



# IAMG Newsletter

No. 76 June 2008

Official Newsletter of the International Association for Mathematical Geosciences

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## Nominations have Opened for 2009 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, 2009**

For details about prerequisites for nominations please see the IAMG web site <http://www.iamg.org/>

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

The proposer may also get additional information or support for his proposal from other members of IAMG and from successful examples published on our website.

Please submit nominations and accompanying documentation (preferable in electronic format) to:

Stephen Henley – Chairman, Awards Committee  
Resources Computing International Ltd  
185 Starkholmes Road  
Matlock, Derbyshire, United Kingdom DE4 5JA

e-mail: [stephen.henley@resourcescomputing.com](mailto:stephen.henley@resourcescomputing.com)

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

A great anniversary: 40 years after the IAMG was founded during the International Geological Congress in Prague, and 40 years after the Soviet invasion of that city and the country of Czechoslovakia, we still have a healthy Association, while Prague and the new Czech Republic have prospered as well. Both, the country in 1989, and this organization in 2008, have changed their names: In a run-off vote concluded on June 9, the members of IAMG chose the name International Association for Mathematical Geosciences to replace the old, original name International Association for Mathematical Geology.

The 2008 election is the second time for our organization to choose officers and councilors for the next four years by on-line voting, and the balloting on the name change was also conducted over the internet. With the help of Dragonfly, the firm retained to set up the election webpages as well as redesign the IAMG website, the whole election process went smoothly. The results are shown on p. 4 of this Newsletter. A total of 176 of our 566 members in good standing cast their votes electronically. While a 31% participation doesn't seem like a large proportion, it is apparently similar to other scientific organizations, and also typical for political elections in the USA.

While 2004 was the first time we ventured into the modern electronic age by voting on-line, we were, of course, not the first to change to web-based voting. For instance, AGU has electronic elections and GSA set up on-line voting in 2002. AAPG initiated online voting in the same year as we did, and EAGE started with e-mail ballots in 2005 and is now using a website link to a ballot page. Most organizations have had good results but allow paper ballots for those unable or unwilling to vote via internet; however, the majority of the votes are cast electronically. We hope that the new system implemented by Dragonfly will work for IAMG both for general elections and ballots on other issues. Let us know your comments or complaints.



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Harald S. Poelchau

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

*International Association for Mathematical Geology*

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 PRESIDENT'S FORUM
 

It is important that we keep track of our past. The original idea of founding the IAMG occurred to Richard Reymont in the mid-1960s. Dr. Chester Bliss of the International Biometric Society helped mapping out the steps to be taken. His own association, which had R.A. Fisher as its first president (1947-49), was flourishing at the interface between mathematical statistics and the biological sciences. We would fulfill a similar rôle within the geosciences. The International Statistical Institute (ISI) became one of our parents, the other one being the International Union of Geological Sciences (IUGS). Richard's "call" went out from Stockholm to some 200 or more geologists and statisticians. Almost all replies were very positive. It was decided that we would have quadrennial meetings coinciding with the International Geological Congresses. We continue to be formally affiliated with both IUGS and ISI. This year Daniel Merriam officially became the first IAMG Historian and Graeme Bonham-Carter now is our IAMG Archivist. Our visibility should be further increased. Recently, we have become the 15th International Partner of the International Year of Planet Earth (IYPE). We subscribe to IYPE's aim to "ensure greater and more effective use by society of the knowledge accumulated by the world's 400,000 Earth scientists". Our forte is mathematical modeling and quantifying solid Earth uncertainties. Jorgina Ross and I have participated in the IYPE Global Launch Event at UNESCO Headquarters in Paris last February. The main IYPE activities take place during 2008 and operate within its SCIENCE and OUTREACH programmes. The other IYPE International Partners include AGU, EGU, EGS, GSA, NASA and SEG\*.

Our first Statutes and By-Laws (published in the Journal of the International Association for Mathematical Geology, Vol. 1, No. 1, 1969) were adopted at the IAMG inaugural meeting during the 23rd IGC in Prague, August, 1968. They were based on the Statutes and By-Laws of AIPEA (Association Internationale pour l'Etude des Argiles) that had already been approved by the IUGS. A difference between the original IAMG and AIPEA constitutions was that we immediately added By-Laws about our newly established journal with Daniel Merriam as Founding Editor. AIPEA continues to hold International Clay Conferences approximately every four years, but never commenced its own journal. IAMG now produces three journals. For each journal we have a contract with the publisher: with Springer for Mathematical Geosciences and Natural Resources Research, and with Elsevier for Computers & Geosciences. During the past 4 years, we have signed new contracts for all three journals. A

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\*AAPG - American Association of Petroleum Geologists  
 AGU - American Geophysical Union  
 EGU - European Geosciences Union  
 EGS - EuroGeoSurveys  
 GSA - Geological Society of America  
 NASA - National Aeronautics and Space Administration  
 SEG - Society of Exploration Geophysicists

difference with the past is that the electronic versions of our journals have become more prominent than the traditional printed issues. None of our journals require authors to pay page charges. During the past few years, our three journals have obtained new Editors-in-Chief who now are supported by Associate Editors. AEs have more decision-making power and also more work than in the past. The members of our editorial boards and most of our reviewers are IAMG members. Scientific publishing is the principal reason for our existence. Of course, there are several other international associations including AAPG, AGU, EGU and GSA that publish three or more geoscientific journals. However, these other societies differ from IAMG in that have tens of thousands of members, million-dollar budgets, and elaborate organizational infrastructures that we are doing without.

**"Scientific publishing is the principal reason for our existence."**

Over the past 25 years, IAMG membership has been fluctuating between 450 and 650. According to the end-of-March membership report prepared by the IAMG Office in Kingston, Ontario, we have 566 members "in good standing" meaning that they have paid their 2008 membership dues. It is a perpetual problem that a significant number of people who otherwise contribute much to the IAMG don't bother to timely renew their US \$ 10.00 annual membership. Four years ago, we introduced 4-year and life-time memberships but relatively few people have made use of these options; for example, at present we have only 138 life members.

Royalties on our journals vastly exceed membership dues as a source of IAMG income. For 2008, combined annual royalty checks received from our publishers amount to about \$ 100,000 US. Since income consistently exceeded expenditures during most of our existence, a "nest egg" was created resulting in annual returns from investments. For example, from IAMG Treasurers' reports on our website you can see that in December 1996, our surplus was \$ 365,758 US; in December 2006, it had grown to \$ 869,646 US. This means that, over a 10-year period, income exceeded expenses by about \$ 50,000 US per year. During the past 10 years we have gradually been increasing annual expenditures. For example, various grants to mathematical geoscience students now total about \$ 25,000 US annually versus \$ 5,000 US four years ago. More money also is being spent on publicity, legal services, administration including new website, and travel by IAMG Executive and members. A conundrum is that as scientists we are only marginally interested in the legal and financial aspects of administering the increasingly large number of programs in which IAMG has become involved. For most of our members, the nitty-gritty of law and business administration are less rewarding than scientific research with publication and peer review. In spite of these difficulties, we remain a viable professionally-run organization and I wish to thank all of you who, on a voluntary basis, have contributed so much to the running of the IAMG.

*Frits Agterberg*

# Association Business

## Election Results

In online voting, set up successfully by Dragonfly, 173 members elected the new IAMG board and gave their opinion on the future name of the Association. The two names most favored are: IAMG: International Association for Mathematical Geology (no change) and IAMG: International Association for Mathematical Geosciences. In a subsequent run-off election the final choice was **International Association for Mathematical Geosciences**.

Subject to ratification at the IAMG General Assembly to be held on 8 August 2008 in Oslo, Norway, the composition of the new **Council** will be:



President: Vera Pawlowsky-Glahn (Spain)



Vice President: Qiuming Cheng (Canada/China)



Secretary-General: Dan Tetzlaff (USA)

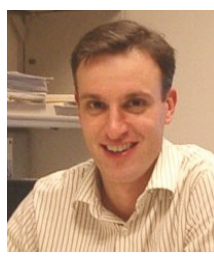


Treasurer: Gina Ross (USA)

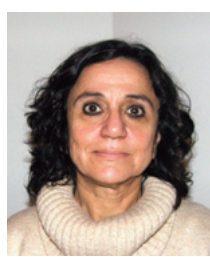
### Councillors:



George Bárdossy (Hungary)



Jef Caers (USA)



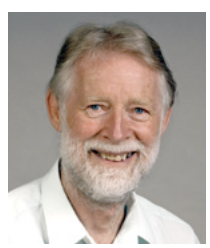
Angela Diblasi (Argentina)



Eric Pirard (Belgium)



Christien Thiar (South Africa)



Richard Webster (UK)



IGC Councillor: Simon Cox (Australia)

## IAMG AWARDS 2008

On behalf of the Awards Committee, I take great pleasure in congratulating this year's recipients of the Krumbein Medal and the Griffiths Teaching Award.

