



AGU
American Geophysical Union
NEAR-SURFACE GEOPHYSICS FOCUS GROUP
NEWSLETTER: AUGUST 2013

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

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1. Andrew Binley elected 2013 AGU Fellow (from G. Tsoflias, NSFG President)

Dear Colleagues:

It is a great pleasure to inform you that the Union Fellows Selection Committee has elected Dr. Andrew Binley a 2013 AGU Fellow. The award citation states "for outstanding contributions toward the fundamental understanding of hydrological model uncertainty and for pioneering the field of hydrogeophysics". Andy's tremendous contributions go beyond scientific achievements. He has been an integral part of our community of hydrogeophysicists and near-surface geophysicists, a colleague, a collaborator and a mentor. Andy exemplifies the qualities that distinguish AGU Fellows, a recognition bestowed to a select group of 0.1% of the Union's membership (the 2013 class of AGU Fellows is listed on the [AGU Web site](#)).



Please join me in congratulating Andrew Binley for the well-deserved honor.

2. List of Proposed Sessions for 2013 AGU Fall Meeting: Abstracts DUE AUGUST (from X. Comas)

Submit your abstract for the fall meeting now! [Visit the AGU Fall Meeting Web site](#).

Important dates for the 2013 AGU Fall Meeting:

15 July: Registration and Housing opens

August: Abstract submission deadline (one day extension!)

9–13 December: 2013 Fall Meeting

Please see below for a list of proposed Near Surface and Hydrogeophysics sessions that are likely to be of interest to members of the NSFG.

PROPOSED NEAR SURFACE GEOPHYSICS (NS) SESSIONS

TITLE: *Near Surface Geophysics General Contributions (NS001)*

CONVENERS: X. Comas, Florida Atlantic University, Boca Raton, FL | B.D. Smith, USGS, Denver, CO |

DESCRIPTION: This session targets contributions that fall within the broad spectrum of Near Surface Geophysics, but are not directly appropriate to any of the other sessions proposed for the focus group. This session is a collaboration between the Near Surface Focus Group and the Environmental and Engineering Geophysical Society (EEGS)

TITLE: *Advances in Airborne Electromagnetics (NS002)*

CONVENERS: P. Bedrosian, United States Geological Survey, Denver, CO; E. Auken, U. of Aarhus, Aarhus, DENMARK

DESCRIPTION: Applications of airborne electromagnetic (AEM) methods have exploded in recent years from their traditional use in mineral exploration to include hydrologic studies, natural hazard assessment, ice and permafrost mapping, and geologic mapping. Advances in instrumentation, processing techniques, and inversion methodologies are pushing the capabilities of AEM methods in resolving near-surface structure. We welcome contributions that highlight advances in AEM instrumentation, processing, modeling, and inversion. We particularly invite case studies that represent novel uses of AEM methods or highlight an integrated approach

where geological, hydrological, or geochemical data are coupled with AEM models to address process-oriented questions.

TITLE: *Advances in Archaeological Geophysics (NS003)*

CONVENERS: M.E. Everett, Geology and Geophysics, Texas A & M Univ, College Station, TX|L. Conyers, Anthropology, University of Denver, Denver, CO|T.S. de Smet, Anthropology, Texas A & M Univ, College Station, TX

DESCRIPTION: Advances in instrumentation and software have led to greater use of geophysical techniques at historic and prehistoric archaeological sites, and for heritage and cultural resource preservation. New developments in data acquisition, processing, modeling, interpretation, and information fusion have yielded both an increase in areal coverage and improved target discrimination and classification. Archaeological geophysics, long used to guide excavation strategy and constrain site formation theories, is now moving beyond prospection and contributing to fundamental anthropological questions about human behavior, social organization, and cultural changes through time.

TITLE: *Advances in Exploration Geophysics (NS004)*

CONVENERS: L. Pellerin, Green Geophysics, Berkeley, CA|D. McPhee, US Geological Survey, Menlo Park, CA

DESCRIPTION: We seek papers on the advancement of geophysical methodology, instrumentation, processing, modeling and/or interpretation as applied to customary oil & gas, unconventional resource, geothermal, mineral, hydrological, environmental and other areas of exploration. Seismic, electromagnetic, gravity, magnetics, ground penetrating radar, in addition to more non-traditional geophysical methods and integrated techniques are of interest. Case histories are welcome.

