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IAMG Newsletter

Official Newsletter of the International Association for Mathematical Geosciences

Contents

Request for Nominations to the 2016 Georges Matheron Lecturer

The Georges Matheron Lecturer should be a scientist with proven research ability in the field of spatial statistics or mathematical morphology.
The 2016 Georges Matheron Lecture will be presented at the IAMG session that will form part of the 35th International Geological Congress (IGC) in Cape Town.
The IAMG welcomes nominations that reflect diversity and the role of women in science.
Letters of nomination should include a curriculum vitae of the nominee and a short statement summarizing the ways in which he or she fulfills the nomination criteria
(see http://iamg.org/special-lectures/matheron-lecturer.html).

Letters should be directed to the Chair of the Lectures Committee by e-mail to:
j.mckinley@qub.ac.uk

Mathematics, Mining, Music - they have something in common. Of course, they all start with the letter M. They also welcomed us in Freiberg where the Annual Meeting of the IAMG took place this year. Freiberg has the oldest, most venerable Mining Academy, mining being the oldest form of geology. Freiberg is also famous for having four original, still working baroque organs in three of its old churches built by the famous organ builder Gottfried Silbermann. Silbermann was a contemporary of J. S. Bach. As it happened, the mathematical geology meeting coincided with the "Silbermann Tage", an international organ competition with several concerts on the historical organs. At our hotel we often chatted over breakfast with organists from many different countries.

Freiberg's history is rooted in silver ore mining and, like other places in the Ore Mountain mining belt, it was once a rich city and could afford to build beautiful churches and install great organs. So, mining and geology created the conditions and economics to make great music possible.

Freiberg also attracted great scientific minds: Alexander v. Humboldt, the great German naturalist spent time here as a student, and Abraham Gottlob Werner, the father of sedimentology in Germany, was famous as founder of the neptunist school of geologic thinking, opposing the plutonist school of James Hutton in Edinburgh. On our way from the hotel to the conference center we often walked right by the statue of Werner.

Music and math seem to go together naturally. Many of my computer friends are good musicians and, conversely, a lot of my musician friends have a bent for or background in math or physics. Famous examples are Albert Einstein who played the violin and Max Planck who was a good pianist. Interestingly, the organ builder Silbermann is said to have had extensive knowledge of chemistry and physics. No doubt, many members of the IAMG have not just mathematical but also musical interests and talents.

Freiberg had its share of famous composers: Andreas Hammerschmidt and Christoph Demantius, both early baroque musicians, resided there, and the romantic composer Carl Maria von Weber spent some time in Freiberg composing the opera "Waldmädchen".

Thanks to the organizers of the Freiberg meeting (Helmut Schaeben, Raimon Tolosana-Delgado and Gerald van den Boogaart) we were able to combine Mathematical geology of the conference with Mineralogy at the icebreaker in the Terra Mineralia minerals collection and Music during the conference dinner with a trio of guitar, bass and piano and the performance of the Bergmusikkorps Saxonia Freiberg (the local miner's band). In addition, the social program offered an organ concert of J. S. Bach's Orgelmesse (German Organ Mass) performed on the Silbermann organ in the cathedral by an excellent guest organist from Denmark.

So let's keep the three Ms going together. And, don't forget to admire on page 12 the great M made up of the talented mathematical geology students at Sun Yat-sen University.

Harald S. Poelchau

International Association for Mathematical Geosciences

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PRESIDENT'S FORUM

Hello Dear IAMG Members!

The doodle on Google's front page on Nov. 2 reminded me of the 200th birthday of George Boole, who pioneered developments in logic and mathematics which enabled revolutionary thinking and modeling in almost all fields of science, engineering, and the social sciences. George Boole is best known for his development of Boolean algebra. Boolean algebra has not only been fundamental in the development of digital electronics, today's computers and the internet but is also widely used in the sciences including Mathematical Geosciences (MG). For example, logic operations and fuzzy logic for searching, modeling and optimization based on Boolean algebra are not only significant for modeling the past but also for future developments. MG scientists have developed theories and methods using fuzzy logic and set theory for synthesizing geological, geochemical, geophysical and remote sensing evidences for probabilistically mapping occurrences of natural resources such as mineral deposits, and geo-hazards such as landslides and earthquakes. Similar approaches have been used by medical doctors for diagnosis of disease by synthesizing diverse evidence. With Big Data these types of approaches will be further developed to synthesize diverse evidence extracted from extremely diverse datasets that are now becoming available. Health scientists comment in the current issue of Nature that the core elements of evidence synthesis must be combined with other data sciences to develop new ways to make sense of diverse data; for instance, physical-activity data from clinical records, online questionnaires and wearable devices. As the discipline for integrating geoscience, mathematics and computers, IAMG provides primary contributions to Geo-Data Science and increasingly has been playing a significant role in tackling critical earth science and environmental issues facing our current and future generations. From this week's reports in 'Nature' and 'Science' one can see some current breakthrough developments in the earth sciences: "New Horizons Publishes First Research Paper in 'Science'" describing numerous Pluto system findings, such as blue skies and water ice on Pluto plus description of the colorful and violent history of Pluto's Big Moon Charon; "Earth Scientist, Public Policy Researcher and Economist in 'Nature' concerned with the global non-linear effect of temperature on economic production" report in 'Nature' about climate scientists using a chemistry–transport–aerosol model to capture the dynamics of fractal aggregates of solid particles and suggesting that powder spraying diamond dust in the sky cools the planet, just to name a few. Most of the new breakthrough developments about Earth systems, Earth-ecosystem and Earth-human systems interactions require innovation and application of mathematical models with computational techniques and utilization of Big Data and synthesizing comprehensive information.

IAMG has been continuously making progress in providing services to its members and advancing science. One area of progress in IAMG during the past year was our annual conference which was successfully held in Freiberg in September. About 300 participants from 34 countries were attending this conference and about 35 parallel sessions and seven plenary presentations were held. Among the many highlights of the conference was a celebration of the 250th anniversary of our co-organizer: Technical University Bergakademie Freiberg (TUBAF), the oldest university of mining science and technology of the world. Special sessions were held such as commemorating William Smith: 200 years of Geomodeling. Two parallel activities of presentation and exhibition of 3D software and information technology were organized on the Day of Geological Surveys. In this issue of our newsletter you can read stories and view pictures about the Freiberg conference. I thank all those who participated in the event and those who were involved in its organization.

IAMG is very proud of the achievements of its members and gives them recognition. Just to name a few, at the General Assembly held during the conference in Freiberg, IAMG awarded IAMG Student Research Grants and Travel Grants, as well as IAMG2015 best student oral presentation and best poster awards. This year, a new IAMG Student Chapter has been formed at the Indian Institute of Statistics which becomes the first IAMG student chapter in India. IAMG Student Chapters play a leading role to promote IAMG in various regions of the world, especially to young people. IAMG will continue to support our young earth scientists by providing the best possible service to them. The IAMG awarded Professor Yongzhang Zhou (China) with the Felix Chayes Prize for Excellence in Research in Mathematical Petrology, Dr. Xiaogang Ma (U.S.) with the Andrei Borisovich Vistelius Research Award, and selected Professor Roussos Dimitrakopoulos (Canada) as the 2015 George Matheron Lecturer and Professor Sean McKenna (Ireland) as the 2016 IAMG Distinguished Lecturer. These award winners all delivered plenary lectures at IAMG2015. Nominations for next year's awards for the William Christian Krumbein Medal and the John Cedric Griffiths Teaching Award are now open. Please spread the word and nominate your friends, colleagues, students and professors. It is worth mentioning that two of our female members, JoAnne DeGraffenreid and Jorgina Ross, were recognized during the Freiberg conference. JoAnne DeGraffenreid was awarded a special merit certificate with plaque at the conference banquet for her extraordinary services to the Association. Jorgina Ross and Professor John Tipper were awarded honorary lifetime memberships of IAMG because of their extraordinary contributions to the IAMG.

To increase its visibility and role in the international community of geosciences, IAMG has been actively and increasingly interacting with other international associations including the International Union of Geological Sciences (IUGS), International Union of Geodesy and Geophysics (IUGG), European Geoscience Union (EGU), Earth Science Matters (ESM), Southern African Institute of Mining and Metallurgy (SAIMM), International Association for Young Earth Scientists (YES), Future Earth Coast (formerly LIOCZ), European Association of Geoscientists and Engineers (EAGE), Geological Society of London (GSL), and the Royal Irish Academy (RIA). IAMG encourages and sponsors joint sessions and workshops with other associations; for example, last year the session on "Multifractal modeling and local singularity analysis in mineral exploration and environments" held at EGU2015 in Vienna, April 14-18, 2015; a Workshop on "Practical Aspects of Geochemical Exploration and Mapping with Logratio Techniques (GeoMap)" that took place in Olomouc, Czech Republic, 17–20 June 2014; the international workshop on "Marginal Seas and their coastal areas – transit and buffer zones in continent-ocean interaction" hosted by the Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, in Yantai, China, September 18 – 19, 2015; and the Danie Krige Geostatistical Conference "Geostatistical geovalue – rewards and returns for spatial modelling" hosted by SAIMM in Johannesburg, South Africa, August 17-19, 2015.

A strong Council should provide firsthand insurance for healthy growth of the IAMG. In this issue of our newsletter you can find candidates for the election for our next Council (2016-2020). I would like to thank the Nominating Commission chaired by Dr. Frits Agterberg and the nominees who agreed to put their names forward for election. Every IAMG member has equal right and privilege to cast a vote to decide on the constitution of our next Council. For those who have not yet renewed membership, please do it soon so that you can participate in the voting process. Your engagement and dedication are incredibly important to the IAMG. Please circulate this invitation widely to your colleagues, friends, students, and professors inviting them to join IAMG. IAMG strongly values diversity, including gender diversity, within our community. All individuals, especially young scientists, who are interested in mathematical geosciences, are encouraged to join IAMG. The new Council will be elected in the near future and ratified at the General Assembly to be held during the 35th International Geological Congress (IGC) in Cape Town, South Africa, August 27- September 4, 2016. You are encouraged to submit your papers and to propose sessions for this conference as well as other events to be sponsored or cosponsored by IAMG.

Qiuming Cheng

Association Business

Slate of Candidates for the 2016-2020 IAMG Council

The IAMG Nominating Commission consisting of **Peter Dowd** (Australia), **Xavier Emery** (Chile), **Ricardo Olea** (U.S.A.), **Helmut Schaeben** (Germany), **Deji Xu** (China), and non-voting chair **Frits Agterberg** (Canada) has proposed the following slate of candidates:

PRESIDENT
Jennifer McKinley, *N. Ireland*
Daniel Tetzlaff, *U.S.A.*

EXECUTIVE VICE PRESIDENT
Gang Liu, *China*
Raimon Tolosana-Delgado, *Germany*

IGC COUNCILOR (1)
Hari Pandalai, *India*
N. Janardhana Raju, *India*
B. S. Daya Sagar, *India*

COUNCILORS (4)
K. Gerald van den Boogaart, *Germany*
Guillaume Caumon, *France*
Jaime Gómez Hernández, *Spain*
Dionisis Hristopoulos, *Greece*
Xiaogang Ma, *China/U.S.A.*
Gregoire Mariethoz, *Switzerland*
Eulogio Pardo-Igúzquiza, *Spain*
Michael Pyrcz, *U.S.A.*
Christien Thiart, *South Africa*
Guangsheng Yan, *China*

All candidates are members of IAMG and have confirmed their willingness to run. Voting will take place in spring of 2016.

The Nominating Commission is proposing **David Collins** as **Treasurer Elect** because it has not been possible to find another candidate both capable and willing to run for this position.

As usual, the election results are to be ratified at the General Assembly to be held at the 35th IGC in Cape Town, South Africa, 2016.

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 **Executive Committee** consisting of 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 IGC in New Delhi, India, 2020) 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.

A difference with previous elections is that, according to an amendment of IAMG Statute 10 made in 2012, the other two Vice Presidents shall be appointed by the President in consultation with Council. In the current Council, only the Secretary General was appointed in this manner. The three appointed directors shall serve for as long as they have the confidence of the President. All three Vice Presidents shall be assigned duties by the new President in consultation with Council.

The President, Executive 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/she appoints the Secretary General, the two ordinary Vice Presidents, 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 other Council members 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 takes the place of the President as needed. Other duties are determined later by the new President.

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.

For President

Jennifer McKinley, senior lecturer in the School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, UK, holds a PhD in geology and Chartered Geologist status of the Geological Society of London (GSL). Jenny's research has focused on the application of spatial analysis techniques, including geostatistics, compositional data analysis and Geographical Information Science, to reservoir characterisation, soil geochemistry and airborne geophysics, soil carbon estimation, health, weathering studies, and environmental and criminal forensics. Interdisciplinary collaboration and partnerships with business, governmental and industry stakeholders have been a hallmark of Jenny's research, resulting in over 100 international publications and numerous conference presentations. Jenny's involvement in interdisciplinary research on health and the natural environment has involved successful collaboration with medical practitioners and politicians. Jenny is a Trustee, Member of Council and the Publications committee of the GSL, and holds a number of additional international roles including Communications Officer for the IUGS-IFG (Initiative on Forensic Geology) and Secretary of the Royal Irish Academy Geosciences and Geographical Sciences committee. As Communications Officer of the IUGS–IFG, Jenny has promoted the use of geoinformatics in forensic geoscience in collaboration with UK, European Forensic Science Regulators and law enforcement agencies worldwide. She sits on the Northern Ireland Government Assembly All-Party Group on Science and Technology, a role which requires an understanding of the interface between science, commerce and policy; assisting politicians to make strategic policy decisions and assisting scientists to understand political decision-making and how best to integrate research findings with policy development. Jenny acknowledges the development of stronger links between academia and research institutions, governmental agencies, business and industry as an integral part of the IAMG mission.

Since first attending IAMG2003, Jenny has been actively involved in the IAMG and has been honoured to support the work of the President, Executive Committee, Council and IAMG community, serving initially as a member of the IAMG Student Affairs committee and as the current Executive Vice President (EVP), Chair of the Lectures Committee overseeing the nomination and election of the Distinguished Lecturer and the George Matheron keynote Lecturer. As a member of the Meeting Committee, Jenny has supported the organizers of the IAMG conferences over the last three years (2013-2015). Jenny has been a reviewer for Mathematical Geosciences, Computers & Geoscience and several other earth science journals. She is committed to promoting and developing diversity and the role of women in science – a fundamental value of the IAMG.

