



# IAMG

# Newsletter

2024 Special Election  
Online Edition

Official Newsletter of the International Association for Mathematical Geosciences

## Candidates for the 2024-2028 IAMG Council positions

During the months of March and April 2024, the IAMG will conduct an election to decide the voting members of the 2024–2028 Council. The new Council will serve from 1st September 2024 until the 38th International Geological Congress at the end of August 2028.

A Nominating Commission was appointed to draw up a list of candidates for the 2024 -2028 Council positions. In doing so, the Nominating Commission sought to have a Council that was representative of the membership in terms of gender and geographical location.

Due to the difficulty in finding a Treasurer, who must be a USA citizen resident in the USA, the current Council agreed to appoint Professor Tim Coburn as Treasurer for the final 12 months of the current Council and for the duration of the 2024-2028 Council. This means that there will not be an election for the Treasurer position. The following members have agreed to serve if elected:

### President

**Raimon Tolosana-Delgado**  
(Germany) with

**Ute Mueller** (Australia/Germany) as  
running mate for Secretary General.

**Peter Atkinson** (UK) with

**Xiaogang Ma** (USA) as running mate  
for Secretary General.

### Vice-President

**Yong Ge** (China).

**Dionissios Hristopoulos** (Greece).

### Ordinary Councillors (six to be elected):

**Caterina Gozzi** (Italy)

**Guillaume Piro** (Australia)

**Sandra De Iaco** (Italy)

**Mario Rossi** (USA)

**B.S. Daya Sagar** (India)

**Xavier Emery** (Chile)

**Katsuaki Koike** (Japan)

**Karel Hron** (Czech Republic)

**Fan Xiao** (China)

**Jörg Benndorf** (Germany)

The 12 voting members of Council will be completed with the current President, Peter Dowd (Australia), serving as Past President, and the IGC Councillor to be determined by the IGC. The duties of each office are mostly dictated by tradition and need, rather than by regulations. Following is a description of what time has shown to be the main responsibilities of each office.

### President

The IAMG President is the head of the organization and chair of the governing Council. She/he cannot be reelected. The president appoints chairs of committees and commissions in consultation with Council; serves as an ambassador to other professional organizations; acts as the legal representative of the Association in dealing with publishers and other groups; and, as a Solomonic judge, resolves conflicts when disputes become personal. The President also discusses and assigns duties to other Council members who may represent the President as non-voting ex officio members on IAMG committees and commissions. A good president should foresee opportunities and difficulties, rather than react when situations have reached a crisis level.

### Secretary General

The duties of the IAMG Secretary General have not fundamentally changed since the foundation of the Association, but the way of electing the Secretary General has changed. The Secretary General is the operational officer of the Association. The main duties of this position are making the arrangements and preparing the minutes for every live or electronic session of Council, and for every General Referendum or Delegate Assembly. Each year the Secretary General schedules the presentations of major IAMG awards. The Secretary General also prepares an annual report of the main Association activities for the International Union of Geological Sciences (IUGS). Moreover, the Secretary General is responsible for preparing and collecting ballots for any amendments to the Constitution.

Each candidate for President chooses a candidate for the Secretary General position and IAMG members will vote for a pair of candidates. This year, the alternatives are Tolosana-Delgado and Mueller or Atkinson and Ma. Cross-voting for Tolosana-Delgado and Ma or Atkinson and Mueller is not possible.

### Vice-President

As in many organizations, the clearest and main duty of the Vice-President is to complete the term of the President if she/he cannot or does not want to complete her/his term in office. Additional duties for using the Vice- President's time and talents have varied significantly over the years.

### Treasurer

The IAMG Treasurer serves either directly or indirectly as bookkeeper, accountant, comptroller, financial planner and tax expert for the organization. She/he works in close contact with the IAMG Office and most committees, particularly the Awards, Student Affairs, and Meetings Committees as well as the organizing committees of IAMG conferences. The IAMG is a non-profit organization, originally established in the United States in 1968. According to the laws of the United States, the Treasurer can only manage the financial assets of the IAMG if she/he is a United States citizen. This circumstance makes it necessary for the IAMG Treasurer to be a citizen of the United States.

### Executive Committee

In addition to their individual duties, the President, the Vice-President, the Secretary General and the Treasurer form the Executive Committee of the Association in charge, jointly with committees and commissions, of the routine operational activities of the Association.

### Ordinary Councillor

There are six Ordinary Councillors in the IAMG Council. To a large extent, they play a dual role. As legislators, they have a say and a vote on every new initiative or proposed amendment to the Statutes, Bylaws and guidelines. As directors, they are charged with ensuring that the entire organization is run honestly and efficiently.

### IGC Councillor

In addition to sharing the same regular responsibilities as the Ordinary Councillors, the IGC Councillor has the responsibility of organizing IAMG sponsored sessions at the International Geological Congress at the end of the Council term, in this case the 38th IGC. This is another position tied to a specific country by the nature of the responsibilities.

### Past President.

Although some of the Council members may have served in the same or different positions in previous Councils, the serving President continues automatically as the Past President in the incoming Council to assure continuity in the management of the Association. Hence, although the President cannot serve two terms in such a capacity, the candidate who is elected President remains a voting member of the Council for a further four years after her/his term as President has been completed.

## Technical information about voting:

All information about the voting and the results can be found at [www.iamgmembers.org/election](http://www.iamgmembers.org/election)

Voting opens: March 11th, 2024

Voting closes: April 1st, 2024

Results will be published in April.

You will get an email with a personalized voting link on March 1/2, if it does not arrive please also check your spam folder.

In case of problems or if you don't get the link due to spam filtering, please contact the IAMG office: [support@iamgmembers.org](mailto:support@iamgmembers.org)

## Candidates

The following are biographical notes of the candidates that have been prepared to assist voters in making their choices for the various positions described above.