TITLE: *Advances in Near Surface Fracture Studies (NS005)*

CONVENERS: J.M. Lorenzo, Geology and Geophysics, Louisiana State Univ, Baton Rouge, LA|A. Dahi-Taleghani, Petroleum Engineering, Louisiana State Univ, Baton Rouge, LA|J. Le Calvez, Schlumberger, Dallas, TX

DESCRIPTION: Hydraulic fracturing is the technique of choice to stimulate fluid flow in unconventional hydrocarbon-bearing and geothermal reservoirs. Microseismic monitoring and real-time or post-acquisition data analysis can be used to evaluate the 4D evolution of hydraulically-induced fracture networks. However, current analytical tools and the physical models that explain fracture growth are still in their infancy. We welcome presentations of laboratory, field or theoretical results that shed light on the physics of hydraulic fracture initiation, development and interaction. We also encourage discussion on the reliability of seismic inversion procedures which are critical for testing these models in field data.

TITLE: *Developments and Practical Applications of the Multichannel Seismic-Data Surface-Wave Analysis Method (NS006)*

CONVENERS: G.P. Tsoflias, Department of Geology, University of Kansas, Lawrence, KS|R.D. Miller, J. Ivanov, Kansas Geological Survey, University of Kansas, Lawrence, KS

DESCRIPTION: This session will focus on recent developments and practical applications of the multichannel analysis of surface waves using both active and passive seismic sources for the purposes of 1-D, 2-D, and 3-D shear-wave velocity (V_s) profile estimations. Possible topics can include numerical developments in optimal field-parameter estimations, dispersion-curve imaging and modeling techniques, multi-mode interpretation and inversion, sensitivity analysis. Case studies with practical applications of the surface wave method alone or in joint inversion/analysis with other geophysical methods are welcome. This session is a collaboration with the Near Surface Section of the SEG (NSG).

TITLE: *Geophysical Methods for Groundwater Evaluation and Management (NS007)*

CONVENERS: J.W. Lane, Office of Groundwater, Branch of Geophysics, USGS, Storrs, CT|R.J. Knight, Dept. of Geophysics, Stanford University, Stanford, CA

DESCRIPTION: Effective, sustainable management of groundwater resources requires accurate knowledge of groundwater recharge, storage, and withdrawal. In this session we focus on the application of geophysical methods using subsurface, surface, airborne, or satellite sensors to quantify subsurface properties and processes. Of interest are examples related to all aspects of groundwater management including, but not limited to, development of hydrostratigraphic models, assessment of aquifer properties, evaluation of groundwater quantity and quality, monitoring of natural/managed processes. All approaches are of interest including laboratory and field experiments, theoretical and numerical modeling.

TITLE: *Geophysical monitoring and modeling of microbial mediated processes at laboratory and field scales (NS008)*

CONVENERS: C. Zhang, Colorado School of Mines, Golden, CO|D. Ntarlagiannis, Rutgers University, Newark, NJ|G.Z. Abdel Aal, Oklahoma State University, Stillwater, OK

DESCRIPTION: The unique advantages of geophysical methods (non-invasive, real time, high spatiotemporal resolution) have led to an increased volume of research to monitor and characterize both direct (e.g., microbe growth and biofilm formation) and indirect (e.g., mineral and hydrological biotransformations) subsurface microbial activities over different scales. We invite work on the current and novel geophysical methods for observing microbial mediated processes at laboratory and field scales, the development of geophysical modeling framework to advance the understanding of complex biogeochemical systems, and the utilization of geophysical techniques as proxy for different biogeochemical processes.

TITLE: *Ground Penetrating Radar (GPR) method: Advanced Research and Case studies (NS009)*

CONVENERS: S. Ouadfeul, Geophysics, Algerian Petroleum Institute, IAP, Algeria, Boumerdes, ALGERIA| Leila Aliouane, Faculty of Hydrocarbone and Chemistry, University M'hamed Bougara Boumerdes, Algeria

DESCRIPTION: Ground Penetrating Radar (GPR) has becoming very useful method in geophysics. It is used for near surface studies, geophysical exploration, mining, structural studies, natural hazards, landslides...etc. The aim of this session is to present latest researches on GPR method. Papers are invited on, but not limited to, the following topics: - GPR Wave Interaction with Earth - Novel GPR Systems and Antennas - Numerical Modeling - Inverse Problems - Data Processing, Interpretation - SAR and Planetary Exploration - Evaluation of Mining - Archaeology, Diagnosis of historical buildings - Hydrology and Glaciology - Geology/Geotechnical, Detection and Mapping - Demining and UXO - Borehole - Exploration geophysics.