The **Krumbein Medal**, the IAMG's highest award, is won by Professor **Qiuming Cheng**. He is full professor jointly in the Department of Earth and Space Science and Engineering, and in the Department of Geography, at York University, Toronto. Additionally, he is Changjiang Scholar Professor and Director of the State Key Laboratory of Geological Processes and Mineral Resources (GPMR), which is part of the China University of Geosciences (CUG) with campuses in Wuhan and Beijing. Both in Toronto and Wuhan/Beijing he directs the research of large teams consisting of graduate students, postdoctoral fellows, and visiting scientists. In addition to serving on the IAMG Council, editorial boards and committees, he was mainly responsible for organizing two very successful annual meetings (IAMG-2005 in Toronto, and IAMG-2007 in Beijing). The second of these conferences with over 400 participants was our largest annual meeting ever. Largely due to Qiuming's promotion of the IAMG, we now have many active members in China.

Professor **Vera Pawlowsky-Glahn** is this year's winner of the **Griffiths Teaching Award**. Vera is already a recipient of the Krumbein Medal and is IAMG President-elect. She is Professor at the department of Informatics and Applied Mathematics at the University of Girona, Spain. Apart from her extensive publications especially in the field of compositional statistics, she has built up and runs what is one of the world's leading centres of mathematical geoscience teaching and research. Apart from her very active research programme, she personally teaches a wide range of subjects at both undergraduate and postgraduate level at Girona (and previously at Berlin and Catalonia), and the quality of her teaching is demonstrated by the fact that many of her students have themselves gone on to receive high honours. Over the years, and more recently as IAMG Distinguished Lecturer, she has given short courses and seminars not only in Spain and Germany (Jena, Greifswald, Göttingen, Kiel) but also in Argentina, Italy, China and Hungary, and of course at many IAMG Conferences.

*Stephen Henley  
Chair, IAMG Awards Committee*

**Adrian Baddeley** has been selected as our 2008 **Georges Matheron Lecturer** and will present a keynote lecture at the IGC in Oslo in August. He is Professor of Statistics at the University of Western Australia in the School of Mathematics and Statistics and has been Science Fellow at CSIRO Mathematical and Information Sciences during 2006-2008. Adrian took his B.A. Hons. (1st class) in Pure Mathematics and Statistics at the Australian National University, Canberra and in 1980 received his Ph.D. in Statistics from the University of Cambridge, UK, in the area of Stochastic geometry.

## New IAMG Archivist and IAMG Historian

For many years various papers and documents relating to IAMG were accumulated at the Kansas Geological Survey where Dan Merriam and John Davis in various official functions took care of the Association. With the closing of the Mathematical Geology Section of the Survey, Dan Merriam suggested moving the more pertinent material to a new location. **Graeme Bonham-Carter** has agreed to be our new IAMG Archivist and has taken the archive consisting of some 27 boxes home with him where it will be stored in a special room in the basement of his new home in Merrickville, Ontario. Having the archive close by will make it more convenient for Graeme to catalogue and arrange for scanning of the many of the numerous documents. The IAMG Archive contains information related to the origin and early years of the IAMG.

It includes the material originally provided by Richard Reymont to Dan Merriam, our first and previous Archivist. Our original Constitution (Statutes and By-Laws) was adopted in Prague, August 22, 1968 and published in *Mathematical Geology* (Vol. 1, No. 1, pp 123-126). It was amended 10 times. Until 1998, revised Statutes and By-Laws were published in *Mathematical Geology*. The current Constitution can be found on our website.

**Dan Merriam** having been relieved of all the boxes now can concentrate on his real love: the history of mathematical geology and the IAMG. Evidence of this preoccupation can be found in this Newsletter (pp. 11-12), the column "Where are they now" and in several of the previous issues. He is, of course, in a perfect position for this job because early on he was actively involved in mathematical geology and in the precursor organization of IAMG, was a founding member in Prague 1968, and for many years was at the center of the development of IAMG and has personally known the many colleagues who have contributed to its success. All this experience and knowledge should serve him well as IAMG Historian in keeping us informed of our Association's history.



## Future IAMG Annual Meetings

Plans for the next four years of meetings after this year's International Geological Congress in Oslo are taking shape. Stanford is set for next year, and the line-up is most likely the following:

2009 - Stanford, California

2010 - Budapest, Hungary

2011 - Salzburg, Austria (tentative)

2012 - Brisbane, Australia (IGC 34)

Proposals to hold IAMG-2010 in Budapest, Hungary have been accepted by the IAMG Board. The idea was first proposed by George Bardossy (just elected Councilor of IAMG) This would be our first Annual Meeting in a country east of the former iron curtain. (IAMG was founded at the 23rd IGC in Prague, Czech Republic in 1968; and our Silver Anniversary in 1993 was held in Prague as well). The meeting will be held at Eötvös Lóránd University in Budapest from August 29 to September 2, 2010. The main theme will be "The role of geomathematics in mineral exploration and in the solution of environmental problems". Chief organizers are Janos Geiger, Associate Professor at the Department of Geology and Paleontology, University of Szeged, and Jozsef Kovacs, Eötvös Lóránd University.

After receiving the Budapest proposal, we learned that preparations in Salzburg, Austria, to submit a proposal to hold IAMG-2010 in Salzburg were at an advanced stage. During the past 10 years or so, IAMG has discouraged outright competition between potential sponsors of the IAMG annual meetings. Instead, it was attempted to reach a decision by consensus. This was preferred to avoid the large amount of work that would be performed in vain by the "losing" team. Also, several times it was difficult to find a sponsoring organization at all. Therefore president Agterberg asked Robert Marschallinger the chief organizer, if they would be willing to organize IAMG-2011 instead of IAMG-2010.

In response, the Austrian team decided to withdraw the 2010 bid and to plan for an IAMG meeting in Salzburg, 2011.

Pending a final proposal and Council approval we hope to see the 2011 meeting take place in Salzburg. As it stands now, the AGIT staff, which organizes one of the biggest European Geo-Informatics conferences (held annually in Salzburg, with 1100 attendees in 2007) has agreed to help in organizing the logistics. The core organization committee includes R. Marschallinger (Austrian Academy of Sciences GIScience research facility, Salzburg), J. Strobl (ZGIS centre of geoinformatics, Salzburg), V. Höck (Inst. Geography and Geology, Univ. Salzburg), and B. Zagal (AGIT organization committee).

For 2012 we can look forward to have the IAMG General Assembly in conjunction with 34th International Geological Congress in Brisbane. The Special ICG Councilor just elected to be our liaison in Brisbane is Simon Cox of CSIRO.



## DONALD E. MYERS

### 2008 IAMG DISTINGUISHED LECTURER

Donald Myers is Emeritus Professor of Mathematics and Hydrology at the University of Arizona. Don is one of the "giants" within the IAMG and the broader communities of mathematical geology, spatial statistics, and environmetrics. He has devoted almost his entire career to the applications of mathematics and statistics in the earth and environmental sciences and has a distinguished record of scholarship in this arena. He has numerous publications in IAMG journals, as well as many others in scientific journals of related interest to most IAMG members, and he is well-known within the IAMG community. Don is a good speaker, is enthusiastic about mathematical geology, and is well-traveled around the globe, having given at least 30 presentations outside the United States over the past 10 years.

Dr. Myers DL schedule is nearly fully booked with lectures this spring in the US and Mexico and planned lectures for this summer at several venues in Germany, Spain and Italy. There may be a few openings in the fall depending on the location and the intended dates. Don can meet informally for discussion with small groups; he is prepared to present the following one hour lectures. Each can be tailored somewhat to specific audiences. There will be a strong emphasis on the use of software and actual data in each of the lectures.

Please contact Sean McKenna, DL Committee Chair, at [samcken@sandia.gov](mailto:samcken@sandia.gov) if you have an interest in scheduling a DL visit at your institution.