### For President and Secretary General



**Raimon Tolosana-Delgado** is a senior scientist at the Helmholtz Institute Freiberg for Resource Technology (HIF) and a lecturer at the Technische Universität Bergakademie Freiberg. He has a degree in Engineering Geology from the Universities of Barcelona and Politecnica de Catalunya (2001), and an MSc and PhD in Environmental Technology and Physics from the University of Girona (2005),

all of these in Spain. Since then he has held research positions at several universities in Germany and Spain before joining the HIF in Freiberg, Germany in 2012.

Raimon's current research focuses on applications of geostatistics, statistical/machine learning, stochastic processes and stochastic geometry for natural resources modelling, particularly in mining, under the umbrella concept of geometallurgy. He is currently working on establishing a software system for predictive geometallurgical analysis. In the past, he has worked on compositional data analysis in general, data assimilation in oceanography, and statistical methods for geochemistry, petrology and mineralogy. He has published several books on aspects of compositional data analysis with co-authors including former IAMG president Vera Pawlowsky, Juan Jose Egozcue, Gerald van den Boogaart and Ute Mueller. He was also briefly a member of the editorial committee for the Journal of Geochemical Exploration and regularly reviews papers for the IAMG journals among others. Although he is an employee of a research institution without any formal lecturing responsibilities, he regularly gives short courses for geoscientists on topics such as geostatistics and spatial statistics, data analysis, Bayesian analysis and predictive geometallurgy in Freiberg and abroad.

Raimon received the 2007 Andrei Borisovitch Vistelius Research Award and the 2013 Felix Chayes Prize for Excellence in Research in Mathematical Petrology, both awarded by the IAMG. He has served the IAMG as a member of the Awards Committee and is currently a member of the student affairs committee. In addition, he was an Ordinary Vice-President from 2012 to 2016, and Executive Vice-President, hence a member of the Executive Committee, from 2016 to 2020. He co-organized the 17th Annual Conference of the IAMG in Freiberg (Germany), chairing the scientific committee of the conference, and he has been a member of the scientific committees for other IAMG Annual Conferences.

The IAMG has a unique position as a society covering geosciences and data science, and so is well placed to facilitate a critical discussion on the best way to incorporate current Artificial Intelligence developments such as large language models and deep learning in general to geoscientific research, publication forms and industrial practice. If elected President, Raimon will encourage this discussion in the first instance within the IAMG and also more broadly.

In Raimon's view, the IAMG institutional architecture needs

some restructuring. The current Council has started a committee rationalisation that needs to be continued. But additional changes need to be discussed. In particular, recent experience has shown that the normal function of the IAMG depends strongly on the Treasurer, in some ways much more than on the President. This is because the statutes provide a mechanism to replace the President if needed and also because the immediate Past President is a member of the Council. This structure ensures that there is a formal transmission of the institutional memory of the President's tasks and projects from one council to the next. There is no similar formal structure for the position of Treasurer. One possibility, suggested by a former Treasurer, would be to establish a small committee to advise the Treasurer.

If elected, Raimon would explore ways to facilitate a higher participation of IAMG members, particularly students and early career scientists. One simple idea would be to ask every person at the time they fill in the yearly registration form for their availability to participate in any of the many committees and commissions of the IAMG. This matter would be discussed in Council together with other potential measures towards the goal of increasing the participation of IAMG members.

Finally, we need to continue adapting our journals to the new reality of requiring publication in open access journals for many funding agencies. The relevance of our journals is at stake in this changing world, but they are also an important source of income for the IAMG. Currently, not all funding agencies are adopting the open access policy, and the IAMG needs to consider their needs as well. Raimon is inclined towards moving the journals for which we own the publication rights to full open access, but this first needs to be discussed at Council and at the IAMG Annual Assemblies, prior to establishing and implementing a strategy.



**Ute Mueller** is an honorary Associate Professor in the School of Science at Edith Cowan University in Perth, Australia. She was born in Germany and completed her PhD in Mathematical Physics in 1987. She has been employed at Edith Cowan University (ECU) from 1994 to 2021 and has extensive experience in governance through membership of ECU's governing Council and academic board and associated sub-committees. In addition, she has held leadership roles in the NTEU, the union organising academics in Australia.

Thus she is well-versed in the administrative aspects required for a role such as Secretary General.

Since 1998 her research focus has been geostatistics. She has been working on the integration of geostatistics and compositional data analysis and their practical implementation in mining contexts and the spatial modelling of geochemical survey data. She is a co-author of the book "Geostatistics for Compositional data with R", published by Springer. As part of her work in this area she has also been instrumental in developing a very successful on-line course in geostatistics which had its 20th anniversary in 2021. In 2018 she was awarded the IAMG John Cedric Griffiths Teaching Award in recognition of her contribution to the teaching of geostatistics.

Ute has been a member of the IAMG since 2002 and became more actively involved in 2014 through membership of the Student Affairs Committee. She has been chair of this committee

since 2016, supporting the participation of early career researchers in IAMG activities. She has actively participated in IAMG conferences and has served on the organising committee of IAMG2017 held in Perth where, jointly with June Hill, she had responsibility for the scientific program. She has also been a member of the scientific committees of IAMG2015, IAMG 2018, IAMG2023 and Geostats2021, and currently of GeoEnv2024. She supports IAMG publications through regularly reviewing papers for the four IAMG journals and serving as co-Editor in Chief of Computers and Geosciences.

