

January 2010 Newsletter of the AGU Near-Surface Focus Group

The NS Focus Group gratefully acknowledges the generous support of the following student sponsors that covered the cost of the NS Luncheon at the Fall AGU meeting for 35 students: Geometrics, Iris Instruments, Sensors & Software, Zonge Engineering & Research Organization, and Green Engineering.

1. NS Focus Group Membership Exceeds 3000
2. NS Activities at Fall AGU
3. Report from the AGU Council Meeting, 13 Dec. 2009
4. Xavier Comas Assumes the Position of NS-Letter Editor
5. Joint Assembly Meeting of the Americas, 08-13 August 2010, Foz do Iguassu, Brazil
6. EGU Meeting, Vienna, Austria, May 2-7, 2010
7. Call for Seismic and GPR Abstracts: EGU Meeting Vienna; Abstract Submission by January 18
8. Call for Abstracts: Goldschmidt 2010 Conference in Knoxville, Tennessee June 13-18th
 - 8.1 Biogeophysics: Novel Tools and Methods for Observing the Effects of Biogeochemistry
 - 8.2 Hydrogeophysics: Geophysical Monitoring of Near-Surface Hydrogeochemistry
9. SAGEEP 2010, Keystone, Colorado, April 11-15, 2010; Abstract Submission Deadline January 15
10. JEEG Call for Papers: Special Issue on Geophysics of Dam Safety
11. EEGS FastTIMES December Issue Published on Hydro-Geological Geophysics
12. Report from Lee Slater (Chair) and Estella Atekwana (Oklahoma State University) on meeting NSF program managers
13. Summer of Applied Geophysical Experience (SAGE) 2010
14. PhD Position at the Université Catholique de Louvain (UCL), Belgium

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: www.agu.org/focus_group/nsg/

AGU NS Membership as of October 2009: Primary affiliation 691 members; Secondary 2316 members

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1. NS Focus Group Membership Exceeds 3000 (from Lee Slater, NSFG-Chair)

As of October 2009 the NS Focus Group consists of 691 AGU members who list their primary affiliation as NS and 2316 members who list NS as a secondary affiliation. All primary and secondary members receive this monthly newsletter.

2. NS Activities at Fall AGU (from Lee Slater, NSFG-Chair)

NS members organized three special sessions and a general NS session at the Fall AGU meeting. The special sessions covered (i) measurement of the electrical properties of rocks, (ii) inverse methods for groundwater and petroleum assessment, and (iii) urban geophysics. A total of 118 NS presentations were spread across five oral sessions and four poster sessions. The NS Focus Group Luncheon was attended by ~80 NS members, of which approximately 50% were students. NS Chair Lee Slater discussed growth in NS membership, progress on meeting the objectives for the second term of the focus group, opportunities for members to get involved with NS and the outcome of a recent meeting he had (along with Estella Atekwana, Oklahoma State University) with National Science Foundation (NSF) program managers. NS also co-hosted (with the Hydrogeophysics Technical Committee) an evening social event at The Hotel Utah, which was well attended. We thank the generous support of the following student sponsors that covered the cost of the lunch event for 35 students: Geometrics, Iris Instruments, Sensors & Software, Zonge Engineering & Research Organization, and Green Engineering.

3. Report from the AGU Council Meeting, 13 Dec. 2009 (from Louise Pellerin, NSFG Vice Chair)

AGU GOVERNANCE:

The AGU new governance structure will have an impact on members and the NSFG. This month we are asked to vote for the executive committee and a 16-member Board of Directors – a new level to work with the Executive Committee to enhance Policy and Processes. The Board and Executive Committee will focus on decision & policy process. The Council has traditionally been comprised of the Section Presidents; in the coming year Focus Groups will have the opportunity to have full representation on the Council – details of the mechanics of how this will come about to follow. The Council will focus on evolving the future science structure. Sections, Focus Groups and Committees will continue to have joint responsibilities with the new Council and Board for planning, AGU meetings, Outreach and Publications.

NSFG's ROLE:

AGU's continued success will depend on the diligence of AGU staff and good governance by the new 16-member elected Board of Directors and an expanded AGU Council focusing on scientific activities. The change of governance can be positive for AGU and the NSFG only if we all do our part. Within the NSFG, we should work to strengthen interdisciplinary links with other sections and focus groups, as well as growing and strengthening the independence of the NSFG. The international links within NSFG are important to the future of NS as AGU continues to expand globally. We must continue to support each other and mentor young scientists not only in research but involvement in outreach and public policy and be a mechanism for dissemination of scientific opinion to society at large.

