IAMG Newsletter

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Official Newsletter of the International Association for Mathematical Geosciences

Contents

Call for nominations for 2017 IAMG Awards !

The Association invites all members to submit nominations for the **Felix Chayes Prize** and for the **Andrei Borisovich Vistelius Award**

Please note the earlier Deadline: October 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 the web site. Please have a look at it before sending your nominations!

The (informal) documents which should accompany a proposal are:

- a short statement summarizing the relevant qualifications of the nominee
- a curriculum vitae of the nominee

Nobody gets an award without a nomination, so please support your colleague, when you believe she or he 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 are a good source of inspiration on how to write a nomination. Nominations can be submitted via e-mail (jackswsc@q.com) or sent to:

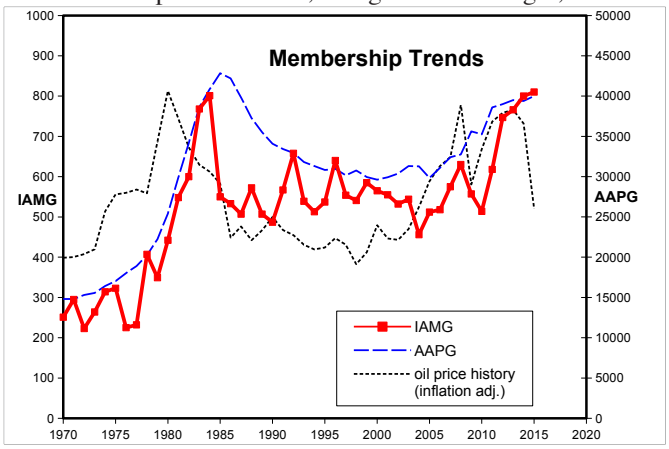
John H. Schuenemeyer - Chairman, IAMG Awards Committee
Southwest Statistical Consulting, LLC
960 Sligo St
Cortez, CO 81321 USA

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

From the Editor

Health and wellbeing of an organization is important and can be measured by a number of different metrics. IAMG can be judged by the success of its three journals, the attendance at annual meetings, the effectiveness of its governing body, the number of members and trends in membership. The last has always been a concern and over the years various approaches have been tried to keep current members and to recruit new ones. One way has been to decouple journal subscription from membership fees, making the annual fee so small that nobody could use financial need as an excuse not to become or continue to be a member. Another, recently introduced, has been to confer free memberships to all authors and co-authors of papers accepted for publication in IAMG journals. This has had only limited success and retention rates have been low.

Other scientific organizations have similar concerns. AAPG, for instance, has had typical ups and downs in membership just like IAMG (see graph) that, at least in part, seem to be driven by the ups and downs in oil price. AAPG, being 50 times larger, has a more



varied population and more ways of looking at membership shifts. An obvious one that IAMG has also been working on is recruiting new young geoscientists. A recent article in the AAPG Explorer on the "Membership Crisis" discusses various approaches, some of which might be worth looking at for our own membership efforts. Recruiting and supporting Young Professionals (YPs), especially at conventions, has apparently been quite successful at AAPG, and we have seen a nice increase in participation of younger delegates at our IAMG meetings. AAPG is now making a special effort to transition student members into regular membership once they have graduated. This is something we at IAMG should look at too. Our effort to establish Student Chapters has had some success. However, it seems to have been difficult to sustain some of the chapters, as strong leaders graduate and leave an institution without successors taking over the established activities. Do student chapter members become regular IAMG members after graduation? A few actually become quite active in IAMG (see for instance Marshall Ma who has just been elected Councilor). But we need to do more to encourage students to consider IAMG membership when they leave their university or college and enter professional life. They are the future life blood of our organization!

Harald S. Poelchau

International Association for Mathematical Geosciences

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PRESIDENT'S FORUM

In this forum I would like to provide a brief update on recent progress within the IAMG. You can find more information in this issue of the Newsletter and in reports from the EC and Committee Chairs which will soon become available online after the 35th IGC Council meeting.

Preparations for our joint conference at the 35th IGC in Cape Town are going well. Technical sessions, award plenary sessions, Council meeting, and General Assembly are scheduled during the week. Congratulations and thanks are due to our IGC special Councilor Professor Christien Thiart and the Meetings Committee chaired by Ricardo Olea for making efforts to coordinate the IAMG activities at the IGC. I also thank the Session Chairs and many others who are involved in the program of the 35th IGC. Preparations for IAMG2017 in Perth, Australia and IAMG2018, our golden anniversary in Olomouc and Prague, Czech Republic are progressing well under the leadership of the local organizers of these conferences and the Meetings Committee.

I would like to congratulate Professor Peter Dowd (Australia) who has been selected as the 31th winner of the William Christian Krumbein Medal and Professor Juan José "Juanjo" Egozcue (Spain) who is the recipient of the 2016 John Cedric Griffiths Teaching Award. Both winners will deliver their plenary lectures at the 35th IGC. I extend my sincere gratitude to the Awards Committee chaired by Professor John H. (Jack) Schuenemeyer and all IAMG members who have made nominations of candidates in the awards competition. I would like to thank the Lectures Committee chaired by Jennifer McKinley, IAMG Executive Vice President, for selecting the 2017 Distinguished Lecturer (DL) and the 2016 Georges Matheron Lecturer (ML). I congratulate Professor Clayton Deutsch (Canada) for having been selected as our 2017 DL and Dr. Jeffrey Yarus (USA) as our 2016 ML. Professor Clayton Deutsch will make a plenary presentation at the coming Geostat2016 in Valencia, Spain, which is being co-sponsored by the IAMG, and Dr. Jeffrey Yarus will deliver his plenary lecture at the 35th IGC.

