

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

Report from IUGS Affiliated Organization for 2012

From the International Association for Mathematical Geosciences (IAMG)

1. *Country/region*

The official address of the International Association for Mathematical Geosciences (IAMG) is in Houston, Texas, USA. However, the Association's officers reside in a variety of countries and its members and activities take place throughout the entire world.

2. *Name of IUGS Affiliated Organization:*

International Association for Mathematical Geosciences (IAMG) (www.iamg.org)

3. *Status of the organization: Independent or?*

The IAMG is an independent organization, but is affiliated with the IUGS and the International Statistical Institute (ISI). It is Scientific International Partner of Earth Science Matters and also associated with the American Association for Petroleum Geologists (AAPG).

4. *Names of people in the Leadership/Committee positions?*

President: Qiuming Cheng

Executive Vice President: Jennifer McKinley

Treasurer: David Collins

Secretary General: Frits Agterberg

Past President: Vera Pawlowsky-Glahn

Vice Presidents: Julián Ortiz, Raimon Tolosana-Delgado

Councilors: Guillaume Caumon, Yongqing Chen, June Hill, Gang Liu

IGC Councilor: Christien Thiart

Newsletter and Website Editor: Harald Poelchau

IAMG Office: Regina van den Boogaart

5. *Name, address and e-mail of person preparing the report.*

Name: Frits Agterberg, IAMG Secretary General

Address: Geological Survey of Canada

Ottawa, Ontario K1A 0E8

Canada

Email: agterber@nrcan.gc.ca

6. *Number of meetings of the organization during the year.*

We hold at least one yearly conference, usually about a week long. Every fourth year, the meeting is held as part of the International Geological Congress, in which the IAMG usually organizes or co-sponsors between 10 and 20 symposia. The inaugural meeting of the IAMG was held at the 1968 IGC in Prague and our 40th birthday celebration was held during the 2008 IGC in Oslo. Our ordinary General Assembly is held every four years, during the IGC.

7. *What are the major issues of the current leadership committee?*

- Increasing our membership, through a successful effort that brought the membership to exceed 700 during 2012.
- Organizing IAMG-2013, our annual meeting to be held in Madrid, Spain (September 2-6, 2013).
- Promoting the activities of four new commissions concerned with the IAMG website, and collaborations of IAMG with geological surveys, academia and industry, respectively.
- Maintaining adequate income vs. expenses during difficult financial times.
- Encouraging the formation of new student chapters and increasing the activity of existing ones.
- Outreach to other geoscientists, especially young professionals and colleagues in Africa, India and South America where IAMG has relatively few members.
- Identifying and rewarding scholars in the Mathematical Geosciences through one of our several prizes, best paper awards and Distinguished Lecturer programs.
- Sponsoring other events related to Mathematical Geosciences such as short courses and conferences, and ensuring the IAMG presence through participation of our officers and members. This includes co-sponsoring of the CoDaWork-2013 workshop to be held in Vorau, Austria (June 3-7, 2013).
- Continuing to improve the quality and reach of our publications and newsletter.

8. *Major accomplishments of the organization (or the geological communities).*

- We have continued to publish our three well-known international scientific journals: *Computers & Geosciences* with Elsevier as publisher, and *Mathematical Geosciences* and *Natural Resources Research* with Springer. All three are highly recognized among quantitative geoscientists throughout the world.
- Additionally, we have continued to offer our monograph series with Oxford University Press which currently counts nine titles; a series of Studies for Students, which presently consists of five titles; proceedings of all our conferences; and a semi-annual Newsletter.
- In total, 308 articles were published in *Computers & Geosciences* with Jef Caers and Michael Piasecki as Editors-in-Chief. This included a special issue on “Towards a Geoprocessing Web”.
- In total, 51 articles were published in *Mathematical Geosciences* with Roussos Dimitrakopoulos as Editor-in-Chief. This included a special issue on “Spatial Multivariate Methods”.
- In total, 34 articles were published in *Natural Resources Research* with Keith Long and Jerry Jensen as Editors-in-Chief.
- In 2012, IAMG members have edited three special issues in other (non-IAMG) journals as well: Hannes Thiergärtner and Heinz Burger edited “New Ideas and Solutions in Mathematical Geology” (*Zeitschrift für Geologische Wissenschaften*”, Vol. 40, no. 4-6, 2012), Renguang Zuo, Qiuming Cheng and John Carranza edited “Fractal/Multifractal Modeling of Geochemical Data” (*Journal of Geochemical Exploration*, Vol. 122, November 2012) & Deyi Xu, Shuyun Xie and Qiuming Cheng edited “Integrated Prediction of Mineral Resources in Covered Areas ” in *Earth Sciences – a Journal of China University of Geosciences*, Vol. 37, No. 6, November 2012).
- In 2012, our Annual Meeting took place in Brisbane, Australia during the 34th IGC (August 5-10). IAMG had 11 sessions with 39 oral presentations and 24 posters (June Hill, chief organizer).
- During 2012, we approved the organization of our 2014 Annual Meeting in Delhi, India (17-20 October). Pierre Goovaerts was selected as the IAMG Distinguished Lecturer for 2013
- We have sponsored other conferences and courses related to our field in 2012, such as the

