IAGA News
International Assotiation of Geomagnetism and Aeronomie
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IAGA, the International Association of Geomagnetism and Aeronomy
is the premier international scientific association promoting the study of terrestrial and planetary magnetism and space physics

Contents

Foreword

This issue of IAGA News contains information about IAGA activities throughout 2023. The main event for IAGA was the IUGG General Assembly, which took place in July 2023 in Berlin, Germany (section 2). It was well-attended by the IAGA Community and everyone was happy to meet in person again at one of the major events for our association. This newsletter further contains reports on IAGA sponsored Workshops and other IAGA activities of different kind. It contains information on a series of IAGA and IUGG outreach short movies, and about international virtual seminar series on IAGA topics. Section 8 remembers several IAGA scientists who passed away over the past year. The reader is also referred to the IAGA website (see below) and social media for more on IAGA and for updates between the annual Newsletters.

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IAGA News is distributed – in its electronic form – to the National Correspondents in the Member Countries, to all IAGA officers and to IAGA scientists who have attended recent IAGA assemblies. Please feel free to distribute IAGA news around, mainly to the national policy makers and leaders, whose decisions can affect the activities of IAGA.

Monika Korte
Secretary-General

IAGA on the Web

Information on IAGA is regularly updated at the IAGA site:
http://www.iaga-aiga.org/

1 Message from the President

I am both honored and humbled to be elected to serve as your President in IAGA. I like to begin this message - my first message as IAGA President - by thanking our Past President, Mioara Mandea, for her fantastic leadership over the past 4 years, as IAGA navigated through the pandemic. Thanks to Mioara's inspiring and wise leadership, IAGA came out of the pandemic years in excellent shape as an Association - scientifically, organizationally, and financially: in supporting and promoting scientific activities and international collaborations in geomagnetism and aeronomy; in fostering and strengthening active community participation in IAGA Divisions and Working Groups; and in steering the financial ship of the Association and managing its fiscal resources for supporting scientific activities.

It was truly a great pleasure for me to attend the IUGG General Assembly in Berlin in July. I particularly appreciate the opportunity to interact with and learn from not only colleagues in the different fields of geomagnetism, aeronomy, and space weather in IAGA but also researchers in the other IUGG Associations.

Both the IAGA Award Ceremony and the IAGA Dinner were undoubtedly the highlights of the week for me. It was wonderful to be able to honor our Awardees and celebrate their scientific successes in person. As for the IAGA Dinner, the experience of a nice summer evening with colleagues from all over the world in a landmark outdoor pub in Berlin was equally priceless! My heartfelt thank you to our Secretary General, Monika Korte, for organizing such a fantastic event!

As I think back to the pandemic years, and to the numerous online scientific meetings and workshops that I participated in, it dawns on me how much more valuable, important, and special than I realize the experience of talking science in-person with scientists from distant places is, especially colleagues, collaborators, and friends in my early career who are now in other research areas. Because of the location-specific nature of in-person scientific conferences and workshops, and their relative infrequency compared with our other research activities, opportunities for attending them will be more impactful than ever as we transition into the post-pandemic era, especially for early career researchers (ECR) and researchers from regions of Developing Countries.

In this regard, I am mindful of the challenge - and opportunity - for IAGA to focus our effort and resources on supporting scientific meetings and workshops in the coming years, especially regional workshops - and on supporting the participation of ECR in such meetings and workshops, especially ECR from Developing Countries.

It is a great privilege to serve you and others in the IAGA community as President, and truly a great pleasure working with my colleagues on the Executive Committee, especially the Past President, the Secretary-General, and the Treasurer.

I wish you all the best for the New Year and I look forward to seeing and communicating with as many of you as the opportunity arises in 2024.

Andrew Yau
President

2 The 28th IUGG General Assembly, Berlin, Germany

2.1 Participation

The 28th IUGG General Assembly was held July 11 - 20, 2023 at the City Cube, Berlin, Germany. It was a big success with an attendance of about 5000 participants. More than 4430 oral and poster presentations were given in 640 sessions in total. The program of the General Assembly included nine Union lectures, six special sessions on "Big Themes", four Union Symposia and the IUGG Gold Medal lecture.

IAGA was very well represented with 24 own symposia, and active involvement in 22 joint ones. Over 500 participants gave IAGA as their main

affiliation. The IAGA contribution to the Union Lectures was given by Max Moorkamp (Germany), an excellent and well-received lecture entitled "From Ground Water to Tectonic Plates: Imaging the Earth Across the Scales with Electromagnetic Methods".

The IAGA programme efficiently ran in a modern conference centre, giving us the chance to catch up with latest developments in our own research specialities, as well as take in some of the more inter-disciplinary topics. The meeting provided many opportunities for scientists to discuss different topics over breaks, poster sessions, and the IAGA dinner. A highlight was the IAGA Ceremony, where the IAGA awards were presented (see 3) and Nils Olsen, recipient of the Shen Kuo Medal gave an exciting lecture on planetary magnetism entitled "Earth's magnetic field – From the core to the magnetosphere".

It is also worth noting that the financial budget of the meeting was able to partly support the attendance of 89 IAGA participants, mainly young scientists from developing countries.

2.2 Report from the Meetings of the IAGA Conference of Delegates

Two Conferences of Delegates (CoD) took place during the General Assembly.

2.2.1 First Conference of Delegates, July 13, 12:00 - 13:30

The Secretary General (SG) conducted a Roll Call of the Chief Delegates from all IAGA member countries. This established that 19 Chief Delegates (with voting rights) were present. Several of the 45 fully accredited IUGG member countries had not responded to the IUGG Request for appointment of their respective IAGA Chief Delegate.

The agenda was approved and the President called the meeting to order and welcomed all the delegates.

Moment of remembrance for IAGA members deceased

The SG led the remembrance of IAGA members deceased since the last IAGA Assembly, and the delegates stood for a minute of silence.

Approval of the Minutes of the 2021 Conference of Delegates

The minutes of the 2021 CoD, that had already been circulated after the virtual 2021 IAGA Assembly, were approved unanimously.

Reports

Report of the President (Mioara Mandea)

The report of the President included the following highlights:

- Assemblies and Awards, including the 27th IUGG General Assembly in 2019, the Joint IAGA-IASPEI Assembly in 2021 (held virtually during the COVID-19 pandemic)
- the 4th IAGA School (at Laurentides, Quebec, near Montreal, on July 3-7, 2019 on the eve of the 2019 IUGG Assembly) and the 5th IAGA School (held virtually on August 16-20, 2021, preceding the 2021 Joint Assembly)
- IAGA sponsored Topical Workshops (10), and the IAGA-IASPEI GIFT Workshop (held virtually on Aug 19-21, 2021)
- Early Career Scientists (ECS) and related outreach activities, which include IAGA's presence on Facebook, Twitter, Instagram, and the IAGA blog[1] an MOU with the International Association of Physics Students (IAPS); and a series of 3 outreach documentaries on IAGA and geomagnetism.

The President expressed her thanks to all for their support, especially the SG, the Treasurer, and the EC, noting that she will continue to serve on the EC in an ex-officio capacity in the next 4 years.

The President's Report was approved by the Delegates.

Report of the Secretary General (Monika Korte)

In addition to the activities reported by the president, the SG reported on the following

- organizational changes in IAGA since the 2019 IUGG Assembly in the Working Group

(WG) structures of some of the Divisions, including the planned establishment of a new WG in Division I, the newly active WG in Div III and Joint Div II/III WG, the new Social Media WG,

- the Memorandum of Understanding with International Association of Physics Students (IAPS) signed in 2021, and IAGA sponsorship of some IAPS activities,

- EC meetings: 2-4 video conferences per year, 3 virtual meetings in the 2021 Joint Assembly, and 3 in-person meetings each in the 2019 and 2023 IUGG Assembly,

- the 2021 IAGA-IASPEI Joint Assembly (fully virtual meeting, with 8 joint IAGA-IASPEI sessions, 27 IAGA sessions, 3 plenary talks, and IAGA Award Ceremony), and the 5th IAGA school and the GIFT Workshop,

- the IAPS@IAGA ECS event

- the IAGA sponsorship of 10 workshops, including some planned for sponsorship that had to be canceled (postponed) during the pandemic in 2020

- the Outreach activities, including the video and film documentaries led by Katia Pinheiro: Magnetic Mosaic, Geoscience Connection, and A Magnetic Journal from core to space'

- the IAGA Shen Kuo Award (to Jay Johnson in 2021 and Nils Olsen in 2023), the Long Services Medal (to Natalya Sergeyeva in 2021), and the Early Career Award (to Man Hua in 2021 and Miroslav Hanzelka and Bram Vaes in 2023)

Secretary General specific activities in the past two years also include the annual production of the IAGA News and preparation of General Assembly, in which the contributions of symposium conveners and division leaders are much appreciated.

The Secretary General's Report was approved by the Delegates.

Report of the Finance Committee (Harald Böhnel)

The Finance Committee consisted of Harald Böhnel (chair), Archana Bhattacharyya, Pavel Hejda and Dominique Jault. It was mandated to ensure IAGA's fulfilment of IUGG's commitment to legal auditing, and to analyse the way the budget is managed by the EC in terms of priorities. The report was presented by Harald Böhnel.

The report covers the period of January 1, 2019 to December 31, 2022, and was prepared based on documentation provided by the treasurer. This consists of the annual IAGA bank accounts, the report of the external audit conducted for the period 2019 - 2022, and a detailed list of transactions for the second half of 2022 for illustration.

The external audit stated

- Conclusion: "I therefore recommend that the financial statements be approved, and that the General Assembly gives discharge the Executive Committee for its duties for the financial years 01/01/2019 to 31/12/2022."

The recommendations and conclusions from the Finance Committee are as follows

- The Finance Committee suggests maintaining the strong support of scientific activities and for the IAGA Education and Outreach programs, while reserves are high.

- The Finance Committee suggests that the EC continues with the support of IAGA and related meetings and workshops, while reserves are high.

- The Finance Committee:
  - congratulates the EC and the organizers of IAGA Schools, and
  - encourages IAGA to continue organizing such IAGA Schools before each Assembly, with related tutorials posted on-line on the IAGA web page, and
  - suggests to extend support for IAGA Schools, while financial reserves are high.

