

IAMG

Newsletter

No. 81 December 2010

Official Newsletter of the International Association for Mathematical Geosciences

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The IAMG meeting in Budapest attracted a select group of scientists. Of 124 registrants 114 attended the meeting on the modern campus of the Eötvös-Lóránd University on the bank of the Danube River to listen to four keynote lectures and some 90 talks (including eight by students) and view about 20 posters on display in the hall. Winner of the Student Best Presentation Award was Malte Knoche of the IAMG-Freiberg student chapter. The participants came from 30 countries, with Hungary, USA, China and Russia making up about 44% of the total, and 38% from the rest of Europe. The conference opened with the usual icebreaker on Sunday evening and culminated with an outing to one of the famous puszta horse ranches for a show of riding performances, music, and a great dinner. You can see pictures of some of the people and events on pp. 6-7 of this issue.

From the Editor
From the Editor
From the Editor

Nominations requested for 2011 IAMG Awards !

The Association invites all members to submit nominations for the **Felix Chayes Prize** and for

the **Andrei Borisovich Vistelius Award**

Deadline: January 31, 2011

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

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

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

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

Nobody gets an award without a nomination, so please support your colleague when you believe he/she deserves an award by submitting a nomination. Nominations can be submitted by a single person or by a group of persons supporting the same nominee. The Laudatios written over the last few years and published in *Mathematical Geosciences* are a good source of inspiration on how to write a nomination. Nominations can be submitted via e-mail and sent to:

Jef Caers - Chairman, IAMG Awards Committee
Stanford University
Dept. of Energy Resources Engineering
367 Panama St.
Stanford, CA 94305-2220 - USA

E-mail: jcaers@stanford.edu

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

At the Board meeting in Budapest several changes were discussed and voted on. Graeme Bonham-Carter was approved as new Chairman of the Publications Committee. He replaces Michael Ed. Hohn who has ably chaired this committee for 10 years. Graeme is of course no newcomer: he was Editor in Chief of *Computers & Geosciences* from 1996 to 2005 (as well as President 2000-2004). Thanks, Mike, for a job well done, and welcome Graeme! Vera in her President's Forum discusses some of the other Board decisions.

On the masthead (p.2) you will see a new address for the IAMG Office. The contract with the E&M office in Kingston, Ontario, has been cancelled and a new structure to handle membership and official business was put in place during the summer and fall of this year. The official address is Houston, Texas, where our Secretary General is located. However, most of the membership business (database, billing, membership dues, etc.) is handled in Freiberg, Germany, by Regina van den Boogaart through our new membership website (iamgmembers.org). This website is directly linked from the main IAMG website - just click on "Member Services" on the upper left, and you land on that website. The main page of interest is called "Community Services" where you can find the membership roster and various discussion forums. Since it is for members only, you will have to login with a user name and password. For those who want to register and become members there is a registration page that also lets people subscribe to journals or buy books and proceedings online. We thank Dan Tetzlaff and Regina for designing and creating this great new website.

Harald S. Poelchau

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PRESIDENT'S FORUM

The worldwide financial crisis seems to remit and, up to now, IAMG has survived without damage. In that sense, 2010 has been a successful year for us. There is also good news concerning the internal life of our association. Following a serious discussion about the problems with our office in Kingston, and about the different alternatives we had to solve them, we have moved to a new office, located in Freiberg, Germany. The new office is a fully dedicated IAMG office, not shared with any other organization. This is the first time in IAMG's history that the Association has its own office. We have also a new membership website. The forum of the web will be, hopefully, very useful for all of us. We count on your understanding and your help in getting the new office running, especially with respect to correcting the errors which might be in the database, concerning addresses, e-mails, and even membership. We also would appreciate it a lot if you could try the registration and payment through the web, use the forum, initiate discussions that might be of interest to all our members, and let us know any bug or any possible improvement you might detect. An improvement of our services will benefit us all!

