No. 83 December 2011

IAMG Newsletter

Official Newsletter of the International Association for Mathematical Geosciences

Contents

2012 IAMG AWARDS

Nominations requested!

The Association invites nominations for the following awards:

John Cedric Griffiths Teaching Award

The John Cedric Griffiths Teaching Award shall be presented to honor outstanding teaching, with preference for teaching that involves application of mathematics or informatics to the Earth's nonrenewable natural resources or to sedimentary geology. Age or academic status are not conditions for the award. (IAMG By-Law 14)

William Christian Krumbein Medal

The William Christian Krumbein Medal is the highest award given by the Association and the recipient shall be so honored and acknowledged. The Krumbein Medal is awarded to senior scientists for career achievement, which includes (a) distinction in application of mathematics or informatics in the earth sciences, (b) service to the IAMG, and (c) support to professions involved in the earth sciences. There is no stipulated preference for fields of application within the earth sciences. (IAMG By-Law 12)

Membership in IAMG is not a requirement for nomination. For further information on both awards, please visit http://iamg.org

The deadline for nominations is **31st January 2012 -** but please don't wait until the last minute !

Please send nominations and supporting documents to:
Jef Caers - Chairman, IAMG Awards Committee
Stanford University, Dept. of Energy Resources Engineering
367 Panama St.
Green Earth Sciences Bldg.
Stanford, CA 94305-2220 - USA
E-mail: jcaers@stanford.edu

Persons who are not nominated will not get an award !

Mathematical - what does that word mean? Recently, a new use of the term "mathematical" caught my attention. In the NPR (National Public Radio) show "A way with words" on Oct. 1, 2011 a young mother from Ohio called in to report that her middle school teen age daughters were saying things like " Oh, that's sooo mathematical!" or "That's totally math!". The commentary on the show stated:

"If something is mathematical, is it cool? ... that's exactly what it's come to mean among the younger set. Then again, irony is also pretty hip. But could her kids be using a piece of ironic slang with confused sincerity? Ahh! Meta-irony! So cool!"

From the Editor
From the Editor
From the Editor

Over time (centuries) mathematics has indeed changed its meaning repeatedly. Originally the word came from Greek "*mathema*" – "knowledge, study, learning" (in modern Greek - lesson or teaching), making mathematics the study of quantity, space, structure, and change. We still see this original meaning in the word "polymath" – a person of great and varied learning.

St. Augustine (354-430) used the term *mathematici* in a derogatory sense to refer to astrologers. In England until around 1700, the term "mathematics" more commonly meant "astrology" (or sometimes "astronomy") rather than mathematics as it is used today.

For some reason the word has also found some attraction in American pop culture: Mathematics, also known as Allah Mathematics (born Ronald M. Bean), is a hip hop producer and DJ for the Wu-Tang Clan. As well as producing many tracks for the Wu-Tang Clan and for its solo and affiliate projects, Math has released two solo albums. And MATH is an American Improv/experimental band formed in Woodstock, New York in the mid 90s; Math the Band is an American electronic band formed in 2003 in Westford, Massachusetts. And then, there was Math Rock! (how close can you get to mathematical geoscience in music!)

Perhaps that means there is hope to make our specialty interesting and attractive to the next generation. If our kids use "mathematical" to express excitement or appreciation, they might be less averse to getting into science later on. On the other hand, considering how fast teenage slang changes, this phenomenon may be part of the past by the time you read this.

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Speaking of quickly changing modern times and different ways to communicate – **Guillaume Caumon** reminded me that we have a Mathematical Geosciences Group on **LinkedIn** (www.linkedin.com/groups?gid=833797), which offers a forum for discussing mathematical geosciences news and opinions. This group is open for members and non members to connect with each other; it has 97 members, so far. Anyone (including journal editors) can publish new information there, such as table of contents of IAMG journals, or information about professional meetings. Some might say, LinkedIn is the "FaceBook" for scientists, but we should, and do, have a presence on **FaceBook** as well, thanks to **Faisal Shahzad** who is also trying bring IAMG into the 21st century. Faisal hopes to get more participation from IAMG members - so far he reports 44 group members - and asks anybody interested to please sign up and "like" us. You can reach Faisal at pac@iamg.org.

Harald S. Poelchau

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

International Association for Mathematical Geosciences

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PRESIDENT'S FORUM

The new year 2012 is approaching fast, and with it an important year for IAMG. As every four years, we will elect our Executive and Council for the next term, 2012-2016. I encourage you all to read carefully the short CVs prepared by the candidates, to learn about them, and to vote for those you feel will better lead IAMG during the next four years. It will be for sure no easy task; they are all excellent.

In 2011 we had our annual meeting in Salzburg. It was well organised, both from a logistic and from a scientific point of view. We had interesting presentations and discussions, as well as short courses. The participation of Katherine Eve, from Elsevier, was from my point of view very positive. Our awardees for this year made really good contributions. We enjoyed keynote lectures from the winner of the Felix Chayes Prize for Excellence in Research in Mathematical Petrology, Istvan Dunkl, from the University of Göttingen (Germany); the winner of the Andrei Borisovich Vistelius Research Award, Olena Babak, from the University of Alberta (Canada); and from the Matheron Lecturer B S Daya Sagar, from Bangalore (India). I want to acknowledge the good work of our awards committee, of the Matheron Lecturer Committee, and of all those members who sent in nominations. The 2012 Distinguished Lecturer, Dr. Jack Schuenemeyer, retired from the USGS, was also present and introduced the topics he offers to talk about. Last, but not least, we enjoyed the presence of Walter Schwarzacher. It was a personal pleasure for me to present him with the nomination as Honorary Member of IAMG. I firmly believe that the recognition of the scientific, professional and personal achievements of each one of our Honorary Members is well deserved, and is not only an award for them, but also for the whole of the Association.

Now we are looking forward to the IGC meeting in Brisbane. The IGC attracts thousands of scientists; it will be very different from our usual annual meetings. Our sessions represent just a small portion, but they are very important to make our association visible to the whole community of geoscientists attending the event. Look at our homepage to see which sessions are offered.

Another remarkable meeting that will take place next year is the Ninth International Geostatistics Congress, Geostats 2012, hosted this time in Oslo, Norway. There are quite a few IAMG members involved in this meeting, which has been always essential in the progress of Mathematical Geosciences, and I think it would be good if there could be a closer cooperation between IAMG and the organisers of the series.

As you know, IAMG 2013 will be organised by a group at the Spanish Geological Survey (IGME) in Madrid. As far as I know, there are already 14 sessions under consideration, and the organisation of the event is quite advanced; and Madrid is a city which is worthwhile to stroll around. You will see. We can anticipate a successful meeting. Now the bid is for organising IAMG 2014. Do you have any suggestion or proposal? Just contact the chair of the Meetings Committee; he will help you further.

With respect to meetings, this year I had the occasion to assist in the Simpósio: Modelaçao de Sistemas Geológicos (Homenagem ao Professor Doutor Manuel Maria Godinho), in Coimbra, Portugal, and in the 50th Jubilee of the Mining Príbram Symposium in Prague. The first one was a great occasion to learn about the presence of Mathematical Geosciences in Portugal, and it is a pity that not more Portuguese colleagues participate actively in the our Association, although our Distinguished Lecturer 2011, Amilcar Soares, is doing an excellent job. Concerning Prague, being the birth place of IAMG, it is always a dear place to go back. The meeting, held at the historical Hotel Krystal, offered a great occasion to deepen acquaintances and to make new ones. I really enjoyed it. And our colleague, Vaclav Nemec, proved once more his excellent skills in organising meetings that join East and West.

Our international projection through the Planet Earth Institute, now renamed to Earth Science Matters Foundation, is continuing. You can find the latest developments following the link www.yearofplanetearth.org. We have also joined the project "Year of Mathematics of Planet Earth - MPE2013", proposed by the North American Mathematical Science Institutes for 2013. Our journal, Mathematical Geosciences, has also joined the project. You can find more information in www.mpe2013.org.

On the financial side we are on a kind of stand-by. Everything points at a crisis continuing for several years ahead and, for the moment, we have not suffered any harm, and will not as long as we do not realise the loss by selling investments. Our Treasurer, Gina Ross, is controlling the situation in a very efficient manner.

Now we need your contribution in the form of nominations of candidates for the William Christian Krumbein Medal and the Charles Cedric Griffiths Teaching Award. It is your opportunity to nominate those scientists you think are worth the award. Remember that the Awards Committee cannot know each and everyone of the potential candidates, they need your contribution!

Do not forget to renew your membership for 2012 so that you can vote and participate in defining the future of IAMG!

See you next year in Brisbane.

Vera Pawlowsky-Glahn

Letters to the Editor

Response to John Harbaugh's question "What's the Ultimate Objective?" which he posed in the May 2011 IAMG Newsletter.

In the May 2011 IAMG Newsletter, John Harbaugh posed an interesting, and challenging, question. The central theme of his comment is that the geomathematics and related scientific communities should be more closely aligned with the commercial organizations … businesses, companies, and government agencies … that provide the financial incentives to carry on their research and development. Having spent a good deal of my career in the business world, the absence of such a focus has been one of my pet peeves for a long time; and so I heartily endorse what John is proposing. While there are several very good scientific training programs in the geomathematics and geocomputing arenas, the business side of our discipline seems to have been somewhat ignored. The University of Tulsa, which has a long and rich history of energy focus campus-wide, is one institution that decided to positively impact this situation. Since 2007 the University has offered a very successful undergraduate program in energy management, the curriculum for which combines courses in geology, geophysics, engineering, economics, finance, accounting, computing and information systems, law, and others. This year the University will launch a graduate program in energy business to help accomplish the same goals. The objective of the graduate program is to prepare technically-trained professionals (engineers, geologists, etc.) to become more effective business people, and to prepare those with business understanding to more fully appreciate technical and scientific issues. While there is still work to be done, this move is a significant step towards filling the gap that John has identified. Like him, I would welcome more input from my colleagues within IAMG in hopes of stimulating even more collaborative thinking on this issue.

Timothy C. Coburn
Professor, Energy and Operations Management
Director, Graduate Program in Energy Business
The University of Tulsa

... I have a broad question, namely how many members of the IAMG function primarily as consultants? I suspect that the number is small, but there would seem to be few consultants in geostatistical matters who serve the mining industry. Are there any who focus on reservoir characterization in the oil industry and function as free-lance consultants and not as in-house experts?

Curious.

John Harbaugh

Ed.: If you are one and don't mind admitting it, why not send a brief note to Harbaugh at john.harbaugh@stanford.edu .

Slate of Candidates for the 2012-2016 IAMG Council

The IAMG Nominating Commission consisting of **Frits Agterberg** (Canada), **Heinz Burger** (Germany), **Simon Cox** (Australia), **Ricardo Olea** (USA), **Yongzhang Zhou** (China) and non-voting chair **Vera Pawlowsky**, has proposed the following slate of candidates (see page 8 for descriptions of responsibilities for each position):

PRESIDENT
Qiuming Cheng, Canada/China
Daniel Tetzlaff, U.S.A.

EXECUTIVE VICE PRESIDENT
Jaime Gómez-Hernández, Spain
Jennifer McKinley, N. Ireland

VICE PRESIDENT (2)
Luis Braga, Brazil
Julián Ortiz, Chile
Raimon Tolosana-Delgado, Spain

TREASURER
David Collins, U.S.A.
Sanjay Srinivasan, U.S.A.

COUNCILOR (4)
Gerald v. d. Boogaart, Germany
John Carranza, The Netherlands
Guillaume Caumon, France
Yongqing Chen, China
June Hill, Australia
Katsuaki Koike, Japan
Gang Liu, China
Xiaogang Ma, The Netherlands
Amilcar Soares, Portugal

IGC COUNCILOR
Ake Fagereng, South Africa
Christien Thiart, South Africa

All candidates are members of IAMG and have confirmed their willingness to run. Voting will take place in spring 2012.

For President

Qiuming Cheng is full professor at the Department of Earth and Space Science and Engineering and Department of Geography, York University, Toronto, Canada. He holds a National Special Professorship in China University of Geosciences and he is the founding director of the State Key Laboratory of Geological Processes and Mineral Resources in China.