I. For a general audience with little prior knowledge of geostatistics  
**HISTORY OF GEOSTATISTICS - PAST, PRESENT AND FUTURE.**  
 Geostatistics as we know it now is only about 45 years old although clearly it is based on earlier ideas. Initially, and even now to a considerable extent, it has developed outside of the statistical community, its development being heavily influenced by applications. While similar ideas were being put forward by Gandin in the USSR and Matérn at about the same time, it was the work of G. Matheron and his students at the Centre de Géostatistiques that prompted the spread of geostatistics in mining, hydrology, and petroleum in the early years. Geostatistics might also be viewed as a special case of spatial statistics which also is a relatively recent development. Geostatistics and more generally spatial statistics have been greatly influenced by the development of fast, inexpensive computing. The development and availability of software for geostatistics has also been a critical factor.

#### II. CONNECTIONS - GEOSTATISTICS, RADIAL BASIS FUNCTIONS AND OBJECTIVE ANALYSIS

Objective Analysis was the name given to the work of Gandin and it was primarily known in the atmospheric sciences. It has largely been absorbed and merged with the results and ideas of geostatistics. In contrast, the work of R. Hardy in the early 1970s on interpolation of gravity data was and is best known in the numerical analysis literature. The equivalence between the RBF interpolating function and the kriging estimator as well as between the equations determining the coefficients requires only basic linear algebra. However, the thrust in terms of applications has remained quite different. Moreover, the emphasis is almost entirely on radial, i.e., isotropic basis functions in the Radial Basis Function literature. The direct derivations for Radial Basis Functions appear to depend on deterministic assumptions rather than statistical assumptions, but this is more a difference in interpretation.

#### III. NON-GEOMETRIC ANISOTROPIES AND SPACE- TIME MODELING

Continuity is a basic function property in analysis, but it is deterministic and generally is taken to be non-directional. The variogram and (auto) covariance function are statistical measures of the degree of continuity when it is not deterministic, and they might be directionally dependent. The practical problem is constructing valid variograms or covariance functions incorporating directional dependence in the right way. Models where only the range of dependence is directionally dependent can be obtained by a stretching and a rotation on the underlying space. More complicated models are necessary if the sill or other parameters change with direction. Space-time models are a special case of this latter problem

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and various authors have used different constructions. The work of Cressie- Huang, De Cesare-Myers-De Iaco and Posa, Ma, Fuentes, Gneiting, Stein and others will be reviewed.

#### IV. MULTIVARIATE SPATIAL STATISTICS

Some authors have used the term “multivariate statistics” to mean spatial problems in higher dimensional space. But more commonly it means that there are several variables of interest in which case the key question is whether there is some form of dependence between the variables. The dependence may be deterministic, e.g., the differential equation linking head and hydraulic conductivity, or it may be statistical. The difference between variables may be one of the scale of observation, e.g., ground based observation vs satellite mounted sensor observations, or core assays vs “block” assays. Sometimes the relationship is assumed to be one of “cause and effect” but does not give rise to an analytic expression. Linear models (including Linear Mixed models and Generalized Linear Mixed Models) is one method for obtaining empirical relationships. Cokriging in its various forms is a generalization of kriging from the univariate form. Various problems arise in applying each of these techniques and they overlap to some extent. Cokriging is often used to utilize the redundancy in multivariate data to compensate for a lack of data for some variables by using spatial cross-correlations between pairs of variables as well as the spatial correlations for each variable separately. There are both practical and theoretical problems with applying these techniques. Their development has been strongly driven by applications.

◁

## IYPE @ ICG33

The International Year of Planet Earth (IYPE) is an initiative of the International Union of Geological Sciences (IUGS) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). It consists of two major programs: a Science Program—focused on complex interactions within the earth system and its long-term sustainability; and an Outreach program including educational ventures at all levels to convince politicians, other decision-makers and the public at large of the invaluable contributions made by geoscientists to society. The official Year is 2008 but activities have already started in 2007 and will continue during 2009. The IYPE program including lists of projects, activities and participants can be found on <http://www.yearofplanetearth.org>. IYPE will play a dominant rôle at the 33rd International Geological Congress in Oslo with presentations during plenary sessions every day. Similarly, IYPE will be featured prominently at other major conventions such as the Geological Society of America Annual Meeting and the 31st International Geographical Congress in Tunis.



Implementation of the Year's ambitions will be on international and national levels. To that end, National Committees of the Year of Planet Earth have been launched, or are in the process of being launched. By April 2008 National Committees were operational in 68 countries. In addition, the IYPE Board granted permission to develop Regional IYPE Committees for specific regions where these would be more feasible to establish than National Committees. One Regional IYPE Committee was established in East and Southeast Asia, covering 11 nations.

IAMG has formally accepted the invitation to become the 15th International Partner of IYPE. Non-commercial International Partners contribute at least US\$ 10,000 per year over 2008 and 2009. Existing partners include GSA, AGU, EGU, SEG, NASA, Springer-Verlag and several national geological surveys. Being an IYPE International Partner will greatly increase our visibility to the world.

During the Global Launch Event of IYPE in February in Paris, **Frits Agterberg** and **Gina Ross**, representing IAMG, met with Eduardo de Mulder, IYPE Executive Director, to discuss in which ways International Partnership will increase our visibility. IAMG is now listed both in the status report brochure and on the IYPE website.

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## New Books

Just published - new IAMG Monograph #8

### Statistical Methods for Estimating Petroleum Resources

by P.J. Lee, Edited by Jo Anne DeGraffenreid

ISBN13: 9780195331905 ISBN10: 0195331907 hardback, 256 pages, April 2008, In Stock, Price: \$125.00 ( \$93.50 member price).

#### Description

This book describes procedures for determining the total hydrocarbon (petroleum) resource or resource potential in a region. Statistical concepts and methods employed in petroleum resource assessment are the subject of the manuscript, extensively illustrated by numerous real case studies. Prof. Lee's computer-aided Petroleum Information Management and Resource Evaluation System (PETRIMES) methodology has been adopted by governments around the world and by major multinational oil companies to perform resource assessment and to predict future oil and gas production. Though this methodology is so widely used, there is no “user's guide” to it, and this book will be the definitive resource for PETRIMES users.



Posthumously published, this book has been in the making for about 8 years, and thanks to the hard and diligent work of Monograph Series Editor Jo Anne DeGraffenreid is finally available in print.

P.J. (Pei-Jen) Lee received his doctoral degree from McMaster University in Canada where Gerry Middleton was his thesis supervisor and Frits Agterberg his external examiner. He worked for Home Oil Company and then joined the Geological Survey of Canada in Calgary in 1979. In 1996, he became Professor and Chairman of the Department of Earth Sciences, National Cheng Kung University of Taiwan. After returning to Canada as President of Perspective Information Inc., he was involved in a new project for a computer system for assessing landslides hazards in conjunction with the National Cheng Kung University.

P.J. Lee had over forty years of experience in petroleum geology, basin analysis, and petroleum resource evaluation, and developed a computer-aided Petroleum Information Management and Resource Evaluation System (PETRIMES/W) for estimating undiscovered petroleum resources. He had more than 80 scientific articles published in various international journals.

Among the many honors P.J. Lee received were the Gold Medal in 1993 presented by the First Annual Celebration of Excellence in Information Management in the Federal Government of Canada; he was the recipient of the Commemorative Medal for the 125th Anniversary of the Confederation of Canada presented by the Governor General of Canada; and the outstanding research awards for 1996, 1997, and 1998 presented by the National Science Council of Taiwan.

## Geostatistics for Environmental Scientists

R. Webster and M.A. Oliver

John Wiley & Sons, Chichester, 2007. 315 pp. ISBN 978-0-470-02858-2

This revised and fully updated 2nd edition provides comprehensive coverage of the techniques involved in this vital branch of statistics.

- It introduces readers to the most up-to-date statistical techniques, including sampling, data screening, spatial covariances, the variogram and its modelling.
- It includes a new chapter on stochastic simulation, and it covers the latest methods such as residual maximum likelihood and factorial kriging analysis.
- It adopts a practical approach throughout, illustrating the applications with worked examples and case studies.
- It provides step-by-step guidance for analysing environmental survey data.
- It explains the underlying theory and rationale behind the choices faced by researchers at each stage, allowing the reader to appreciate the assumptions and constraints involved.

The accessible style of this second edition of Geostatistics for Environmental Scientists makes this text invaluable for advanced undergraduate and post-graduate students of spatial variation in environmental research and young professionals who have to deal with such variation in their work.