Over the last three years, the IAMG Council has sought to strengthen collaboration with academia and governmental agencies worldwide to advance the role of mathematics, statistics and informatics. As EVP, Jenny is acutely aware of challenges that the next executive council will face over the next four years. These include: the need to interact more closely with the petroleum business, the mining industry and software developers, commercial, open source and 3D modelling; and the desire to promote and integrate the student chapters and exciting growth in the YES community. Developing IAMG digital capability – through a strengthened web presence and enhanced social media – and ensuring the continued strength of the IAMG publications, are also strategic priorities. Jenny is very aware of the breadth of expertise that exists within the IAMG community and would harness this collective strength to consolidate this important work. Just as Jenny has benefited from the warm and inclusive support of the IAMG community, she would welcome the opportunity to serve and enable greater diversity among the mathematical geoscience community and to shaping an impactful and sustainable future strategy for the IAMG, in collaboration with the IAMG Council.

Daniel M. (Dan) Tetzlaff was 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 assistant teaching positions in Geology and 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 Sedimentology, 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, Texaco, Baker Hughes, and Schlumberger) managing research and development groups 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. In addition to numerous technical papers, he has authored an early book on sedimentary process modeling, and

co-edited other volumes on geologic processes. He was Distinguished Lecturer for the SPWLA (Society of Petrophysicists and Well Log Analysts) in 1991-1992, Treasurer of the IAMG in 1996-2000, member of the Steering Committee of the CSDMS (Community Surface Dynamics Modeling System of the University of Colorado) in 2007-2013, Secretary General of the IAMG in 2008-2012, and member of the AAPG, SPE, and the Houston Geological Society. Dan is currently a Consultant for Schlumberger Information Solutions. He lives in the U.S. but has professional ties in Argentina, Germany, and Norway, travelling frequently to those countries.

As candidate to the position of President, Dan brings his past experience as IAMG Treasurer and IAMG Secretary General, and professional international experience in industry and academia. He believes in an IAMG with strong and inclusive membership, and supports expanding membership in industry, particularly among younger professionals worldwide. He foresees a wider use of technical forums, and the creation of new venues for disseminating scientific information targeted at cross-disciplinary participation. At the same time he favors strong ongoing support for our excellent publications and its editors, who are largely responsible for the high regards in which the IAMG is held, and for our outstanding program of awards and grants, particularly those for students and young scientists. In terms of our relationships with affiliated institutions and business partners, Dan pledges to help move the IAMG forward with a professional and predictable way of doing business, but also with fair negotiating tactics, that will be regarded with respect by other organizations and communities and preserve the long-term goals of our organization.

For Executive Vice President

Gang Liu is a Professor in Geological Information Engineering at the School of Computer Science, China University of Geosciences in Wuhan, where he also serves in the Institute of Geological Information Science and Technology as a deputy director. He is a member of Key Laboratory of Resources Quantitative Assessment and Information Engineering, Ministry of Land and Resources and vice director of Hubei Key Laboratory of Intelligent Geo-Information Processing. He received a PhD (2004) in Earth Exploration and Information Technology and a 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 2008-2010. He has been an IAMG member regularly attending the Annual Meetings since 2005 and is now a Councilor of IAMG (2012-2016). 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 geological spatio-temporal data model for real-time GIS platform development and its applications in geology.

Raimon Tolosana is a senior researcher at the Helmholtz Institute Freiberg for Resource Technology (HIF) in Freiberg, Germany. He was born in Barcelona, Spain, in 1976. In 2001 he completed his degree in Engineering Geology at the Technical University of Catalonia (UPC), Barcelona, Spain, and in 2005 obtained 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 Pawlowksy-Glahn. Since then he has worked at the Georg August University in Göttingen (Germany) and at UPC (Spain), on topics ranging as wide as compositional data analysis, sedimentology, data assimilation and geostatistics, coastal hazard assessment, and nowadays, mineral resources and mining process modelling.

He became a member of IAMG in 2002. In 2011 he was elected (ordinary) Vice President of the IAMG Council, where he has served the Association in particular as member of the Student Affairs Committee and of the Meeting Strategy Commission. He was the recipient of the IAMG Felix Chayes Award for young scientists in 2013. He has participated in all but one IAMG conferences since 2002, with posters, talks and courses; and recently co-organized the Annual Meeting of the Association at Freiberg (Germany).

His current research at HIF encompasses several aspects of the mineral value chain, mostly involving geostatistics and the application of compositional data analysis and statistics of other constrained variables: from resource exploration to mineral processing and metallurgical prediction, including 3D ore body modelling. He also works actively with the R open-source statistical software, and on the promotion of compositional data techniques (especially on geostatistics), programming specialized software, and giving short courses. In this line, he routinely collaborates with field geologists and biologists, from several groups mostly in Germany, Australia, UK and Spain. Raimon wants to work to increase the visibility of mathematical geosciences outside the Association (for both students and researchers), to attract mathematical geoscientists who are not yet members in order to broaden our scope and strengthen the Association, and to improve awareness of the opportunities IAMG is offering to young researchers.

For Councilor

K. Gerald van den Boogaart is a full professor for applied stochastics at the TU Bergakademie Freiberg and leads the Department of Modelling and Valuation of the Helmholtz Institute Freiberg of Resource Technology, Germany's new national research institute for resources. He works in geostatistics, compositional data, geometallurgy, process modelling and resource valuation. His professional experience includes applied statistics (e.g., as junior professor for statistics at the University of Greifswald), nonlinear geostatistics and mine planning (e.g., as Senior Research Associate at the Cosmos Stochastic Mine Planning Lab at McGill University Canada), and mathematical geology and geoinformatics (e.g., as research associate at the chair of mathematical geosciences and geoinformatics of TU Bergakademie Freiberg). Gerald has deep roots in the IAMG: He has been a member of the IAMG since 2001, he received the Andrei Borisovich Vistelius Research Award in 2003, was Associate Editor for Mathematical Geosciences 2007-2011, and the George Matheron Lecturer of 2014. He co-organized the IAMG 2015 conference and coauthored more than 40 contributions to IAMG conferences.

Guillaume Caumon is the Nancy School of Geology Professor in Geomodeling at Université of Lorraine (France) where he teaches geomodeling, geostatistics, programming and field courses. His research concerns subsurface modeling methods and aims at better integrating subsurface data and geological knowledge while accounting for uncertainties. He is the director of RING (Research for Integrative Numerical Geology), previously known as Gocad Research Group. Guillaume was a Visiting Professor in Geophysics at Colorado School of Mines during 2015, and a Postdoctoral Scholar in Petroleum Engineering at Stanford University in 2003-2004. He holds a PhD and a MSc in Geosciences from the Lorraine Polytechnic Institute INPL. He has been attending IAMG conferences since 2001 and is a lifetime IAMG member. He was awarded the IAMG Vistelius Award in 2009 and was one of the authors receiving the 2014 Computers & Geosciences Best Paper Award. He has been serving on the board of Mathematical Geosciences and in the IAMG publications committee since 2008. He was Deputy Editor of Mathematical Geosciences from 2012 to 2014. His main motivation for running again for Councilor is to help enlarging the success of the IAMG by increasing its visibility and recognition among students, researchers, industry colleagues and fellow professional organizations such as EAGE.

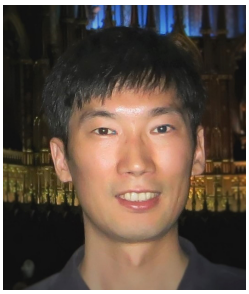
Jaime Gómez-Hernández (* 1960 in Requena, Spain) is a full professor of Hydraulic Engineering with the Universitat Politècnica de València in Spain, received a Civil Engineering degree, with honors, from the Universitat Politècnica de València in 1983; an Ms. Sc. in Applied Hydrogeology from Stanford University in 1987; and a Ph. D. in Geostatistics for Natural Resources Evaluation from Stanford University in 1990. He has a long record as manager at the highest level; he has 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 several special issues of Mathematical Geology, and he has served in the Publications Committee, the Distinguished Lecturer Committee, and the Meetings Committee. He is also the chairman of the organizing committee of GEOSTATS2016.

Dionissios Hristopulos is Professor of Geostatistics in the School of Mineral Resources Engineering at the Technical University of Crete (TUC) in Greece. He holds a Diploma in Electrical Engineering from the National Technical University of Athens (1985) and a PhD in Physics from Princeton University (1991). Dionisis worked at the University of North Carolina at Chapel Hill for two years as Post-doctoral Researcher and for five years as Research Assistant Professor in the Department of Environmental Sciences and Engineering. His research focused on stochastic models of groundwater flow, the development of new space-time covariance functions, and geostatistical methods based on the principle of maximum entropy. In 2000, Dionisis moved to the Pulp and Paper Research Institute of Canada (currently, FPInnovations), where he analyzed industrial data of paper structure and properties, and he developed theoretical models of web runnability and paper strength. For his research he was awarded (jointly with T. Uesaka) the 2003 Johannes A. Van den Akker International Prize for Advances in Paper Physics. In 2002, Dionisis moved to the Technical University of Crete as Associate Professor in Geostatistics and was promoted to Full Professor in 2007. He teaches courses in Engineering Probability and Statistics, Geostatistics, Data Analysis, and Physics. His research over the last 15 years has focussed on developing new mathematical models at the intersection of Geostatistics and Statistical Physics. He is the coauthor of around 160 publications (journal articles, conference proceedings and abstracts, and technical reports) and the book "Spatiotemporal Environmental Health Modelling".

Dionisis is Associate Editor of the journal *Stochastic Environmental Research and Risk Assessment* published by Springer. He has served as Director of Graduate Studies in the School of Mineral Resources Engineering at TUC from 2004 to 2009. Since 2012 he has been serving on the University Council (board of trustees) of the Technical University of Crete. Dionisis has coordinated and participated in several national and European research projects. He collaborates with geologists, engineers, mathematicians and physicists on the development and application of geostatistical methods to geoscientific problems. Dionisis is also a reviewer for journals such as Computers & Geosciences, Transactions on Remote Sensing and Geosciences, Advances in Water Resources, Water Resources Research, and Environmental Modeling and Software.

If elected, Dionisis will work to increase interdisciplinarity in IAMG by (i) promoting IAMG to field scientists who can benefit from the application of mathematics in their research and (ii) by seeking collaborations and the organization of joint events with scientific disciplines that share mathematical and computational challenges with the Geosciences, such as Applied Mathematics, Mechanical Engineering, and Statistical Physics.

Xiaogang (Marshall) Ma is an associate research scientist of geoinformatics and data science at Rensselaer Polytechnic Institute, USA. He received his Ph.D. degree in Earth Systems Science and GIScience from the University of Twente, Netherlands, and D.Eng. and B.Eng. degrees from China University of Geosciences, Wuhan. His research interests include participatory conceptual modeling, data sharing in the semantic web, crowd-sourcing geoinformation, and spatio-temporal analysis of Big and Little Data. Since 2001, Ma has been an investigator on a range of scientific projects focusing on geoscience data management and their service and processing on the Web. He was project leader for "Global Change Information System: Information Modeling and Semantic Application Prototype (NSF)" and "ECO-OP: Integrated Ecosystem Assessment (NSF)". Currently, Ma is project leader in the Data Science team for the global environmental reconnaissance project "Deep Carbon Observatory" (A.P. Sloan Foundation) and the "Deep Time Data Infrastructure – Data Science" project (W.M. Keck Foundation). Ma received the IAMG Vistelius Research Award in 2015 and the inaugural ICSU-WDS Data Stewardship Award in 2014. He won the ESIP Funding Friday Competition Award twice (2013 and 2012).



Ma is an active member in several international societies in the joint field of computer science and geoscience, including the IAMG, the American Geophysical Union, the Federation of Earth Science Information Partners, the IUGS-Commission for the Management and Application of Geoscience Information, and the CODATA-Early Career Data Professionals. He has extensive experience in community services, such as serving as commission or working group leader/member, organizing workshops and conference sessions, being editor and reviewer for various journals and conferences, and acting as judge for academic competitions and awards. His motivation for being an IAMG council member is to increase the visibility of geomathematics, geoinformatics and IAMG on the Web, promote geomathematics and geoinformatics among young researchers across the world, and broaden communication and advance collaboration between IAMG and other academic societies.

Gregoire Mariethoz is Assistant Professor of remote sensing and pattern analysis at the Institute of Earth Surface Dynamics, University of Lausanne, Switzerland.

He received a MSc degree (2006) and a PhD degree (2009) in stochastic hydrogeology from the University of Neuchâtel, Switzerland. He worked as a postdoctoral researcher at Stanford University, then as a Senior Lecturer at UNSW Australia, Sydney. His scientific interests include the development of non-parametric geostatistical methods, including (but not exclusively) multiple-point geostatistics, as well as their application to a wide range of problems in hydrology, hydrogeology, remote sensing and climate science.

Gregoire published over 50 peer-reviewed journal publications since 2009 as well as the first textbook on multiple-point geostatistics. His professional roles include being Associate Editor for Hydrogeology Journal and for Groundwater, member of the editorial board of Spatial Statistics and guest editor for special issues of Mathematical Geosciences. He is an active reviewer for both Mathematical Geosciences and Computers & Geosciences. In 2013 he received the Vistelius award from the IAMG. He has been a member of the IAMG since 2007 and has attended most IAMG meetings since then.

Throughout his career, Gregoire has been involved in the management of large research projects, the scientific committees of conferences as well as a number of University committees. As council member of IAMG he would foster scientific excellence through the encouragement of younger scientists, and promote the dissemination of mathematical geosciences to the wider geoscientific community.

