



Near-Surface Views



Newsletter of the NEAR-SURFACE GEOPHYSICS Section of The Society of Exploration Geophysicists
Third Quarter 2011, Vol. 18, No. 3

Letter From the President, Klaus Holliger

Dear NSGS members,

The upcoming SEG meeting in San Antonio, Texas, once again offers a broad spectrum of exciting research in near surface geophysics presented in a total of four sessions. This year, we have two oral sessions on “Surface Waves” and “Environmental and Geotechnical Applications”, one poster session on “Near Surface General Contributions”, and one special session on “Hydrogeophysics”. In addition there will be again be a session sponsored by SEG’s Geoscientists Without Borders (GWB) initiative on “Humanitarian Applications of Geosciences” as well as a post-convention workshop on the very timely topic of “Geophysics Applied to Geohazards and Public Safety”. A detailed schedule for these and all other sessions is available on the [SEG website](#).



The annual NSGS business meeting will be held on Tuesday, September 20, from 4-6 pm in Room 204 B of the Henry B. Gonzalez Convention Center. It will be followed by our section’s annual reception in the Agave Room of the Iron Cactus Mexican Grill (200 River Walk, Suite 100, San Antonio, Texas) starting at 7 pm.

This is my farewell letter as NSGS president, a position that I greatly enjoyed because it allowed me to meet and interact with so many fantastic people! After the SEG meeting, James Irving, the current president-elect, will be taking over the presidency and I wish him all the satisfaction and “good vibes” I was able to experience during the past year. Finally, I am very happy to announce that John Bradford, a former 2nd VP of SEG and Mooney Award winner, will be our president-elect. John is currently leading SEG’s Near Surface Task Force and his experience and enthusiasm is likely to generate significant synergies from which both our section and the task force will profit.

I am looking forward seeing you in San Antonio!

Best wishes,

Klaus Holliger
President, Near Surface Geophysics Section of the SEG

PASSCAL multichannel/near surface geophysics seismograph usage - 1996-2010

by Lee Liberty

During the past 15 years, the Incorporated Research Institutions for Seismology (IRIS) Program for Array Seismic Studies of the Continental Lithosphere (PASSCAL) Instrument Center Facility has supported the near-surface seismology community by providing seismic equipment for research into Earth's fundamental processes and for teaching field based seismic methods. The facility provides instrumentation for National Science Foundation, Department of Energy, and otherwise funded seismological experiments around the world.

For the near-surface community, the pool of Geometrics seismographs, cables, and geophones has served an average of 14 experiments per year. A total of 147 different principal investigators representing 73 institutions have utilized seismic systems over the past 15 years. Although approximately one quarter of the requests specifically mention educational use for these instrument deployments, 91% of the unit-days have been subscribed for research purposes. PASSCAL and the research community have mobilized instruments to six continents for cryosphere, hazards, geological, and hydrogeological studies. Of the requests for research support, approximately one-third of the experiments are National Science Foundation funded and approximately one quarter of requests list Department of Energy support. The remainders of research requests list other federal agencies (e.g., USGS, Department of Defense), foundations, or private industry for support. Educational requests are mainly supported by the IRIS-supporting institutions.

PASSCAL equipment presently includes Geometrics Geodes (14) and Stratavisors (2), 5-m takeout cables and 40 Hz geophones. IRIS is currently exploring ways to expand instrumentation to better serve the near-surface geophysics community by providing seismic source support, adequate instrumentation for 3-D experiments, and instrumentation to support non-seismic geophysical exploration. Instruments are available to any research or educational institution to use for research purposes within the guidelines of established policies.

More information on IRIS can be found at <http://www.iris.edu> and the PASSCAL instrument center at <http://www.passcal.nmt.edu/>. Recommendations or comments as to how PASSCAL can better serve the near surface geophysics community can be directed to Lee Liberty (lliberty@boisestate.edu).

