IAMG Newsletter

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Official Newsletter of the International Association for Mathematical Geosciences

Contents

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 Lectures Committee, Jennifer McKinley, by e-mail to: j.mckinley@qub.ac.uk

This year - 2014 - marks the 150th anniversary of the publication of Jules Vernes *Voyage au centre de la Terre*, the first (?) science fiction novel with a geologic subject. It seems almost like yesterday but time passes and some of us are getting older just like the literature. IAMG is 46 years old, and your Newsletter editor has been a member for 40 years (which is hard for me to believe).

From the Editor

Many of the founding members of IAMG and many of those who have been active for many years are still continuing with a full schedule. Secretary General Frits Agterberg, for example, seems to be as active as ever, traveling around the globe and publishing books (see page 6).

Jo Anne de Graffenreid, the long-time editor (since 1997) of the "Studies in Mathematical Geosciences" monograph series, published by Oxford University Press, is stepping down (see page 6) after finishing the latest book in the series by John Doveton on Mathematical Petrophysics. She is to be congratulated on her patient and painstaking work, producing six volumes of the series. Jo Anne is now looking for somebody to take over (you can contact her at msdeg@mchsi.com).

Fortunately, there is new blood, and younger colleagues are stepping up to carry on the necessary activities and initiate new projects. IAMG has various strong initiatives to attract new members among the new generation of geoscientists. IAMG's outreach program which has allied IAMG with YES (Young Earth Scientists) is a good way to bring in younger members - Wenlei Wang is our new representative and liaison. Our annual conference is attended by many young people and our Student Travel Grant program helps students financially to attend meetings. There are student research grants available from all three IAMG journals. And IAMG's effort to encourage new Student Chapters has shown success - University of Wyoming is the latest new chapter (page 8), and there seems to be a new chapter in the making in Bangalore, India. All together, there are now eight active Student Chapters in North America, Europe and China. And several former student members are now active in the Association.

So, let's welcome the rise of the young generation of scientists and make room for them in IAMG. Just like the geologic views of Jules Vernes have been replaced by more modern concepts, IAMG is trying to keep up with all kinds of new developments. It keeps the Association young and flexible, as seen in the many changes over the last few years in improved quality and size of meetings, better publications, increase (albeit slowly) of membership, and strategic thinking about the future of the organisation. And maybe, some day, someone will volunteer to take over the Newsletter or the website - just like Jim Carr did 25 years ago (page 8).

Harald S. Poelchau

The mission of the IAMG is to promote, worldwide, the advancement of mathematics, statistics and informatics in the Geosciences

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PRESIDENT'S FORUM

I am starting to write this forum in the airplane from Beijing to Toronto. This is my third trip between North America and Asia since the last year. Several tragedies that have recently occurred in Asia have been headlined in the media creating international mourning. The lost plane MH370 of Malaysia Airlines carried 239 passengers and is still under investigation in the Indian Ocean; the South Korean sinking ferry killed 280 people; the Afghan landslide took more than 2000 lives; the mine explosion in Turkey killed 301 workers; several large earthquakes occurred in Thailand and Japan; and serious smog air pollution occurs in many cities in India and China. One should learn from these events that the world has never needed international collaboration and technology development more than today. Providing the right information at the right time and place is critical to the decision-making. Delays or missing information can cause irreversible problems. Geomathematical and geoinformatical approaches developed in the Mathematical Geosciences, such as data integration methods, image processing models, geostatistical modeling and 3D GIS typically used for mapping purposes are certainly also applicable to help solve these types of hazard problems. For example, various remotely sensed images have been used for identifying debris at the ocean surface and hyperspectral remote sensing techniques were employed by a mineral exploration company to map trace element dispersion patterns, helping to identify geochemical anomalies potentially caused by the lost MH370 flight. Geomathematical models in conjunction with web-hosted geoinformatical techniques will play an increasingly essential role in processing geoscientific "big data" for tackling the complex geo-problems facing our society. The question is how MG can become more adaptive as geoinformatics is developed further with production of "big data", and how MG can embrace the results by becoming more powerful and valuable for our society?

As globalization becomes today's main focus of society, the intersection of the visions of international associations may converge to establish a new trend of science and society. IUGS promotes a new initiative of Resourcing Future Generations (RFG). It encourages activities for better understanding of the subsurface earth system and facilitating generation and utilization of "big data" for supporting mineral exploration in frontier regions for concealed resources. UNESCO and IUGS have reformed the international geological correlation program (IGCP) and Geopark program that, in addition to its networking aspects, encourages interdisciplinary research focused on interfacing problems of earth systems. Most of the singular processes and extreme events related to energy and mineral resources, environmental pollution and geohazards are occurring at the interfaces of earth systems because of polarization effects. Some nations' energy and minerals strategies, such as those in the US and China, emphasize the increasing usage of energy and minerals and increasing importance of environmental stewardship, human health and sustainable development which collectively are driving the demand for broader scientific understanding of resources formation, location and availability. This, in turn, requires cutting-edge science for the societal decisions of the next generation. Tackling these types of complex resource-related and environmental problems requires a new science framework that can integrate geological, geochemical, geophysical, and bio-geological theory with advanced geoinformatical technology and sophisticated geomathematical methods capable of effectively gathering, storing, analyzing, presenting, and interpreting the various types of "big data" gathered in large volumes and at great speed. Therefore, IAMG faces great challenges and opportunities for integrating mathematics, informatics and geoscience to facilitate transformation of digital Earth into intelligent Earth.

This year, our members are involved in numerous activities interacting with other associations. Just naming a few: a workshop on core technology for Glass Earth co-chaired and attended by Dengren Li, Pengda Zhao, Chonglong Wu and Qiuming Cheng in Beijing April 16-18; a workshop on Big Data and Mineral Resource Assessment for Giant Mineral Deposits co-chaired by Xuanxue Mo and Yongqing Chen May 25; the GeoMAP workshop chaired by Karel Hron to be held in Olomouc, Czech Republic June 17-20; an Invited Paper Session on Composite Data Analysis convened by Eric Grunsky at the Joint Statistical Societies conference to be held in Boston; two sessions of "Neural Networks in Geophysics" proposed by Ute Herzfeld and "Computational Intelligence in Earth and Space Science" by Xiaogang Ma for the AGU fall meeting; 13th International Symposium on Mineral Exploration (ISME-XIII) chaired by Noriyoshi Tsuchiva to be held at the Vietnam National University, September 22-24; a national conference on Mathematical Geology and Geoinformatics chaired by

Yongguo Yang to be jointly organized by the IAMG Chinese Section (IAMG-CN) in Xuzhou, China, October 10-12; and a workshop on Mathematical Frontier and Concealed Mineral Resources co-chaired by Guangsheng Yan and Qiuming Cheng to be held at the China Geological Survey, October 8-10.

IAMG continues to encourage and support students and early career researchers for dedication to MG. I thank both Mr. Meng Wang, the President of Young Earth Scientists (YES), and Dr. Tanvi Arora, the general secretary of YES, for strengthening ties between IAMG and YES. Dr. Wenlei Wang was assigned as the IAMG representative to communicate with YES on further activities. A sub-theme session on "Geomathematical data integration and spatial analysis for resource strategic issues" proposed by Wenlei Wang with Frits Agterberg's assistance has been accepted by the 3rd Young Earth Scientists (YES) Congress. IAMG continues to offer its student and young researcher travel grants and the grants associated with our three journals. The deadline for applications was May 31 but I encourage all students and postdoctoral fellows who may be interested to submit their applications for next year. The winners will be congratulated at the IAMG annual conference.

