Letter from the Chair

Dear members of the SEG Near Surface,

This year’s near-surface technical sessions at the SEG Annual Meeting showcase the breadth of near-surface geophysics. Session topics range from engineering geophysics, hydrogeophysics to statics, inversion, and tomography. The SEG Near Surface Technical Section has eight sessions, the largest number conducted in our collective memory, and we are looking to grow the number of contributions next year. I would personally like to thank every single person who submitted and(or) reviewed abstracts. This suite of technical sessions would not have been possible without you!

In addition to technical sessions, the annual tradition of welcoming the new SEG Near Surface Technical Section leadership will commence with the official handoff occurring during at the Near Surface Evening Reception that will be held on Tuesday, 18 October from 7:00 – 11:00 PM at Eddie Deen’s Restaurant. We will welcome the incoming Chair for 2016-2017, Steven Sloan of the U.S. Army Engineering Research & Development Center as well as Chair-elect, Michael Powers of the U.S. Geological Survey and Secretary, Dale Rucker of hydroGEOPHYSICS, Inc. It has been my honor and privilege to represent the SEG Near Surface membership and I thank you for giving me the opportunity to serve you and the near-surface community.

We will be presenting honors and awards at the Evening Reception. We will begin by honoring the inaugural recipient of the SEG Near Surface Geophysical Research Award, Brady Flinchum. Brady is currently pursuing his Ph.D. at the University of Wyoming as part of the Wyoming Center for Environmental Hydrology and Geophysics (WyCEHG). To read more about Brady, please see his feature article from the Second Quarter Near-Surface Views at http://seg.org/News-Resources/Near-Surface/Newsletter. Congratualtions Brady, we look forward to hearing more from you!

We will also present the Award for best SEG student chapter near-surface geophysics article to, Eötvös Loránd University, Budapest, Hungary for their article entitled “Complex geophysical and geological study of the Balaton Highlands: inferences from magnetic and geoelectric surveys” with co-authors Zsófia Zalai, Tamás Lukács, Balázs Soós, András Kovács, Virág Darányi, László Bereczki & Attila Balázs. To read their article, please see the Fourth Quarter 2015 at http://seg.org/News-Resources/Near-Surface/Newsletter.

As I close my final letter as Chair of SEG Near Surface, it is my distinct pleasure to announce the selection of Susan Hubbard as the 2016 winner of the Harold B. Mooney Award. The Mooney award is given annually to an individual in recognition of scientific and technical excellence and innovation leading to the advancement of near-surface geophysics and 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. Congratulations Sue!

Sincerely,

Phil Sirles

Chair, SEG Near Surface Technical Section
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I could not imagine working so much with near-surface geophysical methods until I became heavily involved with our SEG-GWB project as a leader. For me, everything that could be dug in and seen easily was not so much interesting! Nearly 7 years ago we wrote our first application to the newly, at the time, launched Geoscientists Without Borders (GWB) program of the Society of Exploration Geophysicists (SEG). It went through in 2010 (after being once rejected) with the promise of tackling a peculiar type of landslide known in the northern countries such as Sweden, Norway and Canada (and Alaska in USA) as quick clay (Fig. 1) and also using our methods and site as a role model for other studies and places. Several universities, research and governmental organizations from Sweden, Germany, Poland, Indonesia and Norway took part in the project and this expanded later to many more partners and individuals just after the first field campaign. More than 25 students and researchers took part in the first field campaign (Fig. 2) that included almost every geophysical methods one could name such as 2D and 3D active and passive seismic refraction and reflection methods, SH-SH type seismic survey, 2D and 3D ERT, 2D and 3D radio-magnetotellurics as well as controlled-source one, GPR, gravity and magnetic surveying (Malehmir et al., 2013a). Just immediately after the first fieldwork, it became clear that we obtained, unusual for the Swedish geology, high quality near-surface geophysical data above bedrock and including it.

Reflections above the bedrock were noticeable in shot gathers providing unprecedented imaging results for not only the SH-SH data (particularly) but also in the traditional 2D and 3D P-wave seismic data (Fig. 3). A near-surface 3D reflection dataset (two overlapping patches containing 11 receiver and shot lines) was for the first time acquired in Sweden but also likely unique worldwide for landslide studies (Lundberg et al., 2014). It was not clear to us at first what the reflections (two sets at depths ranging from 15 to 30 m) above the bedrock (from exposed to about 80 m) meant to quick-clay landslides at our site neither their regional significance until we realized that most pockets of quick clays were formed right above these reflections comprising of coarse-grained materials (mainly sandy-to-silty). Sometimes being even a potential slip surface and associated with increased resistivity due to fresh water circulation (Shan et al., 2014 and 2016). An interesting observation was the bedrock on-lapping nature of these reflections; bedrock that is typically
Figure 3: 3D view showing a vast number of geophysical data acquired to understand the underlying near-surface geology responsible to form and trigger quick-clay landslides, one of which is notable on the aerial photo projected onto lidar surface of the study area. Two sets of reflections above the bedrock are noticeable for example along a portion of profile 5 with a clear natural gamma drop seen in BH3. BH2 intersected 10 m thick coarse-grained materials at about 30 m depth at which a large quantity of gas leaked out (see Figure 4). Figure from Malehmir et al. (2016).

undulating but have often a general dip towards the river (our case) or lakes (other cases). The combined geometry was nicely resolved by various geophysical methods suggesting that water infiltration through the bedrock surface when exposed or near to the ground surface helps directing water into the coarse-grained layers increasing its pore-water pressure, leaching salt from the marine clays above and resulting in the formation of quick-clays (a long term process and our interpretation), and in proper situations even triggering them. The coarse-grained materials (mainly sand) were reported in some of the historical Swedish landslides (e.g., Tuve landslide in 1977, 65 houses destroyed and resulted in 9 casualties) covering unusually the slide regions (something that noted by people living in the area and reported in historical films from the landslide) but perhaps no careful attention was given to it.

The project ended in late 2012 but we did not stop until we drilled three holes in the study area (BH1-BH3) in early 2013 with the objectives of full coring the sediments all the way to the bedrock and obviously checking the origin of the reflections above the bedrock. Sonic drilling was used for this purpose, which was likely not a good idea but allowed us to obtain as undisturbed samples as possible; of course when shaking is used for sampling quick clays, no quick-clay materials can properly be retrieved (due to liquefaction process) rather a zone of lose or just soup out! Not that bad, we could at least speculate where quick clays (or sensitive clays) were! Being quite motivated, I watched the very first hole (cold and freezing February of Sweden) and cores coming out of the first hole every 3 m or so. Right at the expected depths, the hole intersected two sets of sandy-silty layers (one likely more significant than the other one). Drilling continued towards the other two holes but I had to leave the drilling team for a trip outside Sweden. Then I received a surprised telephone call after 2 days: “Alireza we think we are having bad gassy smells and bubbles from one of the holes, we hear the bubbles”. Knowing that this is Sweden and not a gas or oil geology country, I asked the drillers for even having fun to ignite the gas! Such a bad idea, just realized when I finished the conversation. I called back half an hour later! “What happened? We will send you an email; is your drill rig fine? Yes, no worries just check your emails at night.”

