



# IAMG

# Newsletter

No. 87 December 2013

*Official Newsletter of the International Association for Mathematical Geosciences*

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## Nominations requested for 2014 IAMG Awards !

The Association invites all members to submit nominations for the **John Cedric Griffiths Teaching Award** to honor outstanding teaching, with preference for teaching that involves application of mathematics or informatics to the Earth's nonrenewable natural resources or to sedimentary geology. Age or academic status are not conditions for the award

and the **William Christian Krumbein Medal** awarded to senior scientists for career achievement, which includes (a) distinction in application of mathematics or informatics in the earth sciences, (b) service to the IAMG, and (c) support to professions involved in the earth sciences. There is no stipulated preference for fields of application within the earth sciences.

**Deadline: January 31, 2014**

Membership in IAMG is not a requirement for nomination. For details about prerequisites for nominations please see the IAMG web site [www.iamg.org](http://www.iamg.org) and click on **Awards**. There is also a list of past recipients and their laudations on the web site. Please have a look at it before sending your nominations!

The (informal) documents which should accompany a proposal are:

- a short statement summarizing the relevant qualifications of the nominee
- a curriculum vitae of the nominee

*Nobody gets an award without a nomination, so please support your colleague when you believe he/she deserves an award by submitting a nomination.* Nominations can be submitted by a single person or by a group via e-mail to [jackswsc@q.com](mailto:jackswsc@q.com) or sent to:

**John H. Schuenemeyer - Chair, Awards Committee (see p.2)**

*Nominations for other Awards may also be submitted at any time.*

## Guest Editorial

The June 2013 Newsletter editorial described the new contract agreement between IAMG and Elsevier in a less than positive light, suggesting that the negotiations had been difficult and adversarial, and that IAMG 'holds its nose' in dealing with our publishers. I would like to emphasize the benefits of our association with Elsevier and Springer.

From the Editor  
From the Editor  
From the Editor

In fact, the C&G negotiations were entirely friendly and cooperative on both sides, and many of our members to whom I have spoken about this recognize that our arrangements with our publishers (both Elsevier and Springer) are greatly beneficial to IAMG and its members. The new Computers & Geosciences royalty arrangement moves us from a percentage of sales to a fixed annual sum (made quarterly and subject to inflation increases) that is similar in amount to recent royalty payments under the old contract. \$10,000 of this annual payment is to be used to support the new Computers & Geosciences Research Scholarships – an arrangement proposed by Elsevier, but which has catalyzed an overdue enhancement of our student grant system, a change (including new awards associated with our Springer journals MG and NRR) fully supported and approved by Council. The outcome of the new agreement is a guaranteed annual royalty income with no uncertainties, and a new system of generous student awards that will strengthen IAMG and support its mission.

We should remember that over the years IAMG has greatly benefitted from journal royalties of which the lion's share have come from C&G. Not only has this swelled our financial reserves, but it has also subsidized our many programs: annual conferences, Distinguished Lecturer Series, support of student chapters and student travel, as well as student grants and other activities. Without publication royalties, these programs simply would not have been possible, at least in their present form, given our relatively small membership and low membership fees.

Our publications have grown in reach and stature to a level that would have been difficult or impossible without the benefits gained from the many services provided by the publishers. For example, C&G now appears 12 times per year, with a total of about 2,000 pages. Its ISI impact factor has risen close to 2, and the number of submissions has increased markedly over the past three years: thus the popularity and quality have both increased substantially. MG and NRR have also grown in quality and reach. This is due not only to the efforts of our editors, but also to the first class production, distribution, search and archiving services provided by Elsevier (and similarly by Springer). Elsevier and Springer are continually adding to and improving the tools for authors, editors and readers. I gather that several smaller publishers (particularly those run by professional associations) are falling behind in the provision of sophisticated digital services, affecting the quality of their journals. Yes—the large publishers make healthy profits for their shareholders—but would we be getting the first-rate support for our journals we now receive without the efficiencies and economies of scale of the large competing companies?

Graeme Bonham-Carter

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## PRESIDENT'S FORUM

This year is a special year for the International Association for Mathematical Geosciences: This year is our 45th anniversary and it is the International Year of Mathematics of Planet Earth (MPE2013). MPE2013 is a joint program supported by many international associations and organizations engaged in the promotion of Mathematics of Planet Earth. MPE2013 has created a broad awareness among both geoscientists and mathematicians. It is very important to our association and especially for the public to recognize IAMG and the importance of mathematics in geoscience. IAMG actively supported MPE at this year's annual conference held in September in Madrid. There were about 370 participants from many different countries attending the conference. This was a truly spectacular conference with 27 sessions of oral/poster presentations covering a broad array of subjects, anywhere from classical to recent, some of which are listed here: advances in classical statistics relevant to geosciences, frontier geostatistics, compositional data analysis applied to geochemistry, machine learning geoscience applications, spatiotemporal analysis of structural complexity and extreme behavior, parameterization of soil systems at different scales, fractal, chaos and complexity in Earth System analysis, applications of remote sensing and geographical information systems, quantitative methods in geomorphology and land surface processes, prediction in hydrology, quantitative environmental geology, modeling of energy and mineral resources, quantitative methods applied to stratigraphy and paleontology, geomathematical modeling of folds and folding, mathematical geoscience and planetary geology, and stochastic nonlinear methods and inverse problem in dynamic models. The book entitled "Mathematics of Planet Earth" containing the extended abstracts of 184 papers presented at the conference was published by Springer in their Lecture Note series and this appropriately marked the special milestone of the 45th birthday of the IAMG. Many people have commented to me that this conference was most successful and one of the best annual conferences we have ever had. In this issue of the Newsletter, you will be able to read stories and view pictures about the conference. On behalf of the association, I would like to thank those who participated in the conference; in particular, Dr. Eulogio Pardo-Igúzquiza, the Chair of the conference, and the local organizing committee team (Carolina Guardiola-Albert, Javier Heredia, Luis Moreno-Merino, and Juan Jose Duran) for the time and effort they put into hosting this successful event. I also want to thank the Spanish Geological Survey, Universidad Complutense de Madrid (UCM) and many other sponsoring organizations for their generous support.



Although a 45-year old professional association is still quite young, IAMG has already made significant contributions to science and to humanity by being a unique association comprised of a passionate, inspirational and dedicated group of scientists who integrate mathematics, statistics, computer science, geoinformatics and geosciences. While we can proudly list the many milestones achieved as reflected in our journals and conference proceedings and in other forms, we are also aware of the challenges and opportunities for sustainable development of the association. Quoting Ricardo Olea's comment in his response to a survey recently conducted by the IAMG 2015 Strategic Planning Committee, "I think that for years the main aspiration of IAMG has been to grow into a larger organization of at least 2000 members. Such size would make IAMG look more of a successful and influential group." The size and diversity of IAMG membership is definitely crucial to the strength of our association as it continues to grow. The main question is how we can enhance the aspiration of the IAMG to grow faster and to become more successful and influential, especially during the time of Google Earth, Digital Earth and Big Data. I would like to hear more discussions from among IAMG members about your innovative and creative ideas and strategies to facilitate IAMG development. Scope, promotion and services are the three key issues that I want to address.

To be successful and influential, IAMG needs to be great and strong. Since IAMG changed its name from Mathematical Geology to

Mathematical Geosciences five years ago during the IGC in Oslo, we all hoped this change would not only reflect the current status of the IAMG, but also would open new doors for growth. IAMG is now involved in more topics than ever before as reflected in the programs of our annual conferences as well as in the articles published in our journals. For example, last summer, Dr. Jef Caers (Editor-in-Chief, Computers & Geosciences) invited members to nominate an associate C&G editor for "Informatics for Hydrology". Informatics and mathematical modeling in hydrology is a rapidly evolving field in the geosciences which heavily involves mathematical modeling and geoinformatics. Similar fields could but are not limited to include:

mathematics in geophysics, in geochemistry and in soil science. For example, many sessions in the field of nonlinear processes in geoscience mentioned at the AGU conference (Big Data in geophysics, statistical approaches across scales, complex networks in geosciences, non-Gaussian and non-linear aspects of data assimilation/fusion and predictability, characterizing uncertainty and computational methods across scales, and statistical geodynamics, just to name a few) involving math and statistics would fit the mission of IAMG and are closely related to our interests. There are huge opportunities for IAMG in quantitative modeling of geo-processes, analytical analysis in the geosciences, computational geoscience, quantitative modeling in informatics, in addition to the more traditional fields of mathematical statistics, spatial statistics and numerical analysis of geoscientific data in order to enhance our strength and influence by enthusiasm, innovative contributions and applications for solving critical problems in the geosciences.

Proper means must be explored to promote the IAMG, especially in the fields and regions where IAMG is currently underrepresented. Website publications, membership e-mail networking, our journals and other publications, organization of conferences, creation of student chapters, and promotion of regional activities not only promote the IAMG but also serve to increase IAMG membership across these fields and internationally. For example, student chapters are centers of clusters magnetizing young people to know more about and become interested in joining the IAMG. We have made and will continue to make all possible efforts to maximize our support to student activities and student chapters by providing quality services to them. Students' curiosity, enthusiasm and passion in IAMG projects will greatly enhance the aspiration of IAMG not only for today but for the future. The key is how to convince students to participate as regular IAMG members. This is largely depending on the mission of the association, its democratic management and the quality of services provided to its members.

IAMG journals can certainly serve as the main platform for both promoting IAMG and serving our members. The question is how can we use the medium of our journals to publish not only quality articles but also to promote the IAMG as a whole? Do we have enough journals to cope with further IAMG developments? Are there any new possibilities or necessities to create more journals in order to open more doors? What strategy should IAMG take in the competitive world? Do we need to create new journals using any of the following titles: Quantitative Geosciences, Quantitative Modeling in Geoinformatics, Spatial Data Analysis, Mathematical analysis of Nonlinear Geoprocesses, Nonlinear Geomathematics, Statistical Geosciences, Computational Geosciences, Compositional Data Analysis, Predictive Mapping in Geosciences, and Mathematics of Planet Earth? Or should we split the C&G Journal into series A: Computational Geology, series B: Computational Geophysics, series C: Computational Geo-Informatics, just to mention a few examples.

