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PRESIDENT'S FORUM

Editor's Note: Qiuming Cheng is writing this column as acting President while Vera Pawlowsky-Glahn is recovering

The 13th General Assembly of the International Association for Mathematical Geosciences held at the 33rd IGC in Oslo in August has marked a new starting point for IAMG in various respects. Our association's name changed from Mathematical Geology to Mathematical Geosciences. The new name not only reflects the new development and evolution of IAMG but, more importantly, helps to provide a home for new members with interdisciplinary interests in the development and applications of mathematics, statistics, computing technology and geoinformatics in the geosciences. For the past decade IAMG activities including annual meetings, journal publications, distinguished lecturers as well as award winners all testify to the quantitative nature of geosciences ranging from quantitative mineral and energy resources assessment, quantitative environment and hazards assessment, mathematical simulation and modeling of earth system, spatial decision support modeling, non-linear modeling of earth system such as distribution of minerals, soils, rivers and floods, quantitative remote sensing, information integration, to more traditional geostatistics and multivariate statistics. These new developments have undoubtedly brought IAMG into a stage of "indispensable subject". As a matter of fact, in various geoscience fields, mathematics, computing techniques and geoinformatics have become routinely applied and commonly accepted not only by professionals but also by the general public. As testimony, our three journals MG, C&G and NRR all have names and scopes defined broader than mathematical geology and publish innovative papers covering a broad spectrum of quantitative geosciences. With the new name of our association, I am confident that increased manuscript submission to our journals, more participants to our annual conferences and essentially more memberships of IAMG should be expected.

Now our association has six student chapters, 2 located in US, 2 in China, 1 in Canada and 1 in Germany. Recently more proposals have arrived: one from ITC, Netherlands and 1 from US. These student chapters are active centers for not only IAMG student members, but also through them some faculty members are associated with us, and this has increased IAMG's visibility in universities. One sign of effectiveness of these student chapters in promoting IAMG is that students represent more than one fifth of the current membership of the association. Our annual conferences have attracted much interest from student participants and young people. From this perspective IAMG is in a healthy situation. Further, promoting IAMG to young IAMG members and attracting them to actively participate in IAMG is key for maintaining a sustainable development in the global competitive science community. Having IAMG student chapters can also help undergraduate and graduate students to become interested in choosing mathematical geosciences as their professional career. This close connection between IAMG and university programs will provide a source of young members and fresh blood to IAMG. The immediate task for the new council is to provide equally good services to those members who have graduated but have not yet obtained established positions so that they may not be able to actively participate in IAMG activities with adequate financial support.

Contributions of IAMG, such as theories, methods, models, computer systems, or application case studies, are applicable in industry for modeling, estimation, optimization, simulation, information processing and decision support analysis, just to name a few. These R&D activities are useful to the mining industry, oil-gas industry, environmental firms and geological engineering industry. Our members have served the industry with contributions in geostatistical and simulation techniques for ore and reservoir estimation, and information processing and modeling techniques for mineral exploration and resources assessment for mining and oil industry. Promoting industrial involvement of IAMG will be essential for the association and the discipline's sustainable development. Promotion of IAMG to industry can be in various forms such as industrial short courses, workshops, annual conferences, journal ads, web site ads, keynote lectures and distinguished lecturers.



Government support has always been significant from the beginning of IAMG. Association with governments has been not only promotionally important but also provided various forms of support which have significantly aided the IAMG especially in its early days. Continuous promotion of IAMG in government sectors remains critical for the development of IAMG, especially in those areas with public interests such as natural resources, environmental impact and hazard prediction and risk mapping. IAMG involvement in national or global major science projects generates effective publicity for IAMG. One excellent example is the recently launched OneGeology, an international initiative of the geological surveys of the world and a flagship project of the 'International Year of Planet Earth'. Its aim is to make available dynamic geological map data of the world via the Internet. This will create a focus for accessing geological information for everyone. Our former council member Ian Jackson, as one of the main contributors to this project, delivered a keynote lecture at the 12th Annual Conference of IAMG held in Beijing in 2007. This lecture was well received and attracted much interest within the IAMG. I and my research group

are responsible for providing suitable quantitative methods and a GIS-based software system for a Chinese National Project for Mineral Potential Prediction for 25 types of commodities including Fe, Cu, Al, etc. This project involves a few hundreds of researchers and many students across the country. Promoting these types of activities can increase the visibility of IAMG regionally. With the new technology development and rapidly increasing geodata availability and accessibility via internet, the distinction between "data-rich" and "knowledge-poor" situations has become notable. This is undoubtedly providing new challenges and opportunities for us to feed our models and computer systems with high quality and massive data such as real-time data. This has not only become a driving force for methodology and system innovation but also improves the applicability of mathematical geosciences theory, methods and techniques in solving real and complex natural resources, environment and hazards problems. This trend is clearly manifested in the papers presented at our recent annual meetings and published in our journals. For example, high resolution data with large coverage across long time periods are often seen in modeling and analysis. Non-linear models, anisotropy problems, complex simulation, multi-types and formats dataset analysis, and complex color images are now often seen in publications where they were rarely seen 20 or 30 years ago. To some extent these types of development have changed the kind of IAMG sponsored research; for example, computing optimization, linearization, discretization and simplification used to present main research challenges due to limited computing power and storage space during the early stages of IAMG. Non-linear dynamics, non-linear models, unconfined model optimization, 3D visualization and complex simulation have become widespread in today's computing environment. Using the Internet, for example, it becomes possible to implement modeling and simulation with data across multiple regions, in real time and with multiple participants. This advancement has significantly increased the demand for international collaboration and sharing of data, models and services. It has even generated new industry and business models.