- The Finance Committee recommends:
  - continuing the current policy of reduced administration related expenditures, and
  - for the near future, larger support of IAGA Assemblies and other IAGA related meeting could be considered, if reserves are still high.

The report ended with the statement that the Finance Committee considers that the IAGA Executive Committee and Treasurer should be commended by the CoD for their excellent management of IAGA finances during the years 2019 - 2022.

The President called for a vote regarding the financial activities. The National Delegates unanimously approved the financial statements and discharged the Executive Committee for the period January 1, 2019 to December 31, 2022.

Report on the 6th IAGA School (Barbara Leichter)

The Chair of the Interdivisional Commission of Education and Outreach (ICEO), Barbara Leichter, reported on the 6th IAGA School (see section 4 for details).

Report of the Nominating Committee (Eduard Petrovsky)

The Nominating Committee consists of Eduard Petrovsky (Chair, Past IAGA President), Inez Batista, Archana Bhattacharyya, Steve Constable and Toshihiko Iyemori.

Process of nomination
The Nominating Committee (NC) was appointed on December 21, 2022 and consisted of Eduard Petrovsky (Chair, Czechia), Inez Batista (Brazil), Archana Bhattacharyya (India), Steven Constable (USA) and Toshihiko Iyemori (Japan). The National Delegates were first reminded of the EC members to be elected according to the statutes from 2015. There was no need for nomination to the position of Secretary General and Treasurer, both officers are elected for two terms according to Statutes 8.5 and 8.6 and they both agreed to continue in the next term.

The NC had conducted the search for candidates to serve for the period 2023 - 2027. The Committee discussed all the matters either by e-mail, and by a videoconference which took place on February 15. The candidates nominated were selected on the basis of the following criteria:

- eligibility,
- research relation to IAGA,
- personal capability/suitability,
- commitment to IAGA and past service (on the Executive Committee, Divisions, Working Groups, and Inter-divisional Commissions, and in other ways), and
- balanced representation in terms of gender, research profile and geographical region (including two candidates for one Early Career Researcher EC member and at least four candidates for two EC members representing less-developed regions).

List of candidates After several e-mail discussions, the list of the candidates along with their letters of motivation and CVs had been sent to the Secretary General on June 19, 2023 and distributed by e-mail to the National Delegates on June 22, 2023.

The list of candidates and the voting procedure were then discussed in the Conference of Delegates.

Business

Minor adjustment of IAGA Statutes and By-Laws

Minor adjustments to the Statutes and Bylaws were proposed by the IAGA EC:

(a) to remove the age of ECS as a selection criterion, and to better align IAGA's definition of ECS with the IUGG definition, and

(b) to revise Bylaw 8.9 (by adding "and the Treasurer") to read "The election of the Executive Committee shall normally take place at a Conference of Delegates held at a General Assembly, with the exception of that of the Secretary-General and the Treasurer who shall normally be elected at a Conference of Delegates held at a Scientific Assembly."

These changes were unanimously approved.

Election of Honorary Members of IAGA

No nominations for Honorary Members were received.

Resolutions Committee

The National Delegates unanimously approved the nomination of Eduard Petrovský, Ciaran Beggan and Erwan Thébault for the Resolution Committee.

2.2.2 Second Conference of Delegates, July 17, 17:30 - 19:00

The Secretary General conducted a Roll Call of the Chief Delegates from all IAGA member countries. This established that 18 Chief Delegates with voting rights were present.

The agenda was approved and the President called the meeting to order.

Reports

The Secretary General reported on the EC meetings during the General Assembly (see 2.3) and presented the list of newly elected Division, Commission and Working Group leadership (see 2.4). The list of new Division and Commission chairs and co-chairs was endorsed by the Conference of Delegates according to By-Law 3. The 2025 IAGA-IASPEI Scientific Assembly will be held in Lisbon, Portugal, on August 31 to September 5, 2025. The SG briefly reported on a meeting between the local organisers, IAGA EC members and IASPEI representatives regarding the preparations for the Joint Assembly that took place on July 17, 12:00. The preparations look good and on schedule, and a website with first information will become available soon. The SG also briefly presented the proposed sessions from IAGA Divisions, Commissions and Working Groups for the Joint Assembly. The programme will be finalized in due time in consultation with the Division and Commission chairs.

Business

Election of EC members for the 2019 – 2023 Quadrennium (Eduard Petrovský)

The Nominating Committee Chair, Eduard Petrovsky, briefly summarized the whole process again and explained in detail the following election process. The CoD approved the appointment of Barbara Leichter (AT) and Jakub Velimsky (CZ) as scrutineers.

A total of 4 rounds of election were held, as unsuccessful candidates for president or vice president positions entered the pool of general members in a later round, and there was a tie for one of the vice president positions in the first round. Moreover, to ensure that at least 2 EC members come from Developing Countries as required by IAGA Statute 8.1, there was a special round with candidates from developing countries only, so that unsuccessful candidates from that round could also enter the general pool for further EC members afterwards. Secretary General and Treasurer had been elected for 2 terms in 2019, according to IAGA Statutes 8.5 and 8.6, and have not changed.

The newly elected EC, whose term of office started with the end of the General Assembly, consists of

President:	Andrew Yau (Canada)
Vice Presidents:	Kusumita Arora (India),
	Klaus Spitzer (Germany)
Secretary General:	Monika Korte (Germany)
Treasurer:	Aude Chambodut (France)
Members:	Anna Kelbert (USA),
	Michael Kosch (S. Africa),
	Dominika Niezabitowska,
	(Sweden, ECR represenative),
	Masahito Nosé (Japan),
	Katia Pinheiro (Brazil),
	Pornchai Supnithi (Thailand),
	Ricardo Trindade (Brazil)
Past President:	Mioara Mandea (France)

Resolutions of the 2019 General Assembly

A resolution had been suggested by SCOSTEP and had subsequently been deliberated by the resolutions committee consisting of Eduard Petrovský, Ciaran Beggan and Erwan Thébault. It was approved unanimously by the National Delegates

without discussion (see section 5 for the resolution text).

The second Conference of Delegates ended with president Mioara Mandea expressing her gratitude to the IAGA Community for the support during her presidency over the past four years, especially during the pandemic.

2.3 Report from the IAGA Executive Committee Meetings

The Executive Committee had three meetings at the IUGG General Assembly, on July 12, 16 and 18. Virtual attendance for EC members that could not present in person was possible at these meetings.

The first EC meeting was mainly devoted to prepare and discuss the reports for the first Conference of Delegates, and to set up the Resolution Committee. It was also discussed if IAGA would support an IUGG resolution on sharing data. The EC decided to support the resolution but to request some wording changes for broad applicability.

In the second EC meeting, the new IAGA Division and Commission chairs and co-chairs were discussed for endorsement by the Conference of Delegates. It was noted that no business meeting of the Interdivisional Commission on History (ICH) was conducted and no information had been received from the chair or co-chair. It was decided to suspend the ICH if this could not be resolved by the time of the second Conference of Delegates. However, the EC liaison person for ICH, Mioara Mandea, managed to find interested participants, hold an ad-hoc ICH meeting and find a new chair and co-chair for the Commission in time before the second Conference of Delegates. The proposed IAGA resolution, as prepared by the resolution committee, was discussed for presentation to the Conference of Delegates.

The third EC meeting was preceded by a get-together of all available outgoing and incoming EC members. Then, EC liaison persons for the Divisions and Commissions were discussed and EC tasks and future business were discussed.

2.4 New Leadership of Divisions and Commissions

Contact details and Division Working Group leaders can be found on the IAGA website[2].

Division I - Internal Magnetid Fields

Chair:	Nicolas Gillet (France)
Co-Chairs:	Liao Chang (China)
	Patrick Arneitz (Austria)

Divison II - Aeronomic Phenomena

Chair:	Petra Koucká Knížová (Czech Republic)
Co-Chair:	Christina Arras (Germany)

Division III - Magnetospheric Phenomena

Chair:	Jay Johnson (USA)
Co-Chair:	Jayashree Bulusu (India)

Division IV - Solar Wind and Interplanetary Field

Chair:	Cynthia Lopez-Portela (Mexico)
Co-Chair:	Laura Rodríguez García (Spain)

Division V - Geomagnetic Observatories, Surveys and Analyses

Chair:	Roman Leonhardt (Austria)
Co-Chair:	Tanja Petersen (New Zealand)

Division VI - Electromagnetic Induction in the Earth and Planetary Bodies

Chair:	Ute Weckmann (Germany)
Co-Chair:	Kiyoshi Baba (Japan)

Interdivisional Commission on Developing Countries

Chair:	Geeta Vichare (India)
Co-Chairs:	Igo Paulino (Brazil)
	Marta M. Zossi (Argentina)

Interdivisional Commission on History

Chair:	Nada Al-Haddad (USA)
Co-Chair:	Hisashi Hayakawa (Japan)
	Veronika Barta (Hungary)

Interdivsional Commission on Education and Outreach

Chair:	Barbara Leichter (Austria)
Co-Chairs:	Ashley Smith (UK)
	Sara Gasparini (Norway)

Interdivision Commission on Space Weather

Chair:	Laure Lefevre (Belgium)
Co-Chair:	Gemma Richardson (UK)

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3 IAGA Awards

The 2023 awardees with IAGA President and Secretary General at the IAGA Ceremony. From left to right: Bram Vaes (Early Career Awardee), Mioara Mandea (IAGA President), Nils Olsen (Shen Kuo Medalist), Monika Korte (IAGA Secretary General), Miroslav Hanzelka (Early Career Awardee) [photo: A. Yau].

IAGA Award for Interdisciplinary Achievements - Shen Kuo

The Award aims at recognizing and acknowledging outstanding scientists whose activities and achievements cross several fields of research covered by IAGA.

The Shen Kuo Medal for interdisciplinary achievements was given to Nils Olsen (Denmark).

Nils Olsen is the head of the department of Geomagnetism at the Danish National Space Center and a member of the Theoretical Geophysics and Planetary Physics Group at the Niels Bohr Institute, Copenhagen University. He is author or co-author of more than 100 scientific papers and technical reports (70 in peer-reviewed journals) and was the convener or co-convener for various sessions of IUGG, IAGA, AGU, EGS, and EGU. In addition to scientific work, he is also active in education when he passes his extensive experiences to the students, and thus shapes a new generation of scientists.