Eulogio Pardo-Igúzquiza is a researcher on Geomathematics and Environmental Geology at the Geological Survey of Spain in Madrid. He studied geology and statistics at the University of Granada (Spain) where he received his PhD in Geostatistics in 1991. He then worked for four years as a teacher and researcher for the University of Granada. In 1995 he started a period of eight years as a visiting scientist at different institutions: at the Massachusetts Institute of Technology (USA) working on stochastic groundwater modelling with Prof. Lynn Gelhar, at the University of Leeds (UK) working on geostatistics in geophysics, mining and hydrogeology with Prof. Peter Dowd, at the University of Reading (UK) working on satellite rainfall estimation with Prof. David Grimes, at the National Physical Laboratory (UK) working on applications of geostatistics in metrology with Prof. Maurice Cox, and at the Polytechnical University of Cataluña (Spain) working on statistics in geosciences with Prof. Juan José Egózcue. He has done shorter stays at the University of Leeds working on maximum likelihood estimation with Prof. Kanti Mardia and at the University of Southampton (UK) working on geostatistics and remote sensing with Prof. Peter Atkinson. Another of his favorite topics is spectral analysis of time series in cyclostratigraphy, collaborating with Prof. Francisco J Rodríguez-Tovar (University of Granada) and Prof. Walther Schwarzacher (Queens' University, Belfast). In 2003 he went back to the University of Granada with a "Ramón y Cajal" research scholarship working on GIS, remote sensing and geostatistics with Prof. Mario Chica-Olmo. In 2008 he became a lecturer at the same University and in 2010 he moved to his current position at the Geological Survey of Spain. Recently he has led a project on another of his favorite subjects: karst research; dealing with quantitative terrain analysis, numerical modelling of the karst media and groundwater flow modelling in karst massifs.

He was the Chairman of the 15th Annual Conference IAMG 2013 held in Madrid and he advocated for the Conference to be a celebration event of the international project "Mathematics of Planet Earth" year.

Currently he is the Editor-in-Chief of the oldest geology journal in Spain, the "Boletín Geológico y Minero", which has been published by the Geological Survey of Spain since 1874. Among the duties as Editor-in-Chief there is the chairing of meetings of the Editorial Board which has twenty members, all of them with PhDs in geology or mining engineering.

In his opinion "the Association must continue consolidating its position in the fields of research, conferences, journals and awards, and must increase its presence in the fields of the promotion of the teaching of geomathematics, to increase links with related industries and to encourage involvement of the public for a better understanding of mathematical geosciences". If elected he would like to contribute to helping the advancement of the Association in all these areas.

Michael Pyrcz is the team leader of reservoir modeling R&D in the Earth Science R&D Department with the Chevron Energy Technology Company, Houston USA. In 2004, he obtained his Ph.D. in Mining Engineering (Geostatistics) supervised by Clayton V. Deutsch at the University of Alberta, Canada. For the past 11 years Michael has held a variety of positions in industrial R&D. This includes research scientist, project lead, program manager and team leader. As a program manager, Michael has been responsible for technical leadership, and project documentation and delivery for several research projects. As a team leader, he has been responsible for mentoring and directing a team of research scientists working on mathematical geoscience topics.

Michael participates strongly within the academic and industrial mathematical geoscience community. He has shared his expertise and research interests in heterogeneity characterization and reproduction, data integration and uncertainty characterization through: authoring over 25 peer reviewed publications and a recent book, teaching various short courses, mentoring Ph.D. students and presenting various invited keynote talks. In addition, he actively reviews manuscripts for Mathematical Geosciences, Computers & Geosciences, and Natural Resources Research along with many other earth science and engineering related journals. In addition, Michael is a frequent session chair for mathematical geoscience related sessions with the AAPG, he participated on the organizing committee for the Annual Convention in 2011 Houston and is a member of the scientific committee for Geostats Congress in 2016.

Christien Thiart is an Associate Professor in Statistical Sciences at the University of Cape Town, South Africa. She is also a founder member of and senior researcher at AEON (African Earth Observatory Network, www.aeon.org.za). Christien's research interests are mainly in the fields of Geostatistics, spatial statistics and spatial modelling. At AEON, she plays a central role in the GIS based research unit, with a focus on 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), International Biometry Society (IBS) and the IAMG. Christien has been actively and continuously involved in participation of IAMG activities. She joined the IAMG in 2002 after a research visit to the Geological Survey of Canada (Ottawa, with Graeme Bonham-Carter and Frits Agterberg). She served on the Student Award Committee of the IAMG and since 2008 has been Councilor and the Special IGC Councilor, respectively. Currently, she serves on the Meeting and Award Committees and is actively involved in organizing the IAMG stream within the 35th International Geological Congress, to be hosted in Cape Town during 2016.

Guangsheng Yan (*1963) is a Professor and Director of the China Geological Survey, and head of the Development Research Center of the China Geological Survey. He received his BSc, MSc, and PhD in geochemistry, applied geochemistry and mathematical geology and geoinformatics from Changchun University of Earth Sciences (now merged into Jilin University) in 1985, 1988, and 1998, respectively. He is adjunct professor and PhD supervisor for China University of Geosciences (Beijing). He has been conducting research as senior mathematical geologist on mineral resources prospecting and geochemical exploration for decades. He has published a book and more than 20 papers. As the Director General of the Development Research Center of China Geological Survey, Dr. Yan has organized several major national programs for mineral resources assessments, just to name a few, the National Old Mine Prospecting and Exploration Program which involved investigation and evaluation of more than 1000 large and medium-sized mines, and in-depth and peripheral exploration deployment of 230 mines, triggering renewed vigor of old mines, discovering a large number of resources, extending the service life of the mines, and achieving remarkable social and economic benefits. The second major program was China National Mineral Potential Assessments which involved 25 commodities and a few thousand researchers nation-wide. The successful completion of these programs have not only supported a large number of mathematical geoscience and geoinformatics related research projects which advanced the MG subject in China but also provided opportunities and platforms for many Chinese mathematical geosciences researchers including scientists, faculty and graduate students. As the Deputy President of Chinese Association of Mathematical Geology and Geoinformatics and the Vice Chair of the IAMG Chinese Topical Section, Dr. Yan has actively organized and participated in IAMG activities especially promoting MG in China. He co-chaired the international Workshop on Frontiers of Mathematical Geosciences held at Geological Survey of China October 5-8, 2015 which had about 120 researchers including five members from outside of China; he delivered several plenary presentations at Chinese Conferences of Mathematical Geosciences and Geoinformatics held in Guangzhou, 2009, Beijing 2011 and 2014. As the Chair of the Commission on IAMG-Geological Surveys, Yan has attended the IAMG annual conferences and IAMG council meetings held in Australia 2012, Madrid 2013 and India 2014. He has won several prestigious awards including the China National Science and Technology Progress Award by the Chinese Government, Science and Technology Prize of Land and Resources by the Ministry of Land and Resources of China.

For Special IGC Councilor

Hari Shankar Pandalai (*1957) is a Professor in the Department of Earth Sciences of the Indian Institute of Technology Bombay (IITB). After completing his schooling in Thiruvananthapuram, Kerala State, India, he studied in the Indian School of Mines, Dhanbad, from where he obtained his Masters degree in Applied Geology (1978), the Master of Technology degree in Mineral Exploration (1979) and the PhD (1982). After a brief period of employment in the Mineral Exploration Corporation Ltd. and the Geological Survey of India, he returned to academics and was appointed as a Lecturer in the Indian School of Mines. In the early period of his teaching career, he received a French government fellowship to study at the Centre de Géostatistique at Fontainebleau, France. In 1984 he obtained the DEA from the École National Supérieure des Mines, Paris, and returned to his academic career in India. He moved to the Indian Institute of Technology Bombay in 1988 when he was selected there for the post of Assistant Professor. He was selected and appointed as a full Professor of the IITB in 1998.

In his academic career, Hari Pandalai concentrated on teaching and research in the area of ore deposits and mineral exploration. He developed courses and programmes for teaching Economic Geology, Ore Petrology, Mineral Exploration, Mining Geology, Mineral Economics, Statistical Methods in Geosciences, Mining Geostatistics and Petroleum Geostatistics. In his research career he supervised the research work of several doctoral students, besides undertaking funded projects on ore-deposit research relating to the geochemistry of transport and deposition of metals in hydrothermal ore solutions. In the field of mathematical geology his interest has been focused on problems of non-linear geostatistics related to estimation and on conditional simulation applied to grade-control during exploitation. He has about 40 publications in peer-reviewed scientific journals and volumes.

As part of his career in the Indian Institute of Technology Bombay, Hari Pandalai has held several administrative responsibilities which include the positions of Head, Department of Earth Sciences (2003-2006), Head, Centre for Studies in Natural Resources Engineering (2008-2010) and Deputy Director (Finance and External Affairs) of IITB (2010-2015). He is a Fellow of the Society of Economic Geologists and of the Geological Society of India. He has been a member of the IAMG since 1990 and has been on the Editorial Board of Mathematical Geology/Geosciences since 2005.

Nandimandalam Janardhana Raju (*1963) is a distinguished scientist in the fields of Hydrogeology, Environmental Geosciences and Water Resources Management. He had his education in Sri Venkateswara University for M.Sc (Geology), M.Phil and then did his doctoral (Ph.D) thesis in the field of Hydrogeology.

Dr Raju began his academic career in 1994 as Geohydrologist at the Department of Geology, Sri Venkateswara University (1994-2004), also served as Assistant Professor at the Department of Earth Sciences (Asmara University, Eritrea, 2001-02) & Department of Geology (Banaras Hindu University, 2004-2009), and joined the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi in 2009 as Associate Professor. He became full Professor in 2015. He also was a visiting scientist at Ruprecht Karl University (1997-99), Heidelberg, Germany; Asmara University (2001-02), Asmara, Eritrea; Federal University of Fluminense (2005), Rio dio Janeiro, Brazil; Martin Luther University (2008, 2011, 2012 & 2015), Halle, Germany.

Prof. Raju was awarded the Alexander von Humboldt Fellowship (1997) and Guest Professorship (2012) at Martin Luther University, Germany for his pioneering contributions. He has guided four PhDs in hydrogeology and water quality aspects and published more than fifty research papers in refereed journals including Hydrogeology Journal; Environmental Conservation; Hydrological Sciences Journal; Journal of Geological Society of India; Environmental Earth Sciences; etc., and contributed to the book entitled 'Geochemical Processes: Conceptual models for reactive transport in soil and groundwater'. He travelled widely

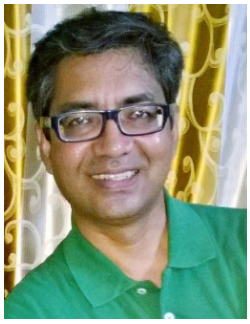
Candidates cont'd from p. 7

participating around 30 National and International Seminars/Conferences and Workshops. Dr Raju completed few major research projects pertinent to water quality such as arsenic and fluoride contamination in ground waters. Active in research, consultancy and extension work pertained to government and private organizations on matters of development and management of groundwater resources. He is providing technical consultancy to review the hydrogeological and environmental assessment reports for its adequacy and accuracy of the work for Hindustan Coca-Cola Beverage, India (2014-2016). He served as a national committee member in the Groundwater Estimation Committee to review and revise the groundwater estimation methodology 1997 (GEC1997) constituted by the Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India.

In recognition of his significant contributions in the field of science he was given memberships in various national and international bodies such as: Andhra Pradesh Akademy of Sciences (APAS), Hyderabad; The National Academy of Sciences India (NASI), Allahabad; International Association for Mathematical Geosciences (IAMG); Indian Association of Hydrologists (IAH), Roorkee; Geological Society of India (GSI), Bangalore and International Association of Hydrological Sciences (IAHS). He organized two international conferences of International Humboldt Kolleg (2013) and International Association for Mathematical Geosciences (2014) in the Jawaharlal Nehru University, New Delhi, India and published IAMG2014 proceedings.

Current research interests include the groundwater geochemistry, rainwater harvesting, saline water intrusion, and groundwater arsenic in the middle Ganga plain and fluoride contamination in groundwater.

B. S. Daya Sagar is a Full Professor at the Indian Statistical Institute-Bangalore, India. Sagar served as a Grade-A Research Scientist at the Centre for Remote Imaging Sensing and Processing (CRISP), the National University of Singapore (1998-2001); and as an Associate Professor at the Faculty of Engineering and Technology, Multimedia University-Malaysia in 2001-07. He received a BSc (1987) majoring in Earth Sciences from Andhra University, and an MSc (1991) and a PhD (1994) in Geoengineering and Remote Sensing from the Faculty of Engineering of Andhra University, India.



Since 1991, his research has involved development of original algorithms and modeling techniques that are mainly based on mathematical morphology, fractal geometry, and chaos theory. He has about 70 scientific publications to his credit in peer reviewed high impact factor journals. He authored „Qualitative Models of Certain Discrete Natural Features of Drainage Environment" (Allied Publishers: New Delhi, p. 231, 2005), and „Mathematical Morphology in Geomorphology and GISci" (CRC Press: Boca Raton, p. 546, 2013). He is an elected Fellow of Royal Geographical Society (1999), Fellow of Indian Geophysical Union (2011), Senior Member of IEEE (2003) and was a member of New York Academy of Science (1995). He is the recipient of prestigious awards including Dr. Balakrishna Memorial Award from the Andhra Pradesh Akademy of Sciences, 1995; Krishnan Gold Medal from the Indian Geophysical Union, 2002; Georges Matheron Lectureship Award of the IAMG, 2011.

His involvement in various IAMG activities was conspicuous since 1999, and he guest-edited a special issue (MG, v. 33, no.3, p. 245-396, 2001) in memory of the Late Professor SVLN Rao. During 2014, he took the initiative to start the first ever IAMG Student Chapter in India. He has organized an IAMG pre-conference workshop and chaired a special session on „Mathematical Morphology in Geosciences and Geoinformatics" during the 2014-IAMG conference held in Delhi, India. He has invited several IAMG members including Distinguished Lecturers to India to deliver lectures. He took the initiative in the creation of Wikipedia pages on several important IAMG activities, and is spending time and efforts with the help of Dr. Ricardo Olea in editing these pages. He has organized eight workshops / conferences / training schools / seminars, and has guest-edited six special issue for reputed journals. He is currently serving on Editorial Boards of Computers & Geosciences, Image Analysis & Stereology, and Frontiers: Environmental Informatics. As a Deputy Chairman of Centre for Applied Electromagnetics (CAEM), at Multimedia University-Malaysia, he nurtured a group of young researchers to deal with developing morphology-based algorithms for surficial mapping and terrestrial characterization. As a founding head of the SSIU that was set up in 2009 at Indian Statistical Institute, he established Spatial Informatics and Quantitative Geomorphology Research Groups. He is the founding chairman of the Bangalore Section IEEE Geoscience and Remote Sensing Chapter since 2012. For more details about him see

http://www.isibang.ac.in/~bsdsagar or
https://en.wikipedia.org/wiki/B._S._Daya_Sagar.