Our new Council for 2016-2020 has been elected and the election results are to be ratified during the 35th IGC in Cape Town. The new Council consists of President: Dr. Jennifer McKinley (UK), Executive Vice President: Dr. Raimon Tolosana-Delgado (Germany), Treasurer: David Collins (USA), Secretary General: appointed by the President - Eric Grunsky (Canada), Vice Presidents: appointed by the President - Professor Christien Thiart (South Africa) and Dr. Guangsheng Yan (China), Past President: Qiuming Cheng (Canada/China), Councilors: Professor Gerald van den Boogaart (Germany), Dr. Xiaogang (Marshall) Ma (USA), Professor Guillaume Caumon (France), Dr. Jaime Gómez-Hernández (Spain), and IGC Councilor: Professor Hari Shankar Pandalai (India). The members of the new Council are from many different nations and reflect fundamental IAMG principles for promoting young scientists and women. Sincere congratulations to all new Council members! Many thanks must be given to the Nomination Commission chaired by Professor Frits Agterberg, Secretary General, to Regina van den Boogaart at the IAMG office, and to all members who have participated and contributed to the election. I trust the new Council under the leadership of Dr. Jennifer McKinley will bring in fresh ideas and energy to further enhance the IAMG and bring it into the new era.

This issue contains my last write-up in the President's Forum to share with all of you. I want to give my heartfelt gratitude to all IAMG members for your understanding and strong support for me and for the current Council. I also want to thank the Council members and others who have been working together closely and collegially on so many issues and matters to be dealt with for our Association. I enjoyed very much meeting with many members on numerous occasions and having the discussions and arguments which have shaped decisions and direction taken by the Council. I can say the current Council might not have been the best one ever, but it has tried its best to serve our members and our association. We will keep on working hard till the end of our term and ensure smooth transition to the new Council.

Recall what we said when we started our tenure in 2012: broadening the scope of the IAMG, increasing frontier earth science research, and enhancing the roles of young scientists and women within the IAMG were our main principles and objectives. Our ultimate wish was to increase IAMG membership and strengthen the impact of our association. General scientific and technological frontiers were highlighted in my previous President's Forums and are reflected in the annual reports delivered to the IUGS which cover all aspects of MG for quantification and modeling properties and processes of earth systems and quantitative predictions and assessments of natural disasters as well as the delineation of mineral, hydrocarbon and water deposits in the Earth's crust. Key innovations may include but are not limited to data science, spatial analysis, basin simulation and application in oil and gas exploration, 2D to 3D geo-modeling, Big Data GIS techniques, singular mathematics for geodynamics modeling, new geostatistical and statistical analysis including multiple point geostatistics, spatial-temporal simulation, image regeneration and compositional data analysis. New models, methods and computer systems have been developed and utilized for energy/resource appraisals, environment impact assessment including climate change adaption, and hazard reductions. We are grateful to all editors and authors of our three journals: Mathematical Geosciences, Computers & Geosciences and Natural Resources Research that continue to flourish and provide the world with important new results in all fields of mathematical geoscience.

IAMG has been and will be closely collaborating with IUGS and other organizations to promote and to support new scientific initiatives such as Resourcing Future Generations (RFG), Mathematics of Planet Earth (MPE), and Future Earth (FE). IAMG has participated in drafting geo-scientific input to the Future Earth Program with former IUGS President Eduardo de Mulder and current IUGS President Roland Oberhänsli. IAMG has established new affiliation with the International Union of Geodesy and Geophysics (IUGG), enhanced its collaboration with the International Union of Geological Sciences (IUGS), Young Earth Scientists (YES) and maintained productive collaboration with Earth Science Matters (ESM). In addition, IAMG has increased the links to government agencies such as Geological Surveys of many countries. IAMG has promoted the roles of young earth scientists and members from underrepresented regions such as India, Africa, and South America. Two members are nominated for the IUGS EC and YES EC, respectively. Personally, I have been nominated jointly by the IAMG, the Geological Survey of Canada and the China Geological Survey as a candidate for the IUGS president position, and Dr. Wenlei Wang, IAMG –YES coordinator, was nominated as candidate for YES Vice President. These elections will be held during the 35th IGC. I sincerely thank our members and all others for supporting these nominations. See you soon at 35th IGC in Cape Town.

Qiuming Cheng

Request for Proposals to Host IAMG 2019

The Association has started the search process for the selection of a site to hold its 20th annual scientific and technical conference sometime in the summer or fall of 2019. Parties interested in hosting and organizing the event are welcome to visit the site

iamg.org/index.php/publisher/articleview/frmArticleID/150

for details of the guidelines.

IAMG 2017 will be held in Perth, Australia and IAMG 2018, the "Golden Anniversary", is planned in Olomouc and Prague, Czech Republic.

Please contact the Chair of the Meetings Committee, Ricardo Olea, to submit proposals or to clarify questions at rolea@usgs.gov, no later than 16 February 2017.

Association Business

Election Results for the 2016-2020 IAMG Council

The election closed on April 08, 2016. A total of 178 ballots were received on the election website. All results are subject to ratification by the IAMG General Assembly that will meet during the IAMG Annual Conference in Cape Town, South Africa, at the International Geological Congress.

Jennifer McKinley was elected President with 2/3 of all votes; Raimon Tolosana won the Executive Vice President position with 55%. The number of votes for Councilors ranged from 40 to 88; cut-off was at 70 votes. Hari Shankar Pandalai was 16 votes ahead of the next closest candidate for ICG Councilor.