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470028580.html>

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# Student Affairs

## Student Grants awarded

IAMG's student affairs committee has selected the following students from 13 applicants to receive a grant of US\$ 2,000 for scientific work in mathematical geosciences:

Terra Anderson,  
Daniel Buscombe,  
Doug Edmonds,  
David F. Machuca-Mory,  
Daniel Silva,  
Ahamefula Udume

*Helmut Schaeben*  
Chair IAMG Student Affairs Committee

## New IAMG Student Chapter

A new IAMG Student Chapter was formed at **Sun Yat-Sen University** in Guangzhou City and has been officially accepted by IAMG. It is the second IAMG student chapter established in China. (*To us older folks Guangzhou was known as Canton! - ed.*)

# Conference Reports

## The Journal of China University of Geosciences and the aftermath of the IAMG- 2007 China

One of the objectives of the IAMG is to achieve global propagation and participation of mathematical geosciences. The conference in China was an opportunity to get closer to those objectives. This was an important IAMG conference because it was held at a time when a booming Chinese economy calls for technological actions for a sustainable development. Of course, the aim of the conference was not only a global gathering of geoscientist. This is reflected in the aftermath of the IAMG-2007 China meeting. Part of the legacy of the meeting in China is obvious by the publication effects. Abstracts and extended abstracts were published in a volume of Proceedings made available during the conference. Some selected papers were further recommended to various peer-reviewed Journals. This includes the JOURNAL OF CHINA UNIVERSITY OF GEOSCIENCES (JCUG). JCUG is a peer-reviewed English journal publishing broad modern geoscientific ideas.

The IAMG wanted to leave a legacy beyond the usual proceedings which only publish short abstracts or extended abstracts. JCUG has already published various papers in its first issue of 2008 (**Volume 19, Issue 1, Pages 1-96, February 2008**) and will publish more papers which are constructed based on presentations delivered at the China IAMG -2007.

Some papers are listed as follows:

Tolosana-Delgado R, V Pawlowsky-Glahn, JJ Egozcue, 2008, Simplicial Indicator Kriging. 65-71

Cooper GRJ, 2008, Euler Deconvolution with Improved Accuracy and Multiple Different Structural Indices. 72-76

Wang Zhijing, Cheng Qiuming, Xu Deyi, Dong Yaosong, 2008,

Fractal Modeling of Sphalerite Banding in Jinding Pb-Zn Deposit, Yunnan, Southwestern China. 77-84

Vargas-Guzmán JA. 2008, Effect of Multipoint Heterogeneity on Nonlinear Transformations for Geological Modeling: Porosity-Permeability Relations Revisited, 85-92

Han Yan, Yang Yiheng, 2008, Monotone Regression and Correction for Order Relation Deviations in Indicator Kriging, 93-96

These papers are available in

<http://www.sciencedirect.com/science/journal/10020705>

and they contain groundbreaking ideas for a truly international audience.

*Q. M. Cheng*  
Conference Secretary-General of IAMG2007  
and Board member (JCUG)

## Skew Symmetric Probability Distributions in Bertinoro, Italy.

April 6-10, 2008 a small workshop on the so-called "Skew Symmetric Probability Distributions", the area related to the "skew-normal" and similar distributions, was held in Bertinoro, Italy. The workshop was organised by an Italian research group, lead by Adelchi Azzalini and Antonella Capitanio. It gathered about 30 people from all around the world to discuss "skew distributions". There were 29 presentations focused on theoretical and practical aspects, some of them on the Bayesian theory, and an open discussion that concluded the workshop. From my point of view, the most interesting contributions to the workshop were those dealing with the inferential aspects in the skew models (univariate and multivariate versions of skew-normal, skew-t or extended



skew-normal) and its applications. I presented a contribution on the multivariate skew-normal distribution on the simplex, which is suitable for modelling compositional data which present some skewness in their representation in coordinates.

The place where the workshop was held deserves special mention, as the University Residential Centre of Bertinoro is an ancient seminary build on the top of a hill overlooking the city of Bertinoro. Meetings took place in the Sala Affrescata, inside the Episcopal Fortress and decorated with important frescoes. The fascinating location can be viewed in [www.centrocongressibertinoro.it](http://www.centrocongressibertinoro.it).

*Gloria Mateu-Figueras*  
Member of the research group on compositional data  
University of Girona, Spain

# Member News

## Vera Pawlowsky-Glahn guest of the Royal Swedish Academy of Sciences

In October 2007, Vera and husband Juan-José Egozcue visited Stockholm under the aegis of the Swedish Academy of Sciences, the visit being defrayed by a grant from the Fund to the Memory of Jacob and Marcus Wallenberg. This fund provides the means for inviting distinguished foreign scientists to lecture on their research. A post-graduate course for research students in the geosciences was held at the University of Stockholm, followed by a lecture for a more general public. Juan-José was invited to Uppsala where he lectured to physicists on the geometry of Hilbert Space as relevant for compositional data analysis.

The visit was voted a great success by the students participating in the course. Vera was impressed with the standard of knowledge displayed by the post-graduates and their ability to appreciate the subtleties underlying the hypotheses relating to statistical data-analysis.



Lunch in the Academy dining room: Juan-José Egozcue, Vera Pawlowsky-Glahn, Professor Stefan Claesson, Chairman of the Section for Geosciences of the Academy of Sciences, Professor Barbara Wohlfarth, two students.

The successful outcome of the visit was to a very large extent due to the energetic participation of Professor Barbara Wohlfarth of the School of Geosciences at the University of Stockholm.

*submitted by Richard A. Reymont*

**Sean McKenna** and family are currently on assignment to Singapore. Sean is serving as an Adjunct Assoc. Professor in the Dept. of Environmental Science and Engineering at the National University of Singapore where he taught a course in Sample Design this spring.



The 'old timers' 2007 Christmas luncheon in Lawrence (from left to right): Floyd Preston, retired University of Kansas professor of Petroleum Engineering; Dan Merriam, professor emeritus Wichita State University; Ricardo Olea, USGS Reston, Virginia formerly with the Kansas Geological Survey; John Doveton, petrophysicist with the Kansas Geological Survey; Bill Hambleton, director emeritus Kansas Geological Survey; John Harbaugh, professor emeritus Stanford University; and John Davis, geologist emeritus Kansas Geological Survey; all in one way or another have played a prominent role in the history of the IAMG.

## Where Are They Now?

**Frits Agterberg and Dan Merriam**

by Dan Merriam, IAMG historian

*As part of the preparation for the 40th anniversary of our Association in 2008, Dan Merriam had suggested this column to track the whereabouts and developments of members once in the limelight. This is his third contribution. Anyone who has knowledge of what our elder colleagues have been doing is invited to send a short summary to the Editor or Dan.*

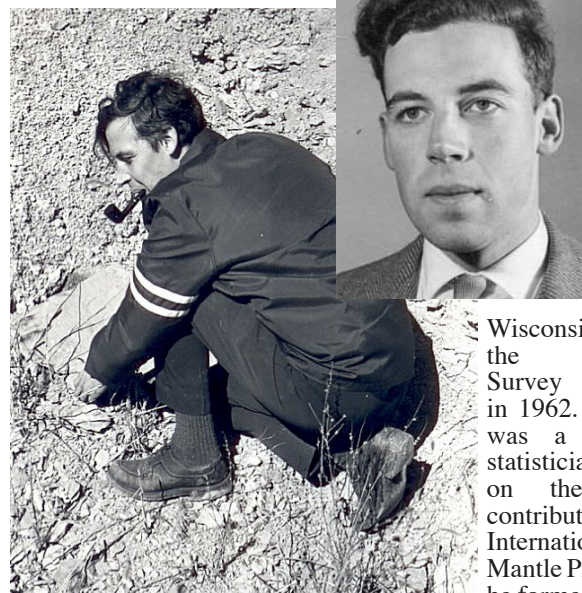
It may difficult for the younger generation to realize the conditions under which the Association was founded 40 years ago (Merriam, 1978). The world was divided into East and West and contacts across this division were difficult at best and the threat of nuclear war was always with us.

The International Geological Congress, hosted in the East in Prague, allowed attendees from around the world to meet and exchange ideas. The invasion of Russian troops, however, during the Congress was a complete surprise to all concerned, including the attending Russian geologists. Although the occupation completely disrupted the Congress, the IAMG organizational meeting took place under the guns; a brief description of the event was given from my perspective (Merriam, 2007a).

Eight of the founding members of IAMG in Prague in 1968 have been chronicled in previous newsletters and include John Harbaugh (USA), Danie Krige (South Africa), Vic Loudon (UK), Richard McCammon (USA), Václav Němec (Czechoslovakia), Richard Reymont (Sweden), Hannes Thiergärtner (then East Germany), and Tim Whitten (USA) (Merriam, 2007b, 2007c). All of the living attendees are retired, but most remain active.

