Letter from the Chair

Dear members of SEG Near Surface,

Spring’s been busy for SEG NS, and there is much to report in this issue of Near-Surface Views.

First, some details on preparation for the SEG Annual Meeting in New Orleans. Over 60 abstracts were submitted to Near Surface and the SEG-AGU Hydrogeophysics Standing Session. Thank you to all NS abstract reviewers; we couldn’t do it without you! This year, NS has been allotted five sessions (2 oral sessions; 2 e-poster; and 1 paper poster) in addition to the Hydrogeophysics oral session, for a total of 6 sessions.

On the organizational side, a copy of the Roles and Responsibilities document that establishes the duties and responsibilities of the NS leadership team is included in the newsletter. Within the R&R document is the schedule of elections for the leadership positions. This year we will hold an election for the position of Chair-elect. Next year we will begin rotating elections for the other positions. The names of the two candidates for Chair-elect will be announced after the SEG Board of Directors meeting in early May.

I am very pleased to announce the establishment of the Near Surface Research Award, made possible through an initial endowment of $25,000 from the NSGS. Earnings from the endowment will provide research funds for students engaged in near-surface geophysics research. Many thanks to NSGS Treasurer Seth Haines for his patience, persistence, and attention to detail while working with the SEG Foundation to establish the award. We will provide more details about the award and the application procedure once the official announcement is published in The Leading Edge.

In association with the establishment of the award, Seth has been busy with the house-keeping necessary to close the NSGS books. One outstanding item is membership dues. Although membership in SEG NS is now free, annual dues were collected for NSGS. Some of you already paid your NSGS dues for 2015 and beyond. If so, you will soon receive a letter from SEG providing options to either receive a refund or to roll your dues into the NS endowment. As we intend to grow the endowment with time to support as many students as possible, I hope many of you will choose to add your dues to the NS endowment. Contact SEG NS rep Laurie Whitesell (lwhitesell@seg.org) for additional information.

The feature article in this quarter’s newsletter is by Dr. Koichi Hayashi, reporting on his experiences as the 2014 NS Honorary Lecturer. Koichi gave his lecture “Integrated Geophysical Methods Applied to Geotechnical and Geohazard Engineering: From Qualitative to Quantitative Analysis and Interpretation” twenty-two times, in eight countries, over four months. I look forward to hearing from the 2015 NS Honorary Lecturer, Prof. Hansreudi Mauer at the conclusion of his tour!

Finally, please note the article submitted by Priyank Jaiswal and Iftekhar Alam from the SEG Student Chapter at Oklahoma State University. The article reports on near-surface geophysics research at OSU and is a great example of the energy students bring to our rapidly growing field - energy they will bring to SEG Near Surface in the years ahead. After the OSU article is a copy of a letter recently sent to all SEG student chapters to encourage students to become members of SEG NS. Know a student interested in near-surface geophysics? Encourage them to join!

John W. Lane, PhD

Chair, SEG Near Surface
Feature Article: Experiences of Koichi Hayashi of his NS Honorary Lecture Tour

By Koichi Hayashi

My experiences as SEG’s 2014 Near Surface Honorary Lecturer: meeting students, faculty, and engineers of geophysics and geotechnical engineering in Asia and Oceania.

As SEG’s 2014 Near Surface Honorary Lecturer, I gave 22 lectures in eight countries between September and December of 2014. More than 630 students, professors and researchers, and engineers of geophysics and geotechnical engineering attended my lectures in countries throughout Asia and Oceania and the United States. I gave three presentations in Japan, five in China, two in Korea, eight in Australia and one each in Thailand, Malaysia, Taiwan, and United States. The title of my talk was “Integrated Geophysical Methods Applied to Geotechnical and Geohazard Engineering: From Qualitative to Quantitative Analysis and Interpretation", and my focus was the application of integrated geophysical methods to geotechnical, geohazard and environmental engineering from non-uniqueness and quantitative interpretation perspectives.

It was definitely one of the most exciting experiences in my life. At each lecture I met new people working in the field of geophysics, and discussed geophysics associated with geotechnical and geohazard engineering. Since my specialty is geophysics applied to geotechnical and geohazard engineering, I approached my presentation from this point of view. I asked the hosts at each location to invite geotechnical practitioners to the lectures and attendees came from many universities and geotechnical organizations. I believe geophysics will play an increasingly important role in geotechnical, geohazard, and environmental engineering. Meeting the people working in such areas is invaluable for me. I would like to summarize several highlights during the lecture circuit.

Universiti Sains Malaysia, my host in Kuala Lumpur, Malaysia, planned a two-day event together with my lecture. It included acquisition (Figure 1) and processing of active and passive surface wave data. About 70 people attended the lecture and we enjoyed valuable discussion about the application of geophysics to geotechnical engineering in Malaysia. The 2004 Indian Ocean Earthquake and Tsunami made clear the need for earthquake resistance design for construction in Southeast Asian countries. Malaysian engineers are looking for effective site investigation methods in terms of earthquake engineering. Near-surface geophysical methods, such as active and passive surface wave methods, roused their interest in the use of new methods for site investigations. Another application of near-surface geophysics in Kuala Lumpur is the detection of caves or voids associated with karst topography. Wide areas of bedrock in the city of Kuala Lumpur consist of limestone. The construction of subways and high-speed trains is raging in the city and the voids and caves in the limestone pose serious trouble for tunneling. Many geotechnical and construction engineers are interested in detecting voids and caves using geophysical methods; we had a lively discussion of the applicability of geophysical methods to void and cave detection.

A professor and his students at Kasetsart University in Bangkok, Thailand, are also applying near-surface geophysics to earthquake engineering. Geotechnical engineers in Thailand were aware of the needs of earthquake resistance design after the 2004 Indian Ocean Earthquake and Tsunami like Malaysian engineers. The Kasetsart University people are trying to delineate the structure of a sedimentary basin in Bangkok by using the passive surface wave (microtremor) method. The structure of the basin has a large effect on long-period ground motion associated with large earthquakes. The long-period ground motion is very important for the earthquake resistance of high-rise buildings and geotechnical and architectural engineers are increasingly interested in deep basin structures to a depth of several kilometers. The microtremor method is playing important role in such investigations in Bangkok.
Professors of National Central University and National Chiao Tung (transportation) University in Taiwan took me on a field tour to an earth-filled dam under construction (Figure 3). The National Chiao Tung University is monitoring its condition using geophysical methods. Most of Southeast and East Asian countries are located along subduction zones and are dominated by mountainous terrain. There are many dams, bridges, and tunnels in the mountainous areas and maintenance of such large structures is very important. Many structural engineers are looking for non-destructive testing methods for structure monitoring and see promise in geophysical methods for such purposes. A research group at National Chiao Tung University is repeatedly performing surface wave and resistivity methods to monitor S-wave velocity and resistivity in the dam. Geophysical methods have been conventionally applied during dam construction and we will see these methods becoming more important post-construction for maintenance. The dam project in Taiwan shows a road ahead for near-surface geophysics.

Geophysicists in Tasmania, Australia are applying near-surface geophysics to geotechnical engineering. Unlike other states in Australia, Tasmania is characterized by mountainous terrain and plentiful rain, making landslides a particularly significant geo-hazard in Tasmania, and near-surface geophysics is playing an important role in their investigation. These conditions also have benefits; it is amazing that almost all electricity used in Tasmania is generated by hydroelectric power plants. This is a good example of the nature providing hazard as well as benefit.

