IAMG Newsletter

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Official Newsletter of the International Association for Mathematical Geosciences

Contents

Nominations needed for 2013 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, 2013

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

There is also a list of past recipients and their laudatios on the web site. Please have a look at it before sending your nominations!

The (informal) documents which should accompany a proposal are:
- a short statement summarizing the relevant qualifications of the nominee
- a curriculum vitae of the nominee

Nobody gets an award without a nomination, so please support your colleague when you believe he/she deserves an award by submitting a nomination.

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

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

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

Brisbane was the location for this year's meeting of the IAMG - only the third time in the southern hemisphere (Sydney 1976 and Rio in 2000) and all three in connection with the International Geological Congress. As IGC meetings go, it was big; in fact, the biggest geoscientific event to date in Australia with almost 6000 delegates from 137 countries, more than 3200 presentations and over 280 exhibition spaces. IAMG shared one booth with "Earth Science Matters" and the "International Lithosphere Program (ILP)" at the end of the hall. China, being close to Australia, sent a large contingent of Chinese IAMG members. Thanks to the efforts of our special IGC councilor June Hill, IAMG's symposium on Mathematical Geosciences had 11 sessions spread over the five days of the conference (more than any other symposium) with 63 presentations including 24 posters. See what the meeting looked like in the centerfold of this Newsletter.

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2013 is the International Year of Statistics and, thanks to the efforts of Frits Agterberg as well as the IAMG'13 organizer Eulogio Pardo and the convener of the statistics sessions Jack Schuenemeyer, IAMG is a participating member organization. The IAMG meeting in Madrid will also be an official event of Mathematics of the Planet Earth (MPE 2013) at the Mathematics Department of the Complutense University of Madrid, where the conference is held, which should generate some very useful cooperation projects. See more about our annual meeting on p. 14.

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Hazard prediction has become hazardous for geoscientists, at least in Italy. As reported in the press in October, seven government-appointed experts were sentenced to jail for manslaughter because they gave insufficient warning before a 6.3-magnitude earthquake killed 308 people and injured over 1,500 others in the central city of L'Aquila in 2009. The team of scientists had concluded that a severe earthquake was unlikely to hit, and decided to quell the public's fears instead of entering into a state of emergency. Although the verdict will certainly be appealed and probably reversed, it has sent a wake-up call through the scientific community. Any kind of predictions will have to be couched in very careful terms, especially those in the field of geologic hazards. Perhaps we'll end up like our medical doctors, having to get expensive "malpractice" insurance to protect us from lawsuits like the one in L'Aquila. On the other hand, as a discussion in a Scientific American blog points out, the scientists and administrators were accused of poorly communicating the risk to the public. Slate eZine put it perhaps a little too simply by saying: "....no one seems to be acknowledging that the whole mess could easily have been avoided if the scientists had clearly asserted the truth of the matter by proclaiming: We just don't know." Communication, especially scientific communication, is an art that should be developed more carefully and widely. Both the scientific community and the public would greatly benefit from such an improvement.

Harald S. Poelchau

International Association for Mathematical Geosciences

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PRESIDENT'S FORUM

Last month in the package Regina sent to all members with the membership renewal form, I expressed my heartfelt appreciation to all members for the trust and support given during the election of our new IAMG Executive and Council. I also discussed activities initiated at the 14th General Assembly of the International Association for Mathematical Geosciences held during the 34th IGC in Brisbane three months ago. In this forum, I'll provide some more details on progress made since then and outline some issues we need to consider in the future. Your new team including the Executive, Council, and Committees is ready and working full-speed.

I want to re-iterate what my predecessor, Vera Pawlowsky-Glahn, wrote in the last newsletter: "All presidents have tried to leave behind a better Association than they received." The only possible way to keep this cascade process going is to develop strong teams that work together with all our members. I'm proud that the new Council already has had its first meeting during the 34th IGC thus ensuring excellent transition. Former officers, current editors and committee chairs in attendance were asked to summarize their annual reports with emphasis on future developments to be implemented by the new Council. Decisions were made for consolidation of the Organization including appointments of Committee Chairs, Journal Editors, and the roles of our Vice Presidents. All current committees now have their chairs, our journals have their Editors-in-Chief, and several other initiatives are being implemented.

Reappointed chairs include Ricardo Olea to serve as Chair of the Meetings Committee, Helmut Schaeben as Chair of the Student Affairs Committee, and Graeme Bonham-Carter as Chair of the Publications Committee. Jack Schuenemeyer and Julián Ortiz have been appointed to chair the Awards and Curriculum Quality Committees, respectively. The IAMG Distinguished Lecturer Committee and the Georges Matheron Lecturer Committee have been combined into a single committee called the "Lectures Committee" chaired by Executive Vice-President Jennifer McKinley. Our new Outreach Committee, which co-operates with Earth Science Matters, successor to International Year of Planet Earth, will be chaired by Frits Agterberg. A new commission, the IAMG-Geological Survey Commission, has been established and is chaired by Yan Guangsheng of the China Geological Survey. Its purpose is to develop close ties between the IAMG and geological surveys worldwide to advance the use of geomathematics and geoinformatics within government organizations. Countries to be considered for this collaboration include China, U.S.A., U.K., Canada, Australia, India, and Spain. Presently, volunteers are being sought to participate as members in this commission; Jenny will be its non-voting ex officio member. Within Council we have discussed setting up new IAMG-Academia and IAMG-Industry Commissions to advance the use of geomathematics and geoinformatics at universities and in industry. IAMG is looking for sponsorships from industry, governments and individuals.

Our journals are doing very well under the leadership of Roussos Dimitrakopoulos as Editor-in-Chief of Mathematical Geosciences, and Jef Caers & Michael Piasecki, the Co-Editors-in-Chief of Computers & Geosciences. John Carranza has been appointed as the new Editor-in-Chief of Natural Resources Research. My sincere gratitude goes to Harald Poelchau, who remains our Editor of the IAMG Newsletter & Website.

Valuable comments and suggestions were received during our first Council meeting and many actions have been taken since then. It was suggested that the IAMG develop closer ties with other associations in particular with the IUGS, for example, by proposing new International Geological Correlation projects. During the 1970s, IAMG had initiated three very successful IGCP Projects concerned with resource potential mapping, quantitative stratigraphy, and igneous rock data bases (IGBA). This resulted in many international symposia, research papers, special journal issues, books, software packages and data bases. Richard Sinding-Larsen (former IGC Vice President and IGC Councilor) proposed the development of an operational arm of the IAMG to highlight geomathematical teaching at universities and other institutions. He has helped in contacting the 36th IGC organizers in India. A Working Group on Mathematical Geoscience Numeracy can be launched during the 2014 IAMG meeting to be held in Delhi. It could be comprised of leading scientists from the 56 Indian institutions currently interested in promoting the use of mathematics in geoscience research by MSc and PhD students. This proposal corresponds with the IAMG's desire to significantly increase its membership on the Indian subcontinent. Special sessions at the 36th IGC in 2020 could be convened for the Indian researchers to present their new, geomathematically-based research results. More follow-up work is needed to implement this proposal. Our 2011 Matheron Lecturer, Daya Sagar (Indian Statistical Institute, Bangalore) and the IAMG2014 organizers will play an important role in the development of IAMG activities in India.

Ute Herzfeld has been organizing the IAMG exhibition booth at the American Geophysical Union (AGU) fall meeting in San Francisco for many years. She organizes special geomath sessions at AGU as well. These types of exceptional activities increase our visibility at large international organizations and are vital for the promotion and communication of IAMG within other earth science communities. Ute is appreciated for keeping this tradition up for so many years, and it should be remarked that these activities require a lot of effort. We also have a tradition to organize special sessions at International Statistical Institute (ISI) Congresses and the Joint Statistical Meetings in North America. Personally, I have been involved in organizing Fractal and Multifractal Sessions at the European Geosciences Union (EGU) Annual Meetings held in Vienna during the spring. While enhancing our involvement in large international conferences, we should also explore opportunities for outreach in regions where the IAMG is underrepresented such as India and Africa. Also, it remains a mystery to me why the IAMG Annual Conference and World Geostatistical Congress remain separated even though geostatistics is one of the core subjects of IAMG and our journals publish a large portion of the geostatistical research results. Both our groups are small but we share the same, large audience, so why can't we get together?