Geoscientists *Without Borders*® is Relevant - Program announces a new project in Brazil

Humanitarian organizations are focused on either crisis responses or providing sustainable solutions. Although not a crisis responder, Geoscientists *Without Borders*® (GWB) projects are always related to a crisis. Projects address tsunami prediction, water crises, cultural destruction, earthquake prediction and population protection, and landslide prediction in populated areas - all while providing sustainable solutions.

The first GWB project, managed by GeoHazards International, finished in the field one week before the major earthquake in West Sumatra in 2009. The team, which was part of an international crisis response team, turned around and returned to the area. Today, the results of the project are being used to create vertical escape routes in Padang.

Another example of the timeliness of the GWB program is with the University of Texas at Austin GWB project that centers on earthquake prediction and response in Jamaica, and is in partnership with the Jamaican government. The project proposal was in review at the time when the devastation of Haiti occurred. Kingston is the site of repeated earthquakes and now is the center of both the population and the economy for the entire country. The results of this project could positively change the outcome of a similar earthquake in Jamaica in the future.

Optimism remains high of the GWB success with the newest project. On January 5, 2011, 24 hours of previous rain triggered massive landslides and flood in the mountainous region of Rio de Janeiro resulting in the loss of more than 800 lives in the first two weeks. Following the disaster, the Brazilian government vowed to set up a national early warning system that could alert communities to approaching natural dangers. The GWB program is helping to achieve this goal! The SEG Foundation Board approved the newest GWB project in April, "Risk Assessment and Advance Warning for Landslides in Brazil." The project began in August 2011.

Every year, many states in Brazil suffer severe socioeconomic problems due to landslides and floods caused by heavy rain and resulting ground saturation. During the rainy season, residents of slums and hillsides in Brazil are put on alert as landslides, floods, and outbreaks of leptospirosis occur (especially in the regions lacking infrastructure and basic sanitation), leading to the tragic loss of thousands of lives. In addition, these disasters cause widespread infrastructure damage to buildings, roads, and utilities such as electricity, telephone systems, sewage, and drinking water.

The question of how to avoid or minimize such disasters, given the current socioeconomic conditions in Brazil, remains to be answered. That is where GWB steps in. Students and professors from the University of Houston, Massachusetts Institute of Technology, Federal University of Rio de Janeiro, Fluminense Federal University, Univeridade Estadual de Campinas, Universidade Federal do Para, and Instituto Nacional de Pesquisa Espacial, will be conducting the scientific research for this project, with the goal being to use existing data and gather new geophysical, geological, civil engineering, and meteorological data to study, classify, and monitor areas that pose a high risk of landslides in the Rio de Janeiro state in Brazil. The primary focus will be on one of the most recent areas affected by landslides, the mountainous central northern region of the Rio de Janeiro state. GWB may not be a first responder in a crisis, but they are relevant and timely. **They just might be a pre-crisis responder!**

Substantial corporate support to this project comes from Global Geophysical. Schlumberger

launched GWB with a generous investment, and other corporate donations come from Santos, CGGVeritas, and Geophysical Pursuit. The leadership provided by these companies, as well as other companies and individuals, makes the program possible.

Look for the details of this and other projects under “Current Projects” at www.seg.org/gwb. Join the discussions on LinkedIn and Facebook. Please visit the SEG Foundation staff at the SEG Annual Meeting at the SEG Pavilion to chat with representatives of the projects.

Risk assessment and advance warning for landslides in Brazil

OBJECTIVE: Perform detailed geophysical, geological and geotechnical investigation to better evaluate the potential for landslides and implement a monitoring system.

PRINCIPAL OUTCOMES: We intend to use scientific and technical information to assess the risks of slide occurrence, and inform residents, government, and media about these risks. These risks will be estimated by integrating the aforementioned data, and the results will be added to risk assessment databases of relevant Brazilian government programs, which will be publicly available. We will work together with professors and students from Brazilian universities to identify and survey sites with high risk of landslides.