The International Year of Mathematics of Planet Earth will finish soon but the Mathematics of Planet Earth will continue. The momentum generated by the celebration of MPE will continue to remain in IAMG's further activities including our next annual conferences to be held in Delhi, India in 2014, in Freiberg, Germany in 2015 and the joint conference at the 35th IGC in Cape Town, South Africa in 2016.

*Qiuming Cheng*



# Association Business

## John Harbaugh newest IAMG Honorary Member

John Warvelle Harbaugh was born in Madison, Wisconsin on 6 August, 1926. He was an IAMG Charter Member and made many important contributions to our Association. Much of his early work on carbonates and his computing accomplishments were in cooperation with the Kansas Geological Survey. See Dan Merriam's laudatio of John given when he received the William Christian Krumbein Medal in 1985 (on the IAMG website under Awards & Honors/Previous Award Winners). From 1996-98 he was chair of the IAMG Awards Committee. As professor at Stanford he introduced numerous students to mathematical geology and computer applications, of whom many became active in IAMG. John has written in detail about the history of Geomath at Stanford in IAMG Newsletters 58 and 59.



Having retired in 1999, John Harbaugh is Emeritus Professor at the Department of Geological and Earth Sciences of Stanford University. The last time we met with John was during the Stanford IAMG meeting in 2009. On several occasions during the past few years, John has provided us with new ideas on the future of mathematical geoscience. These inputs have been published in the IAMG Newsletter.

President Qiuming Cheng is planning to attend the AGU Fall Meeting to be held in San Francisco, 9-13 December, 2013. On that occasion, he will visit our Stanford Student Chapter and hand the award to John in person.

◇

The IAMG Council has approved revisions of the guidelines for organizing IAMG meetings. These new guidelines were prepared by the IAMG Meetings Strategy Commission chaired by Vice President Raimon Tolosana Delgado and will come into effect starting with the organization of IAMG2015. Look on the [iamg.org](http://iamg.org) website under Information about IAMG/Guidelines.

◇

IAMG will co-sponsor GeoMap 2014, the Compositional Data Analysis workshop to be held in Olomouc, Czech Republic, June 17-20, 2014, co-chaired by Raimon Tolosana-Delgado and Karel Hron. Financial support to be provided is US\$ 3000. See more on this workshop on page 15.

◇

## Request for Nominations for Special Lectures

IAMG selects and sponsors two lecturers each year: The **IAMG Distinguished Lecturer** and the **George Matheron Lecturer**.

The **Distinguished Lecturer** prepares a series of lectures preferably on a variety of subjects in the mathematical geosciences to be presented in places where IAMG Annual Meetings are not normally held.

The **Georges Matheron Lecturer** should be a scientist with proven research ability in the field of spatial statistics or mathematical morphology. This lecture is presented at the Annual Meeting of the IAMG.

Letters of nomination for both these should include a curriculum vitae of the nominee and a short statement summarizing the ways in which he or she fulfills the nomination criteria (see <http://iamg.org/special-lectures.html>). Letters should be directed to the Chair of the Distinguished Lecture Series Committee by e-mail to: [j.mckinley@qub.ac.uk](mailto:j.mckinley@qub.ac.uk)

## New IAMG Website

At the end of June we went live with our new IAMG website, hosted by Dragonfly, our webdesigner. The face of the website looks different but the structure and functionality is similar to the old one.

The change-over was the result of the deliberations of the IAMG Website Commission, established by Council in Brisbane and chaired by Dan Tetzlaff. In response to the very high annual fees of our old host and a reasonable offer by Dragonfly, and also an attempt by someone to hack the old website, the decision to migrate was made in December 2012. For a more detailed report look in the Council Minutes report for 2013 to be found at <http://iamg.org/information-about-iamg/minutes-for-annual-iamg-meetings.html> on page 35.

Since the start-up of the new website I have had to make only a few corrections or tweaks, in addition to the regular upkeep. Since there were no major complaints, I assume that the website is working satisfactorily for those who visit it.

*Harald S. Poelchau*  
Website Content Editor

## 2013 Distinguished Lecturer Report

**Pierre Goovaerts** has been literally circling the earth giving talks. In his last report (NL 86) he described his travels to Brazil, Morocco, Turkey, France, The Netherlands and Sweden. Since then he has been to Taiwan, Korea, Japan, South Africa, Spain, Portugal, Australia, New Zealand, and in December he is planning yet another talk in Belgium. This adds up to a total of 26 talks and 2 short courses with an overall attendance of more than 900 including almost 600 students. That is probably a record for any DL.



Only the elephant didn't care for his talk in Kruger National Park

Pierre summarizes his experience: "It was truly an honor to represent the IAMG during this year and it provided me with the unique opportunity to discover new countries, see old friends/colleagues and meet new colleagues. I was pleased to see how these talks quickly translated into two concrete outcomes: the participation of several South-Korean scientists from KIGAM to the IAMG meeting in Madrid and the current discussion about the organization of a future IAMG meeting in Ankara, Turkey. Other outcomes are the submission of manuscripts to Mathematical Geosciences (I received a few inquiries already) and hopefully an increase in our membership"

## Letter to the Editor:

1) I am very proud that the IAMG has not followed the IUGS and ICSU in their unfortunate inappropriate premature support of the top Italian seismologists after the verdict in the 1st stage of the L'Aquila process. In fact our recent International Conference on Geothetics at Příbram has brought new in-views into that case. The accused scientists have completely denied any scientific background to the really existing prediction; possibilities to predict earthquakes DO exist.

2) In the plenary session of the ceremonial opening of the Mining Příbram Symposium I presented a special lecture under the title "Ethics in the science and techniques". I added an "unofficial" subtitle: "PŘÍBRAM - ISLAND OF FREEDOM" remembering two historical aspects:

a) already in the years 1968 - 1989 the regular international meetings of mathematical geologists at Příbram - mostly under a moral support of the IAMG and visited by colleagues from both East and West - were giving to the Eastern colleagues an impression to be in the free world;

b) in 2013 I am happy to give opportunity to present at Příbram highly interesting scientific papers of authors refused by other "peer reviewed" publications.

3) A very dangerous situation of nowadays: environmentalists and the IPCC refuse to incorporate into their models real progressive results of Earth sciences (as presented by numerous sessions at the latest International Geological Congresses) admitting exclusively anthropological factors to the global warming. I suppose that the IAMG will continue in supporting the REAL PROGRESS with an increased attention to all verified achievements of Earth sciences.

4) Do not forget that PRAGUE as the IAMG birth-place will be the most appropriate place for celebrating the IAMG 50th anniversary in 2018!

*Václav Němec*

## Student Affairs

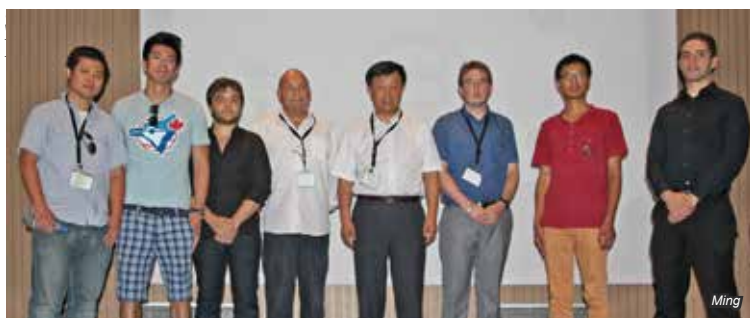
### Student Chapter News

A new IAMG Student Chapter is being established at the Water, Earth, Environment Center of the INRS (Institut National de la Recherche Scientifique) University in Quebec, Canada. This adds a seventh Student Chapter to our present six active chapters:

China University of Geosciences - Wuhan, China  
 Freiberg University of Mining & Technology, Germany  
 Sun Yat-Sen University - Guangzhou City, China  
 ENSG-Nancy University, Nancy, France  
 ITC (ISCI), University of Twente, Enschede, The Netherlands  
 Stanford University - Stanford, California, USA

And, apparently, there is an unofficial Lisbon Student Chapter where Distinguished Lecturer Pierre Goovaerts just gave a lecture in September.

At the 2013 IAMG conference in Madrid students set up a Student Chapter meeting to present some of their activities for each other. Four chapters reported: Stanford, CUG and Nancy in person, and Freiberg electronically via Skype.



Representatives of Student Chapters with Helmut Schaeben and Qiuming Cheng

### IAMG 2013 Student Poster Award

Five students competed for the award for best student poster in Madrid. The winner was **Jindong Xu**, PhD candidate studying with Prof. Xianchuan Yu, for his poster "A method of mixed pixel decomposition for hyperspectral imagery". The prize the winner received was a new HP laptop.



Jindong Xu, winner of best student poster

### Student Research Grants for 2014!

IAMG invites all students to apply for  
**Computers & Geosciences,  
 Natural Resources Research, or  
 Mathematical Geosciences  
 Research Grants**

**Application Deadline: May 31, 2014**

For general guidelines see page 8 of NL86 or go to "Student Affairs" on <http://www.iamg.org>. There is also a link to the Application Form. Candidates eligible to apply are currently undertaking Masters or Ph. D. studies and wish to use the award to conduct a period of research related to their thesis, or newly qualified Post Doctoral scientists who are within three years following the completion of their Ph. D. studies at the deadline for application.

## Student Research Grant Awards

The following students won a **Mathematical Geosciences** Student Award:

**Mohammad Ali Maleki Tehrani**, PhD student from the Department of Mining Engineering, University of Chile, studying under Prof. Xavier Emery. The project title is "*Geometallurgical ore body modelling*"

**Chen Guoxiong**, PhD student, Faculty of Earth Resources, China University of Geosciences, studying under Qiuming Cheng on a "*Discussion of High-pass filtering of singularity method for extracting gravity and magnetic anomalies*"

**Dr. Li Liangping**, working with Sanjay Srinivasan at The University of Texas at Austin on "*A hybrid multiple-point statistics approach to integrate dynamic data into geological model*".