The main scientific focus of Nils Olsen is mod-

elling of the Earth's magnetic field, geomagnetic variations, core fluid flow, and electromagnetic induction in the mantle. Observatory measurements of the geomagnetic field, whether surface or satellite, are used to create maps and models of the geomagnetic field and to study short-term and long-term variations in the geomagnetic field. He participated in the preparation of comprehensive models (CM) of the Earth's magnetic field and initiated the development of a series of CHAOS models. These results also allow modelling the magnetic field inside the Earth – in the mantle or the core. Besides we can also refine the convection models in the Earth's outer core. Moreover, Nils Olsen also made a significant contribution to the study of magnetic anomalies in the Earth's lithosphere – designed the LCS model that currently provides the highest spatial resolution of the crustal magnetic field. His work from the late nineties contributed to the study of electromagnetic activity in the Earth's ionosphere and magnetosphere. Nils Olsen is also significantly involved in satellite measurements of magnetic fields. He was the principal investigator and scientific director of projects for internal magnetic field research of the Danish satellite Ørsted and also Ørsted-2, the principal investigator of the experiment on the SAC-C satellite, co-investigator of the CHAMP mission, and the chief scientist of the Phase A of ESA's Swarm constellation mission. All these missions have significantly contributed and continue to contribute to the measurement of the Earth's magnetic field and thus to the development of all generations of IGRF. In addition to studying the Earth's magnetic field, he is involved in satellite prospecting the magnetic fields of Mars and the Moon, with emphasis on external-internal field separation and electromagnetic induction studies. This brief review of Professor Nils Olsen's scientific work shows the broad and interdisciplinary nature of his work. Although satellite measurements of the geomagnetic fields are his main focus, he has contributed to other areas of geomagnetic field research, too. His scientific activities undeniably cover several Divisions of IAGA. Although he is mainly involved in IAGA Division V - Geomagnetic Observatories, Surveys and Analyses, his work contributes to IAGA Division I - Internal Magnetic Fields, IAGA Division VI - Electromagnetic Induction in the Earth and Planetary Bodies and also partially to IAGA Division II - Aeronomic Phenomena and IAGA Division III - Magnetospheric Phenomena. For this reason, Professor Nils Olsen appears to be an excellent candidate for the IAGA Shen Kuo Award for Interdisciplinary Achievements. Our nomination is supported by IAGA Division VI - Electromagnetic Induction in the Earth and Planetary Bodies, IAGA Working Group V-MOD and IAGA Working Group V-OBS.

Nomination Letter by Chair and Co-chairs of Division I:
Petra Koucká Knížová
Julie Carlut
Nicolas Gillet
Qingsong Liu

IAGA Early Career Award

The IAGA Early Career Award is given to early career scientists who have made outstanding contributions at specialist meetings and workshops for which IAGA is a sponsor. This year, certificates were given by the President to 2 award winners.

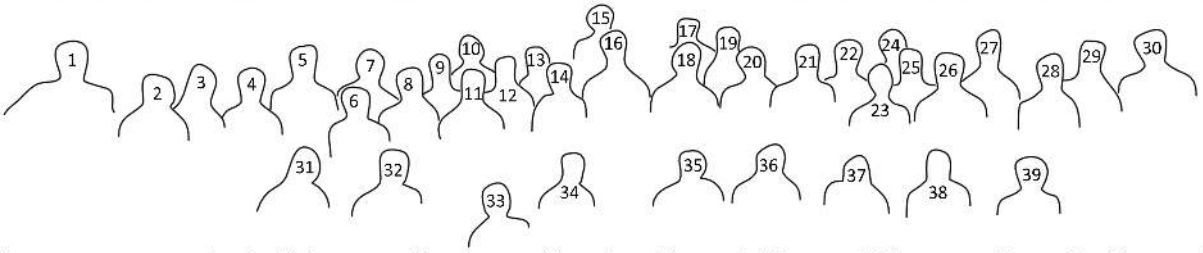
Miroslav Hanzelka (Czech Republic)

Nominated by the VERSIM VLF/ELF Remote Sensing of Ionospheres and Magnetospheres workshop

Bram Vaes (Netherlands)

Nominated by the 17th Castle meeting on New Trends on Paleo, Rock and Environmental Magnetism.

4 The 6th IAGA School



(1) M. Vinicicus Siqueira da Silva[+] (2) R. Santos (3) K. Martinic (4) H. Zhang (5) R. Rathi (6) K. Arora[•] (7) A. Kumar (8) M. Eldor (9) A. Smith[■] (10) S. Fielding (11) K. Aksonova (12) Y. Shin (13) J. Matzka[◆] (14) E. Gülay (15) R. Holme[°] (16) B. Vaes (17) E. Thebault[•] (18) W. Martin (19) C. Constable[°] (20) F. Madsen (21) S. Constable[•] (22) N. Kadam (23) E. Vargas Huitzil (24) M. Varghese (25) J. Johnson[•] (26) R. Beltran (27) M. Hanzelka (28) A. Nasi (29) E. Pulz[+] (30) C. Müller-Brettschneider[+] (31) A. Piassi (32) B. Leichter[◆] (33) S. Sobhkhizmiandehi (34) M. Kellinsalmi (35) N. Clizzie (36) M. Puente Borque (37) M. Korte[◆] (38) B. Valdes-Moreno (39) G. Turner[•]

Legend: [•] Lecturers, [■] Tutors, [◆] Organisers, [+] Staff, [°] Visitors

Not shown: J. Wicht[•], J. Haseloff[+], S. Rettig[+], T. Seeger[+]

The IAGA Schools, organised by the International Association of Geomagnetism and Aeronomy, aim at providing excellent early career scientists with a good basic understanding of a wide range of the scientific topics covered by IAGA.

The 6th IAGA School was held at the Niemegk geomagnetic observatory of the German Research Centre for Geosciences, GFZ, on July 6 - 12, in the week before the IUGG General Assembly. The observatory is located about 60 km outside of Berlin, Germany. The accommodation of the students was close to the observatory.

The IAGA School was attended by 25 participants from 15 different countries. The following lectures were given by internationally recognized experts:

Kusumita Arora: Core field/observations
Johannes Wicht: Numerical core field simulation
Gillian Turner: Paleo-/rock magnetism
Jay Johnson: Magnetosphere
Erwan Thebault: Lithospheric field
Steve Constable: EM/MT with help from **Oliver Ritter** for practical exercises.

More details about the program can be found on the IAGA Website[3]

The coordination and organization of the IAGA School was done by the IAGA Interdivisional Commission on Education and Outreach (ICEO), mainly by the chairperson Barbara Leichter (GeoSphere Austria), and supported by the local organizers Jürgen Matzka and colleagues from the GFZ Niemegk observatory. Networking among the participants was an important aspect of the IAGA School, in addition to gaining scientific knowledge.

We sincerely thank all who made the 6th IAGA School a success. Jürgen Matzka from the Local Organizing Committee, and the colleagues from the GFZ Niemegk observatory were great hosts. The greatest honor and acknowledgment goes to the lecturers for their availability. Also many thanks to Ashley Smith, who was a helping hand and acted as a Tutor during the whole IAGA School.

Barbara Leichter
Chair of Interdivsional Commission of Education and Outreach

5 IAGA Resolutions - 2023

One resolution was adopted during the 28th IUGG General Assembly, Berlin, Germany, July 2023.

Resolution No.1 (2023): Sharing geomagnetic field data across borders

IAGA

Noting

- that geopolitical conflicts create restrictions on sharing geomagnetic and aeronomic data across borders for scientific use; and
- the above restrictions negatively impact international scientific collaboration and research;

Recognizing

- that sharing of geomagnetic and aeronomic data across borders is an internationally established norm; and
- sharing geomagnetic and aeronomic data enhances the scientific benefits for the entire world, including nations that are involved in geopolitical conflicts;

Acknowledges

- that IUGG, International Science Council (ISC) and other relevant international bodies support national authorities, including those affected by geopolitical conflicts, in efforts to share geomagnetic and aeronomic data across borders; and
- that IAGA has passed multiple resolutions concerned with open access to scientific data, including geomagnetic and aeronomic ones [e.g. 1, 2, 3, 4];

Urges

- national committees to take necessary actions in their respective countries to ensure sharing of geomagnetic and aeronomic data across borders; and
- ISC, relevant national and international authorities to continue supporting them in this effort.

[1] 1991 IAGA Resolution No. 1: Global observation network and data exchange

[2] 1999 IAGA Resolution No. 5: WIPO and free access to databases

[3] 2005 IAGA Resolution No. 1: Open access to scientific data

[4] 2011 IAGA Resolution No. 4: De-classifying magnetic anomaly data

6 Reports from Topical Meetings

IAGA sponsored several topical meetings and workshops in 2023.

6.1 MagIC Workshop

MagIC (the Magnetic Information Consortium) hosted a workshop titled Magnetism and Earth History: Field Evolution, Environmental Change and Paleogeography at Scripps Institution of Oceanography from February 28 - March 2, 2023. This long-awaited in-person event was repeatedly delayed from the initial plan to take place in March 2020 because of COVID concerns, and the rejuvenated organizing committee was delighted to see the benefits of renewed personal interactions and the resulting dynamic discussions. The organizers gratefully acknowledge financial contributions from IAGA, the US National Science Foundation, and Scripps Institution of Oceanography. Around 60 participants from 9 countries across Europe, China, S. America, and USA took part, including more than 9 posters and 6 talks given by very early career (<2 years post degree) attendees. Three half day oral sessions comprising 13 invited talks were complemented by a vibrant poster session covering diverse topics for a total of 32 formal abstracts. Working lunches provided opportunities for early career discussions (extended to include all postdocs, pre-tenure, or less than 8 years post PhD) and an extension of the poster session on the second day.