4. Xavier Comas Assumes the Position of NS-Letter Editor

Starting in February 2010, Xavier Comas (Florida Atlantic University) will serve as Editor of the NS Focus Group newsletter. As NS membership grows the newsletter becomes a more valuable tool for serving our community. The NS-Letter was initiated by Rosemary Knight at the 2006 Joint Assembly Meeting in Baltimore. Forty-four monthly issues later, the Focus Group Executive Committee and the outgoing editor George Tsoflias are welcoming Xavier Comas (xcomas@fau.edu) as the new NS-Letter editor.

5. Joint Assembly Meeting of the Americas, 08-13 August 2010, Foz do Iguassu, Brazil

Dear NS members:

Thanks everybody for working hard to promote the Iguazu 2010 Joint Assembly and in particular Near Surface Geophysics. NS and Hydrogeophysics proposed sessions share conveners from both Latin America and North America, showing the true nature of a Meeting of the Americas. JA10 is going to be a great meeting! Approved conference sessions will be listed in the February newsletter, but it is not too early to start planning your abstract submission. Abstract submission deadline will be March 31, 2010.

The Meeting of the Americas (<http://www.agu.org/meetings/ja10/>), will be held 08-13 August 2010 in Foz do Iguacu, Brazil. The Iguazu World Natural Heritage Park will provide a spectacular backdrop to this Assembly which is sponsored by the most important Earth Science and Space Community Organizations of the Americas.

Regards,

NS Program Committee for JA 2010
Jandyr Travassos, Brazil jandyr@on.br
Juan Lorenzo, gllore@lsu.edu

6. EGU Meeting, Vienna, Austria, May 2 to May 7, 2010 (from Niklas Linde)

The EGU General Assembly 2010 will bring together geoscientists from all over the world into one meeting covering all disciplines of the Earth, Planetary and Space Sciences. Especially for young scientists the EGU appeals

to provide a forum to present their work and discuss their ideas with experts in all fields of geosciences. The EGU is looking forward to cordially welcome you in Vienna. Submit to your session of interest no later than 18 January 2010 (<http://meetings.copernicus.org/egu2010/>)

Sessions of interest include:

HS6.5: Combining modelling and measuring to improve understanding of subsurface flow and transport systems
Convener: Sander Huisman | Co-Conveners: Harry Vereecken , Jasper Vrugt, Ty Ferre

HS7.2: Hydrogeophysics in subsurface hydrology
Convener: Harry Vereecken | Co-Conveners: Ugur Yaramanci, Ty Ferre

SM5.1: Noise Interferometry: What can we learn from noise ?
Convener: Michel Campillo | Co-Conveners: Anne Paul

SM5.3: Depth imaging and tomographic inversion of active seismic data: methodological advances and applications
Convener: Valenti Sallarès | Co-Conveners: Jean-Xavier Dessu

SM5.4: Seismic tomography - state of the art: algorithms and results
Convener: Ivan Koulakov | Co-Conveners: Andrea Morelli , Edi Kissling ,Dapeng Zhao

SM5.5: Imaging the shallow subsurface with seismic and GPR methods
Convener: Lars Nielsen | Co-Conveners: Klaus Holliger, Hansruedi Maurer

SM5.6: New approaches to the analysis and interpretation of magnetotelluric data
Convener: Marion Jegen

SM5.7: Joint inversion of geophysical data sets
Convener: Max Moorkamp | Co-Conveners: Amir Khan, Estelle roux

SM6.5/ERE2.5: CO2 sequestration geophysics (co-organized)
Convener: Stefan Buske | Co-Conveners: Christopher Juhlin

MPRG5/G17: From large to small scales for potential fields - tools and models? (co-organized)
Convener: Mohamed Hamoudi | Co-Conveners: Aude Chambodut

MPRG16: The transport properties of geomaterials: Theory, modelling, measurement, application and integration.
Convener: Matthew Jackson | Co-Conveners: Harald Milsch , Fabio Ferri

7. Call for Seismic and GPR Abstracts: EGU Meeting Vienna, Austria, May 2 to May 7, 2010; Abstract Submission Deadline January 18

Dear friends and colleagues,

This is a friendly reminder that the deadline for the submission of abstracts for this year's EGU meeting in Vienna is rapidly approaching. In this context, we would like to draw your attention to session SM5.5 "Imaging the shallow subsurface with seismic and ground-penetrating radar methods". The session will present new near-surface seismic and ground-penetrating radar techniques, innovative methods and algorithms for data processing and interpretation as well as exciting case studies.