Of the twenty that attended that ill-fated meeting in August of 1968, five are known to be deceased including Colin Dixon (UK), Dimitri Rodionov (USSR), Andrei Vistelius (USSR), Geoff Watson (USA), and Peter Wilkinson (UK). The whereabouts of five others including F. Benkő (Hungary), D.J. Burdon (the United Nations representative), R. Hesse (West Germany), R. Ivanov (Bulgaria), and V. Kutolin (USSR) are unknown. That leaves two who are chronicled here. Both Frits Agterberg and Dan Merriam have been president of the IAMG and both have received the William Christian Krumbein Medal, the highest honor IAMG can bestow.

**Frederik Pieter Agterberg** (Canada), although retired from the Geological Survey of Canada, is still active, currently serving as IAMG president. He was born in The Netherlands and studied geology and geophysics at



A young Frits Agterberg doing fieldwork

Utrecht in 1961. After a one-year Wisconsin Alumni Research Foundation post-doctorate fellowship at the University of

Wisconsin, he joined the Geological Survey of Canada in 1962. Initially he was a petrological statistician working on the Canadian contribution to the International Upper Mantle Project. Later, he formed and headed the Geomathematics

Section of the Geological Survey of Canada in Ottawa.

Frits has authored or co-authored over 250 scientific publications including the textbook "Geomathematics: Mathematical Background and Geo-science Applications" published in 1974 by Elsevier, and the monograph "Automated Stratigraphic Correlation" (1990). He has edited or co-edited seven other books and special issues in scientific journals.

Since 1968 he has been associated with the University of Ottawa where he taught an undergraduate course on «Statistics in Geology» for 25 years, and directed the undergraduate and graduate student research. Other academic positions included being Visiting Research Scientist at the Kansas Geological Survey at the University of Kansas (1969-1970), Adjunct Professor at Syracuse University (1977-1981), Esso Distinguished Lecturer for the Australian Mineral Resource Foundation, University of Sydney (1980), and Adjunct Research Professor, Department of Mathematics, Carleton University, Ottawa (1986-1994).

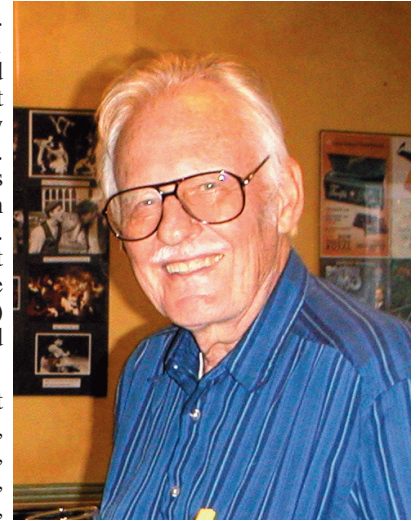
Agterberg has lectured in more than 50 short courses worldwide. From 1979 to 1985 he was Leader of the International Geological Correlation Programme's Project on «Quantitative Stratigraphic Correlation Techniques.» He has served on numerous committees, editorial boards, and councils of national and international organizations.

In 1978 he became the third Krumbein medalist and has received the Best Paper Award for articles in Computers & Geosciences in 1978, 1979 and 1982. Other honors include his appointment as



relinquished editorship of Natural Resources Research; he founded the Journal of Mathematical Geology and Computers & Geosciences. He was president in 1976-80.

Educated in the US and Europe, he has a PhD from the University of Kansas and a DSc from Leicester University in England. He worked for an oil company before joining the staff of the Kansas Geological Survey in 1953. In 1971 he moved to Syracuse University as a distinguished professor and head of the Department of Geology. He returned to Kansas in 1981 as distinguished professor and chairman of the Department of Geology and Geography at Wichita State University. In 1991 rejoined the Kansas Geological Survey as a Senior Research Scientist before retiring in 1997. He currently is an Adjunct Professor at Emporia State University (Emporia, Kansas) and continues his research and work at the Survey.



Dan has been a visiting scientist at Stanford University (USA), Leicester University (England), Dartmouth University (USA), University of Sydney (Australia), École des Mines de Paris (Fontainebleau, France), and the GeoForschungsZentrum Potsdam (Germany). He is a member, fellow, or honorary member of many organizations including being the only Honorary Member of IAMG. He has received several honors including the Krumbein Medal from the IAMG in 1981 and a festschrift edited by John Davis and Ute Herzfeld (1993).

He has published extensively on cratonic basins and their geothermal overprint, development of 'plains-type folds,' which are local oil and gas producing anticlines, and genetic stratigraphy (cyclic sedimentation) with emphasis on the Midcontinent (USA) and Kansas in particular. Because his current interests also are in the history of geology, he has been appointed the historian for IAMG as well as for the Department of Geology at the University of Kansas.



Dan Merriam and Frits Agterberg ca. 1978

correspondent of the Royal Dutch Academy of Sciences in 1981 and as Honorary Professor at three Chinese universities (Wuhan College of Geology, 1978; Changchun University of Geosciences, 1996; and China University of Geo-sciences Beijing, 2007). A newly discovered fossil was named after him *Adercotrima agterbergi* to recognize his contributions to quantitative stratigraphy. In 2003 he was appointed second Distinguished Lecturer for the IAMG.

His research interests from 1958 to the present span a wide range of subjects, but most have an underlying statistical or mathematical base.

**Daniel F. Merriam** (USA), likewise is retired, with emeritus status from the Kansas Geological Survey and Wichita State University, but remains active. He has been involved with the IAMG since its founding and continuously on the Council for 40 years until this year when he

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#### Obituaries

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- Merriam, D.F., 2001, Andrei Borisovich Vistelius: a dominant figure in 20th Century mathematical geology: Natural Resources Research, v. 10, no. 4, p. 297-304.
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## Proposal for a Series of IAMG Overviews

John W. Harbaugh

The overall objective would be to provide frequently updated overviews that deal with the current status of specific fields of mathematical applications in the geosciences. Ideally the overviews would be updated once a year, and more often depending on the rate of development in the field. The goal would be to provide a timely and conveniently accessible source so that anyone could readily find out about the status of ongoing research in a specific field of application. In other words, the prospective user of the system could quickly find out who is doing what, what the status of specific projects are with respect to existing publications and pending publications, and if publication is not imminent, are interim reports prospectively available via other means, including commercial descriptions. Utopian? Maybe, but let's explore the potential.

Before we proceed, let's examine how knowledge about these fields of application is currently disseminated. Some, of course is via formal publication in journals of the IAMG and other professional societies. Some is via oral and poster presentations and commercial exhibits at meetings of the IAMG and other geological conclaves. Some is via advertising by vendors. Informal "word-of-mouth" transmission probably accounts for a lot of dissemination, not only at meetings but also by personal contacts among friends and acquaintances. Knowledge does get disbursed. There is a network out there, and we know that it is important, but its effectiveness is hard to measure.

Many different topics could be defined that are appropriate for mathematical geology, so one of the challenges is how to select them, how to classify them, and how to bound them. Virtually all intergrade and can be thought of as part of a continuum (or continua). Depending on the classification, offhand there might be at least 50 to 100 readily defined topics, and maybe more.

If this proposal has strong merit, I suggest that a committee will be needed to prepare a preliminary plan for it, assuming that the committee concurs that a series of overviews is desirable and worth the effort. An earlier step will be to draw up the charge to the committee.

Below, I've outlined issues that probably would be involved in an overview focused on sedimentary basin modeling. It is a "trial balloon" that I have drawn up based largely on my former involvement in sedimentary basin modeling. My idea as I wrote this was that it would help me think about what would likely be involved in such an overview. I now realize that sedimentary basin modeling would likely involve a very large overview, so one of the considerations will be to decide how to how to define it and bound it so it is kept within manageable size.

I must state, however, that I am now long out of active involvement in basin modeling, having retired from academia nine years ago and since then have turned my professional interests to oil and gas production and management of mineral lands in Oklahoma and the Texas Panhandle. Times change. If there is strong interest among key IAMG people, I will be happy to continue. In the meantime, I would appreciate your responses.

### SEDIMENTARY BASIN MODELING: A "TRIAL BALLOON"

In analyzing what an overview might involve, suppose someone wants to know the present status of the field of sedimentary basin modeling. Of course there is a lot going on, but someone unacquainted with the field would have a hard time finding out much about it and making effective comparisons between the different versions that are currently available. The published literature consisting of a handful of books and numerous articles in established journals would help, but would probably fall short of providing an effective up-to-date overview of what's going on world-wide.