Keynote talks in the Planetary Processes session highlighted attempts to identify the onset and rate of inner core formation reflected in paleointensity variations, the influence of changing core-mantle boundary conditions on numerical dynamo simulations, new results in lunar paleomagnetism, and improving prospects for magnetic imaging using micrometer-scale imaging with the quantum diamond microscope on both terrestrial and extraterrestrial materials. We then moved onto the Surface Environment with detailed studies of magnetic dissolution and greigite formation in sediments and climate and environmental change recorded in European loess. A review of progress in understanding speleothem formation and the nature of their paleomagnetic records and how to image them with SQUID microscopy were also a strong focus in this session. Our third major science session dealt with Paleogeography. Two talks highlighted great improvements in Apparent Polar Wander Path reconstructions enabled by new compilations and access to estimates of site level uncertainties in pole contributions combined with suitable propagation into the pole re-

sults. Additional presentations focused on bringing a broader interpretation to the integration of greater India with Asia, and new perspectives on tracking Rodinia across the Mesoproterozoic to Neoproterozoic boundary. The morning of day 2 featured presentations on MagIC as a Resource for the Community, highlighting new members and efforts by the MagIC team to develop portals dedicated to the specific subareas of paleomagnetic poles and rock magnetism, and followed by breakout discussions to solicit community input on future directions in these areas and for software developments. Day 3 was dedicated to hands-on tutorials about using online tools and making contributions to MagIC using both GUIs and Jupyter notebooks. This was a highly successful interactive session with about 40 participants, providing a welcome opportunity for users to experiment with multiple features and tools available within MagIC. Direct feedback to the MagIC team is enabling them to set future priorities for development.

The MagIC workshop volume[4] with complete program and abstracts can be found on the workshop website[5]. Oral presentations were recorded and are available on MagIC's Youtube channel[6].

Cathy Constable
Scripps Institution of Oceaonography, UCSD

6.2 PLANCKS23

The tenth edition of PLANCKS 2023 took place from May 12 to 16, in Milan, Italy. It was organized by the IAPS (International Association of Physics Students) Italian National Committee (NC) and the Milan Local Committee of AISF (Italian Association of Physics Students). PLANCKS are held annually, since their first edition in Utrecht in 2014, and they are one of the most important international events by IAPS. PLANCKS are the finals of the international Physics Olympic games where the best students from all over the world, selected amongst those of the winning teams from each national round, face each other, solving problems concerning different topics of Physics. During PLANCKS, guest lectures, local laboratories' visits and student sessions are also organized. Such social activities help to develop international relationships, contacts' nets and allow participants (Organizing Committee and visiting students) to discover the latest fronteers in scientific reasearch, besides having fun. PLANCKS 2023 were hosted in a number of different locations in Milan. The competition, the opening ceremony and the first guest lecture, workshops and student sessions took place in Università Statale. Other guest lectures were held in the Conservatory major room. IBM Studios in Piazza Gae Aulenti hosted the event for the poster session, the remaining guest lectures and the closing ceremony.

PLANCKS 2023 edition gathered 239 students from 35 Countries worldwide in Milan. The number of competitors teams was 47, with four people in each team, one team with three people and one with two people, and the number of observers, students willing to take part in all the activities framing the competition, was 46.

There were organized seven guest lectures, one workshop, where four sponsor companies presented themselves, a presentation about IBM, which hosted us, by Federico Mattei, IBM Quantum Business Developer, one student sessions, where ten students talked about their thesis, and one poster session, where 23 students had the chance to show their scientific projects.

PLANCKS 23 had the honor to host as guest lecturers Nobel laureate Didier Queloz, who talked about his efforts to investigate esoplanets in the universe, and Federico Faggin, who designed the first commercial microprocessor and explained his theory about the application of quantum mechanics to human consciousness. Moreover, great honor was for the Organizing Committee and for all participants to listen to seven other physicists: Tiziano Camporesi, on the development of experiments in high energy Physics, Paolo Milani and Alessandro Curioni, about neuromorphic materials and quantum computing, Claudia Pasquero, on ocean heat storage and climate changing, Marco Liscidini, about nonlinear optics, Stefano Forte, on the use of machine learning techniques in particle Physics, Simone Iovenitti, which took a presentation during the planetarium show on the first day. Three sponsor companies and one institute, SAES, OPTICA, INRiM (National Institute of Metrologic Research), Ephos, presented their works during the workshop session. Participants had the opportunity to visit the fol-

lowing laboratories spread in Milan: ISTP (Institute for Plasma Science and Technology), Brera Astronomical Observatory, IBM (about quantum computing), LASA (Laboratory of Accelerators and Applied Superconductivity), SCITEC (about organic semiconductors), SML (SmartMatLab Center, about photophysical characterization of molecular organic and inorganic materials and the study of different thin film deposition techniques), Pirelli (where chemical and physical laboratories study new solutions and technologies), Physics Department of the Milan Polytechnic (which developes new technologies for applications in the fields of medicine, renewable energies and microelectronics), IFOM (Insitute for Molecular Oncology), SAES (active in high vacuum systems).

Guest lectures hold on May 13 were open to the public, expecially to all Italian High Schools. Young students could listen to Proff. Paolo Milani, Alessandro Curioni and Federico Faggin' talks. Indeed, this event was called Open PLANCKS. Open PLANCKS were joined by 259 extra participants, who could benefit from a simultaneous translation service. Open PLANCKS were available also in streaming, reaching a large number of participants, who could not come to Milan. The evening concert at the Conservatory of the same day was open to the public as well. The Organizing Committee is extremely proud to say that ICTP (International Centre for Theoretical Physics) dedicated 4800 Euros to support the participation to PLANCKS of students coming from developing Countries.

The next edition of PLANCKS will take place in Dublin and will be organized by NC Ireland.

Gloria Senatore
Valentina Raspagni
Matteo Vismara
Francesco Righini
Luca Palini
Luca Radavelli

6.3 19th IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing

The 19th IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing[7] was held at the Tihany Geophysical Observatory (THY) and in the Institute of Earth Physics and Space Science (EPSS), Sopron, Hungary from May 22 to 26, 2023.

The workshop consisted of two parts. An instrumentation and observation-focused first part including the DIM (declino/inclino-magnetometer) measurement/intercalibration sessions was held in Tihany on May 22 and 23, 2023, which was followed by a three-day conference in Sopron including sessions on new measurement techniques, improved instrumentation, data processing, as well as new science results based on geomagnetic observations.

The workshop was attended by 61 participants from 25 countries of which 7 were out of Europe. A total of 35 instruments were brought in for intercomparison. We had a total of 45 presentations including 2 invited talks on INTERMAGNET. The topics of the conference sessions were: Updates on geomagnetic observatories and networks (13), Observatory instrumentation (10), Data processing and distribution (5), Data analysis, interpretation and application (11) and an Open poster session (4).

The Local Organizing Committee was able to support the participation of scientists and observers; in total, 15 fee waivers, 7 airplane fares, and 17 hotel rooms were offered to carefully selected participants. Additionally to the talks, a summer school, and an INTERMAGNET round table meeting took place respectively right before and following the workshop.

Balázs Heilig
Istvan Lemperger
Institute of Earth Physics and Space Science, Hungary

6.3.1 Summer School of the Workshop

The IAGA-Workshop 2023 Summer School took place from May 21 to May 23, 2023, in Tihany, starting directly before and overlapping with the observatory workshop itself. The summer school was aimed at early career technicians and scientists, as well as new observers. The Summer School students were also expected to participate to all scientific sessions in Sopron. The participation to the Summer School was limited to 15 students. The coordinator and the leader of the Summer School was Barbara Leichter (GeoSphere Austria). The Summer School provided in-depth courses on DI measurements, instrumentation and data processing on the following topics, given by experts in the specific fields.

1. Course on geomagnetic measurements from scratch (Jürgen Matzka, GFZ, Potsdam, Germany)

2. DI measurements and sun shots in practice (Alan Berarducci, Compass Rose, USA and Barbara Leichter, GeoSphere Austria)

3. Observatory Instrumentation (Hegymegi Lászlo, Hegymegi Csaba, Domján Ádám, Mingeo Ltd., Budapest, Hungary)

4. Geomagnetic data processing (Chris Turbitt, BGS, UK)

Participants were also invited to the „get to know each other Summer School Dinner" at Viktória Inn, the hotel where all the Summer School participants were accommodated. The dinner was followed by a private classical concert given by the son of Balázs Heilig, one of the main organizers of the IAGA-Workshop. The sessions were attended not only by eight registered students from six different countries, but also by participants who had already been there for their measurement comparison. Unfortunately, four confirmed participants had to cancel their venue at the last moment due to financial and visa reasons.

Barbara Leichter
Chair of Interdivisional Commission of Education and Outreach

6.4 Workshop on Current Challenges in Data Assimilation for Geospace Systems

The IAGA working group for Geospace Data Assimilation (GeoDAWG) organized a first workshop about data assimilation techniques and approaches in Geospace on 20-21 July 2023 in Neustrelitz, Germany. The goals of the workshop were to discuss challenges in data assimilation applications to geospace systems and identify the common ground to tackle these challenges. The workshop was organized in a hybrid format, with 16 participants attending in person and 10 participants joining online. It was a great success for the participants and organizers. A joint data assimilation session has been organized at the IUGG General Assembly in Berlin directly ahead of the workshop. It provided the opportunity to present the latest results and achievements in GeoSpace Data Assimilation. The GeoDaWG workshop in Neustrelitz then provided a broader platform for detailed and focused discussion. The workshop' focal point were key questions typically faced in data assimilation experiments:

1. How to impose observational constraints by transferring information from observationally dense regions to sparse regions?

2. How to mitigate unphysical increments that cause dynamical imbalance in the model.

3. How to reduce the estimation problem dimension: benefits and limitations of reduced-state and parameter (driver) estimation?

4. What are good means for validation, verification and measuring improvement?

The workshop was kicked-off with dedicated scene setting talks given by experts in different domains of geospace. There were six talks addressing current issues with data assimilation methods and validation in the thermosphere-ionosphere and magnetosphere domain, which helped to stimulate in depth discussions. At the end of the first day during a poster conference, participants were also able to discuss individual research Early career scientists were especially encouraged to present their recent research results. On the second day, the participants split into two groups for separate discussions moderated by the organizers to address the two priority topics "challenges in data assimilation techniques" and "approaches for harmonized validation". The discussion results were presented at the end of the workshop in the plenum, and next steps were discussed. The next workshop is planned to take place in 2025 in Portugal, directly after the IAGA General Assembly. In the meantime, the GeoDAWG working group continues with online meetings to follow up with the workshop results and make steps forward.