Of course, the drillers were smarter than I and before igniting anything they removed the drill rig first and then fired the gas. Indeed it was inflammable (Fig. 4). Where was it seen? Right where the first sandy layer in the second hole was drilled through (BH2 in Fig. 3); in this case the sand layer was about 10 m thick! What we observed below the sand: 20-30 m intercalations of marine and organic clays suggesting a biogenic origin for the gas (so dark, sticky and smelly clay that you could not get rid of it after several times of washing your hands). Is this observation important for quick-clay landslides? What if it happens in a city or areas highly industrialized? Before I forget, one of the other reasons we drilled this particular reflection was due to, we think today, its pull-down nature that was not clear as to why (Malehmir et al., 2013b)! Full-waveform inversion was done and showed a zone of anomalously low-velocity associated with the zone (Adamczyk et al., 2013 and 2014). A sandy gas-water reservoir with marine clays acting as cap, not impossible! Any AVO response? Wait until we check for this carefully! More surprises came; we found sea shells, grains of magnetite in the sand suggesting a brackish to sea-beach environment for the deposition of the sand; what it means, not so sure right now.
We could not resist any more, the holes should be downhole geophysically logged and we need to see if the coarse-grained layers are large-scale features and not local and they have some meaning to be extrapolated to other places (Salas-Romero et al., 2015). This was done obviously with difficulties. Normally consolidated glacial sediments imply the use of casing. Of course we were smart to use PVC instead of steel casing but could not believe that the clays had even lower velocities than the PVC. So we lost full-waveform sonic data and resistivity information due to this (a VSP survey is planned but not sure when it will happen now) with the exception of places where PVC was perforated to let water in the holes to allow downhole logging (most probes require this). An averaged PVC and formation velocity and resistivity was then obtained. Pore conductivity however was measured in the lab using the core samples. A new field campaign followed and two new PhD students were hired in 2013. Right after this, we found that there might be single channel ultra-high frequency river seismic (single and 5 channels) and side scan data available from the river, which were also recovered and currently being processed by one of the PhD students. There are more to say about we have learnt but I stop here and thank the GWB program and of course SEG for giving us the opportunity to see so much in the top 10-50 m that I was amazed myself to see their possible significance. Our experience from the Swedish site helped us to advice and recommend similar studies for other GWB-SEG landslide sites in Brazil and Serbia, Bosnia and Herzegovina for which I have acted as an advisor (but also trips to their sites). The project helped me to go towards multicomponent seismic instrumentation and put together with eleven other authors a review article (containing 38 nice figures) about the use of near-surface geophysical methods in areas prone to geohazards (Malehmir et al., 2016). Watch for the up-coming volume of Advances in Geophysics (volume 57).

The project has so far resulted in more than 10 peer-reviewed publications, many outreach and popular science articles and presentations including a keynote at ASEG-Perth 2015, formed a basis for PhD theses of Emil Lundberg (Uppsala University), Anna Adamczyk (Polish Academy of Sciences), Chunling Shan (Uppsala University), Silvia Salas-Romero (Uppsala University) and Shunguo Wang (Uppsala University). At least 4 MSc theses have been produced in the project from partner organizations in Germany (University of Cologne and Leibniz Institute for Applied Geophysics, LIAG) and in Uppsala University and Luleå University of Technology (Sweden). As the main author of one, our presentation was noted as the 30 top paper presentations of the SEG Annual Meeting 2013, Houston, USA and as co-author of (see Krawczyk et al.) one of the four best papers of the Near Surface Geoscience 2013, Bochum, Germany.

We are not yet done, an airborne time-domain electromagnetic survey over the study area and some other similar places was just finished and as you can imagine another add on to the wealth of the data from the site.

I take this opportunity to thank students, partners and our sponsors particularly SEG for initiating this and for supporting this project and its continuations and I just hope this becomes a model to motivate the use of geophysical methods to tackle issues with geohazards more and more. Obviously there can be more done and there are more than what you think in the 50 m below your feet!

If interested about quick-clay landslides, watch this YouTube clip (in English) about one of the most famous one in Norway (Rissa 1978). You will be amazed, I promise! https://www.youtube.com/watch?v=3q-qfNIEP4A

Or this one just about 5 km south of our test site (Göta landslide or Lilla Edet landslide 1957, in Swedish, but you will understand the pictures and the devastating and environmental effects of the slide being near a paper factory and Göta River, the source of drinking water for the second largest city in Sweden!): http://www.filmarkivet.se/movies/veckorevy-1957-06-12/
Look also what has been produced from our project as peer-reviewed articles (more on the way!):


The near-surface geophysics community has a rich history; our field is growing quickly and our activities are increasingly varied. In many ways those in the NS community whose professional lives, like mine, started in the 1980’s occupy a unique position - we are too young to claim to be among the modern founders of the NS community, but we can look back to the days when we worked alongside these pioneers and, if we were fortunate enough, were mentored by them. Today, we find working for us an amazingly talented and diverse group of people with capabilities at their fingertips that we could only dream of when we entered the field. Looking forward it is clear that whatever the future holds, it will be different than it was then and different than it is now. We can expect the activities encompassed by the near-surface geophysics community to continue to grow - in scope as well as complexity.

It is important to know where we came from to understand where we are going. As a Society and members of the broad NS community, it is valuable to look back and visit from time to time with those who came before us. The instrumentation, methods, and ideas that make near-surface geophysics what it is today would not be were it not for the brilliant, pioneering geophysicists we will visit with here. The NS community has an interesting and unique story to tell. The Founders of NS Interview Series is one way to do so. We hope you will enjoy the interviews and biographical sketches in this and future issues of Near Surface Views from the leaders, mavericks, and icons of Near Surface geophysics.

John Lane
Founders of Near-Surface: F. Peter Haeni

When were you born? When did you graduate from the naval academy and Wesleyan?
I was born in 1941, graduated from the naval academy in 1963, and graduated from Wesleyan in 1971.

How and when did you get involved with near-surface geophysics?
In graduate school 1970 at Wesleyan University. My advisor was James R. Balsley who was the Chief geophysicists from the USGS and was on sabbatical from the USGS teaching at Wesleyan.

Is that how you got linked in with the USGS?
Oh yes. I didn’t even have a choice when I graduated - I was going to work for USGS.

What was your thesis topic?
My thesis was “Continuous seismic profiling on the Connecticut River.” As an aside, Jim Balsley was an aeromagnetics guy saw the aeromag data from the mid-Atlantic ridge and never put two and two together. He was beside himself that he had it on his desk and never put it (plate tectonics) together.

For your first job, you were hired by the USGS but it wasn’t as a geophysicist?
No. I was hired as a hydrologist and on a part time basis, I was allowed to help other hydrologists use seismic refraction on their projects and on my projects.

What was your first assignment or project that was your own?
Probably the groundwater modeling project in Newtown, Connecticut.

And you did refraction as part of the project?
Oh yes.

What did you want to be when you grew up?
Well, that’s a tough one. Maybe an engineer, and once I got braces I wanted to be a dentist!

What can you tell us about the early days of near-surface geophysics? When you started to realize you were a sub discipline of broader world of geophysics?
Very exciting! There were very few people, all of them sharing their knowledge and experiences. Almost no computer interpretation. The thing I would have to say is there were outstanding technical meetings both at EEGS or whatever that was called in those days and SEG. It was a very small group of vendors, a very small group of practitioners, and it was almost like each year having a family reunion. We would go out to dinner together, there were great announcements, like Bison would always announce their latest seismograph, EG&G, or Geometrics, would announce their latest seismograph, Duncan Mcniell would announce the newest EM thing he was building. So, I would say extremely small, extremely cordial, and just very exciting and stimulating!

You were at the first SAGEEP meeting is that correct?
Yeah, I think so. The earliest one I remember was at the Colorado School of Mines. I think that was in 1988.

Thinking back to all of the assignments that you had. What was your favorite assignment or favorite project?
I would have to say I have four favorites. The first, continuous seismic profiling on the Colorado River. Second, seismic refraction in Alaska. Third, seismic reflection in Hawaii and then Mount Saint Helen’s. After the eruption I got a call from U.S. Geological Survey headquarters in Reston VA and they said, ‘What are you doing this afternoon? I said I am going to the dentist, and they said no you’re not. You’re going to Washington.’ That was a pretty exciting assignment!

What was the objective there?
We were trying to map the amount of sediment that was in the Columbia and Callas Rivers before the Army Corps of Engineers dredged it all. Because the sediment transport guys wanted to model it and they wanted to know how much was in the river.

How did you approach describing what you did to your kids, other kids and your friend’s kids?
Once a year I took my kids into the office and took them out into the field. When I brought them into the office, they were very young at that time, and they would be coloring and I was on the phone the whole time. When we would get home, they would say to me “Man you have a great job. All you have to do is talk on the phone and you get paid for it!” For my kids it
Looking back, what do you consider your most significant career accomplishment? What do you think was the most significant contribution you made to near surface geophysics?