President:

Jennifer McKinley
(*N. Ireland*)

Secretary General appointed
Eric Grunsky
(*Canada*)

Executive Vice President
Raimon Tolosana-Delgado
(*Germany*)

Treasurer:

David Collins
(*USA*)

Vice Presidents: appointed by the President

Christien Thiart
(*South Africa*)

Guangsheng Yan
(*China*)

Ordinary Councilors:

K. Gerald van den Boogaart
(*Germany*)

Guillaume Caumon
(*France*)

Jaime Gómez Hernández
(*Spain*)

Xiaogang "Marshall" Ma
(*U.S.A.*)

Special IGC Councilor

Hari Shankar Pandalai
(*India*)

IAMG's President, Qiuming Cheng nominated for IUGS President

The six members of the 2016–2020 IUGS Nominating Committee met at the UNESCO headquarters in Paris, 21 and 22 April. They are **Niichi Nishiwaki** (Japan), Harsh Gupta (India), Lopo Vasconcelos (Mozambique), **Ricardo Olea** (USA), Jacques Charvet (France, chairman) and Peter Bobrowsky (Canada). Olea and Nishiwaki are IAMG members, marking the first time that IAMG has had members in this influential committee. The purpose of the meeting was to prepare the slates of candidates for the 2016–2020 Executive Committee of nine members and the 2016–2020 Nominating Committee of six members. Curriculum and geographical diversity play an important role both in the preparation of the slates and final election by the IUGS Council to take place during the 35th International Geological Congress to be held in Cape Town this summer. IAMG's Qiuming Cheng is one of the two candidates for president. If you have connections to some of the IUGS Council members, we encourage you to secure support for Qiuming.

RFG 2018 -Resources for Future Generations

The IAMG has become a partner of RFG 2018, a conference on energy, minerals, water and the Earth to be held June 16-21, 2018 at the Vancouver Convention Centre, British Columbia, Canada. "Resources for Future Generations" is an initiative of the International Union of Geological Sciences (IUGS) with which IAMG is affiliated. In 2014 IUGS published: *Resourcing Future Generations White Paper: Mineral Resources and Future Supply*, and decided to make this the main topic of a new quadrennial conference to be held every two years before and after an International Geological Congress (IGC). IAMG always holds one of our annual meetings during an IGC. This year the 35th IGC will be held in Cape Town, South Africa, and in 2020 the 36th IGC will be in New Delhi, India. Canadian geoscience organizations are co-sponsoring RFG 2018 which promises to be a big event with an expected attendance of 4000. IAMG has decided to participate in these new quadrennial events as well but not to the extent that we participate in the IGCs.

Until late fall 2016 it will remain possible to propose topics for RFG 2018 sessions. The IAMG is considering sponsoring sessions on 'Advanced analytical analysis of geochemical data' and 'Probabilistic resource appraisal', but your inputs and suggestions would be most welcome. Eric Grunsky will be in charge of organizing the IAMG's contribution to RFG. He can be contacted at egrunsky@gmail.com.

Results of YES Network Elections

Our member **Wenlei Wang** has been elected as a Vice President of YES (Scientific Collaboration Team Leader).

The Young Earth-Scientists for Society or YES Network is composed primarily of scientists under 35 years of age, and was formed as a direct result of the IYPE, International Year of Planet Earth. The network, in close collaboration with IYPE Corporation, set up an international committee to organize a World Congress for Young Earth-Scientists. Also, YES Network will have a presence throughout this year's IGC conference by co-ordinating a number of activities, functions and scientific sessions for members and other young scientists. The scientific sessions will be incorporated into the 35th IGC scientific sessions.

Other elected positions:

President: Wang Meng, China

General secretary: Tanvi Arora, India

Vice President - Regional YES Network Team Leader: Palomino Ore Sheyla Bethsy, Peru

Vice President - Scientific Collaboration Team Leader: Wang Wenlei, China

EX OFFICIO Vice president - Communicating Science Team Leader: Ndivhuwo Cecilia Mukosi, South Africa

2016 IAMG Awards

The Awards Committee under the leadership of **Jack Schuenemeyer** has selected Professor **Peter Dowd** (Australia) as the 31th winner of the William Christian Krumbein Medal and Professor **Juan José "Juanjo" Egozcue** (Spain) as the 11th recipient of the John Cedric Griffiths Teaching Award. Both winners will deliver their key-note lectures at the 35th IGC in Cape Town.

Krumbein Medal

Professor **Peter Dowd** of the University of Adelaide has more than 40 years experience in academic research, teaching and administration and in consulting to industry. His research interests include geostatistical modelling and prediction in mineral resource, petroleum reservoir and environmental applications; geological modelling and mathematical geology; stochastic modelling and quantified risk assessment in natural resource and environmental applications; definitions and reporting of ore reserves; mineral economics; financial analysis and modelling; operational research; and computer-aided mine design.

Recent work has focussed on the characterisation of rock masses in hot dry rock enhanced geothermal systems; for environmental risk analysis and assessment; for mining applications; and for stochastic modelling of flow pathways in aquifers.

He has been cited as one of Australia's 100 most influential engineers by the Institution of Engineers Australia.

He has published over 200 papers and parts of books in the fields of geostatistics, stochastic modelling and spatial statistics, operational research, computer-aided mine design, mineral economics, mine finance and valuation and has developed commercialised software products for the minerals industry.

The William Christian Krumbein Medal is the highest award given by the Association and is awarded to senior scientists for career achievement, which includes distinction in application of mathematics or informatics in the earth sciences, service to the IAMG, and support to professions involved in the earth sciences.

Griffiths Teaching Award

Juan José Egozcue is a full professor (Catedrático) in the Departamento de Matemática Aplicada III at the Polytechnic University of Catalunya in Barcelona with specialties in Civil Engineering, Applied Mathematics, and Statistics.

He studied Physics, at the University of Barcelona (Spain) and obtained his PhD in 1982. In 1978 he became lecturer in the Civil Engineering School of the Universidad Politécnica de Cataluña, (UPC) Barcelona, teaching subjects on Applied Mathematics and Statistics. He was promoted to Full Professor in 1989 at the UPC. His present main research activities include: Bayesian methods for natural hazard assessment and analysis of compositional data, with special emphasis in the geometry of the sample space.

The John Cedric Griffiths Teaching Award is given to honor outstanding teaching, with preference for teaching that involves application of mathematics or informatics to the Earth's nonrenewable natural resources or to sedimentary geology.

