# IAMG Newsletter

No. 82   May 2011

*Official Newsletter of the International Association for Mathematical Geosciences*

## Contents

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### 2012 IAMG AWARDS
## Nominations requested!
**The Association invites nominations for the following awards:**

### John Cedric Griffiths Teaching Award

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

### William Christian Krumbein Medal

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

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

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

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

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*"Mankind inhabits this earth subject to geological consent — which can be withdrawn at any time".*

*Simon Winchester (in Newsweek 2011)*

The past year has been one of major natural disasters that keep showing us the power of geology, so aptly expressed in the Simon Winchester quote (above). Haiti with magnitude 7 had the deadliest earthquake in several years, Chile with 8.8 the strongest in 2010, topped by Japan in 2011 with 9.0. These were major news events together with tsunamis, landslides, floods, hurricanes, tornados and wild fires. This should remind us how important geology is, and how many of the environmental upsets and changes are a direct or indirect consequence of geological events.

**From the Editor**

Aside from being scared or awed by these occurrences, what the public needs is warnings, information and preparedness to face disasters like these and to remediate the results. Many of the topics and areas of research covered by the IAMG and its members are quite germane to these needs. In fact almost every IAMG conference has had a session on natural hazards and their prediction, especially in conjunction with mapping and GIS. Prediction, mapping, risk assessment are disciplines that belong in the realm of mathematical geosciences. In Salzburg at the IAMG 2011 meeting there are several sections that make that point:

• Geohazard modelling & simulation with sessions on
   Landslide modeling and simulation and on
   Rapid mass movements and simulation

• 2D & 3D geoinformatics and GIS including tunnel documentation

• Rock- and soil mechanics & numerical modelling

• Applied geophysics

• Image analysis, remote sensing

• and much more

These are methods and concepts showing that geology can help protect the public by predicting risk and potential disasters — at least as well as financial advisors can predict the stockmarket or Mo Srivastavan can play the scratch card lottery (see p. 5).

In the past we haven't been effective enough in informing the public about the importance of the geosciences as a basis for decision making and planning. The International Year of Planet Earth (2007-2009), in which IAMG participated, was one such attempt to bring geology more into public consciousness. In 2013 there will be another more specific outreach with the program "Mathematics of Planet Earth", interpreted as broadly as possible, with dynamic processes in the mantle, oceans and atmosphere creating climate, causing natural disasters, and influencing fundamental aspects of life and life-supporting systems. This program will also be linked to the IAMG 2013 conference in Madrid.

As to the Japanese earthquake and tsunami, we are glad and thankful that most of our friends and colleagues in Japan were not affected directly, and we hope that the country will recover soon from this terrible disaster.

*Harald S. Poelchau*

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

## *International Association for Mathematical Geosciences*

**IAMG Office** (official address)

5868 Westheimer Rd. # 537

Houston, TX 77057,   U. S. A

E-mail: support@iamgmembers.org

Tel. Messages: +1-832-380-8833
Fax: +1-800-983-1346

### Officers

*President*:  **Vera Pawlowsky-Glahn**,
Universitat de Girona, Dpt. D'Informatica i Matematica Aplicada, Campus Montilivi P4, E-17071 Girona, Spain, Tel: +34 972 418 170, fax +34 972 418 792, E-mail: president@iamg.org

*Executive Vice President*:  **Qiuming Cheng**,
Dept. of Earth and Space Science and Engineering,
York University, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada, Tel: +1 416 736 2100 (Ext: 22842), Fax: +1 416 736 5817, E-mail: qiuming@yorku.ca

*Secretary General*:  **Daniel M. Tetzlaff,**
Schlumberger-Information Solutions, 5599 San Felipe, Ste 1700, Houston, TX 77056, USA, 713-513-2182,
E-mail: danieltetzlaff@aol.com

*Treasurer*:  **Gina A. Ross**,
IAMG, c/o Gina Ross, PO Box 442504,
Lawrence, KS 66044-8939, USA, Tel: +1 785 842 6092,
E-mail: gr_iamg@hotmail.com

### Committee Chairs

*Awards Committee*: **Jef Caers**
Stanford University - Dept. of Energy Resources Engineering
Green Earth Sciences Bldg., Stanford, CA 94305-2220, USA
Tel: 650-723-1774, Fax: 650-725-2099
E-mail: jcaers@stanford.edu

*Curriculum Quality Committee:*  **Maria-Theresia Schafmeister**
Institut für Geol. Wissensch., EMAU Greifswald, F.-L.-Jahn-Str. 17a, D-17487 Greifswald, Germany, Tel: 49 3834 864592, Fax: 49 3834 864572, E-mail: schaf@uni-greifswald.de

*Distinguished Lecturer Committee*:  **Sean McKenna**
Technical Staff, Geohydrology Department,
Sandia National Laboratories, P.O. Box 5800 MS0735,
Albuquerque, NM 87185-0735, USA,
Tel: 505-844-2450, Fax: 505-844-7354,
E-mail: samcken@sandia.gov

*Meetings Committee:* **Ricardo Olea**
U.S. Geological Survey, 12201 Sunrise Valley Drive, MS 956, Reston, VA 20192, USA,
Tel.: 703-648-6414, Fax: 703-648-6419, E-mail: olea@usgs.gov

*Publications Committee*:  **Graeme F. Bonham-Carter**
Geological Survey of Canada,
601 Booth St., Ottawa, Ontario K1A 0E8, Canada,
Tel: +1 613 996 3387, Fax: +1 613 996 3726,
E-mail: bonham-carter@nrcan.gc.ca

*Students Affairs Committee*:  **Helmut Schaeben**
Technische Universität Bergakademie Freiberg,
09596 Freiberg, Germany
E-mail: schaeben@geo.tu-freiberg.de

### Councilors

**George Bárdossy,** (Hungarian Academy of Sciences), 1055.Budapest, V. Kossuth-tér 18, Hungary,
Tel: +36-1-3117-993, E-mail: bar4750[at]iif.hu

**Jef Caers**, Stanford University, Dept. of Energy Resources Engineering, Green Earth Sciences Bldg., Stanford, CA 94305-2220, USA, Tel: 650-723-1774, fax: 650-725-2099,
E-mail: jcaers[at]stanford.edu

**Angela Diblasi**, Universidad Nacional de Cuyo, Mathematics Sarmiento 240, depto. 6, 5500 Mendoza, Argentina, Tel: 54261-4295-814, E-mail: angelad[at]uncu.edu.ar

**Eric Pirard**, Université de Liège, Département GeMMe-MiCa Géoressources Minérales, Sart Tilman B52/3, B-4000 Liège, Belgium, Tel: 32 41 66 95 28, fax:+32 41 66 95 20,
E-mail: eric.pirard[at]ulg.ac.be

**Christien Thiart,** University of Cape Town, Department of Statistical Sciences, Private Bag Rondebosch 7700, South Africa, Tel: 27-21-650-3223, fax: 27-21-650-4773, E-mail: christien.thiart[at]uct.ac.za

**Richard Webster**, BAB  Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ, United Kingdom,
Email: richard.webster@bbsrc.ac.uk
Tel: + 44 (0) 1582 763 133 Ext. 2404, Fax: + 44 (0) 1582 760 981

Special IGC Councilor: **E. June Hill**,
CSIRO, CESRE, PO Box 1130, Bentley. WA Australia 6102,
Tel: +61 8 6436 8651, fax: +61 8 6436 8555,
E-mail: June.Hill[at]csiro.au

### Editors

*Computers & Geosciences*:                                    **Eric Grunsky**
Geological Survey of Canada, Natural Resources Canada,
601 Booth St., Ottawa, Ontario K1A 0E8, CANADA,
Tel: +1 613 992 7258, E-mail: egrunsky@iamg.org