His research interests involve research and development of mathematical concept, theory and methods as well as GIS technologies for modeling singular geo-processes in mineralization and for quantitative assessments of mineral resources, water resources and environments. He has published more than 250 journal and conference proceeding papers. He has been a convener for numerous international conferences including IAMG, EGU, AGU, and IGC, etc. He is the recipient of a number of prestigious awards including the IAMG's President Prize, 1995; Canada Foundation for Innovation Researcher, 1998; Ontario Premier's Research Excellence Award (PREA), 2000, Foreign Researcher by Japan Society for the Promotion of Science (JSPS), 2002; Chang Jiang Scholar awarded by Chinese Ministry of Education, 2003; Distinguished Young Scientist awarded by Chinese National Foundation of Science, 2005; IAMG William Christian Krumbein Medal, 2008; Land and Resources Science and Technology Award by the Ministry of Land and Resources of China, 2011.

Dr. Cheng has been actively and continuously involved in participation of IAMG activities. Since the IAMG annual conferences started in 1993, he has participated in 12 out 15 of these conferences and 4 meetings at IGCs since 1996, mostly as session chair or co-chair. He chaired with Graeme Bonham-Carter the 10th IAMG conference in Toronto, 2005, and as General Secretary with Professor Zhao Pengda organized the 12th IAMG conference in Beijing, 2007. He chaired two China national conferences of mathematical geosciences and geoinformatics, 2009 and 2011. His other services to IAMG include: Acting President (2008.9-2008.12); Executive Vice President and Chair of Matheron Lecturer committee (2008-2012), Councilor (2004-2008), Award Committee member (2004-2007), Distinguished Lecturer Committee member (2005-2009), Associate Editor of Computers & Geosciences (2006-2009), the Editorial Boards of Mathematical Geology, Geochemistry of Exploration, Environment and Analysis, Earth Science, Progress of Geophysics, Earth Science Frontier and Int. Journal of Ocean and Oceanography.

He received a B.Sc. in mathematics, a M.Sc. in mathematical geology from Changchun University of Earth Sciences, and Ph.D. in mathematical geology and GIS from the department of Geology, University of Ottawa, Canada, 1994. He taught various undergraduate and graduate courses including GIS and data integration, statistics, mineralogy, time series and spectral analysis, and geomorphology.

Daniel M. (Dan) Tetzlaff, currently Secretary General of the IAMG (2008-2012), is Principal Geoscientist at Schlumberger Information Solutions in Houston, Texas. Born in Argentina with a German family background, he completed a Geology Degree at the University of Buenos Aires in 1979, where he also held an Assistant Teaching position in Geophysics. He later obtained M.S. and Ph.D. degrees in Applied Earth Sciences at Stanford University in 1983 and 1987 respectively, with course work in Geomathematics and Geostatistics, and a thesis on Sedimentary Process Modeling under the direction of Prof. John Harbaugh. He has since worked in industry: Western Atlas (Senior Analyst), Texaco (Senior Geoscientist), Baker Hughes (Geoscience Software Development Manager), and Schlumberger where he is performing Research and Development and serving as a link to academic and research consortia in the fields of Numerical Geologic Modeling, Geostatistics, Quantitative Risk Assessment, Well-Log Analysis, Seismic Processing, and Image Analysis. During his career in industry, he also received training in Management and Business Negotiations. He has authored two books, two patents, and numerous technical papers. He was Distinguished Lecturer for the SPWLA (Society of Petrophysicists and Well Log Analysts) in 1991-1992, Treasurer of the IAMG in 1996-2000, and is currently a member of the Steering Committee of the CSDMS (Community Surface Dynamics Modeling System of the University of Colorado), and member of the AAPG, SPE, IAMG, and SIAM. As IAMG Secretary General, he was instrumental in implementing the transition to a fully owned IAMG office and membership website, helped establish the IAMG section for Chinese members together with Vice President Qiuming Cheng, and is a member (ex officio) of the Student Affairs Committee and the Awards Committee.

Dan has a detailed internal knowledge of the functioning of the IAMG due to having held the positions of Treasurer and Secretary General. He is committed to strengthening ties with academic and research institutions, while creating new ones with industry, which he sees as underrepresented in the IAMG membership. He recognizes that the main strengths of the IAMG are its publications, its balance between Geosciences and Mathematics, and the diversity and quality of its membership. He is committed to support and enhance these values, involve the younger generation by widening opportunities for student grants, improve technical communications through information on the activities of research groups in the IAMG Newsletter, promote technical forums, and actively use modern Internet-based media. He also believes that IAMG business must be conducted in a way that is consistent and professional in order to be regarded with respect by other organizations and communities.

For Executive Vice President

Jaime Gómez-Hernández (*Requena, Spain, 1960), a full professor of Hydraulic Engineering at the Universitat Politècnica de València in Spain, received a Civil Engineering degree, with honors, from the Universitat Politècnica de València in 1983; an M. Sc. in Applied Hydrogeology from Stanford University in 1987; and a Ph. D. in Geostatistics for Natural Resources Evaluation from Stanford University in 1990. He is an active researcher in Mathematical Geosciences with focus in three main topics: upscaling of flow properties for better groundwater flow and mass transport modeling, uncertainty characterization in relation with the deep geological disposal of nuclear waste, and stochastic inverse modeling of aquifers and petroleum reservoirs. He is the author of more than 60 papers in refereed journals, and has consulted worldwide for most major oil companies and nuclear waste management agencies. He has also acted as Vice-Rector of the Universitat Politècnica de València, and as Director General for the Ministry of Enterprise, University and Science of the Valencian Regional Government.

His involvement with IAMG dates back to his time as a student in Stanford when he first joined the Association. Since then, he has participated in the Annual Meetings, he has been the Guest Editor of a special issue of Mathematical Geology and is currently handling another special issue for Mathematical Geosciences, and he has served in the Publications Committee, the Distinguished Lecturer Committee, and the Meetings Committee.

Jennifer McKinley is a senior lecturer and a member of the Environmental Change Research cluster and the Spatial Technologies Research Forum in the School of Geography, Archaeology and Palaeoecology (GAP), Queen's University Belfast (QUB). Jenny's research interests focus on the application of spatial analysis techniques, including GIS and geostatistics, to soil geochemistry, airborne geophysics, weathering studies, and environmental and criminal forensics. Interdisciplinary collaboration is a hallmark of Jenny's research. Significant grant income to date has supported research on geostatistics in weathering studies and trace element abundance and human epidemiology, in collaboration with the Cancer Registry Northern Ireland and the Geological Survey NI. Jenny first attended the IAMG in 2003 and has supported subsequent IAMG conferences since then. She is currently a member of the IAMG Student Affairs committee. Jenny has authored numerous international publications including a co-authored book on Geoforensics – demonstrating the use of spatial statistics in forensic geology. Jenny has been a reviewer for Mathematical Geosciences, Computers & Geoscience and other earth science journals. Her teaching responsibilities include GIS undergraduate modules and postgraduate teaching on spatial analysis and 3D visualization. She plays a key role in promoting and developing the role of women in science and has successfully championed the Athena SWAN silver award for the School of GAP, QUB in July 2010. Jenny is a Chartered Fellow of the Geological Society and a member of the Geological Society Forensic Geology Group. She also sits on the Royal Irish Academy Geosciences Committee. Jenny would welcome this opportunity to serve the mathematical geoscience community and would embrace this responsibility with her usual blend of enthusiasm and practical commitment.

For Vice President

Luis Paulo Vieira Braga received his D.Sc. in Systems Engineering from the Federal University of Rio de Janeiro in 1984, after spending a few years at the University of Montreal, where he was a research fellow under the direction of Nelson Maculan and Michel David. He also obtained a M.S. degree in Applied Math from the Catholic University of Rio de Janeiro, in 1978 and a MBA from Getulio Vargas Foundation, in 2000. Braga is a retired associate professor of the Federal University of Rio de Janeiro where he held several positions such as: head of the Computer Science and Systems Engineering Graduate Courses; head of the Statistics Department and director of the Institute of Mathematics. He also taught digital terrain modelling at the Military Institute of Engineering. He has been working as an occasional consultant for Petrobras Oil Company since 1982, developing mapping and geostatistics software. He has published so far three books in statistics and data mining and several papers and abstracts. Luis has been a member of IAMG since 1984, besides being a member of the Brazilian Statistics Association; the Interamerican Statistical Association and the Brazilian Distance Learning Association. At present he is a collaborating professor at the department of Geology of the Federal University of Rio de Janeiro where he is writing a book on geostatistics with R for undergraduate students and applying advanced multivariate techniques to geochemistry. He is also involved in the design of distance learning courses. My main reason to run for this office is to express my recognition for the excellent job this association has been doing for Mathematical Geosciences.

Julián M. Ortiz is a Mining Engineer from Universidad de Chile (1998). He received a Ph.D. in Mining Engineering (Geostatistics) at University of Alberta in 2003, under the supervision of Dr. Clayton V. Deutsch. Currently, he is an Assistant Professor at the Department of Mining Engineering at Universidad de Chile. He is also the R&D director of the Advanced Mining Technology Center, where he directs the ALGES lab (Laboratorio Avanzado de supercómputo para aplicaciones geoestadísticas), concerned with the use of supercomputing in geostatistics, as well as software development. He created a Professional Development Program in Geostatistical Ore Resource Assessment that has been running for seven years, training professionals from all South America. He served as the chairman of the Eighth International Geostatistics Congress held in Santiago, Chile, which had over 300 participants and compiled more than one hundred papers in the two-volume proceedings of the congress. He has also been involved in the organization of several Mining Innovation International Conferences (MININ), held in Chile. As a Vice President of the IAMG he would work towards increasing the number of members, particularly in South and North America, and help improving the three journals of the Association, as well as organizing the IAMG activities.

Raimon Tolosana-Delgado is a post-doc fellow at the Department of Hydraulic, Maritime and Environmental Engineering at the Technical University of Catalunya (UPC), Barcelona, Spain. He was born in Barcelona in 1976. In 2001 he completed his degree in Engineering Geology. He obtained in 2005 a PhD degree in Environmental Science and Technology from the University of Girona (Spain) with a thesis on Geostatistics for constrained variables (such as compositions or probability vectors), under the direction of Dr. Vera Pawlowsky-Glahn. Afterwards he moved to Germany, to the Department of Sedimentology and Environmental Geology of the University of Göttingen, to work with a compositional model of sediment evolution. Since 2008 he has been active in the field of data assimilation and hazard assessment of the coastal domain.

He became member of IAMG in 2002, and has participated in all IAMG conferences since that year, with posters, talks and courses. He was the recipient of the IAMG Andrei Borisovich Vistelius Research Award for young scientists in 2007, guest professor at the China University of Geosciences, Wuhan that year, and since 2010 member of the Awards Committee of our Association.

His current research is focused on the application of compositional data analysis and statistics of other constrained variables to sedimentology and environmental engineering. He also works actively with the R open-source statistical software. The adoption of compositional data techniques is also one of his current major activities, programming specialized software, and giving short courses, focusing on introducing geological meaning into the statistical models. E-learning is also one of his current interests to help bridge that gap. In this line, he routinely collaborates with field geologists and biologists, from several groups mostly in Germany, Italy and Spain. Raimon intends to increase the visibility of mathematical geosciences outside the Association (for both students and researchers) and improve awareness of the opportunities IAMG is offering to young researchers.

For Treasurer

David Collins is currently an emeritus scientist at the University of Kansas. He studied geology and geophysics at Kansas State University from 1962 to 1967, receiving a BS degree. After service as an officer in the military, he entered graduate school at the University of Kansas, in Lawrence, Kansas, where he earned a Masters degree and PhD degree in Economics with an emphasis on development of natural resources. From 1976 to 1978 David taught courses in environmental economics, the economics of crime, and other subjects at St. Cloud State University in St. Cloud, Minnesota. Returning to Lawrence, Kansas, he took a position with the Mineral Economics Section of the Kansas Geological Survey (KGS). He soon transferred to the Advanced Projects/Mathematical Geology Section of the KGS, under the direction of Dr. John Davis, where he was introduced to and joined the IAMG. During the 1980s David worked closely with the Kansas Legislature, providing advice in the development of appropriate severance tax policies related to the oil and gas industry in Kansas. From 1990 to 1994 he served in an administrative position as manager of Technical Information Services for the KGS. Returning to research, David worked briefly with the Survey's Petroleum Geology Section before rejoining the Mathematical Geology Section. His research interests include analysis and visualization of petrophysical well log data and development of digital geologic map databases. David retired after 25 years with the Kansas Geological Survey.