EQUIPMENT AND MODELING: Investigative surveys will primarily consist of collecting seismic, and electrical data. The seismic surveys will be designed for both seismic refraction and reflection, and the design details will depend on the location. The data will be used to image the subsurface and further seismically characterize the field, which will be important for the monitoring system based on passive seismic monitoring. To obtain information on ground saturation, we will collect electrical data, GPR, EM, and/or dipole-dipole resistivity. Again, the particular method will be properly chosen depending on the location. Also, in this stage we will install the first monitoring equipment and make proper modifications after the risk analysis is finished.

METHODS: A test site in the mountainous central northern region of the Rio de Janeiro state will be used for this project. Once high risk sites are pre-selected, the project team will perform preliminary slope stability calculations using available Digital Elevation Model (DEM) data. From those results, sites of potential high risk will be chosen to perform detailed geophysical, geological, and geotechnical investigations to characterize the field and general structure of the subsurface. Using the results from site surveying, they will perform landslide prediction modeling and collect any additional field measurements. A final distribution of landslide risks will be calculated and then monitoring systems will be implemented, primarily based on micro-seismic monitoring. This work has the potential to extend the system to use one or more standard instrumentation in landslide monitoring.

Harold B. Mooney Award

Congratulations to Professor Jonathan Nyquist from Temple University in Philadelphia, Pennsylvania, for having been selected for the 2011 Harold B. Mooney Award. The award will be presented during the NSGS reception. The following is NSGS president Klaus Holliger's congratulatory letter to Professor Nyquist.

Dear Jonathan,

On behalf of SEG's Near Surface Geophysics Section (NSGS), I would like to congratulate you on being the winner of the 2011 Harold Mooney Award. John Bradford and Mark Dunscomb highlighted your numerous contributions and long-standing service to the near surface geophysics community with admiration and enthusiasm, which the section's executive committee and I fully share. While your list of your contributions and achievements is too long to be reiterated here, I do want to explicitly commend you on your persistent and selfless efforts to improve the collaboration between SEG and the Environmental and Engineering Geophysics Society (EEGS), as whose president-elect, president, past-president who have served from 2009 through 2011. In my assessment, this in itself would have made you a very worthy candidate for this award. It therefore goes without saying that I am very happy about choice made by the NSGS executive committee.

Well done Jonathan and congratulations again for having joined the select and distinguished group of Money Award winners: John Bradford (2010), Louise Pellerin (2009), Jianghai Xia (2008), Deborah Underwood (2007), Bill Doll (2006), Phillip Romig, Jr. (2005), Ken Stokoe (2004), Jim Hunter (2003), Mats Lagmanson (2002), Charles Stoyer (2001), Gary Olhoeft (1999), Doug Crice (1998), Duncan MacNeill (1997), Peter Annan (1996), Rick Miller (1995).

Thank again so much you for your continued service to our community!

Best wishes,

Klaus Holliger

President of NSGS

Near-Surface Geophysics Sessions



There will be four Near-Surface sessions at this years meeting.

- NS 1 Environmental and Geotechnical Applications - 8:30am Wednesday
- NS 2 Surface Waves - 8:30am Thursday
- NS P General Contributions - Tuesday PM
- SS 3 Hydrogeophysics - 1:30pm Wednesday

A full listing of sessions at the meeting is available [here](#).

NSGS Business Meeting and Reception: Tuesday, September 20th

The annual NSGS business meeting will be held on Tuesday, September 20, from 4-6 pm in Room 204 B of the Henry B. Gonzalez Convention Center. This meeting is open and all are welcome to join!

Following the business meeting, the NSGS will be holding its annual reception supported by our Gold and Silver sponsors at the Iron Cactus Mexican Grill (200 River Walk, Suite 100, San Antonio, Texas) in the Agave Room starting at 7 pm. There is no charge to NSG Section members, non-members can join on the spot and students are particularly welcome: student membership free!

Gold Sponsors:



Silver Sponsors:



Student Travel Grant Award Winner

Congratulations to Leonardo Uieda from the Geophysics Department of the Observatorio Nacional in Rio de Janeiro in Brasil as this year's winner our the NSGS student travel grant competition, which is sponsored by Geometrics, AGI and R.T. Clark. The award will be presented during the NSGS reception.