Member News

Yan Guangsheng, director of the Development and Research Center of the Geological Survey of China has been promoted to Chief Geologist of the CGS. Yan is one of the newly appointed IAMG vice-presidents (see picture on p. 4).

Frits Agterberg writes:

I had the pleasure of visiting Honorary Life Member **Walther Schwarzacher** in Belfast. We talked about the old days in the 1980s and 1990s when he and I were members of the "Flying Circus" lecturing about mathematical geology in many different countries. Walther was always accompanied by his wife June.
(Also shown: President-elect Jenny McKinley)

Student Affairs

IAMG student research grants

While the 2016 deadline for application has passed by now, it is not too early to consider applying as soon as possible for next year.

IAMG student research grants are intended to support the research of PhD and Master students in the mathematical geosciences which will be worthy to be published in one of our journals.

The deadline for the next applications is May 31th, 2017.

Awards will be granted based on a promising research proposal by the student and a recommendation by the supervisor. The grants are about $2500 per person and can be used for all research support like travel, material, software, books, conferences, ...

There are three types of grants:

- Computers & Geosciences Research Scholarships
- Mathematical Geosciences Student Awards
- Natural Resources Research Student Awards

The grants are sponsored by the IAMG and in case of the Computers & Geosciences Research Scholarships by Elsevier.

The awardees are selected by IAMG committees and will be notified before the annual IAMG conference.

Official guidelines and online application forms can be found at:
https://iamg.org/student-affairs.html

Student Chapter News

Freiberg Chapter (http://www.iamg.tu-freiberg.de/):

New president is Rana Ammad Bin Sadiq, Ph.D. candidate in Geotechnical Engineering. The chapter has 14 members.

ITC Chapter, University of Twente (http://sites.google.com/site/isciatitc/):
Prof. Helmut Schaeben gave a guest lecture for all ITC Staff and students entitled "Potential Modelling" followed by advanced statistical modeling master class, where in-depth presentation followed by advanced practical exercises in R programming language were given to ITC MSc and PhD students.

University of **Wyoming** Chapter (http://geoweb.uwyo.edu/iamg/) organized invited talks by Dr. Brian Russell on "Integrating rock physics modeling, pre-stack inversion and Bayesian classification: Examples from the Alberta basin and the Gulf of Mexico" and by Dr. Lisa Stright, Colorado State University on "Characterization and Modeling of Deep-water Slope Channels Using Digital Outcrop Data"

Request for Nominations for IAMG Special Lectures

IAMG selects and sponsors two lecturers each year:

The **2018 Distinguished Lecturer** and

the **2017 George Matheron Lecturer.**

The Distinguished Lecturer prepares a series of lectures preferably on a variety of subjects in the mathematical geosciences to be presented in places where IAMG Annual Meetings are not normally held.

The Georges Matheron Lecturer should be a scientist with proven research ability in the field of spatial statistics or mathematical morphology. This lecture is presented at the Annual Meeting of the IAMG.

Letters of nomination for both these roles should include a curriculum vitae of the nominee and a short statement summarizing the ways in which he or she fulfills the nomination criteria.

For more information see
https://iamg.org/special-lectures.html

Letters should be directed by e-mail no later than
31st October 2016
to the Chair of the Lectures Committee, Christien Thiart:
christien.thiart@uct.ac.za

Special Lectures Appointments

Clayton Deutsch has been confirmed as the 2017 IAMG Distinguished Lecturer.

Dr. Deutsch is Director and Professor in the School of Mining and Petroleum Engineering, Department of Civil & Environmental Engineering at the University of Alberta. He teaches and conducts research into better ways to model heterogeneity and uncertainty in petroleum reservoirs and mineral deposits. Prior to joining the University of Alberta in 1997, Dr. Deutsch was an Associate Professor (Research) in the Department of Petroleum Engineering at Stanford University. His employment history also includes three years with Exxon Production Research Company and three years of experience with Placer Dome Inc. Dr. Deutsch has published six books and over 200 research papers. He holds the Alberta Chamber of Resources Industry Chair in Mining Engineering and the Canada Research Chair in Natural Resources Uncertainty Characterization.

Clayton has a long history of association with the IAMG. He served as Secretary General (2004-2008), was responsible for the IAMG website (2004-2006), won the 1994 Vistelius Research Award, and became the 2014 Griffiths Teaching Award recipient.

The **Matheron Lecturer** for this year was chosen from three excellent nominations: **Jeffrey Yarus** will deliver the 2016 Matheron Lecture in Cape Town at the 36th IGC.

Dr. Yarus has 36 years of experience in quantitative computer applications. He is a noted expert in the fields of reservoir characterization, applied geostatistics, mathematical and computing geology, surface modeling, and data analysis.

Dr. Yarus obtained his MS and Ph.D. in geology from the University of South Carolina before joining Amoco Production Company in 1977 where he worked as an exploration geologist in the Gulf of Mexico. From 1981 until 1988, he worked in exploration and production as an independent in a variety of basins throughout the Rocky Mountain States. In 1988, Jeffrey joined Marathon Oil Company's Petroleum Technology Center in Littleton, Colorado where he introduced the company to geostatistical reservoir characterization.

Since moving to Houston in 1996, he worked as a technical manager and executive for GeoMath, a subsidiary of Beicip-Franlab, Smedvig Technologies (Roxar), and Knowledge Reservoir, Inc. In August of 2001, Yarus, together with Dr. Richard L. Chambers, started Quantitative Geosciences, LLP, a consulting firm specializing in reservoir characterization and geostatistics. In 2006, he and the QGSI staff moved to Landmark Graphics Corporation, a division of Halliburton where he is now the Senior Product Manager for Earth Modeling. Jeffrey is well known throughout the industry for his seminars and lectures which he has given world-wide.