**Natural Resources Research** Student Award recipients are:

**Pía Lois**, Graduate student at the Universidad de Chile under Prof. Brian Townley working on "*Analysis of the interaction of different types of rock, alteration and mineralization with aqueous alkaline media and its physico-chemical effects in the recovery off copper*"

**James MacNeil**, Graduate student at McGill University under Roussos Dimitrakopoulos. His project is "*High order stochastic simulations, parallelization and effects on stochastic mine production scheduling*"

The **Computers & Geosciences** Research Scholarships go to:

**Dr. Delphine Roubinet**, University of Lausanne (Switzerland) with a project on "*Discrete Dual Porosity Modeling of Electrical Current Flow in Fractured Media*" with Dr. James Irving.

**Carlos Loureiro**, working under Dr. Andrew Cooper (Environmental Sciences Research Institute, University of Ulster, UK) and Dr. Oscar Ferreira (Centre for Marine and Environmental Research, University of Algarve, PT) on "*What is actually happening in the rip-currents of embayed beaches? Development and validation of open-source parallel implementation of high-resolution coupled wave-circulation models for HPC clusters.*"

**Mojtaba Rajabi**, PhD student at Australian School of Petroleum, University of Adelaide working with Associate Professor Mark Tingay on "*The Present-day Stress Field of Australia*"

**Aikaterini Spanoudaki**, Institute for Applied and Computational Mathematics, Foundation for Research and Technology in Heraklion, Crete, working under Dr. Nikolaos Karmanis in a project on "*3D numerical modelling of surface water-groundwater flow and salinity interactions in the coastal zone*".

## Dan Merriam is now "50"

In 1983, Daniel Francis Merriam was presented the "Godfather of Mathematical Geology" award by IAMG Secretary General John Davis in recognition of twenty years service as "arranger, promoter and patron" of Mathematical Geology from its early beginnings. The year 2013 now marks the 50<sup>th</sup> anniversary of the event that launched the Kansas Geological Survey into the uncharted waters of computer applications to geology. This was Dan's publication as special editor of: "BALGOL program for trend-surface mapping using an IBM 7090 computer" by his lifelong friend and collaborator, John W. Harbaugh. The publication marked the beginning of his activities as editor of the highly successful KGS Computer Contribution series and convener of meetings of mathematical geology pioneers that led to the foundation of the IAMG in 1968.

Dan continues to come to work at the Survey every day and prepares manuscripts that describe the contributions of famous geologists to the development of the science. He attributes his longevity to moon pies, Chenin blanc, and his Swedish heritage. God hälsa!



In the picture above, the Godfather meets the Father of Mathematical Geology (Andrew Vistelius) on Calton Hill in Edinburgh at the International Sedimentological Congress in August, 1967. Which is which? You decide.

John Doveton  
 Lawrence, Kansas



## Member News

### Reinhard Pflug 1932 - 2012

After studying geology at Tübingen, Reinhard Pflug received his PhD in Bonn with a dissertation on an area in northern Spain under Roland Brinkmann. He taught in Rio de Janeiro and conducted extensive field work in Minas Gerais (Brazil) which led to his habilitation in 1964 at the University of Heidelberg. In 1972 he was appointed Chair of Geology and Paleontology at the University of Freiburg, Germany. There he started promoting computer applications for geologic data and mapping programs and made Freiburg a center for quantitative geoscience research and teaching. Many students were able to use the department's modern facilities and the programming courses offered. Pflug supervised 51 doctoral dissertations and more than 100 master's theses. After his retirement in 2000, Prof. Pflug was still active in the development of the GeolKart program for creating geological maps. He will also be remembered for the Pflug Foundation which he established to support students' geologic field work and excursions.



Reinhard Pflug died on 9 February 2012.

(Based on an article in Gmit #48, 2012)

**R. Ian Crocker** is now Airborne Remote Sensing Scientist at The National Ecological Observatory Network (NEON, Inc.) in Boulder, Colorado. Phone 720-746-4847; rcrocker@neoninc.org

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**Qiuming Cheng** reports: My research project entitled "Nonlinear Theories and Methods for Mineral Resources Prediction" has been selected as one of the candidates for the Chinese National Award of Science and Technology Advancement. After the final approval by the central committee, the final announcement of the award will be made at the beginning of next year at the National Annual Congress of Science and Technology. This award would be the first award of this type for the last 15 years awarded in the field of Mathematical Geosciences. There was one awarded in the 90's. This will be encouraging for the MG in China especially for motivating young MG people.

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Peter Dowd writes: **Allen "Bon" Royle** died 16th August 2013 aged 89. He was diagnosed with a form of lung cancer last October but didn't want it to be widely known. I spoke to Bon the previous Sunday by telephone and, although his voice was not at its best, he was still his jovial self.

Bon was a pioneer in the application and dissemination of geostatistics in the English-speaking world and the founder of the Geostatistics School at Leeds. He was a very close personal friend and colleague for almost 45 years and I will miss him.

See Ron's obituary at

[http://www.leeds.ac.uk/secretariat/obituaries/2013/royle\\_allen.html](http://www.leeds.ac.uk/secretariat/obituaries/2013/royle_allen.html)

◇

**Xiaogang (Marshall) Ma** has been working with the Deep Carbon Observatory-Data Science project since he joined Rensselaer Polytechnic Institute in the summer of 2012. The Deep Carbon Observatory (DCO) is a ten-year global quest to discover the quantity, movements, origins, and forms of Earth's deep carbon. The target of his work is assembling an Internet-based Deep Earth Computer which will provide a concept-type repository, an ability to identify and manage all key entities, agents and activities in the platform and much more.

The DCO continues to seek the collaboration and contributions of all scientists interested in the unfolding, and as yet untold, story of carbon in Earth. Consider joining the DCO Science Network to link your research and interests more closely with one or more of the DCO Communities. For more details of DCO contact Marshall at [max7@rpi.edu](mailto:max7@rpi.edu) or visit [deepcarbon.net](http://deepcarbon.net).

◇

## Conference Report

### China - Poland Cooperation Project on Pearl River Mouth System

River mouth systems play a key role in the interaction between continents and the ocean. Studying this interaction, the Center for Coastal Ocean Sciences and Technology (CCOST) of Sun Yat-Sen University in Guangzhou, China, concentrates its research to the Pearl River Mouth System in order to understand the basic transfer processes of mass and energy from the rivers drainage area to the receiving basin in the South China Sea. The Institute of Marine and Coastal Sciences (IMCS) at the University of Szczecin, Poland, focuses its research topics on the Baltic Sea, its southern coast and the role of the Odra River for the supply of suspended matter and the morphogenesis of the multiple system: River-Sea-Coast. Because of similarity in the research foci, the institutes have co-operated already for years, and in continuation of the good relations of their institutes, Prof. Jiaxue Wu from the CCOST and Prof. Jan Harff from the IMSC organized an international workshop "Evolution and dynamics of the Pearl River Mouth System (PRMS), South China Sea" held at the School of Marine Sciences, Sun Yat-sen University on May 23 and 24, 2013. Scientists from PR China, Hong Kong, Taiwan, Poland and Germany presented and discussed their latest results grouped into the sessions:

- Sedimentary Facies and Stratigraphy
- Remote Sensing in Estuaries
- Sediment Dynamics and Geochemistry
- Estuarine Dynamics and Sediment Transport
- Morphodynamics in estuaries

In a final discussion the participants defined advanced research topics as the base for new research concepts and projects on the cutting edge of interdisciplinary marine sciences in the coastal ocean. Selected papers will be published as a special publication of the Geological Society of London. The title of the book is "River-dominated Shelf Sediments of East Asian Seas".

The organizers paid attention in particular to the integration of young scientists into the discussion. PhD students used the stage of the workshop to present outcomes of their studies. A special poster session shed light on the active role of PhD, graduate, and undergraduate students in the research activities.

The week before the workshop, from May 13 to 17, 2013, was reserved for a special educational program for students and young scientists at the CCOST and the partner organization Guangzhou Marine Geological Survey (GMGS). In 5 lectures and seminars Prof. Jan Harff gave an introduction to the topics:

- Marine geology of continental margins
- Depositional environment and sedimentary facies on the continental shelf
- Climate change as reflected in marine sediments
- Relative sea level change: competition of geological processes and climate variation
- Coast and society

Jan Harff / Jiaxue Wu



Participants on May 17, 2013 in front of the CCOST building



# IAMG 2013 in Madrid

IAMG  
2013  
15th  
CONFERENCE  
MADRID

The 15th Annual Conference of the International Association for Mathematical Geosciences was successfully held in Madrid at the Mathematics Department of the Universidad Complutense (located in the Moncloa Campus) from the 2nd to 6th of September 2013. There were about 370 participants from more than forty different countries attending the conference. During the conference, four plenary lectures, twenty seven technical sessions, more than a hundred posters in seven poster sessions were held, as well as IAMG business meetings including Council Meeting, Publications Committee meetings, and journal meetings.

The conference will be remembered for the high-quality oral/poster technical presentations as well as by the social events. The local organizing committee team (Eulogio Pardo-Igúzquiza, Carolina Guardiola-Albert, Javier Heredia, Luis Moreno-Merino, and Juan José Durán) from the Spanish Geological Survey want to thank all the participants, the IAMG Council, the Universidad Complutense de Madrid and many other sponsoring organizations for their support.