All of the countries I visited are located near or along the so-called “Ring of Fire” where subduction or collision of the plates results in mountainous terrain, earthquake and volcanic activity, and geologically unstable conditions. The mountainous terrain and a vast expanse of water in Pacific Ocean bring plenty of rain in such countries. All these conditions, mountains, earthquakes, volcanoes, unstable geology, and rain cause a wide variety of geotechnical problems. For example, I am currently living in the San Francisco Bay Area and there was a big earthquake in August just before I started the tour (Figure 4). The earthquake reminded me that the west coast of the United States belongs to the Ring of Fire. Near-surface geophysics is increasingly playing important role for protecting day-to-day human activity from natural hazards in such regions and I hope my lecture encourages the use of near-surface geophysics for geotechnical and geohazard engineering in such countries.

http://www.seg.org/education/lectures-courses/honorary-lecturers/2014/hayashi/abstract
http://www.seg.org/education/lectures-courses/honorary-lecturers/2014/hayashi/schedule
By Priyank Jaiswal and Iftekhar Alam

The near-surface geophysics program at the Oklahoma State University (OSU) focuses on using geophysical techniques to understanding the composition of pore fluid, microbial interactions with sediments and sediment matrix as well as characterizing buried artifacts related to anthropogenic activities and mapping faults associated with neotectonic activity. We use a multitude of geophysical data with special emphasis on seismic, magnetic and geo-electrical methods. Under joint supervision of Drs. Estella Atekwana and Priyank Jaiswal, students gain experience in addressing a variety of issues related to near-surface geology such as delineation of contaminant plumes, detection of buried pipes, fault development and propagation, and estimation of soil strength. A broad knowledge encompassing diverse tools and techniques provides students with a solid background and prepares them to appreciate relevant societal issue related to environment, engineering and exploration.

The SEG student chapter takes an active role in promoting the near-surface research at OSU. They conduct an annual geophysical field camp which almost always focuses on near-surface geophysics. Prior to the camp, the scope of the work is defined based on interest of the participants and available resources, following which a field site is selected. The goal of the field camp is to understand near-surface processes in different geological settings using tools such as Electromagnetic (EM), DC Resistivity, Self-Potential (SP), Magnetotelluric (MT) and 2D seismic. The geophysics program at OSU is also endowed with high performance computation facilities, which has triggered several novel processing, modeling and imaging initiatives. Data from the field are processed throughout the year as class-based projects and senior undergrad or masters’ thesis. The results are eventually disseminated through conference presentations in venues such as the SAGEEP, SEG and AGU annual meetings.

Results from the two most recent field camps are being presented below:

The Norman Landfill Environmental Research Site (http://pubs.usgs.gov/fs/fs-040-03/) is a former landfill site operated by the city of Norman, Oklahoma (Figure 1). Prior to the 1970s, disposal of municipal solid waste in landfills was largely unregulated and most of the landfills were unlined. Precipitation and ground water seeping through this landfill degraded both organic and inorganic waste though microbial, geochemical and hydrological agents creating a leachate plume that migrates through the ground water aquifer. In general, the outflow is believed to be occurring towards the Canadian River, a large tributary of the Arkansas River which in turn drains into the Mississippi River.

Designing a mitigation plan in this landfill site first requires a thorough understanding of seasonal variations in geomicrobial and geochemical processes that the plume undergoes. Geophysical methods play a valuable role in monitoring of the spatial extent and movement of the plume because of their non-intrusive nature.

1.1 Geological framework
The landfill was located within the 10 - 15 m thick Canadian alluvium package. The alluvium bed comprises unconsolidated clay, silt, sand, and gravel. Water table is shallow and can range from 0 to ~4 m depending on the season. Beneath the alluvium is a confining unit, the Hennessey Group, consisting of reddish-brown shale and mudstones with occasional inter-fingering of thinly-bedded sandstone.

1.2 Geophysical data acquisition
Data acquisition was carried out in two stages. In the first stage EM and DC Resistivity data were acquired along profile 1 - 3 (Figure 1). The profiles were planned to contain as many borehole locations as possible remaining parallel and perpendicular to the flow direction of the leachate plume. Profile 1 is 595m in length and spans from borehole PD156 to PD137, Profile 2 is 525m in length and spans from PD146 to the vicinity of PD131 and Profile 3 is 480m in length and spans from PD130 to PD155. Here we are presenting results from Profile 1, which also has the DC resistivity measurements.
1.3 Results

a.) Electromagnetic Method

Electromagnetic data uses the principle of induction to measure the electrical conductivity of the subsurface. A primary alternating electric current of known frequency and magnitude is passed through transmitting coil creating a primary magnetic field in the subsurface. The eddy currents generated in the ground in turn induce a secondary current in underground conductors which results in an alternating secondary magnetic field that is sensed by the receiving coil. The secondary field is distinguished from the primary field by a phase lag. The ratio of the magnitudes of the primary and secondary currents is proportional to the terrain conductivity. The depth of penetration is governed by the coil separation and orientation.

A Geonics EM 34 with 10m and 40 m coil spacing was used. The EM34 setup with 40m separation between primary and secondary coils can see deeper than EM34 with 10m separation. Both surveys are conducted with vertical and horizontal dipole systems (VD and HD respectively; Figure 2a). Both EM34 datasets are presented in Figure 2 and show anomalous conductivity close to the center of the profile. However neither the extent nor the amplitude of the anomalous conductivity zone is the same, which is as expected. The EM34 signature is characterized by a steady rise in apparent conductivity for the horizontal dipole mode along with distinct peak in the vertical dipole at the center of the plume (300m). For example, in Figure 2a, the anomalous zone is between 150m and 400m while in Figure 2b it is much more focused between 200 and 350m. This mismatch suggests potential conductivity anisotropy in the subsurface. Note that in the EM34-10 m coil dataset, the vertical and horizontal components show comparable anomalies. In both datasets, the peak is interpreted to be the center of the leachate plume. The location of the high conductivity anomaly is coincident with elevated Cl- concentrations (Figure 3). The difference between the 40m and 10m cable data can be used to reconstruct the internal flow patterns within the leachate plume in the subsurface.

b.) Resistivity

Rock of different lithologies and pore-fluid type and saturation have different resistivities. Resistivity can be measured with an electrical apparatus with two current electrodes, acting as source and sink, and two potential electrodes. The field between the electrodes is distributed only near the surface when the electrodes spacing is close but the electrical flux flows deeper when the electrodes are further apart. The flux will concentrate/focus into the more conductive layers. The potential at the surface will reflect these path differences and will provide a data set from which an electrical profile model of the subsurface can be estimated through inversion.

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Figure 2 EM34 data acquisition. a) Acquisition using 40m TX-RX cable. b) Acquisition using 10m TX-RX cable. In (a) and (b) VD is Vertical dipole and HD is Horizontal dipole. (c) General conductance map.