While there are still academics in the field, various oil-industry service companies now provide most of the relatively advanced computing procedures for basin modeling. We know about these commercial sources from commercial exhibits at meetings, as well as presentations by academic researchers in the field who interface with the companies. While basin modeling began as an academic cottage industry, it now involves high-powered software available for rent or purchase. For example, could advice be provided to an academic who wants to try an existing basin modeling scheme? Or, could objective comparisons be provided for independent oil and gas producers who don't have research staffs but would like to find out what's commercially suitable?

In turn, these questions raise the question whether it is suitable for IAMG to provide overviews of commercial basin models? In defense of the IAMG's potential sponsorship role, sedimentary basin modeling is intensely geological as well as intensely mathematical and computational. Given that, it seems to me that

a basin modeling overview is suitable for inclusion in a spectrum of overviews, but there are aspects that we need to consider at the outset, and all of them involve issues of classification, as follows:

**Dimensionality:** Two-dimensional versus two-and-a-half-dimensional versus three-dimensional models. Most of the earlier academic models are 2-D, although several were 2.5-D. Now, the most advanced are partly 3-D. True three-dimensionality is almost an elusive goal that may not be reached for a while. In fact, it may be more useful to think of dimensionality as a continuum ranging from 2-D to 3-D, and to devise classification schemes that reflect the degrees of dimensionality.

**Dynamic versus static:** Today's sedimentary basin models are dynamic. The main idea is to see what happens when specific controls are imposed on the model and it responds dynamically. However, there are limits. Translation of motions vertically in a sequence of simulated deposits is readily accomplished, but lateral deformation after deposition is difficult to represent, particularly if "conservation of volume" is to be observed.

**Geometric-form models versus geologic-process models.** Most 2-D, 2.5-D and 3-D models are geometric-form models, but some may contain partial and greatly simplified process-related aspects, such as sediment transport represented by large-scale movement. Others are much more dedicated to representation of geologic processes themselves, such as transport of clastic sediment as functions of grain size and flow velocities.

**Interdependence of components:** While we readily grant that geological processes in the real world are truly interdependent, there are large problems in incorporating true interdependence between components of a simulation model, no matter how simplified the model may be. For one, interdependence inevitably results in chaotic and cyclic behavior, which in one sense is desirable because it is an aspect of the real world's behavior.

**Lateral and vertical compartmentation:** Given the present state of the art, it seems that compartmentation of space (and time) is necessary. We have to devise compartments because we can't readily represent geological features as continuous features. In turn, we have to represent all this geological information in numerical form, in arrays. Laterally, it is convenient to represent the two areal dimensions in arrays indexed by rows and columns that define fixed geographic cells. Of course the number of cells gets large if detail is to be represented over a substantial area. For example, a 1000 x 1000 lateral array might be the minimum for representation of an area in a simulation, but at this rate, each vertical division, however defined, has a million elements. If there are 1000 vertical divisions, there are a billion cells. Sooner or later, the computational demands get large. There is a further complication in that vertical cellular dimensions may vary from cell to cell. And so far, we haven't touched on the issue of lateral translation of cells in the sediment volume.

**Other considerations:** I will back off at this point, but I should add that there are a number of other technical considerations that include representation of time, scales for time and space, graphic display, computational challenges, stability issues, devising input parameters, validation, assessing the usefulness of predictions in space, and means for analyzing the uncertainty. This foray into sedimentary basin modeling readily reveals that there are many aspects that need to be considered in an overview:

**Scope of the overview is critical.** The boundaries of topics included in an overview are likely to require arbitrary definitions because they are part of a continuum. This is hardly surprising, but defining the boundaries is important. For example, sedimentary basin modeling intergrades with geophysics (seismic and well-log responses), and more broadly relates to many aspects of sedimentary geology, structural geology, and tectonics. While some of these fields may not be customarily considered to be part of mathematical geology, they are continua that intersect mathematical geology and vice versa.

**Classification is critical** because we have to define the field of an overview, and in turn classify what lies within it. Very likely we will need a multidimensional matrix. Consider basin modeling, which can be thought of as involving a continuum that include dimensionality, the degree to which geologic processes versus geometric forms are represented, the degree to which rock properties such as lithology, seismic velocities, gamma-ray responses, porosity and permeability, and fluid content are represented, and the degree of interdependence between processes and properties of the model. Then there are computational issues that are also part of a continuum, including time steps, discretization, vertical scales vs horizontal scales, stability, and so forth.

# IAMG Journal Report

## Mathematical Geosciences

I would like to comment on the new contract for Mathematical Geosciences as well as on developments since my reporting last August.

1. In my opinion, the new contract with Springer is outstanding and an example for our other journals. In summary:

- all the negative parts identified in the previous contract no longer exist;
- Springer is explicitly responsible for quality and there is a clear exit strategy, if we feel the need to do so;
- in addition to the responsibility, Springer provides now copy editing level 2 (implemented since May 07);
- the new contract includes all our requests, e.g., copies for students etc.;
- the funding to the journal is nearly doubled (20,000\$US/year from 11,000\$US/year before) with provisions to further support travelling for the editor as may be needed (e.g., my recent visit to Heidelberg was funded by Springer);

In all, this is a good contract. More important than the contract is the working relationship we have and develop with the publisher. Our new partner (the Springer group in Heidelberg is in practical terms a new one) is what I would describe as a highly professional, hard working, honest and most supportive group. My collaboration with them since the Spring of this year has been outstanding, most productive and, in its peculiar way, fun.

I very strongly support this outcome and approve the contract (with many thanks to Graeme Bonham-Carter for his work).

2. Summary on Mathematical Geosciences since the last one in August:

- the January issue, 40(1), is the first one with the new name;
- despite the move of production and typesetting and printing to different countries/organizations, the journal is back on track on production schedules, while the glitches from the fairly large scale reorganization we undertook this year have been minimal and, if any, certainly much less than I ever expected;
- MG has now a new cover, the typesetting follows a variation of Springer's standardization, and acid free paper is used;
- as of January, we welcomed on the Editorial Board Dr. Friedrich Wellmer (Germany) and Dr Guillaume Caumon (France), in an ongoing effort to renew, expand, increase activity and further improve;
- MG will have a new Book Review Editor, Dr Denis Marcotte (Canada) who will be replacing Dr Tim Coburn (USA); Tim is unable to continue due to increased administrative responsibilities at his University; we thank Tim for his efforts and contribution;
- regarding book reviews, we look forward to more book reviews, hoping that our issues from about mid 2008 and on will all include a book review;
- submissions to MG are to date about 30% higher than 2007, and I hope that this trend will continue; in my opinion, the improvement in submissions has not yet been followed by improvement in quality; improvement in quality remains my primary long term goal for the journal; rejection rate stands now at about 45%;
- as of November, the production process is electronic, from my final editing and acceptance to typesetting (all through Editorial Manager); this facilitates flow, efficiency in handling manuscripts, is less work than the manual workflow we used before, and minimizes possibilities for errors;
- substantial work remains in organizing other aspects of the Editorial Manager (for example, we need a new reviewers database and classification);
- my September visit to Heidelberg was productive and I understand more directly how things work and the persons involved; I can further support my impressions up to that time of a highly professional team that takes pride in their work.

*Roussos Dimitrakopoulos*  
Editor-in-Chief

## Natural Resources Research

Since late last year, when I took over from Dan Merriam as editor, there have been a number of changes to NRR. The biggest change is that, with the agreement of the editorial board, I have broadened the scope of the journal. The difference can be seen by comparing the former and current descriptions of the journal's focus. Prior coverage focused on "the quantitative exploration, assessment, and exploitation of mineral resources interpreted in the broadest sense". This has been expanded to "quantitative geoscientific studies reporting on the search for and development of natural resources, including their associated environmental, economical, and risk-related aspects". Consequently, readers will see articles concerning grain dust, rain, and heat flow, alongside the more mineral-related studies on coal gasification, reserves models, and gold prospecting.

There are several reasons for the change in scope. First, I believe the new scope better agrees with the journal title. Prospective authors and readers have a clearer view of what to expect. Second, a review of articles published in NRR over the past few years suggests that some contributions were well outside the mineral-orientated focus. Thus, the change brings these contributions into harmony with the journal theme. Third, the expansion produces a platform where resource modeling, assessment, management, and policy can be discussed.

Thanks to the change to electronic submission and with the help of a broad range of reviewers, I have been striving to provide reviews and a decision within three months of submission. If the author promptly responds to the decision, electronic publication is possible within six months of first submission. I believe the long-term health of NRR rests with authors receiving fair and prompt reviews and I ask successful authors to recommend the journal to their colleagues. I ask the same of my IAMG colleagues.