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Member News

I regret that I was not able to attend the last Annual Meeting at Freiberg due to work reasons. However, I have now transitioned to become a part time consultant at Schlumberger and am no longer a full time employee, which should leave me plenty of time to serve the IAMG if I happen to be elected to be president.

Dan Tetzlaff

B. S. Daya Sagar was promoted to Full Professor of Systems Science and Informatics Unit (SSIU) of Computer and Communication Sciences Division (CCSD) at Indian Statistical Institute with effect from 2013. After two years of review of his application for the promotion to the level of Full Professorship, he was promoted to the Professor level with effect from 2013. Professor Daya Sagar been IAMG's Georges Matheron Lecturer for 2011.

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Codien Agterberg †2015

Let me express our deepest condolences on the recent passing of our best friend Mrs. Codien Agterberg. She will always be remembered as an excellent wife, a loving mother, benign grandmother, a great woman and bosom friend. During the last 20 years, she has travelled extensively with Frits to many different countries including six long trips to China where she made numerous friends as well. We cannot forget the enjoyable time Codien spent with us during IAMG annual conferences, Council meetings and many other occasions. Personally, I knew Codien for 25 years. On the first day when I came to Ottawa starting my PhD study with Frits on January 27 of 1991, Codien cooked Chinese food following a Chinese cookbook. After my PhD defense meeting she organized a nice party at home serving a birthday cake with the label: "Birth of New PhD". Often we had dinner together at meetings worldwide including most IAMG annual conferences and all International Geological Congresses (IGCs) held in China (1996), Brazil (2000), Italy (2004), Norway (2008) and Australia (2012). Her love of the IAMG was evidenced by her sitting in at IAMG lectures during these conferences with great interest and enthusiastic participation in receptions, dinners and field excursions. Codien loved nature, gardening, cooking and animals. Descended from a family of doctors and medical research scientists, Codien has donated her body to the Faculty of Medicine at the University of Ottawa. As she had wished, a memorial get-together to celebrate her life was held with family and friends while she was still alive. Codien passed away at home after her 80th birthday celebration on October 18, 2015. All family members including children and grandchildren of Frits and Codien were at home. Many relatives and friends visited Codien at the party that day. Codien's book club friends sang and played music for Codien. All friends around her sang the happy birthday song for her and several family members and friends told good stories about Codien. Rotating TV videos with peaceful music showed Codien's pictures for happy memories and stories. After all friends had left, Codien passed away peacefully at about 6:30pm. She enjoyed and shared her happiness with friends in her last hours. During her illness many friends including IAMG members

expressed sympathy, greetings, and consolation. Last month, after her passing, many sent their condolences. I would like to thank all of them for their support on behalf of Frits. We will miss her forever!

Qiuming Cheng

IAMG2015 Freiberg

IAMG2015, the 17th Annual Conference of the International Association for Mathematical Geosciences, was held in Freiberg, Sep 5–13, 2015. It was the second time after Berlin in 2002 that IAMG's annual conference took place in Germany, this time in Freiberg, a small city with a distinguished mining history close to Dresden in the East of Germany. The local organizers are affiliated with Technische Universität Bergakademie Freiberg, celebrating its 250 anniversary this year, and with Helmholtz Institute Freiberg for Resource Technology, founded in 2011. Of course, organizing IAMG's annual conference has been quite an experience for us, but this time it has been a challenge for the Association, too. Here I would just like to mention a few "first time" issues and experiments.

It has been the first time that IAMG itself has taken full responsibililty for its annual conference, and the experiment is going to extend until 2018. This decision, taken by the Council in 2013, implies some serious consequences and poses major challenges to IAMG. As a response the local core team tried to initiate an international 'Strategic Committee' complementary to the 'Scientific Committee', to get IAMG's membership more actively committed to shaping the program and the Association's key issues for the near future. Thus, for some of us it made a lot of difference, e.g., for the IAMG office, the IAMG treasurer, the IAMG meetings committee to name a few. Some of us mastered the challenge with an outstanding performance like **Regina van den Boogaart**, running the IAMG office and the conference office, and **David Collins** our treasurer.

It has been unprecedented that the conference on Petroleum Geostatistics 2015 by the European Association of Geoscientists and Engineers (EAGE) was held in Biarritz, France, at the same time. When I first got aware of this unfortunate coincidence, I found it very annoying; it seems to indicate that IAMG is about to lose its leading role in Geostatistics. I know that for some of us it was a hard decision which conference to attend. My second thought was that IAMG should not give up what used to be a core competence for decades.

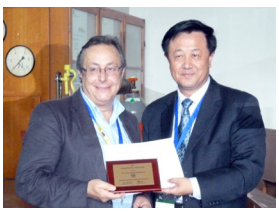
IAMG2015 featured five parallel sessions. The sessions were distributed among tracks dedicated to the thematic topics of 'oil', 'mining', and 'environment', and the methodological topics 'statistics', 'geostatistics', 'numerics', and 'geoinformatics'. We had committed ourselves to organize a scientific program where each track was present almost every day, and without overlap within sessions of the same track.

One of the experiments was to attract topics and themes, which have not been too prominent in IAMG in the past, even though I cannot think of anybody arguing that they do not belong to the realm of mathematical geosciences. Thus, we had sessions on mathematics and numerics of fluid flow and transportation processes, 3D/4D geomodeling, directional statistics, and rock structures, to name a few. The aim was to extend the field of prominent topics beyond, say, geostatistics, fractals and compositional data analysis, and to present ourselves and our journals as possible home for scientists in these fields.

Another experiment at IAMG2015 was the 'Day of the Geological Surveys', with themes that were of prevailing interest to professionals from these institutions.

As an effort to bring together scientific and business endeavours, commercial companies presented and exhibited their geomodeling and mining softwares to a public audience. Participating companies were Geovisionary, Geovariances, GiGa Infosystems, Midland Valley, Mira Geoscience, and rasdaman.

IAMG2015 presented several invited plenary talks:



the annual George Matheron Lecture by Prof. **Roussos Dimitrakopoulos**, Canada Research Chair in Sustainable Mineral Resource Development and Optimization Under Uncertainty, McGill University, Montreal on "Smart(er) Mining Complexes and Mineral Value Chains: A technological perspective on risk management and sustainability";

Keynote lecture by **Ian Jackson**, former Chief of Operations and Director of Information at the British Geological Survey, on the occasion of the 'Day of the Geological Surveys' pondering on "Have we made progress since Mr Smith?" who compiled the first geological map almost exactly 200 years ago;

the Andrei Borisovich Vistelius Research Award lecture presented over the Internet followed by a live online discussion by **Xiaogang (Marshall) Ma**, Tetherless World Constellation, Rensselaer Polytechnic Institute (RPI), Troy, NY, USA, on "Geoinformatics in the Semantic Web". Marshall was actually in his institute at RPI answering questions at 3 am in the morning his time via the web link;

the Felix Chayes Prize for Excellence in Research in Mathematical Petrology lecture by Prof. **Yongzhang Zhou**, School of Earth Sciences and Geological Engineering and Research Center for Earth Environment and Resources, Sun Yat-Sen University, Guangzhou, Guangdong, China, on "Hierarchical paths of migration of impurity trace elements in source rocks and resulted conjugate geochemical anomalies using mathematical modeling and computer simulation";

and a keynote talk on "Directional Statistics in the Geosciences" by Prof. **Peter Jupp**, School of Mathematics and Statistics, University of St Andrews, Fife, Scotland.

The IAMG 2016 Distinguished Lecturer, **Sean McKenna**, IBM Ireland Research Lab, Dublin, Ireland, presented a summary of his lecturers for next year during the IAMG General Assembly.

And, the opening lecture on the history of geology and mining in the Freiberg area was given by **Friedrich-Wilhelm Wellmer**, former president of the German Federal Institute for Geosciences and Natural Resources (BGR), and one of the founding members of IAMG.

The results of a post-conference satisfaction survey (58 completed questionnaires out of 292) showed that the 'registration desk' received the best scores; overall satisfaction was rated good to very good.

Last but not least, we gratefully acknowledge sponsorship by Wintershall Holding GmbH, Kassel, Germany, The Geological Society of London, UK, Mitteldeutsche Braunkohle Gesellschaft, Zeitz, Germany, and Saxore Bergbau GmbH, Freiberg, Germany.

Helmut Schaeben
and the core local organizing team

IAMG 2015 was a success. We had five short courses, seven plenary key note speakers, five parallel scientific tracks hosting 33 sessions. 208 presenters came from six continents and 33 countries presenting 255 oral and poster contributions. 277 participants, with Germany, China and the US being the most represented countries. A lot of positive feedback. See pictures of the events on the next pages.

The icebreaker on Sunday evening was hosted at the Terra Mineralia Museum in Schloss Freudenstein among stunning displays of minerals from all over the world. This unique collection was assembled in the19th century by Erika Pohl-Ströher, a wealthy heiress, over a period of 60 years, and given to the Bergakademie Freiberg.

The annual conference dinner was held at the Tivoli ballroom with fine food and music, including an appearance of the Bergmusikkorps Saxonia Freiberg (the local miner's band). At this festive occasion, Ricardo Olea, Vera Pawlowsky-Glahn and Qiuming Chang presented JoAnne DeGraffenreid with the Special Merit Award for her extraordinary service to the Association as Editor of the IAMG Monograph series.

The best student poster award went to **Kristina B. Helle** (Institute for Geoinformatics, Westfälische Wilhelms-Universität Münster, Germany) for her contribution: "*sensors4plumes - Optimise sensor networks for plume monitoring*", showing how a polution event can be detected rapidly with a minimum number of monitoring stations.

The best student oral presentation award was given to **Jared Deutsch** for the contribution: Jared L. Deutsch, Thomas H. Etsell, Jozef Szymanski, Clayton V. Deutsch (University of Alberta, Centre for Computational Geostatistics): "*Downscaling and multiple imputation of metallurgical variables*", showing a way to predict ore properties for metallurgical optimisation honoring known contraints from exploration measurements.

The DVD with IAMG2015 Proceedings (ISBN 978-3-00-050337-5) can be ordered from the IAMG. A free download option is available for IAMG members at
www.iamgmembers.org/phpbboard/viewtopic.php?f=20&t=313

Ice breaker in Terra Mineralia museum

The IAMG2015 organisers: Gerald v. d. Boogaart, Raimon Tolosana, Helmut Schaeben

Conference dinner at the Tivoli

Lobby with the poster sessions

Davis Collins gives Stelios Liodakis an MG Student Award

Abrham Gottlob Walter & Alexander v. Humboldt

Václav Němec (Prague) and Karel Hron (Olomouc) - the organisers of IAMG2018

Council Meeting (Council members and guests) standing: Harald Poelchau, Edzer Pebesma, Raimon Tolosana, Qiuming Cheng, Eric Grunsky, June Hill, Jennifer McKinley, Guillaume Caumon, Liu Gang, Karel Hron, Gina Ross, Ming Wu.
sitting: Richard Sinding-Larsen, David Collins, Ricardo Olea, Vera Pawlowsky-Glahn, Christien Thiart, Yongqing Chen, Jan Harff.

Honorary Life Membership for Gina Ross

Special Merit Award for Jo Anne DeGraffenreid

Student Affairs

IAMG Student Chapter 2015 Annual Reports for Freiberg, ITC, Nancy, Stanford, Sun Yat-sen, and Wyoming are now accessible on our website at http://iamg.org/student-affairs/student-chapters.html.

Meaningful Academic Meetings in Sun Yat-sen University, China

IAMG-SYSU Student Chapter held an academic seminar on October 28, 2015. This academic salon was organized by Professor Yongzhang Zhou, most of old and new IAMG members took part in the meeting, including Le Gao, Qiyuan Liu, Pengpeng Yu, Jia Niu, Weili Zhou, Liping Mo, Shuo Chen, Jingru Zhang, Zhenwen Lin, Yanlong Zhang, Wei Yang, Shiyang Tao, Xiaoyu Guo, Tong Yang, Shuteng Xu and Zhipeng Liang and non-member postdoctoral Jiahui Qian.

In the discussion section, SYSU Student Chapter president Le Gao gave a brief report about three-dimensional geological modeling and reserve assessment in the Pangxidong metallogenic area. At the same time he also showed some results of the 3D modeling. Jia Niu and Shuo Chen reported on Silicalite samples tested and mineralization analysis in the Qin-Hang belt and Qinling area, respectively. Most IAMG members participated in the discussion session and Professor Yongzhang Zhou made a concluding remark. Yongzhang Zhou supervised and urged all the members to use writing more articles to boost scientific researchs and reading, then get more results.

Another academic meeting was held on November 17, 2015. In order to enhance the cohesion, internationality and academic ability of IAMG- SYSU, our meeting was organized under the leadership of Professor Yongzhang Zhou.

Le Gao hosted the meeting. In this meeting, we recruited seven new members, totally have 23 members. Additionally, it set up a series of new functional departments, including Secretariat, Academic Department, Organization Department, Propaganda department, United Front Department and Foreign Ministry, and all of them were under presidium's lead. Furthermore, the meeting elected secretary and minister of each department. The new ministers showed that they would make every effort to construct the Student Chapter.

After the meeting, participants had a photo session on campus. At this point, the first academic meeting of IAMG-SYSU Student Chapter in 2015 achieved complete ceremony.

Le Gao
Chapter president

IAMG Student Chapter TU Freiberg (2014-15)

Members of the IAMG Student Chapter Freiberg visited the Freiberg mine in July 2015. The core objective of the visit is to understand the underground mining system and the geology of Freiberg. The mine is one of the largest and oldest in Saxony. The "underground of Freiberg" covers an area of 5 x 6 km below the silver city and beyond with a complete route network of about 2,000 km. So it is one of the largest silver mining districts in Europe were approximately 8,000 tons in its entire history of mining brought valuable silver from the floor of the infirmary and made Freiberg Germany's Silver City. On various management routes in 60-180 m depth, with a route network of about 20 km, you can experience the mining of the 14th to 20th centuries."