Our student chapters have become an important type of network associating young members with the IAMG and providing useful platforms for IAMG activities. I should express my sincere gratitude to the IAMG Stanford Student Chapter for organizing the seminar and celebrating party honoring Professor John Harbaugh, the newest IAMG Honorary member at the Department of Geosciences of Stanford, during the AGU fall meeting. There is a proposal from Bangalore for a new student chapter in India. IAMG student chapters will become new associate grids of YES network.

I am very pleased with the Organizing Committee of IAMG2014, chaired by N. Janardhana Raju, who has informed the Executive, via the Meetings Committee, that more than 350 abstracts have been received before the extended deadline. IAMG2014 promises to be most successful this year. Plenary lectures including IAMG awardees' have been scheduled. Business meetings for IAMG committees including Council Meeting and General Assembly are being arranged to be held during the conference. During my trip to India last February, I visited the IAMG2014 conference site and met with Professor N. Janardhana Raju and his LOC team at Jawaharlal Nehru University. I thank Dr. Raju and his team for their hospitality and hard work on preparation for IAMG2014. I must say that the LOC team has done their best to ensure excellent preparation for our annual conference. The Conference Centre looks excellent and sufficient for hosting the conference. The logistics have been carefully thought out by Professor Raju and his team. The authors who submitted abstracts to IAMG2014 must already have been provided with invitation letters from the LOC for Visa application. I suggest those who need an Indian Visa for coming to New Delhi to apply well in advance to ensure enough processing time.

The IAMG Awards Committee (AC) chaired by Dr. Jack Schuenemeyer has selected two excellent winners for the two awards to be presented at IAMG2014. They are Dr. Jef Caers (U.S.) for the William Christian Krumbein Medal and Dr. Clayton V. Deutsch (Canada) for the John Cedric Griffiths Teaching Award. Both award winners will deliver keynote presentations at IAMG2014.

The IAMG Lectures Committee (LC) chaired by Dr. Jennifer McKinley (IAMG Executive VP) has selected Dr. Gerald van den Boogaart (Germany) as the 2014 George Matheron Lecturer, and Dr. Gordon Kaufman (MIT) as the Distinguished Lecturer. Both will make presentations at IAMG2014.

Aspects of further development of IAMG including publications have been discussed productively among the Executive, Council and other invited participants. In order to conduct a thorough analysis for long term planning, a new IAMG Future Publication Strategy Commission (chaired by June Hill) has been formed. The main objective and task of the new commission is to coordinate discussions about how to develop our publications including conference proceedings that benefit IAMG both by increasing scientific standards and financial profitability.

I wish you a pleasant summer and hope to meet some of you during the Asia Oceania Geosciences Society (AOGS) meeting in Japan from July 28 to August 2, the 3rd YES congress in Tanzania, August 16-20, ISME-XIII at Vietnam National University, September 22-24, the Chinese National Conference on Mathematical Geoscience in China October 8-12, and, last but not least, IAMG2014 in New Delhi October 16-20.

Qiuming Cheng

Association Business

Call for proposals of IAMG sessions at the 35th IGC in Cape Town, 2016

The IAMG will participate in the 35th International Geological Congress (IGC) that will take place in Cape Town, South Africa, from 27 August to 4 September 2016 http://www.35igc.org/.

This will be the 2nd IGC conference on the southern Africa subcontinent (the first was held in 1929, in Pretoria, South Africa) and the first IAMG conference in Africa and the first in South Africa.

Three Main Themes have been identified for the 35th IGC:
- Geology in Society
- Geology in the Economy
- Geology in Science

The meeting committee hereby invites IAMG members to propose sessions, short courses and workshops that fulfill the mission of the IAMG under the three main themes for the 35th IGC.

The mission of the IAMG is to promote, worldwide, the advancement of mathematics, statistics and informatics in the Geosciences.

Each proposal should include the following information:

(a) A concise descriptive title for the session/short course/workshop (in as few words as possible).

(b) A summary description/motivation of the session/workshop/short course (maximum of 250 words).

(c) Name and email of proposer, convener and co-conveners. The convener or at least a co-convener should be willing to attend the congress and capable to do it to the best of her/his knowledge.

Note: a session will usually contain 8-10 oral or poster presentations.

The IAMG want to ensure a large/noticeable IAMG presence and we need to get our sessions in early. The IAMG deadline for proposals is **1st September 2014**. Proposals should be send to christien.thiart@uct.ac.za . Please avoid sending zip files. We are guests at this conference so prompt action will ensure space!

Christien Thiart
IAMG, Special IGC Council member

2014 Krumbein and Griffiths Awards

The IAMG Awards Committee chaired by Jack Schuenemeyer has selected Dr. **Jef Caers** (U.S.) for the William Christian Krumbein Medal and Dr. **Clayton V. Deutsch** (Canada) for the John Cedric Griffiths Teaching Award. Both award winners will give keynote presentations at IAMG2014 in New Delhi.

New Commission: IAMG Future Publication Strategy

The IAMG Future Publication Strategy Commission was created last month. Council Member June Hill has agreed to chair this new commission. I will act as secretary and will maintain liaison with the Executive Committee that has approved the following terms of reference:

1) Publishing model for the IAMG

2) Funding model for the IAMG – journals or other sources of income?

3) Defining and maintaining publishing relationships

4) Define the view of future publishing in the IAMG based on various publishing models

5) Development of a contingency plan for loss of publishing revenue.

In addition to Chair, Secretary, and Eric Grunsky as Chair of the IAMG Publications Committee, the commission has four ordinary members, each specifically concerned with one of our sub-disciplines:

Vice President Raimon Tolosana-Delgado (compositional data analysis)
Vice President Julián Ortiz (geostatistics)
John H. (Jack) Schuenemeyer (mathematical statistics)
Council Member Liu Gang (geoinformatics and computer science)

Frits Agterberg, IAMG Secretary General

Honorary Life Member John Harbaugh

I was fortunate to encounter Prof. Qiuming Cheng when we both were at the AGU 2013 Fall Meeting in December. He invited me to join him and his PhD student Guoxiong Chen for a visit to Stanford University next day. A key issue of the visit was to award the IAMG Honorary Membership to Prof. John Harbaugh. We arrived at the Stanford campus on the afternoon and received a warm reception from the IAMG Student Chapter at Stanford. Qiuming first gave a guest lecture 'Singularity Theory and Methods for Mapping Mineral Potentials in Covered Areas'. Before presenting the Honorary Member plaque to Harbaugh,

Qiuming made a short speech and he mentioned John's help in his PhD study applications to USA and Canada. John was happy to receive the award, and he shared with the audience about the cooperation between a few IAMG senior members in the earlier days. John also brought several books authored or co-authored by him to the ceremony. On the front covers of these books I saw several familiar names in the IAMG community.

Xiaogang (Marshall) Ma

Indexing of IAMG Annual Conference Proceedings

Council has voted 8 to 3 to agree with the recommendation of the IAMG Publications Committee to allow Curran Associates to index IAMG Annual Conference Proceedings for Scopus and Compendex from material to be made available to Curran-Elsevier by the Publications Committee. As a result of the discussions concerning indexing and benefits of this for publishers vs IAMG Council has established a Future Publication Strategy Commission chaired by June Hill to developed a concept for steering IAMG publishing and public relations guidelines.

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Request for Proposals to Host IAMG 2017

The Association has started the search process for the selection of a site to hold its 18th annual scientific and technical conference sometime in the summer or fall of 2017. Parties interested in hosting and organizing the event are welcome to visit the site http://iamg.org/index.php/publisher/articleview/frmArticleID/150 for details of the newly revised guidelines.