We are looking forward to seeing Leonardo's presentation, which is entitled "Robust 3D gravity gradient inversion by planting anomalous densities" and scheduled for Monday, September 19, at 4:25 pm in session GM1 (Room 210A).

NSGS Membership

After the resolution of some technical and administrative problems with regard to membership registration and renewal, our numbers are again developing quite positively and we are again close to our former record of 400+ members.

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

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

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

Membership applications can be found [on our website](#). Membership forms will also be available at our section's annual reception.



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IWAGPR2011 & Special Issue

June 22-24, the International Workshop on Advanced GPR was held in Aachen, Germany

Jan van der Kruk (Research Center Jülich), Klaus Reicherter (RWTH Aachen), Sebastien Lambot (UCL Louvain) organized the workshop with sponsorships from IGM GmbH / IDS Pisa, 3D Radar, GSSI, Sensors & Software, Allied Associates geophysical Ltd., Mala Geoscience and Elegant Mathematics. The goal of the workshop is to spread knowledge about GPR technology and its use, as well as, to provide a unique possibility to participants to exchange ideas about the advances in their work and discuss their results.

Approximately 120 scientists from academia, government and industry attended from 19 different countries. More than 60 presentations were presented in nine oral sessions and one poster session covering a wide range of advancements in GPR techniques and applications including hydrogeophysics; advanced modeling, processing and inversion; mining, archaeological and geological applications; concrete, pavement and material characterization; and novel GPR systems and antennas. (see the online program: www.fz-juelich.de/iwagpr2011).

We thank all the members of the scientific review panel who reviewed all the 4-6 page extended abstracts, which are published in the workshop proceedings and are now also accessible at IEEE Xplore: <http://ieeexplore.ieee.org/servlet/opac?punumber=5954679> .



In conjunction with the IWAGPR2011 workshop, we are assembling a Special Issue of the journal Near Surface Geophysics focused on "Ground-penetrating Radar for Hydrogeophysical and Subsurface Property Modelling and Inversion". Papers are solicited on ground-penetrating radar (GPR) topics that include:

- Numerical modeling
- Novel imaging techniques
- Subsurface tomography
- Inverse problems
- as well as on papers showing the use of GPR for a wide range of applications, including (but not limited to):
- Hydrology/Hydrogeophysics
- Agriculture
- Sedimentology
- Glaciology
- Concrete/Pavements
- Geology/Geotechnical Engineering
- Mining and Tunnelling

- Utilities Detection and Mapping

Authors must submit their manuscript electronically via the EAGE online journal review system ScholarOne Manuscripts at <http://mc.manuscriptcentral.com/nsg> and follow the author guidelines (<http://nsg.eage.org/?cntid=1>). Please mention the name of the special issue in your cover letter. Manuscripts need to be submitted before 15 October 2011. Inquiries concerning the special issue should be directed to the Guest Editors:

Jan van der Kruk (j.van.der.kruk@fz-juelich.de),
Evert Slob (e.c.slob@tudelft.nl) and
Lorenzo Crocco (crocco.l@irea.cnr.it)

Call for papers

Geotechnical Assessment and Geoenvironmental Engineering

Special Issues in EAGE journal of Near Surface Geophysics and EEGS Journal of Environmental and Engineering Geophysics (JEEG)

Deadline for submission of abstracts: 15 October 2011

The past decade has seen a distinct change in the way geophysical methods are utilized to investigate geotechnical and geoenvironmental issues. Advances in instrumentation design, computer hardware and data processing software have all contributed to the development of novel and highly sophisticated geophysical techniques. In response to this rapid and exciting expansion of research, the Journal of Environmental and Engineering Geophysics and Near Surface Geophysics are producing a collaborative 'Special Issue on Geotechnical Assessment and Geoenvironmental Engineering' to showcase the state-of-the-art and the most pertinent research currently underway in the discipline.