The former council should be acknowledged for the tremendous amount of excellent work that has improved and maintained a healthy development of our association. Especially our past president Frits Agterberg has done an extraordinary amount of work, and I am sure he and other past presidents and council members will continue to support IAMG one way or another. Based on my own experience and the feedback from various individuals since the 33rd IGC, I feel very optimistic about the future of IAMG. I am confident that the new council under the leadership of our newly elected president Vera Pawlowsky-Glahn is prepared to take on any new initiatives and good suggestions from you or anyone interested in improving IAMG. Certainly improving current services provided to our members and keeping the momentum to increase our student memberships, promoting our association within

Association Business

Honorary Member Richard Reymont

Richard Reymont has agreed to become our second IAMG Honorary Member. As you know, Dan Merriam has been our first Honorary Member since 2005. Richard has made numerous contributions to our Association “beyond the call of duty” including those mentioned in our latest Newsletter (June 2008). He was the other obvious first choice.

Here is a very brief resumé published by Dan Merriam in IAMG Newsletter 74:

Richard A. Reymont, father of the IAMG, first secretary (1968-72), second president (1972-76), recipient of the Krumbein Medal (1979) and a special Commendation in 2002, lives in Uppsala, Sweden with his wife Eva. Richard is a native Australian born in Coburg, Victoria and educated in Melbourne. He retired in 1991 from Uppsala University, where he was Professor of Historical Geology and Paleontology at the Paleontological Institute. He is a fellow of the Royal Swedish Academy of Sciences (1964) and has been awarded the Swedish Order of North Star (1972). Richard is a prolific international scientist (some 350 publications) and author of numerous books (eleven) working in Australia, Africa, Europe, and North America; he now spends much of his time on biometry and quantitative genetics of living and fossil invertebrates. One of his interests is in language and he continues that interest analyzing dialects, origin of words, and the relation of languages. He can be reached at: eva.reymont@telia.com



President's Forum cont'd

universities, industries and governments are things that should be continued. Other collaboration established between IAMG and other large associations such as International Year of Planet Earth, and the biennial sessions of the International Statistical Institute should be continued. Additional constructive suggestions include exploring collaboration with other large relevant associations such as AGU, EGU and GSA to share interest with divisions involved in quantitative geosciences: for example, quantitative soils, quantitative remote sensing, mathematical hydrology, and spatial decision support modeling in geoinformatics. To organize specialized groups or divisions within IAMG such as geoinformatics, non-linear geosciences, geostatistics, mineral resources and energy resource assessments, computers and geosciences, just to name a few, to facilitate groups with common interests will be useful for students and young researchers especially in developing regions to get to know IAMG and to find resources needed for supporting their research. For example, native English speaking researchers or established researchers may provide their assistance to our young members with similar research interests. Regional activities to promote collaborations, the establishment of regional groups or committees are both feasible and useful.

Last but not least in this note, I, as the acting president, would like to thank all those who have put in efforts to support IAMG in the past, including organizing annual conferences, taking care of our journals and newsletters, volunteering for outreach of IAMG such as booth display on various occasions, creating promotional materials such as posters, brochures, and communications. Although our registered members of IAMG are not as many as what we would have wished, I personally see that there are several thousands of individuals who read our journals and publish their research in our journals, come to our annual meetings, routinely visit our web site or are otherwise involved in IAMG. I just hope that they can take the small step of registering as IAMG members as well so that they can make a more direct contribution to the development of mathematical geosciences in which they are already involved and receive more direct assistance from IAMG.

Finally I sincerely hope that our president Vera recovers and comes back to assume her full duties very soon. I wish the best to our IAMG for the next four years.