Please contact the Chair of the Meetings Committee, Ricardo Olea, to clarify questions, or submit proposals at rolea@usgs.gov, no later than **16 February 2015**.

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Distinguished Lecturer News

Pierre Goovaerts, DL for 2013, has tabulated his Lecture Tour below. He finished roaming the globe with a lecture in Belgium just before Christmas last year.

As a final comment to Jenny McKinley (Chair of the Lectures Committee), Pierre wrote: "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 in 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."

2014 George Matheron Lecture

Professor Karl **Gerald van den Boogaart** has been selected to deliver the IAMG 2014 George Matheron Lecture titled "A stochastic view to MPS". The IAMG President will present the award at the IAMG 2014 conference in New Delhi. As a mathematician with proven research on quantitative methods in the geosciences and publications in Mathematical Geosciences such as "Kriging of regionalized directions, axes and orientations", Professor van den Boogaart is particularly appropriate to deliver the Matheron Lecture.

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Date	Talk#	Host Institution	Host name	Attendance	Students
3/4/2013	1	Brazilian National Institute for Space Research - INPE	Carlos A Felgueiras	35	10
3/6/2013	2	Brazilian National Institute for Space Research - INPE	Carlos A Felgueiras	15	5
3/25/2013	1	Institut Agronomique et Vétérinaire Hassan II Rabat, Morocco	Moulay Ajerame	118	80
3/26/2013	1	Office Cherifien des Phosphates(OCP) Benguerir, Morocco	Asri Mansour	15	2
4/1/2013	1	Middle East Technical University, Ankara, Turkey	Sebnem Duzgun	30	25
4/1/2013	2	Middle East Technical University, Ankara, Turkey	Sebnem Duzgun	15	13
4/3/2013	3	Conservatoire national des arts et Metiers, Paris, France	Aurelien Latouche	30	10
4/16/2013	1	ITC, Twente, Netherlands	Sanaz Salati	28	20
4/16/2013	2	Dpt of Earth Sciences, Utrech University, Netherlands	Amir Raoof	9	6
4/19/2013	1	Royal Institute of Technology, Stockholm, Sweden	Vania Ceccato	26	19
5/8/2013	1	National Chung Hsing University, Taichung, Taiwan	Shu-Chi	97	90
5/9/2013	2	National Taiwan University, Tapei, Taiwan	Meng-Ying Li	65	59
5/10/2013	2	National Cheng Kung University, Tainan, Taiwan	Chi-Kuei Wang	22	17
5/14/2013-5/15/2013	Course	International School for Geoscience Resources (KIGAM, Korea)	Se Wong Chang	27	20
5/22/2013	1	Tokyo University of Agriculture & Technology, Japan	Hirotaka Saito	28	26
5/24/2013	1	Kyoto University, Japan	Matsuoka	25	22
5/27/2013	1	Hokkaido University, Japan	Kashiwagi	14	10
5/28/2013	Course	Tokyo University of Agriculture & Technology, Japan	Hirotaka Saito	21	19
8/19/2013	4	University of Cape Town, South Africa	Christien Thiart	46	14
8/21/2013	1	Stellenbosch University, South Africa	Andrea Baker	39	32
8/23/2013	1	Kruger National Park, South Africa	Izak Smit	19	10
9/9/2013	3	Spanish Geological Survey, Madrid, Spain	Carolina Guardiola	20	10
9/16/2013	4	IAMG Lisbon Student Chapter, Portugal	Júlia Carvalho	53	48
10/31/2013	3	Edith Cowan University, Perth, Australia	Ute Muller	10	4
11/1/2013	2	BHP Billiton, Perth, Australia	Ute Muller	50	5
11/14/2013	1	Landcare Research - Manaaki Whenua, Palmerston North, New Zealand	Pierre Roudier	20	10
11/19/2013	2	Landcare Research, Lincoln, New Zealand	Allan Hewitt	15	2
12/20/2013	2	Université de Liège, Belgium	Eric Pirard	25	21

Talk 1= Geostatistics in Practice
Talk 2= Combining Areal & Point Data in Geostatistical Interpolation: Applications to Soil Science & Medical Geography
Talk 3= The Role of Geostatistics in Medical Geology
Talk 4 = Geostatistical Mapping of Dioxin and Arsenic in Soils around Point Sources of Contamination

Eric Grunsky had to postpone his **2014 Distinguished Lecture** tour due to unforeseen circumstances. He will schedule lectures for 2015. His lecture topics are:

1. Successes and Challenges in the Application of Multivariate Statistics to Multi-element Geochemical Data
2. The use of geochemical survey data for predictive geologic mapping at regional and continental scales
3. Predictive Geologic Mapping Using Lake Sediment Geochemistry and Mineral Resource Estimation
4. Short Course: The Interpretation of Geochemical Survey Data

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Professor **Gordon Kaufman** has been selected as the **2015 IAMG Distinguished Lecturer**. The IAMG President will present the award and Gordon will deliver the 2015 IAMG Distinguished Lecture at the IAMG 2014 in New Delhi.

Gordon Kaufman is the Morris A. Adelman Professor of Management, Emeritus and a Professor of Statistics at the MIT Sloan School of Management.

Kaufman is a petroleum industry expert. His research focuses on primary energy resources, with particular attention to the process of discovering oil and gas. He has a long-standing interest in Bayesian econometrics and multivariate analysis as well as in risk analysis of complex strategic problems. Kaufman's current research interest is how to appraise uncertainties within large systems whose components are logically related in complex ways—such as global climate change models and their impacts, nuclear reactor fault trees, and Bayesian networks—when experts provide incomplete information about these uncertainties. Kaufman has had a long association with the IAMG. Some of Professor Kaufman's most significant work has been in the area of resource estimation and discovery modeling, as indicated in his publications in IAMG journals (Mathematical Geosciences and Natural Resources research) as well as journals of related professional organizations including the AAPG Bulletin.

New member on the Lectures Committee

After **Jean Serra** agreed to serve an extra year, it was time to find another person to represent Fontainebleau on the committee.

Discussing possible candidates with Professors Jacques Rivoirard and Jean Serra for this important representation, I am pleased to say that Professor **Hans Wackernagel** has accepted the invitation to replace Jean Serra on the IAMG Lectures Committee and continue the important representation of Fontainebleau and in particular to provide guidance and advice on the award for the George Matheron Lecture. Wackernagel is Maître de Récherche at Centre de Géosciences of MINES ParisTech (École des Mines de Paris) in Fontainebleau.

Jennifer McKinley
Chair, Lectures Committee
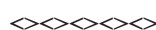
New Books

Geomathematics: Theoretical Foundations, Applications and Future Developments by Frits Agterberg, Springer 2014

This book provides a wealth of geomathematical case history studies performed by the author during his career at the Geological Survey of Canada (GSC). Several of the techniques newly developed by the author and colleagues that are described in this book have become widely adopted, not only for further research by geomathematical colleagues, but by government organizations and industry worldwide. These include Weights-of-Evidence modelling, mineral resource estimation technology, trend surface analysis, automatic stratigraphic correlation and nonlinear geochemical exploration methods. The author has developed maximum likelihood methodology and spline-fitting techniques for the construction of the international numerical geologic timescale. He has introduced the application of new theory of fractals and multifractals in the geostatistical evaluation of regional mineral resources and ore reserves and to study the spatial distribution of metals in rocks. The book also contains sections deemed important by the author but that have not been widely adopted because they require further research. These include the geometry of preferred orientations of contours and edge effects on maps, time series analysis of Quaternary retreating ice sheet related sedimentary data, estimation of first and last appearances of fossil taxa from frequency distributions of their observed first and last occurrences, tectonic reactivation along pre-existing schistosity planes in fold belts, use of the grouped jackknife method for bias reduction in geometrical extrapolations, and new applications of the theory of permanent, volume-independent frequency distributions.