*Jerry L Jensen*  
Editor-in-Chief

## Mathematical Geosciences Editor's 2007 Best Reviewer Awards

It is a pleasure to introduce the first two recipients of this new award. Established in 2007, the "Editor's best reviewer award" is given yearly in recognition of outstanding efforts and contributions of the journal's reviewers. These colleagues graciously offer their expertise and professional service, and are key contributors to the quality of the journal.

The 2007 award recognizes two among our many invaluable reviewers, our colleagues **Christina Magill**, Macquarie University, Australia and **J. Antonio Vargas-Guzman**, Saudi Aramco, Saudi Arabia. Christina receives her award for her diligent, thorough reviews that surpass expectations, and her commitment and efforts in seeing full completion of new and revised versions of manuscripts. In addition, she has done significant technical linguistic editing for authors who cannot afford English language editorial services, to produce manuscripts with otherwise outstanding scientific content. Antonio has, for yet another year, offered his commitment to detailed reviews for an unusually high number of manuscripts, handled challenging manuscripts, and assisted authors in improving their work and papers.

In addition to meticulous technical reviews and expert critique, a key element of a good review is the invaluable substantial assistance to authors in improving their manuscripts through detailed suggestions and guidance for improvements. Both Christina and Antonio are bright examples of outstanding reviewers and fully deserve our recognition.

*Roussos Dimitrakopoulos*  
Editor-in-Chief  
Mathematical Geosciences

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Multiple-Point Statistics for Training Image Selection — Jeff B. Boisvert, Michael J. Pyrcz and Clayton V. Deutsch

Book Review: Global Warming and Global Cooling, Volume 5: Evolution of Climate on Earth. O. G. Sorokhtin, L. F. Khilyuk, and G. V. Chilingarian, Elsevier Science, 2007, 450 p. ISBN 0-444-52815-6, US\$160 — Alfred H. Pekarek

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M.J. Canty, Image Analysis, Classification and Change Detection in Remote Sensing (With Algorithms for ENVI/IDL), CRC Press, Boca Raton, FL (2007) ISBN 0-8493-7251-8 224 pp., USD 99.95, CDN 113.42, EUR 84.90, Hardbound. — Oliver Sonntag

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Jef Caers, *Petroleum Geostatistics*, Society of Petroleum Engineers, Richardson, TX (2005) ISBN 978-1-55563-106-2 96 pp., US\$47.50, Paperbound. — Geoffrey C. Bohling

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Association Announcement 2005 Felix Chayes Prize

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An electronic learning environment for the study of seismic wave propagation — G. Degrande, K. Geraedts

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Programs to compute magnetization to density ratio and the magnetization inclination from 3-D gravity and magnetic anomalies — Carlos A. Mendonça, Ahmed M.A. Meguid

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Effective modelling of percolation at the landscape scale using data-based approaches — Benny Selle, Gunnar Lischeid, Bernd Huwe

### C&G Volume 34, Issue 7 (July 2008)

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Tensor3D: A computer graphics program to simulate 3D real-time deformation and visualization of geometric bodies — Luca Pallozzi Lavorante, Hans Dirk Ebert

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### Harbaugh - cont'd from p. 10

Computer codes: Here we might presume that academic basin modeling is distinct from commercial basin modeling because of the presumed greater transparency of academically generated computer codes. By contrast, commercial codes presumably are likely to be regarded as trade secrets. From an academic research standpoint, accessibility of codes might be regarded as scientifically essential or at least desirable. Anyhow, the issue needs to be addressed in classification schemes.

Mathematics: Many fields in mathematical geology involve established mathematical concepts that may be more or less rudimentary, at least from a mathematician's viewpoint. Taking an example from sedimentary basin modeling, there are well-established procedures to represent flow, as well as accounting schemes to keep track of sediment that eroded, transported, and redeposited. The computing procedures may be involved, although the underlying mathematics may be much more straight forward. But many of the aspects involve challenging computing procedures, as for example in graphic display. The problem is that it could be difficult to separate computing procedures from the underlying mathematics. We can envision many mathematical aspects that could be put into the matrix.

Who's involved: We need information on who is doing what, and how the work is sponsored. Of course, some work is not formally sponsored given that academics often do what interests them. This is fine, but probably atypical. We know that big quasi-3-D basin models require so much manpower and computer power that they may be unsuited for academic development.



# Upcoming Meetings

2008 JOINT STATISTICAL MEETINGS, Denver, Colorado,  
**3-7 August 2008**. Elaine Powell Phone: (888) 231-3473 Fax: 703-684-8069  
 Email: [jsm@amstat.org](mailto:jsm@amstat.org), [www.amstat.org/meetings/](http://www.amstat.org/meetings/)

ICG 33rd International Geological Congress, Oslo, Norway, **5-14 August 2008**.  
 Congress Conference AS, Thomas Heftyesgt. 2, P.O. Box 2694 Solli, No 0204  
 Oslo, Phone: +47-2256 1930, Fax: +47-2256 0541, [www.33igc.org](http://www.33igc.org). Includes  
 IAMG sponsored sessions and IAMG General Assembly.

CLINOFORM SEDIMENTARY DEPOSITS: The processes producing them  
 and the stratigraphy defining them, Western Wyoming Community College,  
 Rock Springs, WY, USA, **15-18 Aug 2008**. SEPM Society for Sedimentary  
 Geology. Howard Harper, EMail: [hharper@sepm.org](mailto:hharper@sepm.org),  
 Web: <http://www.sepm.org>

International Conference on URANIUM MINING AND HYDROGEOLOGY  
 V. Technische Universität Bergakademie Freiberg, Germany, **14 - 18 September  
 2008**. Phone 0049 - 3731 - 39-3309, fax: 0049 - 3731 - 39-2720, email:  
[umh@geo.tu-freiberg.de](mailto:umh@geo.tu-freiberg.de), <http://www.geo.tu-freiberg.de/umh/index.htm>

GEOMODEL 2008 - 10th Annual Conference and Workshop on Integrated  
 Interpretation of Geophysical and Geological Data in Geological Modeling of  
 Hydrocarbon Fields, Gelendzhik, Russia, **21 - 26 September 2008**.  
<http://www.eage.org/>

GeoMod2008, Villa La Pietra, Florence, Italy, **22-24 September 2008**.  
 Consiglio Nazionale Ricerche; Università di Firenze; Vrije Universiteit  
 Amsterdam; International Year Planet Earth; International Lithosphere Program.  
 Giacomo Corti, Via G. La Pira, 4, Phone: +39 055 2757528;  
 EMail: [giacomo.corti@unifi.it](mailto:giacomo.corti@unifi.it); Web: <http://www.geomod2008.org>

GEO2008 - Resources and Risks in the Earth System (International Conference  
 and Annual Meeting of DGG and GV), Aachen, Germany,  
**29 September - 2 October 2008**. Ralf Littke, Institute of Petroleum and Coal,  
 RWTH Aachen, Lochnerstrasse 4-20, 52056 Aachen, GERMANY,  
 Phone: +49/241/80-95757, Fax: +49/241/80-95152,  
 E-mail: [info@geo2008.de](mailto:info@geo2008.de), Web site: <http://www.geo2008.de>

Geological Society of America (GSA), Houston, Texas, **5-9 October 2008**.  
 Celebrating the International Year of Planet Earth, Joint Meeting of GSA,  
 American Society of Agronomy, Crop Science Society of America, Soil Science  
 Society of America, Gulf Coast Association of Geological Societies with the  
 Gulf Coast Section of SEPM. Hosted by the Houston Geological Society.  
<http://www.acsmeetings.org/2008/>

New Challenges in EARTHQUAKE DYNAMICS: Observing and Modelling a  
 Multi-Scale System, Obergurgl, Ötztal Valley, near Innsbruck, Austria, European  
 Science Foundation (ESF), Austrian Science Fund (FWF), and Innsbruck  
 University (LFUI), **18-23 October 2008**. Chiara Orefice, ESF Conferences Unit,  
 149 avenue Louise, Box 14, Tour Generali, 15th Floor, 1050 Brussels, Belgium,  
 Phone: +32 (0)2 533 2023, FAX: +32 (0)2 538 8486, EMail: [corefice@esf.org](mailto:corefice@esf.org),  
 Web: <http://www.esf.org/conferences/08260>

New Methodologies and Interdisciplinary Approaches in GLOBAL CHANGE  
 Researches, ESF-FMSH Entre-Sciences Conferences on Interdisciplinary  
 Environmental Sciences, Ile de Porquerolles, France, **5 - 10 November 2008**.  
<http://www.esf.org/activities/esf-conferences/details/confdetail284.html>