*Mathematical Geosciences:*                  **Roussos Dimitrakopoulos**
Department of Mining, Metals and Materials Engineering,
McGill University, Montreal H3A 2A7, Canada,
Tel: +1 514 398-4986, E-mail: roussos.dimitrakopoulos@mcgill.ca

*Natural Resources Research*:                        **Keith R. Long**
Western Mineral Resources Science Center,
U.S. Geological Survey - DeConcini Building,
520 North Park Avenue, Room 355, Tucson, AZ 85719, USA
Tel: 520-670-5512, Fax: 520-670-5113, E-mail: klong@usgs.gov

*IAMG Monograph Series*                  **Jo Anne DeGraffenreid**
P.O. Box 353, Baldwin City, KS 66006-0353, USA,
Tel: +1 785 594 6624, E-mail: msdeg@mchsi.com

*IAMG Newsletter and Website*                  **Harald S. Poelchau**
10773 Lanett Circle, Dallas, TX 75238, USA, Tel: 214-221-1080,
E-mail: hsp.iamg@inbox.com

### Historian

**Dan F. Merriam**, Kansas Geological Survey, University of Kansas, 1930 Constant Avenue, Lawrence, KS 66047, U.S.A., Tel: (785) 864-2127, Fax: (785) 864-5317, E-mail: dmerriam[at]kgs.ukans.edu

### Archivist

**Graeme F. Bonham-Carter**, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario K1A 0E8, Canada, Tel: +1 613 996 3387, Fax: +1 613 996 3726, E-mail: bonham-carter@nrcan.gc.ca

## PRESIDENT'S FORUM

When this issue of our newsletter arrives in your hands, it will be almost a year since we met in Budapest at the Annual Meeting. During this year a big disaster has hit Japan. Fortunately, as far as we know, none of our members there has suffered any harm. You can find a link to pictures on our website and some information in our Forum. Our solidarity is on their side!

At the meeting in Budapest we informed you that our office in Kingston, Canada has been closed, and the new office address is in Houston (Texas). Regina is doing most of the work in Freiberg, Germany. The internal situation of IAMG has stabilised, our new office is doing an excellent job, all the problems with addresses, membership, and subscriptions that have been detected have been solved, things are running. This is not only due to the rigorous efforts of Dan Tetzlaff, and of Regina, who is in charge of the new office, but also to the collaboration and understanding of all our members. Thanks to all! This does not mean that there are no problems anymore, but with your continuous support I am convinced we will solve them satisfactorily. Thus, if you are aware of any aspect that requires our attention, let us know! You can also talk to Regina, who will attend the IAMG meeting in Salzburg. It will be an excellent chance to make her acquaintance.

The usual activities of IAMG have been running to full satisfaction. In Salzburg, you will have the chance to meet this year's winner of the Felix Chayes Prize for Excellence in Research in Mathematical Petrology, Istvan Dunkl, from the University of Göttingen (Germany), and the winner of the Andrei Borisovich Vistelius Research Award, Olena Babak, from the University of Alberta (Canada). I want to acknowledge the good work of our Awards Committee and of all our members who sent in nominations. We had quite a few excellent candidates. I hope this continues to be so every year! Our Matheron Lecturer this year will be B S Daya Sagar, from Bangalore (India), while the 2012 Distinguished Lecturer has yet to be decided while I write this note. You will also have the chance to meet in Salzburg our Honorary Life Member, Walther Schwarzacher. My congratulations to all honorees for this well deserved recognition.

The Meetings Committee has proposed to accept the bid of the group at the Spanish Geological Survey (IGME) in Madrid for IAMG 2013, and we anticipate a meeting that should be organised in an excellent manner. The organisation of the IAMG sessions at the IGC in Brisbane is also well under control. We can look forward to well organised meetings and sessions. The scientific part is up to all those who attend, so do

your best! The Curriculum Quality Committee has given support to a short course on Compositional Data Analysis, planned for July 2011 at the University of Girona, Spain. IAMG has organised a special session at the ISI meeting in Dublin. Following a proposal by the Publications Committee, the IAMG Council has nominated Boyan Brodaric and Jef Caers to alternately occupy the position of Editor-in-Chief of Computers & Geosciences for two years at a time, starting with Boyan Brodaric in July 2011. Brodaric and Caers are taking over from Eric Grunsky who has held the position since 2006 and is finishing his five year term in July. Thanks Eric! You have done an impressive job!

An important decision has been made recently by the Council in establishing Conflict of Interest Guidelines, which can be viewed on our website, so that all persons involved in tasks with IAMG can read them. The US tax law requires that, as a not-for-profit organisation, all IAMG officials and volunteers acknowledge reading the guidelines and agree to adhere to them.

The weak points in our activities right now are the student chapters and the start-up of our public awareness activities. They will be the focus of our attention during the next months.

Last but not least, I would like to mention that Professor Zhao celebrates his 80th birthday this year and has been made our newest Honorary Life Member. Our colleagues in China have prepared two one-day workshops to be held on May 22 in Wuhan and May 25 in Beijing on "Mineral Resources and Sustainable Development". Twelve members from outside China are invited and will attend the workshop. Among them are Dr. D. Singer from the USGS, Dr. T. Shoji from Japan and Dr. F. Agterberg from Canada, as well as several colleagues from Russia. Our vice-president, Dr. Qiuming Cheng, as well as our past-president, Dr. Frits Agterberg, will attend the entire event. It will be a formal celebration to be held by the China University of Geosciences both in Wuhan and Beijing. Our warm regards and best wishes for a happy birthday for Professor Zhao!

All this has been possible without too much concern for our financial situation, which is quite stable despite the crisis and the decline of the dollar, thanks to the good work of our Treasurer, Gina Ross, to the hard work of our Secretary General, Daniel Tetzlaff, especially in getting the new members website working, and to our Vice-President, Qiuming Cheng. Together with the good work of all our committee-members, the editorial boards of our journals, our Newsletter editor and the head of our office, our association is getting stronger from day to day.

*Vera Pawlowsky-Glahn*

## Letter to the Editor

### WHAT'S THE ULTIMATE OBJECTIVE?

Where is all this focus on geomathematics, geology, and geophysics leading to in an industrial context? Here let's limit the focus to those in the oil and gas exploration and production (E&P) side of things. In major oil companies, for the most part, workers in these fields focus on their particular disciplines. If an exploration prospect or play is devised, it is usually presented to exploration managers who work closely with savants that provide the financial and legal aspects relevant to the play. After all, it's a specialist's world. But, what about the geologists or geophysicists who depart major companies to join the "independents" where the specialists' trades aren't so distinct? Under these circumstances, Joe Geologist or Josie Geophysicist may also focus on the financial aspects, contrasting the investment in a play with the spectrum of outcomes that can be forecast, both good and bad. The effects of loss often tend to be

major issues. Clearly, the ultimate objective is financial, and it needs to be considered in terms of the company's ability to sustain potential losses in its desire for financial gains. More specifically, the ultimate objective is to make money within in the company's ability to accept losses so as to maximize the money earned. It's an optimization process. Can it be formalized?

So, while geology, geophysics, and geostatistics are important, in an industrial context they are subsidiary to the ultimate objective of maximizing profits. The question is whether academic training in these fields should also provide background in formalized financial procedures? I would argue that it ought to be considered. Perhaps this is an issue for the IAMG?