High-quality publications and software technology are our products and contributions to science and society. The quality and diversity of our publications showcase IAMG. While making contributions to our own journals and increasing our journal quality and impact factors, we should use every opportunity to make ourselves better known; for example, by publishing special issues in other high-ranking international journals and in monographs with other publishers. Personally, I have had the chance to co-edit several special issues on nonlinear theory with geoscience applications in Nonlinear Processes in Geophysics, Biogeosciences, Soil journals, and Geochemical Exploration. By cross-referencing papers between journals, it is of mutual benefit to increase the audience of our own journals and, in turn, to broaden the scope of our membership. We should encourage our members to write and publish monographs in the "Studies in Mathematical Geosciences" Monograph Series edited by JoAnne De Graffenreid and published by Oxford University Press.

This wish list can be much longer. The question is how we can realize our objectives one at a time. I am always open for new comments and ideas on how to improve the IAMG. Your comments are greatly appreciated. I would like to ask everyone to think about this and I want to gather your opinions about the Vision of IAMG so that we can make the IAMG stand out during the next four years. By the end of the year, I plan to form a small group to evaluate the comments I receive. The top 10 winners with comments ranked as most important for improving IAMG will be acknowledged by letter from the President and their names and comments will be published in the next issue of the IAMG Newsletter.

There are many things that your Council is dealing with at the moment, such as renewal of contracts, budgeting for 2013 and later years, and improving our website. These things are currently being considered within Council and members will be informed when decisions will have been taken.

Finally, I would like to wish you all the best for Christmas and the New Year! To our student members: I wish you a successful term of studies and enjoyable and relaxing year-end holidays!

Qiuming Cheng

Association Business

Meeting of the New Council

Brisbane - August 10, 2012

The incoming IAMG Council met on the last day of the IGC conference in Brisbane to discuss reports of the past year and plans for the future. Attending the meeting were nine voting members of the Board and Executive, two non-voting Board members, and nine invited guests. More details of the meeting minutes are available on the IAMG website.

Discussions and decisions concerned the nomination of new chairs for various committees, efforts and methods to increase outreach to other organizations, regions and students, improving the IAMG website, and establishing several new commissions.

Committees and Chairs for the next four years approved by Council:

Awards Committee: **Jack Schuenemeyer** replaces Jef Caers

Curriculum Quality Committee: **Julián Ortiz** replaces Maria-Theresia Schafmeister and and Vera Pawlowsky-Glahn is *ex officio* member

Lectures Committee (new = combined Distinguished Lecturer and Georges Matheron Lecturer Committees): **Jennifer McKinley** replaces Sean McKenna and Qiuming Cheng

Meetings Committee: **Ricardo Olea**
with Jennifer McKinley (UK), *ex officio* member
Christien Thiart (South Africa), IGC Councilor
Jaime Gómez-Hernández (Spain), voting member

Outreach Committee: **Frits Agterberg**
with Graeme Bonham-Carter, Zhijun Chen, Eric Grunsky, Harald Poelchau, Gina Ross, Faisal Shazad and Vera Pawlowsky-Glahn as *ex officio* member

Publications Committee: **Graeme F. Bonham-Carter**

Student Affairs Committee: **Helmut Schaeben**
with David Collins as the new *ex officio* member

The following resolutions were voted in:

Resolution 1: The IAMG Distinguished Lecturer Committee and the Matheron Lecture Committee are to be combined into a single committee called the "Lectures Committee" to be chaired by one of the IAMG Vice Presidents.

Remark: Selection of the Distinguished Lecturer for a particular year should be completed before the IAMG Annual Meeting held during the previous year, so that the membership can be informed of topics of lectures and preliminary invitations to lecture can be extended.

Resolution 2: A new IAMG-Geological Survey Commission to be chaired by Yan Guangsheng (China Geol. Survey) will develop close ties between the IAMG and Geological Surveys worldwide to advance the use of geomathematics and geoinformatics within government organizations.

Remarks: Countries to be considered for this collaboration include China, U.S.A., U.K., Canada, Australia, India and Spain. Jenny will be the non-voting *ex officio* member on this commission. Each member of this commission will have to ask his/her employer for formal permission to participate in it in order to ensure compatibility with his/her current working responsibilities.

Resolution 3: The new IAMG Website Commission to be chaired by Dan Tetzlaff will evaluate the existing IAMG Website and recommend any changes to be made in the way it is currently organized.

Remarks: The members of the IAMG Website Commission will be Harald Poelchau, Eric Grunsky, David Collins, Gerald van den Boogaart. Jenny McKinley will be the non-voting *ex officio* member on this commission. An initial objective of the commission will be to reduce hosting/developer costs (InterSpot/Dragonfly) but other aspects including new outreach content and website design are to be considered as well.

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Spatial Tools in Data Processing and Analysis

The IAMG agreed to be a technical sponsor of a Five-Day Course on "Spatial Tools in Data Processing and Analysis" given on 26-30 November, 2012, at the Indian Statistical Institute in Bangalore Centre, India. The course was organized by **B. S. Daya Sagar,** our 2011 Matheron Lecturer.

Pierre Goovaerts: 2013 IAMG Distinguished Lecturer

Dr. Pierre Goovaerts is chief scientist at Biomedware in Ann Arbor, MI and has 20 years experience in the development and implementation of geostatistical algorithms. He has authored 130 papers in the field of geostatistics and is the author of the 1997 textbook "Geostatistics for Natural Resources Evaluation".

In the past 8 years, his research has focused on the development and implementation of geostatistical methods for the analysis of aggregated and individual-level health data, including the accurate mapping of rates of cancer incidence and mortality, the space-time analysis and detection of health disparities, as well as the incorporation of rate uncertainty into boundary detection and local cluster analysis. Recently, he developed a methodology to combine both point and areal data in spatial interpolation, with an application to the mapping of the risk of breast cancer late-stage diagnosis across Michigan. He is also exploring the impact of socio-demographic and environmental risk factors on the incidence and late-stage diagnosis of breast and prostate cancers.

Dr. Goovaerts can be contacted at goovaerts.pierre@gmail.com or through the chair of the Lecture Committee, Jennifer McKinley, at j.mckinley@qub.ac.uk.

Topics of lectures offered

Geostatistics in Practice

Geostatistics provides a set of statistical tools for the analysis of data distributed in space and time. Since its development in the mining industry, geostatistics has emerged as the primary tool for spatial data analysis in various fields, ranging from earth and atmospheric sciences, to agriculture, soil science, environmental studies, and more recently exposure assessment. This lecture will present a richly illustrated overview of the main steps and outputs of a geostatistical analysis. Examples include the mapping of soil heavy metal concentrations, the prediction of groundwater arsenic concentrations, the computation of volumes of contaminated sediments, the mapping of prostate and breast cancer risks, and the modelling of the spatial density of wild animals in a national park.

Combining Areal & Point Data in Geostatistical Interpolation: Applications to Soil Science & Medical Geography

A common issue in spatial interpolation is the combination of data measured over different spatial supports. For example, in the field of medical geography information available for mapping disease risk typically includes point data (e.g. patients residence) and aggregated data (e.g. socio-demographic and economic data at the census track level). Similarly, soil measurements recorded at discrete locations on the ground are often supplemented with choropleth maps (e.g. soil or geological maps) that model the spatial distribution of soil attributes as the juxtaposition of polygons (areas) with constant values. This lecture presents a coherent geostatistical approach to accommodate both areal and point data in the spatial interpolation of continuous attributes, with applications to soil science and medical geography.

The Role of Geostatistics in Medical Geology

Medical geology is an emerging interdisciplinary scientific field studying the relationship between natural geological factors and their effects on human and animal health. This lecture provides an overview of geostatistical methods available for the analysis of geological and health data, with a focus on the issue of error propagation, that is how the uncertainty in input data (e.g. arsenic concentrations) translates into uncertainty about model outputs (e.g. risk of bladder or prostate cancer). Methods for uncertainty propagation, such as Monte-Carlo analysis, are critical for estimating uncertainties associated with spatially-based policies in the area of environmental health, and in dealing effectively with risks.