If elected Secretary General, she would support the IAMG President in external and internal liaison and reporting. This concerns firstly the associations with which the IAMG has a formal relationship (CoDa Association, AAG, EAGE, ISI and IUGS) but also exploring the possibility of expanding the IAMG network further. In addition, she is committed to furthering the interests of the IAMG through highlighting IAMG related research through relevant conferences and facilitating discussions on scientific topics of interest to the IAMG, such as the implications of AI for geoscience research. There is a need to ensure IAMG's ongoing relevance and the willingness of mathematical geoscientists to engage, in particular in a time when support for scientific community work from the employer side is dwindling. One aspect is to attract and retain new members. The value of membership needs to be articulated clearly and pathways for participation in the work of the IAMG provided. On internal matters she is committed to supporting the IAMG President in ensuring that our committee structure is fit for purpose. This will entail continuing the review and refinement of the structure, started by the current Council. To that end she will maintain effective communication with the Council, its sub-committees, and the broader IAMG community.



**Peter Atkinson** is currently Distinguished Professor of Spatial Data Science at Lancaster University, having been promoted to full Professor in 2002 at the University of Southampton. He has a PhD in 'optimal sampling strategies for remote sensing investigations' from the University of Sheffield (1990) and a BSc from the University of Nottingham (1986).

He also studied for an Executive MBA from the University of Southampton (2012).

Peter's research in mathematical geosciences is highly interdisciplinary, with a focus on the development and application of geostatistics and machine learning to a range of Earth science and environmental phenomena. The most significant theme of his research is remote sensing image downscaling and image fusion, based on geostatistics and related models that account explicitly for measurement and sampling. The aim of this work has been to achieve greater scientific understanding of the relation between data and the physical world through explicit modelling of spatial sampling processes and information representations. Application themes include natural hazards and their impacts, including landsliding, near-Earth object impacts and flooding, remote sensing of global changes in Earth surface properties and their climate drivers, and the spatial epidemiology of vector-borne disease transmission systems.

Peter is a committed IAMG life member (1992-), attending



the first IAMG international conference in Mont Tremblant in 1994. Peter was elected as the Distinguished Lecturer of the IAMG (2020) and gave distinguished lectures in Canada, Australia, Italy, India, Wales, Columbia and Germany, all done remotely during the COVID-19 pandemic. Peter has published 13 papers in Mathematical Geosciences and Computers and Geosciences and acted as an Associate Editor of Computers and Geosciences (2011-2020) and Editorial Board member of Mathematical Geosciences (2009-12), editing special issues in both journals.

In 2023, Peter was recognised as an ISI Highly Cited Researcher. He received the Best Paper Prize of the International Journal of Photogrammetry and Remote Sensing (2023), the Outstanding Achievement Medal of the International Society for Urban Informatics (2023), the Peter Burrough medal of the ISARA organisation (2016) and was awarded the Belle van Zuylen Chair of Utrecht University (2014). Peter is a Distinguished Visiting Professor at Tongji University, Shanghai (2023-) and Visiting Professor at the University of Southampton (2015-), and was previously Visiting Fellow at the University of Oxford (2012-2014 and 2003-2004), Visiting Professor at the Chinese Academy of Sciences, Beijing (2017-2022), Visiting Professor at Queen's University, Belfast (2015-2018) and Visiting Researcher in Mathematics at Cardiff University (1998-1999).

Peter was elected Fellow of the Learned Society of Wales (FLSW), the national academy for arts and sciences in Wales (2019-). He is also a Fellow of the Royal Statistical Society (2001-), the Remote Sensing and Photogrammetry Society (1997-) and the Royal Geographical Society (1989-). Peter has published around 400 peer-reviewed articles in international scientific journals, with a H-index=90 in Google Scholar and H-index=66 in ISI WoS. In addition, he has published one authored book, edited eight books, written over 50 refereed book chapters and edited 15 journal special issues. He has led multiple large grants and supervised around 70 PhD students. Peter's service to the research community includes as founding Editor-in-Chief of the journal Science of Remote Sensing (2019-) and previously as Editor (joint) of International Journal of Remote Sensing Letters (2001-2009). He has also Chaired multiple international conferences including Spatial Statistics (2017), the Remote Sensing and Photogrammetry Society Annual Conference, (2015), Geostatistics for Environmental Applications (GeoENV) (2008) and GeoComputation (2003).

Over the last 16 years, Peter has held various senior executive and leadership roles that would bring significant relevant experience to the role of IAMG President. Peter is currently Executive Dean of the Faculty of Science and Technology at Lancaster University (2015-). He sits on the University Executive Board and has provided cross-University leadership on research culture, and on equality, diversity and inclusion, including Chairing the University's successful Athena SWAN submission for gender equality. He also served as the Executive Dean of the Faculty of Health and Medicine at Lancaster (2018-19), holding two Executive Dean positions simultaneously. Before that, at the University of Southampton, he served as Director REF Strategy for the University's submission to the UK Research Excellence Framework (2011-2013) and as Executive Head of the School of Geography and Environmental Science (2007-2012).

Peter is keen to use his wide-ranging research and leadership experience to serve the IAMG community. Peter is able and willing to commit the time needed to undertake the full range of duties of the President to ensure that the IAMG thrives in the coming years. In particular, he is keen to serve as ambassador of the IAMG, and to work closely with the Secretary General, the Executive Committee and the Council at large to ensure that the IAMG goes from strength to strength.



**Xiaogang (Marshall) Ma** is currently Associate Professor of Computer Science and Dean's Distinguished Fellow at the University of Idaho, USA. He received B.Eng. (2002) and D.Eng. (2009) degrees from the China University of Geosciences (Wuhan) and a Ph.D. (2011) from ITC, University of Twente, the Netherlands. He then completed postdoctoral training at Rensselaer Polytechnic Institute. In the Fall of 2022 he was a visiting scientist at the Earth and Planets Laboratory, Carnegie Institution for Science, USA. His research focuses

on quantitative modeling of complex systems in Earth and environmental sciences, data inter-operability and provenance, and visualized exploratory analysis of Big and Small Data in the mathematical geosciences. Outcomes of his previous data science work were reflected in several large programs, including the OneGeology-Europe, the Deep Carbon Observatory, and the U.S. Global Change Research Program. Currently, he is chair of the Data Science Working Group for the IUGS Deep-time Digital Earth (DDE) Program, for which the IAMG is a founding member. He is also a data science leader for the Deep-Time Data Driven Discovery Initiative, which is a network of about 200 scientists globally. Ma is active in international societies of data science and geoinformatics, including the IAMG, ACM SIGWEB, CODATA, ESIP, RDA, GSA and AGU. Ma received the Science of Team Science (SciTS) Meritorious Contribution Award in 2018, the IAMG Vistelius Research Award in 2015, and the inaugural ICSU-WDS Data Stewardship Award in 2014.