*John W Harbaugh*

# Association Business

## Professor Zhao Pengda chosen as IAMG Honorary Life Member

Prof. Zhao Pengda celebrated his 80th Birthday at the end of May. Since he has been China's foremost geoscientist for many years, he was honoured at special festivities first in Wuhan and then in Beijing. These events included symposia to be attended by many mathematical geoscientists because Prof. Zhao also is the father of mathematical geology in China. As President of China University of Geosciences and Member of the Chinese Academy of Sciences, he has continually furthered mathematical geoscience in many ways in China and abroad. His many former students include Wen Jiabao who became the sixth Premier of China in 2003. From 1980 onward, Prof. Zhao has helped to arrange for many Chinese research scholars and graduate students to study at universities outside China, and he has invited numerous mathematical geoscientists to visit China beginning with Dick McCammon and Richard Sinding-Larsen.

Born in Qingyuan, Liaoning Province in 1931, Prof. Zhao graduated from the Geology

*Zhao Pengda with his wife Zhao Yunfang*

Department of Beijing University in 1952 whereupon he was appointed as assistant to teach in the newly founded Beijing Geological Institute. Two years later he was sent to Moscow, USSR, as a postgraduate student. He studied methods of mineral exploration under the supervision of Prof. A.A. Yakren at the Geological Institute obtaining his PhD in 1958. The title of his dissertation was "The geological characteristics and methods of exploration for stockwork type tin and tungsten deposits". In 1960 he was appointed Associate Professor at the Beijing Geological Institute, which became the Wuhan College in 1975 after its move to Wuhan. Dr. Zhao attained the rank of full professor in 1980 and was appointed President in 1983. In 1987 the China University of Geosciences (CUG) with campuses in Wuhan and Beijing was formed with Prof. Zhao as its President, a position he retained until 2006, the year he was honoured as an outstanding administrator in China.

In 1990, Prof. Zhao became the fifteenth recipient of the William Christian Krumbein medal awarded for his original contributions in the field of mathematical geology, service to our profession and support of IAMG activities. Early on, he used the binomial frequency distribution to predict success rate of boreholes drilled in complex ore bodies using different spacings. In 1983 he published the book "Statistical Prediction for Mineral Deposits" written with two co-authors. His list of scientific publications contains over 100 entries. In addition to authoring or co-authoring a number of books, Prof. Zhao was the editor or co-editor of several Conference Proceedings including those for the international workshop on "Statistical Prediction and Assessment for Mineral Deposits" held in Wuhan in 1990, to which twelve IAMG members from outside China had been invited to participate. This workshop also resulted in a special issue of Mathematical Geology (vol. 24, no. 6, 1992) entitled "Mathematical Geology in the People's Republic of China".

*Frits Agterberg*
*Geological Survey of Canada, Ottawa*

## Griffiths and Chayes Awards for 2011

Dr. **Istvan Dunkl** is this year's winner of the Felix Chayes Prize for Excellence in Research in Mathematical Petrology. Dunkl is a research fellow at the Institute for Sedimentology & Environmental Geology at the Geoscience Center, University of Göttingen. His award follows that of his colleague Hilmar von Eynatten also of Göttingen who was the winner of the same award in 1997. Istvan received his education in Hungary at Eötvös University in Budapest and Technical University of Miskolc and worked in Graz and Tübingen before coming to Göttingen. His research interests include provenance studies and thermochronology of sedimentary basins using fission track, geochemistry and other methods.

The winner of the Andrei Borisovich Vistelius Research Award for a young geomathematician for 2011 is Dr. **Olena Babak** from Calgary, Alberta. She is a Geostatistics Specialist with Total E&P Canada Ltd. and Adjunct Assistant Professor in the Faculty of Engineering at the University of Alberta in Edmonton working with Clayton Deutsch. Babak holds degrees from Iceland, Lviv, Ukraine, and the University of Alberta in Mathematics, Statistics, and Geostatistics. Her research interests include Geostatistics and Spatial Data Analysis (Spatial Interpolation, Multivariate Stochastic Simulation, Uncertainty Assessment and Risk Analysis as well as Hypothesis Testing for Spatially Correlated Data); Statistical Theory (Multivariate Statistics, Regression, Theory of Estimating Functions, Time Series Analysis) and Applied Mathematics. Olena has been a member of the IAMG Student Chapter of the University of Alberta and served as Secretary General.

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## B. S. Daya Sagar is 2011 Matheron Lecturer

The Georges Matheron Lecturer Committee with Chairman Qiuming Cheng has chosen Dr. **Behara Seshadri Daya Sagar** of the Indian Statistical Institute in Bangalore to deliver the Matheron Lecture at the IAMG Annual Meeting in Salzburg. He is an Associate Professor and his research interests are in applications of fractals, multifractals, mathematical morphology and 1-D maps to deal with various aspects of geomorphic and geophysical phenomena.

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## IAMG gives first accreditation to CoDaCourse

The Curriculum Quality Committee has recommended the accreditation of the "Course and Open Seminar on Compositional Data Analysis" held by the research group CODA-RSS (Statistical analysis of COmpositional DAta and other data with Restricted Sample Space) which is based at Universities of Barcelona and Girona in Spain, and whose spokesman is Dr. José Antonio Martín-Fernández, University of Girona. The group has presented its concept including a sound course structure. The relative large number of lecturers (10) provides a wide range of different experiences in the field of compositional data. All lecturers are well known members of the scientific community and therefore warrant the high level standard, for which the IAMG stands.

The next CoDaCourse will take place July 4-8, 2011 – see
http://www.compositionaldata.com/

IAMG offers accreditation of courses in the broader sense of Mathematical Geosciences in general (e.g. Statistics for Geoscientists, Spatial/temporal modeling, Geostatistics, etc.). Universities or other educational institutions which provide such courses may apply for an IAMG accreditation which allows them to state this fact in course flyers, prospectuses, web pages or other publicity material and to use the IAMG logo in this material. Maria-Th. Schafmeister of Greifswald University, Germany, is the Chair of the Curriculum Quality Committee. For more info look under "Committees" on the iamg.org website.

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# June Hill to replace Simon Cox as IGC Councillor

**Simon Cox** has resigned from his position as Councillor of the IAMG. I thank Simon for his participation during these years, and for his openness in recognizing that he would not be able to continue to fulfill his position effectively.

According to our bylaws, his position must be filled (until the end of his original term, which is in September 2012) by a candidate elected by majority vote of the Council from appointments made by the President. The President has appointed Dr. E. June Hill as a candidate to replace Simon and the Council has confirmed the appointment. Simon was the "representative from the host country for the next International Geological Congress" specified by our Statutes, so it is fitting that the proposed replacement is also from the same country.

Simon himself has recommended June Hill and, through informal conversations, has indicated that he will coach her initially if she is confirmed. June works with Simon at CSIRO. She has already attended an IAMG Council meeting as a non-voting invited person, at Stanford in 2009, on the request of Simon who was unable to attend. She has been active in many other IAMG conferences.

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

In 2000-2004, a change in focus led her to complete a MSciEng at the University of Western Australia (UWA) in pattern recognition while teaching at Edith Cowan University and UWA. Since 2004 June has worked for CSIRO in Perth, initially in the Petroleum division looking at methods to characterise the geology of petroleum reservoirs using syntactic pattern recognition (Geosyntax). She currently works in the Computational Geoscience group at CSIRO mainly in the areas of data integration for mining applications and building of 3D geological models.

*Dan Tetzlaff*

# Conflict of Interest Guidelines

Following the advice of the accountant who handles IAMG tax returns, IAMG Treasurer Gina Ross has requested to institute a set of Guidelines to avoid Conflict of Interest in order to comply with the U.S. Internal Revenue Service (IRS - the federal tax authority of the U.S.) requirements for nonprofit organizations and continue our status that exempts us from federal tax. Gina has obtained a set of legally acceptable samples for such guidelines and, after several discussions the Council has adapted them to the IAMG and voted to approve them. The guidelines apply to Council members, committee members, employees, and volunteers who are a party to a contract, or involved in a transaction, for goods or services, with the International Association for Mathematical Geosciences. The Policy will have to be acknowledged annually by the IAMG officers, etc., regardless of where they live. The Guidelines and the Disclosure Form can be viewed on the iamg.org website under "Info about IAMG" - "Guidelines".