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IAMG Journals Student Grants Awards

Every year each of the three IAMG journals awards grants to research projects of students selected by a special committee. For details see the Student Affairs/ Student and Postdoctoral Research Grants page on our website iamg.org.

For **2015** the Journal Grants were awarded to the following students:

Computers & Geosciences Research Scholarships

Jessica McBeck, PhD student of Prof. Michele Cooke at the Department of Geosciences, University of Massachusetts: "The episodic growth of accretionary systems: Validating a boundary element method modeling tool with the spatiotemporal distribution of strain and force measured in scaled analog experiments of deforming accretionary wedges"

Daniel Markus Hammes, PhD candidate studying under Prof. Cees Passchier, Institute of Geosciences , Johannes Gutenberg University Mainz: "3d grain boundary reconstruction using the Fabric Analyser"

Haicheng Wang, Post-doc working with Prof. Qiuming Cheng, China University of Geosciences: "Building the geochemical exploration model of covered areas based on BME"

Mathematical Geosciences Student Awards

Hong Wang, working with Prof. Eulogio Pardo-Iguzquiza of Universidad de Granada: "A multi-point geostatistics approach for simulating complex satellite images in remote sensing"

Xingyuan Li, PhD student of Prof. YongZhang Zhou of Sun Yat-Sen University: "Ore-forming fluid migration numerical simulation by computer". Li has been a president of the IAMG student chapter at Sun Yat-Sen University.

Stelios Liodakis, University of the Aegean, Mytilíni, Greece, is a PhD student of Prof. Phaedon Kyriakidis: "Advances in Geostatistics for Environmental Characterization and Natural Resources Management"

2015 Natural Resource Research Student Awards

Emmanouil Varouchakis, Post-doc working with Prof. George Karatzas of Technical University of Crete, Chaniá on: "A Bayesian space-time geostatistical model for groundwater level variability estimation"

Matthew Quigley, PhD student of Roussos Dimitrakopoulos at Department of Mining and Materials Engineering, McGill University, Canada: "Developing Risk Resilient Mine Production Schedules of Rare Earth Element Deposits"

2014 Student Research Grants

Natural Resources Research Student Award recipients are:

Sujay Bandyopadhyay, PhD student at the University of Burdwan, India, under Prof. Dr. Narayan Chandra Jana, working on "Use of Cartosat-1 Data in DEM generation and SWAT model for surface water resource management in Ajay River Basin, India"

Ngoc Luan Mai, Graduate student at Curtin University, Australia, under Erkan Topal. His project is " Material based pit optimisation using multivariate conditional simulation"

The following students won a Mathematical Geosciences Student Award:

Nasser Madani Esfahani, PhD student from the Department of Mining Engineering, University of Chile, studying under Prof. Xavier Emery. The project title is "Geometallurgical ore body modelling Geostatistical simulation of non-stationary categorical variables and its application to ore body modelling"

Catarina Guerreiro, PhD, Universidade de Lisboa, studying under Mário Albino Pio Cachão: " Compositional Data Analysis as a tool to obtain consistent (paleo)ecological interpretations from coastal-neritic settings, based on recent coccoliths from the central Portuguese margin"

Andrés González Quirós, working with Prof. José Paulino Fernández Álvarez at Oviedo University, Spain, on a " Study of the gravity anomaly produced by a pumping test in an unconfined aquifer: coupled modeling and survey optimization".

The Computers & Geosciences Research Scholarships go to:

Dr. **Jeanne Pellerin**, Université de Lorraine, with a project on " A new mixed-element meshing method adapted to 3D geological structural methods" with Dr. Hang Si

Andrew Bell, working under Dr. Jennifer McKinley (Queen's University, Belfast, Northern Ireland) on " Vertical accuracy assessment of multiscale Digital Terrain Models for Aerial and Terrestrial LIDAR scanning of slopes: Examples from Northern Ireland and Slovakia ."

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2016 IAMG Distinguished Lecturer: Presentations

Sean McKenna is the 2016 Distinguished Lecturer. He is Senior Manager at the IBM Smarter Cities Technology Centre (SCTC) in Dublin, Ireland. IBM Research – Ireland. To schedule a visit and presentations contact him at seanmcke@ie.ibm.com

More information is available at http://iamg.org/special-lectures/current-distinguished-lecturer.html

Technical Presentations

Simulation of Ground Water Flow in Heterogeneous Media

Hydraulic conductivity in heterogeneous and fractured media can range over many orders of magnitude. Creating numerical representations of this highly variable material property using combinations of discrete and continuous geostatistical simulations along with object-based techniques allows for a rich set of capabilities for creating alternative conceptual models. Forward modeling of ground water flow through these representations in a Monte Carlo framework provides characterization of uncertainty in downstream performance measures. Inverse parameter estimation is used to condition these hydraulic conductivity models to observations of state variables (pressures, concentrations, travel times). This presentation will describe development and applications of these techniques drawn from probabilistic risk assessment, effective property calculation, long-term geologic disposal of nuclear waste and geo-thermal resource development.

Hidden Markov Models in Environmental and Geoscience Applications

Observations of geologic and environmental variables are often indirect measures that reflect an unknown hidden state. Hidden Markov models (HMM's) provide a framework for learning and interpreting the hidden states through indirect measurements. These techniques exploit spatial correlation as defined in a Markovian process and can improve decisions made relative to models that do not account for spatial correlation. This presentation examines utilization of HMM's in an environmental application using observations from magnetometers collected with strip transect support to identify regions of increased magnetic anomaly intensity. This presentation also updates the classic mathematical geosciences problem of patterned search for resource targets to now use strip transect samples and HMM's. Further developments of using HMM's with exhaustive 2D observations are proposed and explored.

Detecting Significance in Spatially Correlated Processes.

In statistical hypothesis testing, the multiple comparison problem arises when a set of statistical inferences are considered simultaneously, and naïve treatment of these multiple comparisons can return incorrect and misleading results. Within the earth and environmental sciences, correlation across space in both material properties and natural processes often leads to the multiple comparison problem. More recent developments for determining significance across spatially correlated results exploit properties of Gaussian random fields and are examined here. Application to improving understanding of the relationships between vegetation dynamics and the El Niño Southern Oscillation (ENSO) anomalies will be presented. The extremely large 2015-2016 El Niño provides timely motivation to focus on identifying statistically significant responses of vegetation patterns to ENSO. Assigning statistical significance to satellite observations of vegetation response to ENSO has traditionally been done without consideration of the spatial correlation between locations. In this presentation, those approaches are compared to a more rigorous approach that accounts for the spatial correlation within the satellite images.

General Audience – Non Technical

Smarter Planet 2.0

The Smarter Planet initiative began in 2008 as an effort to take advantage of increasingly instrumented and interconnected systems for more efficient and sustainable use of resources. Since then, significant gains have been made towards these goals, but considerable challenges remain. This presentation will explore progress to date in applying Big Data and analytic tools to improved operation of infrastructure systems and resource allocation with a focus on water and energy. Current research on improved predictive models and optimization approaches to make better decisions and improve sustainability will be covered.

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2015 IAMG Distinguished Lecturer Report

I have been quite busy on the lecture tour since we last communicated. I delivered talks at

(1) Institut Français du Pétrole at Reuil-Malmaison outside Paris

(2) Canadian Society of Petroleum Geologists in Calgary

(3) Two talks at University of Alberta in Edmonton. One to a Geology and Geophysics group and another in Management Science

(4) Talk at MIT Mining and Oil and Gas Club

(5) On Dec. 3rd, I went to the USGS in Reston to talk about probabilistic aggregation issues.

(6) I was invited to University of Waterloo in Canada but was backed up with the above talks. They suggested coming to Ottawa next Spring.

Gordon Kaufman

Free one year membership

to all authors for any paper accepted for publication in the three journals of IAMG

The council has approved the proposal from the IAMG Publication Committee, chaired by Eric Grunsky, that IAMG offers a free one year membership to all new authors for any paper accepted for publication in Mathematical Geosciences, Computers & Geosciences, and Natural Resources Research. Existing members or past members are not eligible for the free membership. Past authors who have not previously been a member of the IAMG are eligible for the one year free membership.

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It's almost too late to nominate candidates for the 2016 IAMG Awards !

The Association invites all members to submit nominations for

the **John Cedric Griffiths Teaching Award**

and the **William Christian Krumbein Medal**

Deadline: January 31, 2016

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

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

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

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

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

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

Nominations for other Awards may be submitted at any time.

IAMG Journal Report

Mathematical Geosciences

As always, collaboration and working relations with Springer are excellent; we are grateful to the service of Dr. Annett Buettner, who continues to fulfill the role of Publishing Editor for our journal since 2012. In addition, as Claudia Kehl has moved on from her position as Production Editor, we are equally grateful to Johannes Morawcsik, who has since assumed this role. Our collaboration with Springer, Heidelberg, remains outstanding.

Mathematical Geosciences published a total of 45 manuscripts in 2014 and has published another 36 already in the six issues from this year. Book reviews continue to constitute an important portion of published material. However, please note that suggestions of books to review and volunteering to do the reviews continue to be needed and are greatly appreciated.

Recent Special Issues in 2014:

• 46(2) 20 Years of Multiple-Point Statistics: Part 1 (Guest Editors: Philippe Renard and Grégoire Mariethoz)

• 46(5) 20 Years of Multiple-Point Statistics: Part 2 (Guest Editors: Grégoire Mariethoz and Philippe Renard)

• 46(8) Special Issue on Three-Dimensional Structure (Guest Editors: Guillaume Caumon and Pauline Collon-Drouaillet)

The Impact Factor (Thomson Reuters) for 2014 is 1.653 and the 5-year Impact Factor at 1.915. The new IF is less than, but comparable to last year's IF, with a noted increase in the number of cites (454 to 592) leading to the increase of the 5-y IF. Please note that 592 cites for a journal that has published 45 papers in 2014 is not insignificant. The SJR factor seems healthy and higher than other comparable journals. We aim to maintain an upward trend on all fronts moving forward.

The MG Editor's Best Reviewer Awards 2014

Dr. Snehamoy Chatterjee

Snehamoy Chatterjee is an Assistant Professor of Department of Geological and Mining Engineering and Sciences, Michigan Tech. Before joining Michigan Tech, Chatterjee was working as an Assistant Professor at National Institute of Technology, India. Chatterjee specializes in ore reserve estimation, short- and long-range mine planning, mining machine reliability analysis, mine safety evaluation, and the application of image analysis and artificial intelligence in mining problems. He received his Ph.D. in Mining Engineering from Indian Institute of Technology Kharagpur, India. During his Ph.D. research, Chatterjee solved quality control-related problems using image analysis and statistical methods for the National Mineral Development Corporation (NMDC), Indias largest iron ore producer and exporter. He joined the COSMO-Stochastic Mine Planning Laboratory at McGill University, where he focused on mine planning optimization and ore-body modeling under uncertainty. He completed ore-body and rock-type modeling projects of several other mining operations in India, Australia and Canada.

Presently, Chatterjee is actively involved in teaching and research work in the field of resource modeling, production planning, and online quality monitoring integrating multiple data types.

Roussos Dimitrakopoulos

Natural Resources Research

The four issues of volume 23 (2014) have 445/23 (pages/articles). So, compared with the 2009-2013 5-year average of 380/25, we had a 17% increase in number of printed pages but 8% decrease in number of articles during 2014. This slight decrease in number of articles but significant increase in printed pages is mainly due to the 80-page article from the EMD-AAPG (Energy Minerals Division of the American Association of Petroleum Geologists), our co-sponsor, which was supposed to be published in 2013 but got delayed due partly to the U.S. government shutdown in the latter part of that year.

The first two issues of volume 24 (2015) have 237 pages and 14 articles which exceeds slightly the 2009-2013 5-year semi-annual average of 190 pages and 12 articles, respectively. We expect that the pages/articles published finally this year (2015) will exceed the 5-year average for 2010-2014 of 402/25. That is partly due to the backlog from 2014 and partly due to the contribution of our co-sponsor EMD-AAPG that will be published in the last issue of this year's volume 24.

In terms of NRR's impact, the number of citations of articles in the journal increased rapidly and sort of flat-lined during most of the 5-year period 2009-2013, but the strongly increasing number of articles with no citations implies that there was very little interest in the articles published in NRR in the last 2-4 years or so, and that is quite worrying.

Attracting submissions of good papers is becoming more and more difficult because nowadays most authors (including myself, and apparently most of the rest of the IAMG membership) do not want to publish in a journal that is not indexed by ISI, like NRR. Well, after eight years of not publishing in NRR, I have submitted and had a paper accepted in NRR in 2013… and a couple of papers in 2014. I hope that other members of IAMG will do the same from now on. This year and last year I was expecting submission of articles from students awarded with NRR research scholarships in 2013 and 2014, but so far I have received none.

So, with this report comes my invitation to the IAMG membership to submit to NRR at least once a year one of your good papers that falls within its scope. And, suggestions about how to improve the performance of NRR are welcome. This is also your journal!

John Carranza

Computers & Geosciences

Last year was a good year for Computers & Geosciences. Since May 2014, Jef Caers and Edzer Pebesma have shared the load of Chief Editor, Jef focusing on subsurface and visualisation, Edzer on surface and atmosphere and web services. Wouter Buytaert from Imperial College London has joined the team of Associate Editors, taking care of submissions related to hydrology.

The 5 year Impact Factor of 2.214 is the highest in CAGEO history. This is terrific news.

CAGEO is now ranked 25/102 in the COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS category, and 64/175 in the GEOSCIENCES, MULTIDISCIPLINARY category.

It's interesting to note that the top cited article "A comparative study on the predictive ability of the decision tree, support vector machine and neuro-fuzzy models in landslide susceptibility mapping using GIS", cited 35 times in 2014, was published in 2013, meaning it'll contribute to the 2015 IF too. Of the top 10 most recently cited papers, 4 were about landslides.

Best paper awards

The entire board was invited to vote on best papers which were nominated by readers. The winners are:

Automatic surface remeshing of 3D structural models at specified resolution: A method based on Voronoi diagrams. Jeanne Pellerin, Bruno Lévy, Guillaume Caumon & Arnaud Botella, C&G, 62 (2014), 103-116.