Claudia Boerries
Co-Chair GeoDaWG

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7 Further IAGA and IAGA-related activities

7.1 Introduction of the new EC

In the following, members of the new IAGA EC briefly introduce themselves and their scientific interests.

Andrew Yau, President

Andrew has been a Professor at University of Calgary, Department of Physics and Astronomy since 1999; and is currently Editor of Geophysical Research Letters and President of IAGA. As Principal Investigator (PI) of the Swarm-E/e-POP (Enhanced Polar Outflow Probe) mission, his primary research interest is in the Earth's ionosphere, magnetosphere, and related space weather; his current research is focused on space weather effects in the topside ionosphere. An active member of the international space research community, he has participated in several international space science missions as PI or Co-Investigator over the past 4 decades, including Canadian, ESA, JAXA, NASA, and Swedish/German satellite and sounding rocket missions. He obtained his doctorate in physics from York University in 1978; he was Senior Research Officer and Space Plasma Group Leader at Herzberg Institute of Astrophysics prior to his move to Calgary in 1999, and Senior NSERC Industrial Research Chair in Experimental Space Science in 2003 - 2014, and he is the author of over 150 publications in peer-reviewed international journals.

Kusumita Arora, Vice President

Kusumita graduated in Exploration Geophysics from the Indian Institute of Technology, Kharagpur, India and completed her PhD in Geophysics in 2006 from Osmania University, Hyderabad and Freie Universität Berlin, under a DAAD Sandwich program. Her research has been on diverse aspects of Earth's gravity and magnetic field for the last 25 years. She is the head of the Geomagnetism Group at CSIR-National Geophysical Research Institute, Hyderabad, India. Over the last one and half decade she has set up two INTERMAGNET observatories in India as well as new recording stations in the remote regions of the Andaman-Nicobar islands, Lakshadweep islands and the Himalaya. Along with her doctoral students, she has published about 40 peer reviewed papers in the last decade on topics covering characteristics of Sq in the low latitudes, EEJ, CEJ, Prompt Penetration, ionospheric disturbance dy-

namo, geomagnetic pulsations at low latitudes, induction vectors and more. She has a close association with IAGA activities. In October 2014 she convened the XVI IAGA Observatory Workshop with more than 100 participants from 33 countries. In August 2021 she has led the Scientific Program Committee and the organizational responsibilities of the virtual Joint Assembly of IAGA and IASPEI with more than 800 participants from 54 countries. She is also a member of the Scientific Board of the Bureau Central de Magnetisme Terrestre (BMCT) of IPGP, France. She has been a lecture at the 6th IAGA School at Niemegk Observatory, Germany. Earlier she has been co-Chair of Division V and a member of the IAGA EC. She continues to be a liaison for IAGA Division V.

Klaus Spitzer, Vice President

Klaus studied physics at the University of Göttingen and obtained his doctorate in 1991. He worked as a researcher and lecturer at the Geological Survey in Hannover and the École Polytechnique in Montreal/Canada. In 1999, he completed his habilitation at the University of Leipzig. In 2000, Klaus became a Full Professor of Applied Geophysics at the Technische Universität Bergakademie Freiberg. He served as the Head of the Institute of Geophysics and Geoinformatics from 2003 to 2018. Klaus's research focuses on geoelectromagnetic methods, particularly their numerical simulation and inversion. He has collaborated with the Institute for Numerical Analysis and Optimization at his university for over 15 years. Throughout his career, Klaus held various roles, including Dean/Vice Dean of the Faculty of Geosciences, Geotechnics, and Mining. He was a member of the Senate of his university and chaired the German Research Council Physics of the Earth. Klaus was also an elected member of the Review Board Geophysics and Geodesy of the German Research Foundation (DFG). He served as a reviewer for the German Academic Exchange Service for more than a decade. In 2007, Klaus became a trustee of the Hohmann-Wannamaker Trust for Electromagnetic Geophysics (USA). Klaus actively participated in chairing and convening sessions at international conferences. He hosted and organized several national and international conferences, including the 4th International Symposium on Three-Dimensional Electromagnetics in Freiberg 2007. Klaus was an associate editor of Acta Geophysica and a guest editor of Geophysics, Journal of Applied Geophysics, and Earth, Planets and Space. He served as a reviewer for almost all major geophysical journals and several national research foundations. In 2008/2009, he stayed as a visiting scientist at the Institute of Geological and Nuclear Sciences, Wellington, New Zealand, and in 2019/2020 at the School of Physical Sciences at the University of Adelaide, South Australia. Finally, he was a member of the IAGA Executive Committee from 2019 to 2023 and is currently the IAGA liaison for Div VI.

Monika Korte, Secretary General

Monika is currently interim leader of the Geomagnetism section at of the German Research Centre for Geosciences, GFZ, in Potsdam, Germany, and leader of the group 'Geomagnetic Field Evolution'. From 2003 to 2014 she was scientific head of the Adolf-Schmidt-Observatory for Geomagnetism of GFZ in Niemegk and later lead the group dealing also with the international collaborative and supported observatories of GFZ. She has been strongly involved in collaborative geomagnetic repeat station surveys in Germany, Europe and Southern Africa. One of Monika's research interests remains the separation of internal field secular variation and long-term magnetospheric variations. Since her time as a post-doctoral research fellow of Alexander von Humboldt-foundation at Scripps Institution of Oceanography, University of California at San Diego in 2001 - 2002, Monika has been interested in the reconstruction of the global long-term magnetic field evolution, from Holocene time-scales to geomagnetic excursions, using archeo- and paleomagnetic data produced in laboratories all over the Earth. She has been active in several roles for IAGA and the American Geophysical Union, was or is an (associate) editor for Geochemistry, Geophysics, Geosystems; Nature Scientific Reports and Geophysical Research Letters, and she is co-editor of two IAGA books.

Michael Kosch, Member

Mike is currently the chief scientist and research manager at the South African National Space

Agency, based in Hermanus South Africa, as well as a professor at the Universities of the Western Cape and KwaZulu-Natal in South Africa. He is the PI of the South African SuperDARN radar located in Antarctica. Current active research projects include: (1) Black auroras, and the newly discovered anti-black auroras, using EISCAT incoherent scatter radar data in Norway and night-vision optics; (2) transient luminous events (sprites) in the mesosphere over South Africa, using radio wave and night-vision optical instruments; (3) meso-scale ion-neutral coupling and Joule heating in the E-region ionosphere close to auroral arcs using SuperDARN and scanning Doppler imagers; (4) atmospheric radiation studies using high-altitude balloons over South Africa (to generate a regional model), and (5) remote smoke detection for the prevention of wildfires that have huge social and economic impacts in Africa. All these projects involve postgraduate students and, where possible, the student does field work to get their own observations and gain experience. Mike is currently the IAGA liaison for the Interdivisional Commission on Developing Countries.

Masahito Nosé, Member

Masahito Nosé is a professor in space physics and geomagnetism at School of Data Science, Nagoya City University, Japan, since 2023. He earned his PhD degree in geophysics from Kyoto University, Japan, in March 1998. He started his career as a postdoctoral fellow at The Johns Hopkins University Applied Physics Laboratory (1998 - 2001), and then worked for Data Analysis Center for Geomagnetism and Space Magnetism, Kyoto University (2001 - 2018), and Institute for Space-Earth Environmental Research (ISEE), Nagoya University (2018 - 2023) before moving the current position. He served as Chair of Division V, IAGA for 2019 - 2023 and is now in charge of Vice Editor in Chief of Earth Planets and Space journal. Masahito's research interests include magnetic field variations and ion composition change in the magnetosphere, ground and satellite observations of geomagnetic field, geomagnetic indices, and development of new-type magnetometer. He is the author of over 130 publications in peer-reviewed international journals. He is currently the IAGA liaison for Div III.

Katia Pinheiro, Member

Katia has been working as a researcher at Observatório Nacional (ON - Department of Geophysics, Brazil) for the last 15 years. She has given numerous talks and courses during her scientific career, and has supervised BSc, MSc, and Ph.D. students, as well as Post-doc fellows. Her research is mainly focused on geomagnetic jerks, modelling of the mantle electrical conductivity, and data analysis of magnetic observatories and stations. From 2012 to 2023 she worked as head of the Brazilian magnetic observatories, promoting the modernization of Brazilian observatories and stations and the worldwide distribution of geomagnetic data from Brazil. She was co-chair of the IAGA Working Group V-OBS, from 2019 to 2023 and member of IAGA ICEO (Interdivisional Commission of Education and Outreach group) from 2021. In the last years she has been strongly involved in science outreach projects, especially on audiovisual production. One of her recent projects is the documentary "Magnetic Mosaic", selected as one of the top 3 movies of the Earth Futures Festival in the category "Women in Geosciences." Recently she managed two outreach projects for IUGG and IAGA and received the Braga Science Film Fest "Public Award" for the animation movie "Earth-human Connections". She is currently producing short movies and documentaries with researchers talking about science and their experiences, available on IUGG and IAGA YouTube channels.

Pornchai Supnithi, Member

Pornchai Supnithi works at the Telecommunication Engineering Department, School of Engineering, King Mongkut's Institute of Technology Ladkrabang (KMITL). During the past decades, his work at KMITL is mainly in studying (via numerous observational instrument) the ionospheric irregularity existent in low-latitude regions often known as "equatorial plasma bubbles (EPB)" as well as the impact on societal infrastructure such as GNSS (Global Navigation Satellite System) positioning, navigation and timing (PNT), and the technologies which rely on them. He, together with partnered institutions, established the Thai GNSS and Space Weather Information Center[8] in order to provide observational data from ground-based instruments and produce data

products for further utilization. Active international collaboration in his team is involved with SEALION (Southeast Asian Low-Latitude Ionospheric Observation Network) project, Ground-based augmentation system (GBAS) demonstration with national aeronautical company, regulators and international experts and ASEAN IVO project to collaborate with ASEAN (Association of SouthEast Asia Nations) countries in EPB study and effects, artificial intelligence techniques and, importantly, capacity-building activities. As a part of SEALION project, they recently collaborate with National Institute of Information and Technology (NICT), Japan, the installation of VHF (very high-frequency) radar station, the 2nd one in ASEAN, to detect and analyze fresh bubbles. On the volunteering side, Pornchai Supnithi has worked with ECTI Association (Thailand) as a Vice President, National Research Council of Thailand as a Committee member, National GNSS Infrastructure subcommittee under the Ministry of Higher Education, Science and Innovation, International Reference Ionosphere (IRI) Working Group as a country representative/member and Asia-Oceania Space Weather Alliance (AOSWA) as in SOC (Scientific Organizing Committee).