*Thanks to Luis Moreno, Jenny McKinley and Ming Wu who contributed some of the pictures. Ed.*



Three of the organizers: Carolina Guardiola, Javier Heredia, and Eulogio Pardo Igúzquiza (Chairman)



Stained glass windows at the Spanish Geologic Survey (IGME)



The beautiful old School of Mining Engineering (next to IGME) where the Council meeting took place and the fieldtrip started



Spanish Geologic Survey (IGME)



Council Meeting at the Geological Survey in Madrid: sitting: June Hill (Councilor), Harald Poelchau (NL Editor), Ricard Olea (Meetings Comm.), Qiuming Cheng (President) standing: Honggang Qu (for Geol. Survey Comm.), Raimon Tolosana-Delgado (VP), Liu Gang, Christien Thiar, Guillaume Caumon (Councilors), Vera Pawlowsky-Glahn (Past Pres.), Eric Grunsky (Publ. Comm.), Richard Sinding-Larson, Jack Schuenemeyer (Awards Comm.), Frits Agterberg (Sec. Gen.), Graeme Bonham-Carter (Publ. Comm.), Peter Dowd (Matheron), David Collins (Treasurer), Ed DeMulder, Helmut Schaeben (Student Aff. Comm.), Jenny McKinley (Exec. VP), Xianchuan Yu (Councilor subst.), Jindong Xu, Jan Harff





Chair of the Conference, Dr. Eulogio Pardo-Igúzquiza; Dean of the Faculty of Mathematics, Prof. Javier Montero; Director of the Geological Survey IGME, Prof. Jorge Civis; and President of the IAMG, Prof. Qiuning Cheng at the opening ceremony  
Moreno



Eric Grunsky, 2014 Distinguished Lecturer



Peter Dowd, Matheron Lecturer



Pierre Goovaerts



Moreno

Vistelius Award for Greg Mariethoz



Ming

Chayes Prize for Raimon Tolosana

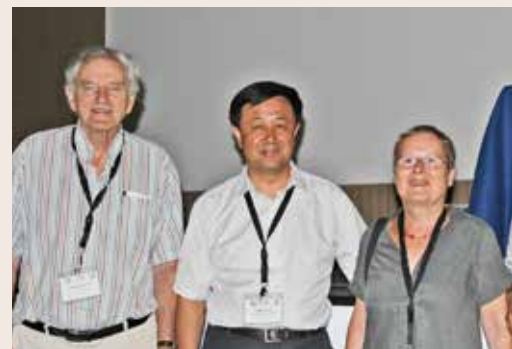


Moreno

Salsa night social event



City Hall reception at the Cecilio Rodriguez Gardens, Parque del Retiro



All five recent IAMG presidents: Cheng(2012), Pawlowsky-Glahn(2008), O







...ts, 2013 Distinguished  
Lecturer



The Gala Dinner in the  
Madrid Casino



IAMG  
2013  
CONFERENCE  
MADRID



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Moreno



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Bonham-Carter(2000),  
Ilea(1996), Agterberg(2004)





# IAMG 2013 Fieldtrip



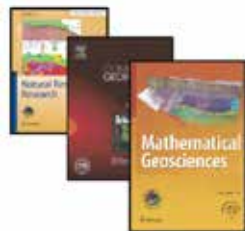
Fieldtrip leaders Enrique Díaz and Carolina Guardiola-Albert



Castle of Manzanares el Real







## IAMG Journal Report

### Call for papers:

#### Computers & Geosciences - Special Issue

#### “Statistical learning in geoscience modelling: novel algorithms and challenging case studies”

Guest Editors: Vasily Demyanov (Heriot-Watt University) & Mikhail Kanevski (University of Lausanne)

#### Motivation and description

Significant interest has been attracted to machine learning applications in geoscience problems in the recent years. A wide variety of data driven algorithms – artificial neural networks, support vector machines and many other kernel-based methods, evolutionary algorithms etc., – have been applied to different geoscience data analysis and modelling problems. At present, machine learning becomes more and more a conventional approach in modelling along with traditional statistical and physical approaches. Therefore, it has become important to demonstrate how statistical learning helps to make inferences on the physical dependencies in the behaviour of natural systems. The insights from the statistical learning would help to resolve some of the uncertainties associated with the description in Earth models. Priority will be given to the contributions that propose novel algorithms developed for geoscience application. We do not consider applications of already established and recognised computer codes (commercial or free ware) to another data set, which does not contain a geoscientific challenge.

Contribution are sought in, but not limited to:

Novel statistical learning algorithms applied to geoscience modelling problems

Geo- and environmental data mining

Comparative performance of statistical learning algorithms with traditional statistical and physical modelling techniques on exhaustive case studies with both conventional geoscience benchmark problems and real data cases.

Combination of statistical learning techniques and physical/statistical models within geoscience modelling workflows.

Inverse modelling statistical learning in inverse modelling and uncertainty propagation in geoscience applications.

Application of statistical learning to large-scale real datasets to solve geoscience modelling problems.

#### Timeline

February 15<sup>th</sup>, 2014, abstracts or paper proposals due, send to the Editor-in-Chief, Jef Caers, [jcaers@stanford.edu](mailto:jcaers@stanford.edu)

April 15<sup>th</sup>, notification of abstract acceptance

August 31<sup>st</sup>, papers due

2014/2015: publication in Computers & Geosciences



## Natural Resources Research

In September 2012, I took over from Jerry Jensen as Editor-in-Chief of NRR. Jerry Jensen gladly led me through the learning curve for a new EiC. In the last issue of volume 21 (2012), Jerry announced the transfer of NRR's editorial responsibility.

My first goal was to reshape the editorial board and to have 'young blood' in it. The structure of the new editorial board is now similar to that of MG and C&G. Our new editorial board consists of internationally diverse members with expertise that adequately cover the current aim and scope of NRR (i.e., hydrocarbon, geothermal, water, and mineral resources as well as geomathematics). The new editorial board consists of old and new members, roughly on a 50:50 proportion. The idea behind reshaping the editorial board is to engage the members, especially the associate editors, in the process of reviewing the articles submitted to the journal, as well as in attracting high-quality submissions to the journal.

Other changes that took place since I took over as EiC of NRR were:

Starting with the first issue of vol 22 (2013), we have a new journal cover (courtesy of Mario Gonçalves, new editorial advisory board member).

Since 7 February 2013, overall management of NRR at Springer will be done by Petra van Steenbergen, who is based in Dordrecht. She took over from Chris Bendall, who is based in Heidelberg.

As of March 2013, Fran Hein has agreed to replace Douglas Peters as the EMD Deputy Editor for NRR. When I was renewing the editorial board, Douglas asked to be replaced because of his new job, and he then offered to find his replacement.

We now have, for volume 22 (2013), a sufficient number of articles to publish on schedule. An important factor that contributed to this improvement on the number of online first articles was the review period, which I managed to hold to an average of about 2 months for the submissions after I took over as EiC. Thanks, of course, to the reviewers who had and gave time to review our articles within the allotted period.

During the period 01 September – 11 July, we had 63 submissions, 29 accepted and 27 rejected. The current acceptance and rejection rates are nearly the same as before (2009-2011) at 46% and 43%, respectively. We certainly will strive to increase our rejection rate as the number of submissions increases, so that we can focus more on quality rather than quantity so long as we have a healthy number of articles not yet assigned to an issue.

In terms of NRR's impact, the number of citations of articles in the journal was increasing during the 5-year period 2007-2011.

Like the EiCs before me, I aim for NRR's recognition by the Institute for Scientific Information (ISI). To achieve that we need to improve on the main criteria considered for ISI recognition, which include publication standards, editorial content, international diversity and citation data. I have discussed this matter in my editorial for the first issue of volume 22 (2013). Per discussion with Petra van Steenbergen on the current impact factor metrics of NRR, we have decided to wait until 2014 before putting in another application for ISI recognition.

The next matter I want to focus on, which may help toward ISI recognition, is the publication of special or thematic issues. There's nothing yet to report on this matter, but hopefully there will be for the next reporting period.

*John Carranza, Editor-in-Chief*

### Latest Journal Statistics

#### Mathematical Geosciences:

ISI-impact factor for 2012: 1.44

5-Year Impact Factor: 1.753

Rejection rate: 60.4%

Turnaround time: 72.5 days (average; submission to first review)

#### Computers & Geosciences:

2012 Impact Factor: 1.834

5-Year Impact Factor: 1.992

Turnaround time: 55 days (average; submission to initial decision)

#### Natural Resources Research:

5 year SNIP: 0.968

Rejection rate: 43%

## JOURNAL CONTENTS

## Natural Resources Research

## Volume 22, Issue 3, September 2013

Potential Use of Remote Sensing Techniques for Exploration of Iron Deposits in Western Sahara and Southwest of Algeria — Andrea Ciampalini, Francesca Garfagnoli, Chiara Del Ventisette & Sandro Moretti

Image Segmentation for Hydrothermal Alteration Mapping Using PCA and Concentration–Area Fractal — Hadi Shahriari, Hojjatollah Ranjbar & Mehdi Honarmand

Spatial Prediction of Lateral Variability of a Laterite-Type Bauxite Horizon Using Ancillary Ground-Penetrating Radar Data — Oktay Erten, Mehmet Siddik Kizil, Erkan Topal & Lachlan McAndrew

A Simulated Annealing-Based Algorithm to Locate Additional Drillholes for Maximizing the Realistic Value of Information — Saeed Sol-tani-Mohammadi & Ardeshtir Hezarkhani

Monte Carlo Simulations of Product Distributions and Contained Metal — M. E. Gettings

Review of the NURE Assessment of the U.S. Gulf Coast Uranium Province — Susan M. Hall

## NRR Vol. 22, Issue 4, December 2013

Water Footprints of Cassava, - and Molasses-Based Ethanol Production in Thailand — Awewan Mangmeechai & Prasert Pavasant

Evaluation of Seasonal Changes in Physico-chemical and Bacteriological Characteristics of Water from the Narmada River (India) Using Multivariate — Anjana Sharma, Chandan R. Bora & Varsha Shukla

The Precision of C Stock Estimation in the Ludhikola Watershed Using Model-Based and Design-Based Approaches — T. S. Chinembiri, M. C. Bronsveld, D. G. Rossiter & T. Dube

A New Stochastic Modeling of 3-D Mud Drapes Inside Point Bar Sands in Meandering River Deposits — Yanshu Yin

Reservoir Modeling by Data Integration via Intermediate Spaces and Artificial Intelligence Tools in MPS Simulation Frameworks — Rouhollah Ahmadi & Ehsan Khamsehchi