Visualizing 3D atmospheric data with spherical volume texture on virtual globes. Jianming Liang, Jianhua Gong, Wenhang Li & Abdoul Nasser Ibrahim, C&G, 68 (2014), 81-91

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Journal Statistics

Mathematical Geosciences:

ISI-impact factor for 2014: 1.653 (SJR= 0.945)

5-Year Impact Factor: 1.915 (SJR 4y=2.111)

Rejection rate: 66.7%

Turnaround time: 38.3 days (average; submission to first decision)

Computers & Geosciences:

2014 Impact Factor: 2.054 (SJR=1.063)

5-Year Impact Factor: 2.214 (SJR 4y=2.496)

Natural Resources Research:

2014 SJR = 0.276

5 year SNIP: 0.720; SJR 4y=0.942

Rejection rate: 42%

Ave. turnaround time: 140 days (submission to final decision)

IAMG Journal Contents

Mathematical Geosciences

Volume 47, Issue 5, July 2015

Period-Tripling and Fractal Features in Multi-Billion Year Geological Records — Andreas Prokoph, Stephen J. Puetz

Classification of Gold-Bearing Particles Using Visual Cues and Cost-Sensitive Machine Learning — Tom Horrocks, Daniel Wedge, Eun-Jung Holden, Peter Kovesi, Nick Clarke, John Vann

Making Use of Online Production Data: Sequential Updating of Mineral Resource Models — Jörg Benndorf

Spatial Landslide Hazard Prediction Using Rainfall Probability and a Logistic Regression Model — Saro Lee, Joong-Sun Won, Seong Woo Jeon, Inhye Park, Moung Jin Lee

BoostWofE: A New Sequential Weights of Evidence Model Reducing the Effect of Conditional Dependency — Qiuming Cheng

MG Volume 47, Issue 6, August 2015

Modeling Geodetic Processes with Levy a -Stable Distribution and FARIMA — Jean-Philippe Montillet, Kegen Yu

Mineral Species Frequency Distribution Conforms to a Large Number of Rare Events Model: Prediction of Earth's Missing Minerals — Grethe Hystad, Robert T. Downs, Robert M. Hazen

Fitting Multiple Bell Curves Stably and Accurately to a Time Series as Applied to Hubbert Cycles or Other Phenomena — James A. Conder

On the Reduced Noise Sensitivity of a New Fourier Transformation Algorithm — Mihály Dobrúka, Hajnalka Szegedi, Judit Somogyi Molnár, Péter Szücs

Isotropic Covariance Matrix Functions On All Spheres — Chunsheng Ma

Petro-Elastic Log-Facies Classification Using the Expectation-Maximization Algorithm and Hidden Markov Models — David Volent Lindberg, Dario Grana

MG Volume 47, Issue 7, October 2015

Blind Source Separation for Spatial Compositional Data — Klaus Nordhausen, Hannu Oja, Peter Filzmoser, Clemens Reimann

Fast Update of Conditional Simulation Ensembles — Clément Chevalier, Xavier Emery, David Ginsbourger

Multivariate Imputation of Unequally Sampled Geological Variables — Ryan M. Barnett, Clayton V. Deutsch

A New Approach to Identify Recharge Areas in the Lower Virgin River Basin and Surrounding Basins by Multivariate Statistics — Joseph Asante, David Kreamer

A General Probabilistic Approach for Inference of Gaussian Model Parameters from Noisy Data of Point and Volume Support — Thomas Mejer Hansen, Knud Skou Cordua, Klaus Mosegaard

Correction of Gravimetric Geoid Using Symbolic Regression — B. Paláncz, J. L. Awange, L. Völgyesi

Book Review — Christopher D. Lloyd: Exploring Spatial Scale in Geography — Jennifer Lee Dungan

MG Volume 47, Issue 8, November 2015

A New Method to Quantify Carbonate Rock Weathering — Caroline Dubois, John Deceuster, Olivier Kaufmann, Matt D. Rowberry

MPS-Driven Digital Rock Modeling and Upscaling — Tuanfeng Zhang

Simulation of Intrinsic Random Fields of Order k with Gaussian Generalized Increments by Gibbs Sampling — Daisy Arroyo, Xavier Emery

Optimized History Matching with Direct Sequential Image Transforming for Non-Stationary Reservoirs — M. Helena Caeiro, Vasily Demyanov, Amilcar Soares

An R-Based Function for Modeling of End Member Compositions — Martin Seidel, Mario Hlawitschka

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Natural Resources Research

Volume 24, Issue 3, September 2015

A Methodology for Sensitivity Analysis Based on Regression: Applications to Handle Uncertainty in Natural Resources Characterization — Yevgeniy Zagayevskiy, Clayton V. Deutsch

Curvature Attribute from Surface-Restoration as Predictor Variable in Kupferschiefer Copper Potentials — Pablo Mejía-Herrera, Jean-Jacques Royer, Guillaume Caumon, Alain Cheilletz

Data-Driven Evidential Belief Modeling of Mineral Potential Using Few Prospects and Evidence with Missing Values — Emmanuel John M. Carranza

Analysis of Mining Engineering Data Using Robust Estimators in the Presence of Outliers — Mathieu Sauvageau, Mustafa Kumral

Projection of Iron Ore Production — Steve Mohr, Damien Giurco, Mohan Yellishetty, James Ward, Gavin Mudd

Quality Assessment of Melanocratic Basalt for Mineral Fiber Product, Southern Urals, Russia — A. Pisciotta, B. V. Perevozchikov, B. M. Osovetsky, E. A. Menshikova, K. P. Kazymov

Petro-mineralogical Studies of the Paleoproterozoic Phosphorites in the Sonrai basin, Lalitpur District, Uttar Pradesh, India — Shamim A. Dar, K. F. Khan, Saif A. Khan, Samsuddin Khan, M. Masroor Alam

Ultramafic and Mafic Rock Distributions in Central Alaska and Implications for CO2 Sequestration — Carla Susanne Tomsich, Catherine L. Hanks, David B. Stone, Rainer J. Newberry, Bernard J. Coakley

Natural Molecular Hydrogen Seepage Associated with Surficial, Rounded Depressions on the European Craton in Russia — Nikolay Larin, Viacheslav Zgonnik, Svetlana Rodina, Eric Deville, Alain Prinzhofer, Vladimir N. Larin

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Computers & Geosciences

Volume 81, Pages 1-114 (August 2015)

J.N. Goetz, A. Brenning, H. Petschko, P. Leopold — Evaluating machine learning and statistical prediction techniques for landslide susceptibility modeling

Manuel A. Regueiro, José R.R. Viqueira, José A. Taboada, José M. Cotos — Virtual integration of sensor observation data

Rodolphe Cattin, Stephane Mazzotti, Laura-May Baratin — GravProcess: An easy-to-use MATLAB software to process campaign gravity data and evaluate the associated uncertainties

Dongfang Qu, Per Røe, Jan Tveranger — A method for generating volumetric fault zone grids for pillar gridded reservoir models

Hossein Izadi, Javad Sadri, Nosrat-Agha Mehran — A new intelligent method for minerals segmentation in thin sections based on a novel incremental color clustering

I-Hsien Lee, Chuen-Fa Ni — Fracture-based modeling of complex flow and CO2 migration in three-dimensional fractured rocks

S. Trevisani, M. Rocca — MAD: robust image texture analysis for applications in high resolution geomorphometry

G.M. Lewis, S.J. Hampton — Visualizing volcanic processes in SketchUp: An integrated geo-education tool

Fuat Yavuz, Mustafa Kumral, Necati Karakaya, Muazzez Ç. Karakaya, Demet K. Yıldırım — A Windows program for chlorite calculation and classification

Flemming Jørgensen, Anne-Sophie Høyer, Peter B.E. Sandersen, Xiulan He, Nikolaj Foged — Combining 3D geological modelling techniques to address variations in geology, data type and density – An example from Southern Denmark

C&G Volume 82, September 2015

Mohammad Ali Goudarzi, Marc Cocard, Rock Santerre — GeoStrain: An open source software for calculating crustal strain rates

Darshika Palamakumbure, Phil Flentje, David Stirling — Consideration of optimal pixel resolution in deriving landslide susceptibility zoning within the Sydney Basin, New South Wales, Australia

Denis Voytenko, Timothy H. Dixon, Mark E. Luther, Chad Lembke, Ian M. Howat, Santiago de la Peña — Observations of inertial currents in a lagoon in southeastern Iceland using terrestrial radar interferometry and automated iceberg tracking

Hui Chen, Huiping Xu, Yang Yu, Rufu Qin, Changwei Xu — Design and implementation of a Data Distribution System for Xiaoqushan Submarine Comprehensive Observation and Marine Equipment Test Platform

Xiaojie Li, Changhe Song, Sebastian López, Yunsong Li, José F. López — Fast computation of bare soil surface roughness on a Fermi GPU

Carl Watson, Jennifer Richardson, Ben Wood, Christopher Jackson, Andrew Hughes — Improving geological and process model integration through TIN to 3D grid conversion

Ramón Pellitero, Brice R. Rea, Matteo Spagnolo, Jostein Bakke, Philip Hughes, Susan Ivy-Ochs, Sven Lukas, Adriano Ribolini — A GIS tool for automatic calculation of glacier equilibrium-line altitudes

G. Tamburello — Ratiocalc: Software for processing data from multicomponent volcanic gas analyzers

Matthias Müller — Hierarchical profiling of geoprocessing services

Ahmet Artu Yıldırım, Dan Watson, David Tarboton, Robert M. Wallace — A virtual tile approach to raster-based calculations of large digital elevation models in a shared-memory system

Qingfeng Xue, Yibo Wang, Yi Zhan, Xu Chang — An efficient GPU implementation for locating micro-seismic sources using 3D elastic wave time-reversal imaging

Jonathan Yu, Peter Taylor, Simon J.D. Cox, Gavin Walker — Validating observation data in WaterML 2.0

Seyed Ali Hosseini, Maysam Abedi — Data Envelopment Analysis: A knowledge-driven method for mineral prospectivity mapping

Guido Blöcher, Mauro Cacace, Thomas Reinsch, Norihiro Watanabe — Evaluation of three exploitation concepts for a deep geothermal system in the North German Basin

Anto A. Micheal, K. Vani — Automatic mountain detection in lunar images using texture of DTM data

Lei Wu, Vadim A. Kravchinsky, David K. Potter — PMTec: A new MATLAB toolbox for absolute plate motion reconstructions from paleomagnetism

Aboulghasem Kazemi Nia Korrani, Kamy Sepehrnoori, Mojdeh Delshad — Coupling IPhreeqc with UTCHEM to model reactive flow and transport

Maksuda Lillah, Jeff B. Boisvert — Inference of locally varying anisotropy fields from diverse data sources

Jianxing Zhang, Qin Yang, Jigang Li, Xianhai Meng, Xing Liang — Representation of a velocity model with implicitly embedded interface information

Björn Nyberg, Simon J. Buckley, John A. Howell, Rachel A. Nanson — Geometric attribute and shape characterization of modern depositional elements: A quantitative GIS method for empirical analysis

O.F. Mojica, A. Bassrei — Regularization parameter selection in the 3D gravity inversion of the basement relief using GCV: A parallel approach

Fei Han, Sam Z. Sun — GPU acceleration of amplitude-preserved Q compensation prestack time migration

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Long Thanh Ngo, Dinh Sinh Mai, Witold Pedrycz — Semi-supervising Interval Type-2 Fuzzy C-Means clustering with spatial information for multi-spectral satellite image classification and change detection

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Melin Huang, Bormin Huang, Lingjia Gu, H.-L. Allen Huang, Mitchell D. Goldberg — Parallel GPU architecture framework for the WRF Single Moment 6-class microphysics scheme

Lu Liu, Renwei Ding, Hongwei Liu, Hong Liu — 3D hybrid-domain full waveform inversion on GPU

Jing Chen, Mo Li, Jiawei Li — An improved texture-related vertex clustering algorithm for model simplification

Toby R. Ault, Raul Zurita-Milla, Mark D. Schwartz — A Matlab© toolbox for calculating spring indices from daily meteorological data

Lei Fan, Joel A. Smethurst, Peter M. Atkinson, William Powrie — Error in target-based georeferencing and registration in terrestrial laser scanning

Bin Mu, Shicheng Wen, Shijin Yuan, Hongyu Li — PPSO: PCA based particle swarm optimization for solving conditional nonlinear optimal perturbation

Mahyar Yousefi, Emmanuel John M. Carranza — Geometric average of spatial evidence data layers: A GIS-based multi-criteria decision-making approach to mineral prospectivity mapping

J. Padarian, B. Minasny, A.B. McBratney — Using Google's cloud-based platform for digital soil mapping

Pascal Asmussen, Olaf Conrad, Andreas Günther, Moritz Kirsch, Ulrich Riller — Semi-automatic segmentation of petrographic thin section images using a "seeded-region growing algorithm" with an application to characterize wheathered subarkose sandstone

Grégoire H.G. Kerr, Christian Fischer, Ralf Reulke — A data-driven approach to quality assessment for hyperspectral systems

Paul Bui Quang, Pierre Gaillard, Yoann Cano, Munkhuu Ulzibat — Detection and classification of seismic events with progressive multi-channel correlation and hidden Markov models

Kristian Svennevig, Pierpaolo Guarnieri, Lars Stemmerik — From oblique photogrammetry to a 3D model – Structural modeling of Kilen, eastern North Greenland

Jennifer L. Jefferson, James M. Gilbert, Paul G. Constantine, Reed M. Maxwell — Active subspaces for sensitivity analysis and dimension reduction of an integrated hydrologic model

Zhang Sheng, Meng Xiaohong, Chen Zhaoxi, Zhou Junjie — Rapid calculation of gravity anomalies based on residual node densities and its GPU implementation

J.L.G. Pallero — Robust line simplification on the surface of the sphere

Helia Sharif, Maxim Ralchenko, Claire Samson, Alex Ellery — Autonomous rock classification using Bayesian image analysis for Rover-based planetary exploration

D. Marcotte — TASC3D: A program to test the admissibility in 3D of non-linear models of coregionalization

Zhen Cheng, Xiao Yu, Tian-Jian Hsu, S. Balachandar — A numerical investigation of fine sediment resuspension in the wave boundary layer—Uncertainties in particle inertia and hindered settling