Mioara Mandea, Past President

Mioara is currently head of "Science Coordination" Department, Strategy Directorate at Centre National d'Etudes Spatiales Paris (French Space Agency). Over the last decades, she has been involved in many activities in the frame of IAGA, the European Geosciences Union (EGU), the American Geophysical Union (AGU), the International Space Science Institute (ISSI) the Commission for the Geological Map of the World (CGMW), etc. Mioara has published more than 280 papers (publications in ISI journals, further journals, books and chapters in books, proceedings and reports), and has been involved in organising many workshops and conferences. She has also led several multipartner research projects or work packages within projects at different national and EU levels. She has tutored PhD students from many countries around the world. Mioara is a recipient of the AGU International Award, she is elected member of the Academy of Romanian Scientists, Academia Europea, Académie Royale de Belgique and Russian Academy of Science, elected fellow of European Academy of Sciences and corresponding member, Bureau des Longitudes - Académie de Science. Mioara has been awarded by the French President with the titles of "Chevalier" and recently "Officier de l'Ordre National du Merite" and received the Petrus Peregrinus Medal (EGU) and the Emil-Wiechert Medal, Deutsche Geophysikalische Gesellschaft. A prestigious ERC Synergy Grant for the project "GRACEFUL" has granted Mioara. This year, Mioara was elected President Elect of IUGG.

7.2 EC activities

In addition to the three EC meetings at the 28th IUGG General Assembly, IAGA activities by the EC were coordinated by e-mail discussions and teleconferences.

7.3 Structural changes

The structure of IAGA with all its Divisions, Commissions and Working Groups that are open to every scientist who is interested in the topic can be found on the IAGA websites at IAGA websites[9]. Several of the groups have their own websites with more information about their activities. Everyone is welcome to get involved!

7.3.1 Formation of Division I Working Group FAIR-MOD

An inaugural meeting was held on Friday July 14, 2023 for the new IAGA Division I working group FAIR-MOD. The goal of this group is to enhance interactions across researchers engaged in geomagnetic and paleomagnetic modeling of observational data and the production of numerical simulations. Rationale, potential roles and activities of this group were discussed. Chris Davies (Leeds University, UK, C.Davies@leeds.ac.uk) and Cathy Constable (UC San Diego, USA, cconstable@ucsd.edu) were nominated as Chairs and Julien Aubert (IPGP France, aubert@ipgp.fr) and Sanja Panovska (GFZ, Germany, sanja.panovska@gfz-potsdam.de) as co-Chairs of the working Group

and all agreed to serve.

The group plans to explore what metadata are fundamental to making progress in understanding challenges of numerical simulations and long term field modeling, so that Division I science can evolve to be both open and FAIR (Findable Accessible Interoperable and Reproducible). The IGRF is of course already a topic in IAGA's WG V-MOD, but the intended focus for FAIR-MOD is different. The past few decades have seen burgeoning numbers of numerical simulations developed using a number of dynamo codes. Additionally, there has been progress on the development of paleomagnetic models that can include time variations extending from decades to millions of years. Increasingly, there is interaction between the relevant research communities who wish to make use of novel results but struggle to stay informed about the physical processes being modeled. Researchers interested in joining the working group should contact Cathy Constable (cconstable@ucsd.edu).

Catherine Constable
WG FAIR-MOD Chair

7.3.2 Name change of Social Media Working Group to WG ComNet

The working group with the Commission of Education and Outreach, that was named Social Media Working Group, decided to change its name to WG ComNet for Communiations and Networking. The aim of this group is to improve communication and networking across the wide breadth of IAGA, among other scientific organisations, and outward to the general public. We aim to promote the different types of work undertaken by IAGA scientists, display opportunities on our social media channels, generate short videos introducing our work to the general public, write easily understandable blog posts from a range of contributors, and assist with education and outreach activities. If you would like to either join the working group or promote your research/opportunities, please get in touch at socialmedia@iaga-aiga.org. The WG is particularly interested in reaching out to early career scientists, anyone with a passion to promote the work of IAGA to the public and other scientists, and those from a wide range of backgrounds and subject interests.

Hannah F. Rogers
Shivangi Sharan
WG ComNet Chairs

7.4 Virtual seminar series of IAGA interest

A number of virtual seminar series dealing with different IAGA topics have been initiated in recent years, either by individuals or IAGA Working Groups. Although these often were stimulated by the COVID pandemic when in person meetings were not possible, they keep going on and are an excellent way to share new results and connect researchers internationally. Moreover, many of these seminars are recorded and freely available to anyone, helping to disseminate new results quickly and widely.

7.4.1 EMinars

The EMinars are a series of webinars on EM Induction in the Earth in the broadest sense, from theory to acquisition to time series processing to analysis to modelling and inversion to interpretation. The series runs through broad themes from theory, instrumentation and acquisition and progress through all phases of particularly, but not exclusively, magnetotellurics. Additional Educational topics include GIC research, geothermal research, mineral exploration using natural and controlled EM sources, hydrocarbon exploration using natural and controlled EM sources, etc. The webinars are nominally weekly, on Wednesdays UT time (which may be Thursday morning for those in Asia and Australasia). They are held at very different times to give all of us around the globe the opportunity to attend them. More information on how to attend or present in the seminar series can be found on the EMinar website[10]. When allowed by the presenter, the webinars are recorded and made available on the MTNet YouTube channel[11].

7.4.2 GeoDaWG virtual seminar series

GeoDAWG hosts a monthly virtual seminar series of broad interest on topics related to data assimilative modeling in the geospace sciences. The

goal is to exchange ideas and techniques on how to incorporate sparsely and/or unevenly sampled measurements into models, a problem we face throughout geospace. Seminars are held at 11 am Eastern Time on the first Tuesday of every month. A link to join the seminar via Zoom can be found on the GeoDAWG website[12], along with the current GeoDAWG seminar schedule and links to recordings of past seminars.

Tomoko Matsuo
GeoDaWG Chair

7.4.3 Magnetosphere Online Seminar Series

The Magnetosphere Online Seminar Series is a virtual seminar series held weekly on Mondays at 12 noon eastern time. The seminar series provides high level and background seminars on magnetospheric dynamics and plasma regimes, the physical process which control these dynamics and lead to the formation of the various plasma regimes, and the coupling of the magnetosphere with the solar wind and ionosphere. The seminar series has also provided basic python tutorials and overviews of python analysis packages which can be used in heliophysics research. Finally, the series highlights novel research from early career scientists. These talks are archived on the Magnetosphere Online Seminar Series YouTube channel[13] (under playlists) and website[14].

The seminar series is organized and hosted by Kyle Murphy, suggestions for future topics and speakers are always welcome and can be made by contacting the host at magnetosphere.seminars@gmail.com.

Kyle Murhpy

7.4.4 MagNetZ

It's a wrap! Another highly successful season of the MagNetZ seminar series has come to an end! MagNetZ – or Magnetic Network on Zoom – was started during the global pandemic in 2020 as a community effort to meet and share science, and to provide an informal virtual meeting space. The MagNetZ are bi-weekly webinars, that come with a flexible format of 20 - 30 minutes talk plus some time for questions and general feedback, followed by a friendly chinwag. In the 2023 season of MagNetZ, 15 speakers – 9 early career researchers – from 9 countries gave amazing presentations to an average of 36 live attendees. The seminars covered a broad range to topics, from fundamental paleomagnetism and rock magnetism to vulcanology and all kinds of modelling. Each MagNetZ seminar was recorded and is now freely available on the MagNetZ YouTube channel[15]. Each recording of the seminars from the 2023 season has been watched 52 times on average on YouTube already! In addition, the recordings have been uploaded to the ERDA repository ERDA repository[16], where they get a unique identifier DOI and are citable. In an effort to make science more inclusive, MagNetZ presentation time slots change twice a year to accommodate different time zones as much as possible. We are also working to update the captions to facilitate non-English-native speakers understanding the talks.

In addition to the webinars, MagNetZ also aims to serve as a platform to support other paleomagnetic meetings and workshops. For the third time, MagNetZ has worked together with the annual UK-based paleomagnetic conference Magnetic Interactions (MI) to make all presentations from this offline conference available online. All 59 presentations from the MI21, MI22 and MI23 conferences are now available to watch on the MagNetZ YouTube channel.

Now that 2024 is already around the corner, we have already started to set up another strong lineup of talks for the 2024 season of MagNetZ. Slots are filling up quickly, but there are still ample opportunities left for new presenters to show off their science and get valuable feedback in this informal venue. Especially for early career researchers, these seminars are a great chance to get experience in communicating their science and enrichen the Curriculum Vitae. If you, or someone you know from your research group, would like to present your research in a MagNetZ talk get in touch with our MagNetZ organizing team! Also, if you would like to help editing the previous talks' captioning please get in touch. The current organizers are Greig Paterson (University of Liverpool, UK), Anita Di Chiara (Istituto Nazionale di Geofisica e Vulcanologia, Italy), Brendan Cych (University of Liverpool), Richard Bono (Florida State University), Annique van der

Boon (University of Oslo), Florencia Milanese (Instituto Antártico Argentino), Lesleis Nagy (University of Liverpool) and Dan Thallner (University of Florida). Feel free to contact any of us about scheduling a talk! Also make sure to subscribe to the MagNetZ mailing list for updates and announcements of future talks! To join the MagNetZ list, please contact Greig Paterson[17]. We would once again like to thank all our previous speakers and seminar attendees for making MagNetZ so successful, and we are looking forward to a ton of new talks in the next year.

MagNetZ Organising Team

7.5 IAGA and IUGG movies

Katia Pinheiro, previously member of the IAGA Social Media Working Group and now a member of the IAGA Executive committee had applied for and received grants from both IUGG and IAGA to produce outreach videos.