Figure 3 Resistivity map along profile SE-NW from inversion of DC resistivity data.
Along Profile 1, resistivity data were acquired using dipole-dipole method where both the current and the potential electrodes were kept at a constant separated of 5m, and the mutual separation between the two pairs were gradually increased. Inversion results of DC resistivity supports the EM results. A low resistivity zone (blue zone; Figure 3) between 250 and 400 m is interpreted as leachate plume. Figure 3 suggests that the plume does not have a well-defined edge. At the margin of the leachate plume, the contaminated zone gradually merges into the background soil with uncontaminated groundwater. A gradual change in physical properties makes it difficult to identify the exact extent of the plume.

c. Seismic
In the second stage, based on EM and DC resistivity results, a 2D seismic profile was planned to image the transition from of the contaminant leachate to the background medium. Seismic profile was 376 ft long and acquired in a split-spread manner where 48 co-located sources and receivers were spaced 8ft apart. Sources were buried point explosives and receivers were 40Hz vertical geophones. No data were recorded at the shot locations. The field sample interval and trace length were 0.125 ms and 2000 ms respectively. Within the top 10m in the study area, due to a lack of sharp interfaces no prominent reflections were seen (Figure 4a). As a result, surface wave inversion was the tool of choice for physical property investigation. In the surface wave analysis, the interpreter separates the fundamental mode (signal) of Rayleigh wave propagation from higher modes that are considered as noise.

The resulting shear wave velocity model from surface wave analysis, a layered-earth structure was obtained. A distinct high velocity layer is seen between the historically high and low water tables. This zone is interpreted as microbial active zone where the shear wave anomaly could be due to biofilm formation. Even in the shear-wave model the transition from leachate plume to the background is not very evident. On the contrary, the layered structure suggests that the microbial activity due to the leachate plume could have extended laterally much deeper into the background media than previously thought, just based on the conductivity profiles. At this stage, why parts of the contaminated plume have a seismic signature but no electrical signature has remained an open-ended question.

2. Campus Surveying:
In urban landscape, buried artefacts such as utility pipes are very common. The OSU campus is no exception. On campus, the building that houses the School of Geology was one of the latest additions to the university infrastructure. In the process of constructing new buildings, as is typically the case, old subsurface infrastructure such as utility pipes and storm drains need to be moved. In the case of the Geology building, a cold water pipe to the north of the building had to be relocated and a new return water pipe was added (Figure 5). The paper records containing the original location of the cold water pipe was lost. As a result only a general idea of the pipe locations were available with the physical plant. For any future infrastructure development, the former location of utility pipe needed to be exactly determined. This is a base health, environment and safety (HSE) issue that is associated with ultra-shallow (<5m depth) targets which have the danger of caving in.

The currently operative pair of utility water pipes has diameters of 0.6m and 0.75m and a burial depth of 1.5m. The former location of the pipe(s) is now a backfilled void. Its location is not precisely known. One possible way of detecting the former location of the pipe was to do a continuous trenching, which will not only be inefficient but also environmentally unfriendly. Geophysical imaging, due to their non-destructive nature, can greatly help in void detections. Here we show how inexpensively acquired seismic data can be utilized even if reflections are absent and ground roll coda is overwhelming. Using full-waveform inversion (FWI) of transmission coda fine-scale interpretable P- and S-wave velocity (VP and VS) subsurface models are prepared.
2.1 Data acquisition and Ground Roll Removal
Both P and SH data were acquired along a 23 m long east-west 2D profile (Figure 5). Data were acquired in a split-spread manner with 24 co-located sources and receivers spaced 1m apart. In both cases sources were buried explosives. For P-acquisition, receivers were 40Hz vertical phones. For SH-acquisition receivers were 28Hz horizontal phone. In the P acquisition no data were recorded at the shot location. In the SH acquisition shots were located in between the receivers. In both cases, sampling interval and trace length were 0.125ms and 500ms respectively. Overall, the P-data (Figure 6a) were cleaner than the SH data (Figure 6b). In both datasets, the first arrivals were interpretable up to the farthest source-receiver offsets. Low frequency, high amplitude ground roll (Rayleigh mode in P and Love mode in SH) dominated the coda. Separating ground roll in pre-stack gathers became the key processing steps. Results from two methods were compared. First, bandpass filtering followed by a bottom mute was applied. Second, a wavelet transform based method, known as the Redundant Lifting Scheme (RLS), was applied. RLS is a common filtering technique in the field of image processing and generally used to sharpen the object boundaries and suppress random noise.

Figure 6 Representative data. a. P-wave and b. SH-wave. In (a) and (b) shaded area represents the ground roll and the red dots represent the first arrival picks.
2.2 Full waveform inversion (FWI)

FWI determines an earth model which can replicate the field seismic data, wiggle by wiggle, as closely as possible. Modeling in FWI can be performed both in time and frequency domain. In this study the modeling is done in frequency domain with visco-acoustic approximation due to computational efficiency and absence of mode-converted energy in the coda of interest. The inverse problem is solved by minimizing the difference between observed and modeled seismic waveforms, known as data errors, which account for travel-time kinematics as well as amplitude and phase of the seismic waveforms. Of numerous available methods for minimizing the data errors in the inverse problem, local descent method iteratively refines a starting model by minimizing a function of data errors. The starting model for both P- and SH- FWI is prepared by inverting the first arrival traveltimes. For P- and SH- wave data, frequencies were inverted in groups of 3. The main frequency groups for P-wave data are 35-40-45Hz, 75-80-85Hz, and 155-160-165Hz. The main frequency groups for SH-wave data are 35-40-45Hz, 55-60-65Hz, and 75-80-85Hz.

Figure 7 P-wave models (a) Traveltime inversion. (b) FWI of conventionally processed dataset. (b) FWI of data processed using RLS. In (a) - (c) triangles and solid dots are receiver and source locations. The current pipe locations are shown in solid box. The former location interpreted based on the perturbations, is outlined in a dashed ellipse.

Figure 8 SH-wave models (a) Traveltime inversion. (b) FWI of conventionally processed dataset. (b) FWI of data processed using RLS. Symbols have the same meaning as in Figure 7.

For both P- and SH- data, two sets of models are prepared. The first set is from inversion of conventionally processed data. The second set is from inversion of data processed using RLS. Figure 7 and 8 summarizes results for P- and SH- wave data. Figure 7a is model from inversion or first arrival traveltimes in P- data. Figure 8a is the same for SH data. Figures 7b and c are FWI of conventionally processed and data with RLS respectively for P-wave. Figure 8b and c are same for the SH data. Feature between 15m and 20m model distance in Figures 7c and 8c is interpreted as the former, backfilled location of the utility pipe.

Composite Interpretation:
The P- and SH- FWI models are combined in the form of the Poisson’s Ratio (PR; Figure 9). The PR model clearly distinguishes between the current and the former location of the utility pipe, much better than either P- or SH- data. In the zone of the current pipe locations the PR values are higher than the background. In the zone of the former pipe location, PR is lower than the background. Higher PR represents a higher VP/ VS ratio. Lower PR in the backfilled zone indicates that the VP and VS values are close together. Compaction in the backfilling process can disproportionately increase VS. The background material, which is mainly loose soil, has lower VP than water. In the zone with utility water pipes, presence of water may have enhanced VP while leaving the VS unaffected, thus resulting in a higher PR.
Figure 9 Poisson’s ratio model calculated from P- and SH-wave velocities. Symbols have the same meaning as in Figure 7.