Atef A. Qaddah, Mohamed F. Abdelwahed — GIS-based site-suitability modeling for seismic stations: Case study of the northern Rahat volcanic field, Saudi Arabia

Tom Horrocks, Eun-Jung Holden, Daniel Wedge — Evaluation of automated lithology classification architectures using highly-sampled wireline logs for coal exploration

Xianhai Song, Hanming Gu, Li Tang, Sutao Zhao, Xueqiang Zhang, Lei Li, Jianquan Huang — Application of artificial bee colony algorithm on surface wave data

J. Jaime Gómez-Hernández — Multiple-point Geostatistics: Stochastic Modeling with Training Images by G. Mariethoz and J. Caers, December 2014. Wiley-Blackwell, United States

Manuel A. Regueiro, José R.R. Viqueira, José A. Taboada, José M. Cotos, Erratum to "Virtual integration of sensor observation data [Comput. Geosci. 81 (2015) 12–19]"

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Julia B. Curto, Tatiana Diniz, Roberta M. Vidotti, Richard J. Blakely, Reinhardt A. Fuck — Optimizing depth estimates from magnetic anomalies using spatial analysis tools

Jeffrey D. Hyman, Satish Karra, Nataliia Makedonska, Carl W. Gable, Scott L. Painter, Hari S. Viswanathan — dfnWorks: A discrete fracture network framework for modeling subsurface flow and transport

Zhaoxi Chen, Xiaohong Meng, Sheng Zhang — 3D gravity interface inversion constrained by a few points and its GPU acceleration

Hrvoje Kalinic, Hrvoje Mihanovic, Simone Cosoli, Ivica Vilibic — Sensitivity of Self-Organizing Map surface current patterns to the use of radial vs. Cartesian input vectors measured by high-frequency radars

Xue Jiang, Wenxi Lu, Zeyu Hou, Haiqing Zhao, Jin Na — Ensemble of surrogates-based optimization for identifying an optimal surfactant-enhanced aquifer remediation strategy at heterogeneous DNAPL-contaminated sites

Christoph Kinkeldey, Jochen Schiewe, Henning Gerstmann, Christian Götze, Oleksandr Kit, Matthias Lüdeke, Hannes Taubenböck, Michael Wurm — Evaluating the use of uncertainty visualization for exploratory analysis of land cover change: A qualitative expert user study

Anderson Rodrigo da Silva, Renato Paiva de Lima — soilphysics: An R package to determine soil preconsolidation pressure

L. Gross, C. Altinay, S. Shaw — Inversion of potential field data using the finite element method on parallel computers

Federico Cella — GTeC A versatile MATLAB® tool for a detailed computation of the terrain correction and Bouguer gravity anomalies

Simon Nieland, Niklas Moran, Birgit Kleinschmit, Michael Förster — An ontological system for interoperable spatial generalisation in biodiversity monitoring

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Mladen M. Dordevic, Steven J. Whitmeyer — MaRGEE: Move and Rotate Google Earth Elements

Yi-Ju Chou, Rusty C. Holleman, Oliver B. Fringer, Mark T. Stacey, Stephen G. Monismith, Jeffrey R. Koseff — Three-dimensional wave-coupled hydrodynamics modeling in South San Francisco Bay

Zhihua Luo, Zhende Zhu, Huaining Ruan, Chong Shi — Extraction of microcracks in rock images based on heuristic graph searching and application

A. Soueid Ahmed, A. Jardani, A. Revil, J.P. Dupont — HT2DINV: A 2D forward and inverse code for steady-state and transient hydraulic tomography problems

J.A. Wong-Loya, E. Santoyo, J.A. Andaverde, A. Quiroz-Ruiz — RPM-WEBBSYS: A web-based computer system to apply the rational polynomial method for estimating static formation temperatures of petroleum and geothermal wells

Yongxing Li, Richard S. Smith — Forward modeling of radio imaging (RIM) data with the Comsol RF module

Jeong C. Seong — Sun position calculator (SPC) for Landsat imagery with geodetic latitudes

Stephan G. Le Roux, Anton Du Plessis, Abraham Rozendaal — The quantitative analysis of tungsten ore using X-ray microCT: Case study

Claire Sauthier, Marina Pirulli, Gabriele Pisani, Claudio Scavia, Vincent Labiouse — Numerical modelling of gravel unconstrained flow experiments with the DAN3D and RASH3D codes

Nicolas Le Moine, Pierre-Stéphane Gsell — A graph-based approach to glacier flowline extraction: An application to glaciers in Switzerland

Jun Wang, Xiaohong Meng, Fang Li — A computationally efficient scheme for the inversion of large scale potential field data: Application to synthetic and real data

Thomas J. Haines, Joyce E. Neilson, David Healy, Emma A.H. Michie, Andrew C. Aplin — The impact of carbonate texture on the quantification of total porosity by image analysis

L. Berrahou, N. Lalande, E. Serrano, G. Molla, L. Berti-Équille, S. Bimonte, S. Bringay, F. Cernesson, C. Grac, D. Ienco, F. Le Ber, M. Teisseire — A quality-aware spatial data warehouse for querying hydroecological data

Darren L. Ficklin, Sally L. Letsinger, Hamed Gholizadeh, Justin T. Maxwell — Incorporation of the Penman–Monteith potential evapotranspiration method into a Palmer Drought Severity Index Tool

Juan P. Rigol-Sanchez, Neil Stuart, Antonio Pulido-Bosch — ArcGeomorphometry: A toolbox for geomorphometric characterisation of DEMs in the ArcGIS environment

Chih-Sung Chen, Yih Jeng — A data-driven multidimensional signal-noise decomposition approach for GPR data processing

Saeed Aligholi, Reza Khajavi, Morteza Razmara — Automated mineral identification algorithm using optical properties of crystals

M. Ralchenko, M. Svilans, C. Samson, M. Roper — Finite-difference time-domain modelling of through-the-Earth radio signal propagation

Chen Zhou, Zhenjie Chen, Yongxue Liu, Feixue Li, Liang Cheng, A-xing Zhu, Manchun Li — Data decomposition method for parallel polygon rasterization considering load balancing

Oscar Peredo, Julián M. Ortiz, José R. Herrero — Acceleration of the Geostatistical Software Library (GSLIB) by code optimization and hybrid parallel programming

Rui Bai, Li Tiejian, Yuefei Huang, Li Jiaye, Guangqian Wang, Dongqin Yin — A hierarchical pyramid method for managing large-scale high-resolution drainage networks extracted from DEM

G. Moreno Chávez, D. Sarocchi, E. Arce Santana, L. Borselli — Optical granulometric analysis of sedimentary deposits by color segmentation-based software: OPTGRAN-CS

Rowan Cockett, Seogi Kang, Lindsey J. Heagy, Adam Pidlisecky, Douglas W. Oldenburg — SimPEG: An open source framework for simulation and gradient based parameter estimation in geophysical applications

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M. Kanevski, V. Demyanov — Statistical learning in geoscience modelling: Novel algorithms and challenging case studies

Alaba Boluwade, Chandra A Madramootoo — Geostatistical independent simulation of spatially correlated soil variables

V. Demyanov, L. Backhouse, M. Christie — Geological feature selection in reservoir modelling and history matching with Multiple Kernel Learning

Dionissios T. Hristopulos — Stochastic Local Interaction (SLI) model: Bridging machine learning and geostatistics

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Conference Reports

Marginal Seas and their coastal areas

An International workshop "Marginal Seas and their coastal areas – transit and buffer zones in continent – ocean interaction" hosted by the Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, took place in Yantai, China, September 18 – 19, 2015. 35 students and scientists from Australia, China, Germany, India, Japan, Korea, Pakistan, Poland, Portugal, Russia, Sri Lanka, The United Kingdom, and Vietnam met in order to discuss current questions of marginal seas' processes including in particular coastal zones and river mouth systems. Because of the enormous economic development of these areas and the need of sustainable planning and management, functional models of the environmental system related to the interference of natural and anthropogenic driving forces are gaining increasing importance. For this reason, the IAMG served as the co-organizer for the workshop aiming to foster the co-operation between geoscientists, oceanographers, coastal engineers mathematicians and computer scientists. In scientific presentations and intense discussions the opportunities of advanced modeling tools have been discussed in sessions devoted to "hydro- , sediment-dynamics and climate", "ecosystems and biogeochemistry of coastal zones", "sea level change and sediments", and "natural processes vs. anthropogenic impacts". In all discsussions the participants expressed the interest to establish a network "Estuaries/Coasts/Shelf/Marginal Seas" whereby existing scientific associations and networks (as for instance provided by the IAMG or the Future Earth Coast – former LIOCZ - program) should be used as conveyor belts.

The activities of a scientific network should focus on

- Deeper understanding of processes of river mouth systems, coasts, shelf and marginal seas as an interference of natural and anthropogenic impacts by the promotion of scientific meetings,
- Discussion of pros and cons of numerical models to be used for historical reconstructions and future projections of aforementioned processes,
- Information exchange about access to data sources for the parameterization of models,
- Promotion of young scientists (students and Early Stage Researchers): Information about support programs (for instance by the IAMG), new education programs, position announcements.

The scientific discussion will be continued – promoted by the IAMG – at the 35th International Geological Congress, August 27 - Sept 4, 2016, Cape Town, South Africa within the frame of a symposium "Coast and Society" (http://www.35igc.org/Themes/15/Environmental-Geosciences).

Jan Harff & Qiuming Cheng

Participants of the International workshop "Marginal Seas and their coastal areas" hosted by the Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, in Yantai, China, September 18 – 19, 2015

The 6th Compositional Data Analysis Workshop

CoDaWork 2015

June 1-5, 2015, L'Escala-Girona, Spain

The Research Group of Statistics and Data Analysis of the Universitat de Girona organised the sixth Compositional Data Workshop http://www.compositionaldata.com/codawork2015/

The workshop and the traditional preceding introductory course took place in the Hotel Nieves Mar, a family hotel with a long history just in front of the gulf of Roses. L'Escala is a beautiful town situated on the Costa Brava, the coastal region of northeastern Spain.

Participants of CoDaWork 2015 in L'Escala

This edition of CoDaWork, like the previous ones, had an international projection and counted on the participation of researchers who habitually work with compositional data. At this edition of CoDaWork, 69 scientists from 22 countries all over the world attended. This moderate number of people attending enables us to dedicate much more time to debate than is usual in other workshops or conferences. It also fosters flowing, intense scientific discussions, such as we proposed in the objectives of CoDaWork 2015. The one-day course counted on the participation of 11 students. Invited speakers were: **Eric Grunsky** (University of Waterloo, Canada), Distinguished Lecturer of IAMG; and **Ron S. Kenett** (KPA Ltd., Raanana, Israel; Univ. of Turin, Turin, Italy), a top researcher in the Business Statistics field.

For the first time in CoDawork's history there were special awards for the best:
1) Young (under 30 years old) statistician contribution
2) General contribution and
3) Poster,
the first two according to a jury and the last one through popular vote. The winners respectively were: **I. Galván** ("A compositional approach to allele sharing analysis"), **M.I. Ortego** ("Bayesian estimation of the orthogonal decomposition of a contingency table") and **V. Edjabou** ("Compositional analysis of household food waste in Denmark").

Coda-Association

The workshop hosted the founding meeting of the Association for Compositional Data (CoDa-Association) on June 2nd. The Association was founded by 53 members from 22 different countries. The members elected the interim committee formed by **Vera Pawlowsky-Glahn** (President, U. de Girona, Spain); **Eusebi Jarauta** (Secretary General; U. Politècnica Catalunya, Spain); **Josep-Antoni Martín-Fernández** (Treasurer; U. de Girona, Spain); **Antonella Buccianti** (Council Member; U. of Florence, Italy); and **Eric Grunsky** (Council Member; U. of Waterloo, Canada). This committee will work to pursue the legalization, start the registration of members, collect the first membership fees for 2016, and prepare the first by-laws for the specific tasks we plan to undertake, as well as prepare a list of candidates for the first formal election of officers of the association at CoDaWork-2017. John Aitchison was nominated as Honorary President of CoDa-Association. The Organizing Commitee of the CoDaWork-2015 gave to the President a gift for professor Aitchison.

Josep-Antoni Martín-Fernández
Chair of CoDaWork-2015

more conferences on next page

The Danie Krige Geostatistical Conference

Geostatistical geovalue – rewards and returns for spatial modelling

Crown Plaza, Johannesburg · 19–20 August 2015

The two day conference, sponsored by IAMG, was held in Johannesburg with about 60-70 attendees from several countries. Most of the participants of the conference were geostatisticians and geologists from industry. The presentations were mixed with theoretical and applied geostatistics in mineral resources evaluation. Prior to the conference the Danie Krige Memorial Lecture was held at the University of Witwatersrand, this lecture focuses on the pioneering work of Danie Krige and his contribution to the mining industry of South Africa. The Danie Krige Display Cabinet was also officially opened by his wife, Ms Ansie Krige.

Christien Thiart

Ms Ansie Krige in front of Danie Krige Display cabinet

Letter to the Editor

It has been a great pleasure for me to meet you and many other current IAMG officers and good old friends in Freiberg at the meeting where constructive suggestions have been approved re celebrating the IAMG Golden jubilee (as well as the silver jubilee of the original IAMG silver jubilee) in the IAMG birth-country and birth-place.

Let me express my standpoints to possible arrangements in accordance with the discussion and decisions from Freiberg:

1) All members of the IAMG should be asked how they want to celebrate the jubilee in the Czech Republic and elsewhere (see point 4 below). In my opinion some among the old pioneers will prefer to stay in Prague for a couple of days – maybe with an excursion to Pribram (remembering a long tradition of international meetings there with unique East-West contacts in difficult periods). The possibility of a low budget will be given for this part.