As husband of IAMG's current Treasurer, Gina Ross, David has already some familiarity with IAMG financial affairs. He is well aware of the significant time commitment required of the IAMG Treasurer and has the time available to do the job.

Sanjay Srinivasan is an associate professor of petroleum and geosystems engineering at the University of Texas at Austin (UT), where he holds the Frank Jessen Faculty Fellowship in Petroleum Engineering. He received his PhD from Stanford University under the supervision of Prof. Andre Journel in 2000. He received degrees in petroleum engineering from the Indian School of Mines, Dhanbad in 1987 and from the University of Southern California (1989). He worked as a Senior Petroleum Engineer at Bechtel Corp. in San Francisco for six years before starting on his PhD degree. Sanjay's primary research focus is in the area of petroleum geostatistics and he has set up research program in petroleum reservoir characterization both at the University of Calgary, Canada where he served as an assistant professor, and at UT since 2002. Sanjay has received the Henry Ramey award for academic excellence and the Centennial Teaching award at Stanford University, the department teaching award at the University of Texas at Austin, the reservoir description award from the Society of Petroleum Engineers (SPE). He has graduated 16 MS students and 6 PhD students who have gone on to being active in the IAMG community as well as with the SPE. Sanjay served as the treasurer of the Austin Chapter of SPE for 2 years and was a member of the organization committee for the IAMG conference at Stanford, California. He also is a member of the consultation committee for the Geostatistics Congress at Banff, Santiago and Oslo. He serves as a member of the editorial committee for the Society of Petroleum Engineering Journal, Journal of Mathematical Geosciences and the Journal of Canadian Petroleum Technology. Sanjay, his wife and twin daughters live in Austin, Texas.

For Councilor

Gerald van den Boogaart studied mathematics and geography at the university of Augsburg, Germany (Diploma in Mathematics, 1998) and received his Dr. rer. nat. in spatial statistics (2001) at the graduate college of the TU Bergakademie Freiberg under the supervision of Helmut Schaeben, where he developed geostatistical methods for nonstandard situations (directions, deformations, non stationary geology, etc.) and statistical methods for microstructural texture analysis. He taught statistics, geostatistics and geoinformatics at the department of geology in Freiberg. In 2003 he received the Vistelius Award from the IAMG. From 2003 to 2007 he was junior professor for statistics at the University of Greifswald (Germany) where he started collaborating on spatial statistical problems in botany and zoology extending to the statistical analysis of spatial systems. Since then he has also worked on compositional data analysis (e.g., the compositions R package). He was Associate Editor for Mathematical Geology and Mathematical Geosciences (2007-2009). After an interlude in 2008 at the Mining Department of McGill University, Montreal (Canada), working on nonlinear Geostatistics, he accepted a full professorship for applied stochastics at the TU Mining Academy Freiberg, where he continues to collaborate with many different disciplines including geology, ecology, material sciences, mining, oceanography, etc. on various aspects of mathematical geosciences.

If elected Councilor, Gerald would help disciplines which are not well represented in the IAMG (e.g., ecological systems analysis, mining optimization, mathematical climatology or natural hazard prediction) to find a home in the IAMG, and work on better communications within the IAMG, e.g., by building up special interest groups.

E.J.M. (John) Carranza is an Assistant Professor at ITC (International Institute for Geo-Information Science and Earth Observation, The Netherlands). He holds a BSc in geology (Adamson University, Philippines, 1983), an MSc (with distinction) in mineral exploration (ITC, 1994), and a PhD in GIS-based mineral potential mapping (Delft University of Technology, The Netherlands, 2002). His specialization and research interests are: (a) spatial mathematics/statistics for predictive modeling of mineral resources and geo-hazards; (b) geochemistry for mineral exploration, ore genesis and geo-environmental studies; and (c) remote sensing for geological/mineral exploration.

John 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 for epithermal gold 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 he started at ITC (a) with research in spatial data analysis for mineral exploration, (b) teaching at post-graduate level and (c) supervising MSc and PhD students. Since 2003 he has been Assistant Professor at ITC. He has supervised to completion at least 5 PhD candidates and at least 25 MSc graduates.

Since starting his PhD studies in 1997, John has worked at the forefront of research in predictive modeling of mineral prospectivity. He is author of 65+ papers in international peer-reviewed geoscientific journals, with 25 as sole or main author, the book "Geochemical Anomaly and Mineral Prospectivity Mapping in GIS", and more than 50 presentations in international geoscientific conferences/symposia.

John is currently Associate Editor of the journals Geochemistry: Exploration, Environment, Analysis and Journal of Geochemical Exploration, and a member of the Editorial Board of the journals Ore Geology Reviews and Computers & Geosciences. He has guest-edited several journal special issues.

John is a member of the IAMG, International Association on the Genesis of Ore Deposits, Society for Geology Applied to Mineral Deposits, Society of Resource Geology, and Geochemical Society. He is also Fellow and currently Councilor of the Association of Applied Geochemists.

June Hill obtained her Bachelor of Science with First Class Honours (Geology & Mineralogy) from the University of Queensland (Australia) in 1986 and a PhD (in extensional tectonics) from Monash University in 1992. She held research positions with the University of Otago (New Zealand) and Macquarie University, looking at associations between shear zones and granitic magmatism; then worked for Fractal Graphics in Perth, Western Australia.

In 2000-2004, a change in focus led her to complete a MEngSci at the University of Western Australia (UWA) in pattern recognition while teaching at Edith Cowan University and UWA. Since 2004 June has worked for Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Perth, initially in the Petroleum division looking at methods to characterise the geology of petroleum reservoirs using syntactic pattern recognition (Geosyntax). She currently works in the Computational Geoscience group at CSIRO mainly in the areas of data integration for minerals exploration and building of 3D geological models. She is interested in applying machine learning techniques to incorporate information from categorical geological data into resource assessment.

June has been a member of the IAMG since 2006 and has attended several of the IAMG meetings: Liège, Oslo, and Stanford. In May this year she was appointed as Council member and IGC Councilor in replacement of Simon Cox. June and Ricardo Olea are organising the Mathematical Geosciences Sessions for the forthcoming IGC meeting in Brisbane in 2012.

Yongqing Chen is Professor at the School of Earth & Mineral Resources, China University of Geosciences (Beijing). In recent years, his research interests have covered: (a) quantitative identification of geo-anomalies associated with ore deposits; (b) developments of GIS technology for mineral exploration (Metal Ore Resources Prediction Assessment System, MORPAS 4.0); and (c) development and application of non-linear methods such as BEMD (Bidimensional Empirical Mode Decomposition) and SVD (Singular Value Decomposition) for extraction of ore-forming information at greater depths from the Earth's crust. He has published nearly 70 papers in journals and conference proceedings, and two books: "Quantitatively Integrated Assessment Techniques for Mineral Resources Based on GIS" (Geol. Publ. House, Beijing, 2008, 294 pp.) and "Geology and Ore Deposits Associated with Granites in the Indo-China Peninsula of Southeastern Asia" (Geol. Publ. House, Beijing, 2010, 192 pp.).

His participation in IAMG activities includes being co-convener of our 2005 and 2007 Annual Conferences. He is a reviewer of both Exploration Geochemistry and Ore Geology Reviews. He is a life-time member of the IAMG, also a member of SEG and AAG. He received his MSc in Exploration Geochemistry in 1987 and PhD in Mathematical Geology in 1994 from Changchun University of Geosciences. As a post-doctoral fellow he performed research on the methodology of quantitative assessment of mineral resources based on the geo-anomaly principle with Prof. Pengda Zhao at the China University of Geosciences (Wuhan) from 1994 to 1997.

His main reasons for running for the office of Councilor are that he wants to serve the organization and make the IAMG continue to flourish all over the world, and improve mathematical geology's ability to identify quantitatively large to super-large ore deposits.

Guillaume Caumon is a Full Professor in geomodeling at the Nancy School of Geology at Université Lorraine (France). He is doing research in the quantitative characterization of the subsurface in the face of uncertainty by combining observation data, geological principles and appropriate numerical and statistical methods. Since 2007, he has been directing the Gocad Research Consortium, an international affiliates program dedicated to the modeling of 3D geological objects and currently supporting 6 MSc and 8 PhD students. Before this position, Guillaume did a Postdoc at Stanford University on global uncertainty assessment with Prof. Andre Journel, and a PhD at the Lorraine Polytechnic Institute on geomodel updating and visualization with Prof. Jean-Laurent Mallet. He was awarded the IAMG Vistelius Award in 2009 and has been serving on the board of Mathematical Geosciences and in the IAMG publications committee since 2008. His main motivation for running for Councilor is to help enlarging the success of the IAMG by increasing its visibility and recognition among students, researchers and fellow professional organizations.

Katsuaki Koike received a BS (1986), MS (1988), and PhD (1995) in Mineral Science and Technology (Engineering and Mathematical Geology) from Kyoto University, Japan. In 1988, he became a research assistant in Engineering Geology at Kumamoto University and in 2005 a professor in the field of Hydro- and Geosphere Environmental Sciences. In 2011 he changed to Professor in the Laboratory of Environmental Geosphere Engineering, Graduate School of Engineering at Kyoto University. His research group includes 7 PhD and 9 M.S. students. His interests cover: (1) Remote sensing of Earth environments and geosphere structures; (2) Applied geophysics and geochemistry for integrated imaging of geologic structures; (3) Mathematical modeling for geosphere environments.

Koike has authored or co-authored over 87 peer-reviewed papers in domestic and international journals including 15 papers in IAMG journals, and over 94 papers in international conference proceedings. He has been awarded four best paper prizes from the Japan Society of Remote Sensing in 2000, the MMIJ in 2004 and 2010, and the Japan Society of Geoinformatics in 2007, and also the Frontier Research Prize of the Japanese Committee for Rock Mechanics in 2010.

He has served on the editorial boards of Computers & Geosciences since 2004 and Mathematical Geology since 2006, and as an IAMG Councilor, replacing Jef Caers, since July 2011. He served as the guest editor-in-chief of Natural Resources Research vol. 14, no. 4, a special issue on mathematical geology for resource exploration at the IGC32. He convened sessions of mathematical geology at the IGCs in Kyoto, Florence, and Oslo as well as at the IAMG annual conferences.

His hope is to promote interdisciplinary activity of the IAMG by collaborating with engineering and economic geology, remote sensing, geophysics, and environmental sciences.

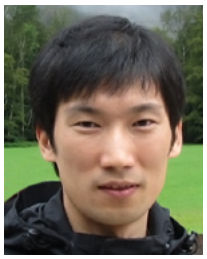
Gang Liu is a Professor in Geological Information Engineering at the Faculty of Computer Science, China University of Geosciences in Wuhan, where he also serves in the Institute of Land and Resources Information System as a deputy director. He is a member of Key Laboratory of Resources Quantitative Assessment and Information Engineering, Ministry of Land and Resources. He received a PhD (2004) in Earth Exploration and Information Technology and an MSc (1997) in Mathematical Geology from the China University of Geosciences. He won the "Golden Hammer" award for young geological scientists from the Geological Society of China in 2006.

From 2006 to 2007 he stayed at the University of Ottawa as a Post-doctorate Fellow supervised by Prof. Frits Agterberg. His research work there was to develop automatic stratigraphic correlation software RASCW V20, which was accepted as downloadable software on the website of the International Commission on Stratigraphy during 2008-2009.

He has been an IAMG member regularly attending Annual Meetings since 2005 and is a Council member of the China National Section of the IAMG. His research interests include geological information system engineering, geovisualization and quantitative stratigraphic correlation methods. Currently he is in charge of one NSFC project and one National 863 program high-tech project on 3D GIS platform development and its applications in geology.

Amilcar Soares is a Professor at the Instituto Superior Técnico in Portugal and is also head of the Petroleum Group of Cerena, Center for Natural Resources and Environment at IST. He is the coordinator of the Petroleum Engineering Master Course of IST. He is the chairman of ROADS, a network of research centers for monitoring and analysis of desertification and drought. He was nominated Distinguished Lecturer of International Association for Mathematical Geosciences for 2011-2012. He belongs to the editorial board of Mathematical Geosciences. He has been coordinator of several international projects and studies in Earth and environmental applications.