Making it to retirement! (All laughing) Well, I would have to say, it was helping hydrologists understand and use geophysics. So, that was the teaching side, and on the technical side, introducing borehole radar and NMR to the USGS community, and Hydro21 (a USGS stream-gaging modernization program). Hydro21 stands out to me as a high point. Being able to measure stream flow from a helicopter without touching the ground. We had some really neat people on that project. Ralph Cheng, John Costa, Eugene Hayes, Nick Melcher, Michael Thurman, and Jim Plant. It was really a fun project. Unfortunately we were about 20 years ahead of ourselves.

Embarrassing moments of your career or did you ever miss the mark? Would you share with us?

Yes, I will tell you the story and you can decide whether it should be shared or not. I guess the most embarrassing was during a refraction survey. We had a dynamite misfire, and I had to dig it up. That was not good at all. Another one I remember distinctly was when the shot hole was too shallow and we had a whole bunch of students with us. We all had to dive under the truck.

No one was hurt?

No. No one ever got hurt! Another one was when we were at Mirror Lake (NH) and we were doing seismic around the lake. We yelled “fire in the hole!” We set off the shot and a couple were in a canoe picking blueberries about 20 feet from the shot hole. Of course, they had no idea of what fire in the hole meant. So, we really scared them. But again, no one got hurt.

So, your entire career you made it through without any serious safety issues?

Exactly. Now one of the things I would lumped into the category of missed the mark, were a couple projects where I felt I fell down and never helped the hydrologists interpret the data. Those projects were the Colorado River, and an airborne EM survey looking at salt water in Michigan. They had me out, we did the survey, they were really excited about it, and we got great data. However, it kind of died there. Looking back at it, I wish I had the time or the money to bring both projects to their fruition. They basically put the results in a file drawer and never touched it again. They may still be in the files!

You’ll be glad to know that airborne EM is making quite a comeback in the water world. The work you did, you were 20 years ahead of your time. Really, some significant advances have been made in the ability to extract useful hydrogeologic information out of AEM data sets.

That Michigan one was absolutely perfect. That saltwater was deep on both ends, and shallow in the middle. I mean it was absolutely a perfect example, it was one of the very early ones where we applied EM to hydrology.

That was DIGHEM data?

Yes, they flew it.

So, looking back on your career Pete, what did you enjoy most and what did you enjoy the least about being in the near-surface geophysics field?

What I enjoyed most was the full spectrum of projects and this would go with what you’d tell young guys. There was an article in the TLE, long ago by John Greenhouse. The article said how great it was to be involved in geophysics, where you planned the study, you collected the data, you brought it back and interpreted it, wrote the report and there was a huge satisfaction of seeing a project from beginning to the end. The least enjoyable, I would have to say, was being called into a project when there was no time and no money left. Where people were looking to us to bail them out. That was utterly frustrating.

What do you see to be the opportunities, the low hanging fruit, or the moon shot, for someone coming into the field today? What would you tell them? Something where you might say, if you look at this or that, you would really have something?

It is something that we’ve wrestled with since day one. I would say teaching clients, the guys that are buying geophysics, teaching them to try and eliminate over-selling. Also, trying to teach hydrologists and engineers what geophysics could do for them. You know, we gave a lot of talks to engineering societies, we really put a lot of effort into it over the years and it was a dismal failure. I don’t have an answer for that, but I see that as the place to make some inroads.
One thing I've absorbed over the years is that you are never done educating people, because as soon as you think you are done, there is a whole new crop of people who are unaware. That is why I put so much effort over the years into ASTM. I felt that a head of project somewhere could pick up ASTM guide and not go too far off track.

You had a lot of travel in your career. How did you work it out, professional verses personal time with your family? Pretty straight forward, I basically worked 10 hours a day during the week, and never took anything home. For travel, I tried to stay away from traveling on Saturday and Sunday. I would travel Monday morning and get home Friday night. That’s the way I tried to balance it.

Are you still working or do you consider yourself pretty much retired now? I am still working. I have one project left. Next week I am going to NYC, we’re in the final stages of getting statement of impracticibility from EPA for a railroad car spill in upstate New York. So, that’s probably going to be the last one.

So, you’re not having a problem balancing work and leisure time today? I am having trouble balancing leisure time. I am basically a handy man for myself, and my two sons. So, I have a full time job!

So, do you have a favorite picture or memento to share? Yes, I remember a New Hampshire crew shooting the tarp - Remember we used to put a tarp over the dynamite? They shot the tarp over the telephone wires. (All laughing) Then there is another picture of a survey crew on a raft in the Colorado River, and we tried to set it up to look exactly like John Wesley Powell’s photo of him surveying the river. The guy in charge was on a chair and he tried to hide his one arm. I thought that was a great picture.

NS: Do you have a favorite quote or motto you’d like to share? To be a success you can’t avoid mistakes, but you can recover nicely.

Are you doing any reading right now? What are you reading? Oh yes. Mostly, I have gotten hooked on non-fiction World War II aviation stories about fliers in WWII such as Devotion, A Higher Calling, and Unbroken. I loved Unbroken.

What are your hobbies? Sailing!! Taking my grandkids on an overnight on the sail boat.

How many grandkids do you have now Pete? We have four now! They absolutely love to be on the boat, you’d think you took them to the moon taking them out on the boat on an overnight. To have dinner on the boat, breakfast on the boat, and DVD on the boat. Last year on an overnight, I took Abbott and Costello’s “Who’s on First.” The older ones got it and the younger ones wondered what all the laughing was about!

Honors and Awards
Pete was awarded the Frank Frischknecht Award 1999. The Frank Frischknecht Leadership Award is established to recognize an individual who shows extraordinary leadership in advancing the cause of near-surface geophysics through long-term, tireless, and enthusiastic support of the near-surface geophysics community. Such leadership is often boldly displayed by an invention, a new methodology or technique, a theoretical or conceptual advancement, or a unique innovation that transforms the nature and capabilities of near-surface geophysics. Prior to 2005, the SEG Near Surface Technical Section presented its own Frank Frischknecht Award in recognition of long-term, tireless and enthusiastic support of the near-surface geophysics community.

Selected Readings
As a youngster, I knew by the 7th grade that I wanted to be a scientist, and by the 11th grade my focus was clearly on becoming a physicist. As an undergraduate physics major, I made a fateful decision to take a two-semester introductory sequence in physical geology and physical geoscience, instead of a second year of chemistry. Well, my worldview changed, as I became enthralled with the beauty and challenges of the geosciences. I then took two courses in geophysics and an extra physics course that was part of the geophysics degree plan. Following a B.S. and M.S. in physics, I majored in geophysics with a minor in geology for the PhD. In geophysics, I found an intellectual home that allowed me to maintain the joy and enthusiasm of focusing on physics, with a primary emphasis on classical physics applications to the study of the earth.

My involvement in near-surface geophysics began in 1971, when I transferred from the U.S. Naval Ordnance Laboratory (NOL), White Oak, Maryland, to the U.S. Army Corps of Engineers (COE) Missouri Division Laboratory (MRDL), Omaha, Nebraska. At NOL I was involved in studies of projectile penetration into explosives, development of new types of shaped charges, the use of a flash x-ray facility for study of these dynamic events, and the study of interaction of electromagnetic pulses (EMP), e.g., from a nuclear explosion, with Naval assets. At MRDL, I was in a group that had just emerged from a major effort of participating in the design and rock mechanics testing and investigations for the NORAD facility in Colorado. In the laboratory setting at MRDL, I conducted soil and rock mechanics testing. In the field setting, I conducted seismic refraction surveys for dam site characterization, borehole camera (and visual) investigation of rock quality, and borehole geophysical logging. We had the unique opportunity and challenge to develop a fully equipped borehole geophysics logging truck, which integrated every type of logging system known at the time. At the time of beginning work in the COE, surrounded by engineers, I started taking undergraduate and graduate courses in civil engineering and engineering mechanics to enable better communication with my colleagues, which proved to be an enjoyable and valuable adventure.