Qiuming Cheng

2009 IAMG Distinguished Lecturer Series

Roussos Dimitrakopoulos, the IAMG Distinguished Lecturer for 2009, is professor and holds the Canada Research Chair (Tier I) in “Sustainable Mineral Resource Development and Optimization Under Uncertainty – BHP Billiton”, at the Department of Mining and Materials Engineering, McGill University in Montreal, Canada. Roussos serves as the Editor-in-Chief of the journal of Mathematical Geosciences published by Springer and is also Director of McGill’s COSMO Laboratory. Previously he was Professor and Director of the Bryan Research Centre, Univ. of Queensland, Australia. He holds a PhD from École Polytechnique, Montreal, and a MSc from the University of Alberta, Edmonton. He has been working in stochastic spatial simulation and optimization since 1983, and the last decade on risk-based optimization in mine planning and valuation. Roussos has been Senior Geostatistician with Newmont Mining Co., Denver, and Senior Consultant with Geostat Systems Int’l. He has taught and worked in North America, Australia, South America, Europe, the Middle East, South Africa and Japan.
URL: <http://people.mcgill.ca/roussos.dimitrakopoulos/>



Lecture 1

An Overview of Modern Stochastic Conditional Simulations: Fast and efficient, point and block support, Gaussian and non-Gaussian including high-order, sequential simulations

Modeling the spatial uncertainty of natural phenomena may require large size simulations (grid sizes up to 108), and a new ‘line’ of sequential approaches with low computational costs can be used. After giving examples of the ‘size’ issue, this presentation provides a general overview of sequential decomposition of a pdf for simulating very large fields at point-support scale. Subsequently, the approach is expanded to the direct simulation at the block-support scale. The differences in computational performance is documented in examples and further discussed for the case of efficient multivariable simulations. The last part of the presentation considers an expansion of sequential approaches beyond the second-order methods currently employed, and shows how the sequential framework is developed to high-order, non-Gaussian, non-linear simulation.

Lecture 2

An Introduction to Stochastic Simulation: Basic concepts made easy and examples

Modeling the spatial uncertainty of natural phenomena using geostatistical or spatial stochastic simulations is commonly used. This presentation aims to introduce the non specialist to: (a) basic concepts presented in an intuitive way, through examples; (b) the type of problems addressed with respect to natural spatial or spatial-temporal phenomena; (c) introduce the concept of random number generation; (c) the generation of correlated numbers and conditional distributions; (d) the ‘intuitive’ sequential Monte Carlo sampling; and (e) using the above to solve different problems (environment, mining, reservoirs).

Lecture 3

High-order Geostatistics: Modelling complex, non-Gaussian geological and environmental phenomena

Geoscience and engineering related phenomena such as characteristics of mineral deposits and attributes of petroleum reservoirs, pollution levels, the earth’s surface temperature, contaminated aquifers and so on, represent complex natural systems distributed in space. Their spatial distributions are currently predicted from finite measurements and second-order spatial statistical models, which are limiting, as geosystems are commonly highly complex, non-Gaussian and exhibit non-linear patterns of spatial connectivity. Non-linear and non-Gaussian

Member News

high order geostatistics is a new area of research based on higher-order spatial connectivity measures and spatial cumulants. In this presentation, definitions of high order statistics are first introduced, then the inference and interpretation of anisotropic cumulants is developed based on spatial templates and presented through examples. Subsequently, current research results on simulation approaches based on spatial cumulants is reviewed. The presentation concludes with the 'down stream' effects from the use of simulation approaches to engineering problem solving.

Lecture 4

An Extended View of Mining Geostatistics: Integrating short- and long-term mine production forecasting under uncertainty and application in a major gold mine

Do our models work? If they do, what could they encompass? How do our predictive models compare to reality? What type of problems surface in the world of engineering? These are the types of questions addressed here, through a specific example from the world of mining and metal production. The presentation explores stochastic optimization for mine production scheduling as a space and time problem, integrated with stochastic simulations of ore bodies with data updating capabilities, and simulation of non-available "future data". A large gold mine, and tests conducted, demonstrate that problems exist how stochastic solutions perform, and how this adds value to the operation.

Lecture 5

Mining Geostatistics Revisited: Limits of the current paradigm, non-linearity of the chain of mining, extended stochastic solutions, applications and monetary value

Conventional approaches to estimating reserves and optimization for mine planning and production forecasting result in single, often biased forecasts. This is largely due to the non-linear propagation of errors in understanding ore body attributes from a limited finite number of drilling data, throughout the chain of mine planning and mining. A 'redefinition' of mining geostatistics is considered to include two interacting and potentially fusing elements: stochastic simulation and stochastic optimization. These two elements provide an expanded mathematical framework that allows modelling of ore body uncertainty and its direct integration to mine design, planning and valuation of mining projects and operations. The pertinent mathematical models and multiple examples show the key characteristics and value of this redefined geostatistical modelling framework.

Institutions interested in having Prof. Dimitrakopoulos visit should contact the DL Committee Chairman, Sean McKenna, at samcken@sandia.gov

◇

2008 Distinguished Lecturer

Professor **Donald Myers**, of the University of Arizona, continues his Distinguished Lecturer (DL) travels. As of July, Don had visited 13 institutions, giving more than one lecture at several of them. These institutions were at various locations within the US, Mexico, Germany, Netherlands, and Spain. Don was planning autumn visits to institutions in Italy, Switzerland, France, Canada, and the US. A more detailed report will be provided in the next Newsletter.