In 2010, we had our annual meeting in Budapest, organised by János Geiger and his team. It was a really good and interesting meeting, and we could enjoy the contributions and discussions, as well as the wonderful city of Budapest and the horse riding show before an abundant dinner. As is tradition in our association, we had this year two awardees: Lawrence Drew, from the US Geological Survey, who was awarded the Krumbein Medal, and Ana Fernández Militino, from the Universidad Pública de Navarra (Pamplona, Spain), who received the John Cedric Griffiths Teaching Award. Both gave interesting talks. Larry spoke about „The creation of a mathematical geologist”, Ana about „Interfacing statistical teaching and geostatistics”. The George Matheron Lecturer was Donald Allen Singer, from the US Geological Survey, who spoke about „Solving the wrong resource assessment and exploration problems precisely”. This year's Distinguished Lecturer and Editor of Mathematical Geosciences, Roussos Dimitrakopoulos, from McGill University (Montreal, Canada) gave a talk about „High-order Geostatistics: Simulating complex, non-Gaussian geological and environmental phenomena”, and Amílcar Soares, from the Instituto Superior Tecnico (Lisboa, Portugal), was presented as our next Distinguished Lecturer. You should use the chance to invite him to your university or lab!

You are reading the 2010 second issue of our Newsletter thanks to the excellent work of our newsletter editor, Harald Poelchau. It is an excellent piece of art! Our journals are doing very well, which is not a surprise given the personal dedication of the editors, Roussos Dimitrakopoulos for Mathematical Geosciences, Eric Grunsky for Computers & Geosciences, and Keith R. Long



for Natural Resources Research. The Council has approved several resolutions. The last one was a one-time one-year free IAMG membership for first authors of papers in our journals, but there have been other issues going on. One aspect which we had no time to discuss during the council meeting was the proposal of setting up a Public Awareness Committee. Finally, the election of Faisal Shazad, from the Student Chapter in Freiberg, Germany, as Public Awareness Representative of IAMG was decided. You will soon find him in virtual networks, like Facebook and the like!

I am also very proud of announcing that the Council approved a new Honorary Member in the person of Walther Schwarzacher. Walther has dedicated all his life to the Geosciences, and especially to Mathematical Geosciences centered in Repetitions and Cycles in Stratigraphy. It is worthwhile to read his CV (p. 4), an excellent example of the evolution of a Mathematical Geologist, and a model to follow for new generations. I hope we meet him next year in Salzburg (Austria), his home country, where IAMG'2011 is being organised.

Student Chapters continue their activity; there are already nine, and the tenth application is under discussion! But we need the active participation of all our members to motivate them. You can find the different Student Chapters on our web, under "Student Affairs". Every chapter has a link to their own webpage. Have a look, and let us know your impression! It is very important, because our members have the right and the duty to check if the association is putting the money we have in the right place to fulfill our mission!

On October 20, 2010, I appointed the following commission to assist the Archivist in setting guidelines for the handling of printed and electronic material in the IAMG archive:

- Graeme Bonham-Carter (Chair)
- Dan Merriam
- Eusebi Jarauta-Bragulat
- Frits Agterberg (President's representative)

I hope to see soon their conclusions on what to do with the archive we have in Graeme's basement!

I would like to use this Forum to call for your participation in nominating candidates for our awards. In Salzburg we will award the Felix Chayes Prize and the Andrei Borisovitch Vistelius Award. Do you know a good candidate? Submit your nomination!

My best wishes to all of you for a pleasant and successful year 2011!

Vera Pawlowsky-Glahn

Letters to the Editor

From the IAMG birth-place Prague

In 2011 the Jubilee Mining Příbram Symposium will be organized at Příbram (50th year), including the 11th international session of GEOETHICS. It might be interesting to organize at that occasion also the 20th session on Mathematical Geology. There is not at all any intention to concur with the general main stream of ideas as represented by the official IAMG annual conferences. Hannes Thiergartner has suggested for this possible Příbram meeting a small sub-section about the question "What is MATH GEOL, where it came and where it will go?". Here we could discuss the development up to now and try to forecast the next years. This could be interesting for us "old fellows" (e. g. all still active founding members of IAMG, past presidents etc.) and for leading younger colleagues in this field. It is a philosophic, science-historical and ethical circle.

It might be useful to take such a meeting – in case of a sufficient interest – under the umbrella of the IAMG, especially when such a section will be co-organized with one about geoethics (under the umbrella of the Association of Geoscientists for International Development - where I have the honour to serve as Vice-President for Europe and Head of the Working Group for Geoethics).