Since 2004, Ma has been an active member of IAMG and is familiar with the organization and its activities in various sections and at different levels. He served as an IAMG Councillor between 2016 and 2020, and has served on the IAMG Awards Committee since 2018, including as its chair from 2019. He has been an associate editor for Computers and Geosciences since 2017 and an associate editor for Applied Computing and Geosciences since its inauguration in 2019. He also served as a section editor on Geoinformatics (about 35 chapters) for the Encyclopedia of Mathematical Geosciences, published in 2023. In recent years, he has also served as a leader for several other geoinformatics organizations and societies, including the GSA Geoinformatics and Data Science Division, ESIP Semantic Technologies Committee, and CODATA Task Group on Coordinating Data Standards amongst Scientific Unions. Through these experiences he has gained flexible and proficient skills for managing community activities efficiently.

Ma is willing to contribute more time and ideas to ensure that the IAMG continues to thrive as an international community in the coming years. If elected as the Secretary General, he would act as the operational officer managing a range of activities, including the Council meeting and General Assembly, award presentation, annual report preparation, and other duties defined in the statutes and bylaws. Working closely with the President, he would also spend time to introduce IAMG activities and resources to other geoscience communities, to recruit new members (especially early-career scientists and students), promote diversity, and facilitate collaboration. Additionally, he is keen to contribute new ideas, for discussion with the Council, for improvement of the IAMG Award Program and publications, amongst others.

**Vice-President**



**Dr. Yong Ge** is a Professor at the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, and Jiangxi Normal University, China. Dr. Ge received her PhD in Cartography and Geographic Information Systems from the Institute for Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, in 2001. She was awarded a B.E. and an M.E. in Surveying and Mapping Engineering at Wuhan University in 1995 and 1998,

respectively. Her research focuses on the quantitative analysis of geographical elements and geostatistics/spatial statistics, with notable contributions to novel theories and methods of heterogeneous geostatistics/spatial statistics, and their applications to a wide range of real-world challenges including mineral exploration and ecological hydrological monitoring. Dr. Ge has published more than 200 academic papers in high impact journals, including *Nature*, *Nature Communications*, and *AAAG*. She has received many high impact competitive awards and funds for her work, including the National Science and Technology Progress Second Prize and recognition as part of the Young Talent of the Chinese Academy of Sciences (2010), Winner of the National Science Fund For Distinguished Young Scholars of China (2017), the Outstanding Scientist Award of the International Geographical Union Commission on Agricultural Geography and Land Engineering (2017) and the "Top Ten Research Progresses in Chinese Geographical Science in 2022". Within the IAMG, Dr. Ge has contributed significantly through various roles, including as an Associate Editor of *Computers and Geosciences* since 2018 and has been a lifetime member of the IAMG since 2011. In addition, her extensive editorial experience includes Executive Editor of the *Science Bulletin* (2021-2023), Associate Editor of the *National Remote Sensing Bulletin*, and Editorial Board Member of the *Journal of Geo-information Science and Spatial Statistics*. Her academic positions include membership of the steering committee of the International Spatial Accuracy Research Association (2014), an IEEE Senior Member (2021) and a member of the task group of DEI, IUGS Commission on Geoethics (2023).

In addition to her academic pursuits, Dr Ge also has leadership and managerial skills in organizing high-profile international conferences and holding critical administrative roles. She has contributed significantly to the International Symposiums on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences by serving as the Secretary-General for the 2008 symposium (Shanghai) and as Chair of the 2018 symposium (Beijing). She is currently Chair of the Committee for Cartography and Geographical Information Systems, Geographic Society of China (2019.11) and is the Secretary-General of the Committee for Data-driven and Earth Science Development of the Geological Society of China (2022.08).

Dr. Ge would bring her rich experience and skills in research, leadership and collaboration to the Vice-President position. Her vision includes promoting advanced spatial data analysis techniques across various scientific domains, fostering international collaborations in Earth Science research, and mentoring young and early career researchers. She aims to build a more connected and dynamic scientific community, enhancing society's commitment to excellence and innovation in research. Her track record in interdisciplinary collaboration, combined with her dedication to scientific advancement, positions her to contribute significantly to society's goals and to the broader scientific community.



**Dionissios Hristopoulos** is a Professor in the School of Electrical and Computer Engineering at the Technical University of Crete (TUC) in Greece. His prior appointment was Professor of Geostatistics in the School of Mineral Resources Engineering at TUC from 2002 until 2020. He holds a Diploma in Electrical Engineering from the National Technical University of Athens (1985) and a PhD in Physics from Princeton University (1991). Before returning to Greece in 2002, Dionissios worked at the University of North Carolina at Chapel Hill (Department of Environmental Sciences and Engineering) and the Pulp and Paper Research Institute of Canada (currently FPInnovations). Dionissios has taught courses in Probability and Statistics, Data Analysis, Geostatistics, Time Series Analysis, Stochastic Processes and Introductory Physics. His research focuses on developing and applying mathematical models for spatiotemporal data and building inter-disciplinary connections between geostatistics, statistical physics and machine learning. He is the author or co-author of 102 international journal publications, and six entries in edited books (including four entries in the *Encyclopedia of Mathematical Geosciences*). Dionissios co-authored the book "Spatiotemporal Environmental Health Modelling" (1998) published by Kluwer, and is the author of "Random Fields for Spatial Data Modeling: A Primer for Scientists and Engineers" (2020) published by Springer.

