



**NEAR-SURFACE GEOPHYSICS FOCUS GROUP  
NEWSLETTER: MAY 2014**

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Recent announcements of interest to the NS community (conferences, academic positions, graduate student opportunities etc.) can be found at the AGU NS Focus Group Web Page:

<http://sites.agu.org/nsg/>

**Follow NSFG on Twitter @NS\_AGU!**

## 1. Be informed and get involved with SAGEEP 2015 in Austin, TX (from Jeff Paine)

There's exciting news from EEGS! Austin, Texas is the frontrunner to host the 2015 *Symposium on the Application of Geophysics to Engineering and Environmental Problems* next spring. Local organizers Jeff Paine (General Chair), Doug Laymon, and Dennis Mills are working with EEGS staff to infuse a uniquely "Austin" experience into the 28<sup>th</sup> edition of SAGEEP, while simultaneously putting together a stellar technical program under the guidance of Brad Carr (Technical Chair). Be sure to make early plans to attend; Austin is a very popular spring destination and flights and rooms fill up quickly.

Please send an email to Jeff ([jeff.paine@beg.utexas.edu](mailto:jeff.paine@beg.utexas.edu)) if you would like to be on an informal email list for information about the conference as it develops. If you have an idea for a technical session, workshop, or short course, now is a great time to suggest it to Jeff or Brad ([bcarr1@uwyo.edu](mailto:bcarr1@uwyo.edu)).

See you in Austin next spring!

## 2. Upcoming Conferences and Workshops

### 2.1 Joint SEG/AGU Summer Research Workshop: Advances in Active + Passive “Full Wavefield” Seismic Imaging: from Reservoirs to Plate Tectonics (from Dave Lumley)

**Workshop Dates:** 21-24 July 2014

**Advance Registration Deadline:** 20 June 2014

**Website:** [click here to follow link](#)

Rapid developments are occurring in advanced seismic imaging and inversion research, using “full wavefield” approaches, and very large broadband sensor arrays. These advances are happening at detailed reservoir scales (hydrocarbons, geothermal, groundwater, CO<sub>2</sub> sequestration...), up to much larger earthquake seismology and global plate tectonics scales. The purpose of this joint SEG-AGU summer research workshop is to bring together leading scientists in full wavefield seismic imaging/inversion research from across a broad spectrum to share their knowledge and challenges, compare notes and find synergies that may lead to new collaborations and breakthroughs in imaging the Earth.

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### 2.2 Multichannel Analysis of Surface Wave (MASW) Workshop (from Mary Brohammer)

**Workshop Dates:** 19-20 June *or* 14-15 Aug 2014 [two workshops]

**Location:** Kansas Geological Survey (KGS), Lawrence, Kansas

**Workshop Website:** <http://www.kgs.ku.edu/software/surfseis/workshops.html>

The two-day MASW workshop will provide opportunity for geo-professionals, geoscientists, and graduate students to gain knowledge about acquisition, analysis, and interpretation of the seismic Rayleigh surface waves. The learning process will be facilitated by the use of SurfSeis software (<http://www.kgs.ku.edu/software/surfseis/index.html>). The workshop is designed to address the current approaches for analyzing seismic data from both active and passive sources for obtaining shear-wave velocity ( $V_s$ ) estimates for the near-surface.

On Day 1 a theoretical overview of the MASW method (active and passive) will be presented, participants will be familiarized with the SurfSeis software package, and field data acquisition from both active and passive sources is scheduled take place (weather permitting).

Day 2 will continue with the theoretical MASW overview covering surface-wave inversion, multi-mode interpretation and inversion, inversion sensitivity, use of a-priori information and quality of inversion results, latest advancements for dispersion-curve imaging—such as the high-resolution linear Radon transform (HRLRT), challenging dispersion-curve patterns, and more. Day-1 acquired seismic data will be analyzed. Participants are encouraged to bring samples of their own data for discussion as time permits.

Attendees are expected to bring their own laptops.

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## 2.3 Australian Society for Exploration Geophysicists (ASEG) Conference (from Chris Wijns)

**Conference Dates:** 15-18 Feb 2015

**Conference Location:** Perth, Australia

**Website:** <http://www.conference.aseg.org.au/>

I hope some of you have already heard about the next ASEG (Australian Society of Exploration Geophysicists) conference in Feb 2015. It is happening in Perth, Western Australia co-hosted with the Petroleum Exploration Society of Australia (PESA). Visit the conference website to see what's posted so far, to register your interest, and to submit a working title ahead of the full abstract call starting 1 June 2014. Submitting a working title allows us to begin planning the technical program, and secures you a non-binding position for an extended abstract starting 1 June.