Another specific reason can be taken into consideration: I hope that the year 2018 will bring again the whole community of the IAMG to Prague to celebrate its Golden Anniversary in the IAMG birth-place. For strategic purposes some renewed liaison with the country could be useful as well and also some new local people may be attracted in advance to help in the future with the Jubilee conference.

At Příbram we continue in the tradition of relatively low budget meetings. The term of the Jubilee Symposium has been already given: October 10-14, 2011. Regularly issued GEOETHICS NEWS are accessible at http://tierra.rediris.es/Geoethics_Planetary_Protection/.

To summarize: In case of your interest to (re)visit in October 2011 Příbram (and Prague) for reminiscences and friendly discussions about history and achievements of mathematical earth sciences and perhaps also to learn something about new trends in geoethics be so kind to reply (especially prior to the end of this year) to my home address lidmila.nemcova@quick.cz with copies to the office of the Mining Příbram Symposium Secretary marcinikova@DIAMO.CZ; dolezalova@diamo.cz .

Vaclav Nemec

IAMG founding member and "Eastern Treasurer" (1968-1980, 1984-1996)

What do IAMG members do that is relevant to IAMG's mission? Based on presentations at the IAMG's meeting in 2009 at Stanford, a significant proportion seem to be involved in geostatistical applications. What else are members involved in? It would be interesting to survey the categories of applications. Perhaps that has already been done, but I haven't heard of it. Anyway, past surveys would likely be out of date, given that mathematical applications in geology and related geosciences seem to be continually evolving, rising and falling in popularity. So here are my two-cents:

First, I'm presently not involved in anything that would seem directly relevant to IAMG's current mission, although I am working on my memoirs which, among other things, include a history of nearly four decades of mathematical applications at Stanford, from the early 1960s through the late 1990s. Early in this period, the applications were mostly analytical, including trend-surface analysis and factor analysis applied to stratigraphic issues. Later the applications focused on simulating sedimentary processes. During the past decade, however, other than working on the memoirs, I've mostly been involved in the oil and gas business, with virtually no focus on mathematical applications. Times change.

John Harbaugh

Association Business

Walther Schwarzacher - IAMG's Latest Honorary Member

Walther Schwarzacher is a charter member of IAMG, a Krumbein Medalist, and published a paper in the first issue of the Journal of Mathematical Geology. Although he did not attend the organizational meeting in Prague in 1968, he has been associated with the Association since the beginning serving on the Council in 1976-80.



Walther was born in Austria in 1925, educated at the University of Innsbruck where he worked with Prof. Bruno Sander studying geology, geophysics, and mathematics. He obtained his PhD in 1949. This relationship led to his interest in carbonates and fabric and structure of sedimentary rocks. He had a postdoctoral scholarship for two years at Cambridge University in England in 1949-51 where he worked with Prof. Percival Allen. It was here that his interest in mathematics and statistics was piqued. He became

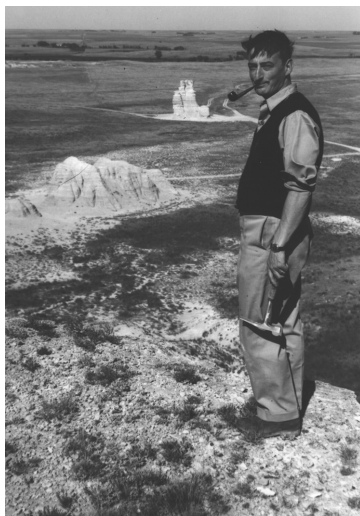
interested especially in the application of time-series analysis to rock sequences and geological events.

In 1951 he joined the faculty at Queen's University in Belfast, Northern Ireland, where he taught sedimentology and stratigraphy. He retired in 1991 with emeritus status. During this time he published on repetitions and cycles in stratigraphy, quantitative stratigraphy, models for the study of stratigraphic correlation, use of Markov chains in the study of sedimentary cycles, and simulation of rock sequences. His books, *Sedimentation Models and Quantitative Stratigraphy* (1975) and *Cyclostratigraphy and the Milankovitch Theory* (1993), both published in Elsevier's 'Developments in Sedimentology' series have been well received. A brief summary of some of his work appeared in *Earth-Science Reviews* under the title of *Repetitions and Cycles in Stratigraphy* in 2000.