Dionissios is a lifetime IAMG member since 2014 and a senior member of the Institute of Electrical and Electronics Engineers. He serves as Associate Editor for the journals *Stochastic Environmental Research and Risk Assessment* (Springer) and *Computers and Geosciences* (Elsevier). He directs the Master's program in Machine Learning and Data Science at the School of Electrical and Computer Engineering, and also serves as an elected member of the University Council at TUC. Dionissios has served as Director of Graduate Studies in the School of Mineral Resources Engineering from 2004 to 2009 and as a member of the University Council (board of trustees) at TUC from 2012 until 2017. He has been on organizing and scientific committees for several international conferences such as *Spatial Statistics*, *Sigma Phi* (International Conference in Statistical Physics), *Spatial Accuracy*, and *Interpore*; he has also co-organized sessions at the European Geophysical Union General Assembly and IAMG annual conferences. Dionissios has coordinated and participated in national and European research projects, and he regularly reviews methodological and applied papers related to spatiotemporal statistics, stochastic modelling, and mathematical geosciences.

If elected, Dionissios will seek to promote interdisciplinary collaborations, cultivate links between IAMG and other scientific communities with interests in mathematical geosciences, and enhance IAMG's overall visibility.

**Ordinary Councillors**



**Caterina Gozzi** is a researcher in Geochemistry in the Department of Earth Sciences at the University of Florence and the National Biodiversity Future Centre (NBFC), Italy. She was awarded her PhD in Earth Sciences in 2020 from the University of Pisa. Her research activities primarily focus on the investigation of complex river



systems, exploring the spatio-temporal distribution of chemical species in riverine environments. She is particularly interested in analysing basin-wide responses to environmental variations from a holistic and multi-disciplinary perspective using robust statistical and geostatistical methods based on the principles of CoDA (Compositional Data Analysis Theory). Her research goal is to gain a better understanding of the resilience of water systems to global changes.

Throughout her career she has organized scientific sessions and meetings and received awards on both national (e.g., Tongiorgi Award 2021 - Italian Geochemical Society; Ex aequo winner of the Colombaria Award 2022 - Tuscan Academy of Sciences and Letters "La Colombaria") and international levels (e.g., IAMG Natural Resource Research Student Award 2016; IAMG Computers & Geosciences Research Scholarship 2020).

Currently, she is Chair of the CoDa Association Meetings Committee (2023-2024) and she previously served as the Chair of CoDa Association Grants Commission (2020-2022). She is the author of the "R-Corner" for the Geochemical Newsletter of the Italian Geochemical Society and she is serving as a Co-Editor of a Special Issue on Compositional Data Analysis for the Journal of Geochemical Exploration.

It is a great honour for her to have been nominated as a candidate for the role of IAMG Ordinary Councillor (2024-2028). If elected, she will promote multi-disciplinary collaborations and encourage early-career scientists to participate in IAMG activities.



**Guillaume Pirot** is a Research Fellow (Lecturer) at the Centre for Exploration Targeting (CET), School of Earth Sciences, the University of Western Australia. He obtained his double Master of Engineering degree in 2005 at the Ecole Nationale Supérieure des Mines de Saint-Etienne, France and at the Technische Universität Berlin, Germany. He started his career as an Information Technology consultant for the retail industry. Over seven years, he developed his passion for research. A friend dragged him to academia where he joined the

Centre of Hydrogeology and Geothermics at the University of Neuchâtel to pursue a PhD in hydrogeology (2015). Following his first post-doctoral position in hydro-geophysics at the University of Lausanne, Switzerland, he joined the University of Western Australia in 2019.

His scientific interests are driven by developing 3D geological stochastic models characterized by spatially complex heterogeneous property fields. Motivated by questions related to uncertainty quantification and to subsurface heterogeneity, he became an expert in multiple-point statistics, flow and transport modelling, data-integration, Bayesian inversion and optimization techniques.

Guillaume is a recent member of IAMG. Nonetheless he has a long involvement in community activities. He has been an associate editor for the Hydrogeology Journal (2017-2020), served as a representative of Early-to-Mid Career Researchers (2015-2019) and was President of the University Council of the University of Lausanne (2018-2019). If elected, Guillaume will help IAMG to continue its efforts in improving diversity, inclusion and accountability in the Mathematical Geosciences community.



**Sandra De Iaco** is a Full Professor of Statistics at the University of Salento, Italy. She obtained a MSc Degree in Economics (cum laude) at the University of Lecce (Italy) in 1996 and gained her PhD in Statistics, with a dissertation on "Space-time covariance models" at the University of Chieti (Pescara, Italy).

Sandra teaches courses in Probability and Statistics, Geostatistics and Time Series Analysis. Her work focuses on

(a) space-time covariance modelling on real and complex domains, (b) multivariate Geostatistics for environmental data, (c) stochastic conditional and non-conditional simulation, (d) Multiple-point statistics, (e) time series analysis. Her work has broad application in environmental sciences, thanks also to the availability of R packages where some of her models have been implemented for structural analysis and prediction in space and space-time. She has given numerous short courses and lectures on spatio-temporal modelling and computational tools for the analysis of water and air quality monitoring.

Sandra is a lifetime IAMG member since 2012 and also a member of the IAMG lectures committee since 2022. She acted as Guest Editor (together with Dionissios Hristopulos and Guang Lin) for the special issue on Geostatistics and Machine Learning for Mathematical Geosciences. She has served on the editorial board of Spatial Statistics and Mathematical Geosciences and regularly reviews papers on spatio-temporal statistics and covariance modelling for various scientific journals. She has been a member of scientific committees of conferences such as Spatial Statistics and GeoEnv and co-organized sessions on Spatio-temporal Geostatistics at IAMG conferences. She has been involved as a co-ordinator or member in national and European research projects. She is the author of more than 180 scientific publications (59 papers in peer-reviewed international journals, 2 software packages, around 50 books or book chapters, among others).