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News about IAMG's
"Studies in Mathematical Geosciences" Series

Background — New Monograph to Appear in September 2014 — A Job Opening

Almost 30 years ago, a "series of monographs on mathematical geology" was established by the International Association for Mathematical Geology:

"AGREEMENT dated 14 October 1984 between Richard B. McCammon, C. John Mann, and Thomas A. Jones (hereinafter called the Editors) representing the International Association for Mathematical Geology (IAMG) and Oxford University Press, Inc., a New York Corporation (hereinafter called the Publisher).... The Publisher will seek the approval of independent advisors for each title before issuing a contract for a volume in the series."

Two years later, on 12 September 1986, the name of the IAMG series was proposed by Oxford University Press (OUP) Editor Joyce Berry: "Studies in Mathematical Geology." The following year, the first IAMG monograph appeared: SMG No. 1, **Use and Abuse of Statistical Methods in the Earth Sciences**, William B. Size, Ed. (1987).

Fast forward to September 1, 2014, the date announced by OUP for appearance of SMG No. 9, **Principles of Mathematical Petrophysics**, by John H. Doveton (2014).

[*Ordering/pre-ordering information for SMG No. 9 appears now (April 2014) on Amazon.com, along with a brief description of the book, a pre-order discount off the list price and free 2-day shipping for students*.]

John Doveton's **Principles of Mathematical Petrophysics** is the first IAMG monograph to appear with the new series title, "Studies in Mathematical *Geosciences*." From the beginning, the SMG series was intended to serve as an outlet for book-length contributions on topics of special interest not only to geomathematicians, but to scientists in interdisciplinary fields. In 2009, the International Association for Mathematical Geology, founded in 1968, acknowledged the increasing breadth of quantitative applications in the Earth sciences by renaming the organization. The IAMG became the "International Association for Mathematical Geosciences."

SMG No. 5, **Computers in Geology: 25 Years of Progress** (John C. Davis & Ute Christina Herzfeld, Eds., 1993), commemorating the Association's beginning at the 1968 XXIII International Geological Congress in Prague, was dedicated to IAMG founding member (and the Association's Journals editor nonpareil) Daniel F. Merriam on the occasion of his 65th birthday. It was the final IAMG monograph to appear during Dick McCammon's editorship. Dick's Foreword to the Series for SMG No. 5 reiterated the determination expressed in SMG No. 1: Each SMG volume is to be "self-contained and...deal with a specific technique of analysis" with each study serving as "an evaluation of the adequacy and the appropriateness of present geomathematical and geostatistical applications."

SMG No. 9, **Principles of Mathematical Petrophysics** (Doveton, J. H., 2014), attentively follows Dick's precept, describing current petrophysics models to aid geologists, geophysicists, engineers and others who deal with petrophysical data. The volume addresses all aspects of the discipline, combining petrophysics and mathematical modeling with modern methods of reservoir characterization, log analysis and petroleum engineering. The author's book, as he states, is not to "supersede any of the excellent books on logging and petrophysics that have been published." His intent is to complement the existing literature by focusing on "the mathematics of petrophysics and the philosophy of the design and application of algorithms to the complex rock systems of the subsurface."
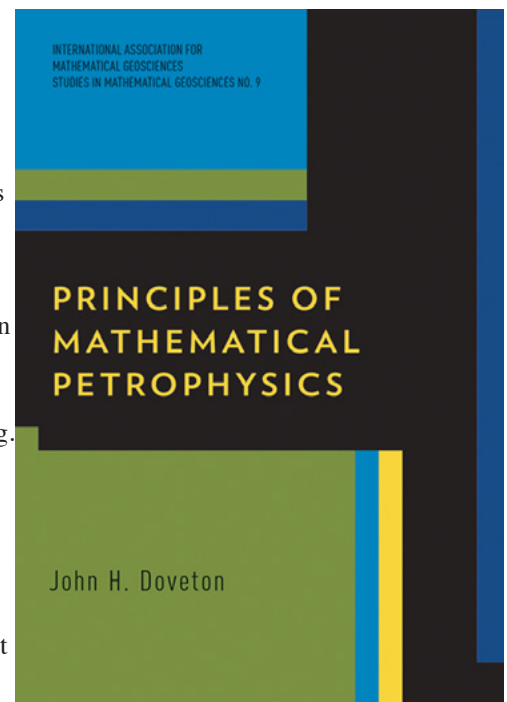
Now, back briefly to the past. Almost 17 years ago the IAMG "Studies in Mathematical Geology" were entrusted to my care. On 12 November 1997, then-IAMG President Ricardo Olea notified Oxford University Press that I (more than familiar with the series, having prepared the manuscripts and camera-ready copy for SMG Nos. 3 and 5) had been chosen to follow Dick McCammon as SMG Editor. I do believe Dan Merriam had something to do with my selection, and IAMG Treasurer–Newsletter-Editor–Past-President John Davis may have reluctantly concurred.

There has been some hard work, a few tense moments, of course, and a disappointment or two, but for the most part I've enjoyed my tenure as SMG Editor. Several Oxford staff members have been a pleasure to work with. And I have always been pleased and grateful for the efforts of "my" authors: George Christakos, John Davis, Ute Herzfeld, colleagues of P. J. Lee (whose SMG No. 8 was published posthumously), Ricardo Olea, Vera Pawlowsky-Glahn, and now John Doveton, a friend and colleague for over 40 years. In fact, I'm so pleased with John's SMG No. 9, Principles of Mathematical Petrophysics, that **I'm going to quit while I'm ahead**—taking this opportunity to announce my retirement. Thus creating a "job opening" that I can heartily recommend to any interested party.

Jo Anne DeGraffenreid, Editor
IAMG Studies in Mathematical Geosciences

Georges Matheron Lecturer for the Year 2013: Professor Peter Alan Dowd

The lecture "Quantifying uncertainty for mineral and energy resource exploitation—sources, randomness, scale and structure" was presented at the 15th Annual Meeting of the IAMG in Madrid in 2013.

The Georges Matheron Lecturer is selected for proven research ability in the field of spatial statistics or mathematical morphology and Peter Dowd certainly satisfies the criterion. I could praise Peter by referring to some quantified measures of his contributions, such as the more than 200 papers he has published in geostatistics and related areas and his supervision of 30 Ph.D. students and 70 Masters students in geostatistics. I could also say that he is one of only two persons in the world who has attended every International Geostatistics Congress since the first in Frascati (Italy) in 1975 to the most recent in Oslo (Norway) in 2012. His contributions to the congresses have included papers at every congress and membership of organising and paper review committees for many of them. The interval between the first and the last geostatistics congresses represents 38 years of Peter's dedication to the discipline of geostatistics. However, Peter began working in geostatistics in 1968 by applying the methods to the evaluation of the Broken Hill silver/lead/zinc orebodies and this is believed to be the first geostatistical application in Australia. Thus, Peter's work in geostatistics covers more than 45 years of research, teaching and application.

