

INTERNATIONAL ASSOCIATION FOR MATHEMATICAL GEOSCIENCES

Annual Report to the International Union of Geological Sciences for 2017

1. Overall objectives

The mission of the International Association for Mathematical Geosciences (IAMG) is to promote, worldwide, the advancement of mathematics, statistics and informatics in the geosciences. The main duty of the IAMG is to further method development and disseminate results of new research in its fields of interest with outreach within the geoscience, mathematics and geoinformatics communities. This includes sponsoring students and young scientists by means of research and travel grants.

2. Relate goals to overall IUGS scientific objectives

By means of its three scientific journals, the annual IAMG meeting and many other projects including travel by its Distinguished Lecturers, the IAMG aims to further the quantification of three-dimensional geoscientific mapping, numerical time scale development and geological process modelling. Its contributions to predictive geology are concerned with natural disasters as well as the delineation of mineral, hydrocarbon and water deposits in the crust of the Earth. The mathematical and geometrical estimates are accompanied by estimates of their uncertainty.

3. Structure and organization

The IAMG is governed by a Council consisting of its Executive Committee (President, Executive Vice President, Secretary General and Treasurer), two Vice Presidents, Past President, four Ordinary Council Members, special IGC Councillor, three Editors-in-Chief, and Newsletter/Website Editor. It has seven standing committees for Awards, Curriculum Quality, Lectures, Meetings, Outreach, Publications and Student Affairs, respectively, and various commissions for shorter term concerns.

4. Interaction with other International organizations and projects

Currently IAMG membership represents 55 countries across the globe. The IAMG is affiliated with IUGS, IUGG and ISI. It is Scientific International Partner of the Earth Science Matters Foundation (ESM). IAMG has eight Student Chapters and co-organizes international meetings for young earth scientists with YES. A workshop on developing early career scientists was organized at IAMG2017, Fremantle, greater Perth area, Western Australia in collaboration with the Young Earth Scientists (YES). IAMG maintains a joint booth with ESM and the International Lithosphere Program.

Additionally, the IAMG annually has a booth and co-organizes sessions at the AGU Fall Meeting in San Francisco, U.S.A. The IAMG President (Jennifer McKinley) continues to act as Communications Officer for the IUGS Initiative on Forensic Geosciences (IUGS-IFG). Most recently this involved presenting as part of the 3rd Ibero- American Seminar on Forensic Geoscience 30th November – 1st December 2017, La Plata Argentina. Two IAMG members (Ricardo Olea and Nishi Nishiwaki) serve on the IUGS Nominating Committee.

IAMG has been and will be closely collaborating with IUGS and other organizations to promote and to support the new initiative of resourcing future generations. The IAMG is sponsoring partner of the First Conference on Resources for Future Generations (RFG 2018) in Vancouver, 16–21 June 2018. Eric Grunsky, IAMG Secretary General, has taken the lead in organizing sessions and workshops at this meeting.

As part of our international collaboration, the IAMG continues to work closely with governmental agencies worldwide to advance the role of mathematics, statistics and informatics. IAMG has been actively interacting with other international associations including the International Union of Geological Sciences (IUGS), International Statistical Institute (ISI), International Union of Geodesy and Geophysics (IUGG), European Geoscience Union (EGU), Earth Science Matters (ESM), Southern African Institute of Mining and Metallurgy (SAIMM), International Association for Young Earth Scientists (YES), Future Earth Coast (former LIOCZ), European Association of Geoscientists and Engineers (EAGE), Geological Society of London (GSL), the Royal Irish Academy (RIA) and China Union of State Key Laboratories in Solid Earth Sciences.

The IAMG also contributed \$11,232 to support meetings for the Compositional Data Analysis Association (CODA) – Codawork2017, Geostatistics for Environmental Application (GeoENV) -GeoENV2016 and the International Geostatistical Congress - GeoStat2016. Sponsorship and support of these organizations and meetings are a crucial part of the IAMG mandate and outreach.

5. Chief products

The IAMG publishes three scientific journals (*Mathematical Geosciences*, *Computers & Geosciences* and *Natural Resources Research*) in partnership with Elsevier and Springer. In 2017, about 188 articles were published in *Computer & Geosciences*, 36 articles in *Natural Resources Research* and 45 articles in *Mathematical Geosciences* for a total of 269. Annually IAMG publishes two newsletters and the proceedings of its annual meeting on CD and/or book-form. It sponsors the publication of books including those in the IAMG Monograph Series in partnership with Oxford. IAMG maintains one primary public website: <http://www.iamg.org> and contains general information including Statutes & By-Laws and Minutes of General Assemblies as well as IAMG Council meetings; the other website is for members only.