Geostatistical Mapping of Dioxin and Arsenic in Soils around Point Sources of Contamination

Deposition of pollutants around point sources of contamination, such as incinerators or smelters, can display complex spatial patterns depending on prevailing weather conditions, the local topography and the characteristics of the source. Deterministic dispersion models often fail to capture the complexity observed in the field, resulting in uncertain predictions that might hamper subsequent decision-making, such as delineation of areas targeted for additional sampling or remediation. This lecture describes a geostatistical simulation-based methodology that combines the detailed process-based modeling of atmospheric deposition with the probabilistic modeling of residual field variability. The approach is used to delineate areas with high level of dioxin TEQ (Toxic Equivalents) around an incinerator, as well as to identify residential parcels for additional sampling and cleaning in the case of arsenic contamination caused by a smelter.

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Laudation: Dr. Eric Christopher Grunsky
2012 William Christian Krumbein Medal

Dr. Grunsky is the worthy recipient of the 2012 William Christian Krumbein Medal because of his long and continuous service to the IAMG community as a scientist in the fields of mathematics and statistics in the earth sciences, as a supporter of the Association, and for his service to the profession.

Eric's service and recognition within the IAMG and elsewhere have been awarded in the past. He received the Felix Chayes Prize for Excellence in Research in Statistical Petrology in 2005 and was honored as a Visiting Research Fellow, Edith Cowan University, Western Australia in 2011. He has also been appointed as an adjunct professor at two universities in Ontario, Canada.

Eric's career has been long and varied during which he has developed expertise, which has resulted in significant contributions to the earth sciences. During his undergraduate years at the University of Toronto (1969-1973), he developed a keen interest in quantitative aspects of geosciences through the use of computers. His interest was encouraged by Professor Gordon Smith who mentored Eric on the use of computers to solve a variety of quantitative problems. His M.Sc. thesis, with Professors Fried Schwerdtner, Pierre Robin and Dick Bailey, at the University of Toronto, was one of the earlier studies in three dimensional analysis of reconstructed tectonites by means of the integration of digital serial sections.

After completing his M.Sc. degree (1975-1978), Eric was hired by the Ontario Geological Survey (OGS). His duties not only included both detailed and regional geological field mapping, but also to introduce the use of computers into the organization. Eric's leadership in this area enabled the adoption of computer technology throughout the OGS. He led an internal review on the management and access of geoscience data, which contributed to a restructuring of the OGS Geoscience Data Centre. In the mid-1980's his research started to focus on the use of geochemistry and statistics to evaluate patterns related to primary compositional variation in volcanic rocks, but also the recognition of alteration and base- and precious-metal mineralization. At the same time he became aware of the work by John Aitchison, the issue of closure and its pertinence in examining whole rock geochemistry. His studies, presentations and publications on the statistical evaluation of geochemical data and its value in mineral exploration were quickly recognized by the mineral exploration community at both the national and international levels. As well, his interest in spatial analysis and a meeting with Graeme Bonham-Carter and me resulted in his enrolment in a Ph.D. program at the University of Ottawa under my supervision. Eric was commuting from Toronto to Ottawa where we enjoyed his biweekly or monthly visits.

Upon completion of his Ph.D. (1985-1988), Eric was offered employment by the Division of Exploration and Mining Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia. While at CSIRO, he studied the geochemistry of laterite and other weathered materials using statistical methods and introduced the use of multivariate statistical methods to the Australian mineral exploration community. He was invited to give several short courses on the use of numerical and statistical methods to the mineral exploration industry and graduate level university courses. It was during this time that Eric had the opportunity to meet Vera Pawlowsky at a conference on the statistical prediction of mineral resources in Wuhan, China, where they discovered a mutual interest in the statistics of compositional data.

In 1991, Eric was offered the opportunity to work on a mineral resource assessment project at the British Columbia Geological Survey, Canada. This project allowed him to re-align his knowledge of statistics and his background in regional geological studies for the creation of grade-tonnage models that were uniquely defined for British Columbia mineral deposits as well as the adaptation of the USGS Mark 3 mineral resource estimation simulator for estimating resource potential in the province.

Eric's background in geoscience information management from his time at the OGS led to an opportunity to develop an information management strategy for the Alberta Geological Survey (AGS) from 1998 to 2002. His leadership in the knowledge of both managing and delivery of digital geoscience information allowed him to work at the national level with provincial, territorial and national agencies in developing an integrated national geoscience delivery structure.

During his time at the AGS he became involved in the study of multi-beam radar satellite imagery as a tool for terrain mapping. Eric designed and managed one of the largest RADARSAT-1 image acquisition campaigns for a provincial agency ever implemented by the Canadian Space Agency that resulted in more than 280 images of varying incidence angles and look directions. Using his knowledge of multivariate statistical methods, Eric demonstrated that unique features of landforms could be effectively identified and mapped at the regional scale. Eric's innovative approach to evaluating RADARAT-1 satellite imagery was recognized by the Canadian Space Agency through several invitations to present his work at national meetings and agency operational reviews.

In 2002, Eric accepted a position at the Geological Survey of Canada in Ottawa as an information management specialist for the Mineral Resources Division and for his knowledge of quantitative methods for evaluating geochemical data. Eric quickly became involved with a number of projects that enabled him to study and describe geochemical/geological processes from a range of geochemical datasets. As well, his previous work on three-dimensional spatial analysis was revived for specialized geochemical studies in the Noranda mining camp in Quebec. During the next 9 years Eric became involved in geochemical studies of kimberlites, as well as lake, stream and soil sediments for a wide range of projects within the GSC. Additionally, he became involved in the statistical analysis studies of soil and stream sediment geochemistry with the United States Geological Survey (USGS) and Geoscience Australia (GA). Eric also participated in two of the compositional data analysis workshops that were held in Girona and Saint Felieu de Guixols, Spain, by Vera Pawlowsky's research group.

Larry Drew at the U.S Geological Survey in Reston, Virginia, has had the good fortune to work with Eric since 2005, during which time they have successfully solved several problematic issues in the interpretation of the geochemistry of soils and stream sediments. Eric's background knowledge and enthusiasm to carry out research into new areas has certainly made a significant contribution to their work

Eric's use of statistical methods for integrating satellite imagery formed the basis for a new paradigm of surficial materials mapping across Canada's North. During his time at the GSC, he worked with surficial mapping geologists and remote sensing geologists to develop a methodology for surficial materials mapping, based on the statistical integration and classification of satellite imagery derived from radar and optical sensors. This approach has defined a new large scale mapping process that has been implemented by the GSC as part of its northern mapping strategy.

Throughout his professional career, Eric has documented his research findings through publications and presentations. He has published 39 articles in peer-reviewed journals, 5 review articles, 80 government reports, maps and open file reports, 11 contributions to books, 70 conference proceedings and public reports, 23 solicited consultations by outside agencies and 149 invited conference/presentations/lectures. Eric has been invited on international scientific committees for the IAMG and the International Association of Applied Geochemists.

He is currently an Adjunct Professor at the University of Waterloo in the departments of Earth Sciences and Biology and as an Adjunct Professor in the Department of Earth Sciences at Laurentian University where he has lectured on the use of statistics in the interpretation of geochemical data and mentored and supervised graduate students in the use of statistics for evaluating geoscience data.

Dr. Grunsky has been a member of the IAMG since 1985. He has served as Editor-in-Chief, Computers & Geosciences from 2006 to 2011 after being an Associate Editor from 1996 to 2006. Currently he serves on the Board of Mathematical Geosciences. He also was on the Editorial board of Geochemistry: Exploration, Environment, Analysis (2001 – present), and Natural Resources Research (1999 – 2006). Dr. Grunsky's commitment to the IAMG is also demonstrated through his service as elected Councillor (1992 – 1996). He initiated the development of the IAMG ftp and web sites and was the IAMG website manager from 1995-2006. Eric is married to Jean Hubay. With their two children, Kurt and Anna, they live in Ottawa, Ontario.

Dr. Grunsky's current contributions to the quantitative aspects of earth science are built on his experience and knowledge from the past. As well, however, he is keen to learn and discover new ways of looking at data and developing/enhancing statistical methodologies. Dr. Grunsky is the consummate scientist – he never stops learning and achieving!