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# Member News

**Ian Jackson** is now retired from his position as British Geological Survey Chief of Operations. He will, however, be still working one day per week on his major digital mapping project "OneGeology".

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HRH The Princess Royal and Ian Jackson at the William Smith

**Tim Coburn** will become the director of the graduate program in Global Energy Business at the University of Tulsa (Oklahoma) as of August 2011. He is currently serving as Mesa Petroleum Endowed Professor of Statistics and Management Science at Abilene Christian University (Texas).

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**Sean McKenna** brings to our attention an article about member **Mohan Srivastava** on how to beat the lottery: "Cracking the Scratch Lottery Code" by Jonah Lehrer in the February 2011 issue of the online Zine "Wired".

Mo was given some cheap scratch lottery tickets and started thinking about how the winning numbers or pattern are generated automatically by some computer algorithm. He actually figured out that the problem was solvable and therefore that the game was flawed - not a pure random luck system. The article relates how the system to discover the winning tickets works, and how he tried to convince the lottery company of the problem.

Mo with some scratch tickets

Read all about the rest of the story. It is now available online at: http://www.wired.com/magazine/2011/01/ff_lottery/all/1. How often does a geostatistician make the popular press!

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# Student Affairs
## New IAMG Student Chapter at Szeged

Szeged University in Hungary has been approved as the newest IAMG Student Chapter. Their very well designed website is at http://www.oslenytan.hu/en/. This is the English language version (although some items still require some knowledge of Hungarian).

IAMG has seven currently active Student Chapters:
- China University of Geosciences - Wuhan, China
- Freiberg University of Mining & Technology, Germany
- Sun Yat-Sen University - Guangzhou City, China
- University of Colorado at Boulder, Colorado, USA
- ENSG-Nancy University - Nancy, France
- ITC (ISCI), University of Twente - Enschede, The Netherlands
- Szeged University, Hungary

## Student Grant Awarded

**Samantha Hayes** of Southern Illinois University at Carbondale has been awarded an IAMG Student Research Grant for 2010. She is working on mapping and dating landslides on Santa Cruz Island.

## Prof. Eric Pirard at IAMG Student Chapter at ITC

Prof. Eric Pirard of the University of Liège visited ITC, University of Twente on Jan. 20-21, 2011.

With the invitation of the IAMG Student Chapter at ITC (ISCI), Eric gave a guest lecture titled "From remote to intimate sensing of minerals and rocks" on his first day at ITC, which was well received by around 50 ITC students and staff members. The lecture was chaired by Prof. Freek van der Meer. Prior to Eric's lecture, Mr. Xiaogang Ma, the ISCI chair, gave a short introduction to IAMG and ISCI.

On the next day, ITC organized a small workshop themed "Geological remote sensing", which provided a platform for both Eric and ITC Staff to exchange results and experiences of their latest studies and discuss potential cooperations. After the workshop, Eric visited the geosciences laboratory at ITC.

# Conference Reports

## Fluid Geochemistry School in Siena

The International School of Fluid Geochemistry was held in Abbadia S. Salvatore, Siena (central Italy) from 21 to 24 September 2010. About 30 students participated. The school was sponsored by the University of Florence, the Italian National Research Council, the Italian Geophysical and Volcanological Institute and the International Association for Mathematical Geosciences (IAMG).

The main aim of the meeting was to discuss the genesis of natural fluids and their effects on the surficial environment. Particular attention was devoted to modelling and computational problems.

*Antonella Buccianti*



## The Statistical Analysis of Compositional Data

The Instituto Geológico y Minero de España (IGME = Geological Survey of Spain), www.igme.es, held this four-day training course (25th to 28th of October 2010) as part of its strategic program for training its researchers and technicians. The teachers were Vera Pawlowsky-Glahn (Universidad de Girona), Juan José Egozcue-Rubi and Raimon Tolosana-Delgado (both from Universidad Politècnica de Cataluña). There were 25 participants from different research areas of the Geological Survey. The coordinator was Eulogio Pardo-Iguzquiza (IGME).



Geological Survey of Spain at Madrid & Geomining Museum at IGME



*"God does not throw dice"* Albert Einstein
*joachim-czichos.de*

## IAMG at AGU 2010

The Fall Meeting of the American Geophysical Union (AGU) is worldwide the largest meeting in the Earth Sciences, hosting over 18000 participants at the December 2010 convention held at the Moscone Center in San Francisco, California. The AGU meeting has long become an international meeting. The International Association for Mathematical Geosciences was represented through an exhibition booth, organized by Ute Herzfeld. Helmut Mayer deserves many thanks for helping with booth setup



and dedicating much of his time at the meeting to the IAMG exhibition. At the booth, IAMG displays our three journals, Mathematical Geosciences, Computers & Geosciences and Natural Resources Research, the Newsletter, information on IAMG and any new books or materials members wish to have presented. Since I have been organizing the booth for many years now, the booth has advanced to a really good standing with the AGU exhibition organization, which gives our booth an excellent spot on the exhibit floor — this year our booth was located right across from the central large booth of AGU itself and close to the NASA booth, where many educational shows are held. This gave us excellent traffic, and we gained more new members than any previous year. "Old" members like to stop by and talk or renew their membership. While membership is a valuable aspect of the IAMG exhibit, visibility at the AGU meeting may be considered the biggest asset for IAMG. Many people stop by to get information about our journals, as publication is naturally a significant part of any scientist's existence, and subsequently submit papers to IAMG journals. It is vital for IAMG that the Earth Science community notices what IAMG does and has to offer to geophysicists.

Notably, we are paying only the academic showcase rate for this excellent location, while most other booths in this category are located in the margins of the huge exhibit hall. Further cost-saving measures on our part include transportation of booth furniture and exhibition materials to San Francisco and hand-carrying everything into the exhibit hall. A photo of the IAMG booth is seen in the figure (we were too busy with the meeting to take a photo during the week, so this is taken Friday evening during take-down.)

Ute Herzfeld convened a special session on Non-Differentiability, Non-Continuity and Roughness of Earth Surfaces in the Non-linear Geophysics Section of AGU, which was joined with the Turcotte Award session. Invited speakers were Shaun Lovejoy, McGill University, and Qiuming Cheng, York University, Toronto. In the Cryospheric Sciences section, I convened a session on Connecting Observations and Modeling of Glacial Change, a topic that presents interesting challenges for geomathematicians, in analyzing satellite, airborne and field observations from new Earth observing instrumentation, in developing realistic models of the Earth systems, and now, in connecting these two different approaches. Invited speaker here was Ralf Greve, Hokkaido University, Sapporo, and posters and talks were held in Innovations in Observing and Modeling the Cryosphere.

*Ute C. Herzfeld*

# Landmark Quantitative Geological Publications, Part II

by Dan Merriam, IAMG Historian

In Part I of this series we explored six quantitative geological books written in the 1960s and five of them published before 1970 (Merriam, 2010). Here, we will explore a book published in 1966 and the others in the early 1970s and these also can be considered landmark publications.

In 1966, F. G. Smith at the University of Toronto published his book on *Geological Data Processing*. The book is an introduction to mathematical geology and statistics used by geologists along with an introduction to computing and computer programming. There is an extensive reference list of those books providing a background to the subject. There are many computer programs presented for the reader to study and use, all written in Fortran IV. The author notes in the Preface that 'The purpose of this manual is to help students in geology to develop a wider working knowledge of mathematics by discussing a number of relatively simple practical topics in various stages between abstract theory and real computer programs.'