We are promoting a stronger geological current than usual, and on the minerals side we've gathered some keynote speakers who are not geophysicists. For example, a geochemical alteration mapping keynote will lead into geophysical alteration mapping talks. A talk on the value chain in mining will lead into geophysics in mining operations talks. There is an entire theme on geology from geophysics. Case studies are big as always.

The website will shortly be updated with themes and their confirmed keynotes. In the meantime, on the minerals side, please think about contributions to

- New Technologies for Discovery
- Geophysical Signatures of Mineral Deposits (including wider alteration mapping, both if it works or does not)
- Geology from Geophysical Data
- Geophysics in the Mining Operation (not brownfields exploration, but e.g., constraints on resource modelling, grade control, slope stability, etc.)

On the near-surface side, we have

- Archaeological Geophysics
- Environmental and Engineering Geophysics
- Groundwater and Contaminant mapping
- Advances in Near surface Seismic

Of course we welcome papers that fall outside of these categories as well. Posters will be given prominent display inside the exhibition hall, with dedicated poster sessions (no concurrent oral sessions) where the presenters will be available to talk in front of their posters.

If you would like to suggest and champion a session in minerals, please contact Mike Dentith, [michael.dentith@uwa.edu.au](mailto:michael.dentith@uwa.edu.au) . If you would like to suggest and champion a session in near-surface/environmental geophysics, please contact Ian James, [ian@asstgroup.com](mailto:ian@asstgroup.com) .

If you would like to organise a workshop around the conference dates, please contact Tim Munday, [Tim.Munday@csiro.au](mailto:Tim.Munday@csiro.au) .

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### 3. Position Announcements

#### 3.1 Senior Scientist – Electromagnetics (Halliburton)

Apply your exceptional technical and leadership abilities to the role of Senior Scientist - Electromagnetics. In this capacity, you will apply theories, principles and practices to the research and development of new and improved products, processes and procedures. In addition, you will perform routine research and experimentation, document progress, and participate in professional societies.

Position Requirements:

- Undergraduate and MS or PhD degrees in Electrical Eng., Geophysics, Physics, Math, or equivalent
- Experience with electromagnetics
- Experience in developing and applying numerical modeling and/or inversion software
- Experience with software development in Matlab or Fortran
- Experience with geophysical data acquisition and processing systems
- Good communication skills

Applicants should apply online at [www.halliburton.jobs](http://www.halliburton.jobs) to Requisition Number 00261943.

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#### 3.2 Postdoctoral Researcher in Potential Fields (University of Witwatersrand)

A geophysical postdoctoral research fellowship is available related to an exciting research project in potential field geophysics. We require a potential field specialist for two years, with renewal after one year based on performance and progress.

Keywords: Interpretation and algorithm development on a variety of projects including onshore-offshore, Bushveld Complex, Wits Basin and Morokweng impact structure

Minimum requirements:

- PhD obtained within the last 5 years
- Expertise in potential field interpretation and methods development

Additional requirements:

- Experience with the following would be advantageous: Matlab, Geosoft, Field methods

Duties and Expectations:

- Undertake focused and high quality research;
- Undertake other activities related to the academic programme and the professional development of the individual;
- Participate in the annual geophysics field school

**The 2013 base rate for Wits postdoc funding is:**

- **Stipend** = R 154 000
- **Medical aid** = R 15 720
- **Relocation costs** = R 10 000

Send your CV directly to the potential host Dr. Susan Webb (Email: [susan.webb@wits.ac.za](mailto:susan.webb@wits.ac.za)). The deadline to apply is 18 May 2014.

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### 3.3 PhD Student Position in “3D GPR Full-Waveform Inversion” (Forschungszentrum Jülich GmbH)

In the IBG-3, advanced modeling and inversion algorithms are developed and applied for a wide range of 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](mailto: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](mailto:k.beumers@fz-juelich.de)

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### 3.4 Principal Scientist (Physicist) (National Security Technologies)

RESPONSIBILITIES

Responsible for developing and maintaining formal customer contact and defining the major task areas. Provides leadership for the development and maintenance of high performance teams. Actions contribute to the achievement of significant program business objectives. Plans, organizes, leads, and monitors efforts of multiple teams to accomplish programmatic objectives. Takes the lead in developing proposals with customers. Ensures common work scope is fully understood by the customer, members of the project teams and operations management. Serves as the program spokesperson to the customer. Represents the program to the customer on specialized topics in area(s) of expertise. Conducts periodic program reviews with the customer to review progress and discuss issues. Exercises Environment, Safety & Health (ES&H) leadership, modeling the behavior expected from all employees. Establishes clear responsibility and accountability for carrying out safety requirements. Holds organizations and employees participating on project teams accountable. Assures environmental compliance and safe and healthful working conditions. Anticipates risks and assures risks inherent in operations are identified, controlled, or transferred. Assures necessary funding, support and guidance to project teams to achieve and maintain safe and healthful working conditions.