Session description: Seismic and ground-penetrating radar (GPR) methods are widely applied in high-resolution geophysical investigations of the shallow subsurface. Technological progress with regard to data acquisition and processing and methodological developments in forward and inverse modeling for interpreting seismic and GPR data continuously improve and offer new possibilities for resolving fine-scale heterogeneities. We invite you to submit both methodological papers and case studies, which demonstrate the applicability of these methods.

Conveners: Lars Nielsen (University of Copenhagen), Klaus Holliger (University of Lausanne) and Hansruedi Maurer (ETH Zurich)

8. Call for Abstracts: Goldschmidt 2010 Conference in Knoxville, Tennessee June 13-18th
<http://www.goldschmidt2010.org/index>; Abstract submission deadline February 21

8.1 Biogeophysics: Novel Tools and Methods for Observing the Effects of Biogeochemistry

Recently, various geophysical techniques have been applied to characterize geochemical changes associated with microbial activity. To further encourage dialog between geophysicists and biogeochemists, we are hosting a Biogeophysics session at the Goldschmidt 2010 conference in Knoxville, Tennessee June 13-18th. Our session, titled "Biogeophysics: Novel Tools and Methods for Observing the Effects of Biogeochemistry", is programmed under Theme 15: Microbe-Mineral Interactions. This session welcomes submissions concerning novel techniques for observing microbial activity at any scale. We also encourage the submission of abstracts concerning the incorporation of geophysical techniques into existing geochemical and reactive transport models. For inquiries, feel free to contact the session conveners: Aaron Regberg (aregberg@psu.edu), Peter Schillig (schillig@ku.edu) or Dr. Kristina Keating (kmkeat@andromeda.rutgers.edu).

8.2 Hydrogeophysics: Geophysical Monitoring of Near-Surface Hydrogeochemistry

The Goldschmidt conference 'call-for-abstracts' has been announced as described at <http://www.goldschmidt2010.org/>. A special session (13d) is located within 'Theme 13: Hydrogeochemistry of Earth Surface Processes' that should be of interest to the hydrogeophysical community called 'Geophysical Monitoring of Near-Surface Hydrogeochemistry' (http://www.goldschmidt2010.org/themes?theme=13&showDescriptions=true#session_13d). Please consider submitting an abstract. Abstracts are due February 21st. We are excited about hosting a hydrogeophysical session at this geochemistry meeting and we hope to see you there!
Conveners: Gregory S Baker, Susan Hubbard, Lee Slater

9. SAGEEP 2010, Keystone, Colorado, April 11-15, 2010; Abstract Submission Deadline January 15

The Environmental and Engineering Geophysical Society (EEGS) invites extended abstract submissions for the 23rd Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) being held at the Keystone Conference Center, Keystone, Colorado USA April 11-15, 2010.

Extended Abstracts, 2-10 pages (<4 MB file size), are due no later than January 15, 2010 and may be submitted electronically at <http://www.xcdsystem.com/sageep2010/>. Extended Abstracts that focus on recent developments in near-surface geophysical methods, innovative uses of geophysics for challenging engineering and environmental problems and case histories are welcome. If accepted, final manuscripts are due January 25, 2010.

10. JEEG Call for Papers: Special Issue on Geophysics of Dam Safety

The Journal of Environmental and Engineering Geophysics (JEEG) announces a Call for Papers for a special issue on geophysics for dam safety. The Dam Safety issue is scheduled for publication in March 2011. The special issue editor is Dr. Michael H. Powers, U.S. Geological Survey, Denver, CO. Sponsorship of this issue is still open.

Papers describing the successful use of one or more geophysical surveys to understand engineering issues of concern for dam safety risk assessment and/or remediation are sought. The issues can include foundation and/or embankment property measurements, fault analyses for earthquake hazard potential, basin studies to better understand hydrological risks, or other safety concerns. Preference will be given for papers with supporting information to substantiate the geophysical models. International contributions are encouraged. The final special

issue can only accommodate a maximum of seven or eight papers, but all accepted papers will be considered for publication in other JEEG issues.