Peter began his geostatistics work with Conzinc Rio Tinto of Australia (now Rio Tinto) in Broken Hill with assistance by correspondence (letters and not e-mails in those days) with Charles Huijbregts at the École Nationale Supérieure des Mines in Fontainebleau. This contact eventually led to his attendance at the 1970 Summer School in Geostatistics in Fontainebleau and an extended stay to work further on the Broken Hill evaluations. He returned to Australia and, after completing the Broken Hill evaluations, moved to the École Polytechnique de Montréal in 1972 as a research fellow working with Michel David. During his stay in Montreal he also completed a Master of Applied Science. He moved to the University of Leeds in 1975 to begin a PhD under the supervision of Allen ('Bon') Royle and completed it in 1978. Thereafter he took up an academic position at Leeds, later becoming Professor of Mining Engineering, Head of the Department of Mining Engineering and Head of the School of Process, Environmental and Materials Engineering. He moved to the University of Adelaide in Australia in 2004 to become Executive Dean of the Faculty of Engineering, Computer and Mathematical Sciences. In 2013, he became Professor of Mining Engineering at the University of Adelaide and Executive Director of Mining Education Australia.

At Leeds he assisted Bon Royle to establish the Master of Science programme in Geostatistics in 1977 and, more recently, he established the Master of Geostatistics programme at the University of Adelaide. He has worked in many fields of geostatistical applications including geophysics, petroleum reservoir characterisation, hydrogeology, soil science and environmental sciences and engineering, but his main work has been in Mining Geostatistics in which he is a leading expert. Peter contributed to, and translated into English the seminal book Mining Geostatistics of Journel and Huijbregts (1978). Over the past 20 years he has won approximately $14M in competitive grants from research councils in the UK, EU and Australia and from industry and government agencies. These grants have been largely for geostatistical research and applications in mining and mineral resources, rock mass characterisation for environmental purposes, quantification of risk and geothermal reservoir modelling.

Peter's contributions have been recognised by being elected Fellow of the Royal Academy of Engineering in the UK and Fellow of the Academy of Technological Sciences and Engineering in Australia. He is also a Fellow of the Royal Society for the Arts.

There are many more things that I could say about Peter's achievements in the field of geostatistics but I prefer to finish by highlighting his generosity and kindness to the many visitors that he received when he was at the Department of Mining and Mineral Engineering at Leeds (I had the pleasure of being one of those visitors). He continues with the same generosity now in Australia, his home country.

Professor Peter Dowd, thank you for your contribution to geostatistics. The Lectures Committee of the IAMG could not have made a better choice for the 2013 Georges Matheron Lecturer. Again, congratulations Peter.

Dr. Eulogio Pardo-Igúzquiza
Geological Survey of Spain

Member News

Jef Caers was promoted from Associate Professor to Full Professor of Energy Resources Engineering at Stanford University in January 2014. He is Director of the Stanford Center for Reservoir Forecasting.
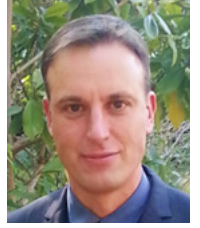
Professor Caers is Editor-in-Chief of the IAMG journal Computers & Geosciences and has been active in IAMG for a long time. He organized the 2009 IAMG meeting at Stanford, was Chair of the IAMG Awards Committee, and has been a recipient of IAMG's Vistelius Research Award. He is also the 2014 winner of the William Christian Krumbein Medal.

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New Initiative on Forensic Geology Newsletter

IUGS Initiative on Forensic Geology (IFG) is now releasing its own newsletter to provide a summary and overview of "recent" global events in Forensic Geology. It is available at http://iugs.org/uploads/IFG%20Newletter%20April%202014.pdf

Any changes or articles to be included in future editions may be sent directly to Dr. Laurance Donnelly (ldonnelly@wardell-armstrong.com), Dr. **Jennifer McKinley** (j.mckinley@qub.ac.uk) or a IFG Committee Member.

The IFG is an initiative established by the International Union of Geological Sciences. If you would like to be considered for contributory funding, associated with the international promotion and development of Forensic Geology, please submit an expression of interest to an IFG Committee Member.

More on IFG at http://www.forensicgeologyinternational.com/

IAMG's Vicepresident Jennifer McKinley is the IFG Communications Officer. She is commenting: "As a member of the IUGS-IFG I am pleased to have the opportunity to promote the role of geoinformatics in forensic geoscience in collaboration with forensic science regulators and law enforcement agencies worldwide".

Letter to the Editor

Let me give you some thoughts that should be relevant to the IAMG as a whole, namely what are the present trends in geomathematical applications, and how have they evolved over the past half century? If you look at the focus a half century ago, they have changed noticeably during this time. Auxiliary questions are how have they changed over this period, and how they may change in the coming half century? So I ask would it be appropriate to prepare a summary of what has taken place over these five decades, perhaps on a decade-by-decade basis, and also deal with the question whether is it feasible to make projections for the next five decades?

From my limited perspective as a retiree, I see a few major opportunities that seem virtually unexploited. The one with perhaps the greatest potential that is in almost total infancy, is the application of control theory in dynamic simulations of selected geological processes, in which the behavioral linkages between components are incorporated. This sweeping concept has been an article of faith for at least 125 years in the form of the "rock cycle," but even today it mostly remains a concept that has been little explored mathematically. A little exploration of simplified representations of couplings between processes or components of processes reveal that they behave cyclically and chaotically, and above all, are surprisingly unpredictable. Sound familiar? Maybe our models are much too simple, but Lord knows what the challenges are when we expand them. One sobering fact is the perpetual inadequacy of our computers. Complain, complain, but it is an axiom that you can never have enough computing power to cope with the need for a seeming infinity of computing cycles, as well as the huge demands of representing digitized geological features in 3-D space, and 4-D space when time is represented.

John Harbaugh
Professor Emeritus
Stanford University

Student Affairs

A thriving Student Chapter at ITC

As the founding president of the IAMG Student Chapter at ITC, I always keep an eye on its developments and provide assistance where available. I was happy to see that my successor **Sanaz Salati** (now Dr. Salati; shown in photo with her doctoral committee)

has done an excellent job in recruiting new members, introducing IAMG to the ITC community and promoting geomathematics and geoinformatics through various activities. Sanaz received her PhD degree from ITC in March 2014 and is now a postdoctoral researcher at Helmholtz-Zentrum Dresden-Rossendorf, Germany. **Fangyuan Yu** and **Islam Fadel** are now the leaders of the chapter and I wish them a big success in this position. Stay tuned for the news and activities of the chapter:
https://sites.google.com/site/isciatitc/ .

Xiaogang (Marshall) Ma

Nancy Chapter

Guillaume Caumon reports:

The MSc students have just been on a field trip in the Sivas basin in Turkey to study salt tectonics and create a 3D model from field data. They have asked for funding from IAMG and will send a report.

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Student Affairs Committee

The Student Affairs Committee has a new member, **Jacynthe Pouliot**. She is replacing **Juan José Egozcue-Rubí**, who served the committee for a long time and was largely instrumental to get the committee going.
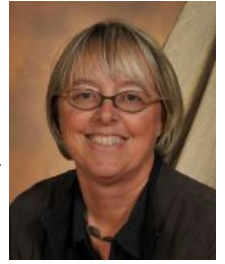
Pouliot is a professor at the Université Laval of Québec and head of the Department of Geomatic Sciences. Her research interests are in geospatial models, GIS, and other remote sensing applications, and she teaches courses in spatial data integration.

New Student Chapter in Wyoming

The newest IAMG Student Chapter is at the University of Wyoming and is associated with the Department of Geology and Geophysics, School of Earth Sciences and College of Engineering and Applied Sciences.

In November 2013, the student chapter was first initiated by one of our faculty members, **Dario Grana** from the Department of Geology and Geophysics with the help of 19 student members. This student chapter was recognized by International Association of Mathematical Geosciences (IAMG) in February 2014.

More information at http://geoweb.uwyo.edu/iamg/

Start thinking about nominations for 2015 IAMG Awards !