If elected, Sandra would actively work towards a wider contribution of spatial statistics and mathematical geosciences in machine learning and the data science environment and thus would promote inter-disciplinary collaborations among the scientific community.



**Mario E. Rossi** is the President and Principal Geostatistician at GeoSystems International, Inc., a mining and environmental consultancy founded in 1994. He is also an Adjunct Professor at the Universidad Nacional de San Luis, Argentina. He received his six-year Mining Engineer degree from the Universidad Nacional de San Juan, Argentina, and his M.S. in Geostatistics from Stanford University under the guidance of Prof. André Journel.

Mario has over 35 years' experience as a consultant to the mining industry. His expertise is in mining and environmental geostatistics; mineral resources and reserves estimation; audits; due diligences and reviews; grade control systems; operational models' implementation and reviews; and conditional simulation studies of different scales and purposes.

He has worked in over 200 different mineral deposits at various stages of development and operations around the world, including multi-element precious and base metals deposits (Au, Ag, Cu, Pb, Zn, Ni, etc.); laterite-type deposits (Ni); lithium brines deposits; industrial minerals such as nitrates, iodine, borax, limestone, salt, and graphite deposits; sedimentary deposits (uranium, coal); he has also some experience in iron hematite-magnetite and diamonds resource estimation. Mario has also worked on several environmental projects applying geostatistical methods to assess contamination in soil and water and develop corresponding risk assessments. Some related to civil works; others to property transfers from public to private; and others related to controlling and abating contamination from mining activities, current and past.

Mario's industry work is also supplemented by broad experience in teaching and research. He has been a Guest Lecturer at the Colorado School of Mines (USA); Università degli Studi di Bari (Italy); Universidad Católica del Norte (Antofagasta, Chile); Universidad Nacional de Colombia (Medellín, Colombia); and Universidad Nacional de Buenos Aires (Argentina), among others. He has also taught over 50 one- and two-week short courses for private companies and public entities.

Mario is also a Fulbright Specialist, Roster Member, for the period 2018-2023. Under the Fulbright program, he was elected to develop the "Consultancy on New Study Programs" Project, working with Faculty of the University of Mitrovica Isa Boletini (UMIB) in Mitrovica, Kosovo to modernize the existing Bachelor and Master programs in Geosciences, including Mining Engineering; Materials and Metallurgical Engineering; and Geology.

Mario has published 60 peer- and non-peer reviewed papers on topics related to geostatistics; mineral resource estimation; conditional simulation; and mining operations. Mario is the co-author of the book "Mineral Resource Estimation" (Rossi, M., and Deutsch, C., ed. Springer), published in January 2014.

Mario has been a member of the International Association for Mathematical Geosciences (IAMG) since 1987, currently holding a lifetime membership. He is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM), as well as a Registered Member of the Society of Mining Engineers in the USA and the Colegio Argentino de Ingenieros de Minas (CADIM). Mario is a Competent/Qualified Person per the Australian Joint Ore Resource Committee's and Canada's National Instrument 43-101's regulations and guidelines for Mineral Resources Reporting under those jurisdictions.

If elected, Mario would bring an industry perspective to the Council and the new initiatives and proposed amendments put forth. Additionally, he would actively contribute towards revitalizing IAMG and its impact on the geoscientific community and the industry at large. Increasing IAMG's visibility in regions with significant membership growth potential such as South America would be a priority.



**B. S. Daya Sagar** is a Senior Professor and Head of the Indian Statistical Institute – Bangalore Centre. Sagar received his MSc and PhD degrees in Geoengineering and Remote Sensing from the Faculty of Engineering, Andhra University, India, in 1991 and 1994, respectively. He was the founding Head of the Systems Science and Informatics Unit (SSIU). Earlier, he worked in various

positions from 1992 to 2007 in Andhra University, the National University of Singapore, and Multimedia University, Malaysia. Sagar has made significant contributions to mathematical earth sciences, developing geospatial algorithms by using the concepts of mathematical morphology and fractal geometry. He has published over 90 papers in journals and has authored and guest-edited 14 books and special theme issues for journals.

He has been involved in the activities of the IAMG and other professional societies since 1999. He guest edited the special Mathematical Geology issue in memory of the late Professor SVLN Rao (33(3):245-396, 2001). He has advocated strong interactions within the IAMG and successfully established the first IAMG Student Chapter in India in 2014. He organised Pre-IAMG Conference short courses during IAMG2014, IGC-2016, IAMG2017, and IGC-2020. He was a member of the International Scientific Committees for IAMG conferences in 2014, 2016, 2018 and 2020. As the Symposium Convener, he brought eight sessions for the Symposium theme "35.1 Mathematical Geosciences and Mineral Resource Evaluation" as part of the 36th International Geological Congress (IGC) held in Delhi, India in August 2021.

During the last fifteen years, he has invited several IAMG members, including Distinguished Lecturers, to India to deliver lectures, and these activities have helped significantly to popularise the IAMG in India. He brought increased visibility to the IAMG, its activities, journals, awards, special lectures, award recipients, and presidents by creating and maintaining Wikipedia pages, spending hundreds of hours of effort. Over a decade of scholarship, organization, and dedication he has prepared two significant contributions that will be landmarks in the history of mathematical geosciences. The first is the Handbook of Mathematical Geosciences - Fifty Years of IAMG (editors B.S.D. Sagar, Q. Cheng, and F. Agterberg) published by Springer-Cham in 2018, and launched during the 50th anniversary of the IAMG Congress held in the Czech Republic in 2018 (over one million downloads), and B.S.D. Sagar, F. Agterberg, Q. Cheng, and J. McKinley, eds., "Encyclopedia of Mathematical Geosciences", Springer International Publishers (two volumes, 1756 pages, 2023). He is a member of the American Geophysical Union (2004), a life member of the IAMG, and an elected Senior Member of the IEEE Geoscience and Remote Sensing Society (2003). He was elected a Fellow of the Royal Geographical Society (2000), the Indian Geophysical Union (2011), the Indian Academy of Sciences (2022), and the Indian National Science Academy (2024).