Acknowledgments:
Thanks to Boone Pickens School of Geology for providing financial support for the fieldwork. Thanks to all the SEG student members for volunteering their time. Besides field work, every once in a while, they had to push stuck vehicle out of the mud (upper left), or take care of the university lawn after the seismic survey (upper right). Thanks to SEG for the field camp scholarship. Thanks to the SEG Near-Surface Geophysics Section for highlighting our ongoing research projects.
SEG NS Leadership Team: Roles and Responsibilities

This document outlines the Roles and Responsibilities of each SEG NS Leadership Team position. The leadership team consists of:

- Chair (1 year role - 3 year position)
- Past-chair (1 year role - 3 year position)
- Chair-elect (1 year role - 3 year position - vote annually)
- Vice Chair (2 year position - vote in odd years)
- Secretary (2 year position - vote in even years)
- Publications Leader (2 year position - appoint in odd years)
- Meetings Leader (2 year position - appoint in even years)
- Continuing Education Leader (2 year position - appoint in odd years)
- Finances and Grants Leader (2 year position - appoint in even years)
- Membership Communication Leader (2 year position - appoint in odd years)

Pending approval of modified SEG TS Policies and Procedures, any of the first 5 positions can also hold a simultaneous appointment of one of the last 5 positions.

Aside from the individual roles and responsibilities of each position, all Leadership Team members are:

- Required to submit agenda items to the Secretary 72 hours prior to monthly meetings
- Review and approve previous month’s minutes at the start of each monthly meeting
- Assume responsibility for their activities and projects as appropriate
- Communicate as needed with the Chairperson and other Leadership Team members regarding projects and concerns

The Leadership Team shall be governed by the rules contained in Robert’s Rules of Order (latest edition). An online resource for these rules is found here.

### Title: Chairperson

**Function:** The Chairperson’s primary roles are to represent the SEG NS, maintain the vision and purpose of the SEG NS, and organize the Leadership Team.

**Aim:** The Chairperson ensures that the Leadership Team functions properly, that there is full participation at meetings, that all relevant matters are discussed, and that once decisions are made they are effectively carried out. In addition, the Chairperson represents the SEG NS on the international stage.

**Responsibilities:**

- To ensure the Leadership Team functions properly the Chairperson will:
  - Plan and run meetings in accordance to the governing document
  - Ensure matters are dealt with in an orderly and efficient manner
  - Bring impartiality and objectivity to meetings and decision making
  - Facilitate change and address conflict within the Leadership Team
  - Review governance performance and skills
  - Understand the roles/responsibilities of the Leadership Team

- To ensure that the SEG NS is managed effectively the Chairperson will:
  - Liaise with the SEG BoD to maintain an awareness of SEG’s affairs and to communicate relevant SEG NS decisions to the SEG BoD
  - Coordinate the Leadership Team to ensure responsibilities for particular aspects of Leadership are met and specialist expertise is employed as required
  - Facilitate change and address conflict within the SEG NS

**Skills Required:**

- Good leadership skills
- Good communication and interpersonal skills
- Impartiality, fairness and the ability to respect confidentiality
- Ability to ensure decisions are made and to follow-up on actions required
- Good time management
- Tact and diplomacy
- Organizational experience and people management skills

**Time Commitment:** The role of the Chairperson requires an estimated commitment of 20-30 hours per month.

**Duration of Role:** 1 year role - 3 year position
Title: Vice-Chairperson

Function: The Vice-Chairperson’s primary role is to support the Chairperson.

Aim: The Vice-Chairperson ensures that the Leadership Team functions properly in the absence of the Chairperson and that communication between the SEG NS Technical Section and other societies remain open.

Responsibilities:
- Serve as replacement for Chairperson
  - Preside over meetings when the Chairperson is unavailable to attend
  - Understand the roles/responsibilities of the Leadership Team
- Serve as intersociety liaison for NS affairs
  - Attend meetings (in person or by teleconference) to discuss strategic opportunities for collaboration. Example collaborations include those between SEG and AAPG, AGU, EAGE, and EEGS (serving as a formal committee member in other professional societies is not a requirement)
  - Serve as the point of contact between SEG NS and other societies
  - Find volunteers to lead inter-society meetings and projects

Skills Required:
- Good leadership skills
- Good communication and interpersonal skills
- Impartiality, fairness and the ability to respect confidentiality
- Ability to ensure decisions are made and to follow-up on actions required
- Good time management
- Tact and diplomacy
- Organizational experience and people management skills

Time Commitment: The role of the Vice-Chairperson requires an estimated commitment of 5 hours per month.

Duration of Role: 2 years (vote in odd years)

Title: Chairperson-Elect

Function: The Chairperson-Elect’s primary role is to learn the role of the Chairperson.

Aim: The Chairperson-Elect learns how the Leadership Team functions properly by acting as a ‘chair-in-training’.

Responsibilities:
- Learn the responsibilities of the Chairperson
  - Shadow the Chairperson to all meetings to become up-to-date on all issues being addressed by the SEG NS
  - Gain familiarity with the structure of SEG and the processes by which decisions are made
  - Speak with each person on the Leadership Team to learn each person’s roles and responsibilities
- Serve as replacement for the Chairperson
  - Preside over meetings when the Chairperson and Vice-Chairperson are unable to attend

Skills Required:
- Good leadership skills
- Good communication and interpersonal skills
- Impartiality, fairness and the ability to respect confidentiality
- Ability to ensure decisions are made and to follow-up on actions required
- Good time management
- Tact and diplomacy
- Understanding the roles/responsibilities of the Leadership Team
- Organizational experience and people management skills

Time Commitment: The role of the Chairperson-Elect requires an estimated commitment of 5 hours per month.

Duration of Role: 1 year role - 3 year position
Title: Past-Chairperson

Function: The Past-Chairperson’s primary roles are to pass along historical knowledge to the current SEG NS Leadership Team to ensure smooth transitions to new leadership and to aid the current Chairperson.

Aim: The Past-Chairperson ensures that the transition to new leadership occurs smoothly and that the Leadership Team has nominations to fill vacated Leadership Team positions at each annual election.

Responsibilities:
- Pass along historical knowledge about the SEG NS to the new Leadership Team
  - Make the Leadership Team aware of past decisions that may affect current decisions
- Ensure that the NS Technical session replace Leadership Team
  - Plan the recruitment and renewal of the Leadership Team

Skills Required:
- Good leadership skills
- Good communication and interpersonal skills
- Impartiality, fairness and the ability to respect confidentiality
- Ability to ensure decisions are made and to follow-up on actions required
- Good time management
- Tact and diplomacy
- Organizational experience and people management skills

Time Commitment: The role of the Past-Chairperson requires an estimated commitment of 5 hours per month.

Duration of Role: 1 year role - 3 year position

Title: Secretary

Function: The Secretary’s primary roles are to ensure that the Leadership Team functions smoothly and that historical records of the Leadership Team’s decisions are kept.

Aim: The Secretary ensures that the Leadership Team functions properly and that meeting minutes are recorded and distributed to the Leadership Team and relevant SEG Staff.

Responsibilities:
- Ensure responsible administration of the SEG NS
  - Receive agenda items from the Leadership Team
  - Prepare agendas in consultation with the Chairperson and SEG staff
  - Circulate agendas and supporting papers in a timely fashion
  - Check that quorum is present at meetings
  - Take meeting minutes (or delegate to SEG staff)
  - Circulate draft minutes to all committee members
  - Ensure the Chairperson signs the minutes once approved
  - Check that the Leadership Team members and/or SEG staff have carried out required and agreed upon action(s)
  - Circulate agendas and minutes of the Annual NS Business Meeting and any special or extraordinary general meetings
  - Ensure up-to-date records are kept of the committee membership
- Make arrangements for meetings
  - Ensure arrangements for teleconferences and meetings are made in coordination with SEG staff
- Reporting
  - Make a presentation at the annual SEG NS Business Meeting about membership

Skills Required:
- Good organizational skills and good time management
- Experience with committee work and procedures (in particular Robert’s Rules of Order)
- Minute taking experience (if not delegated to SEG staff)
- Good communication and interpersonal skills
- Impartiality, fairness and the ability to respect confidentiality
- Approachable and sensitive to the feelings of others
- Ability to work well with the Chairperson

Time Commitment: The role of the Secretary requires an estimated commitment of 5-10 hours per month.