Between the M.S. and the PhD, my work with the Corps of Engineers involved a transfer to the Army Engineer Research and Development Center (ERDC; aka, Waterways Experiment Station), Vicksburg, Mississippi. At ERDC, I joined a team developing projectile penetration prediction theory and computer codes, which included planning and execution of soil and rock mechanics testing and near-surface geophysical (NSG) characterization of penetration sites. After nearly 3 years, I transferred to the NSG group. The primary efforts initially involved seismic refraction and considerable research and development work in surface and borehole shear wave and surface wave techniques. Soon, however, the NSG group grew in number and types of projects, and the ensemble of geophysical capabilities grew to include virtually all methods applicable to near surface geophysics.

While I did travel a lot, I was fortunate to “avoid” extended field jobs, most trips were in the 1-2 week range. My longest field trip was 6 weeks to Korea (1981). Even after that 6 weeks trip, it was remarkable that I could see growth in my two daughters (ages 7 and 11 at the time) during such a short time. While I tried to explain to my daughters (and wife) what exactly I did, I told them once (in a “jokingly serious” manner) to just tell their friends, who asked what their father did, that
I was a writer. It did seem that most of my time was spent writing—memoranda, trip reports, technical reports, journal articles. Although, I must admit that I really enjoy writing.

In Korea we mapped top of rock at six locations along the Han River south of Seoul and located potential water well sites at Osan Air Force Base, supporting the Far East District and the Pacific Ocean Division (POD) of the COE. Two stand-out memories of the trip to Korea were (1) visiting the Demilitarized Zone (DMZ) and touring one of the deep, hard rock intrusion tunnels under the DMZ and (2) having to stop on the way home at Honolulu and spend 3-days at POD Headquarters, writing a final report (they didn’t want us to leave until a report was provided).

While much of the latter 30 years of my career in NSG were highly invested in a conceptual, theoretical, and practical understanding of the electrical and electromagnetic methods, including ground penetrating radar, my most profound interest was and still is in the potential field methods, specifically high-resolution, high accuracy gravity (microgravity). This interest in microgravimetry and gravity gradients is a carry-over from my dissertation on these topics.

The earliest years of my work in NSG were invested in application and interpretation of seismic refraction surveys, “manual” Wenner and Schlumberger electrical sounding and profiling, and borehole geophysical logging. The first seismic instrument that I used (ca. 1971) was a 12-channel system, which used a “cock and release” trigger mechanism with a mirror swinging on a pendulum that focused 12 light beams on a Polaroid film, with superimposed timing marks. Although I recall seeing advertisements for single channel seismic systems, I never used one. Currently, seismographs are readily available with 24-64 channel data acquisition and easy expansion to many more channels with add-on modules; this multi-channel capability makes long, closely-spaced geophone spreads possible and greatly simplifies execution of detailed surface wave, seismic refraction, or seismic reflection surveys. The automated software processing capability for 2D and 3D inversion/imaging, which is readily available, makes the manual data processing and interpretation practices of decades past seem really antiquated. Similar comments are true for electrical resistivity data acquisition (ERT), EM (frequency and time-domain), GPR, magnetometry, and microgravimetry.

I have memories of the beginnings of near-surface geophysics professional society involvement that have become clouded over the years, in terms of dates and names of key individuals (and it’s always dangerous to reference key individuals for fear of leaving out important names). As I recall, sometime in the late 1970’s SEG members with interest in near-surface geophysics formed the Engineering and Groundwater Geophysics Committee (20-25 charter members?). Later in the 1980’s, an Associate Editor for Engineering and Groundwater was added to the Editorial “Staff” of Geophysics; I was the SEG Associate Editor for Engineering and Groundwater Geophysics from 1990-1995. In 1987, an NSG conference was held in Denver that would quickly evolve into the annual SAGEEP meeting and the formation of the Environmental and Engineering Geophysical Society (EEGS). In 1993, thanks largely to the efforts of Don Steeles, SEG approved the formation of the NSG Section, which is the second largest section of the SEG. Due to a nonfortuitous event, I was President of the NSG Section for two years, which can be considered both a distinction and a misfortune.

Near-surface geophysics was not just a job and career for me, but a passion. I truly enjoyed the new challenges presented by the civil and military projects that were assigned to me, or which I proposed. The challenges included: projectile penetration: cavity, tunnel, and underground facility detection; water supply and groundwater resource assessment; anomalous seepage assessment at dams and levees; the whole arena of environmental geophysics, e.g., detection and mapping of underground storage tank and contaminant plumes; detection and discrimination of unexploded ordnance, landmines, and improvised explosive devices; archaeological studies. Associated with each of these challenges was the requirement to consider new geophysical technologies (methods) and new data acquisition and processing approaches.

Favorite Saying?
“Wisdom is knowing you don’t know. Ignorance is not knowing that you don’t know. Deceit or fraud is knowing you don’t know, and acting as if you do!” (Note: I have been using this saying for so long below my signature block that I don’t recall if it’s original or “borrowed” from some source.

Hobbies?
Sadly, my work was also my main hobby. However, I do collect and read books by and about Albert Einstein and collect Einstein memorabilia. I also am a coin collector. My favorite fictional readings are historical- and archaeologically-based mysteries. I am also currently reading two books from “The Theoretical Minimum...” series of books on physics by Leonard Susskind, et al.

Honors and Awards
Dwain was awarded the Frank Frischknecht Award in 2001. The Frank Frischknecht Leadership Award is established to recognize an individual who shows extraordinary leadership in advancing the cause of near-surface geophysics through long-term, tireless, and enthusiastic support of the near-surface geophysics community. Such leadership is often boldly displayed by an invention, a new methodology or technique, a theoretical or conceptual advancement, or a unique innovation that transforms the nature and capabilities of near-surface geophysics. Prior to 2005, the SEG Near Surface Technical Section presented its own Frank Frischknecht Award in recognition of long-term, tireless and enthusiastic support of the near-surface geophysics community.
Dylan Mikesell is an Assistant Professor in the Department of Geosciences at Boise State University (BSU). Dylan joined BSU in July 2015. He has served the SEG in a variety of capacities over the last decade. Since 2013 he has served as the SEG Near Surface Technical Section Secretary and a task force member during the transition from the NSGS to the NSTS. Dylan currently directs the Environmental Seismology Lab at Boise State. He and his team of graduate and undergraduate students are interested in seismic hazards, near-surface and volcano seismic imaging and monitoring, and understanding ionospheric signals related to large earthquakes. Throughout his career Dylan has also worked in the cryosphere, applying near-surface geophysics techniques to monitor the changing structure of glaciers and ice sheets.

Bio
Dylan received a Ph.D. in Geophysics from Boise State University (2012) and a B.Sc. in Geophysical Engineering from the Colorado School of Mines (2006). His professional experience includes roles as a National Science Foundation Postdoctoral Fellow at the Earth Resources Lab (Massachusetts Institute of Technology), a visiting scientist at Géoazur (University of Nice, France), and a Geophysical Project Engineer for Olson Engineering, Inc. He is a member of the American Geophysical Union and the Society of Exploration Geophysicists. Dylan first became a student member of the SEG in 2004; in 2014 he became an associate member and in 2015 an active member.

Recent papers

On the horizon: Next Generation NSG - Chi Zhang

I am an assistant professor in the Department of Geology at University of Kansas since 2015. I’m interested in using mainly geoelectrical methods and nuclear magnetic resonance (NMR) to investigate physical, chemical, and biological changes in the subsurface. My road to Kansas has literally been a long one. I grew up 7,100 miles away in Lanzhou, a city by the Yellow River in northwest China. I earned a BS from Sun Yat-sen University in China in 2006 and a doctorate from Rutgers University in 2012. Before joining KU, I worked as a postdoctoral fellow at Idaho National Laboratory, Colorado School of Mines, and Rutgers. I am affiliated with many professional organizations and have been a member of SEG since 2009. Many emerging interdisciplinary topics such as environmental remediation, water storage and quality, and subsurface energy recovery, present unique challenges for the evaluation and monitoring of the subsurface. I have investigated geophysical responses from biogeochemical transformations in the subsurface, characterized rock properties and fluid-mineral interfacial processes, and created petrophysical models based on the interpretation of geophysical datasets.