Dr. Yarus has served as AAPG's Computer Applications, Publications, and Reservoir Development Chairman, and has authored many papers and abstracts on geostatistics. Along with his partner Richard, he co-edited the 1995 and 2006 AAPG volumes on Stochastic Modeling and Geostatistics, and SPE's 2007 chapter on Geologically-Based, Geostatistical Reservoir Modeling in their Petroleum Engineering Handbook.

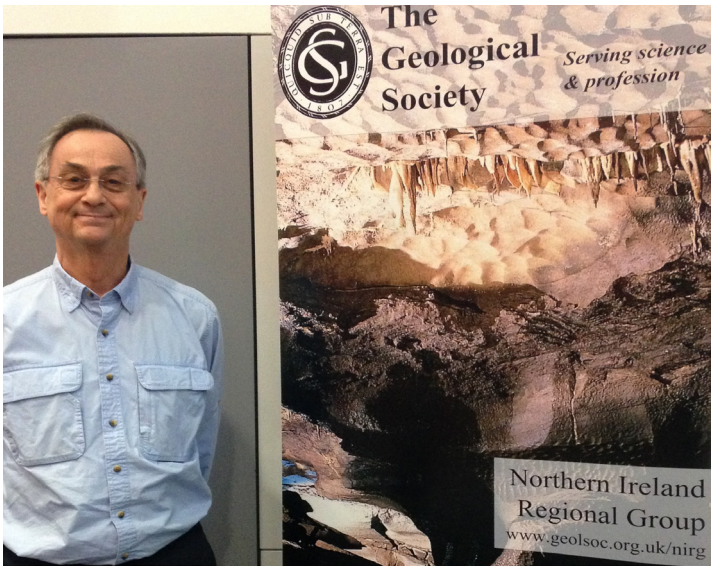
Distinguished Lectures Report

Sean McKenna, the 2016 Distinguished Lecturer, reports from the Distinguished Lecturer trail. He has given five presentations so far. He has presented his talk "Modeling Groundwater Flow and Transport in Heterogeneous Media" at the Geological Survey of Denmark and Greenland (GEUS) in January; at the Instituto Geológico y Minero de España (IGME) in March; and in April at the Dept. of Energy and Mineral Engineering of Penn State University, the Civil and Environmental Engineering and Earth Sciences Dept. of Notre Dame University, and the Geological Engineering Program, University of Wisconsin, Madison. More presentations are scheduled in July for the GeoEnv Conference in Lisbon, Heriot Watt University, and the International Environmetrics Society both in Edinburgh, as well as at the 10th International Geostatistics Congress in Valencia in September. For more details see sites.google.com/site/samcken/presentations

Sean with Sanjay Srinivasan in State College, PA

Sean with Eulogio Pardo Iguzquiza in Madrid (IGME)

Eric Grunsky delivered two short courses as part of his IAMG Distinguished Lecturer role and gave a Geological Society London sponsored presentation to the Geological Society Northern Ireland Regional Group on the 20th March 2016 entitled 'The use of geochemical survey data for predictive geologic mapping at regional and continental scales'.



40 years ago...

"Assets of the IAMG totaled 5,763.98 Swiss Francs ($1,692.93) at the time of the 2nd General Assembly in 1972. Current assets of the Association at the time of 3rd GA are $8,423.49. Growth in Association's assets has come through member dues, Corporate and Academic member contributions, and royalty payments for Association publications...."

Corporate and Academic members in 1976 were: Exxon Co. USA, Gas Council (U.K.), Kansas Geological Survey, and Kennecott Copper Corp.

There was also an admonition NOT to pay Fleetbooks or other commercial booksellers for Mathematical Geology subscriptions, but only the Office of the Western Treasurer.

IAMG Journal Report

Computers & Geosciences

Jef Caers has stepped down as Co-Editor-in-Chief of Computers & Geosciences. He took over the editorship from Eric Grunsky in 2011 and since 2013 has shared it as co-editor with Michael Piasecki and then Edser Pebesma (2014). He says: "Being in this position since 2011 has been an extremely rewarding experience, including working with a stellar team of associate editors during my tenure. However after 5 years, I believe the time has come for others to contribute, shine a fresh light.

"Together, we had several achievements that I am grateful to look back at: a refining of the scope, hiring of really excellent associate editors and co-Chief Editor (Edzer, thank you!), getting top scientists on the board, introduction of the github platform, almost doubling of the impact factor from 2010-2015."

An excellent successor has been found who has agreed to take over Jef's position. It is Grégoire Mariéthoz, Professor at the University of Lausanne, Switzerland. Together with Co-EiC Edzer Pebesma, the Journal has a great future ahead.

Thank you, Jef!

New Co-Editor-in-Chief for C&G

Grégoire Mariéthoz is replacing Jef Caers as co-editor of Computers & Geosciences. In 2013 Grégoire won the prestigious IAMG Andrei Borisovich Vistelius Research Award.

Dr. Mariéthoz is Assistant Professor at the Institute of Earth Surface Dynamics, University of Lausanne, Switzerland where he leads the research group "Remote Sensing and Pattern Analysis".

Until 2014 he was a research fellow and senior lecturer at the School of Civil and Environmental Engineering, University of New South Wales in Sydney, Australia. He did his graduate work in anthropology and his postgraduate work in geohydrology, both at the University of Neuchatel, Switzerland, finishing with a dissertation on "Geological stochastic imaging for aquifer characterization". He also had a postdoctoral position at the Energy Resources Engineering department of Stanford University.

Grégoire's main research interests are in the development of stochastic methods that characterize the spatial and temporal variability inherent in hydrological systems. He has developed new numerical techniques using high-order, nonparametric statistics which allow using the full richness of modern data sets. His work is at the frontier between Earth modeling and computer science, with a strong emphasis on stochastic models, training images and example-based modeling.