He was awarded the 'Dr. Balakrishna Memorial Award' of the Andhra Pradesh Academy of Sciences in 1995, the Krishnan Medal of the Indian Geophysical Union in 2002, the 'Georges Matheron Award - 2011 with Lectureship' of the IAMG, and the Award of the IAMG Certificate of Appreciation - 2018. He is the Founding Chairman of the Bangalore Section IEEE GRSS Chapter. He has been appointed as an IEEE Geoscience and Remote Sensing Society (GRSS) Distinguished Lecturer (DL) from 2020 to 2024. He is a member of the AGU Honours and Recognition Committee for the period 2022 to 2025. He has been a member of the Editorial Boards of Computers & Geosciences, Frontiers: Environmental Informatics, and Mathematical Geosciences. He would continue working in collaboration with the IAMG Council to bring increased and sustained visibility to the IAMG and its activities, particularly in the global south.





**Xavier Emery** is a professor in the Mining Engineering Department and a principal researcher in the Advanced Mining Technology Centre at the Universidad de Chile. He holds an engineer's degree (1998) and a PhD in Geostatistics (2004) from the Paris School of Mines (currently, Mines ParisTech), France. His work is primarily in the design of geostatistical tools, models and algorithms for spatial data analysis, and their applications to mineral resources evaluation, geological uncertainty modelling, and the geotechnical and geometallurgical modelling of mineral deposits.

His teaching activities at Universidad de Chile began in 1999 and now include lecturing courses for the mining engineering undergraduate, master and PhD programmes, as well as postgraduate diplomas for geologists, engineers and related professionals from the natural-resource-based industries. His main research achievements are the participation in more than 20 research projects funded by the Chilean government, Chilean research foundations or mining companies in Chile and Brazil, as well as the authorship of more than 150 peer-reviewed journal articles, more than 130 congress presentations and the book "Geostatistics for the Mining Industry" published by CRC Press in 2020 and also available in French from Presses des Mines de Paris (2019) and in Spanish from Caligrama Editorial (2020).

Among other administrative duties, Xavier served as the head of the Mining Engineering Department at Universidad de Chile from 2014 to 2018, and directed its undergraduate mining engineering programme between 2008 and 2014 and its PhD in mining engineering from 2018 to 2022. He participated in the IAMG Publications Committee in 2009 and has been an IAMG member since this date. He also co-organized the eighth International Geostatistics Congress held in Santiago, Chile (2008), and was awarded the Georges Matheron lectureship in 2023 for his theoretical and applied contributions in the field of spatial statistics.

His academic background, experience and interests place his research activities at the crossroads between the fields of mathematics, statistics, geosciences and natural resources engineering. If elected as a councillor member of IAMG, Xavier would be interested in broadening the geographic and disciplinary diversity of the IAMG audience and members, and in fostering links with the mathematical, statistical and machine learning communities.



**Katsuaki Koike** received a BS (1986), MS (1988), and PhD (1995) in Mineral Science and Technology (Engineering and Mathematical Geology) from Kyoto University, Japan. In 1988, he became a research assistant in Engineering Geology at Kumamoto University and in 2005 a professor in the field of Hydro- and Geosphere Environmental Sciences. In 2011 he changed to professor in the Laboratory of Environmental Geosphere Engineering, Graduate School of Engineering at Kyoto University. His research group includes 2 postdocs, 11 PhD

candidates and 4 M.S. students. He is also an honorary professor at Bandung Institute of Technology (Indonesia). He has participated in many research projects including an international geothermal project with Indonesia from 2014 to 2020. His interests cover:

- (1) Mathematical modelling for geosphere environments and resource distributions using geostatistics and geoinformatics.
- (2) Remote sensing for earth environments and geosphere structures.
- (3) Applied geophysics and geochemistry for integrated imaging of geological structures.

He is especially interested in using these methods for the spatial and genetic classification of mineral, geothermal and groundwater resources. Koike has authored or co-authored over 169 peer reviewed papers in domestic and international journals including 29 papers in IAMG journals (Mathematical Geosciences: 6, Computers and Geosciences: 7, and Natural Resources Research: 16) and two articles in the Encyclopedia of Mathematical Geosciences. He has been awarded eight best paper prizes from the Japan Society of Remote Sensing (2000), the Mining and Materials Processing Institute of Japan (MMIJ; 2004, 2010, 2018), the Japan Society of Geoinformatics (2007, 2012, 2013, and 2020), the Society of Geomagnetism and Earth, Planetary and Space Sciences (2022), and the Frontier Research Prize of the Japanese Committee for Rock Mechanics (2010).

He has served on the editorial boards of Computers and Geosciences since 2004 (including as associate editor), Natural Resources Research since 2012 (associate editor at present), Mathematical Geosciences from 2007 to 2009, and as an IAMG Councillor, replacing Jef Caers from 2011 to 2012. He served as the guest editor-in-chief for two special issues of Natural Resources Research, e.g. vol. 30, no. 4 on the ISME-XV: Toward sustainable society with natural resources. He convened sessions of mathematical geology at the IGCs in Kyoto, Florence, Oslo, Brisbane, Cape Town as well as at the IAMG annual conferences. He is now the president of the Japan Society of Geoinformatics, a society related to IAMG, and a vice president of the Mining and Materials Processing Institute of Japan. His hope is to promote interdisciplinary activity in the IAMG by collaborating with engineering and economic geology, remote sensing, geophysics, geochemistry, and environmental science.