At KU, I currently work together with my students on two projects: 1) determining pore attributes of carbonate rocks, and 2) monitoring organic contaminants in sediments. We use both NMR and spectral induced polarization (SIP) for these two projects. For the first project, we determine porosity, pore sized distribution, and permeability of carbonate rock samples from Wellington Oil field, Sumner County, Kansas. In the second project, we use synthetic samples to test the sensitivity of NMR and SIP for resolving NAPL (toluene) in sand-clay mixture. We have presented the results at international conference and we are preparing manuscripts for journals.

I love my work and I enjoy working with student and colleagues. I’m looking forward to expanding my work and collaborating with SEG NS members. I am happy to be contacted for research opportunities, ideas and thoughts, and friendship.
Susan has been a leading innovator and advocate for near-surface geophysics over the past two decades, with contributions spanning the sub-fields of hydrogeophysics, contaminant geophysics, precision agriculture, and biogeophysics. Perhaps her greatest contribution has been nurturing the expansion of near-surface hydrogeophysics as a scientific discipline, highlighted by her founding of the AGU’s Hydrogeophysics Technical Committee (2002) and co-editing of the heavily utilized reference volume, Hydrogeophysics (Rubin & Hubbard, 2006). Her early work focused on novel approaches to estimating hydraulic conductivity (Hubbard et al. 1997, Hubbard et al. 2001) and soil moisture using GPR, often creatively integrating both rock physics and geostatistical analysis approaches; both efforts were highlighted in heavily cited articles in The Leading Edge (Hubbard et al. 1997 and Hubbard et al. 2002). Her subsequent research has pushed near-surface geophysics forward through applications as diverse as the use of GPR for precision viticulture, geophysical monitoring of biomineralization at contaminant sites, and most recently the utilization of geophysics for mapping permafrost structure and dynamics. Unfortunately, her technical contributions to the field are too lengthy for a short summary; she has authored or co-authored 114 peer-reviewed papers and book chapters during her career.

Susan has also been a tireless supporter of the near-surface geophysics community, particularly in her professional and editorial roles where she is often the lead geophysicist in communities with broad disciplinary backgrounds. As mentioned previously, she was instrumental in building the hydrological side of the near-surface geophysics community at AGU and served as the founder and initial chair of AGU’s Hydrogeophysics Technical Committee (2002-2006). She has served as an Associate Editor for WRR (2001-2005), the Journal of Hydrology (2007-1010), JGR-Biosciences (2010-2015) and the co Editor of Vadose Zone Journal (2007-2013). Her efforts to expand hydrogeophysics have also been broadly acknowledged by the scientific community; she is a GSA Fellow (2011), a past Birdsall-Dreiss Distinguished Lecturer for the GSA (2009), and is a past recipient of the Frank Frischnecht Leadership Award (SEG-NSGS, 2009).

At Lawrence Berkeley National Laboratory, Susan has been an extraordinary advocate for utilizing near-surface geophysics to solve problems in the applied and basic earth sciences ranging from contaminant studies to carbon cycle dynamics; one of her particular talents is finding ways to link the results of geophysical imaging to evaluation of coupled chemical and microbial processes in the subsurface. While she has risen to the post of Associate Laboratory Director at LBNL, she maintains active leadership of our Environmental Geophysics group, a role she has relished at every stage of her career since 2003; in fact, she can still be found taking time from her schedule for permafrost field campaigns in the Arctic (!). She has also been an outstanding mentor for young scientists, providing guidance on topics scientific as well as bureaucratic, crucial information for early career researchers in the public sector.
From 13 to 16 June 2016, 206 researchers, practitioners and exhibitors from 29 countries attended the 16th International Conference on Ground Penetrating Radar (GPR). Organized by the Department of Land Surveying and Geo-Informatics (LSGI), the conference was kick-started by Prof. John Shi, Head of LSGI, and chaired by Ir Dr Wallace Lai, Assistant Professor of LSGI. Since 1986, this conference has brought together scientists, engineers, industrial delegates, manufacturers, software engineers, and end-users working in various GPR areas, ranging from fundamental electromagnetics, antenna design, forward modeling, inverse modeling, algorithm development to civil engineering and all kinds of surveying applications.

The conference programme included 3 pre-conference tutorials, 5 keynote speeches, 2 parallel oral sessions, 1 poster session, a competition for young scientists, 13 equipment exhibitions, a field demonstration, 2 utility lab visits, 5 bids for GPR 2018, and a gala dinner. The proceedings included 121 online papers in IEEE’s xplore library, and 2 special issues will be published by IEEE JSTARS and NDT &E International respectively in early 2017. 6 presentations were shortlisted for the Young Scientist Award, which went to Mr Markus Löwer from the Leibniz Institute for Applied Geophysics in Germany. Dr Johannes Hugenschmidt at the University of Applied Science in Rapperswil, Switzerland staved off keen competition from the US, China, the UK, and Russia to be the next host of GPR 2018.

The organizing committee would like to acknowledge the financial sponsorships from 13 GPR exhibitors and the Faculty of Construction and Environment of PolyU, technical co-sponsorship from the IEE Geoscience and Remote Sensing Society (IEEE-GRSS), the Society of Exploration Geophysics and NDT & E International. Manuscript review was done by 11 scientific panel members and 52 reviewers, and monitored by 12 international advisory committee members. Logistic support was provided by the LSGI general office. The post-conference excursion to HK Global Geopark was led by Prof. Lung-Sang Chan from HKU. All these efforts are greatly appreciated. Special thanks also go to the LSGI’s researchers and 25 undergraduate student helpers, without whom the conference would not have been a success.
My Dog Ate my Homework - 7 Tips for Attending a Conference Alone (And Having a Good Time)

By Yuanyuan Zhou, Co-Founder and CEO of Whova, Inc., Professor at UC San Diego, and Entrepreneur

Whova Inc. is an Event Engagement and Networking Mobile App, recently used for the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) Annual Meeting.

Original article: [https://whova.com/blog/7-tips-for-attending-a-conference-alone-and-having-a-good-time-blog/](https://whova.com/blog/7-tips-for-attending-a-conference-alone-and-having-a-good-time-blog/)

1. Imagine that Other People are Shy too
As an introvert, it is scary walking up to strangers and striking a conversation. But as an entrepreneur, I also know that I have to come out of my comfort zone to talk with people at events. Inspired from the tip to “envision the audience naked” for overcoming a fear of public speaking, I imagine other people are shy too (sorry, not naked). This kind of thinking was able to put me at ease. It is a favor to shyer people if you take the first step and start the conversation. While doing something good to help other people, you are also helping yourself.

2. Homework First
Taking the courage to walk to people is only the first step; you also need to know what to talk about to keep the conversation going. As a techy geek, I really do not know much else to keep the conversation going besides speaking of my own field of technology. So what do you talk about after asking about the weather? This is where you have to do some homework first. Do you know any history on the conference venue or location? Do you have any interesting stories about the speakers? Do you know of any good restaurants nearby? Good conversation starters will require some research!

3. Leverage Technology
With everything going mobile, many event organizers use a mobile event app to help attendees navigate the event and display the agenda, exhibitors, indoor maps, etc. Some event apps, such as Whova [or the SEG Meeting app], allow attendees to view each other’s profile and network with each other before, during and after the event. Basically, it takes the ‘work’ out of networking.

4. Dress Comfortably and with Confidence
Attending an event can be exhausting. Wear clothes that are both comfortable and able to give you confidence. Shoes are particularly important because you may have to stand and walk a lot during a conference, especially during receptions or networking sessions.

5. Don’t Eat Lunch or Dinner Alone
If the conference provides food, don’t be the first one standing in line for lunch or snack, no matter how hungry you are. Waiting in line gives you a chance to talk with people for at least 5-10 minutes. If you’re able to hit it off with your line buddy, you can continue sitting together throughout the entire meal to build a deeper connection. [Students - don’t forget to network with other students during the meeting from outside your university!]