◇

EGU looking for new Executive Secretary

The European Geosciences Union has asked IAMG to help spread the word that they are seeking to appoint a new Executive Secretary as successor to Arne K. Richter. The vacancy is described in detail in the web site www.egu.eu. Applications in a single pdf-file should be submitted before 31 January 2009 by e-mail, marked EGU Executive Secretary, to Professor Hans Thybo, EGU General Secretary, at e-mail addresses: thybo@geo.ku.dk and job@geo.ku.dk

Long-time IAMG member, and former Councilor, Prof. Dr. **Maria-Theresia Schafmeister** has recently been elected, with a vast majority, President of the Senate of Greifswald University, Germany. The occasion is historic, because this is the first time in the 552-year history of the University that this position is occupied by a woman. In this very old university, female students have been enrolled only since 1918. In 2006, Maria became the first and only female professor in the Senate. Now she leads it.



The Senate (12 Professors, 12 Students, six academic and six technical members) decides on fundamental management questions that steer the university, including its budget and regulations. The Senate elects the University's "Rektor" and his two "Pro-Rektoren" (President and Vice Presidents). An additional task, requiring political care and diplomacy, is to review decisions made by the Rektor.

Maria holds the Chair of Applied Geology/Hydrogeology at the Institute of Geography and Geology and has been living and working in Greifswald for 10 years. She was an Associate Editor of Hydrogeology Journal from 1999 to 2001, and has been Managing Editor since 2005.

◇

An Open-Source Software for texture analysis (MTEX) developed by **Helmut Schaeben** and his former PhD student Ralf Hielscher uses a novel method for the estimation of an orientation density function (odf) from diffraction pole figures. It is especially well suited for sharp textures and high spatial resolution pole figures measured with respect to arbitrarily scattered specimen directions, e.g. with an area detector. The method may be seen as a compromise of the two different approaches to approximate an odf and its pole figures suggested by the Darboux differential equation governing pole figures. Correspondingly, an odf is approximated with kernels which are well localized in spatial and frequency domain, more specifically with functions which are radially symmetric in spatial domain and with Fourier coefficients which vanish smoothly and sufficiently fast. This approach allows for multi-scale representation of the orientation and the pole density functions, respectively.

The estimated odf is computed as the solution of a minimization problem which is based on a model of the diffraction counts as a Poisson process. The algorithm applies discretization with radially symmetric basis functions approximated by finite harmonic series expansions and fast Fourier techniques to guarantee smooth approximation and high performance. MTEX provides functions to compute various properties of the estimated odf as C-coefficients, volume portions, texture index, entropy, etc., which are of interest.

The kernel approach is equally well appropriate to estimate an odf and its characteristic properties from individual orientation measurements by non-parametric density estimation. Choosing the Dirichlet kernel for this estimation, unbiased estimates of the C-coefficients up to any reasonably given finite order may be computed.

MTEX is not only a versatile Matlab toolbox for texture analysis and modeling but also provides a unique way to analyze texture based on integral or individual orientation measurements.

◇

IAMG membership now stands at 619 (as of September 2008). 209 are regular members, 138 are four year paid up members, 143 are life members, and 127 are student members. We also have now two Honorary members.

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Student Affairs

Helmut Schaeben has agreed to continue chairing the Student Affairs Committee. According to our amended By-Laws, there will be two committees in the future, each with a Chair and four regular members. These new committees are called “**Student Grants Committee**” and “**Studies Committee**”. The Studies Committee will be new. It will be concerned with accreditation of IAMG-sponsored short courses and our involvement with the establishment of a program leading to a Masters Degree in mathematical geosciences in co-operation with universities.

We received nine applications for **Student Research Grants**, seven of them serious. Deadline was Oct 15, 2008. These applications are being reviewed by the members of the Student Affairs Committee (now known as Student Grants Committee). The recipients will be notified by mid December.

Montan University in Leoben, Austria 1
Wuhan, China 1
Freiberg, Germany 1
Nigeria 2
University of East Anglia, UK 1
University of Georgia, USA 1
University of Hawai, USA 1

There were 2 applications which were largely incomplete. Their authors had been notified that they will not be considered as proper applications unless they provide a seriously revised application. That did not happen.

The following applications for **Travel Grants** were received:

MATGEOS, Freiberg, Germany, April 11-12, 2008

Travel support granted:

Jan Katrenic, Kosice, Slovakia
Hassan Derakhshan, Shiraz, Iran
Christoff Ackermann, Rennes, France
Enayat Ranjineh Khojasteh, Goettingen, Germany
Elif Akcan, Ankara, Turkey

33rd IGC; Oslo, Norway, August 6-14, 2008

Renguang Zuo, Wuhan, China
Maria Helbig, Freiberg, Germany
Changming Wang, Beijing, China
Syed Amer Mahmood, Freiberg, Germany
Mana Rahimi, Clausthal-Zellerfeld, Germany

◇

The new president of the Stanford University IAMG Student Chapter is **Darkhan Kuralkhanov** (E-mail: darkhan[at]stanford.edu). The chapter is involved in planning and supporting the 2009 IAMG Annual Conference to be held at Stanford 23-28 August 2009.