TITLE: *Monitoring of LNAPL in the subsurface: current trends in environmental applications (NS010)*

CONVENERS: D. Ntarlagiannis, Rutgers University, Newark, NJ|R. Costa, Weston Solutions, Edison, NJ

DESCRIPTION: Subsurface LNAPL contamination is a big environmental problem. Small/contained plumes are treated successfully while for large plumes/complex environments natural attenuation is the option of choice. Bioremediation is expected to rise due to changes favoring energy efficient methods over energy costly remediation methods. Improvements in the collection and interpretation of geophysical data have provided promising results in laboratory or pilot field projects but field validation is critical for the acceptance of such methods. We invite cutting edge research on hydrocarbon characterizing/monitoring efforts and case studies from established methods to bridge the gap between research and field applications.

PROPOSED HYDROGEOPHYSICS (H) SESSIONS

TITLE: *Innovative Methods in Hydrogeology*

CONVENERS: P.K. Mishra, Civil & Environmental Engineering, California State University, Fullerton, CA | D.Mao, Hydrology and Water Resources, University of Arizona, Tucson, AZ | X. Liu, Hydrogeology Department, Earth Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA | P.K. Mishra, Computational Earth Sciences, Los Alamos National Laboratory, Los Alamos, NM

DESCRIPTION: Despite advances in modeling tools, inverse techniques and geophysical methods, complete understanding of hydrogeological processes remains elusive, and fundamental subsurface flow and transport problems remains extremely difficult due to spatial heterogeneity of geological structures, temporal variability of complex linear and nonlinear fluid dynamics, and coupling between chemical, physical, and biological processes. We seek contributions on approaches that can improve our understanding of the complex hydrogeological system. Contributions may include or span innovations in hydrogeological modeling, inverse methodologies, computational techniques, hydrogeophysics, and lab and field testing methods.

TITLE: *Hydrogeophysical Data Integration and Joint Inversion*

CONVENERS: M.A. Cardiff, Dept of Geoscience, University of Wisconsin-Madison, Madison, WI | B. Dafflon, Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA

DESCRIPTION: Hydrogeophysical investigations require the use of specialized methods for “fusing” the information available from both hydrologic and geophysical data sources. This session seeks contributions of novel methodologies to perform data integration or joint inversion (broadly, “data fusion”) in the context of hydrogeophysics. Topics of interest include, but are not limited to: use of coupled modeling frameworks, clever methods for data or model reduction (e.g., signal processing or filtering approaches), methods for assigning weights to multiple data sources, novel strategies for spatial or temporal regularization, strategies for assessing characterization uncertainty, and methods for improving computational efficiency of data fusion.

TITLE: *Hydrogeophysics: Laboratory to Field Scale Characterization*

CONVENERS: M. DOGAN, Department of Geological Sciences, Michigan State University, East Lansing, MI | R.D. Swanson, Hydrologic Science and Engineering, Colorado School of Mines, Golden, CO

DESCRIPTION: Groundwater-related problems are often too complex to solve using only in-situ measurement methods due to limited data resolution or extent. Minimally-invasive geophysical methods may improve data content and spatial coverage. This session demonstrates the role of geophysical data in hydrological investigations, covering a broad range of applications and scales. We encourage laboratory- and field-based contributions aiming at, for example, characterization of hydraulic properties, and monitoring of contaminant migration, biological and biogeochemical processes. Theoretical and methodological contributions focusing on the data collection, modeling, and petrophysical relationships of relevance in hydrogeophysics are also welcome.