6. Pamper Yourself a Little
Networking can be exhausting, especially if you have to travel to attend the conference. So pamper yourself with a little reward for your hard work. Temporarily pause your weight loss plan and eat some cake. After all, the conference is only a few days.

7. Follow Up after the Conference
Another thing I used to do poorly is following up after the conference. Post-conference follow-up can help summarize the conversations you and your connections at the conference had and kick-off some action plan (if you guys decide to do something together). At a minimal level, it provides you another chance to get the other person to know more about you and be impressed by how organized you are.
Graduate students honored for geological survey research in Kansas

Tue, 06/21/2016
LAWRENCE — Four University of Kansas students received outstanding achievement awards last month from the Kansas Geological Survey, based on KU’s West Campus.

Sarah Morton, doctoral student in civil engineering from Oxford, Connecticut, received the William W. Hambleton Student Research Award. As a graduate research assistant in the KGS Exploration Services section, Morton is helping improve noninvasive seismic techniques used to characterize rock and soil structures down to about 300 feet deep. Using surface-wave seismic methods, scientists create sound waves to measure their underground movement. Because sound waves travel through different rock types, sediments, and fluids in distinct ways, the measurements can be used to interpret underground conditions and material properties. Morton’s work is being used to detect abandoned limestone mines in south-central Kansas and lead and zinc mines in the recently dismantled southeast Kansas town of Treece, where lead levels run high and underground voids cause sinkholes. She also is involved with tunnel detection research in Arizona sponsored by the U.S. Army. The Hambleton award is named for the KGS director from 1970 to 1986 and is given for excellence in research as demonstrated by outstanding writing or oral presentation.

Sarah Child, doctoral student in geology from New Lisbon, New York, received the Jack Dangermond/Esri Geospatial Technologies Student Award. A member of the KGS Cartographic Services unit, Child is helping standardize the state’s geologic databases to make them more accessible to researchers and the public. She also has created an automated template containing GIS data used on Kansas geologic maps. A GIS (geographic information system) is a combination of computer hardware, software and data used to collect, interpret, manage and display all types of geographically referenced information. The template, which includes the location of roads, rivers, railroads and towns, saves hundreds of hours of data compilation. The Dangermond award was established by Jack Dangermond, president of the Environmental Systems Research Institute Inc. (Esri), to recognize student accomplishments in the application of geospatial technologies.

Cassidy Nelson, an undergraduate student in geology from Council Grove, received the Norman Plummer Outstanding Student Award. As a data entry assistant in the KGS Data Resources Library, Nelson enters and archives data from water well and oil and gas well records submitted to the state and clarifies the data for researchers and the public. To ensure accuracy, he contacts drillers for missing information and provides quality control. The library houses records for more than 450,000 oil and gas wells and 250,000 water wells. Nelson also works in the KGS Drill Core Library, the repository for rock cores and samples from more than 4,000 bore holes drilled in Kansas for oil and gas exploration or geologic investigations. Through careful scrutiny, he has identified and inventoried cores that were previously useless because they were not linked to specific locations. Norman Plummer was a KGS staff member from 1936 to 1969.

Joey Fontana, a master’s student in geology and geophysics from Mandeville, Louisiana, received the Lee C. and Darcy Gerhard Field Research Student Award. As a graduate research assistant in the KGS Exploration Services section, Fontana has worked with crews gathering seismic data in two regions of the state where catastrophic sinkholes have occurred. To help ensure public safety, the KGS is monitoring a solution well field near Hutchinson where dissolution of underground salt has caused surface subsidence and over abandoned lead and zinc mines underlying U.S. highway 69 in southeast Kansas. Fontana has also worked on a project mapping faults in Oregon and verified the quality of seismic data collected at the U.S. Army’s Yuma Proving Grounds in Arizona. The Gerhard award is named for the KGS director from 1987 to 1999 and his wife.

The Kansas Geological Survey studies and provides information on the state’s geologic resources and hazards, particularly ground water, oil, natural gas, and other minerals. It employs approximately 35 students. The recipients were presented cash awards and certificates.

The University of Kansas is a major comprehensive research and teaching university. The university’s mission is to lift students and society by educating leaders, building healthy communities and making discoveries that change the world. The KU News Service is the central public relations office for the Lawrence campus.
kunews@ku.edu | 1450 Jayhawk Blvd., Suite 37, Lawrence, KS 66045
Join SEG Near Surface Geophysics Technical Section

http://seg.org/News-Resources/Near-Surface

JOIN THE SEG 
NEAR SURFACE 
TECHNICAL SECTION

Recognized as a leading global society for applied near-surface geophysics, SEG’s Near Surface Technical Section features:

- Multiple business and technical meetings
- Oral, poster, and special sessions at the SEG Annual Meeting
- Special articles and issues in The Leading Edge (TLE), Interpretation, and GEOPHYSICS
- The Near Surface Technical Section newsletter—Near Surface Views—published quarterly


INSPIRE THE FUTURE OF NEAR-SURFACE GEOPHYSICS

Donate now to the SEG Near Surface Geophysical Research Award Fund.

This important initiative enables academically exceptional graduate and undergraduate applicants to conduct geophysical research projects around the world by offsetting expenses for field data acquisition, laboratory experiments, computer software, or other activities. All applicants are considered, with graduate students given greater funds and priority.

Your gift is vital to the advancement of the global near-surface geophysical community. Across this discipline, novel applications and innovative methods and techniques are developed and shared for the benefit of professional, future near-surface geophysicists and society as a whole. In order to maximize the number of available awards, we respectfully ask you to consider a donation to help us meet our goal of growing the endowment to $100,000.

Find out more about the award and donate now at www.seg.org/News-Resources/Honors-and-Awards/Near-Surface-Research-Award.

Please note that the SEG Foundation assesses a 5% Development Administration Fee on gifts of $500 or more that are restricted to a specific program or activity.
SEG Publications Near Surface Related Special Issues Release Schedule

- Gravity, Electrical, and Magnetic Methods and their Applications - Geophysics: **September-October 2016**
- Near-surface Imaging and Interpretation - Interpretation: **August 2016**
- Hydrogeophysics - TLE: **September 2016**
- Characterizing the Subsurface with Multiples and Surface waves - Interpretation: **November 2016**
- Near-surface Modeling and Imaging - TLE: November 2016 -
- Remote Sensing - TLE: January 2017 - **Paper submission deadline = 15 September 2016**

### Calendar of Upcoming Events

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<tr>
<th>Events</th>
<th>Location</th>
<th>Dates</th>
<th>Submissions</th>
<th>Registration</th>
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</thead>
<tbody>
<tr>
<td>The 43rd International Association of Hydrogeologists congress</td>
<td>Montpellier, France</td>
<td>Sep 25 - 29 2016</td>
<td>Closed</td>
<td>Early registration ended</td>
</tr>
<tr>
<td><strong>Geological Society of America Annual Meeting</strong></td>
<td>Denver, USA</td>
<td>25-28 Sep 2016</td>
<td>Closed</td>
<td>Early registration ended</td>
</tr>
<tr>
<td>Society of Exploration Geophysicists Annual Meeting</td>
<td>Dallas, USA</td>
<td>16-21 Oct 2016</td>
<td>Closed</td>
<td>Registration is open</td>
</tr>
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<td>Closed</td>
<td>Registration is open</td>
</tr>
<tr>
<td>AGU Fall Meeting</td>
<td>San Francisco, USA</td>
<td>12-16 Dec 2016</td>
<td>Closed</td>
<td>Registration is open</td>
</tr>
<tr>
<td>SAGEEP 30th Anniversary</td>
<td>Denver, USA</td>
<td>19-23 March 2017</td>
<td>Open until 28 Oct 2016</td>
<td>TBD</td>
</tr>
<tr>
<td>6th International symposium on three-Dimensional electromagnetics</td>
<td>Berkeley, USA</td>
<td>28-30 March 2017</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>AGES Congress: Geosciences applied to solve humanitarian problems all over the world</td>
<td>Belgrade, Serbia</td>
<td>24-26 May 2017</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>International Workshop on Advanced Ground Penetrating Radar</td>
<td>Edinburgh, Scotland</td>
<td>28-30 June 2017</td>
<td>16 Dec 2016</td>
<td>TBD</td>
</tr>
<tr>
<td>AGU-SEG Hydrogeophysics Workshop</td>
<td>Standford, USA</td>
<td>24-27- July 2017</td>
<td>TBD</td>
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<tr>
<td>International Conference on Engineering Geophysics</td>
<td>Al Ain, United Arab Emirates</td>
<td>8-11 Oct 2017</td>
<td>TBD</td>
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## Technical Sessions