Applies scientific and technical expertise to arms reduction and treaty verification scientific lines of inquiry conducted at the Nevada National Security Site (NNSS). Identifies and defines problems, plans and conducts research aimed at global security solutions. Will lead teams of scientists from Universities, the US National Laboratories and the Defense Threat Reduction Agency to provide geophysical scientific and technical direction and support to National Center for Nuclear Security and other National Security Technologies, LLC (NSTec) projects involving chemical explosive detonations both above and below ground level primarily at NNSS, but including other locations as required. Experience leading large projects and executing complex experimental tests in the field.

Conducts and leads special studies on new treaty verification technologies, materials and methods. Such studies will include but not be limited to leading the NSTec seismic team, experimental test bed design, predictive modeling, infrasound and seismic design, instrument placement, and data interpretation.

Leads the formulation of advanced scientific concepts during experiment design, deployment and execution. Activities will include, but not be limited to, leading NSTec seismo-acoustic teams, experimental test bed designs, predictive modeling, seismic sensor design, instrumentation placement and data collection and interpretation.

Presents results of experiments to clients and customers as well as scientific community, presents papers and keeps abreast of technological developments in the treaty verification and nuclear nonproliferation areas and keeps management informed of important new advances. Attends seminars to maintain currency in the remote sensing and seismic monitoring scientific fields.

Serves as a leader and as consultant to projects and specialty scientific groups, providing direction and advice. Responsible for establishing and maintaining strong working relationships with National Nuclear Security Administration (NNSA), national laboratory partners, and NSTec partners in the experimental work, preparing internal and external reports, writing proposals and publishing papers documenting experimental results.

Participates in the NSTec Strategic Development Office initiatives to bring additional business to the NNSS from Department of Energy (DOE), Department of Defense (DoD), and Other Government Agencies that is compatible with the NNSS capabilities. Assists in planning improvements to the NNSS to increase mission capabilities.

Accept individual responsibility and accountability for Environment, Safety, Health, and Quality (ESH&Q) processes within personal control, personal safety, and the safety of co-workers. Comply with established ESH&Q regulations and procedures and perform duties in a way that will not cause personal danger, endanger other individuals, or violate environmental regulations. Promptly correct or report any hazard or potential hazard to supervision. Understand the principles associated with the National Security Technologies, LLC (NSTec) safety concept. Participate in and embrace NSTec safety initiatives.

#### QUALIFICATIONS

Bachelor's degree in Physics or related degree in a recognized scientific specialty, plus a minimum of 14 years' relevant professional experience. PhD preferred. Demonstrated skill to plan, organize, lead, and monitor large projects. Skill in written and oral communication. Demonstrated skill to establish and maintain strong and effective customer relations. An ability to obtain a DOE "Q" security clearance and a willingness to obtain an SCI clearance. Applicant selected will be subject to a Federal background investigation and must meet eligibility requirements for access to classified matter.

Interested candidates should apply by forwarding their resume, with identifying requisition number(s), using regular mail, fax or email, to National Security Technologies, LLC, Attn: Human Resources, P. O. Box 98521, Las Vegas, NV 89193-8521; Fax (702) 295-2448; or email to [ntsresumes@nv.doe.gov](mailto:ntsresumes@nv.doe.gov). You should only use one method to apply. National Security Technologies, LLC, is a U.S. Government contractor and is audited for EOE/Minorities/Females/Vet/Disabled compliance. If you elect to assist us in the collection of this data, please visit our website at NSTec Homepage and click About, Careers, Employment Forms and select the following forms: Voluntary Self-Identification Form and Voluntary Self-Identification Regarding Disabilities Form. Complete and print the forms, sign and forward to National Security Technologies, LLC, Attn: Employment NLV014, P.O. Box 98521, Las Vegas, NV 89193-8521 or fax to 702-295-2448. The completion of these forms is voluntary and is not required for consideration and will in no way affect our employment decision. U.S. Citizenship and a Pre-Placement physical, which includes a drug screen, are required.

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**TO CONTRIBUTE MATERIAL TO THE NSFG NEWSLETTER SEND AN E-MAIL TO:**

Stephen Moysey ([smoysey@clemsun.edu](mailto:smoysey@clemsun.edu))

DEADLINE: Material must be received 5 full business days prior to the first of each month.

GUIDELINES FOR SUBMISSIONS: All members are welcome to submit content of interest to the NS community. Please keep messages brief and provide contact information and (if available) a web address for additional information.

**GET YOUR MESSAGE OUT NS MEMBERS FASTER:**

You will no longer need to wait until the end of the month to share an important or time-sensitive contribution to the newsletter. Appropriate contributions to the newsletter will also be shared ASAP via Twitter. Please note that only NSFG members that follow [@NS\\_AGU](#) will receive Twitter announcements, so make sure that you sign up!