Frits Agterberg,
Geological Survey of Canada

Student Affairs

IAMG Student Affairs Committee 2011-2012 Report

In the period of this report we had 8 student chapters listed:

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

Two of them, Stanford and Colorado, were struggling hard to survive and keeping their recognition as official student chapters. The good news is that the Colorado and the Stanford chapter seem to be alive again, at least they submitted applications for official recognition and financial support. The sad news is that we have lost the two chapters at Southern Illinois University - Carbondale, Illinois, USA, and University of Alberta - Edmonton, Alberta, Canada.

In total, we received seven applications for official recognition and for funding, respectively. These were:

ITC (ISCI), Stanford University, China University of Geosciences, University of Colorado at Boulder, ENSG – Nancy Université, TU Bergakademie Freiberg and Szeged.

We did not receive any report, note nor a message from our chapter at Sun Yat-Sen University- Guangzhou City, China.

All members of the Student Affairs Committee participated in the evaluation. Their final scoring so far is as follows:

China University of Geosciences- Wuhan	59
Freiberg University of Mining & Technology	95
University of Colorado at Boulder, Colorado	47
ENSG-Nancy University, Nancy, France	

Helmut Schaeben, Committee Chair

IAMG-CN is starting IAMG-CN Newsletter

The Topical Section of IAMG for Chinese Members (IAMG-CN) and two IAMG student chapters in China are very active in various domestic and international scientific exchanges and activities. And especially, nearly two years of concern of IAMG have warmed up rapidly in China. It is very important to sustain the growth of IAMG membership of Chinese members and timely provide members with information about the Association, Topical Section, student chapters, activities of members and information about upcoming events in the field of mathematical geosciences. IAMG-CN is starting the IAMG-CN Newsletter and the first issue is going to be released in December.

The IAMG-CN Newsletter is expected to:
keep readers informed about developments in the mathematical geosciences and other related fields and about IAMG, IAMG-CN;
be thought-provoking and interesting to read, and be newsworthy and collectible.

The IAMG-CN Newsletter is a traditional magazine as well as a modern webzine published in Chinese. It will be delivered in two formats: pdf and web pages. It inherits the style of IAMG Newsletter, and what's more, the navigation bar and search bar will be shown on each web page so that it can be viewed online anywhere, anytime which improve the digital reading experience of the reader. IAMG-CN is trying to take advantage of the cloud service to provide efficient and flexible service for Chinese members. The launch of IAMG-CN Newsletter will be one of the key milestones for IAMG-CN.

The editor of IAMG-CN Newsletter is Zhijun Chen, who is the Secretary-General and web master of IAMG-CN. Welcome to visit the online reading page: http://www.iamg.org.cn/pubor.htm.

Zhijun Chen

New Helmholtz Institute Freiberg for Resources Technology

In August 2011, the German Federal Government founded a new research center with important relations to Mathematical Geosciences: the Helmholtz Institute Freiberg for Resources Technology (http://www.hzdr.de/hif). It was created as a cooperation of the Technical University Bergakademie Freiberg and the Helmholtz-Center Dresden-Rossendorf. The TU Bergakademie Freiberg is one of oldest mining academies in the World, approaching 250 years in 2015. The Helmholtz-Center Dresden-Rossendorf is one of the largest state-funded research centers in Germany, active in energy, matter and health.

The goal of the institute is to conduct research along the whole raw materials value chain from exploration to recycling, with the goal of obtaining new and optimized processes and material sources. It pursues an interdisciplinary approach to problem, employing geologists, mineralogists, mining engineers, processing engineers, metallurgists, physicists, chemists, biologists, ecologists, economists and mathematicians.

The institute currently employs almost 50 people, including senior researchers, research fellows, and PhD and MSc students. It is not yet fully staffed, and is currently looking for qualified people abroad willing to join with their expertise. It is split in six departments: Exploration (focusing on geophysics and remote sensing), Mining, Mineral Processing, Metallurgy and Recycling, Analytics (focusing on spatially-resolved techniques for mineral characterization), and Modelling and Evaluation (focusing on mathematical geosciences and process modelling).

The department of Modelling and Evaluation is headed by Prof. **Gerald van den Boogaart**, and has recently recruited as senior researcher **Raimon Tolosana-Delgado**, both members of the IAMG since 2001. Research conducted in the department particularly interesting for the IAMG include: geostatistics, statistics for special scales in the Geosciences (e.g., analysis of compositional data and of microstructures, etc.), statistics of dynamic systems (like leaching, ecosystems, mineral processing, etc.), stochastic geometry, numerical modeling, and stochastic modeling of mining and exploration. This research is conducted in close collaboration with the other departments of the institute.

Together with the Chair of Mathematical Geology and Geoinformatics headed by Prof. **Helmut Schaeben**, and the IAMG Student Chapter at the TU Bergakademie Freiberg, this new initiative strengthens the Freiberg pole of the IAMG community in Germany and Europe. That probably makes the nice, cosy city of Freiberg the one with the largest number of IAMG members per inhabitant in the world!

Raimon Tolosana-Delgado

Conference Reports

IX Conference on Geostatistics for Environmental Applications (geoENV2012)

The IAMG-sponsored IX Conference on Geostatistics for Environmental Applications (geoENV2012) was held in Valencia (Spain) between September 19 and 21, 2012. With more than 100 attendants of all continents, it gathered scientists and engineers working with geostatistics in fields as varied as ecology, air pollution, climate change, $C0_2$ sequestration, or soil characterization. The invited speakers were Anthony Davison, who spoke on geostatistics of extremes, Anna Michalak, who spoke about the global carbon cycle, and Mohan Srivastava, who spoke about trends in ocean surface water temperature, who were accompanied by 60 oral presentations and 20 posters. All in all, the conference was a success, both for the quality of the presentations, and for the opportunities to interact between the conference participants. The next geoENV conference will take place in Paris in 2014. (IAMG supported the conference with a grant of $3000. More pictures at geoenv2012.upv.es. - *Ed.*)

Jaime Gómez-Hernández
Chairman, geoENV2012 Organizing Committee

Overheard at the IGC:

At the last IGC in Brisbane, we saw many Geomathematicians who seemed to think they can mix and merge into a crowd of Geologists. Not so. Geomathematicians are a special breed that stands out in any crowd. Here are ten tell-tale signs of a true Geomathematician:

1. When the bar attendant asks: "Would you like double the vodka in that drink?" he replies in anger: "That is an ill posed question, for you are dealing with compositional data!".

2. He walks looking down in case he finds a good training image.

3. If the scale says she weighed 2 kg more this morning, she spends the rest of the day finding reasons why that is an outlier, and cannot be part of a trend.

4. He tries to impress a good looking young lady by explaining heteroschedasticity.

5. She calls the head of the English Department to explain that the double "g" in the word "digging" should really be optional, as it is in "Krigging".

6. When waiting for the restroom in a full flight, explains to fellow passengers that the line could be eliminated with 95% probability by adding 2.73 more restrooms.

7. Always asks for extra paper napkins in case he has to make a point to the skeptic beside him.

8. After a flight over the entire Pacific Ocean, exclaims "if only I could get a hold of a faster computer, I could model the whole thing".

9. Walks with disdain past the exhibits of microscopes and laboratory equipment, remarking that Chemistry and Physics are merely Applied Mathematics.

10. Spends half of his time begging industry for data, the other half proving they are wrong.

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Member News

Raimon Tolosana-Delgado, currently a Vice-President of the IAMG, has recently moved to Freiberg (Germany), to work with Gerald van den Boogaart in the new Helmholtz Institute Freiberg for Resource Technology. He is now working on statistics and geostatistics of compositional data, statistical methods for mineral paragenesis characterization, and mineral deposits simulation and evaluation.

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Larry Drew received his 40th year service award. It was presented by Dr. Marcia McNutt, Director of the USGS. Larry started with the USGS in 1972 working on assessment methods to estimate the quantity and quality of the nation's undiscovered mineral and mineral-fuel resources. He has won many honors including the IAMG's Griffiths and Krumbein Awards.