## Mathematical Geosciences

## Volume 45, Issue 4, May 2013

## Original Papers

Construction of Binary Multi-grid Markov Random Field Prior Models from Training Images — Håkon Toftaker, Håkon Tjelmeland

Kriging and Spatial Design Accelerated by Orders of Magnitude: Combining Low-Rank Covariance Approximations with FFT-Techniques — W. Nowak, A. Litvinenko

Stochastic Simulation Model for the Spatial Characterization of Lung Cancer Mortality Risk and Study of Environmental Factors — Ana Rita Oliveira, Cristina Branquinho, Maria Pereira, Amílcar Soares

Automatic Variogram Modeling by Iterative Least Squares: Univariate and Multivariate Cases — N. Desassis, D. Renard

Facies Recognition Using Multifractal Hurst Analysis: Applications to Well-Log Data — Eliseo Hernandez-Martinez, Teresa Perez-Muñoz, Jorge X. Velasco-Hernandez, Armando Altamira-Areyan, Luis Velasquillo-Martinez

Covariance-Based Variable Selection for Compositional Data — Karel Hron, Peter Filzmoser, Sandra Donevska, Eva Fiserová

## Book Review

R. Schneider & W. Weil: Stochastic and Integral Geometry — Pierre Calka

## Announcement

The Editor's Best Reviewer Award 2011-2012 — Roussos Dimitrakopoulos

## MG Volume 45, Issue 5, July 2013

## Special Issue on Environmental Geostatistics

Special Issue on Environmental Geostatistics — J. Jaime Gómez-Hernández, Celine Scheidt

Geostatistics of Dependent and Asymptotically Independent Extremes — A. C. Davison, R. Huser, E. Thibaud

Efficient Simulation of (Log)Normal Random Fields for Hydrogeological Applications — Phaedon Kyriakidis, Petros Gaganis

Complex-Valued Random Fields for Vectorial Data: Estimating and Modeling Aspects — S. De Iaco, D. Posa, M. Palma

Geostatistical Data Integration Model for Contamination Assessment — Ana Horta, Pedro Correia, Luís Menezes Pinheiro, Amílcar Soares

Geostatistical Assessment of Ice Content Distribution within the Glacier Bonnard — Nicolas Jeannée, Eric Bardou, Claire Fauchaux, Pascal Ornstein

Local and Global Error Models to Improve Uncertainty Quantification — Laureline Josset, Ivan Lunati

Stochastic Simulation of Nonstationary Rainfall Fields, Accounting for Seasonality and Atmospheric Circulation Pattern Evolution — Gonzalo Sapriza Azuri, Jorge Jódar, Jesús Carrera, Hoshin V. Gupta

## Book Review

Richard W. Allmendinger, Nestor Cardozo, and Donald M. Fisher: Structural Geology Algorithms: Vectors and Tensors — Roland Bürgmann

## MG Volume 45, Issue 6, August 2013

## Special Issue

Stochastic Distance Based Geological Boundary Modeling with Curvilinear Features — Maksuda Lillah & Jeff B. Boisvert

A Spatial Point Process Model for Violent Tornado Occurrence in the US Great Plains — James B. Elsner, Richard J. Murnane, Thomas H. Jagger & Holly M. Widen

Time-Lapse Analysis of Methane Quantity in the Mary Lee Group of Coal Seams Using Filter-Based Multiple-Point Geostatistical Simulation — C. Özgen Karacan & Ricardo A. Olea

## Applications

Seismicity Characterization of Iran: A Multivariate Statistical Approach — Seyed Naser Hashemi

Impact of Geometric and Petrographic Characteristics on the Variability of LA Test Values for Railway Ballast — Vera Hofer, Holger Bach, Christine Latal & Anna-Christina Neubauer

Pore System Characterization and Petrophysical Rock Classification Using a Bimodal Gaussian Density Function — Chicheng Xu & Carlos Torres-Verdin

## Book Review

Vyacheslav G. Rumynin: Subsurface Solute Transport Models and Case Histories, with Application to Radionuclide Migration — Daniela Blesent

## MG Vol. 45, Issue 7, October 2013

The Value of Information in Mineral Exploration Within a Multi-Gaussian Framework — Jo Eidsvik & Steinar L. Ellefmo

An Uncertainty Quantification Framework for Studying the Effect of Spatial Heterogeneity in Reservoir Permeability on CO<sub>2</sub> — Zhangshuan Hou, Dave W. Engel, Guang Lin, Yilin Fang & Zhufeng Fang

Elliptically Symmetric Distributions of Elevation Gradients and the Distribution of Topographic — M. S. Bartlett, G. Vico & A. Porporato

Extending the Application of a Shale Volume Estimation Formula Derived from Factor Analysis of Wireline Logging Data — Norbert P. Szabó & Mihály Dobróka

Robust Estimation for the Weibull Process Applied to Eruption — Ting Wang & Mark Bebbington

Conditioning Surface-Based Geological Models to Well and Thickness — Antoine Bertoncello, Tao Sun, Hongmei Li, Gregoire Mariethoz & Jef Caers

## Announcement

Recognizing Outstanding Contributors to the Journal of Mathematical Geosciences: Professor Donald Myers



## Computers &amp; Geosciences

## Volume 49 (December 2012)

## Research Articles

Parallel computation of satellite orbit acceleration — Toshio Fukushima

Adaptive hybrid optimization strategy for calibration and parameter estimation of physical process models — Velimir V. Vesselinov, Dylan R. Harp

Implementation and performance optimization of a parallel contour line generation algorithm — Jibo Xie

Using image analysis and ArcGIS® to improve automatic grain boundary detection and quantify geological images — Michael A. DeVasto, Dyanna M. Czeck, Prajukti Bhattacharyya

A system for beach video-monitoring: Beachkeeper plus — Massimo Brignone, Chiara F. Schiaffino, Federico I. Isla, Marco Ferrari

Using TOPSIS approaches for predictive porphyry Cu potential mapping: A case study in Ahar-Arasbaran area (NW, Iran) — Kaveh Pazand, Ardeshtir Hezarkhani, Mohammad Ataei

A graphical user interface for numerical modeling of acclimation responses of vegetation to climate change — Phong V.V. Le, Praveen Kumar, Darren T. Drewry, Juan C. Quijano

Value of information and mobility constraints for sampling with mobile sensors — Daniela Ballari, Sytze de Bruin, Arnold K. Bregt

GPR simulation based on complex frequency shifted recursive integration PML boundary of 3D high order FDTD — Jing Li, Zhaofa Zeng, Ling Huang, Fengshan Liu

Improved segmentation of X-ray tomography data from porous rocks using a dual filtering approach — D. Mütter, S. Pedersen, H.O. Sørensen, R. Feidenhansl, S.L.S. Stipp

Orientation domains: A mobile grid clustering algorithm with spherical corrections — Joana Mencos, Oscar Gratacós, Mercé Farré, Joan Escalante, Pau Arbués, Josep Anton Muñoz

Methodology of organic-rich shale lithofacies identification and prediction: A case study from Marcellus Shale in the Appalachian basin — Guochang Wang, Timothy R. Carr

Social Water — A crowdsourcing tool for environmental data acquisition — Michael N. Fienen, Christopher S. Lowry

Geophysical model enhancement technique based on blind deconvolution — Boxin Zuo, Xiangyun Hu

A hybrid Laplace transform finite analytic method for solving transport problems with large Peclet and Courant numbers — Wenke Wang, Zhenxue Dai, Junting Li, Liling Zhou

Load Love numbers and Green's functions for elastic Earth models PREM, iasp91, ak135, and modified models with refined crustal structure from Crust 2.0 — Hansheng Wang, Longwei Xiang, Lulu Jia, Liming Jiang, Zhiyong Wang, Bo Hu, Peng Gao

TrishearCreator: A tool for the kinematic simulation and strain analysis of trishear fault-propagation folding with growth strata — Chun Liu, Hongwei Yin, Lili Zhu

Spectral and cross-spectral analysis of uneven time series with the smoothed Lomb-Scargle periodogram and Monte Carlo evaluation of statistical significance — Eulogio Pardo-Igúzquiza, Francisco J. Rodríguez-Tovar

Inverse methods for modeling non-rigid plate kinematics: Application to mesozoic plate reconstructions of the Central Atlantic — Erik A. Kneller, Christopher A. Johnson, Garry D. Karner, Jesse Einhorn, Thomas A. Queffelec



ESVC-based extraction and segmentation of texture features — Jingan Yang, Yanbin Zhuang, Feng Wu

Numerical simulation of inclination shallowing by rolling and slipping of spherical particles — J. Jezek, S. Gilder, D. Bilardello

REGCONT: A Matlab based program for stable downward continuation of geophysical potential fields using Tikhonov regularization — Pasteka R., Karcol R., Kusnirák D., Mojzes A.