The John Harbaugh and Graeme Bonham-Carter book on *Computer Simulation in Geology* was published in 1970. They hoped it would serve as a combination textbook and reference work advancing the 'systems viewpoint' in geology. After an introduction, they deal with mathematical and computational tools followed by applications to geological problems. They include an appendix on the solution of simultaneous linear equations. Harbaugh spent most of his professional career at Stanford University and Bonham-Carter worked with Harbaugh there and later taught at the University of Rochester before going to the Geological Survey of Canada. The book was defiantly ahead of its time and formed the basis for some of their later work.

*Statistical Analysis of Geology Data* is the title of George Koch and Richard Link's 1970 book. Koch is an economic geologist, who taught at the University of Georgia, and Link is a statistician; they had a decade of working together before writing this book. The book was originally issued in two volumes and later combined in a Dover Publication reissued in 1980. They note in the Preface that '...the purpose of this book is to explain some effective statistical procedures for the analysis of geologic data...' Volume 1 is concerned with univariate statistical methods and sampling and variability of geological data. Volume 2 deals with multivariate statistical methods, problems in applied geology, and electronic computers and geology. Their examples are mostly from economic geology, structure, and petrology.

Paleontologists and paleoecologists who work with quantitative data have long used statistics to analyze their data. Richard Reyment, who taught for many years at Uppsala University in Sweden captured many of the techniques and methods used in his book on *Introduction to Quantitative Paleoecology* published by Elsevier in 1971. Reyment had been involved with mathematics for many years and was instrumental in founding the International Association for Mathematical Geology at the IGC meeting in Prague in 1968. For his work he has been designated as the 'Father of the IAMG.' This book contains a plethora of information on the subject, introducing the reader to statistics and orientation analysis, to solving paleoecological problems of the environment, population dynamics and fossil assemblages. The book also contains statistical tables and computer programs written in Fortran. The book is an introduction to the subject.

In 1973 John Davis published his landmark book *Statistics and Data Analysis in Geology*. The book has been widely used as a text as an introduction to the subject. The book has gone through three editions as of now, the second in 1986 and the latest edition in 2002. His rationale for writing the book is aptly stated in the Preface: 'My reasons for writing this book are very simple. I teach the techniques of data analysis to Earth scientists, both students and practitioners...' He notes that the topics covered are necessary for the underpinning of geologic data analysis and indeed they are. Subjects in the book include computers and programming, elementary statistics, matrix algebra and analysis of sequences, maps, and multivariate data. Davis was a long-time member of the Kansas Geological Survey at The University of Kansas and was Chief of Geological Research, later designated as Mathematical Geology. He has retired but continues to be active.

Frits Agterberg, Head of the Geomathematics Section at the Geological Survey Canada until his retirement, published his tome *Geomathematics* in 1974 as Elsevier's Developments in Geomathematics 1. The book provides a mathematical background and geoscience applications '...for advanced geology students, research workers and teachers with an interest in using mathematical techniques for problem-solving.' Subjects covered in the book include a review of calculus, matrices, geometry, and statistics with an extensive bibliography. Along with Davis' book, the Agterberg book provides a year-long introduction to the subject and examples of the applications of geomathematics. These two books now have been in use for almost four decades. For the most part, professional geologists of the 21st century are acquainted with the subject having been introduced to it previously and routinely use these techniques to help solve their problems.

Reference

Merriam, D.F., 2010, Early landmark quantitative geological publications: IAMG Newsletter No. 80, p. 6.

*(to be continued)*
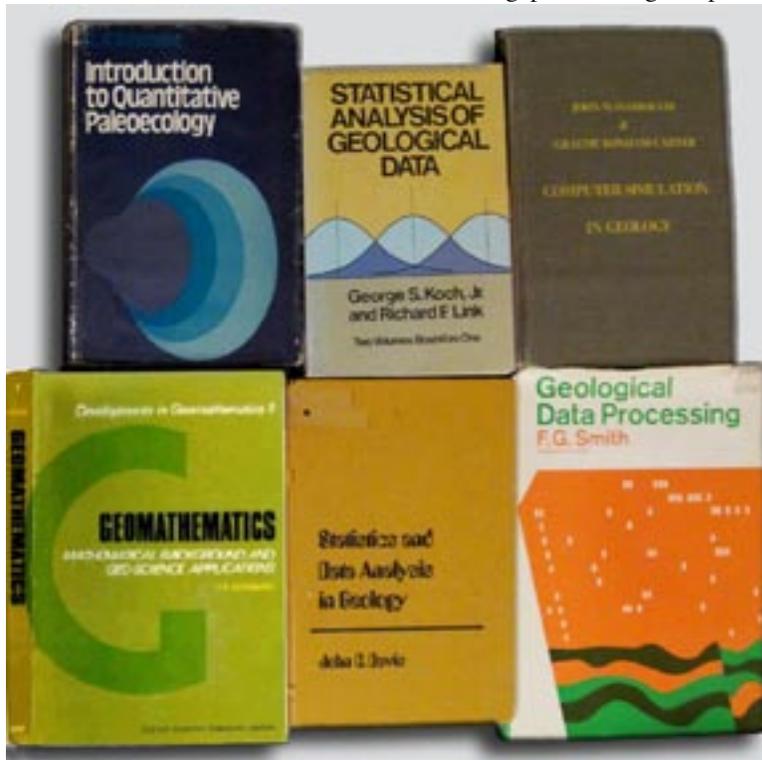
# Missing Laudations

by Heinz Burger

Teaching mathematical geology was a major issue of IAMG since it's foundation in 1968. The first two decades can be characterized by the publication of basic mathematical and statistical methods applied to geological problems (see p. 7). The textbooks of J.C. Davis (Statistics and Data Analysis in Geology) and F. Agterberg (Geomathematics) may be representative for this period. Both textbooks became a standard reference for generations of students. During the 1970s and 1980s research and teaching activities were focused mainly on geostatistics, and Geostatistical Software Library (GSLIB - C.V. Deutsch and A. Journel) became the standard toolbox including software and detailed references to corresponding theoretical foundations. The importance of teaching mathematical geology was emphasized by the installation of the John Cedric Griffiths Teaching Award during the XXX International Geological Congress in Beijing in 1996 and by a series of reports on teaching activities and E-geoscience in Computers & Geosciences (edited by J.C. Butler). The guidelines for the Griffiths Award determine that the laudation of the Griffiths Award winners should also be published in C&G. Unfortunately, two laudations were not published for some unknown reason: Paul Switzer was the winner of the Griffiths Award in 2006, Vera Pawlowsky-Glahn in 2008. Paul represents half a century of research and teaching mathematical geology; Vera has gathered a group of young scientists in Girona who are spreading new concepts in compositional data analysis by offering courses worldwide and by the development and free distribution of software (CoDaPack).

It is worthwhile to read more details about both excellent scientists and teaching authorities. The following two sections summarize the laudation given by Harry Parker (thanks, Harry, for sending the draft of your talk in Liège) and the manuscript of my laudation for Vera sent to C&G in 2008.

## VERA PAWLOWSKY-GLAHN

Vera studied mathematics in Barcelona (Spain), and in 1982 she received her Master's Degree. I met Vera for the first time in 1981 when she attended our annual course on "Mathematical Methods and Models in Geology" at Freie Universität Berlin, and a year later she joined our working group. There developed an increasing demand for her advice on all kinds of mathematical and statistical problems in geology, so she became involved in various research projects supported by the German Research Foundation (DFG) and exploration companies.