TITLE: *Geophysics for the critical zone*

CONVENERS: U. Werban, P. Dietrich, S. Zacharias, Monitoring & Exploration Technologies, Helmholtz Centre for Environmental Research - UFZ, Leipzig, GERMANY | P. Dietrich, Eberhard-Karls-University, Tübingen, GERMANY

DESCRIPTION: We will address the state of the art of geophysical techniques applied for mapping and monitoring of the pedosphere and unsaturated vadose zone. There is particular interest in the use of proximal sensing technologies for prediction of soil properties and observation of dynamic processes within the unsaturated zone. Geophysical techniques are widely used in Digital Soil Mapping. Furthermore, in the context of environmental modelling, there is a growing demand to provide multi-scale information. However, results are often limited to qualitative information and results are ambiguous. Reliable quantification is a major challenge. A promising approach is multi sensor mapping combining, e.g. EMI, ERT, GPR, passive gamma radiometry, TDR, cosmic ray probes etc.

TITLE: *The hydrogeology and near-surface geophysics nexus*

CONVENERS: B. Malama, K.L. Kuhlman, Sandia National Laboratories, Carlsbad, NM

DESCRIPTION: Submissions are encouraged for modeling and field methods coupling hydrogeology processes to near-surface geophysics, for hydraulic characterization of the subsurface. Traditional methods of measuring the hydraulic system state with pumping and observation wells are costly, intrusive, and yield only spatially sparse data. Geophysical methods directly coupled to subsurface hydrogeological processes including groundwater flow and contaminant transport promise to ameliorate shortcomings of traditional methods of hydrogeological characterization. We solicit discussions of philosophical underpinnings of methods, new advances bridging the hydrogeology-geophysics science gap, and limitations of the past and present methodologies.

TITLE: *Underground Testing, Monitoring and Modeling in Different Formations*

CONVENERS: J.S. Wang, Lawrence Berkeley Laboratory, Berkeley, CA | R.W. Zimmerman, Imperial College, London, UNITED KINGDOM

DESCRIPTION: Underground Research Laboratories, facilities, and borehole complexes provide valuable access to conduct tests and detect changes at depth for better understanding of Earth processes. Along existing or new tunnels, and within mined levels, instruments can be installed to measure hydrological, rock mechanical, geotechnical, seismic, electromagnetic, and biogeochemical signals. This session invites contributions from geoscience communities to present measured results and research findings, including modeling results and plans as well, from all underground sites. The interactions and exchanges contribute to potential networking, and develop synergies for advancing collaborations.

TITLE: *Persistent problems and modern approaches in multiphase flow in porous media: From pore to laboratory and field-scale*

CONVENERS: F. Doster, Civil and Environmental Engineering, Princeton University, Princeton, NJ | L. Cueto-Felgueroso, Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA | F. Doster, Mathematics, University of Bergen, Bergen, NORWAY | D. Lasseux, INSTITUT DE MECANIQUE ET D'INGENIERIE, University of Bordeaux, Bordeaux, FRANCE

DESCRIPTION: Understanding flow and transport processes in porous media remains a challenge. Standard theories on continuum-scales have limitations in terms of self-consistency on different length and time scales, describing and predicting trapping, inter-phase transfer processes and other phenomena. Resolving these limitations is particularly relevant for large-scale applications in time and space like carbon sequestration and radioactive waste disposal. We solicit experimental, computational, or theoretical submissions on the quantification of pore-scale processes and their relation to larger scale phenomena, alternatives and limitations for continuum-scale models.

TITLE: *Hydrogeophysical characterization of the critical zone*

CONVENERS: D.W. Hyndman, Michigan State University, East Lansing, MI

DESCRIPTION: This session seeks presentations that characterize properties and processes in the critical zone. We encourage contributions that include new geophysical and hydrologic methods to characterize this region from the vegetation down to unweathered bedrock, which provides critical services for humans and ecosystems. Presentations that examine interactions of plants, water, solutes, and soils using geophysical and hydrologic techniques, as well as those that develop inversion methods and novel models for this zone are also encouraged.