Xiaogang (Marshall) Ma received a B.Eng. (2002) in land resources management from China University of Geosciences (CUG), Wuhan. He continued with studies in geoinformatics engineering (2002–2007) and received a D.Eng. in 2009. He completed his PhD at the Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente (The Netherlands) in 2011 with the dissertation "Ontology Spectrum for Geological Data Interoperability". His specialty concerning geodata interoperability is modeling and encoding geoscience vocabularies and ontologies, and using them together with functional modules of data analysis and visualization in web-based services of geodata.



Ma is a life-time member of IAMG, was an active member in the IAMG student chapter at CUG and worked as technical assistant for the IAMG'07 conference. In 2010 he lead the founding of the IAMG student chapter at ITC and was elected as its first president. He was awarded an IAMG Student Research Grant in 2006. He has 41 publications in the field of geoinformatics and geomathematics, including several papers in C&G and a Chinese translation of the book "Geoscience after IT" by T.V. Loudon. He is a member of the International Union of Geological Sciences (IUGS-CGI) and the European Geoscience Union (EGU).

As council member of IAMG he would continue to promote geomathematics and geoinformatics among young researchers, encourage more people to support and join IAMG activities, and cooperate with the whole IAMG community to undertake the mission of the Association.

For Special IGC Councilor

Ake Fagereng is a lecturer in the Dept. of Geological Sciences at the University of Cape Town, South Africa (since January 2010). He was born in Loerenskog, Norway, in 1982. He completed an International Baccalaureate at the Li Po Chun United World College of Hong Kong in 2001, a BSc with a double major in Geology and Ocean & Atmosphere Science from the University of Cape Town in 2004, and a BSc(Honours) in Geology from University of Cape Town in 2005. In 2010 he graduated with a PhD from Otago University (New Zealand) with a thesis on 'Subduction-related fault processes' under the supervision of Prof. Richard H. Sibson.

Among recent publications derived from the thesis are considerations of the fractal geometry of fracture networks, power-law distributions of competent fragments in a weak matrix, and simple numerical models of thermal structure and the effects on how active faults behave. His current research focuses on structural geology, including fracture systems in ancient analogues to modern fault zones as well as neotectonics of the African plate and geometry of actively deforming accretionary prisms.

He has been a member of IAMG since 2008, with the perspective that quantitative models based on geometry and field observations is a critical part of structural geology, something he also tries to convey to his students at both undergraduate and postgraduate level.

Christien Thiart received a MSc (1990) and PhD (1994) in Mathematical Statistics at the University of Cape Town, South Africa. Currently, she is an associate professor and head of the department of Statistical Sciences at the University of Cape Town, South Africa. She is a founder member and senior researcher at the African Earth Observatory Network - AEON.

Christien's research interest is mainly in GIS, Geostatistics, spatial statistics and spatial modelling; she works extensively on mineral resource-potential modelling and related projects at continental scales to understand fundamental processes of metallogenesis. In AEON, she leads the GIS research unit, with a focus of the statistical analysis and modelling of Earth System resources and data mining.

She is a member of the South African Statistical Association (SASA), The International Environmetrics Society (TIES), and the IAMG. During 2008 -2009 she served on the SASA Exco and for the past four years as a Council Member (Councilor) of the IAMG.

RESPONSIBILITIES OF OFFICERS AND COUNCILORS

The **IAMG Council** is the board of directors of the IAMG. In total there are 12 voting members. Daily management is the responsibility of the officers who are the President, Executive Vice President, Secretary General, and Treasurer. The other eight voting members of the Council are the other two Vice Presidents, the Past President, the IGC Councilor (for the next IGC in Cape Town, South Africa, 2016) and four Ordinary Councilors. Any IAMG member can bring a concern before the Council. Council members are expected to provide opinions, propose solutions, and participate in voting to select alternatives.

The President, Vice President, Secretary General, and Treasurer have the following additional executive duties:

The IAMG **President** is the head of the organization and Chair of the governing Council. He appoints the Secretary General, the Committees and Commissions in consultation with Council, serves as an ambassador to other professional organizations, as legal representative of the Association in dealing with publishers and other groups, and as a Solomonic judge resolves conflicts when disputes become personal. The President also discusses and assigns duties to the other Vice Presidents who may represent the President as non-voting *ex officio* members on the IAMG Committees and Commissions. A good president should foresee opportunities and difficulties, rather than react when situations have reached a crisis status.

The **Executive Vice President** is to step in as President in case of an unexpected departure of the President from office. The Executive Vice President is the IAMG representative before the International Statistical Institute (ISI) to which IAMG has been an affiliated society since its foundation. ISI meetings are held every odd year. Our Executive Vice President organizes joint sessions at these ISI meetings.

The IAMG **Secretary General** is the operational officer of the Association and is appointed by the President. The main duties are to make arrangements and prepare minutes for every live meeting of Council and for every meeting of the General Assembly. Each year the Secretary General has to schedule the presentations of major IAMG awards. The Secretary General also prepares an annual report of the main Association activities for the International Union of Geological Sciences (IUGS). Moreover, the Secretary General is in charge to prepare and collect ballots for amendments to the Constitution and for elections to the Council.

The **Treasurer** is the Chief accountant and financial officer of the organization and deals with our money, disburses funds that we owe, and looks after investments. Additionally, the Treasurer prepares annual accounts in coordination with the IAMG office in Freiberg, Germany, which is responsible for membership dues, subscription payments and the membership database.

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NEW BOOKS

A series of two books on mathematical logic provides theoretical foundations and practical methods for processing of non-numerical and mixed (non-numerical and numerical) data by using the tools of mathematical logic. These tools have been developed in relation to the problems of geosciences, mainly with respect to the economic geology. However, the same tools can be also used in other natural sciences as well as in the humanities dealing with deterministic models and non-numerical data. The books are mainly intended for advanced undergraduate and post-graduate students as well as for professionals who use such models and data in their researches. The language of the books is Portuguese.

Lógica Matemática na Integração de Dados e na Modelagem: elementos básicos (Mathematical Logic in Data Integration and in Modeling: basic elements) by **Susanna Sirotinskaya** and **Adelir Jose Strieder**. Porto Alegre, Brasil: Editora da UFRGS, 2008, 282 p. ISBN 978-85-7025-985-1

Métodos de Lógica Matemática em Geociências: classificação, reconhecimento de padrões, análise de causa-efeito (Methods of Mathematical Logic in Geosciences: classification, pattern recognition, cause-effect analysis) by **Susanna Sirotinskaya**. Porto Alegre, Brasil: Editora da UFRGS, 2011, 528 p. ISBN 978-85-386-0145-6

Mathematical Geologists of the United States (MGUS)*

Monoclonal gammopathy of undetermined significance (MGUS) is a blood disorder that occurs when there is overgrowth of identical plasma cells in bone marrow.

The acronym MGUS has more than one definition as noted here.

In the 1975 IAMG Newsletter No. 5, C. John Mann issued a call to American IAMG members to form a national interest group as had been done in the UK, Brazil, and Australia. The call was answered and MGUS was formed on 18 November 1976 in Denver, Colorado as an regional organization to be covered under the constitution of the International Association for Mathematical Geology (IAMG). Mathematical Geologists of the United States (MGUS), then the sixth regional group to be formed under the apices of IAMG, presented a petition at the Salt Lake City GSA convention which was accepted by the IAMG Council and so an organizational meeting was held in Denver, Colorado on 18 November 1976. The purpose of the organization as stated in the bylaws

'...is to promote the application and use of mathematics in the Earth Sciences, to encourage development of quantitative methods, to disseminate to its members information relating to mathematical geology, and to foster research, improve technology and advance the science of mathematical geology in the United States'

In particular MGUS would

- act as a clearinghouse for computer programs
- distribute computer packages
- sponsor mathematical geology symposia
- publish membership directories
- organize refresher short courses and conduct workshops
- solicit review articles and state-of-the-art papers
- publish special volumes on mathematical geology
- sponsor lecture tours

Membership was open to all members of IAMG residing in the U.S. and associate membership could be granted to those who shared the interests and purposes of MGUS. The officers would be elected for a two year term at annual meetings. More than 300 belonged to MGUS by the mid-1980s.

Election of the first slate of MGUS officers was in 1976 with C. John Mann, University of Illinois, for president; John M. Cubitt, Syracuse University, for vice president, and Richard B. McCammon, USGS, for secretary - they were duly elected.

Presidents of MGUS

1976-78 - C. John Mann
1978-80 - Richard B. McCammon
1980-82 - ?
1982-84 - James B. Campbell, Jr.
1984-86 - Donald E. Myers
1986-88 - Jen Ho Fang
1988-90 - ?

Meetings sponsored by MGUS

1977 - Seattle, Washington: Models for Prediction in the Earth Sciences
1978 - Toronto, Canada (GSA): Applications of Petrologic Information Systems to Geological Problems
1981 - San Francisco, Cal. (AAPG): Computer Applications to Petroleum Geology (?)
1982 - Golden, Colorado: Management, Analysis, and Display of Geoscience Data
1987 - Redwood City, California: Emerging Concepts
1989 - Geochautauqua?

The organization published a *Directory of North American Geoscientists Engaged in Mathematics, Statistics and Computer Applications* in 1980. The directory contained the names and addresses of 220 interested in mathematical geology. The 2nd edition was issued in 1983, a 3rd in 1985 with 309 members, and the last directory with 283 names issued in 1989. It was announced at one time that all members of IAMG residing in the US permanently or temporarily were automatically members of MGUS with no dues for membership.

The organization existed for about a dozen years and then just slowly disappeared in the 1990s as other groups, such as the parent organization the IAMG, the newly formed COGS (Computer-Oriented Geologists Society), the Geochautauquas that continued for a quarter of a century and first sponsored by Syracuse University, and the long running APCOM (Application of Computers and Operational research in the Mineral industries), all had similar objectives and projects. And too, there was a plethora of meetings on the subject not only by specialist groups but sessions at national meetings such as AAPG and GSA. Then too by this time geomathematics and computer techniques and applications had been assimilated into the mainstream of geology.

The last mention of MGUS activities in an IAMG Newsletter was in No. 37 in 1987 concerning the successful meeting in Redwood City, California.

Dan Merriam - Historian

*If anyone has additional information or can supply the missing data, please contact Dan Merriam at dmerriam@kgs.ku.edu

Salzburg - IAMG20012 Conference

"Bridging Theory and Practice"

September 5-9 2011, the world cultural heritage city of Salzburg was the setting for the IAMG Annual Conference. IAMG2011 was a forum for exchanging ideas on theory and the practical application of a broad spectrum of mathematical geosciences concepts, addressing a wide range of geoscientists and civil engineers, and providing opportunities for students and young scientists to engage with some of the best geoscience minds in the world. IAMG 2011 attracted 235 delegates from 37 countries, with 85% making their way from abroad: 53% came from EU countries, 12% from the US, 7% from China, 5% from Iran, 2% from Canada, and 21% came from other countries.

The broad thematic range of IAMG 2011 (www.iamg2011.at) was organized in 22 sessions with a total of 164 high-quality, peer-reviewed contributions covering IAMG core topics like geostatistics, reservoir modeling, 3D modeling or geo-process simulation, as well as applied mathematical geosciences issues with a specific reference to alpine regions - simulation and modeling in hydrogeology, engineering geology, and geohazard modeling. Because of the close association between the Salzburg based Austrian Academy of Sciences GIScience Research Institute and the University of Salzburg Centre for Geoinformatics, recent developments in GIS and remote sensing with an emphasis on object-based image analysis as well as non-destructive 3D reconstruction of rock macro- and microstructures were highlighted.

All-digital conference proceedings were distributed on USB memory sticks in PDF format and as flash-based flipping book. This enables communicating new geomathematical ideas not only in a sequential, static manner but including animations, interactive 3D-worlds or high- resolution color imagery. As such, the IAMG2011 proceedings mirror the "go green" idea - the production of hard copy proceedings volumes, comprising more than 1500 pages, could be avoided.

By December 2011, IAMG2011 extended abstracts will be available in pdf format from http://www.cogeo.at

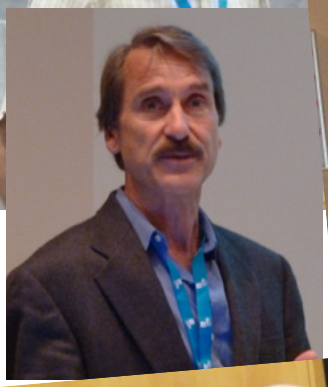
(Thanks to Robert Marschallinger !)