An efficient finite volume model for shallow geothermal systems. Part I: Model formulation — M. Nabi, R. Al-Khoury

An efficient finite volume model for shallow geothermal systems. Part II: Verification, validation and grid convergence — M. Nabi, R. Al-Khoury

A modified basal outlining algorithm for identifying topographic highs from gridded elevation data, Part I: Motivation and methods — DelWayne R. Bohnenstiehl, Julia K. Howell, Scott M. White, Richard N. Hey

GeoSys.Chem: Estimate of reservoir fluid characteristics as first step in geochemical modeling of geothermal systems — Mahendra P. Verma

Implementation of a feature-constraint mesh generation algorithm within a GIS — Thomas J. Heinzer, M. Diane Williams, Emin C. Dogrul, Tariq N. Kadir, Charles F. Brush, Francis I. Chung

ES4LUCC: A GIS-tool for remotely monitoring landscape dynamics — Giovanni Forzieri, Alessandro Battistini, Filippo Catani

MSAT — A new toolkit for the analysis of elastic and seismic anisotropy — Andrew M. Walker, James Wookey

MARD — A moving average rose diagram application for the geosciences — Mark A. Munro, Thomas G. Blenkinsop

MLR and ANN models of significant wave height on the west coast of India — Senay Asma, Ahmet Sezer, Ozer Ozdemir

COSMOS: A lightweight coastal video monitoring system — Rui Taborda, Ana Silva

Reactive transport model and apparent Kd of Ni in the near field of a HLW repository in granite — Chuanhe Lu, Javier Samper, José Luis Cormanena, Hongyun Ma, Luis Montenegro, Miguel Ángel Cuñado

A modified basal outlining algorithm for identifying topographic highs in gridded elevation data, part 2: Application to Springerville Volcanic Field — Julia K. Howell, Scott M. White, DelWayne R. Bohnenstiehl

Symplectic partitioned Runge-Kutta methods for two-dimensional numerical model of ground penetrating radar — Hongyuan Fang, Gao Lin

AnisDep: A FORTRAN program for the estimation of the depth of anisotropy using spatial coherency of shear-wave splitting parameters — Stephen S. Gao, Kelly H. Liu

#### Short Notes

HokieFlinx\_H2O-NaCl: A Microsoft Excel spreadsheet for interpreting microthermometric data from fluid inclusions based on the PVTX properties of H2O-NaCl — Matthew Steele-MacInnis, Pilar Lecumberri-Sanchez, Robert J. Bodnar

CSDToolbox 1.0: A MATLAB program for the analysis of crystal-size distribution of large datasets — Ludovic P. Ricard, Béline M. Godel, Jean-Baptiste Chanu

Corrigendum to “Underground flow simulations using parallel finite element method” [Computers & Geosciences 36 (2010) 161-166] — H. Mustapha, A. Ghorayeb, K.A. Mustapha

#### C&G Volume 50 (January 2013)

A special issue on benchmark problems, datasets and methodologies for the computational geosciences — Jef Caers

Hierarchical benchmark case study for history matching, uncertainty quantification and reservoir characterisation — D. Arnold, V. Demyanov, D. Tatum, M. Christie, T. Rojas, S. Geiger, P. Corbett

Extended Brugge benchmark case for history matching and water flooding optimization — E. Peters, Y. Chen, O. Leeuwenburgh, D.S. Oliver

Digital rock physics benchmarks—Part I: Imaging

and segmentation — Heiko Andrä, Nicolas Combaret, Jack Dvorkin, Erik Glatt, Junehee Han, Matthias Kabel, Youngseuk Keehm, Fabian Krzikalla, Minhui Lee, Claudio Madonna, Mike Marsh, Tapan Mukerji, Erik H. Saenger, Ratnanabha Sain, Nishank Saxena, Sarah Ricker, Andreas Wiegmann, Xin Zhan

Digital rock physics benchmarks—part II: Computing effective properties — Heiko Andrä, Nicolas Combaret, Jack Dvorkin, Erik Glatt, Junehee Han, Matthias Kabel, Youngseuk Keehm, Fabian Krzikalla, Minhui Lee, Claudio Madonna, Mike Marsh, Tapan Mukerji, Erik H. Saenger, Ratnanabha Sain, Nishank Saxena, Sarah Ricker, Andreas Wiegmann, Xin Zhan

Benchmark hydrogeophysical data from a physical seismic model — Juan M. Lorenzo, David E. Smolkin, Christopher White, Shannon R. Chollett, Ting Sun

Particle-tracking simulations of anomalous transport in hierarchically fractured rocks — Delphine Roubinet, Jean-Raynald de Dreuzy, Daniel M. Tartakovsky

Synthetic benchmark for modeling flow in 3D fractured media — Jean-Raynald de Dreuzy, Géraldine Pichot, Baptiste Poirriez, Jocelyne Erhel

Benchmarking a Visual-Basic based multi-component one-dimensional reactive transport modeling tool — Jagadish Torlapati, T. Prabhakar Clement

Evolutionary-based approaches for determining the deviatoric stress of calcareous sands — Habib Shahnazari, Mohammad A. Tutunchian, Reza Rezvani, Fatemeh Valizadeh

Benchmarking FEniCS for mantle convection simulations — L. Vynnytska, M.E. Rognes, S.R. Clark

Rock bench: Establishing a common repository and standards for assessing rockmass characteristics using LiDAR and photogrammetry — M. Lato, J. Kemeny, R.M. Harrap, G. Bevan

Using semivariogram indices to analyse heterogeneity in spatial patterns in remotely sensed images — A. Balaguer-Beser, L.A. Ruiz, T. Hermosilla, J.A. Recio

Uncertainty in ecosystem mapping by remote sensing — Duccio Rocchini, Giles M. Foody, Harini Nagendra, Carlo Ricotta, Madhur Anand, Kate S. He, Valerio Amici, Birgit Kleinschmit, Michael Förster, Sebastian Schmidlein, Hannes Feilhauer, Anne Ghisla, Markus Metz, Markus Neteler

Nonlinear regression in environmental sciences by support vector machines combined with evolutionary strategy — Aranildo R. Lima, Alex J. Cannon, William W. Hsieh

Hydrologic information server for benchmark precipitation dataset — John A. McEnery, Paul W. McKee, Gregory P. Shelton, Ryan W. Ramsey

Comparison of inference methods for estimating semivariogram model parameters and their uncertainty: The case of small data sets — Eulogio Pardo-Igúzquiza, Peter A. Dowd

Is compositional data analysis a way to see beyond the illusion? — Antonella Buccianti

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Updating multipoint simulations using the ensemble Kalman filter — L.Y. Hu, Y. Zhao, Y. Liu, C. Scheepens, A. Bouchard

Improving the determination of the gravity rate of change by combining superconducting with absolute gravimeter data — Michel J. Van Camp, Olivier de Viron, Richard J. Warburton

Using periodic analytic elements to analyze aquifer tests near surface waters — Vic Kelson, Mark Bakker

Appropriate formulation of the objective function for the history matching of seismic attributes — E. Tillier, S. Da Veiga, R. Derfoul

Environmental applications of camera images calibrated by means of the Levenberg-Marquardt method — J.C. Pérez MuOoz, C.A. Ortiz Alarcón, A.F. Osorio, C.E. Mejía, R. Medina

New pole-searching algorithm with applications to probabilistic circular slope stability assessment — Jui-Pin Wang, Zijiang Yang, Duruo Huang

Modeling rainfall-runoff process using soft computing techniques — Ozgur Kisi, Jalal Shiri, Mustafa Tombul

Accounting for non-exclusivity in sequential indicator simulation of categorical variables — Olena Babak, John G. Manchuk, Clayton V. Deutsch

Transfer of height datum across seas using GPS leveling, gravimetric geoid and corrections based on a polynomial surface — Xingsheng Deng, Xianghong Hua, Yangsheng You

Un-decimated discrete wavelet transform based algorithm for extraction of geomagnetic storm sudden commencement onset of high resolution records — Ali G. Hafez, Essam Ghamry, Hideki Yayama, Kiyohumi Yumoto

Numerical modeling of extensional sedimentary basin formation with MATLAB: Application to the northern margin of the South China Sea — Lin Chen, Zhongjie Zhang, Haibin Song, Fei Li, Dieter Franke

Particle shape analysis of volcanic clast samples with the Matlab tool MORPHEO — Isabelle Charpentier, Damiano Sarcocchi, Luis Angel Rodriguez Sedano

A new method for automatic discontinuity traces sampling on rock mass 3D model — G. Umili, A. Ferrero, H.H. Einstein

Assessing modern ground survey methods and airborne laser scanning for digital terrain modelling: A case study from the Lake District, England — Michal Gallay, Christopher D. Lloyd, Jennifer McKinley, Lorraine Barry

Adapting an existing visualization application for browser-based deployment: A case study from the Tropical Rainfall Measuring Mission — Owen A. Kelley

Ultimate open pit stochastic optimization — Denis Marcotte, Josiane Caron

Preferential filtering for gravity anomaly separation — Lianghui Guo, Xiaohong Meng, Zhaoxi Chen, Shuling Li, Yuanman Zheng

Using state parameter to improve numerical prediction of a generalized plasticity constitutive model — Somaye Sadeghian, Manouchehr Latifi Namin

Automatic fault tracking based on ant colony algorithms — Zhe Yan, Hanming Gu, Chengguo Cai

Selection of time-variant features for earthquake classification at the Nevado-del-Ruiz volcano — David Cárdenas-PeOa, Mauricio Orozco-Alzate, German Castellanos-Dominguez

The prediction of the critical factor of safety of homogeneous finite slopes using neural networks and multiple regressions — Yusuf Erzin, Tulin Cetin

FDTD3C—A FORTRAN program to model multi-component seismic waves for vertically heterogeneous attenuative media — Arash JafarGandomi, Hiroshi Takenaka

A comparative study on the predictive ability of the decision tree, support vector machine and neuro-fuzzy models in landslide susceptibility mapping using GIS — Biswajeet Pradhan

A new inversion method for (T2, D) 2D NMR logging and fluid typing — Maojin Tan, Youlong Zou, Cancan Zhou

Web-based tool for expert elicitation of the variogram — Phuong N. Truong, Gerard B.M. Heuvelink, John Paul Gosling

An efficient computational model for deep low-enthalpy geothermal systems — Sanaz Saaid, Rafid Al-Khoury, Frans Barends

Developing and programming a watershed traversal algorithm (WTA) in GRID-DEM and adapting it to hydrological processes — Jesús Mateo Lázaro, José Ángel Sánchez Navarro, Alejandro García Gil, Vanesa Edo Romero

Octree-based indexing for 3D pointclouds within an Oracle Spatial DBMS — Bianca Schön, Abu Saleh Mohammad Mosa, Debra F. Laefer, Michela Bertolotto

ScanSAR interferometric processing using existing standard InSAR software for measuring large scale land deformation — Cunren Liang, Qiming Zeng, Jianying Jia, Jian Jiao, Xi ai Cui

On analysis-based two-step interpolation methods for randomly sampled seismic data — Pengliang Yang, Jinghuai Gao, Wenchao Chen

## Application Articles

MOSAICO, a library for raster based hydrological applications — Giovanni Ravazzani

Weather services products generation system based on GIS geoprocessing — Huanping Wu, Wei Tang, Bing Luo, Zhongliang Lv