This special issue is a joint venture of the European Association of Geoscientists and Engineers (EAGE), the publisher of Near Surface Geophysics and the Environmental & Engineering Geophysical Society (EEGS), the publisher of the Journal of Environmental and Engineering Geophysics, to promote and enhance communication between international research communities and ensure the widespread, effective dissemination of the latest work and results. To that end, online access of this issue will be made available to all EAGE NSGD and EEGS members.

We invite papers reporting on:

- Novel measurement, assessment and monitoring techniques
- Application of new and emerging geophysical methods
- Innovative data processing and visualization techniques
- Modeling and inversion of geophysical data
- Integrated geophysical imaging and characterization approaches
- Geophysical estimation of engineering parameters
- Novel and interesting case histories

Subjects can be related, but not limited, to the following topics: site and geomaterials characterization (including non-destructive testing of concrete), soil and rock erosion, slope stability, liquefaction potential, infrastructure assessment, urban planning, foundations, subsidence, collapse, compressible soils, organic soils, landfills, buried waste, contaminated soil deposits, obstructions, unknown conditions, undetected utilities, pseudo-karst features (utilities, tunnels and abandoned mines), sinkholes, caves, groundwater, detection and mitigation of leakage in dams, earthquake hazard mitigation, earthquake ground motion prediction, bridge scour, highways and road construction, deep mine geology and orebody delineation, ground control, archaeological and historical sites.

The guest editors of this special issue will ensure both its topical focus and conformity with the high quality standards of Near Surface Geophysics and the Journal of Environmental & Engineering Geophysics.

Authors are encouraged to contribute high-level technical research papers. Please inform the EAGE Editorial Office, Ms. Wendel van der Sluis (ws@eage.org), about your intention to contribute and

provide a one-page abstract by 15 October 2011.

Timeline:

Submission of extended abstracts:	Deadline 15 October 2011
Invitations to submit full papers:	Before 15 December 2011
Submission of full papers:	Deadline 1 April 2012
Review full paper submissions:	April-December 2012
Publication:	June 2013

Editors-in-Chief:

Janet Simms, Journal of Environmental & Engineering Geophysics, janet.e.simms@usace.army.mil
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2011 & 2012 Conferences

AGU 2011 Fall Meeting:

December 5-9, San Francisco, California

Abstract submission is now closed. These are near-surface geophysics sessions that will be held during the meeting:

- Cryosphere Geophysics
- Exploiting GPR and Seismic Wavefield Properties for Characterization of the Shallow Subsurface
- From Pore-Scale to Basin-Scale: Geophysical Methods for Groundwater Evaluation and Management
- Hydraulic Fracturing and Fluids in the Shallow Subsurface
- Novel Techniques Applied to Near-Surface Geophysical Problems
- Seismic Characterization of Unconsolidated Sediments
- The Role of Mineral Water Interface in Understanding Geophysical Signals

Check the [official website](#) for more information and the final schedule.

Call for papers GPR2012:

June 4-8, 2012; Shanghai, China

The 14th International Conference on Ground Penetrating Radar (GPR2012) will be held on June 4-8, 2012. Tongji University in Shanghai, China is the host institution (General Chair: Prof. Xie Xiongyao, xiexiongyao@tongji.edu.cn). The goal of GPR2012 is to provide an international forum for scientists, engineers, and all kinds of GPR end users to discuss and exchange the advancement of GPR technology (advanced modeling, processing, inversion, and novel GPR systems and antennas) and its applications in hydrogeophysics, geophysical exploration and mining, archaeology and geology, civil and geotechnical engineering, concrete, pavement and material characterization, etc. The deadline for submitting abstracts (limited to 300 words) is November 15, 2011. The deadline for the Camera ready paper (4 to 6 pages) submission is February 15, 2012. For more information, please visit <http://www.gpr2012.org>.