Duration of Role: 2 years (vote in even years)
Title: Publication Leader

Function: The Publication Leader’s primary roles are to be responsible for all matters relating to NS publications and to oversee the SEG NS’s Publication committee.

Aim: The Publication Leader ensures that the SEG publications include a substantial number of NS specific sections/issues and books.

Responsibilities:
- Solicit new topics for special sections and books
- Recruit teams of guest editors willing to champion special sections and edit book topics
- Organize and preside over a publication committee composed of broad NS interests to develop content ideas for journal special issues and books
- Support the special section or book editors
  - Liaise with the SEG Publications Committee and inform them of special interests topics that would warrant special journal sections
  - Ensure that prospective guest editors of special sections understand the process by which special section topics are approved
  - Ensure that the call for papers is written and that the special sections are broadly advertised to ensure the maximum possible number of submissions
  - Liaise between the guest editors and the journal editors to answer any questions or address issues that might arise during the submission and/or review process
- Reporting
  - Make a presentation at the annual SEG NS Business Meeting about new and planned publications

Skills Required:
- Knowledge or willingness to learn about the publication process as it pertains to society journal and book publications
- Willingness to solicit special topic ideas from the NS community
- Ability to ensure decisions are made and to follow-up on actions required

Time Commitment: The role of the Publication Leader requires an average commitment of 5 hours per month (the time commitment in some months will be substantially higher than other months).

Duration of Role: 2 years (appoint in odd years)

Title: Conference and Workshops Leader

Function: The Conference and Workshops Leader is responsible for the organization of conferences, workshop and NS-oriented sessions at the SEG Annual Meeting and liaises with the SEG Meetings Committee.

Aim: To strengthen the NS component of SEG by ensuring a strong NS presence at the Annual Meeting, by ensuring NS-specific post-convention workshops are held, and by providing support for the organization of other SEG-sponsored NS-related workshops and meetings.

Responsibilities:
- Develop new meeting ideas
  - To liaise with the SEG Meetings Review and Planning Committee
  - To develop workshop ideas and solicit volunteers to lead workshops and sessions focused on NS topics
- SEG Annual Meeting
  - Chair a NS Annual Meeting planning committee
  - Find a chair for the standing Hydrogeophysics Special Session
  - Organize peer-review of extended abstracts
  - Liaise with the SEG Annual Meeting Steering Committee
- Collaborate with Vice-Chair on intersociety meetings and workshops planning
  - Find volunteers to lead inter-society meetings and projects
  - Organize and preside over a meeting or workshop committee when needed
- Reporting
  - Make a presentation at the annual SEG NS Business Meeting about the meeting activities of the past year and in planning

Skills Required:
- Ability to ensure decisions are made and to follow-up on actions required
- Good time management
- Approachable and sensitive to the feelings of others
- Good communication and interpersonal skills
- Good organizational skills

**Time Commitment:** The role of the Collaboration and Meetings Leader requires an average commitment of 10 hours per month (the time commitment in some months will be substantially higher than other months)

**Duration of Role:** 2 years (appoint in even years)

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**Title:** Continuing Education (CE) Leader

**Function:** The CE Leader is responsible for all matters relating to NS education and for liaising with SEG’s Continuing Education committee.

**Aim:** The CE Leader ensures that SEG NS is offering relevant CE options for members of the SEG and the larger NS community.

**Responsibilities:**
- Act as the SEG NS representative to the SEG CE committee
  - Determine CE and professional development needs of (people in) the near-surface geophysics industry
  - Present or propose topics to add (and possibly eliminate) to SEG CE committee
  - Ensure that NS-specific CE courses covering a broad range of topics are regularly offered through the SEG
- Develop new CE courses
  - Work with course instructors and SEG staff to implement new CE courses
  - Help SEG CE committee find instructors for new NS CE courses
  - Arrange and facilitate consultations and evaluations of courses
  - Regularly communicate with and report to the Leadership Team
- Reporting
  - Make a presentation at the annual SEG NS Business Meeting about the current and planned CE course offerings and any other education related materials

**Skills Required:**
- Knowledge of or willingness to learn about continuing education practices within the SEG and/or other professional societies
- Good communication and interpersonal skills
- Experience with course development and instruction
- A willingness to reach out to industry and academic professional to solicit invitations to teach CE courses
- Ability to ensure decisions are made and to follow-up on actions required

**Time Commitment:** The role of the Continuing Education Leader requires an estimated commitment of 10 hours per month.

**Duration of Role:** 2 years (appoint in odd years)

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**Title:** Finance and Grant Leader

**Function:** The Finance and Grant Leader’s primary roles are to manage the SEG NS annual budget with SEG staff and to grow the SEG Near Surface Geophysical Research Award Fund (SEGNSGRAF).

**Aim:** The Finance and Grant Leader ensures that the SEG NS Technical Section remains financially viable, and in cooperation with SEG staff, makes sure that proper financial records and procedures are maintained and funds are available for NS Technical Section events.

**Responsibilities:**
- General financial oversight
  - To oversee and present budgets, accounts and financial statements to the NS Technical Section Leadership Team
  - To liaise with the designated SEG staff about financial matters
- Financial planning
  - To develop the annual operating budget in coordination with the relevant SEG staff
  - To advise on the financial implications of the Leadership Team’s strategic and operational plans
- SEG Near Surface Geophysical Research Award Fund oversight
  - Assist SEG Foundation to organize fund raising drives for the SEGNSGRAF
  - To advise on the fundraising strategy of the SEGNSGRAF
  - To advise the SEGNSGRAF policy and serve as primary contact for the SEGNSGRAF

**Skills Required:**
- Knowledge of or willingness to learn about continuing education practices within the SEG and/or other professional societies
- Experience with course development and instruction
- Organize the annual research grant Award Advisory Committee
  - Reporting
    - To make a presentation of the accounts at the annual SEG NS Business Meeting
    - To present financial data and records to the Leadership Team

Skills Required:
- Experience with financial planning and budgeting
- Experience with fundraising and grant writing
- Good communication and interpersonal skills and time management
- A willingness to be contacted on an ad hoc basis by potential donors
- Ability to ensure decisions are made and to follow-up on actions required

Time Commitment: The role of the Finance Leader requires an estimated commitment of 10 hours per month.

Duration of Role: 2 years (appoint in even years)

Title: Membership Communication Leader

Function: The Membership Communication Leader’s primary roles are to manage the SEG NS Quarterly Newsletter content and website content.

Aim: The Membership Communication Leader ensures that the SEG NS Quarterly Newsletter content is ready for SEG staff to distribute through the SEG Exact Contact software and that the SEG NS website is continuously updated with new relevant material.

