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Recent announcements of interest to the NS community (conferences, academic positions, graduate student opportunities etc.) can be found at the AGU NS-Focus Group Web Page: <http://nsg.agu.org/>

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1. July 21, abstract deadline for AGU Chapman Conference on Biogeophysics

The AGU Chapman Conference on Biogeophysics (<http://www.agu.org/meetings/chapman/2008/fcall/>) will be held October 13-16 in Portland, Maine. The abstract deadline of July 21 is fast approaching. Abstract can be submitted by following the guidelines that can be downloaded at the meeting website. As a result of a generous grant from the National Science Foundation we anticipate providing 35 awards to support the full travel/attendance costs of graduate students and early career faculty (less than 7 years from graduation of PhD degree) working in the interdisciplinary field of Biogeophysics to participate in this Chapman Conference. An application form can be requested from Lee Slater (lslater@andromeda.rutgers.edu) and must be returned to Estella Atekwana (estella.atekwana@okstate.edu) by July 21, 2008.

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2. 2008 Fall AGU Meeting: Near Surface and NS co-sponsored sessions

This year's Fall AGU meeting is December 15-19. As in past years, the Near-Surface Focus Group will hold a lunch on one of the mid-week days and co-sponsor an evening pub gathering with Hydrogeophysics. The abstract submission site will open around July 18; the abstract deadline is September 10. Current Near-Surface sessions proposals are listed below; these are subject to change. Final sessions will be posted July 16. We look forward to seeing you in San Francisco!

NS01 Near Surface Geophysics: General Contributions This session provides the opportunity for contributions that fall within the broad spectrum of Near Surface Geophysics.

Conveners:

NS02 Geoscientific Data for the Revitalization of Afghanistan This session will provide a multi-disciplinary forum for presentation of the results from recently completed geological, geophysical, and hydrologic studies in Afghanistan. Research from the private and public sectors

in the areas of, geophysical, hydrological, tectonophysics, as well as field and laboratory investigations are welcome.

Conveners: Trude V.V. King, U.S. Geological survey, PO Box 25046 MS964, Denver, CO 80225 USA, Tel: 303-236-1373, email: tking@usgs.gov, and Raymond F. Kokaly, U.S. Geological Survey, PO Box 25046 MS973, Denver, CO 80225 USA, Tel: 303-236-1359, email: raymond@usgs.gov, and Ingrid Verstraeten, U.S. Geological Survey, 12201 Sunrise Valley Drive MS420, Reston, VA 20192 USA, email: imverstr@usgs.gov

NS03 Geophysical Characterization of Flow in Dual Porosity Media: From fractures to karst and glaciers Predicting flow and transport in dual porosity media is a challenging problem. Fractured and karstic geologic media, as well as glaciers, exhibit heterogeneous hydraulic properties that are difficult to characterize using conventional hydraulic testing methods. Geophysical imaging offers the potential to monitor subsurface processes remotely and over a period of time. The purpose of this session is to present the latest scientific developments in the remote characterization of dual porosity using surface and borehole methods. We encourage theoretical and experimental contributions, at laboratory and field scales, for characterization of flow and contaminant transport through fractures, karst, and glaciers, and characterization of flow conduit properties (e.g. aperture, interconnectivity, roughness) using geophysical and remote sensing methods.

Conveners: Georgios Tsoflias, The University of Kansas, Department of Geology 1475 Jayhawk Blvd., Lawrence, KS 66045 USA, Tel: 785 864-4584, email: tsoflias@ku.edu, and Matthew Becker, University at Buffalo, State University of New York, 876 NSC, Buffalo, NY 14260 USA, email: mwbecker@geology.buffalo.edu

NS04 Stratigraphic Applications of Near Surface Geophysics This session will focus on applications of ground-penetrating radar, seismic reflection, marine acoustic, borehole, and other near surface geophysical methods for stratigraphic imaging and interpretation. The detailed stratigraphic record in near-surface sediments provides a valuable indicator of global sea-level fluctuations and environmental changes during the Holocene and Pleistocene. It is also important in paleoseismology studies. Improved data acquisition systems and methods have led to larger surveys with higher temporal and spatial resolution.

New techniques for processing and visualization of large data volumes have enabled more sophisticated stratigraphic interpretation. Case studies involving geophysically-enhanced stratigraphic analyses, from any discipline, are welcomed.

