 31, 2014. Self-nominations and expressions of interest are welcome.

Is near-surface geophysical science important?

June 12, 2014

Dear colleagues,

I would like to encourage you to share your views on Science Trends in Near Surface Geophysics and disciplines closely affiliated with the near surface. A few days ago AGU members received an email asking them to participate in the AGU Science Trends survey. It is very important that the Near Surface community has a voice as the results will help shape AGU policy, interactions with other groups and future meeting and publications. The results of this work will also be shared with our broader scientific community.

More about the Task Force and the survey can be found below and at this link [AGU Scientific Trends Task Force](#). Please take a few moments to provide your input by clicking here [AGU Scientific Trends Survey](#) or go to <https://www.surveymonkey.com/s/AGUScientificTrends2014>.

The Scientific Trends survey is designed to help identify current and emerging scientific trends impacting the Earth and Space science community, and is gathering input from a wide range of sources. We are seeking input at various levels, from high-level broad-impact trends to detailed new advances in your area of research. We would like to hear from students, early-career, mid-career and senior members of the community, from academia, government and industry from around the world. We encourage participation from non-AGU members, so feel free to share the survey with others, and please don't hesitate to contact me if you have any questions. The survey will remain open until 20 June.

George Tsoflias

tsoflias@ku.edu

AGU Task Force Member



Joint SEG/AGU Summer Research Workshop
21-24 July 2014 • Vancouver, Canada

**Advances in Active+Passive
“Full Wavefield” Seismic Imaging:
from Reservoirs to Plate Tectonics**
Call for Contributions

Abstract submission deadline: 1 May 2014

Advance registration deadline: 20 June 2014

Please email to ksmith@seg.org or fax to Kristi Smith at +1-918-497-5552 *with your abstract*

Or mail to:

Kristi Smith, Programs and Events Manager

SEG Business Office

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The Leading Edge: Two Upcoming Special Issues

Call for Humanitarian Applications manuscripts

If you are interested in submitting an article on Humanitarian Geophysics to TLE, please contact Louise Pellerin (pellerin@greengeophysics.com).

Due date for article submission is 15 Aug 2014.

Call for Near-Surface Geophysics manuscripts

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

Oct 15: articles due to guest editor (GE)

Oct 15 - Nov 15: GE reviews submissions

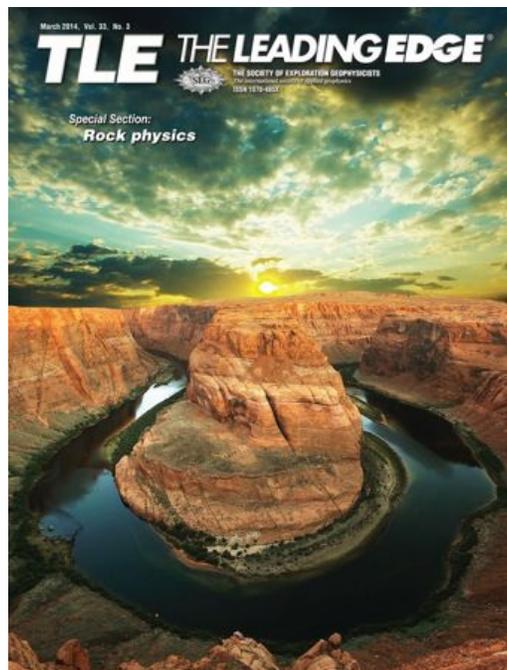
Nov 15: GE lets authors know approved, rejected, suggestions for revision

Nov 15 - Dec 1: authors revise articles, return revision to GE

Dec 1 - Dec 15: GE reviews revision, makes any final changes

Dec 15: revised articles due to TLE editorial staff, upload to SEG ftp site

If you are interested in submitting an article on Humanitarian Geophysics to TLE, please contact Dale Werkema (Werkema.D@epa.gov), Guest Editor February 2015 TLE



CALL FOR PAPERS

► **Submission deadline:**
30 August 2014

<https://mc.manuscriptcentral.com/interpretation>

A joint publication of SEG and AAPG
Interpretation[™]
A journal of subsurface characterization



Society of Exploration
Geophysicists
The international society
of applied geophysics



Geophysical imaging and interpretation of outcrops

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

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

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



Image courtesy of M. Pipan

Interpretation, copublished by SEG and AAPG, aims to advance the practice of subsurface interpretation.