◇

News from Freiberg

Manuel Feige completed his Diploma Thesis “Development of open source software for the visualization of 3D geodata and geomodels” in partial fulfilment to obtain the degree “Diplom-Geoinformatiker”.

Summary

The objective of this diploma thesis is the development of an open source software, which is able to import files generated with geomodeling programs and to visualize the data and the 3d model. The software development is based on the Visualization Toolkit VTK, which is used by many other applications. The challenge is to utilize the library for the visualization of geodata. The graphical user interface is designed by means of the Qt application framework. A major issue is versability and the potential for extensions of the functionality and options.

The idea for this work evolved at the Bergakademie Freiberg where students of geosciences are educated to work with the 3D geomodeling software gOcad. Geoconsulting companies and geological surveys cooperating with the Bergakademie have been involved to specify the requirements of the open source.

Conference Reports

CoDaWork'08 in Girona

Do you know what can gather more than 60 researchers from 21 different countries to speak about geochemical sediments, the disparities of the extremities of the dinosaurs or the welfare of pregnant sows? The compositional data workshop! The third edition of this workshop on compositional data, CoDaWork'08, (<http://ima.udg.edu/Activitats/CoDaWork08/>) was held at the University of Girona, from 27 to 30 May 2008. The workshop was organized by Girona Compositional Data Group led by Vera Pawlowsky-Glahn. During the workshop there were three invited lectures, taught by John Aitchison (University of Glasgow): “The single principle of compositional data, continuing fallacies, confusions and misunderstandings and some suggested remedies”; Volkmar Liebscher (Institute für Mathematik und Informatik, Univ. Greifswald): “Compositions in life science data” and Anthony C. Atkinson (London School of Economics): “Experimental design on the Simplex”. The 41 accepted communications were presented in eight sessions dedicated to the problem of the zeros in compositional data, to the compositional software, to applications to geology, biology and natural



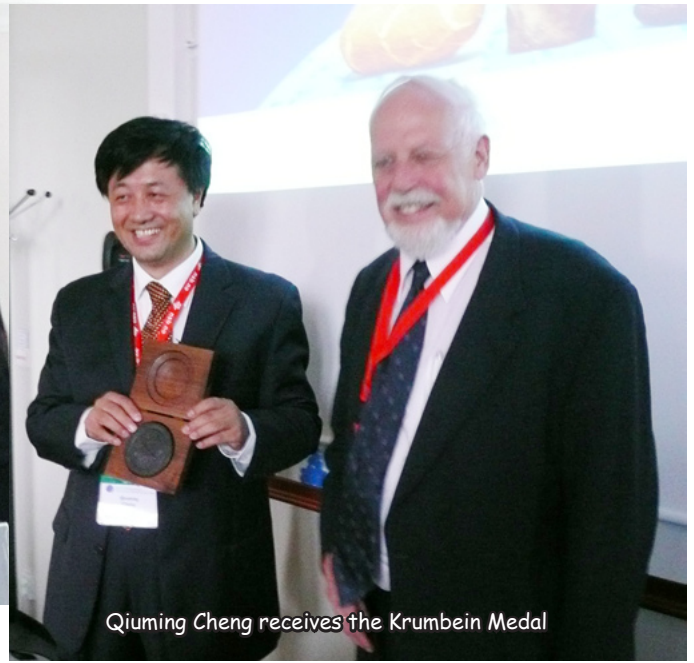
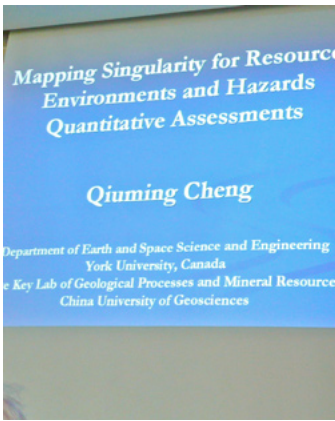
sciences, to methodologies of classification, multivariate analysis and to the analysis of count tables from a compositional point of view. This workshop supported by several institutions, IAMG among them, allowed a group of specialists in compositional data from New Zealand to Guatemala and from Canada to the United Arab Emirates, with a good representation of IAMG researchers, to argue methods and techniques and analyze the application of this methodology to a diversity of practical cases.

The International Scientific Committee chaired by Josep A. Martín-Fernández included IAMG members Antonella Buccianti, Heinz Burger, Juan Jose Egozcue, Hilmar von Eynatten, Eric Grunsky, Raimon Tolosana-Delgado, and Gerald van den Boogaart. Papers presented during CoDaWork'08 are available in <http://ima.udg.edu/Activitats/CoDaWork08/proceedings.html> and on the Proceedings CD (ISBN: 978-84-8458-272-4).