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Type</th>
<th>Title</th>
<th>Room</th>
</tr>
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<tbody>
<tr>
<td>Monday</td>
<td>PM</td>
<td>E-oral</td>
<td>NS Shallow seismic statics, inversion, and tomography</td>
<td>150</td>
</tr>
<tr>
<td>Tuesday</td>
<td>AM</td>
<td>Oral</td>
<td>Special Standing Session: Hydrogeophysics</td>
<td>147/154</td>
</tr>
<tr>
<td>Tuesday</td>
<td>AM</td>
<td>Oral</td>
<td>Special Session: Surface Waves</td>
<td>174</td>
</tr>
<tr>
<td>Tuesday</td>
<td>AM</td>
<td>Poster</td>
<td>NS Seismic effects of the shallow subsurface</td>
<td></td>
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<tr>
<td>Tuesday</td>
<td>PM</td>
<td>Oral</td>
<td>Special Standing Session: Engineering Geophysics</td>
<td>147/154</td>
</tr>
<tr>
<td>Wednesday</td>
<td>AM</td>
<td>Oral</td>
<td>Special Standing Session: GWB Humanitarian Geophysics</td>
<td>147/154</td>
</tr>
<tr>
<td>Wednesday</td>
<td>PM</td>
<td>Oral</td>
<td>NS Near-surface seismic applications and innovations</td>
<td>142</td>
</tr>
<tr>
<td>Wednesday</td>
<td>AM</td>
<td>Poster</td>
<td>Applications of near-surface geophysics</td>
<td></td>
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</tbody>
</table>

**Near Surface Evening Reception at Eddie Deen’s Restaurant 7 - 11 PM**

1. Phil Sirles will introduce the incoming leadership:
   a) Steve Sloan - Chair
   b) Mike Powers - Chair-elect
   c) Dale Rucker - Secretary

2. Steve Sloan will introduce the best student chapter NS article to, Tamás Lukács from Eötvös Loránd University SEG Student chapter.

3. Steve Sloan will introduce the NS Research Award Recipient - Brady Flinchum from the University of Wyoming

4. The Harold Mooney Award will be presented by Steve Sloan to Susan Hubbard.

**Other Meetings of interest at SEG Annual Meeting:**

1. NS business Meeting: Tuesday 5:30 - 6:30 PM, Omni Hotel, Arts District 6 room
2. ASCC Meeting: Wednesday 5:30 - 6:30 PM, Omni hotel, Arts district 7 room
3. WNC Meeting: Tuesday 3:00 - 4:00 PM, Omni hotel, Trinity 4 room
SEG Events at a Glance

Before you register, consider becoming a Volunteer at the 2016 AM!
Volunteering for half a day gets you FREE registration for the other half of the day
- Find a position now at http://seg.org/am/volunteer
- This is a great way to meet new people while attending the technical sessions

Sunday, October 16, 2016
FREE Appetizers and Drinks at Icebreaker and Expo Preview, 6-8PM
- Meet and greet SEG leaders, companies, colleagues and more
Visit the Student and Early Career Lounge, 6-8PM
- Technical talks, career development sessions, and networking opportunities with professionals, SEG staff, and other students

Monday, October 17, 2016
Explore the Exposition Hall, 9-6PM
Student and Early Career Lounge, 9-6PM
Student Pop-up Talks, 9-5PM
$5 Perot Museum of Nature and Science, 9:30-12:30PM
- $71 per person
- http://seg.org/Events/Annual-Meeting/Events/Tours
$5 Halliburton Wireline Facility Field Trip, 11:30-5:30 PM
- $60 per person including lunch and transportation
- http://seg.org/Events/Annual-Meeting/Education/Field-Trip
SEG Challenge Bowl Finals, 2-4PM
FREE Student Networking Event, 4-5:30PM
- Meet and network with industry recruiters as well as NSTS President-Elect, Steve Sloan, and Student Program Lead, Sarah Morton
FREE Beer and Wine Reception on Exhibit Hall Floor, 4:30-6PM
Women’s Networking Event, 5-6:30PM
- $20 buy one ticket, get one FREE for a friend. Pre-registration is required for your friend by emailing registration@seg.org
- Features the [Female] Pioneers in Geophysics poster session

Tuesday, October 18, 2016
Explore the Exposition Hall, 9-6PM
Student and Early Career Lounge, 9-6PM
Student Pop-up Talks, 9-5PM
FREE SEG Members-only breakfast, 7-8:30AM
FREE Beer and Wine Reception on Exhibit Hall Floor, 4:30-6PM
Near Surface Technical Section Evening Reception, 7-11PM
- FREE appetizers and 1 drink ticket

Wednesday, October 19, 2016
SEG Women’s Network Breakfast, 8:30-11AM
- $20 buy one ticket, get one FREE for a friend. Pre-registration is required for your friend by emailing registration@seg.org
Explore the Exposition Hall, 9-4PM
Student and Early Career Lounge, 9-4PM
Student Pop-up Talks, 9-5PM
SEG Student Education Program Closing Ceremony, 12-1:30PM
- 2015 Best Student Poster/Paper awards and SEG’s Best Student Chapter Award will be presented as well as the 2016-2017 SEG Scholarships
FREE 3 mile Group Run along the Trinity Levee Trail (see map next page!)

Looking for a roommate to split a hotel with or someone to have lunch with during the Annual Meeting? Contact Sarah Morton (sarah.morton@ku.edu) to get connected! Sarah (@smorts829) will also be live tweeting the meeting with information about daily reminders for the NSTS technical sessions, social events, student meetups for lunch and more!
5K (3.1 miles) Group Run out and back on the Trinity Trail, Wednesday, October 19
Meet at the East park entrance on W Commerce St at 5:30 AM (1 mile from Convention Center)
Contact Sarah Morton for more information sarah.morton@ku.edu or (203) 206-7294
In this workshop, we will bring together hydrogeophysicists and other critical zone scientists to explore new ways to work together, using recent advances in hydrogeophysics to address key scientific questions about the critical zone. We propose to develop a framework for advancing both hydrogeophysics and CZ science through communicating and coordinating research agendas. New insights into CZ processes will be gained through the enhanced use of hydrogeophysics, and the detailed interdisciplinary observations made in CZ studies will provide opportunities for advancing hydrogeophysical methods.

Specifically, in this workshop, we aim to:

1. bring together hydrogeophysicists and other CZ scientists to inform and exchange ideas,
2. identify the critical areas of future research to optimize the use of hydrogeophysics for CZ science, and
3. write a white paper identifying research focus areas for CZ-geophysics.

Visit the workshop Web site for additional details as information becomes available:

http://workshops.agu.org/hydrogeophysics/

Organizing Committee:

Rosemary Knight and Kristina Keating (co-chairs), Anja Klotzsche, Kate Maher, Daniella Rempe, and Kamini Singha
Job postings

Geophysicist
Weston Solutions • West Chester, PA
www.westonsolutions.com

The Geophysicist is technically responsible to a more senior geophysicist or project manager to provide accurate and pertinent scientific data according to agreed upon methods, within established project schedules, procedures, and techniques; and to provide sound conclusions and recommendations based upon field investigations and literature reviews.