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Simulation of Hydraulic Heterogeneity and Upscaling Permeability and Dispersivity in Sandy-Clay Formations — Veronika A. Bakshevskaia & Sergey P. Pozdniakov

A Geostatistical Definition of Hotspots for Fish Spatial Distributions — Pierre Petitgas, Mathieu Woillez, Mathieu Doray & Jacques Rivoirard

Bayesian Data Fusion Applied to Soil Drainage Classes Spatial Mapping — Sarah Gengler & Patrick Bogaert

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A THANK YOU to our Associate Editor Odd Kolbjørnsen (2010–2015)

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Mathematical Geosciences:

ISI-impact factor for 2015: 1.777 (SJR= 1.562)

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:

2015 Impact Factor: 2.474 (SJR=1.268)

5-Year Impact Factor: 2.540 (SNIP=1.590)

Natural Resources Research:

2015 SJR = 0.457

5 year SNIP: 0.720 (2014); SJR 4y=0.942

Rejection rate: 42%

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

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Practical Incorporation of Multivariate Parameter Uncertainty in Geostatistical Resource Modeling — K. Daniel Khan & Clayton V. Deutsch

Metallic Mineral Resources in the Twenty-First Century. I. Historical Extraction Trends and Expected Demand — Alberto E. Patiño Douce

Comment on “Metallic Mineral Resources in the Twenty-First Century: I. Historical Extraction Trends and Expected Demand” by Alberto E. Patino Douce, in Natural Resources Research DOI: 10.1007/s11053-015-9266-z — Donald A. Singer & W. David Menzie

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Metallic Mineral Resources in the Twenty-First Century: II. Constraints on Future Supply — Alberto E. Patiño Douce

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Conference Reports

Multifractals and singularity analysis in mineral exploration and environmental assessments

It was a nice, sunny Spring day, the 18th of April, when the Session in the annual General Assembly of the European Geosciences Union (EGU) on Multifractals and singularity analysis in mineral exploration and environmental assessments (NP3.4) was held in the large building complex of the Vienna Conference Centre. Due to last minute arrangements the Session was not announced properly in the Conference Programme. Nevertheless, dedicated Mathematical geoscientists knew how to find our meeting place in the Centre. During the Session their numbers grew from some 18 to about 25. The Session consisted of six oral papers and eventually 5 posters as two presentations had to be withdrawn because no visa could be collected on time. Another misfortune was that the poster session coincided with the oral presentations, but upon closure of the oral session participants moved to the big hall where the posters were displayed. These included a poster by Jie Zhao, Wenlei Wang and Qiuming Cheng: Multifractal analysis of the strength of Fe-Cu paragenetic relationships in eastern Tianshan, China; by Qiuming Cheng on Fractal differentiation and integration and implication on singularity analysis of extreme geodynamics; a poster by Frits Agterberg: Can multifractals be used for mineral resource appraisal? Another poster was by Daojun Zhang: Application of spatially weighted Technology for mapping intermediate and felsic igneous rocks in Fujian Province, China. And last but not least Juan J. Martin-Sotoca, Antonio Saa-Requejo, Juan Grau and Ana M. Tarquis had a poster on Segmentation of singularity maps in the context of soil porosity.

Frits Agterberg opened the oral session at 17.30 hrs as the Convenor Qiuming Cheng was unable to attend because urgent affairs dealing with an upcoming large project kept him in China. He introduced Klaudia Oleshko, who's talk was on Fractals for Geo-engineering. Co-authors were María de Jesús Correa López, Alejandro Romero, Victor Ramírez and Olga Pérez. Among others she held a plead to integrate static and dynamic models in geo-engineering by applying multifractal analyses. She stressed that we cannot work with fractals if we do not know sufficiently about the physics involved. The title of the presentation by the second speaker, Wenlei Wang, also on behalf of Qiuming Cheng, Shengyan Zhang and Jie Zhao was: Mineralization associated geo-processes recognition by multifractal/fractal filtering theory. In his talk he demonstrated how the background values which emerge from the regional geological conditions should be subtracted from the total picture to highlight relevant anomalies. Next, Antonella Buccianti spoke on behalf of her co-authors Stefano Albanese, AnnaMaria Lima, Giulia Minolfi and Bernedetto di Vivo, about Scaling laws and properties of compositional data. She described the results of her studies on data generation in terms of randomness processes in the Campagnia Region, South Italy. Frits Agterberg handed over his position as convenor to Ed de Mulder who introduced Mario Gonçalves of the University of Lisbon. The title of his presentation with Antonio Mateus was: The use of multifractal modelling for targeting resources from soil and stream geochemistry data: the case of the Variscan basement of the Iberian Peninsula. In a series of successive steps he described how resource anomalies become nicely apparent through singularity analysis and multfractal modelling. Next, Francois Landais, presented an interesting paper on behalf of his co-authors Frédéric Schmidt and Shaun Lovejoy on the topography of the four planets Earth, Mars, Mercury and the Moon. He compared differences which become apparent when applying large and smaller scale approaches through fractal modelling. The last oral presentation in this Session was by Enamundram Chandrasekhar, also on behalf Gaurav Siddharth Gairola, with the title: Empirical Mode Decomposition of Geophysical Well-log Data of Bombay Offshore Basin, Mumbai, India. He applied fractal modelling to discern relevant patterns between typical successions in well-logs. All presenters contributed to the success of this Session by their presentations on a wide range of mathematical geoscientific topics which gave interesting and often new views on the application of singularity analysis and (multi) fractal modelling.