PROPOSED CRYOSPHERE (C) SESSIONS

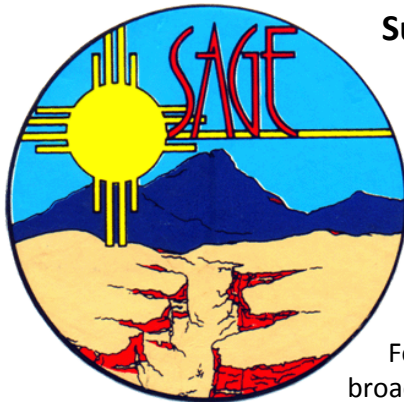
TITLE: *Advances in Geophysical Characterization of Permafrost Systems (C003)*

CONVENERS: Baptiste Dafflon, Lawrence Berkeley National Laboratory; Burke Minsley, U.S. Geological Survey, Denver; Lin Liu, Stanford University; Alessio Gusmeroli, University of Alaska Fairbanks

DESCRIPTION: Permafrost dynamics have important impacts on ecosystems, land management, and climate change. Advances in characterization and monitoring of hydrological, biogeochemical and geomorphological processes in complex permafrost systems require continued development of geophysical techniques to infer the spatial and temporal distribution of subsurface properties that cannot be estimated from sparse point-scale measurements alone. This session focuses on advances in geophysical data inversion, investigation of relations between subsurface and surface properties, permafrost features (e.g., thermokarst, ground ice, active layer, drained lakes) understanding, and integration of geophysical information into process-based models or impact assessments.

Invited Speakers: Christian Hauck, University of Fribourg; Robert Grimm, Southwest Research Institute, Boulder; Thomas Douglas, U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), Fairbanks

3. Another great year at SAGE! (from Louise Pellerin)



Summer of Geophysical Experience (SAGE) 2013

We just completed another wonderful SAGE field program based in Santa Fe New Mexico. We continued an ongoing study, now in its eight-year, of the San Marcos Archeological Preserve using GPR (thanks to Sensors & Software), EM-31 (thanks to Geonics), magnetics and refraction seismic (thanks to Geometrics). Check out our results at the NS archeological session at the Fall Meeting. It was our 3rd year studying a potential geothermal resources west of Santa Fe using reflection seismic (thanks to Inovo & Dawson), audio and broadband magnetotellurics (thanks to the USGS and Geometrics), transient EM (thanks to Zonge International) and gravity methods. Arhus Geophysics and Geosoft made software available. ExxonMobil and Chevron have been long-term supporters; the recruiters spend time with the students in the field and in the classroom. Although much funding comes from the NFS, DOE and SEG, SAGE would not be possible with the participation of our corporate sponsors.

Are students are the other half that make SAGE an incredible experience. This year we had a very diverse group from Israel, Iran, Saudi Arabia, Azerbaijan, Russia, Ireland, England, New Zealand and Australia along with a wide variety of students from coast to coast in the USA. The weather was as varied as the student population; we had 90°F in the beginning of our field work, but the Southwest monsoons came while we were working in the geothermal area to refresh with afternoon rains and entertain with spectacular lightning and thunder displays.

If you are in are upper-division undergraduate (math/physics background preferred) a graduate, or a professional spend a month with SAGE and it can change your life!

4. Save the Date for SAGEEP 2014 (from Jutta Hager)

Conference Date: 16–20 March 2014

[Environmental and Engineering Geophysical Society \(EEGS\) Website](#)

SAGEEP (Symposium on the Application of Geophysics to Engineering and Environmental Problems) 2014 will be held March 16-20 at the Boston Marriott Copley Place Center in the heart of Boston, Massachusetts. You may contact SAGEEP Technical Chair [Mario Carnevale](#) with session proposals at any time. Watch the [EEGS web site](#) for more details.

The annual SAGEEP meeting continues to grow through collaboration with the AGU NSFG, SEG and others with interest in near surface geophysics, and members of AGU NSFG are strongly encouraged to participate in SAGEEP 2014. The activities will include the opening ice breaker, keynote, multi-track technical sessions, presentations by Early Career Award recipients, exhibitors' outdoor equipment demonstrations, field trips, luncheons, a special conference evening event, workshops, and short courses. So remember to save 16–20 March 2014 to attend SAGEEP 2014 in Boston!

5. Inaugural Near Surface Education Event from the Society of Exploration Geophysicists (from John Bradford)

Date: 4 November 2013

Location: Learning Tree Conference Center, Washington, D.C.

This is the inaugural SEG Near Surface Geophysics focused educational event. The courses that have been selected cover a broad range and would be of use to most practicing Near Surface geophysicists.