As a research scientist Vera did not need to teach – it was her own interest to explain the mathematical and statistical foundation of methods applied for solving complex geological problems. During this period she started to transform research ideas and results into student course material on multivariate statistics, geostatistics and selected topics: hand-outs, scripts, exercises. It was this close connection between research and teaching that made mathematical geology an attractive branch of study not only at our department in Berlin – students from German-speaking countries attended the annual courses and Vera was their preferred advisor. She remained a distinguished guest teacher in our working group even when she returned to Spain.

During her stay in Berlin, Vera started working on her PhD. It was her original idea to combine Aitchison's approach to the analysis of compositional data with geostatistical methods in spatial data analysis. In one of her first publications she analyzed the problem of spurious spatial correlation between variables of constant sum. In 1985 she spent three months at Aitchison's Department of Statistics at The University of Hong Kong and in 1986 she received her PhD from Freie Universität Berlin (supervisor Prof. W. Skala). During the oral defense of her thesis one of our colleagues asked Vera whether she felt more like a mathematician or like a geologist. I don't remember Vera's answer, but the question itself demonstrates that she is a distinguished member of both scientific communities. Vera's profession is mathematics, and geoscience is still her passion.

Back in Spain – first as Profesora Visitante, then Profesora Titular at the Institute for Applied Mathematics (Universitat Politècnica de Catalunya) – Vera gave lectures on mathematics, statistics and geostatistics and established a network of scientists around the world who are interested in compositional data analysis. In 2000 Vera Pawlowsky was appointed to a full professorship at the University of Girona where she built up a powerful group of young scientists who are working on diverse problems in compositional data analysis and are involved in various international joint research projects. She encourages her students to publish their work as soon as possible, and many of their papers are co-authored with her. The group members share various administrative and organizational tasks (e.g. maintenance of the website, development of the CoDaPack software, preparation of workshops etc.); this takes some weight off her shoulders, but her influence remains enormous.

During the past decade Vera and her co-authors (in particular, her life partner, J. J. Egozcue) have made significant progress in multivariate statistics and geostatistics of compositional data based on innovative ideas on appropriate sample space, suitable distance measures and new tools for visualization. These methods can be used not only for data analysis but also for modeling compositional trends in rocks when geological processes are acting on them (e.g. sedimentary transport, diagenesis, metamorphism).

Because of Vera's ability to communicate mathematical concepts to an audience of geoscientists and other fields of science and her ability to give lectures and courses in German, Spanish, Catalan and English she was named IAMG Distinguished Lecturer in 2007. She used this opportunity to teach and promote compositional data analysis at 13 mathematical and geoscientific departments all around the globe.

Vera is thoroughly convinced that scientific conferences must be complemented by short courses and workshops that are attractive for colleagues and students alike. The Girona Group is maintaining a fascinating process of international scientific cooperation, exchange of ideas, working meetings and discussion forums addressing compositional data analysis. The organization of a series of workshops entitled CoDaWork (2003, 2005 and 2008) should also be mentioned here because these meetings, held in a friendly, stimulating atmosphere, demonstrate that Girona is the center of compositional data analysis.

Vera's passion for teaching has led to a new initiative: the European Masters in Mathematical Geosciences. The goal of this project is to build a curriculum primarily for geoscientists aimed at enhancing their mathematical, statistical and computational skills. Six partner organizations in Spain, Italy, Germany, UK and France, all with a long tradition and expertise in these topics, will participate, and the first hurdle on the way to a joint European Masters Degree has been taken.

I do not know how Vera manages this immense scientific output along with her administrative duties and her teaching activities. She has received numerous awards which can make her proud, but I believe that the John Cedric Griffiths Teaching Award for 2008 has made her happy.

*Heinz H. Burger*

## PAUL SWITZER

Geology and statistics are very much similar disciplines, in that both fields involve collection of data or observations and drawing inferences from them. Paul Switzer came to Stanford University in the mid-1960s and was perhaps the first person to hold a joint professorship in Geology (now Geological and Environmental Sciences) and Statistics. This is a position he has held now for 40 years, and many generations of students have benefited from his teaching. I am one of them.

Paul embodies most of the qualities one looks for in a great teacher, and certainly those are the same qualities of John Griffiths, for whom this award was named.

• He taught elementary statistics to undergraduate and graduate geologists alike, generally with no notes, no textbooks – starting with probability theory, then different forms of discontinuous and continuous

distributions, followed by hypothesis testing, statistical inference, and various methods of treating multivariate data. He used a Socratic approach, with the discussion of questions and issues, resulting in conclusions that he would write in chalk on the blackboard, and the student would write down in a notebook. In effect the notebook would become the student's textbook of statistics. Homework sets were rigorous and sometimes challenging learning experiences. Calculus had to be un-rusted on occasion (integration of probability density functions). The student came away with a healthy respect for the use and abuse of his new subject. For example, with sufficient data, one can prove nearly anything is statistically significant. I also recall being whacked on the use of the appropriate number of significant figures to state results.

• He was keenly interested in all aspects of geology, particularly the spatial sampling side. He recognized that most geologists collect samples, make interpretations, and draw conclusions from them. He tackled basic questions like the spacing between observations used to prepare geological maps, and the accuracy of the results. Early on he saw that much geological data are autocorrelated and taught the U.S. Navy how to interpolate bathymetry using what we now know as simple kriging – that was in 1964. With time, he recognized that autocorrelation processes are nonstationary in time and space. He branched out into the environmental arena and became involved with pollution issues.

• His approach to graduate study and research was pretty much the same as that in the classroom. It was very much mathematical geology and not geological mathematics. The student was forced to find his own data, formulate his problem and bring it in for discussion. A simple example was the use of measurements of lengths and widths of brachiopods as a means of separating species, a very real problem in paleontology. Another was the formulation of recurrence intervals between earthquakes as an exponential distribution. These seemed "quaint" to this economic geologist who was interested in copper and nickel distributions within magmatic ore deposits. I was in for a shock when I switched his attention to that problem.

• Discussing a problem with Paul was a voyage of discovery. The student would bring in the data, and explain the geological concepts behind it. Hypotheses were formulated, and then like a tool and die maker, Paul would select a statistical approach to prove or disprove the hypotheses. If there was nothing "in the cupboard" so to speak, this did not faze Paul. He would think about the problem and develop the tool needed. For example, we performed simple kriging on a nickel deposit. Now this deposit had a bimodal distribution for nickel, representing massive and disseminated sulfides. Our kriged estimates had a single mode, smack in the middle between the modes and not at all representative of the deposit. This led to the formulation of conditional probability distributions at sites within the deposit, and one of the first uses of indicator kriging to predict the occurrence of disseminated versus massive sulfides. This was in 1973; what is now called Geostatistics was in its infancy. There was only Matheron's treatise at the time, and few published papers. The tools we now use like Uniform Conditioning and Multiple Indicator Kriging were ten years in the future.

• It was those voyages of discovery that were intense teaching experiences. The student was clearly out in the whitecaps, often bailing his dirty data, and there was Paul, serenely laying out in his cramped left hand the equations needed and tasks required to be completed for the next session. Occasionally the phone would ring, disturbing the peace. I remember one day. Paul used to collect convertibles, the big land yachts of the 50s and 60s, with the fender mirrors out front and the big spare tire mounted at the rear. He sold one to a guy for $400, which represented the buyer's life savings. This was clearly an as-is-where-is transaction. Problem was, ten miles down the road, the engine blew, and the proud new owner wanted his money back. Paul really had no

idea that unfortunate event would occur, but he considered a deal-was-a deal, and caveat emptor was a basic principle. As I recall, Paul promised him half his money back, and we went back to the equations.

One sample is sometimes insufficient, and I wondered whether my experience was representative. In preparing this talk I checked out a few other sources.