At the end, during the CoDaWork'08 banquet, after a marvelous visit to medieval city of Besalu in beautiful geological surroundings, John Aitchison, the workshop honorary president, performed an amazing selection of magic tricks.

The 2-day short course “The Statistical Analysis of Compositional Data” with the objective to provide an introduction to theoretical and practical aspects of statistical analysis of compositional data was held May 26-27, by VeraPawlowsky-Glahn, Juan José Egozcue and Santiago Thió-Henestrosa. If you are interested in compositional data, you can find more information in the web page www.compositionaldata.com.

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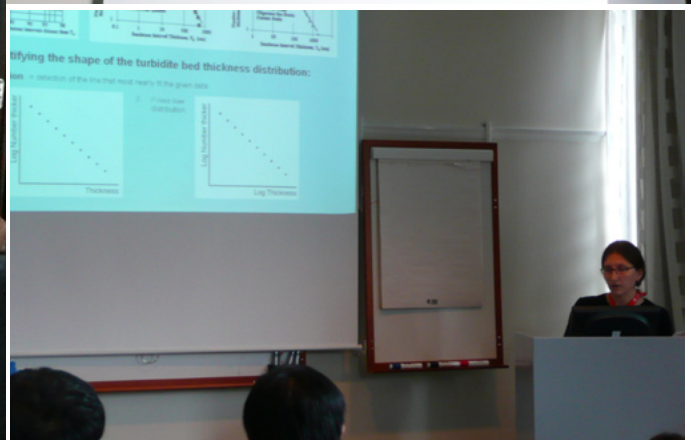
Qiuming Cheng receives the Krumbein Medal



IAMG Session of Awards and Lectures



Adrian Baddeley gives the Matheron Lecture





The new Council (in part):
Qiuming Cheng, Gina Ross, Dan Tetzlaff, Simon Cox, Frits Agterberg



Roussos
Dimitrakopoulos



Vaclav Nemeec



Treasurer Gina Ross

Frits introduces the new
acting President



Graeme Bonham-Carter presents
"Festschrift" honoring Frits



**IAMG Assembly
and Banquet at
Tøyen Hovegård**

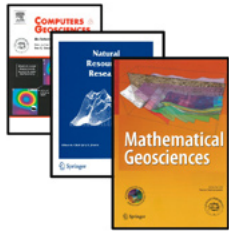




Beautiful Oslo



IAMG Journal Report



Natural Resources Research

Last year at this time, I mentioned that NRR was receiving a trickle of papers but I was not as busy as I wanted to be. I'm sorry I said this! Things have definitely picked up. While December, 2007's issue was thin and late, the March, 2008 issue was out in better time and had more articles. The June, September, and December issues are decidedly more voluminous and on time. June was a special issue with six articles, on the theme of GIS-based Mineral Resource

Assessment, and there were eight articles for September and six for December. Twelve manuscripts are either in review or back with the authors for revision and three are in publication for March, 2009 issue. Because all NRR articles are published on line as well as in print, journal timeliness is not as important as it used to be. However, as long as there is a paper version of NRR, this is something we need to be aware of and it is one indicator of the health of the journal. Springer requested ISI certification last month.

Excluding the special issue submissions, NRR has received about three manuscripts a month. This is reasonable for a quarterly journal with six or seven articles per issue. Thanks to helpful and willing reviewers, review times are generally good, taking about three months. Unless it is proving difficult to find reviewers for a manuscript, I can usually get a decision back to an author within four months of submission. The final acceptance rate is around 90%; all manuscripts have required one or two rounds of revisions.

I'd like to hear from members on the matter of journal style. I am considering a more flexible style for the NRR published papers. For example, as long as a paper consistently uses 'et al.' or 'and others', either form would be acceptable. Reference style, including punctuation, would also be relaxed. The aim here is to help authors who are familiar with publication in other journals to bring their manuscripts to NRR with a minimum of style changes. Since readers often just download one paper and do not look at the paper version of the journal, style changes between papers would not be noticed.

Since taking over, I have revised the journal aims to more explicitly broaden the focus to cover research on all natural resources. I think the result is a more workable fit for NRR. In recent articles, you'll see some familiar topics, such as underground coal gasification potential in Poland and mathematical models of hydrocarbon reserves. But there are some other topics, including the energy potential of grain dust and the use of mines for the diversion of flood waters, which didn't fit quite so well in the previous journal scope.

*Jerry L. Jensen
October, 2008*

Best Paper Award 2007, Computers & Geosciences

"The Data Uncertainty Engine (DUE): A software tool for assessing and simulating uncertain environmental variables" by **James D. Brown** and **Gerard B.M. Heuvelink**, which appeared in G&C volume 33, no. 2, pages 172-190.