Responsibilities:
- Quarterly Newsletter
  - To oversee the collection of newsletter content from relevant NS TS members
  - To work with SEG staff to send electronic quarterly newsletter to all NS TS members
  - To liaise with the designated SEG staff in order to maximize persons reached by the newsletter
- Website content
  - To provide SEG staff with content for the SEG NS webpage
  - To work with SEG to staff to keep the webpage announcements up-to-date

Skills Required:
- Good communication and interpersonal skills
- A willingness to reach out to NS members and ask for stories and content for the newsletter and website
- Good time management and organizational skills
- Ability to ensure decisions are made and to follow-up on actions required

Time Commitment: The role of the Finance Leader requires an estimated commitment of 10 hours per month.

Duration of Role: 2 years (appoint in even years)
ASSOCIATION AGREEMENT BETWEEN
THE ENVIRONMENTAL AND ENGINEERING GEOPHYSICAL SOCIETY
And
THE SOCIETY OF EXPLORATION GEOPHYSICISTS

In recognition of the mutual interests of their members, and to advance the common goals and objectives of each Society, the Environmental and Engineering Geophysical Society (EEGS) and the Executive Committee of the Society of Exploration Geophysicists (SEG) have agreed to the mutual association of the two societies. This meets the “Cooperating Societies” policy of EEGS and “Affiliated or Allied Societies” policy of SEG with the following terms:

1. Neither Society shall have any financial obligation to the other.
2. EEGS shall be welcome to send an accredited representative to participate in a non-voting capacity in the Annual Meeting of the SEG Council. EEGS holds a Business Luncheon each year during the SAGEEP conference and all conference attendees may attend this luncheon. SEG representatives are welcome to attend the luncheon.
3. The Business Officers of both Societies shall exchange announcements of technical meetings of their respective Societies.
4. The two Societies shall exchange two copies of each issue of their respective journals and newsletters and newsmagazines; one for the files of their business office and one for their respective editorial committees.
5. Members of the Societies may purchase publications of the other Society at the member prices of the publishing Society.
6. Each organization shall provide a co-chair and two members for a liaison committee charged with considering and making recommendations to the respective organizations regarding other areas of cooperation, such as joint meetings, workshops, continuing education courses, and publications. The liaison committee shall convene at each Society’s annual meeting and intervening times as necessary.
7. This agreement shall be reviewed every five (5) years from signing by both Society’s representatives.
8. This agreement may be dissolved by either Society at any time with 30 days notice.
9. This present agreement replaces the Association Agreement between the Environmental and Engineering Geophysical Society and Society of Exploration Geophysicists entered into by the Societies in June, 2005 and renewed in January of 2011, which will become null and void upon signature of the present agreement by the three signators.

APPROVED
ENVIRONMENTAL AND ENGINEERING
GEOPHYSICAL SOCIETY

SIGNED President EEGS

DATE 03/24/2015

APPROVED
THE SOCIETY OF EXPLORATION GEOPHYSICISTS

SIGNED President SEG

DATE 2/18/2015
SEG Near Surface Honorary Lecturer

2015 Hansruedi Maurer
Touring August-December 2015
“The curse of dimensionality in exploring the subsurface”
Geographic tour focus: North America, Asia, and Australia
http://www.seg.org/education/lectures-courses/honorary-lecturers/2015/maurer

Distinguished Lecturer

2015 Jean Virieux
Université Joseph Fourier, Grenoble, France
Touring Spring
“Hierarchical seismic imaging: A multiscale approach”
http://www.seg.org/education/lectures-courses/distinguished-lecturers/spring2015/virieux-abstract
Following the 2015 International Workshop on Magnetic Resonance of the Subsurface (MRS), SEG Near Surface is soliciting manuscripts for a special section in Geophysics focused on Nuclear magnetic resonance characterization of near-surface materials.

Nuclear magnetic resonance (NMR) is a promising method for investigating the properties of Earth materials, providing direct sensitivity to hydrogen bearing fluids and their interactions with the pore space. In near-surface geophysics, NMR is most commonly used to determine water content and to estimate hydrogeologic properties such as pore size and hydraulic conductivity.

The special section will highlight the recent advances in the NMR method as applied to the characterization of the near surface. We seek papers that address the state of NMR as a geophysical measurement for near-surface applications in the field (using surface, borehole, or direct push NMR) and in the laboratory, as well as papers that address integrating NMR datasets into hydrogeological models. We welcome the submission of papers that present novel applications and case studies of NMR, technical advances in the instrumentation, new data interpretation, advancements in data acquisition and signal processing, and new forward modeling and inversion approaches. Authors who did not present at the 2015 MRS workshop but whose research fits the theme of this call are also encouraged to submit papers.

Authors should first register their interest and prospective title with the special section editors by sending an email to MRS2015@au.dk with “Special Issue: <paper title>” in the subject. Please also indicate when the manuscript will be submitted. The deadline for submitting manuscripts to the special issue is 1 September 2015. All submissions will be made using the Geophysics online submission system (https://mc.manuscriptcentral.com/geophysics). Please indicate that the manuscript is intended for the MRS special section in the online submission system and in a cover letter to the editor. Manuscripts that are submitted to this special section will undergo the standard Geophysics review process. Authors will also be asked to contribute to the review process.

The submissions will be processed according to the following timeline:

- Submission deadline: 1 September 2015
- Peer review complete: 15 March 2016
- All files submitted for production: 1 May 2016
- Publication of issue: July-August 2016

Special section editors: Kristina Keating, Lin Jun, Mike Müller-Petke, Ahmad Behroozmand, Jean-Francois Girard
<table>
<thead>
<tr>
<th>Dates</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 19 - 22, 2015</td>
<td>SEG/CGS Workshop: Gravity, Electrical &amp; Magnetic Methods and Their Applications</td>
<td>Chengdu, China</td>
</tr>
<tr>
<td>May 19 - 21, 2015</td>
<td>Workshop Novel Methods for Subsurface Characterization and Monitoring: From Theory to Practice (NovCare 2015)</td>
<td>Lawrence, Kansas, USA</td>
</tr>
<tr>
<td>June 1 - 4, 2015</td>
<td>77th EAGE Conference &amp; Exhibition and Workshop on “Full Waveform Inversion for Near-surface Characterization”</td>
<td>Madrid, Spain</td>
</tr>
<tr>
<td>June 8 - 10, 2015</td>
<td>6th International Workshop on Magnetic Resonance Sounding</td>
<td>Aarhus, Denmark</td>
</tr>
<tr>
<td>July 7 - 10, 2015</td>
<td>SEG Asia-Pacific Near Surface Meeting</td>
<td>Waikoloa Hilton, HI, USA</td>
</tr>
<tr>
<td>July 7 - 10, 2015</td>
<td>IWAGPR 2015 - 8th International Workshop on Advanced Ground Penetrating Radar</td>
<td>Florence, Italy</td>
</tr>
<tr>
<td>Sep 6 - 10, 2015</td>
<td>EAGE Near Surface Geoscience 2015</td>
<td>Turin, Italy</td>
</tr>
<tr>
<td>Sep 15 - 17, 2015</td>
<td>International Symposium on Non-Destructive Testing in Civil Engineering NDTCE 2015</td>
<td>Berlin, Germany</td>
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The 2015 Near-Surface Asia Pacific Conference will focus on near-surface issues within the entire Pan-Pacific region and will provide a world-class forum for new technical advances, developments, and applications in near-surface geophysics. We welcome the submission of papers covering theoretical developments and case histories in the broad topic of near-surface geophysics, including:

- Shallow Seismology
- Ground-penetrating Radar
- Electric, EM, and NMR Methods
- Engineering Geophysics
- Hydrogeophysics
- Mining and Geothermal Exploration
- Borehole Geophysics
- Modeling and Inversion
- Geophysical Instruments
- Rock and Soil Properties
- Remote Sensing and Lidar Applications

GEM Beijing 2011 was a successful workshop that attracted participants from different countries and provided excellent networking opportunities for geophysicists from different continents. The goal of GEM Chengdu 2015 is again to bring together experts from academia, government agencies, resources companies, and contractors to share the latest technological and methodological developments and successful experiences, and to discuss challenges and future directions and needs. Gravity, electrical, electromagnetic, magnetic, and nuclear magnetic resonance methods are among the primary tools for exploring natural resources (oil and gas, minerals, geothermal) as well as for tackling geotechnical and environmental problems. Sensors, tools, acquisition techniques, processing and interpretation methods are common among these different applications. This Workshop covers the technologies and methodologies, brings a suite of applications to a common forum, so that we can enjoy and learn from related applications of the same technologies.