Ed de Mulder

William Smith - 200 years of geomodelling celebrated at IAMG

Reviewed in The Geological Society
see: http://www.geolsoc.org.uk/Geoscientist/Archive/May-2016/William-Smith--200 years-of-geomodelling

200 years of Geomodelling: The International Association for Mathematical Geosciences (IAMG) commemorates William Smith and 200 years of geomodelling with the Geological Society London

By Jennifer McKinley, Helmut Schaeben, Carl Watson and Martin Nayembil

The International Association for Mathematical Geosciences (IAMG) commemorated William Smith (23rd March 1769 - 28th August 1839) and 200 years of geomodelling with geological surveys and academics across the globe at the 17th annual conference of the IAMG in Freiberg, Germany from the 5th to 13th September 2015. The aim of the IAMG is to promote the use of mathematics, statistics and geoinformatics in the geosciences. The annual IAMG conference is an opportunity for geoscientists to collaborate with mathematicians and statisticians and present their recent work. The 17th annual IAMG conference, with 300 participants from across the world, differed from previous IAMG conferences in that it included a special 'Day of Surveys' to acknowledge 200 years of science and methodologies to construct maps.

The local organising committee (chaired by Professor Helmut Schaeben, Dr Raimon Tolosanna Delgado and Professor K. Gerald van den Boogaart) and the IAMG strategic steering committee welcomed Geological Society of London sponsorship for this session. Representatives of geological surveys from different parts of the world were invited to exchange new developments, theories and concepts about 3D modelling.

Speakers from across Germany, France, Switzerland, Denmark, the Netherlands, China and the UK, presented their recent work in digital geomodelling techniques and communicating state of the art geological data models. Topics included 3D structure modelling; the issue of map projection; static and dynamic modelling; building folded stratigraphic horizons in geomodelling; uncertainty identification; the concept of fractal density in geomodelling; tetrahedral and voxel modelling approaches, data models and data architectures that support modelling and knowledge driven approaches for urban modelling.

The day began with a keynote address by Ian Jackson, former Chief of Operations and Director of Information at the British Geological Survey. In recognising the revolutionary role that William Smith's extraordinary map, published two centuries ago, has played in geological science. Ian reminded us that Smith produced maps to provide a practical economic benefit and emphasised the role of geological surveys to produce maps for geological interpretation. Since Smith's first map in 1815 there has been a considerable change in technology and printing.

Jackson described how geologists have 3D models in their heads. He reminded us that the Abington sheet was the 'first digital map' but it wasn't until the late 1980s and 1990s that geological surveys started to embrace geographical information systems (GIS) and develop database approaches to managing and delivering geoscientific information.

The question posed was how are geologists now exploiting digital technology? The use of GIS for spatial analysis and presentation of the data has enabled an increasingly professional approach to data management. 2D maps are no longer sufficient with 3D models frequently used and developments towards 4D to represent time varying processes. Huge amount of progress has been made. Now vast areas of the world have been mapped with increasing resolution and sophistication. There is now widespread and innovative use of technology. Jackson's concluding remarks asked how much progress have we made and what is the broader world's view of us, as geologists, geoscientists and geomodellers?

The IAMG's response to this challenge was to invite geological surveys across Europe and internationally to engage in a session on Communicating Digital Geomodels-methodologies and challenges as part of the Day of the Surveys. Presentations covered topics as broad as updating geomodels, knowledge-driven and data driven gemodelling, event-based geomodelling, accessing and reducing 3D structural uncertainty, validation strategies, querying and interacting with geomodels and interoperability. The Geological Society of London funded contribution was presented by Carl Watson from the British Geological Survey.

Carl explored integrating commercially generated data into centralised geoscience data repositories for the benefit of urban environments a topic he champions as part of the COST action Sub-Urban, a European network of Geological Surveys, Cities and Research Partners working together to improve how we manage the ground beneath our cities. The role of data modelling in a modern Geological Survey was explored by Martin Nayembil.

Martin presented the case of BGS's development of data models, vocabularies… for its diverse geoscience information required for spatial visualisation and geomodelling and the development of a flexible and robust data architecture to support its scientific research and the creation of geoscience products and services.

As an effort to bring together both scientific and business endeavours to meet these challenges, the IAMG invited companies producing 3D geomodelling and mining software to present and exhibit their latest achievements to a public audience. Companies participating were Geovariances, GeoVisionary, GiGa Infosystems, Midland Valley, Mira Geoscience, and Rasdaman.

So what are the future opportunities? Jackson's challenge was to improve at sharing our ideas and knowledge, engaging with the world at large to avoid the risk of the geological community losing relevance and economic support. In short we need story tellers as well as researchers to allow practical geology to enrich society.

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

URTeC 2016, Unconventional Resources Technology Conference (by AAPG, SPE and SEG), San Antonio, Texas, **1-3 August 2016**. http://urtec.org/2016

79th Annual Meeting of the Meteoritical Society. Berlin, Germany, **7 - 12 August 2016**. http://www.metsoc-berlin.de

ISEH 2016 and Geoinformatics 2016. Galway, Ireland, **14 - 20 August 2016**. http://www.nuigalway.ie/iseh2016

33rd International Geographical Congress. Beijing, China, **21 - 25 August 2016**. http://www.igc2016.org/dct/page/1

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

15th European Conference on the Mathematics of Oil Recovery (ECMOR XV) Amsterdam, Netherlands, **29 August - 1 September 2016**. http://www.eage.org/event/index.php?eventid=1416&Opendivs=s3

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

GEOBIA 2016 Solutions & Synergies. Twente, The Netherlands, **14 - 16 September 2016**. http://www.geobia2016.com/

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/

SEG International Exposition and 86th Annual Meeting Dallas, Texas, **16 - 21 October 2016**. http://seg.org/events/annual-meeting

AAPG/EAGE/SEG/SPE The Knowledge Management Challenge, Abu Dhabi, United Arab Emirates, **16 - 17 November 2016**. http://www.eage.org/event/index.php?eventid=1478

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

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AAPG 2017 Annual Convention & Exhibition, Houston, Texas, **2-5 April 2017**. http://ace.aapg.org/2017

GISTAM 2017: 3rd International Conference on Geographical Information Systems Theory, Applications and Management, Porto, Portugal, **27-28 April 2017**. http://www.gistam.org