Conveners: Mitchell Craig, California State University, East Bay, Dept. of Earth & Environmental Sciences 25800 Carlos Bee Blvd. , Hayward, CA 94542 USA, Tel: 510-885-3425, email: mitchell.craig@csueastbay.edu, and Michael O'Neal, Loyola College in Maryland, Education Dept. 4501 North Charles St. , Baltimore, MD 21210 USA, Tel: 410-617-5377, email: moneal@loyola.edu, and Christopher Juhlin, Uppsala University, Dept. of Earth Sciences Geophysics Villavagen 16, Uppsala, SE-75236 SWE, Tel: +46-18-4712392, email: christopher.juhlin@geo.uu.se

NS05 Application of Joint Inverse Methods for Improved Characterization and Assessment of Ground-Water, Mineral, and Petroleum Resources In geophysical imaging and ground-water or

petroleum reservoir model calibration, inverse methods typically use a single type of data sensitive to a single physical property. Combining several types of data collected over the same region can potentially reduce ambiguity and enhance inversion results. We welcome contributions demonstrating the application of joint inversions using data sets 1) sensitive to the same physical property, 2) responsive to different physical properties between which there is an analytic relationship, and 3) disparate data sets where there is no analytic relationship between the properties.

This session encourages contributions that describe regularization strategies, challenges regarding parameterization, potential inconsistencies between the data sets, worth of combined data, relative weighting issues, and the introduction of an estimation bias due to increased systematic errors, and uncertainty.

Conveners: Michael J. Friedel, U.S. Geological Survey, USA, email:

mfriedel@usgs.gov, and Burke Minsley, U.S. Geological Survey, USA,

email: bminsley@usgs.gov, and Alyssa Dausman, U.S. Geological Survey, USA, email:

adausman@usgs.gov

NS06 Monitoring Techniques and Interpretation Methods for Coupled Thermo-Hydro-Mechanical Processes in the Earth Crust Couplings of fluid flow with thermal and rock mechanical effects in seismically active faults, volcanoes, slope stability, reservoir dynamics and CO₂ sequestration, deep underground mining and nuclear waste storage are key research topics in which Thermo-Hydro-Mechanical-Chemical (THMC) processes are involved. Major challenges include imaging and monitoring these coupled processes in-situ and in the laboratory, and developing the coupling relations between them. It is commonly recognized that there is a lack of in-situ data that could help understand the processes at the mesoscale (which is the tenth of meters scale of large fractures and fault zones). The main reason is that such data are difficult to obtain at depths exceeding 300 m due to technological difficulties and cost. Although laboratory experiments that have been conducted are bigger in number than field experiments, there are also many technological challenges especially when studying changes in elastic parameters while monitoring chemical reactions at high temperatures and pressures. This session will be an opportunity to present and discuss various industrial and fundamental researches that focus on THMC processes in the earth crust.

Interpretation methods applied to the results from innovative monitoring systems for the understanding of these coupled processes will be presented. This session is at the interface between high technology industrial research and leading-edge scientific research on THMC processes in the earth crust. The session will emphasize on testing the feasibility and principles of a new generation of smart-material-based sensor systems for in-situ and laboratory monitoring and imaging of THMC processes. Smart materials like optical fiber, piezo-electric ceramics, electro-rheological fluids, magnetostrictive materials and shape memory alloys can alter their properties in response to specific stimulus inputs. They offer miniaturized, non-invasive multi-sensing units that allow highly reliable coupled pressure-deformation-waves-temperature-chemical measurements which are necessary to understand the complex processes linking rock rheology, fluids and deformations over a broad band of frequencies.

Conveners: Yves Guglielmi, University of Provence Aix-Marseille 1, Geologie des systèmes Carbonates University of Provence Aix-Marseille 1 Centre de Sédimentologie-Paléontologie, case 67 3 place Victor Hugo, Marseille cedex 3, 13331 FRA, Tel: 0952165218, email:

yguglielmi@free.fr, and Tiziana Vanorio, Stanford Rock Physics and Borehole Laboratory, Mitchell Building, Room B65 397 Panama Mall, Stanford, CA 94305 USA, Tel: 650-723-6106, email: tvanorio@stanford.edu, and Jonny Rutqvist, Lawrence Berkeley National Laboratory, 1 cyclotron road, Berkeley, CA 94720 USA, Tel: 510 - 486 - 5782, email: Jrutqvist@lbl.gov

3. SEG 2008 Meeting Update, by Rob Jacob NSGS President

The SEG Annual Meeting and Technical Program is Nov 10 - Nov 14 in Las Vegas, NV. The Near Surface Geophysics Section's (NSGS) six technical sessions are distributed across the seven possible technical session slots so that they do not overlap with each other. We hope that this format is appealing to those who want to see what is being done across the broad spectrum of near surface geophysics.