The 1-year Impact factor (IF) of C&G 2016 of 2.533 is the highest in the journal's history; the 5-year impact factor of 2.818 continues to remain strong. The 1 year IF for MG has increased from 1.653 in 2014 to 2.022 in 2016. In February of this year, NRR, starting with the 2015 volume, will be listed in the Science Citation Index Expanded™ (also known as SciSearch®), Journal Citation Reports® (JCR) Science Edition, and Current Contents®/Physical Chemical and Earth Sciences. This means that the first IF for NRR, based on citations to papers published in 2015 and 2016, will be released sometime in mid-2018.

Student and postdoctoral research is financially supported by research and travel grants including the *Mathematical Geosciences*, *Computers & Geosciences* and *Natural*

Resources Research scholarships. In 2016 and 2017 there were 19 student travel awards, 18 for attendance at the IGC and one for attendance of Geostats2016. Student research scholarships and student awards came to a total of \$41,475 with an additional \$30,241 provided as travel grants for students. The IAMG also provided \$17,450 in support Student Chapters that are located around the world.

Financial support is also provided in the form of professional awards and recognition, namely, Krumbein Medal, Chayes Prize, Griffith Award, Vistelius Award, Matheron Lecturer and Distinguished Lecturer. Travel support for these awards totalled \$20,330 plus a cash award of \$7,000.

More detailed information on the IAMG and its chief products is available in the updated IAMG brochure that is available on the IAMG website (<http://www.iamg.org>).

6. Chief accomplishments in 2017 and plans for 2018

IAMG2017 was held in Fremantle, greater Perth area, Western Australia 4-7 September 2017. There were 214 delegates representing more than 30 countries. More than half the delegates were from international destinations. The eminent line up of speakers included the 2017 Distinguished Lecturer, Professor Clayton Deutsch, IAMG Matheron Lecturer, Professor Noel Cressie, Vistelius Award winner, Pejman Tahmasebi, recipient of the Felix Chayes Prize, Professor Cliff Stanley and keynote speakers Professor Vera Pawlowsky-Glahn and Paul Hodkiewicz.

President Jennifer McKinley and Secretary General, Eric Grunsky visited IAMG members in China from the 13th to 25th November 2017 including IAMG members in China University of Geosciences (Beijing), Jilin University (Changchun), China University of Geosciences Wuhan, The Institute of Technology, Chengdu and Sun Yat-Sen University in both the Zhuhai and Guangzhou campus. Presentations were given by IAMG Chapters in China University of Geosciences Wuhan and Sun Yat-Sen University.

IAMG2018, will be held in Olomouc (Czech Republic), 2-8 September 2018 with an organized trip to Praha (Prague) to commemorate the 50th anniversary of the IAMG. A Golden Anniversary book: "Fifty Years of IAMG" edited by Professor B.S. Daya Sagar and co-edited by Qiuming Cheng and Frits Agterberg will be published by Springer and launched at IAMG2018 in Olomouc. Plans are in place for IAMG2019 which will be held in Pennsylvania State University (USA).

The IAMG has agreed to sponsor geoENV2018, which will take place 2-6 July 2018 in Belfast (Northern Ireland). The three keynote speakers are confirmed as Professor Peter Diggle, Lancaster University, UK, Dr Oy Leuangthong RSK, Toronto, Canada and the 2018 IAMG Distinguished Lecturer, Dr Grégoire Mariéthoz.

The IAMG remains committed to supporting early career scientist and to encouraging women in science. As a reflection of this, the IAMG Council has confirmed motions to

modify the Vistelius Award to include both a female and a male recipient and to set up a Founders Scholarship for early career researchers. Both the male and female Vistelius Awards and the Founders Scholarship will be effective for the 2018 awards. A new IAMG Commission has been confirmed to look into the opportunities for future development of women in mathematical geosciences. The commission will report back to the Council at IAMG2018.

7. Specify how any IUGS Allocation for 2017 was used

No IUGS Allocation for 2017 was requested.

8. Budget request with justification for 2018 (only applicable to low income affiliates)

No IUGS Allocation for 2018 is requested.

9. Does your website have a link to IUGS?

YES.

<https://iamg.org/links-and-datasets.html>