Reception at the Residenz

Gasthof Überfuhr in Aigen

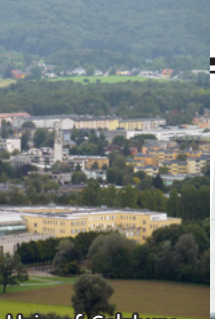
Conference Venue: NAWI of the

Some of t



Fritz Zobl, Conf. Chair with Andrea Fabbri

Robert Marschallinger -



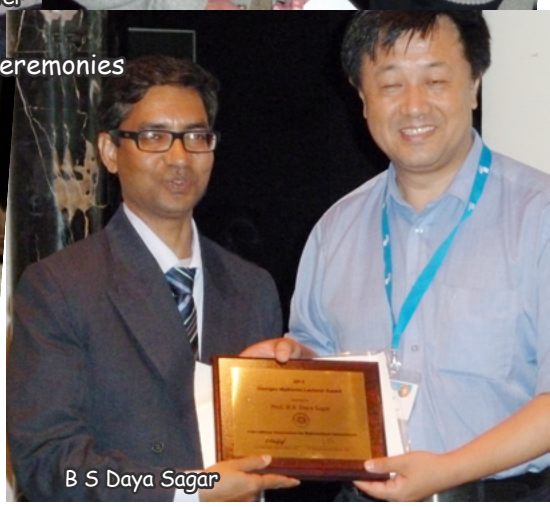
Univ. of Salzburg

Jack Schuenemeyer

Walter Schwarzacher

Award Ceremonies

Olena Babak



B S Daya Sagar

the 235 conference participants

Conf. Chair

The Banquet at the University

IAMG 2011 in Salzburg, Conference field trip, and R. G. V. Eigen

During the Conference field trip to the Penninic Tauern window our group stopped at the Pasterze glacier for a view of the majestic Grossglockner peak and the deep valley carved out by the glacier. There, a brief memorial minute was observed by some members of IAMG, recalling the life of the father of Mathematical Geology (see photo).

This year marks the 135th anniversary of the death of Rudolf Gottlieb Viktor Eigen (1833-1876), claimed by IAMG to be the father of Mathematical Geology (see IAMG News Letter #6 ff.). For this, and several other reasons it was quite appropriate to hold the 2011 Annual Meeting in Salzburg, Austria: Eigen is said to have died "when he fell to his death in crevasse of the Pasterzen (sic) glacier following a successful ascent of the Grossglockner." Apparently, Eigen worked at that time as a Bergführer (Alpine guide) employed by Cook's Tours (see IAMG News Letter # 21-22). Eigen lived in Heiligenblut, where he also spent his youth, a small town not too far from the Pasterze glacier. Although this version of the end of his life was later disputed (IAMG News Letter # 8) by a famous Russian colleague (ABV), the Rudolf Gottlieb Viktor Eigen Memorial Committee planned to unveil a memorial plaque for his 100th anniversary on the Hochalpenstrasse overlooking the Pasterze with an inscription commemorating the distinguished mathematician's achievements.

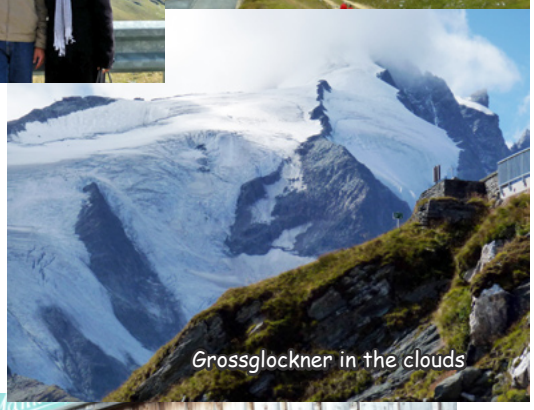
Perhaps it was no coincidence that the venue chosen for the IAMG meeting, the Natural Science Department of the University of Salzburg, lies just across the Salzach river from a small town on the outskirts of Salzburg, named Aigen. Several participants of the meeting stayed at the Gasthof Überfuhr in Aigen. It is quite possible that the forebears of Rudolf Eigen originally came from this area. When they migrated eventually to Heiligenblut the name of their place of origin became their family name. In the early years spelling of this name was not very consistent, and probably was changed from Aigen to Eigen after a few generations.

Hans Steyrer -field trip leader

Marshall & Frits

Hochalpenstrasse towards Carinthia

Post Conference Field Trip to Grossglockner Area



Grossglockner in the clouds

Pasterze glacier

the local fauna - a tame marmot

GEOMATRIX'12 International Conference on Geospatial Technologies and Applications at Indian Institute of Technology Bombay (IITB), **26 - 29 February 2012**. www.csre.iitb.ac.in/~csre/geomatrix12

6th Colloquium "ROCK MECHANICS - Theory and Practice" with "Vienna-Leopold-Müller Lecture", Research Center of Engineering Geology, Vienna University of Technology, Vienna, Austria, **22 - 23 March 2012**. Contact: christine.cerny@tuwien.ac.at

GSA Penrose Conference "Deformation, Fluid Flow, and Mass Transfer in the Forearc of Convergent Margins", Il Ciocco, Castelvecchio Pascoli, Lucca, Italy, **25 - 31 March 2012**. www.geosociety.org/penrose/12italy.htm

AAPG 2012 Annual Convention & Exhibition, Long Beach, California, **22-25 April 2012.** www.aapg.org/longbeach2012

EGU General Assembly, European Geosciences Union, Vienna, Austria, **22 - 27 April 2012**. meetings.copernicus.org/egu2012/

XIth International Conference GEOINFORMATICA: Theoretical and Applied Aspects, Kyiv, Ukraine, **14 - 17 May 2012**. www.eage.org/?evp=4430

4th International Conference on Monitoring, Simulation, Prevention and Remediation of DENSE AND DEBRIS FLOW, Dubrovnik, Croatia, **29 - 31 May 2012**. www.wessex.ac.uk/debris2012rem3.html/

74th EAGE Conference & Exhibition, European Association of Geoscientists & Engineers, Copenhagen, Denmark, **4 – 7 June 2012**. www.eage.org/events/

Geochemical Society: GOLDSCHMIDT 2012, Montreal, Quebec, **24-29 June 2012**. www.goldschmidt2012.org

GEOSTATS 2012 - Ninth International Geostatistics Congress, Oslo, Norway, **11 – 15 June 2012**. www.geostats2012.no

7th European Congress on Regional Geoscientific Cartography and Information Systems. Bologna, Italy, **12 - 15 June 2012** www.regione.emilia-romagna.it/wcm/geologia_en/Sections/Euregeo.htm

GI-Forum 2012: Linking Geovisualization, Society & Learning, Salzburg, Austria, **3 - 6 July 2012**. Contact: office@gi-forum.org; www.gi-forum.org

2012 JOINT STATISTICAL MEETINGS, San Diego, California, **28 July - 2 August 2012.** www.amstat.org/meetings/jsm/2012/

34TH INTERNATIONAL GEOLOGICAL CONGRESS (**IGC**), Brisbane Australia, **5-10 August 2012**. www.34igc.org. Includes IAMG symposia and General Assembly (see www.iamg.org).

The 32nd International GEOGRAPHICAL Congress, Cologne, Germany, **26 - 30 August 2012**. Theme "Down to Earth". http://www.igc2012.org/

ECMOR (European Conference on the Mathematics of Oil Recovery), Biarritz, France, **10-13 Sept. 2012**. www.eage.org/?evp=4430

International Conference of the GV & SEDIMENT 2012: Of Land and Sea: Processes and Products, Hamburg, Germany, **23 - 28 September 2012**. www.gv-hamburg2012.de

3rd International Conference on Fault and Top Seals, EAGE, Montpellier, France, **1 – 3 October 2012**. www.eage.org/events/

GSA Geological Society of America Annual Meeting "GEOSCIENCES: Investing in the Future", Charlotte, North Carolina, USA, **4 - 7 November 2012**. www.geosociety.org/meetings/2012/

SEG Society of Exploration Geophysicists: Annual Meeting, Las Vegas, Nevada, **4 – 9 Nov 2012**. www.seg.org/events/annual-meeting/

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

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/

IAMG 2013 Conference in Madrid, Spain, **2 - 6 September 2013**

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 Prob. & weights of evidence.

IAMG2013 in Madrid 2 - 6 September 2013

With IAMG2011 successfully ended, the Scientific and Local Committees in charge of organizing the next IAMG conference have already started to prepare the program for the next conference. As the readers may remember, 2012 is an International Geological Congress (IGC) year, so following a tradition going back to its inception, next year the Association will have its sessions as part of the IGC.

The following are sessions that different conveners have already committed to organize for IAMG2013:

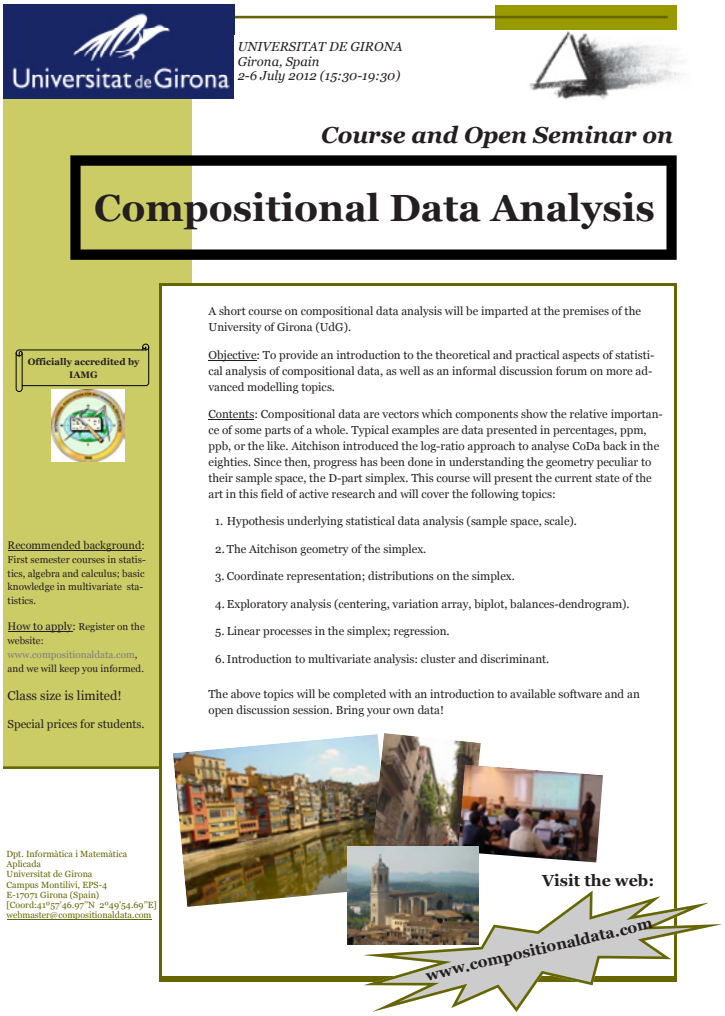
- Advances in Classical Statistics Relevant to the Geosciences
- Compositional Data Analysis Applied to Geochemistry
- Data Assimilation in Geosciences
- Fractals and Chaos Theory
- Frontiers in Geostatistics
- Geographical Information Systems
- Hydrogeology
- Mathematical Geosciences and Planetary Geology
- Modeling of Energy Resources
- Parametrization of Soil Systems at Different Scales
- Quantitative Methods in Geomorphology and Land Surface Processes
- Recent Advances in Quantitative Methods Applied to Stratigraphy and Paleontology
- Remote Sensing
- Spatiotemporal Analysis

At this stage, readers are welcome to contribute sessions in topics significantly different from the ones listed above. Convening a session implies contacting contributors to secure 8–12 presentations either oral or in poster form, and be able to attend IAMG2013 to actually chair the session. To submit a proposal, please send title and description no longer than 50 words.
The deadline is 1 February 2012.