The Association invites all members to submit nominations for

the **Felix Chayes Prize** and for

the **Andrei Borisovich Vistelius Award**

Deadline: January 31, 2015

For details about prerequisites for nominations please see the IAMG web site **http://www.iamg.org/** and click on **Awards**

There is also a list of past recipients and their laudatios 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 she or he deserves an award by submitting a nomination.

Nominations can be submitted by a single person or by a group. The Laudations written over the last few years and published in Mathematical Geosciences are a good source of inspiration on how to write a nomination. Nominations can be submitted via e-mail (jackswsc@q.com) or sent to:

John H. Schuenemeyer - Chairman, IAMG Awards Committee
Southwest Statistical Consulting, LLC
960 Sligo St
Cortez, CO 81321 USA

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

25 Years Ago...

John C. Davis laid down his pen as long-time editor of the IAMG News Letter and handed over the editorship to **Jim Carr**. John had produced 38 roughly semi-annual news letters from 1973 to 1989. In his last News Letter he "editorialized" about how hard it had become to find contributions for each new issue, and he ended with: *This blurb began with "The last IAMG News Letter...", I hope the phrase is not prophetic.*

Below is Jim Carr's Editorial in his first Newsletter which ran to 27 pages. He gave it a good try and put together 11 issues before passing the task to the present editor in 1995.

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            IN CLOSING:  AN EDITORIAL

     Until recently, this newsletter was compiled by John C. Davis
and Jo Anne DeGraffenreid of the Kansas Geological Survey.  A
grant from the Kansas Geological Survey covered the expense of
producing this newsletter.  The quality of this production was,
to say the very least, professional.  It is with this recognition
that I realize I am trying to fill very big shoes.

     This first newsletter under my direction is a departure from
the style used in the past.  I have chosen to follow a style
similar to that used for the Geological Information Group
Newsletter ( a publication of the United Kingdom affiliate of the
International Association for Mathematical Geology).  This style
is easier for me to implement.

     I remember how excited I was when informed about my Best
Paper Award for 1985.  After being notified by mail, I couldn't
wait for the next IAMG newsletter to report this award.  I made a
big assumption in this thinking:  that there inevitably would be
a next issue of the newsletter.  Of course, I did not consider
what is required to produce a newsletter; how much work is
required to publish each issue.  Now that I am involved, I
realize the service John and Jo Anne provided IAMG.  Big shoes,
indeed!

                           James R. Carr
                           Mackay School of Mines
                           University of Nevada-Reno
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IAMG Journal Report

Mathematical Geosciences Best Paper Award for 2012

Mathematical Geosciences publishes 48 high-quality papers each year. Among all of those, we have set ourselves the arduous task of selecting the most exceptional one. Now a well-known yearly tradition, the Editorial Board and Editorial team are pleased to announce the winner of the 2012 Best Paper Award:

"Stationary and Isotropic Vector Random Fields on Spheres" by Chunsheng Ma, Mathematical Geosciences, 44 (6): 765-778.

Chunsheng Ma received his Ph.D. degree in 1997 from the University of Sydney, Australia. After two years with the University of British Columbia as a Postdoctoral Fellow, he joined Wichita State University in 1999, where he is currently a professor. During the 2006-2007 academic year, he was a university fellow with the Statistical and Applied Mathematical Science Institution at Research Triangle, North Carolina, and was a guest professor at Wuhan University from 2009 to 2010. He is currently an adjunct professor at Wuhan University of Technology, and a guest professor at Hubei Engineering University, China. His research areas include statistics and probability with applications in science and engineering, Chunsheng has nearly 70 research papers published in peer-reviewed research journals, among them 75% single-authored. His current research interests are in scalar and vector random fields in space and time, and spatio-temporal statistics.

Roussos Dimitrakopoulos

Computers & Geosciences

Co-Editor-in-Chief for C&G: Edzer Pebesma

A new co-Editor-in-Chief was appointed after a search for candidates in the **informatics** area of the Journal. An excellent candidate was selected by Elsevier in consultation with IAMG: **Edzer Pebesma**, who will start June 1, 2014.

Edzer needs very little introduction. He is director of the Institute for Geoinformatics and leads the Spatio-Temporal Modelling Laboratory at the University of Münster (Germany). Edzer is known for his work in the area of informatics, spatial statistics and application in environmental sciences and other areas of the geosciences. He is also co-author of the book "Applied Spatial Data Analysis with R".

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C&G Best Paper Awards for 2013

Duccio Rocchini, Giles M. Foody, Harini Nagendra, Carlo Ricotta, Madhur Anand, Kate S. He, Valerio Amici, Birgit Kleinschmit, Michael Förster, Sebastian Schmidtlein, Hannes Feilhauer, Anne Ghisla, Markus Metz, Markus Neteler: "Uncertainty in ecosystem mapping by remote sensing". Computers & Geosciences, 50, 128-135.

J Florian Wellmann, Stefan Finsterle, Adrian Croucher: "Integrating structural geological data into the inverse modelling framework of iTOUGH2". Computers & Geosciences, 65, 95-109 (2014).

Chad A. Steed, Daniel M. Ricciuto, Galen Shipman, Brian Smith, Peter E. Thornton, Dali Wang, Xiaoying Shi, Dean N. Williams: "Big data visual analytics for exploratory earth system simulation analysis". Computers & Geosciences, 61, 71-82.

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Geostatistics: Modeling Spatial Uncertainty, Jean-Paul Chilès, Pierre Delfiner. Second ed., Wiley Series in Probability and Statistics, John Wiley & Sons, Inc., Hoboken, New Jersey (2012). 699pp. ISBN: 978-0-470-18315-1 — A. Erhan Tercan

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Analysis of tomographic mineralogical data using YaDiV—Overview and practical case study — Karl-Ingo Friese, Sarah B. Cichy, Franz-Erich Wolter, Roman E. Botcharnikov

Development of an integrated onsite earthquake early warning system and test deployment in Zhaotong, China — Chaoyong Peng, Xiaoyi Zhu, Jiansi Yang, Bing Xue, Yang Chen

An Excel-based tool for evaluating and visualizing geothermobarometry data — John Milan

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A MATLAB-based graphical user interface program for computing functionals of the geopotential up to ultra-high degrees and orders — Blazej Bucha, Juraj Janák

"Comparison of genetic programming with neuro-fuzzy systems for predicting short-term water table depth fluctuations" by Jalal Shiri & Ozgur Kisi [Computers and Geosciences (2011) 1692-1701] — Darren J. Beriro, Robert J. Abrahart, C. Paul Nathanail

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Automatic quantification of crack patterns by image processing — Chun Liu, Chao-Sheng Tang, Bin Shi, Wen-Bin Suo

Landslide susceptibility analysis with logistic regression model based on FCM sampling strategy — Liang-Jie Wang, Kazuhide Sawada, Shuji Moriguchi

A new code for automatic detection and analysis of the lineament patterns for geophysical and geological purposes (ADALGEO) — C. Soto-Pinto, A. Arellano-Baeza, G. Sánchez

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Geostatistical approach to the anisotropy analysis of 3D rock microtomographic models — Valentina Svitelman, Oleg Dinariev

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A new classification approach for detecting severe weather patterns — Glauston R. Teixeira de Lima, Stephan Stephany

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Facies recognition using a smoothing process through Fast Independent Component Analysis and Discrete Cosine Transform — Alexandre Cruz Sanchetta, Emilson Pereira Leite, Bruno César Zanardo Honório

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GeoTemp!" 1.0: A MATLAB-based program for the processing, interpretation and modelling of geological formation temperature measurements — Ludovic P. Ricard, Jean-Baptiste Chanu

Semantic overlay network for large-scale spatial information indexing — Zhiqiang Zou, Yue Wang, Kai Cao, Tianshan Qu, Zhongmin Wang