**Karel Hron** is Professor of Applied Mathematics at Palacký University in Olomouc, where he also serves as Deputy Head of the Department of Mathematical Analysis and Applications of Mathematics. He holds a Ph.D. in Applied Mathematics (2007). His research focuses on statistical analysis of compositional data and its applications, with a primary interest in geochemical applications. Since 2007, Karel has published more than 130 peer-reviewed journal publications and co-authored a book in the Springer Series in Statistics. He is involved in several projects at national and international level, where he promotes compositional data analysis with a strong geological focus.

He has been an IAMG member since 2013 and has attended most IAMG meetings since then. He is an active reviewer of all IAMG journals. In 2018, he received The Editor's Best Reviewer



Award from the journal *Mathematical Geosciences*. He was the main organizer of the IAMG2018 conference in Olomouc on the occasion of the 50th anniversary of the Association. From 2020 to 2024, he was also a member of the IAMG Council, where, among others, he participated in the creation of the Association's new website.

If elected, he would like to continue his efforts to improve the virtual presentation of the Association, which is still far from perfect. He would seek to enhance collaboration (sharing of experiences) between geologists and mathematicians/statisticians and awareness of new approaches in data science through IAMG activities. One example of how to achieve this goal could be a YouTube channel with presentations by star IAMG members. Karel would also encourage young scientists to apply for grants and other opportunities provided by the Association, which is one way to involve them in IAMG activities. Last but not least, he can offer his experience from other related scientific associations in which he serves/served (Secretary General, Association for Compositional Data (2017-2019); Executive Committee Member (Publication Officer), International Association for Statistical Computing (2021-2023, 2023-2025) to contribute to the development of the IAMG.



**Fan Xiao** is an associate professor of Geomathematics and Geoinformation in the School of Earth Sciences and Engineering, Sun Yat-sen University (SYSU), which is one of the top-tier universities in China. He teaches graduate and undergraduate students in mathematical geosciences, deep learning in geosciences, mineral exploration and gravity exploration.

In 2013, he obtained his PhD degree in Mineral Exploration and Prospecting from the China University of Geosciences (Wuhan)

with a dissertation on data-driven mineral prospectivity mapping in covered areas, under the co-supervision of Professors Pengda Zhao and Frits Agterberg.

After graduation he worked at SYSU and became an associate professor and a doctoral supervisor in 2017. His research is mainly in data and computational-driven geosciences including finite element numerical modelling, first-principles calculation, molecular dynamic simulation, and deep learning neural networks in geology and mineral resources applications. He has published more than 40 peer-reviewed papers, many of which are in IAMG journals. He has received several financial supports from the National Key Research and Development Programme, National Natural Science Foundation of China, and the Guangdong Basic and Applied Basic Research Foundation.

He became a lifetime member of IAMG in 2017 and since then he has participated actively in the annual meetings with oral presentations and posters. He is a councillor for the Data Driven and Geosciences Development Committee of the Geological Society of China, a councillor in the Big Data and Mathematical Geosciences Committee of the Chinese Society for Mineralogy, Petrology and Geochemistry, and a councillor in the Mathematical Geology and Geoinformatics Committee of the Geological Society of China. He is the first young editorial board member of *Geotectonica et Metallogenia*, *Mineral Exploration*, and a guest editor of the open access journal *Fractal and Fractional*. He is a primary convener and organizer of the session on Fractals and Singularity in Geosciences, which is one of the themes of the *Mathematical and Computational Methods for the Geosciences* at the

2024 International Geological Congress (37th IGC). This will contribute to increasing the outreach of IAMG to other relevant organisations. In the future, he will continue to increase the influence of IAMG to make the association stronger, including increasing the visibility of IAMG among non-members, especially young geologists, and enlarging communication and cooperation between IAMG members and other associations in the geoscience community.



**Jörg Benndorf**, an experienced mining professional, boasts 22 years of global expertise encompassing project management, mine planning, operations, and geological modelling in both industrial and academic settings. His diverse experience includes roles as a mine planning and reserve evaluation engineer across Australia, the USA, Jamaica and Germany, working with various commodities such as coal, lignite, iron ore, and bauxite.

Jörg holds a Diploma in Engineering from TU Bergakademie Freiberg,

an M.Phil in Mining Geostatistics from the University of Queensland, Australia, and a PhD in Mining Geostatistics from the Technical University Clausthal, Germany. During his postgraduate research, he spent two years at the W.H. Bryan Mining Geology Research Centre under the guidance of Prof. Roussos Dimitrakopoulos.

Jörg's academic journey includes serving as an Assistant Professor for Resource Engineering at Delft University of Technology from 2012 to 2016. Since September 2016, he has held the position of Full Professor in Geomonitoring and Mine Surveying at the University of Technology Bergakademie Freiberg, Germany.

His research interests encompass applied mining geostatistics, real-time methods for grade control, mining impact monitoring and modelling, as well as mining subsidence engineering. Jörg is not only well-versed in academic and non-academic education but has also coordinated three European H2020 projects as a Principal Investigator. Additionally, he actively participates in various application-driven research projects related to geo-resources, geo-energy, and the management of mining legacies.

Jörg currently serves as a board member of the German Association of Mine Surveyors (Deutscher Markscheider Verein) and is part of Commission 2 of the International Society of Mine Surveyors.

As a prospective IAMG councillor, I have a dual ambition. Firstly, I aim to enhance the visibility and appeal of the association among young professionals, while also elevating the attractiveness of careers in quantitative geoscience/geoengineering. To achieve this, I plan to engage with other professional organizations and provide support to student chapters. Secondly, I intend to strengthen targeted communication and outreach activities, in particularly oriented to younger groups, in order to develop enthusiasm and interest in our profession.