Gerard is a senior researcher at Alterra and Associate Professor in the Environmental Sciences Group of Wageningen University in the Netherlands.

Dr. James Brown, from the University of Amsterdam, The Netherlands, is currently a visiting scientist at NOAA Office of Hydrologic Development in Silver Spring, Maryland.



Heuvelink

Best Paper Award 2007 - Mathematical Geosciences

Another wonderful year for this award with two outstanding papers among the many excellent ones that made it impossible to choose one without being unfair to the other. Thus, the winners of the 2007 Best Paper Award (in alphabetical order) are:



Arpat

G. Burc Arpat and **Jef Caers**: "Conditional Simulation with Patterns" in vol. 39(2):177-203, and **Ben P. Marchant** and **Richard Murray Lark**: "Optimized Sample Schemes for Geostatistical Surveys" in vol. 39(1): 113-134. Arpat and Caers are from Stanford University; Burk is currently an R&D team leader at Paradigm in Houston. Marchant and Lark both hail from the Biomathematics and Bioinformatics Group at Rothamsted Research, Harpenden, UK.

Letter to the Editor

As I mentioned earlier, I've mostly left academia and now focus principally on managing our family-held company, Harbaugh Mineral Lands ("HML") LLC. While we may be non-academic, occasionally we have experiences in this context that have some connection the IAMG. Let me explain. For better or worse, HML recently participated (with a relatively modest interest) in the drilling of a 7500-foot Arbuckle test well in Stephens County, Oklahoma, which is within the old-time oil and gas producing region in the south-central part of the state, where many of the fields hark back 80 years or more.

Most of the wells in the region are shallower, and so a well in Stephens County that goes to 7500 feet and tests the Arbuckle (which is close to the base of oil- and gas-bearing Paleozoic strata in the region) is a truly exploratory well, at least by local standards. While the well was carefully planned and tested, after months of testing it was abandoned as a dry hole with an aggregate loss of about 1.5 million dollars. Of course drilling an occasional dry hole is part of the exploration and production game, and so you have to expect some losses if you're in the business.

I'm leading up to the question whether a background of statistically organized well data could have helped us when the decision was made to drill the well, so that the probability of loss could be ranked against the probabilities for varying degrees of success. The statistical analysis would be easy enough if we had a background of suitable well data, but the problem is that assembling an appropriate data set is a big challenge. Most the wells in the region aren't relevant because they're too shallow and involve different strata, and even if we focus on the relatively rare deep wells in the general vicinity, we find that they were drilled with old technology. Over the years, of course, well-logging and testing technology have advanced greatly, so incorporating old wells in a database would involve a lot of "apples and oranges" comparisons. Would it be useful and would it be worth the effort? What's a body to do?

I don't have good answers, but I will say that a lot of decisions and conclusions involving geological data are made without the benefit of statistical analysis. It's not just that geologists tend to be relatively uninformed about statistical procedures. Let's face it that a lot of the kinds of data that they deal with are not readily adaptable to statistical analysis. So here's my challenge to the IAMG: Provide the geological profession with guidelines as to what kinds of geological data are amenable to statistical analysis and whether the analyses will be likely to be useful.

Usefulness is a key. Look at a case history that extends back more than 70 years. In the 1930s it was popular to statistically analyze the results of sieving unconsolidated clastic sediments from rivers and lakes. With a set of sieves and a "Ro-Tap" shaking machine, you could get a ton of numerical data in short order that could be categorized readily with classical statistics. The results were beautiful, and articles and books extolled the new technology. But it wasn't long before the whole business went out of style. It wasn't that the procedures were faulty, the fact was that the myriad analyses really didn't matter that much geologically. So here's the paradox. We have some fine examples of statistical applications in geology that have worked well but in the end weren't worth all that much, whereas there are other applications where statistical analysis would likely be very useful (a la Arbuckle test wells in south-central Oklahoma) but we're vexed by the difficulties in assembling appropriate data sets.

Maybe there's a parallel in the medical world, such as the testing of experimental drugs for relatively rare diseases where the statistical need is great but appropriate data are in short supply. Maybe the IAMG membership can provide advice?

John Harbaugh
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M.J. Barnsley, Environmental Modeling: A Practical Introduction, CRS, Boca Raton, FL (2007) ISBN 0415300541 432pp., hardcover. — Sean A. McKenna

Statistical Analysis of Environmental Space Time Processes, Le Nhu, D., Zidek James, V. (Eds.), Springer Science+Business Media, Inc., Berlin (2006) 341pp., \$84.95 (hardcover), ISBN:10:0-387-26209-1. — Tuanfeng Zhang

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Upcoming Meetings

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, 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; Website: http://www.agu.org/meetings