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Xiaogang (Marshall) Ma won the FUNding Friday Competition at the ESIP Summer Meeting 2012, Madison, WI, for his proposal "Exploratory visualization of earth science data in a Semantic Web context". He was awarded a grant to carry out this study, and was invited to present research outputs at the ESIP Winter Meeting 2013 to be held at Washington DC in January, 2013. The Federation of Earth Science Information Partners (ESIP, http://www.esipfed.org) is an open networked community that brings together science, data and information technology practitioners in the United States.

Marshall graduated from Faculty ITC, University of Twente, the Netherlands in 2011 with a PhD degree, and now is a postdoctoral research associate at Rensselaer Polytechnic Institute working on Semantic eGeoscience.

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Sean McKenna has left the Geoscience Research and Applications Group at Sandia National Laboratories in Albuquerque, New Mexico (after 18 years) to join IBM Research in their Smarter Cities Technology Centre in Dublin, Ireland. Sean will be a Research Staff Member and Manager focused on water research. Sean would be happy to share a pint with any IAMG member that intersects Dublin.

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Walther Schwarzacher has been in the hospital for two months after heart surgery. Once he is deemed strong enough to walk by himself he will be able to go home. Walther's wife, June, has been spending most of her time at the hospital (as of Nov. 8; reported by Jenny McKinley). More recently Walther reported: "... am delighted to have been given the chance to live a little bit longer. I am not yet fit to go to my office but my recovery proceeds and I can go on 50-100m walks."

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John Carranza, our new Editor-in-Chief of Natural Resources Research, is moving from ITC (International Institute for Geo-Information Science and Earth Observation) in the Netherlands to Australia to join the School of Earth and Environmental Sciences of James Cook University in Townsville, Queensland. See more about him on page 11.

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Jaime Gómez-Hernández was master of ceremonies at a gala in May 2012 celebrating the 10th anniversary of RUVID, the Network of Valencian Universities. In this picture he is shown in his Harry Potter costume entertaining the crowds with his magic tricks demonstrating statistics with a deck of playing cards. More pictures at http://jgomez.webs.upv.es/ and videos at http://placebus.upv.es/.

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Letter to the Editor

It would be appropriate to have continuing focus on oil consumption rates on a world basis. In spite of continuing discoveries in new provinces, as well as new production technology in old provinces, the world's supply of oil is being exhausted rapidly. At the moment, about a billion barrels of oil are consumed every eleven days. So, even though there may be a trillion barrels left to produce (or two trillion?), the supply can't last long if we project ahead for a century or two. Furthermore, the issue is compounded by continuing increases in world consumption rates. Where will it end?

John Harbaugh

The Governor of Queensland, Her Excellency Penelopy Wensley addressing the IGC

2012 Matheron Lecturer: Jean-Paul Chilès

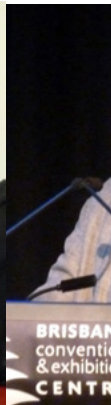
Eric Grunsky receives the Krumbein Medal

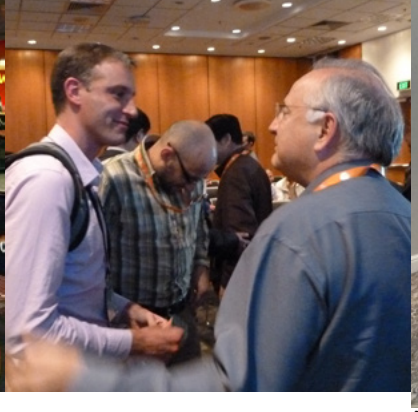
Helmut Schaeben showing his Griffiths Teaching Award

IAMG Meeting at the 34th IGC in Brisbane 5-10 August 2012

Council Meeting: front - Jennifer McKinley, Ve
back - Ricardo Olea, Raimon Tolosana-Delgado, Dan Tetzlaff, June Hill,

The IAMG shared booth with David Collins & Gina Ross



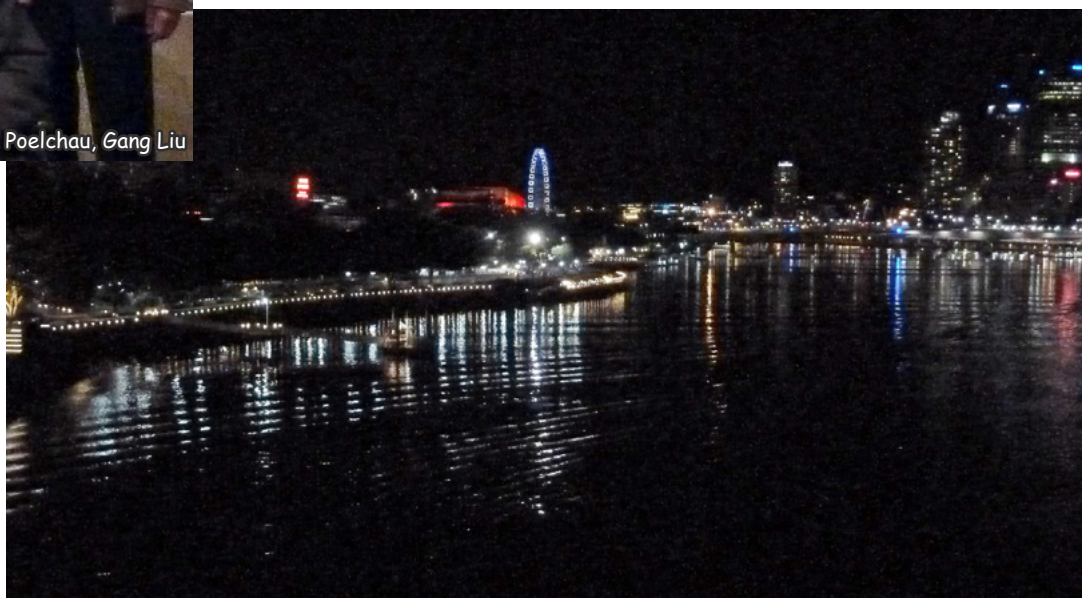


The New Council meeting

The outgoing Executive: Dan, Vera, Gina & Qiuming

The new president and 3 of the last 4 presidents together

era Pawlowsky-Glahn, Gina Ross, Frits Agterberg;
Helmut Schaeben, David Collins, Qiuming Cheng, Harald Poelchau, Gang Liu



IAMG Journal Report

Computers & Geosciences: Updated aims and scope

The Journal Computers & Geosciences has updated its scope. Please visit http://www.journals.elsevier.com/computers-and-geosciences/ for details. Our journal has come a long way since its foundation under Dan Merriam in 1975 and the recent change in leadership after Eric Grunsky's stepping down as Editor-in-Chief in 2011. Computers & Geosciences is now the highest impacting Journal of the IAMG, receives more than 700 submissions a year, has expanded the Associate Editorship to a total of nine and created a new way of distributing code via a modern repository system (http://github.com/cageo). While the Geosciences have evolved tremendously over the last 40 years, Computer Science has been revolutionized through high performance computing, new programming paradigms, large data-base systems, real-time data processing, the advent of the World Wide Web, social media and much more. In the spirit of remaining a cutting-edge computer science journal, new submissions now need to demonstrate novelty, originality and sophistication in both the Geosciences and Computer Science. It is no longer acceptable to submit a methodology paper to another Journal and the code to Computers & Geosciences, if for example this code is fairly standard and does not use nor contain any interesting programming paradigm or software engineering challenges. In the same context, GIS has come a long way and mere standard applications of GIS in the geosciences are no longer considered novel contributions. Papers on mathematical and statistical methodology should be submitted to Mathematical Geosciences instead of G&C.

We thank the IAMG community for their contributions to the Journal and hope to continue receiving many submission at the intersection of Computer Science and Geoscience.

The Editors-in-Chief, Jef Caers & Michael Piasecki

Mathematical Geosciences - Special Issue on Multiple-Point Statistics

Guest editors: Philippe Renard and Grégoire Mariethoz

To mark the 20 years of the Multiple-Point Statistics (MPS) paradigm, the journal Mathematical Geosciences will publish a special issue on this topic in September 2013.