Papers can be submitted through the JEEG submission site, <http://jeeg.alltrack.net>. Indicate in the cover letter that the paper is for consideration in the Dam Safety special issue. The deadline for submissions is May 30, 2010. Questions may be directed to: Special Issue Editor—Michael H. Powers, mhpowers@usgs.gov; JEEG Editor—Janet Simms, Janet.E.Simms@usace.army.mil

11. EEGS FastTIMES December Issue on Hydro-Geological Geophysics

EEGS announced publication of the December issue of *FastTIMES*, magazine for the near-surface geophysical sciences. It is available for download as a low- and high-resolution pdf document (viewable with the free Acrobat Reader) from the EEGS website at <http://www.eegs.org/fasttimes/latest.html>. It is best to download the document and view it outside of a web browser with Acrobat.

12. Report from Lee Slater (Chair) and Estella Atekwana (Oklahoma State University) on meeting NSF program

We met with a group of National Science Foundation (NSF) program managers on October 28, 2009, to discuss opportunities for NS scientists to obtain funding through NSF programs. Present at the meeting were Robert Detrick (Director, Division of Earth Sciences, Geosciences Directorate), James Whitcomb (Section Head, Deep Earth Processes, Division of Earth Sciences), Douglas James (Program Manager, Hydrologic Sciences), Eva Zanzerkia (Program Manager, Geophysics), Benjamin Phillips (Program Manager, Geophysics), Enriqueta Barrera (Program Manager, Geobiology & Low Temperature Geochemistry), Marilyn Fogel (Program Manager, Geobiology & Low Temperature Geochemistry and Carnegie Institution Representative) and a program manager from Geotechnical Engineering.

We first provided some background info on the NS Focus Group and directed the programs officers to the NS webpage. We then solicited feedback on the following questions stressing that we were interested to learn what the NS focus group could do to help its members solicit funding through NSF:

- 1] The growth of the Near Surface Geophysics Focus Group at AGU suggests that Near Surface Geophysics is an emerging sub-discipline of Earth Sciences. Where do you see the funding opportunities exist for NS scientists within the NSF programs?
- 2] Some NS members are strongly 'process-based' and have had successes in obtaining NSF funding in the last ~10 years (e.g. through Hydrologic Sciences); others are 'methods-based' and have not been so successful. What recommendations would you have for those scientists conducting methods based research?
- 3] Some of our members believe that methods-based should be supported by NSF Geophysics Program. There is a general perception that NSF Geophysics will not fund Near Surface Geophysics studies/applications. How do you perceive the relationship between Near Surface Geophysics and the NSF Geophysics division? Should NS scientists submit to this program?
- 4] Biogeophysics is an exciting new area of highly interdisciplinary research coupling near surface geophysics and biogeochemistry as demonstrated by the 2008 AGU Chapman Conference on Biogeophysics and a recent review paper in *Reviews of Geophysics*. Do you have any recommendations for biogeophysics investigators on strategies for obtaining funding for biogeophysics research at NSF?

We received detailed feedback from the program managers during a meeting that lasted over an hour. The main messages received from NSF program managers are summarized below:

- 1] In preparing proposals, PIs are strongly recommended to contact relevant program officers first to discuss their ideas for a project. PIs should consider sending an abstract describing what they intend to do and enquire if the proposed project fits within the programs objectives.
- 2] Proposals that address understanding of fundamental processes may be directed to the appropriate programs addressing these problems e.g., NS proposals that address improving understanding of fundamental hydrologic processes should be sent to Hydrology. In this case it is vital to state clearly importance of proposed project to the

fundamental processes to be addressed and how this will also lead to advancement of geophysical understanding. Some NSF managers e.g. Detrick, perceive NS as a suite of tools that should be applied to solve process-based problems.

3] Geophysics program officers emphasized that the program funding is not limited to deep earth processes and that all areas of geophysics are welcome. They noted that they have received very few proposals from NS (we pointed out that this is likely because of the perception within our community that Geophysics only funds proposals focusing on deep earth processes). Geophysics program officers indicated that NS proposals that are process-based problem are welcome; however, the scientific motivation in terms of how it advances the field of geophysics and understanding of a particular process must be clearly stated.

4] If the emphasis of a proposal is on instrumentation and technique development then PIs should consider the EAR Instrumentation and Facilities program (EAR/IF). If the proposal is strongly centered on software then the PIs should consider the Office of Cyberinfrastructure (OCI) program.

5] Many program managers articulated that they are open to co-review/funding of proposals from NS e.g., Geophysics and Geobiology & Low Temperature Chemistry could co-fund biogeophysics types of proposals. In this case, direct communication with the relevant program managers is necessary to ensure correct administration of the proposal through the review process. Douglas James encouraged NS scientists to consider linkages to the Geotechnical Engineering Community. They summarized by emphasizing PIs to ask for co-funding/review of proposals if projects are clearly interdisciplinary (e.g. Geophysics + Hydrology, Geophysics + Geobiology, Geophysics + Geomorphology etc).