7.5.1 Geoscience Connections

The IUGG project "Geoscience Connections" has the main goal to disseminate knowledge about geophysics and geodesy to the academic community and to the general public by connecting a variety of scientific subjects from the eight associations of IUGG. This project is subdivided into four productions:

(i) Animation movie "Earth-human connections", that won the Audience Award on the Braga Science Film Fest[18] that took place online from November 18 - 26, 2023 and is available on the IUGG YouTube channel[19];

(ii) Documentary "Geoscience Connections" following the same story as the animation movie "Earth-human connections", but including interviews with eight early-career researchers (ECR), representing each IUGG Association. The documentary is also available on the IUGG YouTube channel;

(iii) Short movies mainly with ECR talking about their career and research. The shootings were done in the Czech Repulic, France, and Germany, between October 2022 and July 2023. We assure gender equality and diversity by interviewing 29 researchers from 16 countries. These movies are posted twice a week on the YouTube Channels of IUGG and IAGA;

(iv) Sequenced short movies containing interviews with Secretary Generals (SGs) and Presidents of each IUGG Association. They talk about the IUGG history, structure, research, opportunities, and collaborations.

7.5.2 A magnetic journey: from core to space

The IAGA project "A magnetic journey: from core to space" has as main objective to transmit scientific knowledge to the general public by connecting different aspects of the six IAGA divisions. This project is subdivided into two productions:

(i) A documentary called "A magnetic journey: from core to space", including interviews with senior researchers from all six IAGA divisions, illustrated by animations. The thread of the story is the time variation of the geomagnetic field, starting from long timescales of millions of years to milliseconds. In the first part, the movie will discuss core time variations, geodynamo and how rocks are magnetised and used for paleomagnetic studies. In the second part, the movie approaches the time variations of the external field, starting by solar cycle, magnetic storms, induction studies and applications, reaching the shortest variations of milliseconds. The movie will be available on the IAGA YouTube channel.

(ii) Short movies with 11 early-career researchers (ECR) that participated on the 6th IAGA School in Niemegk, from July 7 - 11. The students gave testimonies about their careers and the research developed during their PhD/Postdoc. We aim to attract the attention of new students to IAGA. The movies are distributed via the IAGA Social Media channels.

We hope that the IAGA project "A magnetic journey: from core to space" strengthens the connection between the six IAGA divisions, provide ideas for collaboration between them and encourage interactions between the students.

Katia Pinheiro

7.6 New opportunities for IAGA outreach projects

Having received some requests from the Interdivisional Commission of Education and Outreach if further outreach projects can be funded in the future, the IAGA Executive Committee decided to offer competitive opportunities for outreach projects according to clear guidelines, while the IAGA budget allows. Background, guidelines and conditions are described in the following and are posted on the IAGA Websites[20].

Deadline: Outreach project proposal can be submitted anytime, but evaluations and assessments will be done by IAGA once a year in early June In general, one project per year will be selected for funding. Please read the following information and guidelines for preparing your proposal.

Budget provisions Maximum of 5000 Euro for projects lasting up to 2 years.

7.6.1 Why 0utreach?

The Earth's magnetic field is essential for life as it is a primary protector of the planet from hazards from outer space. Study of the different aspects of this field provides knowledge, which allows us understand how this natural system works, will lead to improvements in navigation and help to protect our communication systems and electric grid from space weather. It will also lead to the understanding of the origin of this field and its evolution over time.

Outreach is the activity of providing information or services to any population that might not otherwise have access to those services. Sharing and communicating your research or profession with a wider non-specialist audience leads to improvement of general awareness, promotion of opportunities of engagement and brings about scientific attitudes towards our natural environment.

Conducting science outreach activities is also a great way to gain a deeper understanding of research by experts and their applications. In the efforts to explain an aspect of science or technology to a third-grader or lay public, the levels of understanding of the project team are greatly enhanced. Further, it provides opportunity for them to build on skills like leadership, problem solving, decision making, communication, adaptability and self-confidence.

7.6.2 Different outreach strategies

The aims and objectives of the outreach proposals may vary, based on

1. Goals and expected outcomes
2. Strategies which will be used to achieve those outcomes and
3. Monitoring and evaluation of the real vs desired outcomes

What would be the age groups and education backgrounds of the outreach targets?

- School student outreach? Post graduate outreach?
- Community/stakeholder outreach?
- Complementary community and groups outreach?

The purposes and expectations may range as:

- One time Information dissemination for awareness for knowledge gain and appreciation
- Regular knowledge transfer for attracting new talent to the scientific pool
- Crowd sourcing of data contributions to make science better

7.6.3 Structure and scope of proposals for outreach projects

Project proposals should contain the following information:

1. Motivation
2. Detailed description of the proposed activity (eg. a series of lessons, videos, and webinars designed for middle and high school students, undergraduate students and the general public) as well as of the target audience (Have a clear idea of who you're targeting; Plan the channels you'll us; Refine and test your messagin; Track your results and continually optimize your process).

3. Duration of the project
4. Composition and affiliations of the project team
5. Deliverables and evaluation parameters
6. Requested budget with justification and including information on other sources of support

7.6.4 Selection criteria

The IAGA Executive Committee will select proposals to be funded according to the following main criteria:

- Relevance of the project to IAGA scientific topics
- Expected impact range of project and its results (e.g., education activities should also yield material that can be used more widely in the future, such as recordings, a collection of education material etc.)
- Feasibility / risks

7.6.5 Conditions

- In the various published outcomes of the project: IAGA has to be mentioned as sponsor, IAGA logo included in any visual support and IAGA ROR explicitly indicated in any digital item's metadata[21].
- Output(s) should be publicly available under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International license (CC BY-NC-SA 4.0) and a digital original copy transmitted or made available to the IAGA secretary
- A brief report about the project and its outcomes has to be sent to the IAGA secretary general no later than 1 month after the end of the project. The report will be published in the IAGA Newsletter and a photo/picture from the project or its results is appreciated.
- A brief report on how the funding was used has to be sent to the IAGA secretary general and the treasurer no later than 1 month after the end of the project.

8 In Memorium

Duane E. Champion (1949 - 2023)

Duane E. Champion was born in 1949 in Greene, New York. He earned his BA and MA in geology at SUNY Buffalo and in 1970 had a NAGT internship at the USGS in Flagstaff. In 1980, he earned a Ph.D. in geology at CalTech under the guidance of Gene Shoemaker. While still a graduate student, Duane joined the USGS in Menlo Park where he remained until his sudden passing on 11 January 2023.

Duane worked on many USGS projects to correlate disparate deposits, constrain eruptive durations, and even to provide candidate ages for eruptions by comparing pmag directions to his Holocene paleosecular variation models. His gusto to employ paleomagnetic techniques on all sorts of volcanic problems, and to debate their meanings in the field, hallways and offices was unrivaled. He was probably most comfortable bouncing along rough roads to the next basalt shield in Idaho, or drilling and correlating lava flows at Newberry, but he would also climb into a helicopter at Mt. St. Helens, drill every lava flow he could get to on Hualalai, or jet off to Saudi Arabia to collect around and inside the holy city of Al Madinah.

Duane was most noted for his enthusiastic collaboration with geologists throughout the western United States and Hawaii, applying the principles of paleomagnetic secular variation to the discrimination of volcanic units and thus to the elucidation of volcanic history. Notable areas where his investigations provided essential constraints on the interpreted volcanic history include the Cascades Volcanic Arc in northern California (the Lassen Volcanic Center, Medicine Lake Volcano, Mount Shasta and the arc between Lassen and Shasta/Medicine Lake), in Oregon (Crater Lake and central Oregon including Newberry Volcano), and in Washington (Mount St. Helens and Mount Baker). Duane also supplied critical data for studies of Kīlauea, Hualālai and Mauna Loa volcanoes in Hawaii, as well as for many other volcanic regions throughout the western United States. He carried out a decades-long cooperation with the DOE Idaho National Labroratory, supplying paleomagnetic data that elucidated the stratigraphy and hydrology of the basalts of the Snake River Plain. In Nevada, his paleomagnetic conclusions were critical to evaluating volcanic hazards to the proposed nuclear repository at Yucca Mountain. Duanes huge paleomagnetic data set acquired over decades of field work allowed him to make major contributions to the record of Holocene paleosecular variation, in part summarized in a 2002 JGR review paper coauthored with Jon Hagstrum.

USGS Colleagues

Alfred George Duba (1940 - 2023)

After years of declining health, Alfred G. Duba passed away peacefully on August 21, 2023, at age 83. Al was a great scientist and a great friend to a great many people, and will be missed. He is survived by his wife, Lucille (Lucy) and two sons William (Bill) and Charles.

Al was born in West Virginia (1940) and went to high school there, joining the U.S. Army after graduation. He was posted to Germany where he learned German and a life-long love of that country. He received his B.S. in physics at Marshall University (1966) and went on to obtain a PhD at University of Chicago studying the electrical conductivity of olivine (1971), followed by post-docs with Francis Birch at Harvard University under a NSF Fellowship and with Ted Ringwood at the Australian National University under a Fulbright award. After Australia he joined the Lawrence Livermore National Laboratory where he worked

until retirement in 2002, at which point he returned to West Virginia and worked at the American Museum of Natural History in New York.

Al's contributions to geophysics extended our understanding of physical properties from Earth's core to the crust and even the moon. His work on the electrical properties of olivine virtually defined the field. With painstakingly careful attention to detail in the design, construction, and use of his laboratory apparatus, he demonstrated the importance of oxygen, temperature, and iron content on olivine conductivity and stability. His highly reproducible measurements resulted in quantitative models of physical transport properties which resulted in a more confident application of laboratory data to Earth mantle conditions. His work during the Apollo program contributed one of the best constraints on the lunar temperature profile. His study of graphite (first a prediction but then a demonstrated effect from measurements on rocks from a German deep borehole) has led the way to a better understanding of mid-crustal electrical conductivity and crustal properties in general. His study of rock properties was not restricted to electrical measurements – he contributed data on optical properties, compression, and deformation on a variety of natural materials. His analysis of melting data on iron pointed the way to a lower core temperature widely accepted today. In a remarkable step for a scientist who spent most of his career studying the physical properties of the deep Earth, he applied his understanding of oxygen activity and high pressure systems to head up a team that developed an *in situ* method for bioremediation of trichlorethylene in groundwater. His work was recognized with an Alexander von Humboldt Prize in 1985 and Fellow of the American Geophysical Union in 1997. He held visiting professorships in the Netherlands, France, and Germany.