Over the last 10 years, after the publication of the landmark paper by Sebastian Strebelle in 2002, the interest in Multiple-Point Statistics methods has rapidly grown. The major appeal is the possibility to integrate a complex conceptual geological model through the use of a training image. Furthermore, conditioning is simple and efficient. Since this work, several new algorithms have been developed to tackle more complex situations as well as several major applications have appeared in various fields of geosciences and geoengineering. In addition, MPS has been integrated in various procedures for inverse modeling and this work is still in progress. Despite a growing interest and attractive results, the method has been questioned because of a lack of an explicit mathematical model and potential difficulties in quantifying uncertainty.

The main focus of this special issue will be on the latest theoretical advances and algorithms as well as major new and complex applications. Specially, we invite papers that are related to the following topics:

The latest multiple-point statistics algorithms
Recent theoretical developments and new perspectives
New computational advances
Integration of MPS in inverse methods
Recommendations for successful applications

Mathematical Geosciences threatened by Spatial Statistics?

I have, more than once, warned IAMG's Executive that the over-emphasis on C&G over the last year or more, the substantial support of well-known IAMG members to the new (non-IAMG) journal (Spatial Statistics, Elsevier), and the general assumption that MG is fine on its own, is a serious threat to the Journal's continuing well-being. The decline in quality of submissions (and the impact factor decreasing from 1.511 to 1.354) is more than a simple warning, and it is time for IAMG to understand this before it is too late.

The well-being of Math Geosciences is due largely to the impeccable and unusual level of support the journal receives from Springer and, specifically, Senior Editor Dr Chris Bendall and Production Editor Allan Sinclair. The second reason for doing well is the journal's Associate Editors and their long hours of work as well as commitment.

Roussos Dimitrakopoulos, Editor-in-Chief

2011 Best-Paper Awards Computers & Geosciences

The journal reinstituted the yearly best-paper awards. Due to breadth of topics published, two categories were created: "geo-informatics" and "geo-computing" (computational geosciences). The first category includes papers on subjects such as GIS, ontology, geomatics, data processing and the world-wide web; the second category includes topics such as geostatistics, soft computing, physical process modeling, geochemistry and geophysics. A call for nominations resulted in seven paper being considered by the awards committee from which three were selected. Congratulations to the authors.

Jef Caers, Co-Editor-in-Chief

Best paper in Geoinformatics:

"Automatic processing, quality assurance and serving of real-time weather data"
authored by M. Williams, D. Cornford, L. Bastin, R. Jones and S. Parker

Matthew Williams
Knowledge Engineering Group, Aston University, Birmingham, United Kingdom

2 Best papers in Computational Geosciences:

"**Bayesian spatial modeling and interpolation using copulas**"
authored by H. Kazianka and J. Pilz

Hannes Kazianka
University of Klagenfurt, Department of Statistics, Klagenfurt, Austria

"**Optimizing the spatial pattern of networks for monitoring radioactive releases**"
authored by S.J. Melles, G.B.M. Heuvelink, C.J.W. Twenhöfel, A. van Dijk, P.H. Hiemstra, O. Baume and U. Stöhlke

Stephanie J. Melles
Environmental Sciences Group, Wageningen University, Wageningen, The Netherlands

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Computers & Geosciences is seeking candidates for the position of **Book Review Editor.** Candidates should have a general backgound in modern geocomputing and/or geoinformatics, with some innovative ideas how to develop this aspect of the journal. Energy, dedication and commitment are more important than experience.

If you are interested, please contact Jef Caers, Co Editor-in-Chief, at jcaers@stanford.edu

Current Journal Statistics

Mathematical Geosciences:

2011 ISI-impact factor: 1.354
5-Year Impact Factor: 1.585

approx. daily downloads Aug. to Nov.: between 20 and 100

Rejection rate: 65%

Natural Resources Research:

approx. daily downloads Aug. to Nov.: between 60 and 150

Computers & Geosciences:

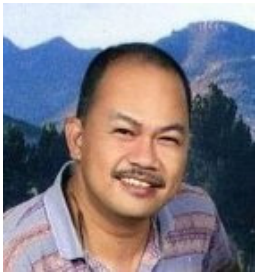
2011 Impact Factor: 1.429

5-Year Impact Factor: 1.714

Submissions 2011: about 700

New Editor for Natural Resources Research: John Carranza

Dr. John Carranza is the newly appointed Editor-in-Chief of NRR, taking over from the previous EiC **Keith Long** who led NRR from 2009 to 2012, and acting EiC **Jerry Jensen**.



Emmanuel John M. Carranza obtained a BSc degree in geology (Adamson University, Manila, Philippines) in 1983, a MSc degree (with distinction) in mineral exploration (International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, Netherlands) in 1994 and a PhD degree in GIS-based mineral potential mapping (Delft University of Technology, Delft, Netherlands) in 2002.

He started his professional career in 1983 as a geologist in the Bureau of Mines and Geosciences of the Philippines where he was involved with geological mapping, stratigraphic studies, geological hazard mapping, evaluation of industrial rocks/minerals and geochemical exploration for gold. His work on exploration geochemistry led to recognition of a previously unknown mineralized area in a Quaternary volcanic terrane in Bicol Region of the Philippines. He received the 1998 ITC Research Award for his paper on catchment-basin analysis of stream sediment geochemical anomalies.

In 2001-2003, John was a Researcher in the Earth Systems Analysis (ESA) department of ITC where was is involved with (a) research in developing geospatial data infrastructure for mineral resource management, (b) teaching at post-graduate level and (c) supervising MSc and PhD students. Since 2003 he has been Assistant Professor in the ESA department of ITC. In January 2013 John will move to Australia to join the School of Earth and Environmental Sciences of James Cook University in Townsville, Queensland.

He has supervised and led to graduation 4 PhD students and at least 25 MSc students. He has been an external examiner for 4 PhD candidates. His research interests include GIS-based mineral potential mapping, geological/mineral remote sensing, spatial predictive modeling of geo-objects, and exploration/environmental geochemistry. He has published more than 45 papers in international peer-reviewed geoscience journals and more than 40 papers in international conference proceedings. He has also written and published a book on Geochemical Anomaly and Mineral Prospectivity Mapping in GIS.

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The Geological Survey of Spain (http://www.igme.es) has just released the first four volumes of its new collection series:

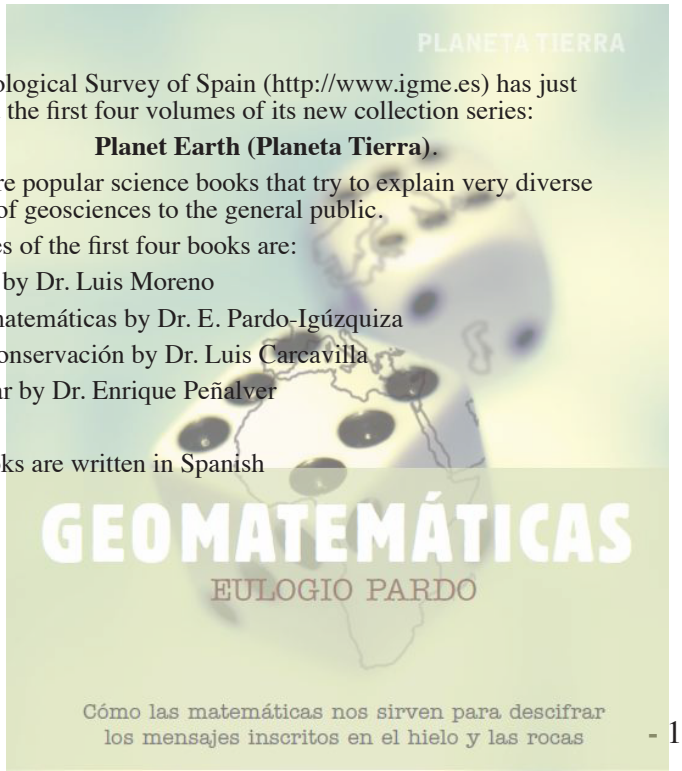
Planet Earth (Planeta Tierra).

These are popular science books that try to explain very diverse themes of geosciences to the general public.