2) Orientation of the Jubilee meeting has also a (geo)ethical dimension. Let me copy a very wise comment received from Italy just in these days: *As far as the "numerical models" are concerned, they are computed by applied mathematicians with very great skill and expertise. However, their main concern is the search of a confirmation of the interpretation scheme that had been proposed to them by some Earth's scientists. A mathematician really exploits his greatest skill while attempting to confirm what his customer wants. A mathematician wants to show that he is "clever". However, knowing how to solve a difficult equation is different from understanding the physics of problems.*

3) Let me repeat what I said in Freiberg: I see no problem to combine the Prague sessions with another segment in Olomouc devoted to current problems as usually negotiated in Annual IAMG Conferences; but for many technical and practical problems both segments should be organized with their own independent financial budgets. This of course does not exclude any correct co-ordination of work of both possible segments

4) Remembrances of the IAMG golden jubilee in 2018 should be organized anywhere in the world where some appropriate meeting with the IAMG as co-organizer or full organizer at any level will be convened; these remembrances may consist of one or a few presentations as well as in an informal meeting of the old pioneers and promoters.

5) The IAMG should be proud that it has survived such a long period of existence very successfully with prosperous journals and – last but not least – in a perfect inter-generational cooperation.

6) For the final decision - reserved for the new IAMG Council (Cape Town 2016) – it will be necessary to ask all members to write their own ideas - many interesting suggestions can appear. The main goal is to satisfy as much members as possible. Finally in such a way the strength and usefulness and continuing importance of the IAMG will be manifested.

With best wishes and greetings from the IAMG birth-place

Václav Němec

Note: As indicated on page 19 in this Newsletter, the IAMG Council, meeting in Freiberg, Germany, made the final decision to hold the IAMG's 2018 Golden Jubilee scientific meeting in Olomouc, Czech Republic, with related celebrations in Prague.

Ed.

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Laureline Josset, Vasily Demyanov, Ahmed H. Elsheikh, Ivan Lunati — Accelerating Monte Carlo Markov chains with proxy and error models

I.K. Kapageridis — Variable lag variography using k-means clustering

Michael Leuenberger, Mikhail Kanevski — Extreme Learning Machines for spatial environmental data

Susana Nascimento, Sérgio Casca, Boris Mirkin — A seed expanding cluster algorithm for deriving upwelling areas on sea surface temperature images

Mauricio Orozco-Alzate, Paola Alexandra Castro-Cabrera, Manuele Bicego, John Makario Londoño-Bonilla — The DTW-based representation space for seismic pattern classification

Thomas Romary, Fabien Ors, Jacques Rivoirard, Jacques Deraisme — Unsupervised classification of multivariate geostatistical data: Two algorithms

Fei Xiao, Man Sing Wong, Kwon Ho Lee, James R. Campbell, Yu-kai Shea — Retrieval of dust storm aerosols using an integrated Neural Network model

Jindong Xu, Xianchuan Yu, Wenjing Pei, Dan Hu, Libao Zhang — A remote sensing image fusion method based on feedback sparse component analysis

Tianfang Xu, Albert J. Valocchi — Data-driven methods to improve base-flow prediction of a regional groundwater model

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Yong Tian, Yi Zheng, Chunmiao Zheng — Development of a visualization tool for integrated surface water–groundwater modeling

Zhiwei Tian, Huilin Xing, Yunliang Tan, Sai Gu, Suzanne D. Golding — Reactive transport LBM model for CO2 injection in fractured reservoirs

Debotyam Maity, Iraj Salehi — Neuro-evolutionary event detection technique for downhole microseismic surveys

M. Weigand, A. Kemna — Debye decomposition of time-lapse spectral induced polarisation data

Shuwei Gan, Shoudong Wang, Yangkang Chen, Xiaohong Chen, Kui Xiang — Separation of simultaneous sources using a structural-oriented median filter in the flattened dimension

Paolo Trinchero, Scott Painter, Hedieh Ebrahimi, Lasse Koskinen, Jorge Molinero, Jan-Olof Selroos — Modelling radionuclide transport in fractured media with a dynamic update of Kd values

Mohammad J. Abdollahifard — Fast multiple-point simulation using a data-driven path and an efficient gradient-based search

Yihui Xiong, Renguang Zuo — Recognition of geochemical anomalies using a deep autoencoder network

Björn Zehner, Olaf Hellwig, Maik Linke, Ines Görz, Stefan Buske — Rasterizing geological models for parallel finite difference simulation using seismic simulation as an example

Daniel Buscombe — Spatially explicit spectral analysis of point clouds and geospatial data

Chiao-Ling Kuo, Jung-Hong Hong — Interoperable cross-domain semantic and geospatial framework for automatic change detection

Swarup Chauhan, Wolfram Rühaak, Faisal Khan, Frieder Enzmann, Philipp Mielke, Michael Kersten, Ingo Sass — Processing of rock core microtomography images: Using seven different machine learning algorithms

M.R. Zolfaghari, E. Peyghaleh — Development of optimization-based probabilistic earthquake scenarios for the city of Tehran

Vessia Giovanna, Pisano Luca, Vennari Carmela, Rossi Mauro, Parise Mario — Mimic expert judgement through automated procedure for selecting rainfall events responsible for shallow landslide: A statistical approach to validation

Wolfram Rühaak, Victor F. Bense, Ingo Sass — Erratum to "3D hydro-mechanically coupled groundwater flow modelling of Pleistocene glaciation effects" [Comput. Geosci. 67 (2014) 89–99]

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Upcoming Meetings

AGU 2016 Ocean Sciences Meeting, New Orleans, Louisiana, USA, **21 - 26 February 2016.** http://meetings.agu.org/meetings/os16

SPIE Advanced Lithography 2016. SPIE. San Jose, CA, **- 25 February 2016.** http://spie.org/x10942.xml?MT.mc_id=ralcaw

EAGE-SCA International Symposium on Digital Rock Physics and Applications, Beijing, China, **30 - 31 March 2016**. http://www.eage.org/event/index.php?eventid=1430

AAPG/SEG 2016 International Conference & Exhibition, Barcelona, Spain, **3-6 April 2016**. http://www.seg.org/web/ice-barcelona-2016

The Future of Basin and Petroleum Systems Modeling (Hedberg Conference), Santa Barbara, California USA, **3-8 April 2016**. http://www.aapg.org/events/research/hedbergs/details/articleid/11906

2016 International Conference on Natural Science and Applied Mathematics. Association of Computer Science and Information Technology. Dubai, UAE, **7 - 9 April 2016**. http://www.icnsam.org/

Second Conference on Forward Modelling of Sedimentary Systems (From Desert to Deep Marine Depositional Systems), Trondheim, Norway, **25 - 28 April 2016**. http://www.eage.org/event/index.php?eventid=1415

The 2nd International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM 2016). INSTICC. Rome, Italy, **26 - 27 April 2016**. http://www.gistam.org/

Geoinformatics 2016, XVth International Conference on Geoinformatics - Theoretical and Applied Aspects, Kiev, Ukraine, **10 - 13 May 2016**. http://www.eage.org/event/index.php?eventid=1463

AAPG 2016 Annual Convention & Exhibition, The American Association of Petroleum Geologists with SEPM (Society for Sedimentary Geology) and Canadian Society of Petroleum Geologists (CSPG), Calgary, Alberta, Canada, **19–22 June 2016**. http://ace.aapg.org/2016

1st International Conference on Natural Hazards & Infrastructure: Protection, Design and Rehabilitation. Chania, Crete Island, Greece, **28 - 30 June 2016**. http://iconhic2016.com/

16th International Multidisciplinary Scientific GeoConference & EXPO SGEM 2016. Albena, Bulgaria, **28 June - 7 July 2016**. http://www.sgem.org/

CoDaCourse 2016, University of Girona, Girona, Spain, **4-8 July 2016**. http://www.compositionaldata.com//pages/codacourses.php

geoENVia: 11th International Conference on Geostatistics for Environmental, Lisboa, Portugal, **6 -8 July 2016**. http://2016.geoenvia.org/

GeoChina 2016, Shandong, China, **25 - 27 July 2016**. http://geochina2016.geoconf.org/

2016 Joint Statistical Meetings, Chicago, IL, USA, **30 July - 4 August 2016**. http://www.amstat.org/meetings/jsm.cfm or phone toll-free (888) 231- 3473

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

GEOSTATS2016, Valencia, Spain, **5-9 September 2016.** Chairman is J. Jaime Gómez-Hernández at the Technical University of Valencia. http://geostats2016.upv.es/

AAPG /SEG 2016 International Conference & Exhibition, Cancun, Mexico, **6-9 September 2016**. http://cancun2016.iceevent.org/

Geomodel 2016 Gelendzhik, Russia, **12 - 15 September 2016**. http://www.eage.org/event/index.php?eventid=1448

Virtual Geoscience Conference 2016 (VGC 2016) "Where Geomatics Meets Geoscience", Bergen, Norway, **22 - 23 September 2016**. http://virtualoutcrop.com/vgc2016

GSA Annual Meeting & Exposition, Denver, Colorado, USA, **25–28 Sept. 2016**. http://www.geosociety.org/meetings/2016/

SIAM Conference on Mathematics of Planet Earth (MPE16), Philadelphia, Pennsylvania, USA, **30 September - 2 October 2016**. http://www.siam.org/meetings/mpe16/

AGU Fall Meeting, San Francisco, USA, **12 - 16 December 2016.** fallmeeting.agu.org

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IAMG2017 Annual Meeting, Perth, Australia, **2 - 7 September 2017**

GSA 2017 - Seattle, Washington, USA, **22–25 October 2017**

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IAMG2018 Annual Meeting, Olomouc and Prague, Czech Republic, **2 - 8 Sept. 2018**

35th International Geological Congress

Reminder - Call for abstracts for IAMG stream at the 35th IGC in Cape Town, South Africa, 2016

The South African event will take place at the Cape Town International Convention Centre from 27 August to 4 September 2016.

http://www.35igc.org/

Abstract submission is now open and the deadline is **31 January 2016**

http://www.35igc.org/Verso/211/Submit-an-Abstract

IAMG members have proposed several streams. IAMG members are encouraged to submit to these streams, but abstract submissions are not limited to these streams and you are welcome to submit to any theme. For more information visit http://www.35igc.org/Themes

Sessions chaired by IAMG members

1 Geostatistics for Geological Resources Modeling
Jef Caers (jcaers@stanford.edu) and Julian Ortiz

2 Mathematical Morphology in Geosciences and Geoinformatics
B.S. Daya Sagar (bsdsagar@isibang.ac.in)

3 New Theories and Methods in Resources Exploration
Katsuaki Koike (koike.katsuaki.5x@kyoto-u.ac.jp), Ryoichi Kouda, Noriyoshi Tsuchiya and Jorge K. Yamamoto

4 Quantitative Characterization Coal Resources and Hazards
Ricardo A. Olea (rolea@usgs.gov) & Özgen Karacan

5 Statistical Analysis of Compositional Data. Theory and Applications to Earth sciences
Jennifer McKinley (j.mckinley@qub.ac.uk) and Alberto Resentini

6 Mining Geostatistics and Operations Research in Mine Planning
Oktay Erten (oktay.erten@curtin.edu.au) and Erkan Topal

7 Coast and Society
Jan Harff (jan.harff@io-warnemuende.de), Tarmo Soomere and Hua Zhang

8 Contributions of young Earth scientists to mathematical geoscience for resource strategic issues (jointly-organized by IAMG and YES network
Wenlei Wang (wenleiw@163.com), Meng Wang and Jie Zhao

9 GIS Based Geochemical Data Analysis and Mineral Prospectivity Mapping
Renguang Zuo (zrguang@cug.edu.cn) and John Carranza

Hope to see you all in Cape Town

Christien Thiart

IAMG2018 Olomouc/Prague

At the IAMG2015 in Freiberg, the Council voted to accept an invitation from Karel Hron and Ondřej Bábek from the Palacký University, Olomouc, to come back to the Czech Republic from 2 to 8 September 2018 to have a scientific meeting in Olomouc and to celebrate the Golden Anniversary of the foundation of IAMG in Prague. Stay tuned for more details coming out as the anniversary keeps coming closer.

International Association for Mathematical Geosciences (IAMG)
c/o IAMG Office
Balthasar-Rößler-Str. 58
09599 Freiberg
Germany

CoDa-course Online

http://www.compositionaldata.com/codacourseonline/

CoDa-course online is running!

We are glad to inform you that we offer an online training course on the statistical treatment and modelling of compositional data (CoDa).

CoDa-course online is the online version of the CoDaCourse imparted at the University of Girona and which was supported by the Statistical Modelling Society (SMS) and the International Association for Statistical Computing (IASC). This course is accredited by the International Association for Mathematical Geosciences (IAMG). It provides an introduction to theoretical and practical aspects of the statistical analysis of CoDa. In other words, it will present the current state of the art in this field of active research.

Compositional data are typically defined as vectors of positive components and constant sum, usually 100% or 1. These conditions render most classical statistical techniques incoherent on compositions, as they were devised for unbounded real vectors. However, there are many more types of data exhibiting the same limitations: as soon as the variables of a data set show the relative importance of some parts of a whole, data should be considered compositional. Typical examples in different fields are: geology (geochemical elements), economy (income/expenditure distribution), medicine (body composition: fat, bone, muscle), food industry (food composition: fat, sugar, etc), chemistry (chemical composition), ecology (abundance of different species), paleontology (foraminifera taxa), agriculture (nutrient balance ionomics), sociology (time-use surveys), environmental sciences (soil contamination), and genetics (genotype frequency).

Course development, instruction, evaluation and other educational processes are tailored to the distance learner. Each student can set their own pace based on their personal time commitments. Commencing from the date of registration, each student has one year in which to complete the practical worksheets, the course activities and evaluation exercices. A teacher-tutor will be assigned to each student enrolled in the course.

For further information about the course structure and to have a preliminary look please visit

http://www.compositionaldata.com/codacourseonline or contact us at webmaster@compositionaldata.com.

If you know of other colleagues who would be interested in the CoDa-course online please share this announcement with them.

On behalf of the organizers,

Josep-Antoni Martín-Fernández
Research Group in Compositional Data Analysis
University of Girona (Spain)

Course and Open Seminar on Compositional Data Analysis (CoDaCourse)

4-8 July 2016
Universitat de Girona

CoDaWork 2017

7th Compositional Data Analysis Workshop
5-9 June, Abbadia San Salvatore, Siena (Italy)

www.compositionaldata.com//material/others/Antonellacodawork2017.pdf

CoDa-Association

Founded in 2015 June 2 (L'Escala, Spain)
Be a member! Fill in the form!

http://www.compositionaldata.com//material/others/CoDAssoc4OrdinaryMembers.pdf