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Speleothem Science: From Process to Past Environments, I.J. Fairchild, A. Baker. Wiley-Blackwell, Chichester (2012), 432 pp., cloth, ISBN: 978-1-4051-9620-8 — Manfred Mudelsee

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SeTES: A self-teaching expert system for the analysis, design, and prediction of gas production from unconventional gas resources — George J. Moridis, Matthew T. Reagan, Heidi Anderson Kuzma, Thomas A. Blasingame, Y. Wayne Huang, Ralph Santos, Katie L. Boyle, Craig M. Freeman, Dilhan Ilk, Manuel Cossio, Srimoyee Bhattacharya, Michael Nikolaou

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Wave-equation traveltime inversion: Comparison of three numerical optimization methods — Yikang Zheng, Yibo Wang, Xu Chang

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Process virtualization of large-scale lidar data in a cloud computing environment — Haiyan Guan, Jonathan Li, Liang Zhong, Yu Yongtao, Michael Chapman

Statistical description of seedbed cloddiness by structuring objects using digital elevation models — O. Taconet, R. Dusséaux, E. Vannier, O. Chimi-Chiadjeu

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Efficient Generation Portfolio Construction Using Time-Varying Correlations — R. Gupta, J. M. West

Energy and the Environment: The Relationship Between Coal Production and the Environment in China — Nyakundi M. Michieka

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Journal Statistics

Mathematical Geosciences:

ISI-impact factor for 2012: 1.44 (SJR=1.657)

5-Year Impact Factor: 1.753 (SJR 4y=1.985)

Rejection rate: 60.4%

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

Computers & Geosciences:

2012 Impact Factor: 1.834 (SJR=2.15)

5-Year Impact Factor: 1.992 (SJR 4y=2.283)

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

Natural Resources Research:

2012 SJR 2yr cites = 0.98

5 year SNIP: 0.968; SJR 4y=1.07

Rejection rate: 43%

Conference Report
Conference on Geoscience for Politics, Economy and Culture in Tehran

Invited by the Geological Survey of Iran (GSI) I participated in the First International Conference on Geoscience for Politics, Economy and Culture in Tehran 16-19 February 2014. Responsible for this invitation was Alireza Gharagozlou, Earth Science Matters (ESM) National Focal Point (NFP) in Iran. In 2008, I visited this country at the occasion of the Iranian launch event of the International Year of Planet Earth.

The Conference was held due to recent changes in Iran's political landscape including an opening door policy with respect to foreign cooperation and anticipating better financial options following future lifting of economic and political sanctions which affect the country badly. In preparation of this Conference my Iranian counterpart and NFP invited me to assist the GSI in co-shaping the Conference, inviting other foreign guests and to contact other organisations for future cooperation. Some 70 foreign scientists, many from neighbouring countries, participated in this Conference which was held back-to-back with the 32nd National Geoscience Conference held in 12 Iranian cities, each focusing on one specific geoscience theme.

Despite of some organisational and internal communication problems the Conference may be considered a success as they managed to get quite a number of foreign experts together in just 3 months time. This event must have given a significant boost to the Iranian geoscience community. The Conference was opened by Iran's First Vice-President Eshaq Jahangiri Kouhshahi, who has been the former Minister of Industries and Mines and is now the second most powerful person in Hassan Rouhani's government. In his speech he highlighted the importance of geosciences for Iran's development as this will significantly rely on income from the mineral and hydrocarbon industries. This statement was underpinned by Mohammad Reza Nemat Zade, the current Minister of Industry, Mines and Trade urging the government to insert more funds in GSI. From discussions with various officials I learned that no such extra funds are to be expected as long as the economic sanctions still apply. In my speech at the opening ceremony I stressed the necessity to involve geoscientists both in long-term policy making, in the economic and cultural development of Iran. On behalf of the Board and ESM's Partners I offered ESM's assistance at the interface between organisations who may offer geo-expertise and those who need such assistance.

On 18 February I signed a Memorandum of Understanding on behalf of ESM with Director General of GSI Korehie, who is a Vice Minister, on cooperation between both parties. In an ANNEX of that MoU concrete actions for implementation are described, including support to GSI and universities concerning ILP projects, development of a TOPO-WESTASIA Programme, **the creation of a National Chapter for IAMG**, and to support Iranian younger and early career geoscientists. ESM Board member Wang Meng (YES Initiative) signed a specific MoU dealing with a National Chapter for YES in Iran. In reality, implementation of our MoU may only become effective once more (governmental) funds will be provided to GSI which may happen once political breakthroughs will have been made to de-isolate Iran.

Before my trip to Iran I sent letters, via our NFP, to the CEOs of the Iran Minerals Production and Supply Corporation (IMPASCO) and to the Iran Mine House offering cooperation. Mr. Jafari, IMPASCO's CEO invited me in his office to discuss cooperation but stressed that first a Law (Article 44) must pass Parliament to allow this and to allocate funds for implementation. A comparable answer was received from Iran's Mine House Board of Directors (Chairman Anaraki and Vice Chair Bahraman) upon their invitation to see me in their office.

I brought our joint booth the Iran and displayed that as the sole exhibit at the entrance of the Main Hall where the Opening and Closing ceremonies were held (see picture). I was interviewed for a national TV channel in front of the booth. Furthermore, I explored options to identify National ESM Focal Points in China and the Dominican Republic.

In the coming months I will try to follow-up actions as proposed in the MoU and to keep communication with IMPASCO and the Mine House alive while our Iranian Counterpart will continue trying to pave the way toward further cooperation. Meanwhile, we hope that the political landscape will further improve towards increased openness and access to funds to implement our joint intentions and ambitions for cooperation.

Eduardo de Mulder

Do you want to contribute in shaping the scientific program of IAMG 2015?

The local organizing committee of IAMG 2015 in Freiberg is seeking your help!

Our 2015 annual conference will be held in Freiberg, Germany. Several changes will be introduced with respect to our preceding conferences, mostly to have a much tighter relation of the scientific program to your needs and vision of the future of mathematical geosciences, our dear IAMG members! For this reason, we would like to gather your opinion on a series of matters about the future and the past of our meetings, of IAMG as a society, and of mathematical geosciences as a discipline. You can find the complete questionnaire at the URL address below, but here comes an appetizer.

The main idea behind this questionnaire is that IAMG meetings can drive the future of our society and our discipline. We want to tap this potential by strategically shaping the scientific program in every aspect possible: from choosing a conference motto (or having none) to defining topical sessions, courses, but also selecting new fields, groups or individuals who should be given a preeminent role. We want to achieve this beyond our personal biases... we need your help.

For instance, have you asked yourself which topics and sessions must be present to allow you to feel at home at the conference? Which topical sessions did you miss from past meetings? Which would, in your opinion, attract participants of disciplines within your concept of mathematical geosciences or neighboring disciplines, who now feel out of IAMG? Do not fear, we will not ask you to chair that! Just suggest to us your desired topic.

Of course, identifying topics is the least important aspect of this task, as the key to our success as discipline and as society is people. So, the next question is: which person should we attract to the meeting if we want to open it to a new community or group? Do you know of someone who is having a leading role in one of those missing topics of mathematical geosciences? If you were the meeting organizer, would you invite him or her? For instance, someone who has published a paper you deem excellent in one of our journals and who is not regularly coming to IAMG meetings? Give us their names and your reasons, and we'll do our best to bring them!

Our concerns go beyond just this topical session or that invited speaker. Short courses offer an opportunity to senior scientists and students alike to learn something new and exciting. Would you like to attend to a certain course? Do you know the right person to teach it? Tell us and we will seduce them.