The titles of the first four books are:

1. Agua by Dr. Luis Moreno
2. Geomatemáticas by Dr. E. Pardo-Igúzquiza
3. Geoconservación by Dr. Luis Carcavilla
4. Ambar by Dr. Enrique Peñalver

The books are written in Spanish



IAMG Studies in Mathematical Geosciences (Monograph Series)

The contract for SMG No. 9, Principles of Mathematical Petrophysics, by **John H. Doveton** of the University of Kansas, has been signed. The final manuscript is to be submitted by May 2013, and it is anticipated that the book will appear in early 2014.

As early as January 2009, Oxford University Press Editor Phyllis Cohen and I discussed the need for drawing up a new agreement between Oxford and the IAMG. The activity was set in motion and in addition to Phyllis and me involved Michael Hohn, Frits Agterberg, Graeme Bonham-Carter, and Gina Ross. To my knowledge, the problem was not resolved. Phyllis recently brought this topic up again. She also reiterated that OUP continues to be pleased with the OUP/IAMG partnership.

Royalty on revenue from **e-book sales** had not occurred to me until Phyllis mentioned it. A web search turned up some interesting examples of this "new" (to me) phenomenon:

Pawlowsky & Olea's monograph (SMG #7) is available from Amazon.com, including a Kindle edition for $87.56.

Olea's glossary/dictionary (SMG #3) is also available for Kindle at $96.56.

The IAMG 25th anniversary volume (Davis & Herzfeld, SMG #5) purports to be free on "Usenet," and is available from "Ebookee," along with a free copy of Babylon Translation Software (OUP's asking price for the book is $170.00!).

Christakos' 2000 monograph on spatiotemporal geostatistics, SMG #6, is also on "Ebookee."

P.J. Lee's SMG #8, Statistical Methods for Estimating Petroleum Resources, 2008, our most recent book, is listed on Google Play—"Buy EBOOK – $100.00," along with a long list of printed sources including OUP (listed at $125.00), Amazon.com, etc. It's also on "bookmoving.com," along with a picture of the book cover and a link to download a PDF of the volume.

Following is a list of all books that have appeared in the SMG series, along with the number of copies sold; SMG Nos. 1–4 are out of print; Nos. 5–8 are in print.

Note: SMG No. 3, Geostatistical Glossary and Multilingual Dictionary, (March 1991, hardback, 192 pp.) is listed on the OUP website as "in stock," selling for $99.50 + shipping. A Journal of Geological Education review describes this volume as "An Indispensable reference for all workers in, users of, and educators teaching geostatistical methods for all areas of earth science." If you don't have one, buy one.

1. Use and Abuse of Statistical Methods in the Earth Sciences, by William B. Size, Ed., 1987 – 1,509 copies sold. Out of print.

2. Oil and Gas Forecasting: Reflections of a Petroleum Geologist, by Lawrence J. Drew, 1990 – 642 copies sold. Out of print.

3. Geostatistical Glossary and Multilingual Dictionary, by Ricardo A. Olea, Ed., 1991 – 803 copies sold. Out of print. But see Note above.

4. Techniques for Determining Probabilities of Geologic Events and Processes: A Review, by Regina L. Hunter & C. John Mann, Eds., 1992 – 722 copies sold. Out of print.

5. Computers in Geology: 25 Years of Progress, by John C. Davis & Ute Christina Herzfeld, Eds., 1993 – 656 copies sold. Available in print.

6. Modern Spatiotemporal Geostatistics, by George Christakos, 2000 – 1,019 copies sold. Available in print.

7. Geostatistical Analysis of Compositional Data, by Vera Pawlowsky-Glahn and Ricardo A. Olea, 2004 – 474 copies sold. Available in print.

8. Statistical Methods for Estimating Petroleum Resources, by P.J. Lee, 2008 – 298 copies sold. Available in print.

Jo Anne DeGraffenreid, Editor

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ERRATUM — Erratum to: Role of Stranded Gas from Central Asia and Russia in Meeting Europe's Future Import Demand for Gas — Emil D. Attanasi and Philip A. Freeman

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BOOK REVIEW

A. Ismail-Zadeh and P. Tackley: Computational Methods for Geodynamics — Cambridge University Press, New York, 2010. 322 pp. ISBN 9780521867672 — Robert Moucha

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An easy-to-use MATLAB program (MamLand) for the assessment of landslide susceptibility using a Mamdani fuzzy algorithm — A. Akgun, E.A. Sezer, H.A. Nefeslioglu, C. Gokceoglu, B. Pradhan

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Designing cyclic pressure pulsing in naturally fractured reservoirs using an inverse looking recurrent neural network — E. Artun, T. Ertekin, R. Watson, B. Miller

Reactive silica transport in fractured porous media: Analytical solution for a single fracture — Jianwen Yang

Landslide identification and classification by object-based image analysis and fuzzy logic: An example from the Azdavay region (Kastamonu, Turkey) — Beliz Aksoy, Murat Ercanoglu

The influence of igneous intrusions on the peak temperatures of host rocks: Finite-time emplacement, evaporation, dehydration, and decarbonation — Dayong Wang, Yongchen Song, Yu Liu, Minglong Zhao, Tian Qi, Weiguo Liu

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A rapid inversion and resolution analysis of magnetic microscope data by the subtractive optimally localized averages method — Y. Usui, M. Uehara, K. Okuno

DIIS: A cross-platform program for the reduction of X-ray diffraction data from a cylindrical area detector — J.A. Petrus, K.C. Ross, A.M. McDonald

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Generic polyhedron grid generation for solving partial differential equations on spherical surfaces — D. Oldham, J.H. Davies, T.N. Phillips

2.5-D frequency-domain seismic wave modeling in heterogeneous, anisotropic media using a Gaussian quadrature grid technique — Bing Zhou, Stewart Greenhalgh, Hansruedi Maurer

Building asynchronous geospatial processing workflows with web services — Peisheng Zhao, Liping Di, Genong Yu

GIS-based data model and tools for creating and managing two-dimensional cross sections — Timothy L. Whiteaker, Norm Jones, Gil Strassberg, Alan Lemon, Doug Gallup

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Support vector regression to predict porosity and permeability: Effect of sample size — A. F. Al-Anazi, I. D. Gates

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Magan: A new approach to the analysis and interpretation of marine magnetic anomalies — Antonio Schettino

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Software for generating gravity gradients using a geopotential model based on an irregular semi-vectorization algorithm — Mehdi Eshagh, Makan Abdollahzadeh

VelProbePE: An automated spreadsheet program for interpreting point velocity probe breakthrough curves — P.C. Schillig

HYDROKAL: A module for in-stream hydrokinetic resource assessment — Paul Duvoy, Horacio Toniolo

Dynamic taxonomies applied to a web-based relational database for geo-hydrological risk mitigation — G.M. Sacco, G. Nigrelli, A. Bosio, M. Chiarle, F. Luino

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3D multiple-point statistics simulation using 2D training images — A. Comunian, P. Renard, J. Straubhaar

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Semantic mediation of vocabularies for ocean observing systems — John Graybeal, Anthony W. Isenor, Carlos Rueda

Fast multiple inversion for stress analysis from fault-slip data — Katsushi Sato

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Application of computational intelligence tools for the analysis of marine geotechnical properties in the head of Zakynthos canyon, Greece — Maria Ferentinou, Thomas Hasiotis, Michael Sakellariou

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Stress inversion using slip tendency — John M. McFarland, Alan P. Morris, David A. Ferrill

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Forecasting daily lake levels using artificial intelligence approaches — Ozgur Kisi, Jalal Shiri, Bagher Nikoofar

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Upcoming Meetings

Stability and Performance of SLOPES AND EMBANKMENTS, San Diego, California, USA, **3 - 6 March 2013**. www.asce.org/geo/Conferences/Conferences

GEOSYNTHETICS 2013. IFAI. Long Beach, CA, USA, **1 - 4 April 2013**. Phone: + 1-651-225-6981, www.geosynthetics2013.com/Technical_program.cfm

EUROPEAN GEOSCIENCES UNION General Assembly 2013, Vienna, Austria, **7 - 12 April 2013**. Mioara Mandea <executive-secretary@egu.eu>, www.egu2013.eu/home.html.