SEG-AGU Hydrogeophysics Workshop:

July 8-11, 2012; Boise, Idaho

HOLD THE DATE: The SEG-AGU Hydrogeophysics Workshop will be held at Boise State University, Boise ID, July 8 to 11, 2012. At this stage the organizing committee is discussing session topics. We intend to make this a ****work**shop**, so will be designing a number of the sessions around 'homework' that is done in advance using data sets acquired or contributed for this purpose. We welcome your involvement! If there is a session that you would like to organize, please contact one of us. We look forward to seeing you in Boise next summer!

Rosemary Knight (rknight@stanford.edu), Rob Jacob (rwj003@bucknell.edu), James Irving (james.irving@unil.ch), Jan van der Kruk (j.van.der.kruk@fz-juelich.de), Lee Liberty (lliberty@boisestate.edu)

Job Postings

Postdoc Position in Hydrogeophysics

In the framework of the Helmholtz Water Alliance which aims at the establishment of a strategic, sustainable competency alliance in Germany in order to be able to address the major challenges for water research in the future, we are seeking for a HYDROLOGY GRADUATE, PHYSICS GRADUATE, GEOPHYSICS GRADUATE, or ENGINEERING GRADUATE for a postdoc position in the field of HYDROGEOPHYSICS

Tasks: The focus will be on advancing hydrogeophysical methods for catchment-scale hydrological studies by joining the established expertise in the areas of advanced high-resolution subsurface imaging and the use of geophysical data to improve hydrological models. This research will provide additional insights in hydrological processes active at the core research sites of the TERENO-RUR observatory (e.g. Selhausen, Rollesbroich, Wüstebach). We envision the simultaneous use and further development of a suite of robust geophysical methods, with a main focus on electrical resistivity tomography (ERT), electromagnetic induction (EMI), and ground penetrating radar (GPR). The candidate should set-up and maintain a vigorous geophysical monitoring program

Requirements: We are looking for highly motivated individuals who have completed a PhD in Hydrology, geophysics, physics or electrical engineering not more than three years ago. The candidate should have experience in hydrological and/or geophysical field work and programming experience in MATLAB. The successful candidate will also be expected to have a good knowledge of English, and to initiate and conduct his/her own research projects in a structured and systematic manner, as well as work well in a team. Thorough training will be offered upon commencement of work. The position involves a fixed-term contract of two years, with the possibility of extension.

For more information, visit this website: <http://www2.fz-juelich.de/icg/icg-iv/index.php?index=3>; and/or contact:

Dr. Sander Huisman (s.huisman@fz-juelich.de), or
Prof. Dr. Ir. Jan van der Kruk (j.van.der.kruk@fz-juelich.de).

Professor (W2) for Hydrogeophysics at Forschungszentrum Juelich and Stuttgart University

The Faculty of Civil and Environmental Engineering of the University of Stuttgart and the Forschungszentrum Jülich invite applications for the position of a **Professor (W2) for Hydrogeophysics** (appointment as Professor at the University of Stuttgart, academic leave of absence and secondment to the Forschungszentrum Jülich), starting as soon as possible. The Professor is intended to contribute to strengthening the development and application of hydrogeophysical measurement methods for the improved characterisation and monitoring of terrestrial hydrosystems. In particular, electrical geo-physical measurement methods are to be advanced in co-operation with the Central Institute for Electronics (Zentralinstitut für Elektronik) of the Forschungszentrum Jülich and adapted to hydrological applications. Electrical resistivity and impedance tomography, self-potential measurements and magneto-electrical imaging techniques are of especial importance. The joint appointment (following the Jülich model) is intended to extend and intensify co-operation between the Forschungszentrum Jülich in the field of terrestrial process monitoring (TERENO) and the University of Stuttgart in the field of modelling flow and transport processes in heterogeneous porous media on various scales.

The professor is expected to focus on research in the field of modeling flow and transport processes in heterogeneous porous media on various scales as incorporated in the research area “Earth and Environment” of the Helmholtz Association as well as to cultivate close links with the Water Research Centre (Wasserforschungszentrum) at the University of Stuttgart. In addition, close co-operation with existing research initiatives such as the International Research Training Group “Non-linearities and Upscaling in Porous Media” (NUPUS) would be welcomed. One of the professor’s tasks is to develop the teaching profile and hold courses in the field of hydrogeophysics in both the German- and the English-language bachelor and master study programs of the Faculty of Civil and Environmental Engineering.