And let's not forget that IAMG is more than Geology or Mathematics: it's also computer science, operations research, geophysics, geochemistry, environmental sciences, etc. Think big!

Please, go to http://www.iamg2015.de and have a look at the questionnaire. You can answer it all, or just that one single itching question. We greatly appreciate any suggestion, short or long. And we are also keen to discuss everything in a less formal format, by email, or in person at our next meeting in Delhi.

See you in Delhi 2014!

Helmut Schaeben
Gerald van den Boogaart
Raimon Tolosana-Delgado

Upcoming Meetings

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

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**. Phone1-212-514-6760, fax: 1-212-514-6030, email: info@engconfintl.org

GI_Forum 2014 - Geospatial Innovation for Society. Salzburg, Austria, **1 - 4 July 2014**. Details: www.gi-forum.org, contact: 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

MEME'2014 Mathematics and Engineering in Marine and Earth Problems, **21–25 July 2014**, University of Aveiro, Portugal www.meme.glocos.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.

SEG/SPE/AAPG/SPWLA/EAGE Summer Research Workshop: "Multi-disciplinary Static and dynamic Reservoir Modeling", San Diego, California, **3-8 August 2014**. www.seg.org/events/upcoming-seg-meetings/sd14

3rd YES Congress - Young Earth Scientists (YES) Network, Dar es Salaam, Tanzania, **11 - 14 August 2014**. Includes an IAMG session on "Geomathematical data integration and spatial analysis for resource strategic issues". http://www.yescongress.org/2014

GeoMod2014 - Modelling in Geoscience, Berlin, Germany, **31 August - 5 September 2014**. Contact: 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/

GEOMODEL 2014 -16th science and applied research conference on oil and gas geological exploration and development, Gelendzhik, Russia, **8 - 11 September 2014**. www.eage.org/events/index.php?eventid=1206&Opendivs=s3

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

IAEG XII (International Association of Engineering Geology and the Environment) Congress. Torino, Italy. **15 - 18 September 2014**. www.iaeg2014.com/

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

GEOS 2014 - 3rd Annual International Conference on Geological and Earth Sciences. Global Science and Technology Forum (GSTF). Singapore, **22 - 23 September 2014**. Phone +65 6327 0166, fax:+65 6327 0162, email: secretariat@geoearth.org, http://www.geoearth.org/index.html

ISME-XIII 13th International Symposium on Mineral Exploration, Vietnam National University, Hanoi, Vietnam, **22-24 September 2014**. http://vnu.edu.vn or www.isme-detec.org/ISME/ISMExiii.htm

8th Asian Rock Mechanics Symposium on Rock Mechanics for Global Issues - Natural Disasters, Environment and Energy, Sapporo, Japan. **15 - 17 October 2014**. http://rocknet-japan.org/ARMS8/index.htm

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

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

Second EAGE Integrated Reservoir Modelling Conference: "Uncertainty Management: Are we doing it right?". Dubai, UAE, **16-19 November 2014**. http://eage.org/events/index.php?eventid=1147

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

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AAPG 2015 Annual Convention, Denver, Colorado, **31 May - 3 June 2015**. www.aapg.org/events/conferences/ace/

SIAM Conference on Mathematical and Computational Issues in the Geosciences (GS15), Stanford University, Stanford, California USA, **29 June - 2 July 2015**. www.siam.org/meetings/gs15

International Statistical Institute, 60th ISI World Statistics Congress, Rio de Janeiro, Brazil, **26 - 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; www.isi2015.ibge.gov.br

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

IAMG2015 in Freiberg, Germany, **5 - 13 September 2015**. http://www.iamg2015.de/

Petroleum Geostatistics 2015 Biarritz, France, **7 - 11 September 2015**. www.eage.org/event/index.php?eventid=1155&Opendivs=s3

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35th International Geological Congress, Cape Town, South Africa, **27 August – 4 September 2016.** http://www.35igc.org/

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Third YES Congress in Dar es Salaam

The Young Earth Scientists (YES) Network is an international association of early-career geoscientists who are primarily under the age of 35 years and are from universities, academic organizations and companies across the world. As an affiliated organization of International Union of Geological Sciences (IUGS) and The International Union of Geodesy and Geophysics (IUGG), YES Network was formed in 2007. It aims to link early-career geoscientists through scientific research and interdisciplinary networking, and provide resources for professional development to prepare early-career geoscientists. The first international congress of YES Network was held at the China University of Geosciences (Beijing) in 2009. It focused on climate, environmental and geo-scientific challenges faced by today's society.

The third YES Congress will be held in Dar es Salaam, Tanzania, on August 11-16, 2014. The YES committee had identified 6 theme areas, and a range of sessions have been proposed for each theme. In this year, IAMG will join the congress and all IAMG members are welcome to submit their abstract to the YES-IAMG session under theme 6. The abstract submission and registration pages are now all live. Abstract submission will remain open until May 15th, 2014 and early registration will end on May 31st, 2014. Please take a look at the list of themes and sessions and discuss with your colleagues if there is any topic you feel interested in.

Here are details of the YES-IAMG session:

Title: Geomathematical data integration and spatial analysis for resource strategic issues

Introduction: Recent progress in our understanding of mineralization processes and mineral exploration technology innovation has greatly benefited from new developments in large-volume acquisitions of multi-source geo-data and the wide variety of geographic information system based data processing techniques. During the next few decades, advanced geomathematical data integration and spatial analysis techniques are bound to break through current difficulties in mineral exploration and resource procurement for future generations, including mineral exploration in frontier areas, utilization of mineral resources with environmental protection, decreasing ore grades, mining deeply buried ore, and increasing production costs. To this end, we invite a wide range of contributions related to current knowledge of up-to-date geomathematical and geoinformatical techniques in support of mineral exploration and data quantification strategies, as well as contributions providing new insights into applications.

For more information about YES Network, please go to:

http://www.networkyes.org/

The current list of themes and sessions can be viewed at the congress's website:

http://www.yescongress.org/2014/oralsessions.html

If you would like to join the YES-IAMG session at the third YES congress in 2014, please submit abstract to Dr. Wenlei Wang (wenleiw@163.com).

Wenlei Wang
Ph.D, IAMG YES Representative

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Quantitative Geology and Geostatistics   18

Frits Agterberg

Geomathematics: Theoretical Foundations, Applications and Future Developments

This book provides a wealth of geomathematical case history studies performed by the author during his career at the Geological Survey of Canada (GSC). Several of the techniques newly developed by the author and colleagues that are described in this book have become widely adopted, not only for further research by geomathematical colleagues, but by government organizations and industry worldwide. These include Weights-of-Evidence modelling, mineral resource estimation technology, trend surface analysis, automatic stratigraphic correlation and nonlinear geochemical exploration methods. The author has developed maximum likelihood methodology and spline-fitting techniques for the construction of the international numerical geologic timescale. He has introduced the application of new theory of fractals and multifractals in the geostatistical evaluation of regional mineral resources and ore reserves and to study the spatial distribution of metals in rocks. The book also contains sections deemed important by the author but that have not been widely adopted because they require further research. These include the geometry of preferred orientations of contours and edge effects on maps, time series analysis of Quaternary retreating ice sheet related sedimentary data, estimation of first and last appearances of fossil taxa from frequency distributions of their observed first and last occurrences, tectonic reactivation along pre-existing schistosity planes in fold belts, use of the grouped jackknife method for bias reduction in geometrical extrapolations, and new applications of the theory of permanent, volume-independent frequency distributions.

Agterberg

Geomathematics: Theoretical Foundations,
Applications and Future Developments

Quantitative Geology and Geostatistics

Frits Agterberg

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