Workshop Topics:

- Methodologies and Technologies
- Oil & Gas Exploration and Production
- Mining & Geothermal Applications
- Groundwater Resources
- Environmental & Engineering

To access the online abstract submission site: [http://www.seg.org/events/upcoming-seg-meetings/gem-chengdu-2015](http://www.seg.org/events/upcoming-seg-meetings/gem-chengdu-2015)

Workshop Novel Methods for Subsurface Characterization and Monitoring: From Theory to Practice (NovCare 2015)

Meeting Dates: May 19 - 21, 2015
Meeting Location: University of Kansas in Lawrence, Kansas

As societal concerns about the long-term sustainability of groundwater supplies mount, there is a pressing need to improve our understanding of the subsurface and to better monitor and characterize natural and anthropogenic-influenced systems. The environmental research community is facing an increasing demand for investigation methods that have high accuracy and resolution across a range of spatial and temporal scales. Uses for these methods include the identification and parameterization of relevant physical and biochemical processes, as well as the assessment of interactions between these processes through space and time. A particular emphasis is placed on methods that are cost-effective, rapid, and minimally disturb the investigated system. The 4th NovCare Conference in 2015 will showcase newly developed and refined methods, novel applications of existing methods, and new concepts for subsurface characterization and monitoring. NovCare 2015 will again provide an outstanding platform for researchers and practitioners from all over the world to share research on innovative methods for characterization and monitoring of aquifers, soils, and watersheds. Selected papers of NovCare 2015 will be published in a special issue of the ISI journal Environmental Earth Science. More info: [http://www.ufz.de/novcare/](http://www.ufz.de/novcare/)

Workshop Topics:

- Integrated characterization of the unsaturated and saturated zones
- Characterization at interfaces (stream-aquifer interactions, coastal settings, etc.)
- Opportunistic characterization (natural/anthropogenic stimuli and tracers of opportunity)
- New tools for watershed characterization
- Geotechnical site characterization
- Long-term monitoring

Confirmed Keynote Speakers:

- Rick Miller (Kansas Geological Survey)
- Rosemary Knight (Stanford University)
- Jens Tronicke (University of Potsdam)
- Esben Auken (Aarhus University)
- Brian Pellerin (U.S. Geological Survey)
- Matthew Becker (California St. Uni.Long Beach)
- Yongcheol Kim (KIGAM)
- James Jarwitz (University of Florida)
- Randall J. Hunt (U.S. Geological Survey)
Near surface focus topics for the conference call for abstracts are listed below; see conference website for a full list:

- Environmental and Hydrological Issues Related to Unconventional Resource Exploitation
- Characterization and Monitoring of Hydrocarbon Polluted Sites
- Exploration Applied to Water Resources Estimation and Management
- Geophysical Site Characterization Applied to Climate Change Evaluation
- Geophysical Investigation and Monitoring of Shallow Hazards
- Geophysical Investigation and Monitoring for Induced Seismicity
- Near-surface Characterization for Hydrocarbon Prospecting
- Risk Assessment of Shallow Sub-seabed
- Site Investigation for On- and Off-shore Engineering

Workshop on “Full Waveform Inversion for Near-surface Characterization”

This one-day workshop will be held on 1 June 2015. The workshop will highlight the state of the science and critical future directions in using accurate forward modeling programs in full-waveform inversion algorithms to obtain sub-wavelength resolution images of the near surface. Recently successful field data applications of FWI have been published in the non-destructive material testing using ultrasonics, the prospecting of the near-surface using ground penetrating radar, and the reconstruction of elastic properties from shallow seismic Rayleigh waves. During the workshop recent developments will be discussed and it is expected that the workshop will include presentations about the theoretical background, synthetic examples, and several case histories for ultrasonics, shallow seismics and ground penetrating radar applications. The workshop shall consist of oral and poster presentations depending on the number of submissions. Sufficient time will be given for discussion to allow for the exchange of knowledge and experiences.

Additional information is available online. For more information please contact Thomas Bohlen (thomas.bohlen@kit.edu) or Jan van der Kruk (j.van.der.kruk@fz-juelich.de)

6th International Workshop on Magnetic Resonance Sounding

Meeting Dates: 8 - 10 June 2015
Meeting Location: Aarhus, Denmark

The workshop is organized by the HydroGeophysics Group, Aarhus University. We will do our utmost to make this an unforgettable event, and we hope that science at the highest possible level will go hand in hand with good discussion with our colleagues. As an add-on to the workshop we will, arrange a short course for professionals and students on 6-7 June. Here we will introduce the method, the equipment, the processing and inversion software and examples of applications. We hope that this will be a great introduction to the method for newcomers and for those who know something, but would like to know more.

The workshop will focus on the recent advances in nuclear magnetic resonance (NMR) measurements for near-surface characterization. The most important findings will be presented in the areas of:

- Borehole NMR
- Laboratory NMR
- Integration of NMR with hydrologic modeling
- Instrumentation
- Case studies
- Magnetic Resonance Sounding (MRS) / Surface NMR

VistaClara Iris Instruments, Ramboll, and the Danish Ministry of the Environment are sponsoring the workshop and they will also be present in the exhibition. We are looking forward to seeing you in the historic city of Aarhus

To access the online abstract submission site: http://hgg.au.dk/mrs-2015/
Meeting Dates: 7-10 July 2015
Meeting Location: Florence, Italy

This workshop is the 8th of a biennial series of international scientific symposia devoted in advancements in GPR techniques and applications. The conference is aimed at presenting a wide range of scientific and technical information of high standard to scientists, engineers and end-users of GPR technologies, as well as to provide the possibility to participants to exchange ideas and discuss about their work and results.

Topics covered include novel developments of GPR systems and antennas, advanced data processing algorithms for improved subsurface imaging, radar data modelling approaches and inversion strategies for qualitative and quantitative reconstruction of soil and material properties, and finally, data interpretation in a range of fields, including geology and sedimentology, glaciology, environmental and agricultural engineering (e.g., hydrological monitoring, digital soil mapping, forestry), civil engineering (e.g., utility detection, monitoring of transport infrastructures, non-destructive testing), UXOs and landmines detection, archaeology and cultural heritage, among others.

All papers presented at the conference will be published in the workshop proceedings, and the official language is English.