Local and Scientific Committees:

Eulogio Pardo-Igúzquiza, Chair
Carolina Guardiola-Albert, Secretary General c.guardiola@igme.es
Javier Heredia-Díaz, Co-Chair
Luis Moreno-Merino, Co-Chair
Juan José Durán-Valsero, Co-Chair

More at: www.igme.es/internet/iamg2013



Association Business

IAMG Sessions at the 34th IGC

June Hill, International Geological Congress (IGC) Councillor, in coordination with the Meetings Committee and the organizers of the 34th IGC, has put together an extensive program for next year's congress to be held in Brisbane, Australia (http://www.34igc.org). With 15 sessions, the IAMG presence at the event will be one of the most extensive ever. Different from other IGC programs, most of the IAMG sessions will comprise a symposium 100% organized by IAMG, instead of the more predominant practice of having our sessions dispersed at several symposia. For details, the reader is invited to click the link at the home page of the IAMG website.

All members and friends of the Association are now invited to make the sessions a success by submitting abstracts and attending the congress. The abstracts must be submitted online at http://www.34igc.org/submit-abstracts.php. The deadline is 17 February 2012.

R. A. Olea,
Chair, Meetings Committee

New IAMG Councilor

Prof. **Katsuaki Koike** (Graduate School of Engineering, Kyoto University, Japan) has been appointed by the Council to replace Jef Caers as Ordinary Councilor. Jef has vacated this position after being nominated to be Editor-in-Chief of Computers&Geosciences, taking over from Eric Grunsky (see details in Journal Report). Koike is also running to be elected Councilor for 2012-16 (see his resume on p. 7).

Mathematical Geosciences Best Paper Awards

Each year the Editorial Board chooses a 'best paper' which should represent a significant advance by presenting a new concept or method with important applications, or a breakthrough on a long-standing problem; is well-written, clearly-illustrated, and referenced comprehensively; and is likely to be cited often in the literature for many years. To recognize their achievement, the authors will each receive a year's membership in the IAMG with a subscription to Mathematical Geology.

Best MG Paper for 2009

Yuan Zee Ma: "Simpson's Paradox in Natural Resource Evaluation", v. 41(2): 193–213. **Ma** is a principal geoscientist with Schlumberger Ltd in Denver, Colorado. His interests include geostatistics, multivariate statistical data analysis, reservoir characterization and modeling, subsurface resource evaluation, and uncertainty analysis.

Best MG Paper for 2010

Debarun Bhattacharjya, Jo Eidsvik, and Tapan Mukerji: "The value of information in spatial decision making", v. 42 (2):141-163.

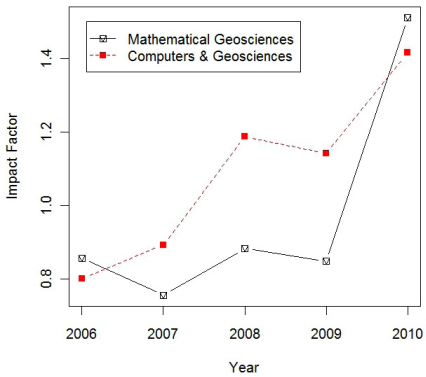
Bhattacharjya is a Research Staff Member in the Risk Analytics team within the Business Analytics and Math Sciences Division at IBM T.J. Watson Research Center, with interests in decision and risk analysis, and probabilistic models and decision theory in artificial intelligence. **Eidsvik** is currently an Associate Professor of Statistics at the Norwegian University of Science and Technology, where his research is focused on statistical modeling and inference in space–time applications and geosciences applications. **Mukerji** is an Associate Professor (Research) and co-director of the Stanford Center for Reservoir Forecasting at Stanford University. The focus of his research has been on integrating rock physics, geostatistics and wave propagation, and their broad applications in reservoir characterization and stochastic methods for quantitative reservoir modeling applications.

IAMG Journal Report

Last Fall I took over as chair of this committee from Mike Hohn. Mike served as chair over a long period (since 2000) and did an excellent job. I know that I speak for many of us in saying a grateful 'thank you'. Mike has overseen the renewal of several of IAMG's publishing contracts, and handled several difficult situations, such as investigating cases of plagiarism, with both thoroughness and tact, among his many other tasks as committee chair.

This past year the committee made an extensive search in a replacement for Eric Grunsky, who retired as Editor-in-Chief of Computers & Geosciences July 1, 2011. The committee finally recommended that two joint co-EICs share the now heavy load of work (the journal gets up to 600 submissions per year). Boyan Brodaric (who has served 4 years as Deputy Editor) and Jef Caers from Stanford agreed to share the editorship. This strong pairing was approved by Council, but for various reasons Elsevier could not agree on terms with Boyan, so Jef at the moment is the sole EIC. The committee has every confidence that Jef will be an excellent editor, and will support him in every way possible. It remains to be seen whether he will take on a co-EIC, and this decision is now his. Eric served as EIC for 5 years, and he and Boyan are to be thanked and congratulated for making several important improvements to the journal and successfully guiding it during a period of expansion. The impact factor (not always a great guide, but nevertheless a widely used measure) has increased from about 0.8 when he took over, and now stands at about 1.4—a very good sign. Jean Hubay has also given up as Managing Editor of C&G, after 7 years of very good work—much appreciated by many authors, reviewers and editors with whom she has dealt over her term. I plan to put Jean's name forward to receive an IAMG Certificate of Appreciation at IGC Brisbane in 2012.

Another item of the committee's recent work has been to discuss and approve a request from George Christakos to re-publish his IAMG Memoir #6 (Modern Spatiotemporal Statistics) as a paperback with Dover. Council supported our recommendation, and OUP has now also allowed the reversion to take place. This is a "first" for books in this series, and could set a precedent for others in the future.



President Pawlowsky has recently suggested that the Publications Committee put together some items for the IAMG web page 1) to announce the Impact Factor of our journals and keep this updated annually, and 2) to put together a notice about procedure for getting permission to reproduce parts of copyrighted papers from our journals. These can be found on the "IAMG Publications" page of the Association's website iamg.org.

The Impact Factor for both MG and C&G has both improved significantly over the past 5 years, as is shown here.

Graeme Bonham-Carter
Chair, Publications Committee

Natural Resources Research

The journal continues to appear on time with articles that cover a very broad – and increasingly broad – range of topics. Some 23 articles totaling 293 pages have appeared in the last four issues. This is about the same number of papers as last year but a 17 percent decrease in pages. NRR receives about two to three submissions per month on average. The quality of submissions is less than last year, four papers having been rejected and three withdrawn.

I have explored various scientific citation databases as a way to assess "impact." Only the Scopus database allows inclusion of social science literature, very important to this journal because many of its articles span the social-natural science divide. The distribution of citations by paper is highly skewed and heavily influenced by a very small number of articles – one published in 2005 on the topic of biofuels has had 323 citations to date. Overall, after a five year period, the number of papers with no citations dwindles to less than five, with most papers having between one and ten citations. The number of citations of articles in the journal continues to increase with 143 citations in 2007, 198 in 2008, 235 in 2009, and 416 in 2010. There were 201 citations during the first half of 2011. The Scopus metrics for NRR are a SNIP of 0.695 (up for 0.498 in 2010) and an SJR of 0.046 in 2011 but in 2006 these were 1.261 and 0.161 respectively.

Keith Long
Editor-in-Chief

JOURNAL CONTENTS

Computers & Geosciences

Vol. 37, Issue 6, (June 2011)

2009 Transport of Unsaturated Groundwater and Heat Symposium

Edited by George Moridis and Christine Doughty

TOUGH+CO2: A multiphase fluid-flow simulator for CO2 geologic sequestration in saline aquifers — Keni Zhang, George Moridis, Karsten Pruess

Error handling strategies in multiphase inverse modeling — Stefan Finsterle, Yingqi Zhang

A truncated Levenberg–Marquardt algorithm for the calibration of highly parameterized nonlinear models — Stefan Finsterle, Michael B. Kowalsky

Status of the TOUGH-FLAC simulator and recent applications related to coupled fluid flow and crustal deformations — Jonny Rutqvist

Implementation of the Barcelona Basic Model into TOUGH–FLAC for simulations of the geomechanical behavior of unsaturated soils — Jonny Rutqvist, Yuji Ijiri, Hajime Yamamoto

TOUGHREACT Version 2.0: A simulator for subsurface reactive transport under non-isothermal multiphase flow conditions — Tianfu Xu, Nicolas Spycher, Eric Sonnenthal, Guoxiang Zhang, Liange Zheng, Karsten Pruess

Tougher: A user-friendly graphical interface for TOUGHREACT — You Li, Marcin Niewiadomski, Edward Trujillo, Surya Prakash Sunkavalli

Using a MODFLOW grid, generated with GMS, to solve a transport problem with TOUGH2 in complex geological environments: The intertidal deposits of the Venetian Lagoon — A. Borgia, L. Cattaneo, D. Marconi, C. Delcroix, E.L. Rossi, G. Clemente, C.G. Amoroso, F. Lo Re, E. Tozzato

C&G Vol. 37, Issue 7, (July 2011)

3D geo-database research: Retrospective and future directions — Martin Breunig, Sisi Zlatanova

A fast and robust bulk-loading algorithm for indexing very large digital elevation datasets: I. Algorithm — Félix R. Rodríguez, Manuel Barrena

A fast and robust bulk-loading algorithm for indexing very large digital elevation datasets II. Experimental results — Félix R. Rodríguez, Manuel Barrena

Development and evaluation of GIS-based ArcPRZM-3 system for spatial modeling of groundwater vulnerability to pesticide contamination — Tahir Ali Akbar, Henry Lin, John DeGroote

Development and application of a simulation model for changes in land-use patterns under drought scenarios — Hong Wang, Xiaobing Li, Huiling Long, Yunwei Qiao, Ying Li

Optimising an observational water monitoring network for Archipelago Sea, South West Finland — Mika Murtojärvi, Tapio Suominen, Esa Uusipaikka, Olli S. Nevalainen

Is it possible to trace an impending earthquake's occurrence from seismo-ionospheric disturbance using principal component analysis? A study of Japan's Iwate–Miyagi Nairiku earthquake on 13 June 2008 — Jyh-Woei Lin

Data exchange between distributed spectral databases — A. Hueni, T Malthus, M. Kneubuehler, M. Schaepman

SD–GIS-based temporal–spatial simulation of water quality in sudden water pollution accidents — Bo Zhang, Yu Qin, Mingxiang Huang, Qiang Sun, Shun Li, Liqiang Wang, Chaohui Yu

Positional accuracy of the Wide Area Augmentation System in consumer-grade GPS units — Lisa L. Arnold, Paul A. Zandbergen

Building a global normalized ontology for integrating geographic data sources — Agustina Buccella, Alejandra Cechich, Domenico Gendarmi, Filippo Lanubile, Giovanni Semeraro, Attilio Colagrossi

Global sensitivity analysis of large-scale numerical landslide models based on Gaussian-Process metamodeling — Jeremy Rohmer, Evelyne Foerster

Application Articles

Exploring pseudo- and chaotic random Monte Carlo simulations — J.A. Rod Blais, Zhan Zhang

Potensoft: MATLAB-based software for potential field data processing, modeling and mapping — M. Özgü Arısoy, Ünal Dikmen

A scientific workflow environment for Earth system related studies — Ufuk Utku Turuncoglu, Sylvia Murphy, Cecelia DeLuca, Nuzhet Dalfes

Pattern recognition of volcanic tremor data on Mt. Etna (Italy) with KKAnalysis—A software program for unsupervised classification — A. Messina, H. Langer

Wind characteristics and mapping for power production in the Island of Lesvos, Greece — P. Palaiologou, K. Kalabokidis, D. Haralambopoulos, H. Feidas, H. Polatidis

Corrigendum to "VISIM: Sequential simulation for linear inverse problems" [Comput. Geosci. 34(1) (2008) 53–76] — T.M. Hansen, K. Mosegaard

C&G Vol. 37, Issue 8, (August 2011)

Editorial — Eric Grunsky

Research Articles

Cross-validation as a means of investigating DEM interpolation error — Stephen Wise

Suitability evaluation of urban construction land based on geo-environmental factors of Hangzhou, China — Kai Xu, Chunfang Kong, Jiangfeng Li, Liqin Zhang, Chonglong Wu

C3: A finite volume-finite difference hybrid model for tsunami propagation and runup — M. Olabarrieta, R. Medina, M. Gonzalez, L. Otero