Knowledge, Skills & Abilities:
- Bachelors degree plus three (3) years of related experience, or Masters Degree plus one (1) year related experience, or Doctoral Degree.
- Related experience is defined as continuous professional employment under the direction of more senior professionals involving geophysics activities.
- Demonstrated ability to supervise subcontractors in the field, and make field decisions consistent with project objectives.
- Demonstrate ability to interface in project teams to solve problems and provide value added services.
- Demonstrate ability to plan, organize, manage and lead teams on project task segments.
- Demonstrate ability to work and complete assignments independently.
- Demonstrate ability to communicate effectively by speech and writing to individuals and large groups of peers, staff, supervisors, vendors and clients.
- Demonstrate technical competence and willingness to instruct junior staff in areas of specialization.
- Demonstrate ability to make timely and effective decisions.
- Demonstrate dedication to fostering ethical conduct and professionalism.

Senior Geophysicist
M. J. SCHIFF & ASSOCIATES • Englewood, CO
www.schiffassociates.com

Primary Responsibilities:
The Senior Geophysicist will design, manage, and execute engineering geophysics projects in support of various clients (e.g., transportation, oil and gas, water resources, environmental, etc.) as well as support client development efforts and contribute to the expansion of HDR's Engineering Geophysics capabilities.

Required Qualifications
- Bachelor's degree in Geophysics or closely related field
- Registered/Professional Geologist or Geophysicist
- 15 years minimum experience
- Proficient in applicability, field implementation and data analysis of various geophysical methods, including: Downhole/Crosshole Seismic, Vibration Monitoring, Borehole Logging, etc.
- OSHA 40hr HAZWOPER training
- Hands on experience with Electromagnetics, Magnetics, Ground Penetrating Radar, Seismic Refraction/Reflection, and Electrical Resistivity
- An attitude and commitment to being an active participant of our employee-owned culture is a must

Preferred Qualifications:
- Masters in Geophysics
Field Geophysicist
Terracon • Bettendorf, IA
www.terracon.com

General Responsibilities:
- Perform a comprehensive range of geophysical technologies in support of geologic, groundwater, environmental, engineering, and materials testing investigations.
- Perform non-invasive geophysical surveys from the ground surface as well as geophysical logging in boreholes to provide images or models of subsurface conditions.
- Define survey objectives, design survey approaches, analyze the resulting geophysical data, and provide interpretation of results.
- Results are incorporated into the planning, design and construction of vital infrastructure such as roads, tunnels, airports, landfills, water supplies, and other facilities; the assessment of environmental conditions; and the evaluation of earth resources. Geophysics supports all of Terracons service lines.

Essential Role and Responsibilities:
- Follow safety rules, guidelines and standards for all projects. Participate in pre-task planning. Report any safety issues or concerns to management.
- Be responsible for maintaining quality standards on all projects.
- Developing level Geophysicist responsible for conducting geophysical surveys; assignments are designed to develop knowledge and abilities.
- Performs site visits, field observations and field data collection or assignments.
- Assists in geophysical data collection and tests to evaluate, plan and permit projects.
- Outlines required investigative program(s) by selecting the proper alternative techniques to conduct site studies in field of expertise.
- May have limited client contact pertaining to specific projects/tasks.

Requirements:
- Bachelor’s degree in Geology or Geophysics.
- Valid driver’s license with acceptable violation history.

Preferred:
- Certification in field of expertise preferred based on state specific requirements.

Assistant Professor (four posts)
The Hong Kong Polytechnic University, Department of Land Surveying and Geo-informatics

The Department of Land Surveying and Geo-Informatics (LSGI) is widely considered as a centre of excellence in both education and research in Geomatics and related fields. The Department offers a range of academic programmes to both local and overseas students, including Bachelor of Science (Honours) in Geomatics (with three specialized streams: Land Surveying, Geo-Information Technology, and Utility Management and Surveying), Master of Science in Geomatics (with two specialized streams: Geographic Information System and Surveying) and Doctor of Philosophy. LSGI has a very strong research programme that encompasses research activities in the areas of urban informatics, spatial big data analytics, geographical information science, satellite positioning, ubiquitous positioning, photogrammetry and remote sensing, geodesy and geodynamics, environmental monitoring, geo-hazard studies, intelligent transport systems, smart city, utility system management, location-based services, and geographical social science. There are currently 22 academic staff, 11 supporting members, 50 research staff and 50 PhD students in the Department. LSGI has a number of well-equipped research and teaching laboratories. Please visit the website at http://www.lsgi.polyu.edu.hk for more information about the Department.

The Department is seeking highly motivated and suitably qualified individuals with research expertise in one of the following areas: Computer Science (Computer Vision/Machine Learning), Geographic Information Science, Remote Sensing, Land/Utility Surveying, Spatial Data Science, Spatial Statistics or Urban related sciences.
Duties
The appointees will be required to:
(a) conduct researches that lead to high-quality publications and awards of external research grants;
(b) undertake teaching duties in relevant subject areas at undergraduate and postgraduate levels;
(c) supervise student projects and theses; and
(d) undertake relevant administrative duties.

Qualification
Applicants should:
(a) have a doctoral degree in a relevant area;
(b) have the relevant research experience (as supported by evidence of research projects and outputs), with relevant teaching experience at tertiary level being an advantage; and
(c) demonstrate the potential for establishing significant externally funded research programmes.

Remuneration and Conditions of Service
A highly competitive remuneration package will be offered. Initial appointments will be on a fixed-term gratuity-bearing contract. Re-engagement thereafter is subject to mutual agreement. For general information on terms and conditions for appointment of academic staff in the University, please visit the website at http://www.polyu.edu.hk/hro/TC.htm.

Applicants should state their current and expected salary in the application.

PhD position “GPR full-waveform inversion for high resolution imaging of transport processes”
Forschungszentrum Jülich, Jülich, Germany

The Forschungszentrum Julich 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, hydrogeology, computational geoscience, or related natural sciences for a three-year PhD position. The earliest starting date is 1. January 2017. The PhD position will be filled when a suitable candidate is found.

The Institute of Bio- and Geosciences - Agrosphere (IBG-3) conducts research to improve our understanding of hydrological and biogeochemical processes in terrestrial systems. Its research contributes to the sustainable and resource-conserving use of soils and water.

In the IBG-3, advanced modeling and inversion algorithms are developed and applied for a wide range of hydrogeophysical studies using ElectroMagnetic Induction (EMI) and Ground Penetrating Radar (GPR) systems. This PhD position is part of the EU funded project “ENIGMA”, a European training Network for “In situ imaGing of dynaMic processes in heterogeneous subsurfAce environments”. The primary objective of this project is to extend and apply existing full-waveform GPR data processing algorithms for the time-lapse characterization of transport processes. The project offers the unique opportunity to connect novel processing and inversion techniques to real data in a state-of-the-art computational environment.

Your Profile:

• University degree in geophysics, physics, hydrogeology, computational geoscience, or related natural sciences with a good final grade;
• (Hydro)Geophysical field work experience, preferably with GPR.
• Advanced knowledge of numerical methods
• Experience in (matlab) programming
• 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
- within the ENIGMA training network, several workshops are organized and several other PhD Student work on the development of innovative methods for imaging process dynamics in subsurface hydrosystems.
- PhD students are encouraged to attend international conferences and two research visits of several months abroad with cooperating ENIGMA partners are planned.

The successful applicants will be employed under a full-time fixed-term contract in accordance to Marie Skłodowska-Curie ITN regulations. To be eligible, candidates must comply with mobility requirements. Please see http://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-guide-appl16-msca-itn_en.pdf for details.

In particular candidates must not have resided nor carried out their main activity (work, studies, etc.) in the country of the host organisation for more than 12 months in the 3 years immediately prior to November 1, 2016). Compulsory national service and/or short stays such as holidays are not taken into account.
For further information please contact Prof. Jan van der Kruk, Phone: +49 2461 61-4077, e-mail: j.van.der.kruk@fz-juelich.de or visit our webpage www.fz-juelich.de/ibg/ibg-3.

To contribute material to the NS views 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. Note, that we also have a new section “What’s hot” where new methods, new developments, new technology, new equipment, or new NS event can be presented. Feel free to send articles to this new section. Please keep messages brief, provide contact information, and (if available) a web address for additional information.