Brief Course Descriptions:

Full-Waveform Inversion of Ground Penetrating Radar Data, by Dr. Jan van der Kruk

This one day course provides a thorough overview of full-waveform inversion of ground penetrating radar (GPR) data, which is a promising technique that fully utilizes all of the information content present in high-frequency GPR and is capable of yielding sub-wavelength resolution images. The course includes a theoretical background, synthetic examples, and several case histories using crosshole, on-ground and off-ground GPR.

Practical Seismic surface Wave Methods, by Dr. Julian Ivanov

This one-day short course introduces the most important theoretical and practical aspects of the multichannel analysis of surface waves (MASW) method by a principle from the research group that originally developed the methodology. Each student will be exposed to the most current approaches using active and passive Rayleigh surface waves for estimations of 1-D shear-wave velocity (V_s) and 2-D vertical profiles to depths of a few tens of meters.

HVSR-A Passive Seismic Resonance Method for Near-Surface Geophysics, by Dr. John W. Lane Jr.

This one day course provides an introduction to the Horizontal to Vertical Spectral Ratio (HVSR) Method, an introduction to HVSR data analysis using Geopsy, acquisition of single-station HVSR data using 3-component seismometers, HVSR data download and importation into processing software. The course will include computer exercises and some data acquisition.

6. NS Activities at the 2013 Society of Exploration Geophysicists Annual Meeting (from John Bradford)

Conference Date: 22–27 September 2013

Location: George R. Brown Convention Center, Houston, TX

[SEG Website](#)

The SEG annual meeting is right around the corner! Join your colleagues in Houston to catch a great array of sessions and then continue the conversation at the social activities. Follow it all up with a post-convention workshop. It is sure to be a great meeting, so make your plans now!

Near Surface Geophysics Social Activities:

Luncheon

24 September 2013

11:30 AM - 1:00 PM

Reception

24 September 2013

7:00 PM - 11:00 PM

Near Surface Sessions:

- Hydrogeophysics Special Session
- Seismoelectric, Electromagnetic, Electrical Methods
- Multidisciplinary Studies & Applications (Jointly sponsored with Humanitarian Applications)
- Addressing Risks and Resources (Jointly sponsored with Humanitarian Applications)
- Statics
- Seismic Reflection & Tomography
- Surface Waves
- Seismic General Contributions

Post convention workshop:

Near Surface Geophysics in the Dynamic Coastal Environment: Crossing the Land/Sea Interface

Friday, 27 September, 8:30–5:00 pm

Organizers: John Goff and Jeff Paine

E-mail Contact: [John Goff](#)

The coastal zone is a habitat for much of the world's population, a key economic driver for fishing, shipping, recreation and tourism, and critical wetlands ecology. However, the coastal zone is also a dynamic setting undergoing significant change at many different time scales. Large storms, for example, can restructure coastal morphology on the scale of hours or days. Rising sea level or changes in sediment supply will alter the coastline over decades to centuries and longer. These are human-relevant time scales, and such changes can have major impacts on coastal infrastructure, habitability, and ecology. Human activity also impacts the coast; e.g., hardening of coastlines and inlets, reduction in sediment supply due to damming, or artificial beach replenishment. Both land- and marine-based near-surface geophysical methods can play a significant role in understanding the many processes that impact the coastal zone. For example, laser ranging and acoustic bathymetry and backscatter can be used to actively monitor morphological changes over days to years. Ground-penetrating radar or acoustic reflection can be used to map stratigraphic successions in the coastal zone that are developed over decades to millennia. The goal of this workshop is to highlight the latest developments in application of near-surface geophysical methods to the coastal zone. We will emphasize as well connections between these methods and both the sedimentary geology of the coastal zone and numerical modeling of the impacting processes.

7. Position Announcements

7.1 Geophysicist, Ontario Geological Survey (from Ken Witherly)

Are you interested in contributing your geoscience expertise to an organization that prides itself on providing opportunities for personal growth, continuous learning and work-life balance? If so, then consider joining our team at the Ontario Geological Survey.

What can I expect to do in this role?