The submissions will be processed according to the following timeline:

Submission deadline:
30 August 2014

Publication of issue:
May 2015

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Calendar of Upcoming Events

Dates	Title	Location
Jun 20 - 23, 2014	6th International Conference on Environmental and Engineering Geophysics (ICEEG)	Xi'an, Shaanxi, China
Aug 15, 2014	Deadline for submission - TLE Humanitarian Applications	n/a
August 30, 2014	Deadline for submission - Interpretation: Geophysical imaging and interpretation of outcrops	n/a
Sep 15 - 17, 2014	20th European Meeting of Environmental and Engineering Geophysics	Athens, Greece
October 15	Deadline for submission - TLE Near-Surface Geophysics	n/a
Oct 26 - 31, 2014	SEG Annual Meeting	Denver, CO, USA
Dec 3 - 4, 2014	SBGf-SEG Joint Workshop on Near-Surface Geophysics http://www.seg.org/meetings/Salvador2014	Salvador, BA, Brazil
Dec 15 - 19, 2014	AGU Annual Meeting	San Francisco, CA, USA
Feb 15 - 18, 2015	ASEG-PESA 24 th International Geophysical Conference and Exhibition www.conference.aseg.org.au	Perth, WA, Australia
July 7 - 10, 2015	SEG Asia-Pacific Near Surface Meeting	Waikoloa Hilton, HI, USA

NSGS Membership

Please encourage your colleagues to join the NSGS. Membership for students is free! All NSGS members must, however, also be members of our mother society SEG.

NSGS membership exists in three classes based on the corresponding membership status with SEG:

- Active: active member of SEG (15\$ / year)
- Affiliate: associate member of SEG (15\$ / year)
- Student: student member of SEG (free!!!)

Membership applications can be found at: <http://nsgs.seg.org/member-become.php>

Job Postings

PhD Student, 3D GPR Full-waveform Inversion Forschungszentrum Jülich, Jülich, Germany

The Forschungszentrum Jülich is one of the largest interdisciplinary research centers in Europe and is a member of the Helmholtz Association of German National Research Centers. Our key research areas are “Health”, “Energy and the Environment”, and “Information.”

For our Institute of Bio- and Geosciences - Agrosphere (IBG-3) we are seeking a **PhD Student with a degree in geophysics, physics, electrical engineering, computational geoscience, or related natural sciences** for a three-year PhD position.

Project description “3D GPR Full-waveform Inversion”:

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

Requirements:

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

We Offer:

- working in an interdisciplinary environment as well as excellent facilities for hydrogeophysical research and numerical simulation and inversion studies
- Opportunities to being part of the national and international scientific community For further information please contact Prof. Dr. Jan van der Kruk, e-mail: j.van.der.kruk@fz-juelich.de

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

Senior Professor in Geophysics Dublin Institute for Advanced Studies, Ireland

The Governing Board of the School of Cosmic Physics wishes to nominate an exceptional scientist for appointment by the President of Ireland to the position of Senior Professor in the School and Head of the Geophysics Section. The position will become available following the retirement of Professor Alan Jones at the end of 2014 and the Board is anxious that the position be filled as soon as possible thereafter.

In addition to an established international research reputation we are looking for a scientist of vision capable of motivating large national, European and international research projects over decadal timeframes.

The successful nominee will be expected to define and lead an innovative research programme in Geophysics building on the section’s strengths in lithospheric studies. The section hosts the National Data Centre for the Comprehensive Nuclear Test Ban Treaty Organisation, runs the Irish National Seismic Network, and has extensive field equipment for seismic and MT surveys. Other infrastructure includes access to the Irish Centre for High-End Computing, local computing resources and technical support.

This is a research position and carries no undergraduate teaching responsibilities although some guest lecturing in universities in Ireland is encouraged. Supervision of graduate students and mentoring of postdoctoral fellows is expected.

The post is permanent and pensionable with an attaching salary of €146,722.

Interested scientists are invited to apply by sending an e-mail application to registrarsoffice@dias.ie. The application should comprise a single PDF attachment containing:

- (1) The candidate's standard academic CV.

-
- (2) The candidate's list of publications, including brief notes on the five most significant.
 - (3) The candidate's research vision for Geophysics within the School of Cosmic Physics (maximum 3 A4 pages).
 - (4) Optionally up to two further A4 pages containing any supplemental material the candidate wishes to add.

All applications received before 09:00 Irish time on Monday 18th August 2014 will be acknowledged and considered by a Search Committee appointed by the Board of the School of Cosmic Physics. The Search Committee may, at its absolute discretion, in addition consider late applications or candidates other than those who apply directly. Shortlisted candidates will be requested to provide contact details of three academic referees. It is planned to hold interviews in late September or early October. DIAS is an equal opportunities employer

Electromagnetic Research Scientist
Halliburton's Electromagnetic Discipline based in Houston, Texas.

This position involves research and development for cutting edge technology applications in the energy industry, with the opportunity to be involved with innovative solutions to a wide range of electromagnetic sensing problems.

Requirements:

Good knowledge of electromagnetic theory and computational electromagnetics is a must.

Working knowledge of electrode and induction based sensors is a plus.

Candidate should be familiar with one or more of the following simulation methods: Finite Difference (FD), Finite-Element (FE), Method of Moments (MoM), Integral Equations (IE), semi-analytic solutions in stratified media.

Experience with electromagnetic modeling in HFSS software is a plus.

Applicants should be familiar with EM inversion, and have experience with one or more of the following numerical optimization methods: Conjugate gradients, Gauss-Newton.

Experience with Fortran programming language, MATLAB scripts, and good communication skill is also required.

Applicants should apply directly to Denise Day via email, denise.day@halliburton.com.