SEG International Exposition, 78th Annual Meeting, Las Vegas, Nevada, USA,  
**9 - 14 November 2008**. <http://meeting.seg.org/index.shtml>

Innovations in MODELLING THE NEAR-SURFACE, Manama, Bahrain,  
 Society of Exploration Geophysicists (SEG) and the Dhahran Geoscience  
 Society (DGS), **23 - 25 November 2008**.  
<http://www.eage.org/events/index.php?eventid=96>

Eighth International Geostatistics Congress - GEOSTATS 2008, Santiago, Chile,  
**1-5 December 2008**. Department of Mining Engineering, University of Chile.  
 Amada Plaza, Paseo Bulnes 197. Piso 6, Phone: (56-2) 652 1521  
 FAX: (56-2) 652 1570, EMail: [info@geostats2008.com](mailto:info@geostats2008.com),  
 Web: <http://www.geostats2008.com>

American Geophysical Union (AGU Fall Meeting), San Francisco, California,  
 USA. E. Terry, AGU Meetings Department, 2000 Florida Avenue, NW,  
 Washington, DC 20009 USA, **15-19 December 2008**. Phone: +1 202 777 7335;  
 Fax: +1 202 328 0566; E-mail: [meetinginfo@agu.org](mailto:meetinginfo@agu.org);  
 Website: <http://www.agu.org/meetings>

SPE Reservoir Simulation Symposium, The Woodlands, Texas, USA,  
**2 - 4 Feb 2009**. <http://www.spe.org/events/rss/>

AAPG Annual Convention and Exhibition, The Colorado Convention Center,  
 Denver, Colorado, USA, **7-10 June 2009**. American Association of Petroleum  
 Geologists. Randa Reeder Briggs, P.O. Box 979, Tulsa, OK 74101,  
 Phone: 918-560-2660, FAX: 918-560-2684, EMail: [rreeder@aapg.org](mailto:rreeder@aapg.org)

71st EAGE Conference & Exhibition, Amsterdam, The Netherlands,  
**08 - 11 June 2009**. [www.eage.org/events/](http://www.eage.org/events/)

SIAM Conference on Mathematical & Computational Issues in the Geosciences  
 (GS09), Helmholtz-Zentrum für Umweltforschung Leipzig, Germany,  
**15-18 June 2009**. <http://www.siam.org/meetings/calendar.php?id=601>

2009 JOINT STATISTICAL MEETINGS, Washington, DC, USA,  
**02 - 06 August 2009**. Elaine Powell, Phone: 703-684-1221,  
 Fax: 703-684-8069, Email: [elaine@amstat.org](mailto:elaine@amstat.org), [www.amstat.org/meetings/](http://www.amstat.org/meetings/)

INTERNATIONAL STATISTICAL INSTITUTE 57th Biennial Session Durban,  
 South Africa, **16 - 22 August 2009**. Shabani Mehta Phone: +31-70-3375737,  
 Fax: +31-70-3860025, Email: [isi@cbs.nl](mailto:isi@cbs.nl), [www.cbs.nl/isi/](http://www.cbs.nl/isi/)

IAMG2009, International Association for Mathematical Geology Annual  
 Conference, Stanford University, California, **23-28 August 2009**. Jef Caers,  
 chairman. <http://iamg09.stanford.edu/>

JOINT STATISTICAL MEETING, American Statistical Association, Vancouver,  
 British Columbia, Canada, **1 - 5 August 2010**. [www.amstat.org/meetings](http://www.amstat.org/meetings)

IAMG 2010, Eötvös Lóránd University, Budapest, Hungary,  
**29 August - 2 September 2010**



## IAMG General Assembly and Celebration in Oslo on August 8, 2008

Celebrating its 40th anniversary, the IAMG will have an active profile  
 in Oslo during the forthcoming 33rd International Geological Congress.  
 From August 6 to 8, we are co-sponsoring a variety of symposia and  
 special lectures in the Norway Convention Centre in Lillestrøm that are  
 listed on [www.33igc.org](http://www.33igc.org). These include presentations by our William  
 Christian Krumbein Medalist, John Cedric Griffiths Award Winners, and  
 the Georges Matheron Lecture.

The IAMG Business Meeting will be held in the newly restored Tøyen  
 Hovedgård (Manor House; literary translated Mainfarm) of the Natural  
 History Museum of the University of Oslo, on Friday, 8 August 2008. The  
 General Assembly will be from 16:00 to 18:30 p.m., and the 40th IAMG  
 Anniversary Celebration will commence after the General Assembly.

The Natural History Museum with geological and paleontological  
 exhibitions is located in the Botanical Gardens (free admission) described  
 as an oasis in the heart of Oslo. It contains a rock garden with more than  
 1,000 mountain plants around its waterfalls. Nearby is the Edward Munch  
 Museum (Tøyengate 53; admission 60 NOK) where "The Scream" and  
 other Munch paintings are on display. The birthday celebration will take  
 place both inside and outside the Hovedgård with a dinner featuring  
 Norwegian and exotic dishes with live music provided by the world  
 famous Muddy Waters Blues & Rock Live Band.

Dinner reservations can be made in advance by e-mailing the IAMG  
 Office ([office@iamg.org](mailto:office@iamg.org)) at a cost of \$ 60 US/per person for IAMG  
 members in good standing and spouses (and \$ 30 US/per person for  
 IAMG student members) to be paid in advance. Tickets can be picked up  
 before noon at the IAMG's 33rd IGC Booth in the Norway Convention  
 Centre or in the Hovedgård before commencement of the celebrations.

Dinner ticket price for non-members is \$ 120 US/per person and spouses  
 to be paid in advance. Payment of this non-subsidized price can be avoided  
 by registering as an IAMG member at [www.iamg.org](http://www.iamg.org) before ordering  
 banquet tickets. Membership dues for 2008 are \$ 10 US; while 4-year  
 and lifetime membership dues are \$ 40 US and \$ 120 US, respectively.

**Please make your Banquet reservations as soon as possible,  
 because IAMG must pre-pay expenses in June.**





**INTERNATIONAL ASSOCIATION FOR MATHEMATICAL GEOLOGY  
YEAR 2008 MEMBERSHIP APPLICATION**

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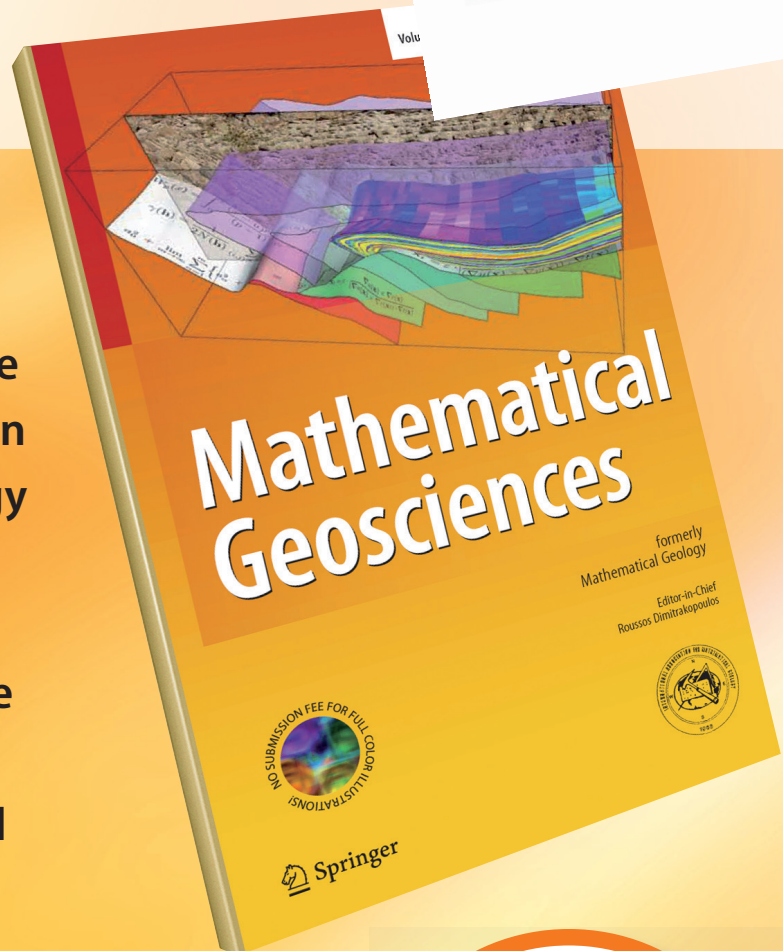
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Edited by: Roussos Dimitrakopoulos

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