As part of the technical geoscience mapping team, you will:

- conduct and/or assist in the identification and resolution of geoscience problems
- coordinate activities related to geophysical data collection, interpretation and management
- provide support on the application of geophysics to geoscience mapping
- maintain knowledge of geophysical data management principles, practices and tools
- prepare reports, databases, geophysical maps, graphics and presentations
- manage geophysical equipment

How do I qualify?

Mandatory Requirements:

- you must be a Registered Professional Geoscientist with the Association of Professional Geoscientists of Ontario or qualified to obtain this professional designation
- you must be able to travel to sites throughout northern and southern Ontario to complete field work, monitor survey work and consult with client groups for extended periods of time

Specialized Knowledge:

- you have thorough knowledge of geophysics and its application to address geoscience problems, inform geoscience mapping, land-use planning, mineral potential evaluations and groundwater studies
- you have demonstrated knowledge of regional airborne geophysical techniques and experience conducting ground geophysical surveys in the field
- you have the ability to organize, interpret and synthesize project-related geoscience data and develop interpretations and hypotheses by integrating diverse geoscience datasets
- you have demonstrated knowledge of basic geological principles and terminology
- you have analytical, organizational and evaluation skills to implement regional-scale geophysical projects

Communication, Interpersonal and People Skills:

- you have proven interpersonal and team work skills to perform effectively on multi-disciplinary and interjurisdictional teams
- you have strong oral and written communication skills to prepare project deliverables
- you have demonstrated experience delivering geoscience information to diverse client groups

Other Important Skills:

- you have planning, time management and problem-solving skills to plan logistics, organize and lead geophysical projects and multi-disciplinary teams under challenging timeframes
- you have experience with applicable computer software and hardware for geoscience applications, visualization and modelling as well as database, spreadsheet and word processing software

Salary range: \$1,366.39 – \$1,758.70 per week

How to Apply

Please apply online, only, at www.ontario.ca/careers, quoting Job ID 55232, by August 16, 2013. Faxes are not being accepted at this time. If you need employment accommodation, please contact us at www.gojobs.gov.on.ca/ContactUs.aspx to provide your contact information. Recruitment Services staff will contact you within 48 hours. Only those applicants selected for an interview will be contacted.

[Learn more on the Northern Miner Jobs Web site.](#)

7.2 Post-doc Fellowship in Computational Geophysics, Memorial University (from Colin Farquharson)

The project "High Performance Computing for Geophysical Applications", an interdisciplinary project between the Departments of Earth Sciences, Mathematics and Statistics, and Physics and Physical Oceanography at Memorial University of Newfoundland, is seeking candidates for a Post-Doctoral Fellowship position. This project is developing computational mathematical methods and software for the numerical modelling and inversion of geophysical data using high-performance, multi-core, shared-memory computer architectures that include GPUs and CPUs. Development is taking place on a dedicated large-scale hybrid CPU-GPU cluster recently purchased by the project.

Topics currently being pursued include: full waveform sharp boundary inversion using global optimization approaches; level-set methods for sharp boundary inversion; global optimization methods for well placement in reservoir modelling; joint inversion; numerical modelling of geophysical electromagnetic methods; adaptive mesh techniques and domain decomposition.

The Post-Doctoral Fellow would be expected to contribute to one or more of these topics, or to develop a complementary research area.

The successful candidate will have a Ph.D. in Geophysics, Physics, Mathematics, Applied Mathematics, Computational Science, or similar discipline with a background in scientific computation and substantial experience programming in Fortran or C/C++. Candidates who are in the final year of a Ph.D. programme and who will have completed all the requirements for their programme by the start date of the position will also be considered.

The position is initially for one year, with the expectation of extension to a second year subject to budgetary constraints and performance. The start date is negotiable, but 1st January 2014 is preferred. Salary will be commensurate with qualifications and experience. For more information, or to apply for the position, please contact: Dr. Colin Farquharson, Assistant Professor, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, NL, Canada; [Colin Farquharson](#). Applications should include a cover letter, curriculum vitae, statement of research interests, and the names of three referees and their contact information.

TO CONTRIBUTE MATERIAL TO THE NS-NEWSLETTER SEND AN E-MAIL TO:

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

DEADLINE: Material must be received 4 full business days prior to the first of each month.

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

GET YOUR MESSAGE OUT NS MEMBERS FASTER:

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