International Congress on DISASTER RISKS and Sustainable Territorial Development. CIRiDe, Catamarca, Argentina, **22 - 24 April 2013**. http://iugs.org/uploads/I%20CIRCULAR-CIRiDe.pdf

GEOINFORMATICS 2013: XIIth International Conference "Geoinformatics: Theoretical and Applied Aspects", Kiev, Ukraine, **13 - 16 May 2013**. www.eage.org/events/index.php?eventid=919&Opendivs=s3

16th German DAM SYMPOSIUM (DTK 2013). Deutsches Talsperren Komitee e.V., Magdeburg, Germany, **15 - 17 May 2013**. +49 (0)3641 311 63 46, fax: +49 (0)3641 311 62 41, www.conventus.de/index.php?id=9008

AAPG 2013 Annual Convention & Exhibition: Pittsburgh, PA, USA, **19 - 22 May 2013**. www.aapg.org/meetings

CoDaWork 2013: Fifth International Workshop on Compositional Data Analysis, Vorau, Austria, **3 - 7 June 2013.** Information: Peter Filzmoser, Phone: +43 1 58801 10733, Fax: +43 1 58801 10799, E-mail: codawork2013@gmail.com, www.codawork2013.com

75th EAGE Annual Conference & Exhibition incl. SPE Europec 2013, London, UK, **10 - 13 June 2013**. www.eage.org/events/index.php?eventid=755&Opendivs=s3

SIAM Conference on the Mathematical and Computational Issues in the Geosciences (GS13), Centro Congressi Padova, Padova, Italy, **17-20 June 2013**. www.siam.org/meetings/gs13/

2013 JOINT STATISTICAL MEETINGS, Montreal, Canada, **3-8 August2013**. www.amstat.org/meetings/

59th ISI World Statistics Congress, Hong Kong, S.A.R. China, **25-30 August 2013**. ISI Permanent Office, P.O. Box 24070, 2490 AB The Hague, The Netherlands. Phone: +31–70–3375737, Fax: +31–70–3860025, E-mail: isi @cbs.nl, www.isi2013.hk. Will include invited IAMG session on "Probability & weights of evidence".

IAMG 2013 Annual Conference, Madrid, Spain, **2 - 6 September 2013.** www.igme.es/internet/iamg2013/

GEOMODEL 2013: 15th science and applied research conference on oil and gas geological exploration and development, Gelendzhik, Russia, **09 - 12 September 2013**. www.eage.org/events/index.php?eventid=981&Opendivs=s3

Society of Exploration Geophysicists SEG Annual Meeting, Houston, TX, USA, **22-27 September 2013**.

GSA Annual Meeting - Celebrating 125th Anniversary, Denver, Colorado, **27 – 30 Oct. 2013.** www.geosociety.org/meetings/2012/

WORLD LANDSLIDE Forum III: "Landslide Risk Mitigation Towards a Safer Geo-Environment", Beijing, **2 - 6 June 2014**. icl.iplhq.org/_Portal/documents/WLF3%20-1st%20annoucement.pdf

2014 Joint Statistical Meetings, Boston, Massachusetts, **2 - 7 August 2014**.

IAMG 2014 Annual Conference, Jawaharlal Nehru University, New Delhi, India. **17-20 October 2014**

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CoDaWork - 2013 - Vorau

Vorau Austria

June 3-7 2013

We are pleased to invite you to the **5th International Workshop on Compositional Data Analysis (CoDaWork 2013)**, held in Vorau (Austria) from June 3-7, 2013.

CoDaWork 2013 offers a forum of discussion for people concerned with the statistical treatment and modelling of compositional data or other constrained data, and the interpretation of models or applications involving them. The primary goal of the workshop is to identify important potential lines of future research and gain insight as to how they might be tackled. Contributions about

* general theory and methods of analysis of compositions,
* applications to life sciences and medicine,
* applications to earth and environmental sciences,
* applications to chemometrics,
* applications to economy, official statistics and social sciences,

and new teaching and computing tools, as well as any other field of application where compositions or data from other constrained spaces appear are welcome.

Scientific committee:

Peter Filzmoser (Chair, Vienna University of Technology)
John Bacon-Shone (The University of Hong-Kong)
Gerald van den Boogaart (Technical University of Freiberg)
Antonella Buccianti (University of Florence)
Juan José Egozcue (Technical University of Catalonia)
Michael Greenacre (Pompeu Fabra University of Barcelona)
Karel Hron (Palacký University of Olomouc)
Josep Antonio Martín-Fernández (University of Girona)

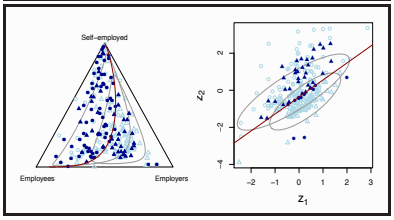
Invited speakers:

Morris L. Eaton (University of Minnesota)
Chris Glasbey (Biomathematics & Statistics Scotland)
Clemens Reimann (Geological Survey of Norway)
Raimon Tolosana-Delgado (Technical Univ. of Catalonia)

Important dates:

Abstract due: Jan. 11, 2013
Notification of acceptance: Feb. 11, 2013
Early registration due: Feb. 18, 2013
Full paper due: April 5, 2013

CoDa Tutorial: June 3–4, 2013
CoDa Workshop: June 4–7, 2013



On the venue:

Vorau is located in the north-east of Steiermark (Styria), the so-called "green heart" of Austria. It is surrounded by beautiful scenery with mountains (up to 1700 m), alps, and forests. Vorau is famous for its monastery dating back to the 12th century. The conference site is the "Education Center" of this monastery, which is well equipped with everything needed for such a conference, including a lecture hall in baroque style.

A bus service from Vienna Airport and Vienna city center will be organized to bring the participants to Vorau and back.

codawork2013@gmail.com
www.codawork2013.com

There is also a **Short Course on Compositional Data Analysis** (March, 4-6, 2013) organized by the Doctoral School in Statistics, Department of Economics, Quantitative Methods and Business Strategy, University of Milano-Bicocca. Contact Prof. Dr. Vera Pawlowsky-Glahn for more information at vera.pawlowsky@udg.edu

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IAMG 2013 15th Conference Madrid — Mathematics of Planet Earth 2013

Madrid IAMG 2013 Conference update

In a few weeks time we will be celebrating the 2013 New Year, which will be a very special year for geo-mathematicians. The 2013 IAMG Conference will be held in Madrid from the 2nd to the 6th of September and the deadline to submit abstracts is 1 February 2013. The Conference will be part of the year-long programme to celebrate the Year of Mathematics of Planet Earth as well as an event in the programme for the International Year of Statistics. We have planned 27 Scientific Sessions together with a number of short courses and a geological field trip on the last day of the Conference. We invite you to visit the Conference web page for more details.

The Geological Survey of Spain is fully supporting the Conference including the publication of all papers (up to four pages each, two of which may be in colour) in a book entitled "Mathematics of Planet Earth" by Springer in the series "Lecture Notes in Earth Science Systems". There will be no royalties from this book – only the satisfaction of seeing your work properly published in a prestigious and accessible source. This will also help young researchers to enhance their publishing skills and allow all authors to disseminate their work more widely than would otherwise be the case. Although we support environmental sustainability, we believe that the importance of the year themes for 2013 justify providing each attendee with a free printed copy of the book at the start of the Conference. In addition, having the book before the presentations will help everyone make a more informed choice of which sessions to attend and make the most of the Conference.

We hope that the Conference will live up to your expectations as we are sure that the city of Madrid, its people, museums, galleries and Spanish food will certainly do so.

We encourage you to attend the Conference and to make Madrid IAMG2013 a memorable contribution to the Mathematics of Planet Earth Year and to the International Year of Statistics. Please check the web page for the wide range of sessions and other information. http://www.igme.es/internet/iamg2013/

Many thanks on behalf of the Organizing Committee of Madrid IAMG 2013.

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☐ "Geostatistical Analysis of Compositional Data" by V. Pawlowsky-Glahn and R.A. Olea	US$	82.50
☐ "Statistical Methods for Estimating Petroleum Resources" by P. J. Lee	US$	93.75
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