Two approaches to direct block-support conditional co-simulation — Xavier Emery, Julián M. Ortiz

A free lunch in linearized experimental design? — Darrell Coles, Andrew Curtis

A new algorithm for grid-based hydrologic analysis by incorporating stormwater infrastructure — Yosoon Choi, Huiuk Yi, Hyeong-Dong Park

Inversion of stresses from polyphase fault/slip data with high or low diversity: An updated version of INVSFS — Yehua Shan, Ye Tian, Wenjiao Xiao

Three-dimensional, wavefield imaging of broadband seismic array data — Gary L. Pavlis

Surface Lagrangian Remeshing: A new tool for studying long term evolution of continental lithosphere from 2D numerical modelling — Philippe Steer, Rodolphe Cattin, Jérome Lavé, Vincent Godard

A multigrid solver for modeling complex interseismic stress fields — Seoleun Shin, Gert Zöller, Matthias Holschneider, Sebastian Reich

A simultaneous inversion for deformation rates and topographic errors of DInSAR data utilizing linear least square inversion technique — Sergey Samsonov, Marco van der Kooij, Kristy Tiampo

Dynamic hierarchical triangulation of a clustered data stream — J. Skála, I. Kolingerová

The semiautomatic interpretation of gravity profile data — G.R.J. Cooper

Parallel implementation of simulated annealing to reproduce multiple-point statistics — Oscar Peredo, Julián M. Ortiz

Finite element modeling of borehole heat exchanger systems: Part 1. Fundamentals — H.-J.G. Diersch, D. Bauer, W. Heidemann, W. Rühaak, P. Schätzl

Finite element modeling of borehole heat exchanger systems: Part 2. Numerical simulation — H.-J.G. Diersch, D. Bauer, W. Heidemann, W. Rühaak, P. Schätzl

Using a three-dimensional particle-tracking model to estimate the residence time and age of water in a tidal estuary — Wen-Cheng Liu, Wei-Bo Chen, Ming-Hsi Hsu

A new GRASS GIS toolkit for Hortonian analysis of drainage networks — Jaroslaw Jasiewicz, Markus Metz

3D porosity prediction from seismic inversion and neural networks — Emilson Pereira Leite, Alexandre Campane Vidal

A digital rock density map of New Zealand — Robert Tenzer, Pascal Sirguey, Mark Rattenbury, Julia Nicolson

A relational rock mechanics database scheme with a hierarchical structure — Pantelis Liolios, George Exadaktylos

One- and two-dimensional models are equally effective in monitoring the crust's thermal response to advection by large-scale thrusting during orogenesis — J. Alcock, J.R. Martínez Catalán, R. Arenas

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Discrimination of quarry blasts and earthquakes in the vicinity of Istanbul using soft computing techniques — Eray Yıldırım, Ali Gülbag, Gündüz Horasan, Emrah Dogan

Navigating large terrains using commodity mobile devices — José M. Noguera, Rafael J. Segura, Carlos J. Ogáyar, Robert Joan-Arinyo

Seascorr: A MATLAB program for identifying the seasonal climate signal in an annual tree-ring time series — D.M. Meko, R. Touchan, K.J. Anchukaitis

HOSIM: A high-order stochastic simulation algorithm for generating three-dimensional complex geological patterns — Hussein Mustapha, Roussos Dimitrakopoulos

Wavelet-based detection of crop zinc stress assessment using hyperspectral reflectance — Meiling Liu, Xiangnan Liu, Ling Wu, Liqing Duan, Binqing Zhong

Application of a neuro-fuzzy model to landslide-susceptibility mapping for shallow landslides in a tropical hilly area — Hyun-Joo Oh, Biswajeet Pradhan

Quantile regression neural networks: Implementation in R and application to precipitation downscaling — Alex J. Cannon

Morphological convexity measures for terrestrial basins derived from digital elevation models — Sin Liang Lim, B.S. Daya Sagar, Voon Chet Koo, Lea Tien Tay

Visualizing dynamic geosciences phenomena using an octree-based view-dependent LOD strategy within virtual globes — Jing Li, Huayi Wu, Chaowei Yang, David W. Wong, Jibo Xie

Automatic calculation of bathymetry for coastal hydrodynamic models — P. Bailly du Bois

A rough set approach to analyze factors affecting landslide incidence — J.P. Liu, Z.P. Zeng, H.Q. Liu, H.B. Wang

Function identification for the intrinsic strength and elastic properties of granitic rocks via genetic programming (GP) — Murat Karakus

An object-oriented approach to automated landform mapping: A case study of drumlins — Kakoli Saha, Neil A. Wells, Mandy Munro-Stasiuk

A machine-learning algorithm for wind gust prediction — P.J. Sallis, W. Claster, S. Hernández

Improving the spatial resolution of effective elastic thickness estimation with the fan wavelet transform — J.F. Kirby, C.J. Swain

ParaStream: A parallel streaming Delaunay triangulation algorithm for LiDAR points on multicore architectures — Huayi Wu, Xuefeng Guan, Jianya Gong

Solid modeling of fossil small mammal teeth — Robert Marschallinger, Peter Hofmann, Gudrun Daxner-Höck, Richard A. Ketcham

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Imaging lithospheric interfaces and 3D structures using receiver functions, gravity, and tomography in a common inversion scheme — C. Basuyau, C. Tiberi

Numerical assessment of boulder transport by the 2004 Indian Ocean tsunami in Lhok Nga, West Banda Aceh (Sumatra, Indonesia) — N.A.K. Nandasena, Raphaël Paris, Norio Tanaka

Cosimulation as a perturbation method for calibrating porosity and permeability fields to dynamic data — Mickaele Le Ravalec-Dupin, Sébastien Da Veiga

Slope orientation assessment for open-pit mines, using GIS-based algorithms — Martin Grenon, Amélie-Julie Laflamme

Comparing three methods for modeling the uncertainty in knowledge discovery from area-class soil maps — Feng Qi, A-Xing Zhu

Analytical solution of coupled stress-flow-transport processes in a single rock fracture — Zhihong Zhao, Lanru Jing, Ivars Neretnieks, Luis Moreno

"SIGMELTS" : A web portal for electrical conductivity calculations in geosciences — A. Pommier, E. Le-Trong

A 3D multiresolution lunar surface model using bicubic subdivision-surface wavelets, with interactive visualization tools — Yankui Sun, Kaimin Mao, Tian Zhang, Zesheng Tang

ArcE: A GIS tool for modelling actual evapotranspiration — Salvador España, Francisco J. Alcalá, Angela Vallejos, Antonio Pulido-Bosch

Development of efficient and cost-effective distributed hydrological modeling tool MWEasyDHM based on open-source MapWindow GIS — Xiaohui Lei, Yuhui Wang, Weihong Liao, Yunzhong Jiang, Yu Tian, Hao Wang

A new methane control and prediction software suite for longwall mines — Heather N. Dougherty, C. Özgen Karacan

A multinational SDI-based system to facilitate disaster risk management in the Andean Community — Martin Molina, Salvador Bayarri

A multistage database of field measurements and synoptic remotely sensed data to support model validation and testing in Earth observation — E.J. Milton, F. Baret, P. Rossello, E. Anderson, E. Rockall

Mapping erosion susceptibility by a multivariate statistical method: A case study from the Ayvalık region, NW Turkey — Aykut Akgün, Necdet Türk

A new GRASS GIS fuzzy inference system for massive data analysis — Jaroslaw Jasiewicz

GEVcdn: An R package for nonstationary extreme value analysis by generalized extreme value conditional density estimation network — Alex J. Cannon

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Tomographic inversion of ocean bottom seismograph (OBS) data: Problems and solutions applied to the NW Svalbard Hydratech data set — Giuliana Rossi, Gualtiero Böhm, Gianni Madrussani

Modeling uncertainties in sodium spatial dispersion using a computational intelligence-based kriging method — Zohreh Masoomi, Mohammad Sadi Mesgari, Mohammad Bagher Menhaj

A well deliverability model for non-Darcian flow in geothermal reservoirs — I. Borsi, L. Fusi, F. Rosso, A. Speranza

constrainedKriging: An R-package for customary, constrained and covariance-matching constrained point or block kriging — Christoph Hofer, Andreas Papritz

Designing a two-rank acceptance sampling plan for quality inspection of geospatial data products — Xiaohua Tong, Zhenhua Wang, Huan Xie, Dan Liang, Zuoqin Jiang, Jinchao Li, Jun Li

Supervised identification and reconstruction of near-planar geological surfaces from terrestrial laser scanning — D. García-Sellés, O. Falivene, P. Arbués, O. Gratacos, S. Tavani, J.A. Muñoz

New statistical methods for investigating submarine pockmarks — Annabel Cartwright, Jennifer Moss, Joe Cartwright

A SKOS-based multilingual thesaurus of geological time scale for interoperability of online geological maps — Xiaogang Ma, Emmanuel John M. Carranza, Chonglong Wu, Freek D. van der Meer, Gang Liu

A new postprocessing method for reservoir stochastic modeling: A solution based on information degree — Yanshu Yin, Changmin Zhang, Weiguo Li, Shaohua Li

An alternate and effective approach to Hilbert transform in geophysical applications — N. Sundararajan, Ali Al-Lazki

Non-extensive statistical analysis of seismicity in the area of Javakheti, Georgia — T. Matcharashvili, T. Chelidze, Z. Javakhishvili, N. Jorjiashvili, U. Fra Paleo

Spatially nested sampling schemes for spatial variance components: Scope for their optimization — R.M. Lark

Integrating spectral indices with environmental parameters for estimating heavy metal concentrations in rice using a dynamic fuzzy neural-network model — Meiling Liu, Xiangnan Liu, Menxin Wu, Lufeng Li, Lina Xiu

Modules based on the geochemical model PHREEQC for use in scripting and programming languages — Scott R. Charlton, David L. Parkhurst

Application Articles

Ex-Stream: A MATLAB program for calculating fluid flux through sediment-water interfaces based on steady and transient temperature profiles — Travis E. Swanson, M.Bayani Cardenas

Construction and programming of an autonomous focus stacker — Enrico Savazzi

Plotting and checking the bivariate distributions of multiple Gaussian data — Jared L. Deutsch, Clayton V. Deutsch

SpecCal: Novel software for in-field spectral characterization of high-resolution spectrometers — L. Busetto, M. Meroni, G.F. Crosta, L. Guanter, R. Colombo

Comparison of genetic programming with neuro-fuzzy systems for predicting short-term water table depth fluctuations — Jalal Shiri, Özgur Kisi

Computing prestack Kirchhoff time migration on general purpose GPU — Xiaohua Shi, Chuang Li, Shihu Wang, Xu Wang

3D visualization of solar wind ion data from the Chang'E-1 exploration — Tian Zhang, Yankui Sun, Zesheng Tang

Laudatio: The 2010 John Cedric Griffiths Award: Ana Fernández Militino — Angela Diblasi

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Geospatial Cyberinfrastructure for Polar Research

Edited by Chaowei Yang, Doug Nebert and Fraser Taylor

Establishing a sustainable and cross-boundary geospatial cyberinfrastructure to enable polar research — Chaowei Yang, Doug Nebert, D.R. Fraser Taylor

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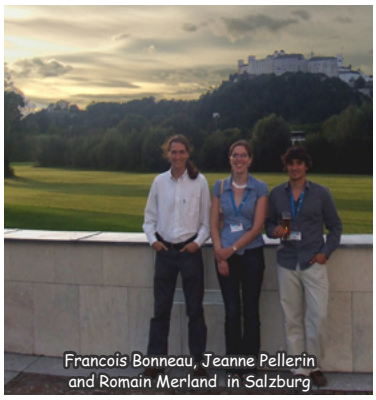
Student Affairs

IAMG Nancy University Student Chapter

Since its creation in October 2008, the student chapter of the Nancy School of Geology - Nancy University (France) has been promoting IAMG activities among all graduate students. Its role has been to encourage scientific communications both internally, through the organisation of weekly "lunch and learn" presentations, and internationally, by inviting industrial and academic lecturers, organising exchanges with other universities, and participating in international meetings, including the IAMG annual meetings. The members of this chapter also took an active part in the organisation and the presentations of the Gocad Meeting.