CGDK: An extensible CorelDRAW VBA program for geological drafting — Jun-Ting Qiu, Wan-Jiao Song, Cheng-Xin Jiang, Han Wu, Raymond M. Dong

Construction of accurate geological cross-sections along trenches, cliffs and mountain slopes using photogrammetry — Santiago Martín, Hodei Uzqueda, Josep Poblet, Mayte Bulnes, Ramón Rubio

A web-based, relational database for studying glaciers in the Italian Alps — G. Nigrelli, M. Chiarle, A. Nuzzi, L. Perotti, G. Torta, M. Giardino

Development of computer automated decision support system for surface water quality assessment — Asheesh Sharma, Madhuri Naidu, Aabha Sargaonkar

Spherical projections with OSXStereonet — Nestor Cardozo, Richard W. Allmendinger

The development of a GIS methodology to assess the potential for water resource contamination due to new development in the 2012 Olympic Park site, London — A.P. Marchant, V.J. Banks, K.R. Royse, S.P. Quigley

Accelerating the discontinuous Galerkin method for seismic wave propagation simulations using the graphic processing unit (GPU)—single-GPU implementation — Dawei Mu, Po Chen, Liqiang Wang

Interactive approach for GIS-based earthquake scenario development and resource estimation (Karmania hazard model) — Reza Hassanzadeh, Zorica Nedovi-Budi, Akbar Alavi Razavi, Mohsen Norouzzadeh, Hasan Hodhodkian

Borehole and Ice Feature Annotation Tool (BIFAT): A program for the automatic and manual annotation of glacier borehole images — Terry Malone, Bryn Hubbard, Derek Merton-Lyn, Paul Worthington, Reyer Zwiggelaar

## Short Notes

Py6S: A Python interface to the 6S radiative transfer model — R.T. Wilson

AIFCCalc: An Excel spreadsheet for modeling simultaneous assimilation and imperfect fractional crystallization — Koshi Nishimura

DBCreate: A SUPCRT92-based program for producing EQ3/6, TOUGHREACT, and GWB thermodynamic databases at user-defined T and P — Xiang-Zhao Kong, Benjamin M. Tutolo, Martin O. Saar

A review of earth observation using mobile personal communication devices — Colin J. Ferster, Nicholas C. Coops

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A MacCormack-TVD finite difference method to simulate the mass flow in mountainous terrain with variable computational domain — Chaojun Ouyang, Siming He, Qiang Xu, Yu Luo, Wencheng Zhang

Extraction of loess shoulder-line based on the parallel GVF snake model in the loess hilly area of China — Xiaodong Song, Guoan Tang, Fayuan Li, Ling Jiang, Yi Zhou, Kejian Qian

Development of a web GIS application for emissions inventory spatial allocation based on open source software tools — Dimitrios Gkatzoflias, Giorgos Mellios, Zissis Samaras

GPU-based roofs' solar potential estimation using LiDAR data — Niko Lukac, Borut Zalok

Parallelized ensemble Kalman filter for hydraulic conductivity characterization — Teng Xu, J. Jaime Gómez-Hernández, Liangping Li, Haiyan Zhou

Neuro-fuzzy and neural network techniques for forecasting sea level in Darwin Harbor, Australia — Sepideh Karimi, Ozgur Kisi, Jalal Shiri, Oleg Makarynsky

Wavelet analysis in determination of reservoir fluid contacts — Mohammad Heidary, Abdolrahim Javaherian

Automated HRSI georegistration using orthoimage and SRTM: Focusing KOMPSAT-2 imagery — Jaehong Oh, Changno Lee, Doo Chun Seo

Lattice-based clustering and genetic programming for coordinate transformation in GPS applications — Chih-Hung Wu, Wei-Han Su

Learning-based computing techniques in geoid modeling for precise height transformation — B. Erol, S. Erol

ArcNLET: A GIS-based software to simulate groundwater nitrate load from septic systems to surface water bodies — J. Fernando Rios, Ming Ye, Liying Wang, Paul Z. Lee, Hal Davis, Rick Hicks

Planning additional drilling campaign using two-space genetic algorithm: A game theoretical approach — Mustafa Kumral, Umit Ozer

Polyline averaging using distance surfaces: A spatial hurricane climatology — Kelsey N. Scheitlin, Victor Mesev, James B. Elsner

Evaluating the suitability of the EGM2008 geopotential model for the Korean peninsula using parallel computing on a diskless cluster — Seongkyu Lee, Chulung Choi, Jinsoo Kim

A residence-time-based transport approach for the groundwater pathway in performance assessment models — Bruce A. Robinson, Shaoping Chu

Application of the inundation area—lake level rating curves constructed from the SRTM DEM to retrieving lake levels from satellite measured inundation areas — Feifei Pan, Jingjuan Liao, Xinwu Li, Huadong Guo

Extension of a GIS procedure for calculating the RUSLE equation LS factor — Hongming Zhang, Qinke Yang, Rui Li, Qingrui Liu, Demie Moore, Peng He, Coen J. Ritsema, Violette Geissen

A fully-automated image processing technique to improve measurement of suspended particles and flocs by removing out-of-focus objects — Ali Keyvani, Kyle Strom

Acceleration of stable TTI P-wave reverse-time migration with GPUs — Youngseo Kim, Yongchae Cho, Ugeun Jang, Changsoo Shin

The ANU GRACE visualisation web portal — Neda Darbeheshti, Li Zhou, Paul Tregoning, Simon McClusky, Anthony Purcell

An automatic method to create flow lines for determination of glacier length: A pilot study with Alaskan glaciers — Raymond Le Bris, Frank Paul

Neural network modeling and prediction of resistivity structures using VES Schlumberger data over a geothermal area — Upendra K. Singh, R.K. Tiwari, S.B. Singh

Algorithms for quantitative pedology: A toolkit for soil scientists — D.E. Beaudette, P. Roudier, A.T. O'Geen

A stable downward continuation of airborne magnetic data: A case study for mineral prospectivity mapping in Central Iran — Maysam Abedi, Ali Gholami, Gholam-Hossain Norouzi

Computer-aided image geometry analysis and subset selection for optimizing texture quality in photorealistic models — Aleksandra Anna Sima, Xavier Bonaventura, Miquel Feixas, Mateu Sbert, John Anthony Howell, Ivan Viola, Simon John Buckley

Compute unified device architecture (CUDA)-based parallelization of WRF Kessler cloud microphysics scheme — Jarno Mielikainen, Bormin Huang, Jun Wang, H.-L. Allen Huang, Mitchell D. Goldberg

Multi-tree Coding Method (MCM) for drainage networks supporting high-efficient search — Hao Wang, Xudong Fu, Guangqian Wang

A practical guide to performing multiple-point statistical simulations with the Direct Sampling algorithm — Eef Meerschman, Guillaume Pirot, Gregoire Mariethoz, Julien Straubhaar, Marc Van Meirvenne, Philippe Renard

Extracting paleoclimate signals from sediment laminae: An automated 2-D image processing method — Stoney Q. Gan, Christopher A. Scholz

Underground slope optimization with network flow method — Xiaoyu Bai, Denis Marcotte, Richard Simon

A computational tool for ionosonde CADI's ionogram analysis — Valdir Gil Pillat, Lamartine Nogueira Frutuoso Guimarães, Paulo Roberto Fagundes, José Demisio Simies da Silva

Topological inversion in geodesy-based, non-linear problems in geophysics — Vasso Saltogianni, Stathis C. Stiros

Efficient occlusion-free visualization for navigation in mountainous areas — Hao Deng, Liqiang Zhang, Chunming Han, Yingchao Ren, Liang Zhang, Jonathan Li

Application of the analytical hierarchy process (AHP) for landslide susceptibility mapping: A case study from the Tinau watershed, west Nepal — P. Kayastha, M.R. Dhital, F. De Smedt

The viStaMPS tool for visualization and manipulation of time series interferometric results — Joaquim J. Sousa, Luis G. Magalhães, Antonio M. Ruiz, António M.R. Sousa, Gil Cardoso

Long term forecasting of groundwater levels with evidence of non-stationary and nonlinear characteristics Original — R Maheswaran, Rakesh Khosa

A useful automated rainfall-runoff model for engineering applications in semi-arid regions — Mohamed A. Gad

DISRAY: A distributed ray tracing by map-reduce — Afsaneh Mohammadzadeh, Hossein Sadeghi, Sayyed Keivan Hosseini, Mahdi Navazandeh

Pollution models and inverse distance weighting: Some critical remarks — Louis de Mesnard

SIPPI: A Matlab toolbox for sampling the solution to inverse problems with complex prior information: Part 1—Methodology — Thomas Mejer Hansen, Knud Skou Cordua, Majken Caroline Looms, Klaus Mosegaard

SIPPI: A Matlab toolbox for sampling the solution to inverse problems with complex prior information: Part 2—Application to crosshole GPR tomography — Thomas Mejer Hansen, Knud Skou Cordua, Majken Caroline Looms, Klaus Mosegaard

## Application Articles

GeoDADIS: A framework for the development of geographic data acquisition and dissemination servers — S. Villarroja, J.R.R. Viqueira, J.M. Cotos, J.C. Flores

Seismic hazard analyses for Taipei city including deaggregation, design spectra, and time history with excel applications — Jui-Pin Wang, Duruo Huang, Chin-Tung Cheng, Kuo-Shin Shao, Yuan-Chieh Wu, Chih-Wei Chang

Prediction of mining subsidence under thin bedrocks and thick unconsolidated layers based on field measurement and artificial neural networks — Weifeng Yang, Xiaohong Xia

Doing fieldwork on the seafloor: Photogrammetric techniques to yield 3D visual models from ROV video — Tom Kwasnitschka, Thor H. Hansteen, Colin W. Devey, Steffen Kutterolf

Solid modeling techniques to build 3D finite element models of volcanic systems: An example from the Rabaul Caldera system, Papua New Guinea — Erika Ronchin, Timothy Masterlark, Joan Martí Molist, Steve Saunders, Wei Tao

Mobile capture of remote points of interest using line of sight modelling — Sam Meek, Gary Priestnall, Mike Sharples, James Goulding