In 1967-68 he was a Visiting Research Scientist at the Kansas Geological Survey at the University of Kansas, Lawrence, a Visiting Research Professor at the University of Indiana in Bloomington in the summer of 1970, and Visiting Professor of Geology at Syracuse University in Syracuse, New York in 1975. He has taught courses not only in the US but in Germany and his native Austria as well as many short courses in other countries. He is married to June and they have two boys Wally and Martin.

It is highly appropriate that the IAMG recognize this internationally recognized scientist with a Honorary Membership in the Association.

*Dan Merriam
IAMG Historian*



New IAMG Distinguished Lecturer for 2011

Dr. **Amilcar Soares** is a Professor at the Instituto Superior Técnico in Portugal and he is also head of the Centro de Modelização de Reservatórios Petrolíferos at IST. He has been extremely active in promoting mathematical geology, worldwide, particularly geostatistics, since the 1980's, and he is one of the world leaders in applying geostatistics in environmental engineering with recent work on characterizing desertification and making considerable impact on applications to practical problems, not just in theoretical developments. Dr. Soares has also organized one of the Geostat Congresses and two of the geoENV conferences and has been an IAMG member for many years.



More information can be found on the web pages of Centro de Modelização de Reservatórios Petrolíferos:

<http://cmrp.ist.utl.pt/>

Anyone interested in hosting a DL visit at their institution, please contact the Chairman of the DL Committee, Sean McKenna, at: samcken@sandia.gov

Member News

Prof. Dr. **Jan Harff** has been honored with the Serge von Bubnoff Medal by the DGG (Deutsche Geologische Gesellschaft). The photo shows Werner Stackebrandt of DGG on May 20, 2010 presenting Harff with the medal at the University in Greifswald. Harff is presently doing research on a scholarship at the University of Szczecin, Poland.



The GeoUnion Alfred-Wegener-Foundation has awarded the Karl-Heinrich-Heitfeld Prize (which includes a cash prize of 10,000 Euro) to Prof. Dr. **Maria-Theresia Schafmeister**. This award honors her contributions to groundwater modeling and especially her promotion and support of young scientists who are interested in the application of mathematical and geostatistical methods to groundwater pollution and environmental risk assessment. Schafmeister is Professor for Applied Geology and Hydrogeology at the Ernst-Moritz-Arndt University in Greifswald, Germany.



Foto: Jan Meijers Schmidt, Universität Greifswald

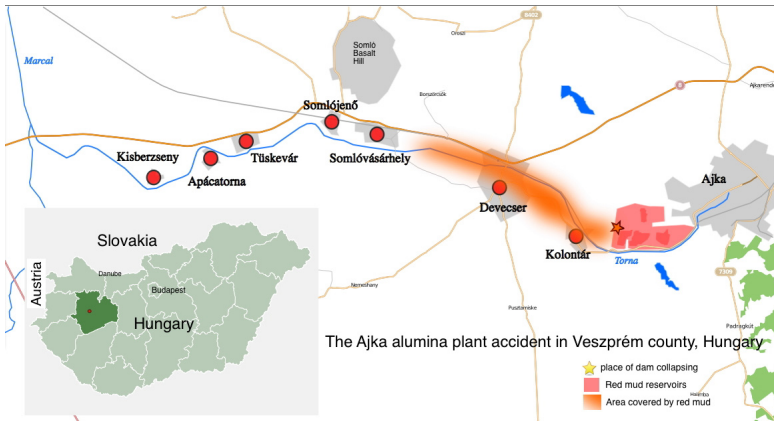
IAMG Member **Sean McKenna** led a joint team from Sandia National Laboratories and the US Environmental Protection Agency (EPA) that recently received an R&D 100 Award for the CANARY software. The R&D 100 Awards are given annually by R&D Magazine to recognize the "100 most technologically significant products introduced in the past year." CANARY is designed to connect to existing monitoring networks through an existing SCADA system to provide real-time identification of anomalous conditions from multivariate signals. It integrates a number of algorithms for time-series forecasting, data fusion and multivariate pattern recognition to accurately detect anomalous conditions while reducing false positive results. The main application to date has been online analysis of water quality monitoring data to detect contamination events within water distribution networks. Additional information on CANARY including software downloads and documentation is available at: <https://software.sandia.gov/trac/canary>

Danie Krige was elected in October 2010 as a member of the U.S. National Academy of Engineering in Washington, D.C. He is the first and only engineer to receive this especially high honour as a South African and a citizen of the African continent. He is a Foreign Associate of NAE in the Primary Section in Earth Resources Engineering.