6] PIs should take advantage of the opportunity to provide a list of potential reviewers (avoiding obvious conflicts of interest) – to ensure that the proposal is reviewed by scientists knowledgeable in NS and likely to recognize the value of the proposed research. Program managers emphasized how surprised they are by the fact that many PIs fail to provide a list of potential reviewers, suggesting that this does not help their chances for funding. The program managers also inquired about the history of funding within the NS community, suggesting that it would be good to get some statistics as to how many NS proposals are submitted and what the funding rate is. They questioned if funding to the NS community is in fact a real problem or is merely a perception that NS is disadvantaged at NSF.

13. Summer of Applied Geophysical Experience (SAGE) 2010

The SAGE program is a three-week graduate and advanced undergraduate course of instruction and research in exploration geophysics based in Santa Fe, New Mexico, USA. We acquire, process and interpret reflection/refraction seismic, MT/EM, GPR, gravity & magnetics data at a shallow archeological site and at the basin scale. We particularly encourage 1) qualified students who are U. S. citizens or Permanent Residents (PR) who will have completed their junior year and completed the requisite physics and math before SAGE, and 2) qualified U. S. graduate students in all stages of their careers to apply. All qualified applicants, including international and Professional, are welcome.

For students qualifying as US/permanent resident undergraduates, SAGE will begin on Thursday, June 17 (arrival on Wednesday, June 16). Stipend and travel support will be automatic if accepted, and the \$450 fee will be waived. Foreign and all graduate students will arrive on June 20. The cost is \$450, of which \$100 is due with the application. For all students, SAGE will extend through evening dinner on Sunday, July 11, 2010.

The deadline for SAGE 2010 is 5:00 PM local time on Friday, March 26. A letter of interest, two references, proof of insurance, and complete transcripts (informal OK) are required. For application, reference forms, further details and a description of the program refer to <http://www.sage.lanl.gov/>, or contact Georgia at +1 (505) 663-5291 or e-mail georgia@lanl.gov.

14. PhD. Position at the Université Catholique de Louvain (UCL), Belgium

Starting January 2010, the laboratory of Environmetry and Geomatics (UCL/AGRO/MILA/ENGE) is looking to appoint an enthusiastic Ph.D. student in the framework of a joint research project entitled “Modelling the distribution of sediment, water, carbon and energy fluxes along the hillslope”.

About the project: A recent key area of interest is the characterization of linkage between masses and energy fluxes of water, carbon, and energy fluxes at the geomorphologic hillslope level, as their coupling induce spatially and temporally structured patterns with non negligible attached uncertainties. The final objective is to obtain a reliable model at the hillslope scale, with possible extensions at the regional level.

Working environment: The successful candidate will lead the statistical/physical data analysis and modeling part of the project, among a team of three Ph.D. students. He/She will work mainly inside the Environmetry and Geomatics (UCL/AGRO/MILA/ENGE) research team of the Université catholique de Louvain, Louvain-la-Neuve, Belgium (<http://www.uclouvain.be/mila>).

Expected candidate profile:

Master diploma in bioengineering, civil engineering, physics, mathematics (statistical orientation) or equivalent diplomas.

Great fondness for statistical data analysis and modelling. Sound knowledge in physical and statistical modeling for environmental sciences is a clear benefit.

Good practice and mastering of computer software's in statistics and mathematics (especially Matlab, but additional knowledge in SAS, R, S+ and C++ are welcome as well)

A clear interest for a research work and for the perspective of a Ph.D. work

Good communication skills in English (written reports, oral presentation, etc.). Additional knowledge in French/Dutch is welcome as well.

Candidates will submit their detailed curriculum vitae, along with a motivation letter and two reference letters. Correspondence should be sent with the clear mention "ARC Project_Bogaert" through e-mail or regular mail to: Professeur Patrick BOGAERT, Université catholique de Louvain, UCL/AGRO/MILA/ENGE, Croix du Sud, 2, Boîte 16, 1348 Louvain-la-Neuve, Belgique, Email: patrick.bogaert@uclouvain.be, Tel: +32 10 47 36 82, Fax: +32 10 47 88 98

To contribute material to the NS-letter send an e-mail to:
Xavier Comas xcomas@fau.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 web address 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). E-mail attachments cannot be distributed.