Our IAMG student chapter consists of 15 M.S. and PhD students, who work on a wide range of geomodeling related topics such as: stochastic modeling, model editing, mesh generation... We are all part of the Gocad Research Group which is supported by a Consortium of companies and universities. Last year, we visited the Geology of Carbonate Systems Research Center at Provence University (Marseille) to develop our quantitative look at carbonate formations. In 2012, we are planning a field trip to Greece to look at active faults and the associated sediments of the Corinth rift.


Francois Bonneau, Jeanne Pellerin and Romain Merland in Salzburg

This year, we made three presentations at IAMG in Salzburg to present our latest results on constrained reservoir gridding (Romain Merland), structural model remeshing (Jeanne Pellerin) and discrete fracture modeling honoring connectivity data (François Bonneau).

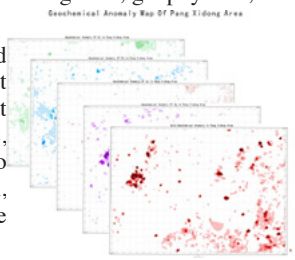
In addition, two members of our IAMG Chapter were cited for the quality of their presentations at international conferences: Nicolas Cherpeau received the Award of Merit bestowed by the Society of Exploration Geophysicists for his presentation on Stochastic simulation of fault networks from 2D seismic lines at the 2010 SEG annual meeting. Antoine Bouziat was awarded the first place in the European Student Paper Contest 2011, Master category, organised by the Society of Petroleum Engineers (SPE) for his work with Gautier Laurent on Vectorial field shape deformations applied to faults.

For more information please visit our website at:
http://www.gocad.org/www/studentchapter/index.htm

Gautier Laurent
President of the IAMG Nancy University student chapter

IAMG Student Chapter at Sun Yat-sen University, Guangzhou China, Involved in Big Project

The members of IAMG Student Chapter at Sun Yat-sen University are now devoting themselves to geophysical-geochemical data processing of the project 'Prospective survey of the mineral deposits in PangXidong area, South China', which invested more than 10 millions in charge of Prof. **Yongzhang Zhou**, Director of Research for Earth Environment & Resources of SYSU, also the Chair of IAMG Chinese Topical Section. The aim of the project is to delineate the fine metallogenetic prospecting targets through mathematical analysis of magnetic, geophysical, and geochemical data.



The PangXidong area, part of newly recognized Qinzhou Bay - Hangzhou Bay metallogenic belt (South China), was convinced to possesses great potential in the mineral resources of Au, Ag, Cu, Fe, W, Mo etc. The result of the project is expected to deepen understanding of the metallogenic system, and benefits the further mineral prospecting of the studied area.

The members of IAMG Student Chapter there are trying various data processing methods, including traditional geological statistics, surface analytic technique and multi-fractal model as well as the Empirical Mode Decomposition, derivation in geophysics. Anomalies can be recognized with help of GIS platform, comprehensive analysis of multiple source information, and integrated geophysical-geochemical technique.

Kun Wang
Sun Yat-Sen University - Guangzhou City, China

Report from IAMG student chapter at ITC

Sanaz Salati, PhD student at the department of Earth Systems Analysis, received the 2011 travel grant award from IAMG to attend and give a presentation at the IAMG 2011 Annual Conference at Salzburg. Sanaz Salati works with Professor Freek van der Meer and Dr. Frank van Ruitenbeek at ITC for her PhD degree. Her PhD research focuses on mapping alterations induced by hydrocarbon seeps using combined methods of geochemistry, field spectroscopy and hyperspectral remote sensing. Her presentation at the IAMG 2011 conference was titled "Quantifying analysis of spatial associations of hydrocarbon Seeps with geological features". The IAMG 2011 travel grant award, with an amount of USD 1000 was awarded to her based on the academic quality of her scheduled presentation and her registration as an IAMG member. Sanaz is active in the IAMG student chapter at ITC.

On October 14, 2011 a thematic workshop 'Mapping and Remote Sensing' was held at the Centre of Geosciences, University of Liège (the venue for IAMG'06 annual conference). Prof. Freek van der Meer and Dr. Mark van der Meijde, both from the Earth Systems Analysis department of Faculty ITC, University of Twente, were invited to give keynote lectures during the workshop. Their lectures were themed on 'Hyperspectral geology from Mars to Earth' and 'Earthquake and landslide engineering from space', respectively.

Prof. Freek van der Meer is an advisor of the IAMG student chapter at ITC. Early this year he invited Prof. Eric Pirard of University of Liège for a two-day visit at ITC (IAMG NL 82, p. 5).

Xiaogang Ma

IAMG Student Grants

IAMG has money available to support students for travel to IAMG conferences and for research projects. Guidelines on how to apply for these grants can be found on the IAMG.org website under "Student Affairs". Links to Application forms that can be submitted online are on the same website.

Students who received a student travel grant to attend the IAMG2011 Conference in Salzburg, Austria, are:

Sanaz Salati (ITC) $1,000 USD

Selin Erzaybek-Balan (UT Austin) $1,000 USD,

IAMG Student Chapters who qualify in the current year (see guideline for approval on the IAMG website) are supported with grants up to 1000 USD. Grants were awarded to the following Student Chapters in 2011:

China University of Geosciences, Wuhan, China $1,000.00 USD

Freiberg University of Mining & Technology, Germany $1,000.00 USD

Sun Yat-Sen University - Guangzhou City, China $1,000.00 USD

ITC (ISCI), University of Twente, Enschede, The Netherlands $1,000.00 USD

Szeged University, Hungary $500.00 USD

Conference Reports

The Jubilee 50th Mining Pribram Symposium: Mathematical Geology again on Program

In 1962 an old mining town of Pribram - 60 km SW from Prague - started to host meetings originally intended as a space of regular friendly contacts of people working as neighbours in two organizations: the uranium industry had to be separated for political reasons from any other mining sector. A rapid progress and success brought the third traditional partner - at that time the Czechoslovak (since 1969 Czech) Bureau of Geology. In November 1968 - just a few months after the unfortunate events of the Soviet intervention to the Prague Spring - local geophysicists organized a special session "Mathematical Methods in Geology and Geophysics". A coincidence of my previous personal contacts with Professor Matheron in Paris in 1967 and 1968 made it possible to invite the founder of Geostatistics with his wife and with his assistant Jean Serra to Prague (for a special seminar) and to Pribram (for presenting the basic ideas of geostatistics at the Symposium). This opened a chance to continue with the new topic and to establish an international forum also for the newly born (in Prague) IAMG. Thanks to my position of the IAMG Eastern Treasurer since 1969 I had the occasion to lead a team of convenors - until 1973 annually, then in biannual terms until 1999. Especially until 1989 this was the only forum giving possibility for people from the Eastern bloc to meet regularly their scientific partners from the West. Recently Susanna Sirotinskaya has expressed her remembrances by following words. "These meetings provided the invaluable and unique possibility for Eastern colleagues to escape for a short time from the miserable life in the Russian communist camp and to contact with Western colleagues across the Iron Curtain."

My original idea to unite in 1993 two silver jubilees (of the IAMG and of the Pribram international section of mathematical geologists) was finally reduced to only one half-a-day common session of two independent events organized in one week in the Prague hotel and university centre KRYSTAL. But until 1999 the IAMG continued in supporting the Pribram Symposium (the sessions on Mathematical Geology at that period were realized in Prague). About 1500 papers and communications were published altogether in the course of the 19 meetings (1968 - 1999) - the presenters came from about 30 countries of all 5 continents! In 1991 I started my work in the new field of geoethics and thanks to the internationally known Pribram Symposia just this forum appeared as very useful for promoting regularly this new discipline. The jubilee 50th symposium has brought the idea to organize again a special meeting of mathematical geologists as well as the regular international meeting dedicated to geoethics.

I am grateful to the IAMG organs for their moral support of our "jubilee" meeting, to the IAMG President Vera Pawlowsky-Glahn for her personal participation and to many colleagues from all continents for contributions and arrival. I especially appreciate that two ladies were able to arrange their travel programs and to arrive just for one day to Prague at this occasion: Isobel Clark on her way from Australia via London to the USA and Susanna Sirotinskaya on her way from a visit in Moscow via Munich to Brazil. Barbara Namysłowska - Wilczyńska writes: "This meeting was very interesting, successful and perspective regarding our co-operation in the future. It is necessary to underline a particular sympathetic atmosphere among arrived participants. "Let me add my sincere thanks to ALL who came or who at least sent their written contributions.

It has to be emphasized that the Mining Pribram Symposium is still operating on the basis of volunteers making it possible to keep the registration fee on a very low level (moreover combined with other economic advantages) - what makes a good model for organizing especially meetings favourable for those colleagues who cannot be supported more from their previous employers. I think that just such conditions will be needed for organizing a large IAMG Golden Jubilee forum in the IAMG birthplace Prague in 2018!

Vaclav Nemec

The **International Society for Stereology** celebrated its fiftieth anniversary during its 13th Int. Congress held in Beijing 19-23 October 2011.

ISS is a multidisciplinary society dedicated to the quantitative analysis of microstructures. Image analysis, stochastic geometry and spatial statistics are among the essential topics of interest. The society publishes the journal "Image Analysis & Stereology."

Geologists are an important community within ISS.

Felix Chayes participated in the very first congresses of ISS and G. Christian Amstutz later was secretary of ISS.

Eric PIRARD, IAMG Council Member, has been elected as the new ISS President for 2012-2015.

2011 Distinguished Lecturer Amilcar Soares Worldwide Lecture Tour

Prof. Amilcar Soares writes: "The two conferences in Abu-Dhabi ran very well. I gave two versions of same topic: seismic inversion. The first one was given in the Petroleum Institute (the largest technical university of Abu-Dhabi) for about 23 people (professors, MSc and undergraduate students). The second was given to the Emirates Society of Geosciences (ESG), basically for (19) people of industry (geophysicists, geologists, reservoir engineers).

My visit to Brazil was great! A bit tiring (5 days, 3 conferences in three places around S.Paulo state, 700 Km by car....) but extremely rewarding. The first lecture was at 16 of May in USP (University of S. Paulo) in S.Paulo (really terrible place...). 25 people, 20 students of MSc of Geosciences Department (Geology).

Afterwards, I moved to Rio Claro a campus of UNESP (the other great state university) where (18 May) I gave the lecture to 50 people (environment and some petroleum/geosciences). 10 professors and 40 students.

My last lecture (19 May) was done in Botucatu, 170 km far from Rio Claro, another campus of UNESP, (Agronomy and forest school). Here I have opened a Symposium of Geostatistics applied to Agronomy with more than 120 participants! (all of them Brazilians). A lot of communications and posters: most of them apply kriging and some very few Bayesian kriging!! (do you believe that? It is true...) because that (nice) guy Paulo Ribeiro (Model Based Geostatistics) is around there. I have suggested to them (the students) to create a IAMG Student Chapter. They have a nice but basic school of geostat. And they (the MSc students) need to go outside for training periods etc..

The one day short course in Freiberg, Germany, got about 18 PhD students from all over the world (no Germans) and they liked it, I presume..

PS: Meanwhile, I gave one more lecture at the University of Minho (Mathematical Department), in North of Portugal."

In addition, Soares went on to lecture at the Universitat Politècnica de Valencia (UPV) in Spain. Then he crossed the Atlantic again to visit the Institute Nationale de la Récherche Scientifique (INRS) in Québec, Canada, as well as McGill University, UQAM with a Video conference to INRS ETE (Québec), UQAT (Amos), UQAT (Rouyn-Noranda), and the École Polytechnique (Montréal).

IGME releases Bulletin on Geomathematics

The Spain Geological Survey just released the latest issue of this Bulletin. The Boletín Geológico y Minero has been publishing research papers on Geosciences since 1874. Volume 122, number 4, is a special issue on New Applications of Geomathematics in Earth Sciences". The pdfs of the contributions can be freely downloaded from the internet: http://www.igme.es/internet/boletin/2011/122_4.htm

The first paper should be of interest to every IAMG member: V. Pawlowsky-Glahn and D.Tetzlaff discuss the "Asociación Internacional para las Geociencias Matemáticas" or IAMG.

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☐ "Statistical Methods for Estimating Petroleum Resources" by P. J. Lee	US$	93.75

OPTIONAL: CDs: Note: Proceedings are freely downloadable to members at: http://www.iamgmembers.org/phpbboard/

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