Red mud catastrophe in Hungary

On October 4, 2010 the dam of the No.10 red-mud reservoir of the Ajka alumina plant collapsed on its northwestern corner. 600-700,000 m³ red-mud spilled out with waves of 1-2 meter height, killing 9 and injuring 122 people, flooding the village of Kolontár and part of the town of Devecser (Figure 1). Many houses were damaged or ruined. An area of about 40 km² was affected. The Torna and Marcal rivers were contaminated and all life extinguished in them. This is the biggest environmental catastrophe in the history of Hungary.



The aluminium industry is important in Hungary, because of large bauxite resources. The bauxite is processed to alumina in the alumina plant of Ajka, in western Hungary. The red mud is a waste of the Bayer-type alumina production. The red mud of the Ajka plant contains 40-45% Fe₂O₃, 10-15 % Al₂O₃, 10-15 % SiO₂, 4-5 % TiO₂. The iron content is in the form of hematite giving the mud its red colour. It contains caustic soda in varying amounts. The pH of the mud is generally 13, with a range of 11-14. I have to stress that the media news about the high radioactivity and high heavy-metal element content of the Ajka red mud are not true.

The Ajka alumina plant started its production in 1942. Its present capacity is 300,000 tons alumina/year. The plant has been privatized in 1997. From the beginning – 1942 – up to these days about 30 million m³ of red mud was produced. Subsequently, ten reservoirs were constructed to the west of Ajka city on a flat surface. The walls of the reservoirs were strengthened by slag of a nearby power plant. The groundwater level is only 1 to 4 meters below the reservoirs, with a slow groundwater movement in westerly direction.

A high-level state commission is investigating the reasons of the catastrophe, but so far no statements have been published. My personal opinion is that walls of the No.10 reservoir were not strong enough. The particularly high amount of rain in the last months certainly contributed to the catastrophe. I am convinced that an up-to-date, careful risk analysis could have alerted the responsible officials about the existing and slowly growing danger. Thus the red-mud spill could have been avoided by adequate technical steps. I strongly believe in the growing importance of risk analysis all over the world and in the growing role of IAMG in these activities.

George Bárdossy

Student Affairs

Nancy Student Chapter

In October 2010 some of the board members have changed; our president is now **Florent Lallier** and our webmaster **Gautier Laurent**.

Newest IAMG Student Chapter in The Netherlands

A group of students at ITC (ISCI) of the University of Twente under the leadership of **Xiaogang Ma** has formed the latest IAMG affiliated Student Chapter.

Their new Website is <http://sites.google.com/site/isciatitc/home>

Conference Reports

On IAMG and AGU

In the past years, it has become a tradition that the IAMG organizes an exhibition booth at the annual Fall Meeting of the American Geophysical Union.

The AGU Fall meeting, while convened by the “American Geophysical Union”, is long recognized as an international meeting (for instance, travel funds may be obtained from funding agencies of others countries, e.g., Deutsche Forschungsgemeinschaft), as the meeting attracts a growing number of scientists (over 15,000 last year). Most people find one cannot afford to not go. The number of international participants (as opposed to US+Canada) is very large and keeps growing.

There is typically a fall meeting in San Francisco and a spring meeting in Baltimore. More scientists tend to go to the traditional fall meeting (although it is always very shortly before Christmas). More importantly, the fall meeting also has the disciplines that IAMG member’s research is most closely related to, and that is closest to the IAMG mission and interests.

Since we (IAMG) are a small organization by number of members compared to the much larger AGU, I find it important that we are recognized by the AGU community, and the fall meeting is the best opportunity to accomplish that. Our best assets are our journals, whose impact is much larger than the comparatively small number of members and those running the journals may indicate. In a world where publications are important at every aspect, informing others about possibilities of publications is worth a lot. IAMG journals are particularly attractive since there are no page charges, and the journals are well-known, high-quality and quite fast at publication. Of course, the meeting provides opportunities to gain new members (who join directly at the meeting or take IAMG membership forms with them to join later). I view a presence at a meeting very valuable - it brings IAMG a lot of visibility, increases membership and contributions to our journals. As I write this note (which emerged from an email exchange with IAMG President Vera Pawlowsky-Glahn) I would like to invite all of you to engage in thinking about ways that IAMG and its members can increase our impact on the course of science.