AAPG 2014 Annual Convention & Exhibition, Houston, Texas,

**6 - 9 April 2014.** <http://www.aapg.org/houston2014/>

European Geosciences Union (EGU), General Assembly, Vienna, Austria,

**27 April - 2 May 2014.** <http://www.egu2014.eu/>

International Society for Rock Mechanics (ISRM) EUROCK 2014 - ISRM European Regional Symposium on Rock Engineering and Rock Mechanics Structures in and on the Rock Mass, Vigo, Spain, **27 - 29 May 2014.** <http://www.eurock2014.com>

WORLD LANDSLIDE Forum III: "Landslide Risk Mitigation Towards a Safer Geo-Environment", Beijing, **2 - 6 June 2014.**

<http://iplhq.org/category/iplhq/world-landslide-forum-iii/>

Storm Warning. Water, Energy and Climate Security in a Changing World. Beijing, China, **14 - 17 June 2014.** <http://www.iseis.org/sw2014/>

76th EAGE Conference & Exhibition Amsterdam, Netherlands,

**16 - 19 June 2014.** <http://www.eage.org/events>

GEOMAP Workshop - Practical Aspects of Geochemical Exploration and Mapping with Logratio Techniques, Olomouc (Czech Republic),

**17-20 June 2014.** <http://geomap.data-analysis.at>,

E-mail [geomap2014@gmail.com](mailto:geomap2014@gmail.com) (see also description on the right)

14th SGEM 2014 International Multidisciplinary Scientific Geoconference, Varna City, Bulgaria, **17 - 26 June 2014.** <http://www.sgem.org/>

5th International Conference on Porous Media and Its Applications in Science, Engineering and Industry. Engineering Conferences International (Interpore). Kona, Hawaii, USA, **22 - 27 June 2014.** Phone 1-212-514-6760, fax: 1-212-514-6030, email: [info@engconfintl.org](mailto:info@engconfintl.org)

GI\_Forum 2014 - Geospatial Innovation for Society. Salzburg, Austria, **1 - 4 July 2014.** Details: [www.gi-forum.org](http://www.gi-forum.org), contact: [office@gi-forum.org](mailto:office@gi-forum.org)

geoENV2014 10th International Conference on Geostatistics for Environmental Applications, Paris, France, **9 - 11 July 2014.**

<http://www.geoenv2014.org>, E-mail: [contact@geoenv2014.org](mailto:contact@geoenv2014.org)

2014 Joint Statistical Meetings, Boston, Massachusetts, **2 - 7 August 2014.** <http://www.amstat.org/meetings/jsm.cfm>. Proposed IAMG sponsored session on Statistical Analysis of Compositional Data.

3rd YES Congress - Young Earth Scientists (YES) Network, Dar es Salaam, Tanzania, **11 - 14 August 2014.** <http://iugs.org/uploads/First%20Circular%203rd%20YES%20Congress.pdf>

GeoMod2014 - Modelling in Geoscience, Berlin, Germany,

**31 August - 5 September 2014.**

Contact: [geomod@gfz-potsdam.de](mailto:geomod@gfz-potsdam.de), <http://geomod2014.gfz-potsdam.de/>

International Symposium on Geomechanics from Micro to Macro (IS-Cambridge TC105), University of Cambridge, Cambridge, United Kingdom, **1 - 3 September 2014.** <http://is-cambridge.eng.cam.ac.uk/>

Modern INFORMATION TECHNOLOGIES in the Earth Sciences, Petropavlovsk on Kamchatka, **8-13 September 2014.** <http://kamchatka2014.fegi.ru/>

International Conference "GeoFrankfurt 2014 - Earth System Dynamics", Goethe-Universität Frankfurt, Germany, **21 - 24 September 2014.** <http://www.geofrankfurt2014.com/>

IAMG 2014 Annual Conference, Jawaharlal Nehru University, New Delhi, India. **17-20 October 2014.** <http://www.jnu.ac.in/Conference/IAMG2014>  
Phone: +91-9910629336, E-mail: [iamg14@yahoo.com](mailto:iamg14@yahoo.com) or [iamg0014@gmail.com](mailto:iamg0014@gmail.com)

GSA Annual Meeting Vancouver, BC, Canada, **19-22 October 2014.** <http://www.geosociety.org/meetings/2014/>

AGU Fall Meeting, San Francisco, California, **15 - 19 December 2014.** <http://sites.agu.org/meetings>

International Statistical Institute, 60th ISI World Statistics Congress, Rio de Janeiro, Brazil, **27 - 31 July 2015.** ISI Permanent Office, P.O. Box 24070, 2490 AB The Hague, The Netherlands. Phone: +31-70-3375737, Fax: +31-70-3860025, E-mail: [isi@cbs.nl](mailto:isi@cbs.nl)

2015 Joint Statistical Meetings, Seattle, Washington, Washington State Convention & Trade Center, **8 - 13 August 2015.** <http://www.amstat.org/meetings/jsm.cfm>

## GeoMap (CoDA) Workshop in Olomouc

The first international Workshop on Practical Aspects of Geochemical Exploration and Mapping with Logratio Techniques, will be held from **June 17-20, 2014** in Olomouc (Czech Republic). This workshop offers a practical forum of discussion for people concerned with the statistical treatment, modelling and interpolation of compositional data in geochemical applications, particularly focused on geochemical exploration and mapping. The workshop will mainly consist of a series of invited lectures on the problems of geochemical mapping, followed by discussions on each of the compositional topics raised. The goal of the workshop is to build teams to attack each of these specific topics and to provide enough time space for panel discussions. GeoMap will touch a wide variety of problems and opportunities that the log-ratio approach to compositional data analysis brings to regional geochemistry contexts. Particularly, the main specific feature of the workshop will be discussions for concrete problem solving and team building. Complementary contributions of participants from the fields of interest of the workshop are warmly welcome, especially if they portray unsolved problems. All participants should be somewhat familiar with the log-ratio approach to compositional data analysis (otherwise, an introductory or an intermediate course may be provided). Members of the Program Committee are renowned experts in the field, like Past-President of IAGC (International Association of GeoChemistry) Dr. Clemens Reimann and Vice-President of IAMG Dr. Raimon Tolosana-Delgado. This will guarantee a high quality of the scientific program. One of the keynote speakers will be Dr. Eric Grunsky from the Geological Survey of Canada, recently elected as Distinguished Lecturer of IAMG for the year 2014. For participants of the workshop, also a social program in the wonderful and scenic city of Olomouc, the second largest (after Prague) National Historic Reserve in the Czech Republic, will be prepared. GeoMap 2014 aims to gather scientists from geochemistry, chemometrics and compositional data analysis to discuss the current challenges and opportunities presented by the application of logratio statistical methods to regional geochemistry. Those who are interested in getting more information are invited to visit <http://geomap.data-analysis.at>.

*Raimon Tolosana-Delgado*  
(Helmholtz-Institute Freiberg for Resource Technology)  
Chair of the Program Committee

*Karel Hron* (Palacky University Olomouc)  
Chair of the Organizing Committee



## Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment: Challenges, Processes and Strategies

Note from N. Janardhana Raju, (Chairman), Jawaharlal Nehru University, India:

"We have updated fully our website [jnu.ac.in/Conference/IAMG2014](http://jnu.ac.in/Conference/IAMG2014) and registration is also open. I have personally visited some south Indian institutes for the vast circulation of the IAMG2014.

I have booked 6 halls in the JNU Auditorium for the parallel sessions. All rooms are at one place, side by side. Recently JNU has constructed this huge complex for the conferences.



- 1) Three lecture halls at the capacity of around 100 persons
- 2) Two auditoriums at the capacity of 370 and 3200 persons
- 3) Committee room at the capacity of around 110 persons."

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## CALL FOR PAPERS

### Earth Science Informatics Special Issue - Semantic e-Science

Guest Editors:

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Science has fully entered a new mode of operation. E-science, defined as a combination of science, informatics, computer science, cyberinfrastructure and information technology, is changing how people in science disciplines conduct both individual and collaborative work. As e-Science flourishes and the barriers to data are being lowered, other more challenging questions are emerging, such as, "How do I use this data that I did not generate?" or "How do I use this data type, which I have never seen, together with the data I use every day?" or "What should I do if I really need data from another discipline but I cannot understand its terms?" As the volume, complexity, and heterogeneity of data resources grow, scientists increasingly need new capabilities that rely on "semantic" approaches (e.g., in the form of ontologies and vocabularies—machine encodings of terms, concepts, and relations among them) to help understand the meaning of data. The field of semantic e-Science fosters the growth and development of data-intensive scientific applications based on semantic methodologies and technologies, as well as related knowledge-based approaches. In recent years, semantic methodologies and technologies have been gaining momentum in e-Science areas such as solar-terrestrial physics, geology, ecology, oceanography, meteorology, and life sciences, to name a few. The developers

of e-Science infrastructures are increasingly in need of semantic-based methodologies, tools, and middleware. This infrastructure will in turn facilitate scientific knowledge modeling, logic-based hypothesis checking, semantic data integration, application composition, integrated knowledge discovery and data analysis for different scientific domains, and building systems for use by scientists, students, and, increasingly, non-experts.

This special issue invites research papers that demonstrate how semantic methodologies and technologies are currently meeting scientific or engineering goals in Earth and space science domains. Papers should highlight the innovative designs, methods or applications associated with the semantic technologies. Review papers presenting state-of-the-art knowledge about a subject in semantic e-Science and methodology and software papers about a new algorithm or software package are also welcome. Authors should prepare their papers following the instructions for authors provided by Earth Science Informatics. Papers should be submitted on-line indicating the special issue "Semantic e-Science". Authors may contact a guest editor about their intention to submit, including a short description of the intended submission. Earth Science Informatics is a widely indexed and circulated international journal: <http://www.springer.com/earth+sciences+and+geography/journal/12145>.

Dates:

Full papers due:

End of the first review cycle:

End of the second review cycle:

Tentative publication date:

Mar. 15, 2014

Jun., 2014

Aug., 2014

Second half of 2014