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

GIRAF - Workshop on GeoInformation in Africa, Geological Survey of Namibia/Ministry of Mines and Energy, Windhoek, Namibia, **16-20 March 2009**. In cooperation with the Geological Survey of Namibia (GSN), the Federal Institute for Geosciences and Natural Resources (BGR), together with the IUGS Commission for the Management and Application of Geoscience Information (CGI) is organizing this GIRAF workshop. The workshop is supported by the German Federal Ministry for Economic Cooperation and Development. Please register and state your interest as soon as possible on the web at: http://www.GIRAF2009.org. Contact: GIRAF2009@bgr.de or Kristine.Asch@bgr

Small Log Conference 2009. Coeur d'Alene, ID, USA, **25 - 27 March 2009**. TimberBuySell.com. 406-529-3352, email: Jan Raulin tenaj@telus.net, http://www.timberbuysell.com/slc/

Mechanisms Of Quaternary Climate Change: Stability of Warm Phases in the Past and in The Future ,ESF-FWF Conference in Partnership with LFUI, Obergurgl, Austria, **6 - 11 June 2009**. Professor Carlo Barbante, University of Venice, Department of Environmental Sciences, e-mail: barbante@unive.it, http://www.esf.org/

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

71st EAGE Conference & Exhibition, Amsterdam, The Netherlands, **08 - 11 June 2009**. 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

SGEM 2009 - Modern Management of Mine Producing, Geology and Environmental Protection, Ministry of Environment and Water, Albena Resort, Republic of Bulgaria, **15 - 20 June 2009**. http://www.sgem.org, E-mail: sgem@sgem.org, Fax:+359 2 817 24 77, Skype:SGEM_Office

2009 JOINT STATISTICAL MEETINGS, Washington, DC, USA, **01 - 06 August 2009**. Elaine Powell, Phone: 703-684-1221, Fax: 703-684-8069, Email: elaine@amstat.org, 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, 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/

SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, USA, **4 - 7 Oct 2009**. http://www.spe.org/atce/2009/

2nd International Symposium on the Geology of the Black Sea. Ankara, Turkey, **5 - 9 October 2009**. ISGB Secretary General Directorate of Mineral Research & Exploration, 06520 Ankara, Telephone: 90-312-287 91 93, Fax: 90-312-287 91 93, Email: isgb@mta.gov.tr

The Mining Příbram Symposium 2009 - Geoethics, Conveners: Václav Nemeč, Lidmila Nemcová, Příbram, Czech Republic, **12-16 October 2009**. Dr. Vaclav Nemeč, K rybnickum 17, 100 00 Praha 10 - Strasinice, Czech Republic, or/and The Mining Příbram Symposium, P.O. Box 41, 261 92 Příbram, Czech Republic, fax: (+420) 318623169, e-mail: lidmila.nemcova@quick.cz (conveners) and marcinikova@diamo.cz (secretary).

Geological Society of America (Annual Meeting), Portland, Oregon, USA, **18-21 October 2009**. GSA Meetings Dept., P.O. Box 9140, Boulder, CO, 80301-9140, USA, Phone: +1 303 447 2020, Fax: +1 303 447 1133, E-mail: meetings@geosociety.org, http://www.geosociety.org/meetings/index.htm

SEG International Exposition and 79th Annual Meeting, Houston, Texas, U.S., **25-30 Oct. 2009**. meetings@seg.org, http://www.seg.org/

JOINT STATISTICAL MEETING, American Statistical Association, Vancouver, British Columbia, Canada, **1 - 5 August 2010**. www.amstat.org/meetings

IAMG 2010, Eötvös Lóránd University, Budapest, Hungary, **29 August - 2 September 2010 (see below)**

SPE Annual Technical Conference and Exhibition, Florence, Italy, **19 - 22 Sep 2010**.

Eric Grunsky is Organiser of Invited Paper Session IPM98: "Issues in the analysis of multivariate data in the spatial domain" to be held **16-22 August 2009** during the **57th ISI** Session in Durban, South Africa. In the past, the IAMG has regularly sponsored symposia of this type during the biennial sessions of International Statistical Institute with the Proceedings published in the ISI Bulletin. Thanks are due to Nick Fisher for helping to make these arrangements for the Durban meeting.

IAMG 2010 to be held in Budapest, Hungary

One of the most important challenges of the next few decades is the supply of sustainable energy and natural resources. This question is being debated in many international organizations and is one of the most popular topics for many scientific or political forecasts. Absolutely evident, that the most established answers for this problem can be expected from the Earth Sciences. Nevertheless it is also clear, that a good answer requires a qualified mathematical and geological background. Past IAMG conferences have focused on methodologies and case studies; in 2009 the main emphasis is given to computational components. Almost everything is at hand to

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Over the last hundred years ELTE has had many world famous scientists and four Nobel Prize laureates among its teachers and alumni. The current number of students enrolled yearly has reached 32000, and there is an academic staff of 1800 highly-qualified teachers and researchers.

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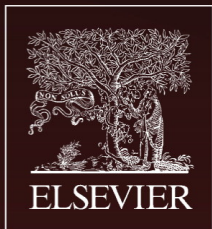
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