This from Zepu Zhang, who worked with Paul on space-time stochastic rainfall modeling from 1999 to 2004:

"I spent five happy years at Stanford, and I attribute a big part of that to the good adviser-advisee relationship. In our weekly meetings, we would immediately start detailed discussions about the model I was working on. Paul really knew what I was doing. He would have good suggestions every now and then, sometimes impromptu, some other times out of thinking on his own time. Other than occasional brief exchanges of laughter, we were very focused. There were never errands unrelated to my dissertation. [He must have discontinued the used-car business.]

"Paul has a high standard for both the idea and the exposition of the work. He did not push; instead, he let me explore freely, assured that he was always there for help. At the end of the journey, almost all the materials that went into my dissertation were developed in my final year, despite some nice ideas early on. Paul made his confidence known after I had demonstrated necessary research capabilities, which indeed is the hallmark of a great teacher.

"In the year following my graduation, we worked on publishing. Paul was involved as before. He did careful editing as a help for me from the viewpoint of a more experienced researcher, and told me this intention in a respectful manner."

This from Ed Isaaks, who coauthored *An Introduction to Applied Geostatistics* in the 1980s:

"Whenever I had a problem that was really bothering me, I used to go visit Paul. He was always available, and helpful. Explanations were lucid and jargon-free."

Finally, this from Pierre Delfiner, a continuous friend of Paul's from the 1970s to the present and coauthor of *Geostatistics: Modeling Spatial Uncertainty*:

"The thing that comes to my mind when I think of Paul is his clear mind. He has a unique way of digesting a problem and reformulating it in such simplicity and clarity that it shows you the light, and you wonder why you hadn't thought about it in this way yourself. In this respect he is the ideal sparring partner to bounce ideas off. With Matheron gone, Paul is the only person whose statistical judgment I fully trust. And since Paul is a very accessible person, the interaction with him is easy and pleasant.

"Paul is a perfectionist. I remember he once taught a class in nonparametric statistics. He advanced the field somewhat by creating new tests (I remember one for spatial independence of data), but he never published his course into a book. I asked him why; his answer was that it was not polished enough.

"As you know Paul had a joint appointment with the Departments of Statistics and Geology. Nowadays statisticians are well aware that to be useful they have to become knowledgeable in some applied discipline, but back in the seventies that was not so obvious. Paul was a precursor. Paul also played an important role, along with Geof Watson at Princeton, to introduce and promote Geostatistics within the academic world in the United States. The first time I met him was at Frascati where he presented a paper on lognormal block grade estimation.

"Paul is also an aesthete. He likes beautiful things, in particular homes, furniture, elegant proofs. He is extremely cultivated, with an interest in history and in different cultures."

In summing up, Paul has been a model teacher in an academic milieu which these days seems overly wrapped up in funding grants and publications. Like John Griffiths, Paul's legacy will likely be in the work of his students, and through their many contributions to the application of statistics to solving geological and environmental problems. It is with heartfelt thanks that I nominated Paul for this award, and I am pleased that the committee on awards has confirmed the nomination.

*Harry Parker*

# Kiyoshi Wadatsumi

1 August 1932 - 3 January 2011

Prof. Wadatsumi, one of the founding members of the IAMG and the father of Geoinformatics, has passed away by a cardiac infarction on January 3rd, 2011.

He was born in Japan, studied geology at Osaka City University, and obtained a BA in 1955 and a MA in 1957. He moved to Himeji Institute of Technology in 1959, and he started studies on the application of mathematics and computers in geology. He obtained a Dr. Sc. in 1966 from Osaka City University for his studies on igneous rock modeling.

In 1968 he attended the symposium entitled 'Mathematical Methods in Geology' within the Section 13: Other Subjects of the 23rd IGC in Prague, Czechoslovakia, where he met many mathematical geologists including Vistelius, Rodionov, Nemec, Robinson, Merriam, Davis, etc. He realized the importance of mathematical geology, and attended the founding meeting of the IAMG, which was held just when the Soviet Army invaded Prague.

He was a member of the Data-Information Committee in the Science Council of Japan in 1973, and organized a special research project on Information Processing of Scientific Data in Geological Sciences in 1974, and published a new Journal 'Geological Data Processing'. He was a member of the ICSU-CODATA and the IUGS-COGEODATA in 1976. In the same year he was invited to Osaka City University as a Professor of Geological Information, and he activated his study with many colleagues and students on geological databases, automatic FT age-determination systems, GIS in geology, theoretical geology, etc.

Under his leadership, the Japan Society of Geoinformatics was established in 1990, and he was elected the first President. The society is promoting the geoinformatics not only in Japan but also in the world, and publishes the journal 'Geoinformatics'. It is a sister association of the IAMG, and he was the Chairman of the Organizing Committee of the 2nd IAMG Annual Conference (Osaka, 1995). The term 'Geoinformatics' was originally defined by this society, and it is widely accepted in the world. I am honored to call him the Father of Geoinformatics.

After the shock by the Hanshin-Awaji Earthquake on 17 Jan. 1995, he was also interested in earthquake prediction. In the next year he moved to Okayama University of Science, and started the study on the variation of aerosol Radon-Thoron nuclide as a indicator for earthquake prediction. After retirement in 2004, he established the NPO e-PISCO to continue his study, and was elected its president.

As cited above he was very serious and active for science which was supported by his faith as a pious Christian.

*Niichi Nishiwaki*
*Nara University, Japan*

# 35 Years Ago (News Letter No. 6)

Centenary of Pioneer Geomathematician:

Rudolf Gottlieb Viktor Eigen (1833-1876) is remembered by all mathematical geologists for his elucidation of the matrix properties that bear his name. Less well known are his pioneer mathematical investigations of glacial topology that distinguish him as possibly the true "father of mathematical geology." Eigen was born in the Austrian mountain village of Heiligenblut, the second son of a local pastor and, following a brilliant student career at the University of Göttingen, became the youngest professor of mathematics in the history of that illustrious university. The stocky young professor was highly popular with his students although his stringent academic demands earned him the nickname of "Eiger" (ogre). Eigen's somewhat bohemian lifestyle resulted in conflict with the university authorities and ultimately led to his enforced resignation following a scandal that rocked the university and purportedly involved no less than five professors' daughters. The embittered Eigen returned to Heiligenblut and singlemindedly devoted himself to his second love of mountaineering. The mathematician eked out a modest living by acting as mountain guide for rich Victorian climbers and supplemented his income by delivering invited lectures to mathematical societies in England and France. Eigen was acquainted with many of the prominent European mathematicians of the day, including Charles Dodgson ("Lewis Carroll") who may have used him as the inspirational basis for the Alice character, "the White Rabbit." The Austrian was also a gifted amateur chess player who drew with Morphy in an exhibition match in Paris, using a highly unorthodox opening (still known as the "Eigen Gambit") that anticipated Réti's hypermodern school by some fifty years. Eigen published little and is chiefly remembered for his monumental "Überbrückungschlusse der Zahlen" (out of print for many years) and his fragmentary and vituperative correspondence with Cayley (originator of matrix algebra). Eigen's life was prematurely cut short when he fell to his death in a crevasse on the Pasterzen glacier following a successful ascent of the Gross-glockner. On the centenary of his death, a bronze plaque will be unveiled at a bend of the Hochalpenstrasse overlooking the Pasterzen. The plaque's inscription commemorates the distinguished mathematician's achievements and will include mention of Eigen's pioneer geomathematical studies. Would IAMG readers familiar with other biographical details or possessing memorabilia of Prof. Eigen please send this information to the Office of the Western Treasurer for transmittal to the Rudolf Gottlieb Viktor Eigen Memorial Committee.