The 2009 IAMG-AT-AGU booth was organized by myself and Helmut Mayer, with active assistance of student members Bruce Wallin and Ian Crocker. Bruce and Ian are Vice President and President of the IAMG Student Chapter at the University of Colorado Boulder. Over the years, I have been able to develop an excellent relationship with AGU exhibits, which gives IAMG a great spot in the exhibit hall while paying the much lower academic organization’s booth fee. Several IAMG members helped the cause of IAMG by giving some of their meeting time as time in the booth --- all those are thanked. Please let me know by e-mail to Ute.Herzfeld@colorado.edu if you are interested in holding an informal get-together of IAMG members during one of the evenings of the upcoming meeting, and if you would be willing to spend an hour or two helping at the exhibit.

Ute Herzfeld
 University of Colorado Boulder

Quantitative Image Analysis of Minerals & Rocks



in Budapest, taught by Patrick Launeau (extreme right in blue) and Eric Pirard (in orange-red)

We had in total 16 participants for this two days Short Course taught during the weekend 27-28 August 2010 in between the International Mineralogical Association Congress and the IAMG Conference.

Most represented countries were: Belgium, Finland, Germany, Spain, Switzerland, and Hungary.

Eric.Pirard



M. Armstrong & A. Gálli



Chairman Janos Geiger with Zolán Unger, Gabor Gaál



Graeme Bonham-Carter & Qiuming Cheng



Ana Fernández Militina honored with the Griffiths Award

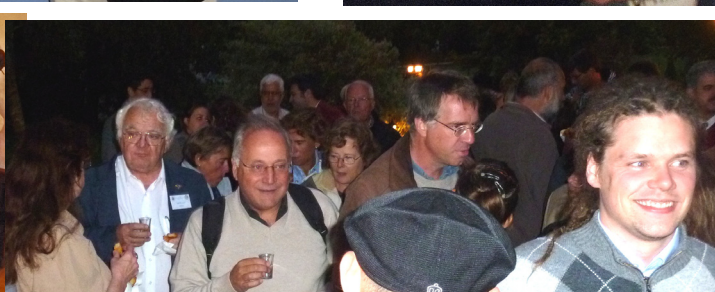


2010 Matheron Lecturer Don Singer

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for Mathematics



29 August – 2 September



Banquet at Domonyvölgy

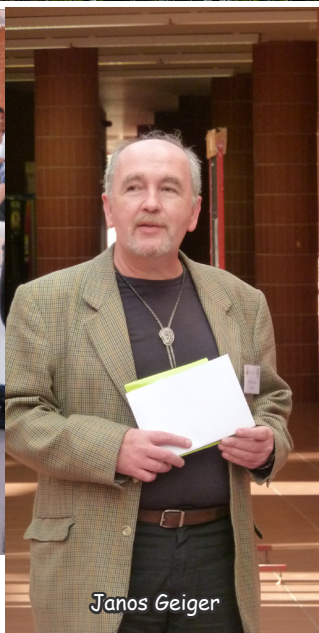




George Bardossy



Gina Ross & Cathy Cheng



Janos Geiger



Larry Drew receives the Krumbein Medal



2010 Budapest
Meeting of the International Association
of Mathematical Geoscientists



September 2010, Budapest, Hungary



Board Meeting back row: E. Pirard, E. Grunsky, H. Poelchau, D. Tetzlaff, K. Long, R. Dimitrakopoulos, Q. Cheng
front row: F. Agterberg, C. Thiar, M. Schafmeister, V. Pawlowsky-Glahn, G. Ross, G. Bonham-Carter

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2009 Best Paper Award





Upcoming Meetings

AGU Chapman Conference on Source to Sink Systems Around the World and Through Time. Oxnard, California, USA, **24 - 27 February 2011**.
<http://www.agu.org/meetings/chapman/2011/acall/>

SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS11), Long Beach, California, USA, **21-24 March 2011**.
<http://www.siam.org/meetings/g11/>