XVIth International Conference Geoinformatics, Theoretical and Applied Aspects, Kyiv, Ukraine, **15 - 17 May 2017**. http://www.eage.org/event/index.php?eventid=1502

79th EAGE Conference & Exhibition 2017, Energy, Technology, Sustainability - Time to open a new Chapter, Paris, France, **12 - 15 June 2017**. http://www.eage.org/event/index.php?eventid=1488

WSC 2017 International Statistical Institute, 61st ISI World Statistics Congress, Includes meetings of the Bernoulli Society, etc., Marrakesh, Morocco, **16 - 21 July 2017**. Information: ISI Permanent Office, P.O. Box 24070, 2490 AB The Hague, The Netherlands. Phone: +31–70–3375737, www.isi2017.org/

2017 Joint Statistical Meetings, Baltimore, MD, USA, **29 July - 3 August 2016**. http://www.amstat.org/meetings/jsm.cfm or phone toll-free (888) 231- 3473

SIAM Conference Mathematical and Computational Issues in the Geosciences (GS17) Erlangen, Bavaria, Germany, **11-14 September 2017**. http://www.siam.org/meetings/gs17/

IAMG2017 Annual Meeting, Perth, Australia, **2 - 9 September 2017.** iamg2017@arinex.com.au, http://www.iamg2017.com

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

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RFG 2018 Resources for Future Generations by International Union of Geological Sciences (IUGS), Vancouver, Canada, **16-21 June 2018**. RFG2018.org. (IAMG is one of a dozen Partner supporting this conference)

GeoENV2018, Belfast, **27 June–1 July** or **4–8 July 2018**

IAMG2018 50th Anniversary Meeting, Olomouc and Prague, Czech Republic, **2 - 8 Sept. 2018**

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18TH ANNUAL CONFERENCE

IAMG2017

2-9 SEPTEMBER • PERTH, AUSTRALIA

IAMG2017 will provide a venue for the presentation of research and development in mathematical geosciences in the form of oral and poster presentations at the Esplanade Hotel, in Perth's historic port city of Fremantle, in Western Australia. We will be inviting researchers to submit abstracts via our abstract submission web portal. We also welcome proposals for short courses and workshops associated with the conference. There will be exhibition space available for geoscience related industries to showcase recent technological developments, including software. The economy of Western Australia relies heavily on its mineral and energy resources and we particularly urge related industries to participate in this conference and support research.

We welcome students and young scientists to the conference. In order to attract their participation we will be offering short courses targeted specifically at early career researchers as well as prizes for outstanding student presentations.

When not attending scientific sessions, there is always plenty to do in Fremantle. Ideally located between the Swan River and the coast, Fremantle hosts markets, an arts centre and art galleries as well as maritime museums and the historic Fremantle prison. It is also a popular location for eating out, offering a plentiful choice of restaurants and cafes. There is a wide variety of accommodation to suit all budgets from luxury hotels to backpacker style. Fremantle is approximately one hour drive from Perth International Airport.

Organising Committee:

- Oktay Erten, Western Australian School of Mines, Curtin University
- Ute Mueller, Edith Cowan University
- June Hill, Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Mark Jessell, University of Western Australia
- Eric Grunsky, University of Waterloo, Canada
- Erkan Topal, Nazarbayev University, Kazakhstan; Western Australian School of Mines, Curtin University

Information on the conference will be posted on our website as it becomes available: www.iamg2017.com

For questions, please contact us at: iamg2017@arinex.com.au

TECHNISCHE UNIVERSITÄT
BERGAKADEMIE FREIBERG

Die Ressourcenuniversität. Seit 1765.

Zertifikat seit 2014
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W2 Professorship Geoinformatics / Geomathematics
(Successor Univ. Prof. Dr. habil. Helmut Schaeben)

at the Faculty of Geosciences, Geoengineering and Mining is to be filled at the earliest possible date.

Within the German-speaking area, the unique characteristics of Geoinformatics at the TU Bergakademie Freiberg are its explicit orientation towards Geosciences and Geoengineering. Its vision is to establish digital geomodels as the standard communicational means. Thus, modeling spatio-temporal multi-dimensional geodata with respect to access, analysis, and communication is the main focus of research as well as the development of mathematical models for three-dimensional geomodeling of the subsurface as a function of time. These methods aim at the numerical identification and forecast of relevant geophenomena and processes (geosimulation, geoscientific computing, uncertainty quantification).

The successful applicant will cooperate with neighboring disciplines in teaching and research within our university, at home and abroad. She/he will teach graduate and undergraduate courses in German and English and will participate in the general teaching activity of the institute. Work experience abroad is considered advantageous. She/he will be actively engaged in the development and acquisition of research programs, the academic self-government, and a broad field of geoscientific activities within the faculty.

The applicant must meet and fulfill the general prerequisites for an appointment as a Professor in accordance with §58 Sächsisches Hochschulfreiheitsgesetz dated January 15th, 2013 (Sächsisches Gesetz- und Verordnungsblatt 2013 sheet No. 1, page 3) in its currently valid and applicable version. The university provides active support by furnishing child care and in mediating appropriate job positions for the partner or spouse. The TU Bergakademie Freiberg pursues an instructional and research concept that expects the successful candidate to move his or her main residence to Freiberg or its immediate vicinity.

TU Bergakademie aims at increasing the percentage of women in teaching and research. Qualified female scientists are thus particularly encouraged to apply. Applicants with disabilities will receive preferential consideration, provided they possess equal qualifications.

Please send your written application including the usual documents and a digital backup to the **Technische Universität Bergakademie Freiberg, Dezernat für Personalangelegenheiten, Akademiestr. 6, D-09599 Freiberg**

For any questions, kindly address the Deans office of the Faculty of Geosciences, Geoengineering and Mining; attn. Prof. Dr. Carsten Drebenstedt (dekan@fggb.tu-freiberg.de; phone +49-3731-392059; http://tu-freiberg.de/fakultaet3).

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