# Upcoming Meetings

**IAMG 2011:** Mathematical Geosciences at the Crossroads of theory and practice, Salzburg, Austria, **5 - 9 September 2011.** http://iamg2011.at

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

Essentials of GEOSTATISTICS. University of Calgary, Alberta, Canada, **13 - 15 June 2011**. http://petroleumetc.com/training/essentials-of-geostatistics/

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

GeoRisk 2011. InterContinental Buckhead Hotel. Atlanta, Georgia, USA , **26 - 28 June 2011**. http://www.georisk2011.org

Extreme events: shaping the surface of the Earth. University of Liverpool, U.K. Organized by the British Society for Geomorphology, **28 - 30 June 2011.** http://pcwww.liv.ac.uk/~rchiv/bsg2011/

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

GI_Forum 2011. University of Salzburg, Austria, **5 - 8 July 2011**. http://www.gi-forum.org

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

COHERENT FLOW STRUCTURES in Geophysical Flows at the Earth's Surface, Simon Fraser University, Burnaby, British Columbia, Canada, **3 - 5 August 2011.**Contact: CoherentFlowStructures@sfu.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/

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

GEOMED 2011 4th International Conference on Medical Geology, Bari, Italy, **20 - 25 September 2011**. Website: http://www.geomed2011.it/index.html

GSA Annual Meeting "Archean to Anthropogene - 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. Includes a meeting on 'What is MATHEMATICAL GEOLOGY, where it came from and where it will go?' 10 – 12 October 2011.

American Geophysical Union Fall Meeting, San Francisco, USA, **5 - 9 December 2011.** http://www.agu.org/

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

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

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

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/

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

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## IAMG 2013 in Madrid, Spain

The IAMG Council has approved the proposal presented by the Instituto Geológico y Minero de España (Geological Survey of Spain) to hold the IAMG Conference in 2013 in Madrid on September 2 to 6, 2013. The conference theme will be: "Frontiers of Mathematical Geosciences: new approaches to understand the natural world".

The conference is planned to be held in the Faculty of Mathematics of the Complutense University of Madrid, located in the Moncloa Campus.



## IAMG 2014 - where ???

### Call for Proposal
to organize the
IAMG 2014 CONFERENCE

The Association is looking for entrepreneurial and enthusiastic individuals or organizations willing to organize the sixteenth IAMG conference during the Summer or Fall of 2014. Guidelines regulating the IAMG conferences are posted at

http://iamg.org/index.php/publisher/articleview/frmArticleID/43

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

The deadline for submitting the proposals to the Meetings Committee is **February 15, 2012**.

# IAMG Journal Report

## New Editors in Chief for Computers & Geosciences

After five years of hard work as Editor-in-Chief (EiC) of Computers & Geosciences, **Eric Grunsky** is stepping down from that position. The workload has increased considerably and Eric had suggested to distribute it over two EiCs with different areas of interest or expertise. The two candidates suggested to succeed him were **Jef Caers** (Stanford Univ.) and **Boyan Brodaric** (Geological Survey of Canada). However, our contract with Elsevier and description in the IAMG Statutes does not allow for two co-editors for C&G; so that model had to be modified. Jef Caers did not accept the nomination to take the position of EiC by himself, but indicated he would be willing to share it with Boyan Brodaric. Elsevier agreed to a structure in which a position of "Executive" Editor in Chief alternately filled by two individuals rotating every two years.

Since the main position will be filled by only one person at any one time there is no immediate conflict with the IAMG Statutes. The Council would only have to approve the Editor in Chief on a predetermined schedule. There is still the possibility of submitting to the Assembly in 2012 a change in Statutes that may better reflect this structure.

The Council nominated and confirmed Boyan Brodaric and Jef Caers to alternately occupy the position of Editor in Chief for two years at a time starting with Boyan Brodaric in July 2011.

Boyan Brodaric is a research scientist with the Geological Survey of Canada, where he has been employed since 1990. He received his doctorate at Penn State University in Geographical Information Science, with a focus on geoscience knowledge representation. His research projects include knowledge representation for geoscience cyberinfrastructure, the development of international geoscience information interchange standards, the design and interoperability of geologic map databases, and the use of geospatial technology for decision support in land-use planning. He is deputy editor of Computers & Geosciences, and sits on steering committees for international geoscience data standards.

Boyan Brodaric

Jef Caers is a professor of Energy Resources Engineering at Stanford University. He received a MSc ('93) and PhD ('97) in mining engineering from the Katholieke Universiteit Leuven, Belgium. He is director of the Stanford Center for Reservoir Forecasting, an industrial affiliates program in reservoir modeling and geostatistics. Jef Caers' research interests are in the area of geostatistics, spatial modeling and pattern recognition methods applied to all areas of the Earth Sciences. He won the Vistelius Research Award of the IAMG in 2001, is Associate Editor of the journal Mathematical Geosciences and was chairman and organizer for the IAMG 2009 Annual Conference at Stanford University. At present he is also an IAMG Council Member and Chair of the Awards Committee.

Jef Caers

## Certificates of Appreciation for Ed Sharp and Jerry Jensen

Two past editors of IAMG journals were presented Certificates of Appreciation. According to the guidelines (available on the IAMG website) a Certificates of Appreciation "recognizes exceptional work on behalf of IAMG that is beyond normal expectations, or outstanding donation to the IAMG of time, skill, or financial resources."

**W. Edwin Sharp** served as editor of Mathematical Geology from 2002 until 2006. During that time he showed tact and efficiency, maintained a regular schedule, and insured the high quality of the journal both in content and editorial style. He accomplished this during a period with many challenges, including renegotiation of our contract, a change in publishers; an evolution to online paper submission and review; poor performance by the outgoing publisher's editorial staff; and significant delays in publication for a year or longer. Meanwhile, the quality of papers in the journal remained high during his tenure.

**Jerry Jensen** served as editor of Natural Resources Research for two full years, 2008 and 2009, and with Dan Merriam as co-editor during the second half of 2007. Editing this journal has always been a challenge, and Jerry was up to the mark. He maintained a reasonable schedule of submission to acceptance interval, and although the editor has no direct control over rate of submissions, it has stayed the same or increased over the past three years; gone are the days when the editor was trying to scrape together enough papers for an issue. In my view the quality of papers is high, with many addressing issues of current concern in the geosciences and society as a whole such as carbon sequestration and fossil fuel resources.

I don't think editing a scientific journal was in the career plans for either Ed or Jerry, yet when asked to serve the IAMG in that way, they stepped up to the plate and did an exemplary job, each in his own way. Recognition for their contributions to our association is most deserving.

*Michael Ed. Hohn*

## New Chairman of the Publications Committee

**Graeme Bonham-Carter** has taken over the chair of the Publications Committee from long-time chairman **Michael Ed. Hohn**. We thank Mike for competently and patiently guiding the publications of IAMG over 11 long years.

Graeme who was President of IAMG from 2000 to 2004 has extensive experience with IAMG journals: he was Editor of C&G from 1996 to 2005, and has been repeatedly and deeply involved in negotiations of the contracts between IAMG and Elsevier Publishing. In addition, he is the official Archivist for IAMG. Graeme was born in London England, and received his undergraduate degree (1962) at Cambridge University and masters (1963) and doctoral (1966) degrees in geology at University of Toronto. He spent 3 years at Stanford University as a post-doctoral fellow working with John Harbaugh, culminating in their publication of the book "Computer Simulation in Geology" (1970). During the early 1970s, he taught at University of Rochester, and after a period of self-employment in England joined the Geological Survey of Canada in Ottawa in 1980 and retired in 2005.

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**For further information, please contact:**
*Roussos Dimitrakopoulos*
Professor and Canada Research Chair (Tier I)
COSMO Lab
McGill University
3450 University Street
Montreal, Quebec  H3A 2A7
Canada

Tel: (514) 398-4986
roussos.dimitrakopoulos@mcgill.ca
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