1st Conference on SPATIAL STATISTICS, Enschede, Netherlands, **23-25 March 2011**. <http://www.spatialstatisticsconference.com/>

European Geosciences Union (EGU) General Assembly, Vienna, Austria, **3 - 8 April 2011**. <http://meetings.copernicus.org/egu2011>

AAPG, Annual Convention & Exhibition, Houston, USA, **10 - 13 April 2011**.
<http://www.aapg.org/houston2011/>

GeoInformation for DISASTER MANAGEMENT. Talya Convention Center. Antalya, Turkey, **3 May - 8 May 2011**. ISPRS. <http://www.gi4dm2011.org/>

CoDaWork'11: International Workshop on COMPOSITIONAL DATA ANALYSIS. Sant Feliu de Guixols (Girona), Spain. **9-13 May 2011**.
 Website: <http://congress.cimne.com/codawork11/frontal/default.asp>. Contact: codawork@cimne.upc.edu

GEOINFORMATICS 2011 Xth International Conference "GeoInformatics: Theoretical and Applied Aspects" Kyiv, Ukraine, **10 - 13 May 2011**.
<http://www.eage.org/events/index.php?evp=4859&ActiveMenu=2>

47th Forum on the Geology of INDUSTRIAL MINERALS. University of Illinois. Urbana-Champaign, USA, **15 May - 17 May 2011**.
<http://www.isgs.illinois.edu/sections/indust-min/im-home.shtml>

73rd EAGE Conference & Exhibition incorporating SPE EUROPEC 2011, "Vienna 2011," Vienna, Austria, **23-26 May 2011**. Contact: eage@eage.org,
<http://www.eage.org/events/index.php?evp=3756&ActiveMenu=2>

MODFLOW and More 2011: Integrated Hydrologic Modeling, Colorado School of Mines. Golden, Colorado, USA, **6 - 8 June 2011**.
<http://igwmc.mines.edu/conference/dates.html>

9th International Conference on MILITARY GEOSCIENCES: Desert Warfare - Past Lessons and Modern Challenges, Las Vegas, Nevada, USA, **20 - 24 June 2011**. <http://www.dri.edu/icmg>

2011 JOINT STATISTICAL MEETINGS, Miami Beach, Florida, USA, **30 July - 04 August 2011**. ASA Meetings, Phone: (888) 231-3473, Fax: 703-684-8069, Email: meetings@amstat.org,
<http://www.amstat.org/meetings/jsm/2011/index.cfm>

TSOP-CSCOP Joint Meeting: **Unconventional Resources**, Clean Coal, and Offshore Resources. World Trade and Convention Center. Halifax, NS, Canada, **31 Jul - 4 Aug 2011**. Dr. Prasanta Mukhopadhyay; muki@global-geoenergy.com; Mike.Avery@NRCan-RNCan.gc.ca

INTERNATIONAL STATISTICAL INSTITUTE, 58th ISI World Statistics Congress: Includes meetings of the Bernoulli Society, the International Association for Statistical Computing, the International Association of Survey Statisticians, the International Association for Official Statistics, the International Association for Statistics Education, the Irving Fisher Committee on Central Bank Statistics, the International Society for Business and Industrial Statistics, and The International Environmetrics Society, with an invited session of IAMG, to be held in Dublin, Ireland, **21 - 26 August 2011**. ISI Permanent Office, P.O. Box 24070, 2490 AB The Hague, The Netherlands. Phone: +31-70-3375737, Fax: +31-70-3860025, E-mail: isi@cbs.nl, Website: <http://www.isi2011.ie/>



IAMG 2011, Salzburg, Austria, 5 - 9 September 2011. <http://iamg2011.at/>

ModelCare 2011, The 8th International Conference on Calibration and Reliability in Groundwater Modelling. Organised by Helmholtz Centre for Environmental Research. Leipzig, Germany, **19 - 22 September 2011**. Website: modelcare2011@fu-confirm.de

GSA Annual Meeting "Archean to Anthropocene - the past is the key to the future", Minneapolis, Minnesota, USA, **9 - 12 October 2011**.
<http://www.geosociety.org/meetings/2011/index.htm>