The conference will be held in the historic Rectorate of the Florence University, in Florence downtown, one of the most beautiful places of the world, registered on the World Heritage List of the UNESCO. The Rectorate is within a few steps from the “Galleria dell'Accademia” that houses the original David by Michelangelo, and all the majors attraction of Florence (the Cathedral of “S.Maria del Fiore” with Brunelleschi’s dome and Giotto’s bell-tower, the “Piazza della Signoria” heart of the city, the scenic bridge “Ponte Vecchio” as well as any corner of this unique downtown).

More information can be found [http://www.iwagpr2015.eu/?q=node/93](http://www.iwagpr2015.eu/?q=node/93)

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**EAGE Near Surface Geoscience 2015**

Submission Deadline: 15 April 2015
Meeting Dates: 6-10 September 2015
Meeting Location: Turin, Italy

Near Surface Geoscience 2015 is actually three conferences in one! Participants can attend the 21st European Meeting of Environmental and Engineering Geophysics, the 1st Conference on Proximal Sensing Supporting Precision Agriculture, or the 1st European Airborne Electromagnetics Conference. In addition, there will be several workshops available on 6 September.


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**Society of Exploration Geophysicists 85th Annual Meeting**

Submission Deadline: closed
Meeting Dates: 18-23 October 2015
Meeting Location: New Orleans, LA

International Symposium on Non-Destructive Testing in Civil Engineering NDTCE 2015

Meeting Dates: 15- 17. September 2015
Meeting Location: Berlin, Germany

The symposium will convene experts from all over the world, present the state of the art of NDTCE as well as new approaches and provide a forum for international exchange of knowledge and experience. The primary aim of this meeting is to document new developments for testing, monitoring and characterizing of materials, building components and structures. Combination of methods, data fusion, validation and standardization have gained high attention recently and require a discussion about their relevance for practical application. The symposium will continue the legend to be the event to intensify international cooperation in this important and growing field of civil engineering research.

It will provide interfaces to related disciplines as mathematics, physics, geophysics and classical NDT. It is directed to all institutions and experts engaged in nondestructive evaluation in research, administration and industry. The three day symposium will provide opportunity for discussion of technological trends, testing equipment and applications. It will also provide the latest information on research policies in different countries and help establish joint research projects.

Contributions to this symposium should focus on testing methods used in construction and for the condition assessment of buildings and other structures. Within this scope, the symposium will deal with both the development of new NDTCE methods and practical experience or applications in general. The objects of investigations should be building components, buildings, structures and insitu, nondestructive or quasi nondestructive material analysis and evaluation.

More info: http://www.ndt-ce2015.net/

Session Topics:

- Ultrasonics
- Radar
- IR Thermography
- Combined Methods, Data Fusion, Data Analysis
- Case Studies, Bridges, Nuclear Containments
- Materials
- Moisture, Corrosion
- Foundations, Geotechnics
- Monitoring
- Validation, Training, Guidelines, Committees

3rd International Conference on Engineering Geophysics 2015

Meeting Location: Al Ain, United Arab Emirates

ICEG Technical committee will accept paper submissions received before its selection meeting scheduled in 1st week of May 2015.

The success of the first and second ICEGs is reflected by the number of participants and the great interest and feedback from both local authorities and the international geo-community working with geophysical methods applied to engineering, environmental, archaeological, geotechnical, and forensic problems. Overwhelming encouragement from this community has led to the third in the series, and to the decision to extend the fields of interest to a wider range of near surface related specialties including groundwater, time-lapse, security, seismicity, and geothermal to name a few options. Beyond this 2015 event, this world class series will be broadened to allow sharing of the event with other regional partners with equivalent enthusiasm for the application of geophysics to near-surface problems. For more information and to access the online abstract submission site: http://www.iceg.ae

The Technical Committee invites submissions via the SEG website of Extended Abstracts, four (4) pages in length (including figures and references) under the following topics:

- Engineering Geophysical Applications for Civil and Industrial Construction Domains
- Environmental Geophysics Applications and Natural Hazards
- Archeo-Geophysics
- Engineering Geophysics Application for the Energy Industry
- Hydrogeophysics - Groundwater and shallow water structures and characterization
- Engineering Geology - Ground stability, material properties, site response, coastal/sedimentation, weathered layer/stratigraphy/variability, etc.
- Airborne Geophysics
- New Approaches and Data Processing
- Near-Surface Geophysics for Forensic Applications
- Advanced Field Technologies
PhD Student in Remote Sensing / Hydrogeophysics
Institute of Bio- and Geosciences - Agrosphere (IBG - 3), Forschungszentrum Jülich, Germany

Job Description
The candidate will develop his/her research in the field of remote sensing and hydrogeophysics. The objective of the project is to support the exploitation of available and future spaceborne microwave remote sensing data collected over vegetated covered areas for the retrieval of surface soil moisture. The project will be carried out in collaboration with the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL). The aim of this research project is to increase our understanding of microwave radiative transfer that determines active (radar) and passive (radiometry) microwave signals in application to vegetation and soil. In this context, the candidate will apply existing and support the development of new radiative transfer forward models and inversion strategies for the estimation of surface soil moisture from ground-based L-band radiometer and radar data. The project should therefore result in improved remote sensing data products.

For further information please visit our website: [http://www.fz-juelich.de/ibg/ibg-3/EN/Home/home_node.html](http://www.fz-juelich.de/ibg/ibg-3/EN/Home/home_node.html) and/or contact Dr. François Jonard, e-mail: f.jonard@fz-juelich.de

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Postdoctoral Fellow at Lawrence Berkeley National Laboratory

The Earth Sciences Division of Lawrence Berkeley National Laboratory is seeking applications for a Postdoctoral Fellow to develop and implement methodologies for monitoring and investigating complex near-surface and surface processes using remote sensing (primarily using unmanned aerial systems), hydrological and geophysical techniques, and point-scale energy and flux measurements.

The Postdoctoral Fellow will work with a multi-disciplinary group of scientists to improve predictive understanding of coupled hydrological-geomechanical-biogeochemical processes that are manifested at the pore to the watershed scales and that are relevant to hydrological and biogeochemical functioning of terrestrial ecosystems. The position focuses on the development of advanced acquisition, processing, and change detection approaches for monitoring complex terrestrial environments in the Colorado River Basin (CO) and in the Arctic (AK).

Essential for this position is expertise in near-surface earth or environmental sciences with a particular emphasis on at least one of the following domains: airborne-based multi/hyperspectral and/or geophysical data acquisition and processing, soil physics and hydrology at the field scale, and surface-subsurface water-heat-gas fluxes.

The position requires an outstanding record of original and high-quality research, and demonstrated experience and enthusiasm for subsurface and surface processes characterization and monitoring. Essential for the position is a Ph.D. in earth sciences, environmental sciences or engineering and experience with field data integration and assimilation. Desired is a familiarity with hydrogeophysical techniques, soil physics, remote sensing approaches, statistical methods for data analyses and an interest in working with a multi-disciplinary team to understand complex near-surface processes.

The Earth Sciences Division in Lawrence Berkeley National Laboratory takes advantage of multi-disciplinary research expertise to tackle many critical and challenging environmental questions, including quantification of terrestrial environments and their dynamics. Berkeley Lab is located in an environment recognized for offering a high quality of life, having both abundant natural beauty and exciting urban surrounds.


To apply, please visit [http://jobs.lbl.gov](http://jobs.lbl.gov) and reference Geological Postdoc Fellow posting #80701
To contribute material to the NS SEG newsletter send an Email to Anja Klotzsche (a.klotzsche@fz-juelich.de)

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.