geoENV2012--IX Conference of Geostatistics for Environmental Applications, Valencia, Spain (19-21 September). IAMG was the technical sponsor of a new 5-day short course on “Spatial Tools in Data Processing and Analysis” given at the Indian Statistical Institute I Bangalore, 26-30 November. 2012.

- We funded research grants and travel of students to conferences for in 2012, and we are in the process of augmenting our student and postdoctoral fellow research grants program for 2013. This will include up to four *Computers & Geosciences* student research scholarships (totaling US \$ 10,000) to be awarded in 2013 for the first time.

- In 2012, we have approved and supported the following 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

Stanford University, USA

- During 2012, we conferred the following awards and honors:

Krumbein Medal: Eric Grunsky

Griffiths Teaching Award: Helmut Schaeben

Matheron Lecturer: Jean-Paul Chilès

Distinguished Lecturer: John H. Schuenemeyer

Honorary Member: Jean Serra

9. *Major activities (international symposium, workshop, outreach activities, hosting international/national meetings.)*

Our meetings and other outreach activities are mentioned in point 8 above. We are Scientific International Partner of the Earth Science Matters (ESM) Foundation, which builds on the legacy of International Year of Planet Earth and continues its activities. In 2012, a new booth was developed that the IAMG is sharing with ESM and the International Lithosphere Program. It was first displayed at the 34th IGC in Brisbane, Australia.

10. *Recent geo-hazards such as earthquake, volcanic eruptions, etc.*

Our three major journals have published articles on geohazards including earthquakes, volcanic Eruptions and climate change.

11. *Known activities of other geology-related academic organization(s) in each country (Geological Society, Geophysical/Geological Union, etc.)*

We always have a presence in the form of a booth at the Annual Meeting of the American Geophysical Union (AGU). This presence serves to strengthen our ties and collaboration at the member level and helps to promote common-ground activities between the two organizations.

We are sharing another booth with Earth Science Matters and the International Lithosphere Program that next will be exhibited at CAG24 in Addis Ababa, January, 8-14. During 2013, IAMG also is participating with the American Statistical Association and other statistical organizations in the celebration of International Year of Statistics

12. *Any specific activity/achievement that you would report on in Episodes and/or in the IUGS website (or in your website with a link on the IUGS one)?*

We would like to continue to advertise our annual meeting in Madrid (see point 7) and report that we will have student research grants available for students doing research in Mathematical Geosciences in 2013, as well as travel grants to IAMG sponsored conferences and grants for student chapters in Mathematical Geosciences. Applications are available through our website: www.iamg.org

13. *Direct relation with IUGS, executive members in the IUGS council?*

Are there people who are organizing or chairing task force meetings or any other IUGS activities?

IAMG Meetings Committee Chair Ricardo Olea is on the IUGS Nominating Commission:

IAMG Executive Vice President Jennifer McKinley is in charge of Communications, IUGS Initiative on Forensic Geology Committee,

14. *Approximate number of people who intend to participate in IUGS-IGC meeting every 4 years.*

Approximately 50 of our more than 700 members are likely to participate in the next IUGS IGC meeting.

15. *Suggestions for improvement of IUGS activities.*

Our feeling is that the use of mathematics, statistics and geoinformatics in the geosciences should be promoted more strongly. Quantification of uncertainties associated with Earth predictions based on mathematical statistics should become more widely applied.

16. *Comments.*

The IAMG Council is changed every four years during the IGCs. The new Council has had its first meeting in Brisbane, immediately after the IGC's closing ceremonies. It was decided to make mathematical education of geoscience students a priority and to encourage Outreach to other geoscientists, especially young professionals. IAMG support of students will be increased significantly in 2013. A new IAMG Outreach Committee has been formed that will closely co-operate with Earth Science Matters. The subjects of the first two collaborate projects with ESM are compositional data analysis and singularity mapping in geochemical exploration, two topics on which most research is performed by IAMG members.