The MINING PRIBRAM Symposium, Pribram, Czech Republic, **10 - 14 October 2011**. Joint meeting of the Working Group for Geoethics established by AGID. Contact: lidmila.nemcova@quick.cz,
<http://www.bgs.ac.uk/agid>

11th International & 2nd North American Symposium on LANDSLIDES. Banff, Alberta, Canada, **2 Jun - 8 Jun 2012**. Association of Environmental & Engineering Geologists, Canadian Geotechnical Society. <http://www.isl-nasl2012.ca/>

2012 JOINT STATISTICAL MEETINGS, San Diego, California, **28 July - 2 August, 2012**

34TH INTERNATIONAL GEOLOGICAL CONGRESS (IGC), Brisbane Australia, **5-10 August 2012**. Includes IAMG symposia and General Assembly. <http://www.34igc.org>

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



The North American Mathematical Sciences Institutes announce a special year of emphasis on the Mathematics of Planet Earth in 2013, interpreted as broadly as possible. Earth is a planet with dynamic processes in the mantle, oceans and atmosphere creating climate, causing natural disasters, and influencing fundamental aspects of life and life-supporting systems. In addition to these natural processes, humans have developed systems of great

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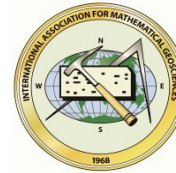
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The Association is looking for entrepreneurial and enthusiastic individuals or organizations willing to organize the fifteenth IAMG conference during the Summer or Fall of 2013. Guidelines regulating the IAMG conferences are posted at <http://iamg.org/index.php/publisher/articleview/fmArticleID/43>

If you have any questions about the system of IAMG conferences or the preparation of the proposal, please do not hesitate to contact the Chair of the Meetings Committee at olea@usgs.gov

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Invited Speakers

We are proud to announce that the following international experts have agreed to speak at the Spatial Statistics 2011 conference:

Peter Atkinson, University of Southampton, UK
Roger Bivand, Norwegian School of Economics and Business Administration (NHH), Norway
Gilberto Câmara, National Institute for Space Research, Brazil
Noel Cressie, The Ohio State University, USA
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Integrative Problem-Solving in a Time of Decadence

This book presents a unique study of Integrative Problem-Solving (IPS) during the current phase of *Decadence* that characterizes every societal aspect (science, education, politics, economics, and culture). It is distinctive in that it integrates sophisticated mathematics and scientific method with philosophical thinking and sociological analysis.

IPS is based on a theory of Epibrainatics that fuses epistemic ideas and principles from brain sciences to develop action-based mathematics for the solution of real world problems under conditions of uncertainty and space-time dependency. To understand IPS concepts and methods, a scientist must be able to consider them from different perspectives (including neuropsychology, physical sciences, philosophy, stochastics, and mathematics), and to interpret and connect them to related concepts and methods. Only by interpolating between the full range of disciplines and the associated thinking styles can scientists arrive at a satisfactory account of problem-solving.

In higher education and research one witnesses what the book terms the "unholy alliance of financial corporatism and radical postmodernism" (undermining tradition, knowledge, language, and achievements of the past, promoting nihilism, and seeking to satisfy lower needs). The consideration of *Decadence* in the book is essential in the realistic study of environmental problems and their rigorous solution, because the broad context within which the problems emerge can affect their solution.

A set of conceptual postulates and the corresponding mathematical operators are introduced. The postulates have an evolutionary flavor, i.e., they evolve as new core knowledge and site-specific data become available. IPS should not only focus on how a solution works (operational component), but also on why the solution works (substantive component). Stochastic reasoning underlines the conceptual and methodological framework of IPS, and its formulation has a mathematical life of its own that accounts for the multidisciplinary nature of *in situ* problems, the multisourced uncertainties characterizing their solution, and the different thinking modes of the people involved.

IPS must be able to distinguish between a scientifically rigorous problem-solution and a solution that has social impact. Problem-solvers should not be isolated within the strict boundaries of technical expertise but possess a wide educational background and constant awareness of the broad environment (social, political, economic, and cultural) within which they operate. In this way they can be more valuable to their scientific fields and more useful to the public, as well.

This book will appeal to readers in a wide variety of disciplines, including environmental science, health-related disciplines, mathematics, philosophy, psychology, and sociology.

Environmental Sciences

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