Additionally, the technical sessions are sandwiched between the NSGS sponsored SEG Forum on Monday, which is titled "Managing our Groundwater Resources for the Future" and a jointly sponsored NSGS and EEGS Post-Convention workshop on Friday, which is titled "Induced Polarization: Research and Recent Advances in Near Surface Applications". Further information for both the SEG Form and the Post-Convention workshop is provided on the NSGS website (<http://nsgs.seg.org/>).

4. Induced Polarization: Research and Recent Advances in Near Surface Applications, EEGS-NSGS Workshop, 14 Nov. 2008, SEG Annual Meeting, Las Vegas, Nevada

Scientists and engineers will come together to share research and application of induced polarization (IP) to near-surface applications including environmental, hydrological, and engineering applications such as infrastructure assessment. The workshop will begin with a short historical/tutorial discussion of IP, followed by technical sessions on:

- a) Recent Research in IP Data Acquisition
- b) Rock Properties, Theory and Laboratory Studies of IP
- 3) Inverse Modeling and Imaging of IP Data
- 4) Near Surface Applications of IP

The workshop will conclude with a discussion and summary session.

Co-Organizers:

Esben Auken (The HydroGeophysics Group, University of Aarhus, esben.auken@geo.au.dk)

Douglas J. LaBrecque (Multi-Phase Technologies, LLC, dlabrecque@mpt3d.com) Lee Slater (Rutgers University-Newark, lslater@andromeda.rutgers.edu)

5. Positions: Postdoctoral

Mendenhall Postdoctoral Research Fellowship Program, Geology Research Opportunity Proposal (USGS)

Title: Development of Joint Inverse Methods for Improved Characterization and Assessment of Ground-Water, Mineral, and Petroleum Resources

Research Advisors and Affiliation:

Michael J. Friedel, CICT/ GD/USGS; David Fitterman, CICT/ GD/USGS; Jeffery Phillips CICT/ GD/USGS; Seth Haines, CERT/ GD/USGS; Alyssa Dausman, WRD/USGS Primary Contact: Michael J. Friedel, U.S. Geological Survey, Denver Federal Center, MS 964, Denver, CO; 303-236-7790; mfriedel@usgs.gov

DESCRIPTION OF THE RESEARCH OPPORTUNITY:

The USGS is interested in developing joint inverse strategies for improved characterization and assessment of ground-water, mineral, and petroleum resources. This research opportunity will promote development through the integration of geologic, geophysical, and hydrogeologic information as measurement constraints during the simultaneous solution of multiple numerical models. Because the focus of this project is on the development of integrated joint inverse methods rather than a specific application, the scale and direction of research can be determined by the postdoctoral fellow. One example would be the joint inversion of gravity and magnetic responses over a draped surface to estimate the 3-dimensional geology using a Markov Monte Carlo approach.

A second example would be the joint inversion of airborne and ground-based electromagnetic responses together with borehole geophysical and hydrogeologic mass and energy measurements to define a coastal fresh-salt water interface using a Levenberg-Marquardt approach.

A third example would be the joint inversion of surface and borehole dc resistivity and spontaneous potential response together with subsurface variably saturated zone measurements to estimate ground-water recharge using a combination of genetic algorithm and Levenberg-Marquardt approaches. In these cases, special attention will be on the development and evaluation of an appropriate regularization strategy, as well as the estimation of uncertainty in model parameters and prediction of dependent variables. Regularization strategies could involve one or more analytical, petrophysical, and structural constraints applied as direct or soft prior information. Understanding the worth of combined information on reducing model and predictive uncertainty is an expected outcome of this research.

Full details of the research opportunity will be posted at <http://geology.usgs.gov/postdoc/> in mid-July.

To contribute material to the NS-letter e-mail to:

George Tsoflias tsoflias@ku.edu <<mailto:tsoflias@ku.edu>>

DEADLINE: Material must be received 2 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 hyperlink for additional information. AGU requests formatting of e-mail messages to be as simple as possible (no bold characters (use ALL CAPS instead), no color font, or other special formatting of text and paragraphs). Do not submit e-mail attachments for distribution.