Written applications should be sent no later than October 15th, 2011, to Prof. Dr.-Ing. habil. Christian Moormann, Head of Search Committee, Institut für Geotechnik, Uni-versität Stuttgart, Pfaffenwaldring 35, 70569 Stuttgart, Germany. More information can be found here: <http://www.uni-stuttgart.de/jobs/angebote/job707.html>

Associate professor/Senior Lecturer in Applied Geophysics

Applied geophysics covers a broad spectrum of geophysical methods for investigating the physical state of the Earth's crust. Traditionally, electromagnetic methods have been important for mineral prospecting while seismic methods have been important in the petroleum industry. During recent decades, the fields of application of these methods has expanded considerably and now both methods are applied within the fields of mining and petroleum geophysics. In addition, applied geophysics has become an important component in environmental applications and in studies of large scale crustal structure. At geophysics program at the Dept. of Earth Sciences the research emphasis is on crustal structure mapping, development of geophysical methods, tectonic processes, mapping and monitoring of CO₂ and nuclear waste storage sites, mineral prospecting and near surface geophysics. There is close cooperation with researchers on the national and international level within the fields of tectonics, hydrogeology, hydrogeophysics and scientific drilling.

Appointment period: Permanent.

Nature of duties: Teaching of geophysics and engineering geophysics at basic, advanced and postgraduate levels, research and administration. Teaching duties include course responsibility, course administration and supervision of postgraduate students. Other duties include dissemination of information about research and development in the research field as well as following the development in the society relevant for the research and education at the Department.

Qualifications required: To be eligible for a position as associate professor, the applicant must hold a Ph.D and, unless there are special exceptional circumstances, have completed suitable pedagogical training for teaching at university level or have corresponding qualifications and pedagogic proficiency. According to the appointment regulations of Uppsala University it is also a general requirement that teachers have any other skills which are necessary to carry out their duties proficiently. The ability to teach in Swedish or English is a requirement. The holder is expected to be able to teach in Swedish within two years.

How to apply: See www.personalavd.uu.se/ledigaplatser/1507associate.html

Application deadline: 30 September 2011

Postdoc in geophysics with focus on reflection seismic methods

Applied geophysics covers a broad spectrum of geophysical methods for investigating the physical state of the Earth's crust. Traditionally, electromagnetic methods have been important for mineral prospecting while seismic methods have been important in the petroleum industry. During recent decades, the fields of application of these methods has expanded considerably and now both methods are applied within the fields of mining and petroleum geophysics. In addition, applied geophysics has become an important component in environmental applications and in studies of large scale crustal structure. At geophysics program at the Dept. of Earth Sciences the research emphasis is on crustal structure mapping, development of geophysical methods, tectonic processes, mapping and monitoring of CO₂ and nuclear waste storage sites, mineral prospecting and near surface geophysics. There is close cooperation with researchers on the national and international level within the fields of tectonics, hydrogeology, hydrogeophysics and scientific drilling.

Appointment period: 2 years starting 15 January or as agreed upon with the possibility of a further employment as Researcher for 2 years.

Nature of duties: Include research and planning of research in geophysics with special emphasis on reflection seismic methods. The post-doc will participate in field work, data processing and interpretation activities in conjunction with externally financed projects. Focus will be on projects related to CO₂ storage, mineral prospecting and development of seismic processing methods. This is a research position, but teaching up to 20% may be part of the duties.

Qualifications required: To qualify for appointment as post-doc you must have a PhD. Priority is given to applicants who have completed their PhD within 3 years of the application deadline. Furthermore, according to Uppsala University's general employment regulations, it is also a requirement that teachers possess the necessary skills and qualifications to carry out their duties proficiently.

How to apply: See www.personalavd.uu.se/ledigaplatser/2059postDOC.html

Application deadline: 31 October 2011