Al freely made his research facility available to others, notably younger scientists, and spent a lot of time mentoring them in the intricacies of his craft - I was one of the many beneficiaries of this generosity. Indeed, Al's service to the community was broad. He spent more than his fair share of time in editorial and committee work, including many AGU committees and publications, and had an extremely active role in the IUGG and IAGA. In particular, he was co-chair and chair of IAGA working group I.2, now Division VI, from 1987 to 1995, supporting its extremely successful series of workshops on electromagnetic induction in the Earth. However, it is not for committee work that most people remember Al. It is for his boisterous good humour (and songs!), his friendly manner, his willingness to invite people to stay at his home and share food and wine. And always, always, for his critical mind and a willingness to challenge any sloppy, poorly thought out, unconstrained, or second-rate science.

Steven Constable
University of California San Diego

Miroslav Krs (1928 - 2023)

Dear paleomagnetic community, we are sad to report that our long-time colleague and friend, outstanding researcher Dr. Miroslav Krs passed away on May 21, 2023 at the age of 94, after a long illness, surrounded by his bellowed family that devoted him tireless and loving care.

Miroslav was an exceptional geophysicist who worked at the Geological Institute of the Academy of Sciences in Prague, Czech Republic, former manager of the United Nations Development Program in Tanzania and Egypt. He loved his missions in Africa and part of his soul had belonged there forever.

Miroslav influenced many colleagues with his charismatic direct nature having an art to arose in others enthusiasm for work and research. From the very beginning he was involved in a research of greigite, magnetic properties of wood, paleotectonic rotations and paleomagnetism in general in Czechoslovakia. Thanks to his diligence and intellect, he has reached the world level of scientist and had a number of international awards.

Throughout his life, he showed us what a fulfilled life should look like. It is a life of love, work and caring for others. Our condolences to all of you who have known and/or worked with Miroslav over the years.

Petr Pruner
Institute of Geology
The Czech Academy of Sciences

Lee-Anne McKinnell (1970 - 2023)

Dr. Lee-Anne McKinnell, managing-director of the South African National Space Agency (SANSA) Space Science directorate, passed away on 19 August 2023 after a short illness. In a realm where leadership, expertise, and dedication converge, Lee-Anne stood out as a beacon of inspiration. Her remarkable journey has been one of unwavering commitment, exceptional knowledge, and profound impact across diverse domains in the science, technology, and innovation sector in South Africa. Lee-Anne played a leading role in breaking down gender barriers and advancing women scientists careers and challenging traditional norms.

A hallmark of Lee-Anne's leadership lies in the establishment of the African Instrumentation Network – a testament to her foresight and commitment to advancing scientific infrastructure throughout the continent. In the realm of Operational Space Weather, Lee-Anne's prowess shone as she ensured the understanding and prediction of space phenomena critical to our modern way of life. Under her guidance, the SANSA Team has evolved into a hub of scientific excellence, science engagement and public outreach. Lee-Anne's leadership ignited curiosity, inspired minds, and brought the wonders of science closer to the hearts of many. Her efforts transcended mere education, serving as a catalyst for a lifelong love of learning. Her passing is a huge loss to space science in South Africa.

Michael Kosch
SANSA

Lada Kouklikova and Petr Pruner
Institute of Geology The Czech Academy of Sciences

Louise Pellerine (1953 - 2023)

We have many fond memories of Louise Pellerin, a most dynamic geophysicist, who died on March 23, 2023 after a short illness. Born in Los Angeles, California, Louise received her Bachelor of Science from the University of California Berkeley in 1978, in geophysics with emphasis in earthquake seismology, and then worked for several years as a field geophysicist in mineral and geothermal exploration. In 1986 she returned to academia to work with Jerry Hohmann at the University of Utah, obtaining a Master of Science in electromagnetic geophysics in 1988 and a PhD in the field of electrical and electromagnetic geophysics in 1992, the first woman to do so. She is survived by her husband and partner, Jeffery Johnston.

Louise's contributions to applied geophysics were broad and substantial. Her work—published in nearly 40 papers in a wide range of geophysical journals—focused on bridging the gap between theory and application of electrical methods in environmental, hydrological, geotechnical, and crustal studies, as well as in natural resource exploration. Her long and varied career encompassed both government research, as research geophysicist for the US Geological Survey and staff scientist at Lawrence Berkeley National Lab, and industrial applications, as president and chief scientist of Green Engineering, which she renamed Green Geophysics after taking over from its founder Ellen Green in 2014. Her service to the community was also considerable. She was a founding member and president of the Near Surface Geophysics section of the American Geophysical Union (AGU), and sat on the AGU Board as General Secretary from 2015 to 2018. Louise was also extremely active in the Society of Exploration Geophysicists (SEG), serving on a great many committees which started as president of the University of Utah student chapter (1989), and again included founding membership and president of the Near Surface Geophysics section, as well as chair of the Bylaws Committee and Distinguished Lecturer Committee and membership in many other committees. A longtime resident of Berkeley, California, Louise played a pivotal

role in revitalizing the Bay Area Geophysical Society. She was awarded Life Membership by SEG at the 2014 Annual Meeting.

Louise was a true enthusiast for the role of geophysics in today's world and was devoted to educating the next generation of Earth scientists, serving as a visiting faculty member for several universities (Stanford University, University of Utah, and Aarhus University) and, most notably, as co-director of the Summer of Applied Geophysical Experience (SAGE). As a founding trustee of the Hohmann Trust, Louise was instrumental in establishing the SEG's Hohmann Memorial Scholarships, which have supported undergraduate and graduate work by scores of students in more than 20 universities around the world, and the Hohmann Awards, which honor career achievements in electrical geophysics as well as pioneering work by young scientists. Beyond her own professional endeavors, she passionately advocated for women in applied geophysics, leaving an indelible mark with the establishment of the SEG Women's Network Committee. Louise's legacy is one of scholarship, vibrancy, and commitment. Colleagues, students, and friends from around the world will remember her generous and entrepreneurial spirit as well as her many contributions to Earth science, and will cherish the positive influence she had on their lives and careers.

The Hohmann-Wannamaker Trust

Seiya Uyeda (1929 - 2023)

On January 19, 2023, Seiya Uyeda, Professor Emeritus of the University of Tokyo, passed away at the age of 93 in Tokyo, Japan.

Professor Seiya Uyeda graduated from the University of Tokyo in 1952 and received a Doctor of Science (D.Sc.) degree at the University of Tokyo in 1958. He became a Research Associate at the Earthquake Research Institute, the University of Tokyo in 1955. In 1964, he was appointed Associate Professor at the Earthquake Research Institute and was promoted to Professor in 1969. After his retirement from the University of Tokyo, he continued his research and teaching as a Professor at the Tokai University from 1990 to 2008, and as the Group Director of the RIKEN (Institute for Physical and Chemical Research) International Frontier Research Program on Earthquakes from 1996 to 2002. This international research program was triggered by the devastating 1995 Kobe earthquake. For these long years of distinguished service, he was elected a member of the Japan Academy in 1996. It should be noted that he applied for the Japan Society for the Promotion of Science (JSPS) Grant-in-Aid (Kakenhi), one of Japan's leading competitive research funds, and continued to serve as a principal investigator until he was 86 years old.

His early research was mainly on rock magnetism. One of the most important of these studies was the discovery of thermoremanent magnetization (TRM) which is directed opposite to an applied magnetic field and that this phenomenon, self-reversal TRM, is a peculiar property of certain magnetic minerals. This result became his dissertation, and he was awarded the Tanakadate Prize of the Society of Terrestrial Magnetism and Electricity of Japan (1953).

In the late 1950s, he made the first measurements of terrestrial heat flow in Japan, and then energetically continued to measure heat flow in the seas surrounding the Japanese Islands and in the eastern Pacific. Since then, he actively promoted research on heat flow measurements and thermal structure mainly in the western Pacific and East Asia. Among his many contributions to the field of geothermics, his studies on the characteristics of the heat flow distribution in the trench-arc-back arc systems and his elucidation of the various processes in the subduction zone from the viewpoint of temperature structure have made significant contributions not only to the field of geothermics but also to the broader field of geoscience. For this work, he received the Japan Academy Prize in 1987.

He was also one of the first to introduce plate tectonics to Japan and conducted pioneering research on the thermal processes associated with plate subduction and the structural development of island arcs. He has continued to conduct a wide range of research activities from the perspective of plate tectonics, including demonstrating the importance of the slab-pull force of sub-

ducting plates as the driving force of plate motion, elucidating the formation and structure development of basins in the Philippine Sea and the western Pacific, and proposing "comparative subductology", which classifies subduction zones according to various characteristics.

After retiring from the University of Tokyo, he vigorously promoted innovative research on short-term earthquake prediction using electromagnetics as a new challenge. In 2001, he took a primary role in establishing the International Union of Geodesy and Geophysics (IUGG) Working Group "Electromagnetic Studies of Earthquakes and Volcanoes (EMSEV)" and became its first chairman. This inter-association working group was also part of IAGA, IASPEI, and IAVCEI, its mother associations. Currently, EMSEV has more than 300 researchers. The EMSEV General Assembly is scheduled to be held in October 2024 in Crete, Greece. It has already been decided that this General Assembly will be a commemorative meeting honoring Prof. Uyeda. Prof. Uyeda devoted himself to the study of short-term earthquake prediction.

One of the major characteristics of his achievements is that he has been very internationally active. He has been a visiting professor at many universities outside of Japan, including the Massachusetts Institute of Technology, Pierre and Marie Curie University, and Texas AM University. He has also served as chair of the International Heat Flow Committee of the International Association of Seismology and Physics of the Earth's Interior (IASPEI), as vice president of the International Union of Geosciences (IUGS), and as an officer and member of research programs of various international societies, as well as facilitator of international collaborative projects (such as heat flow measurements and seafloor surveys with submersibles in the western Pacific). In recent years, he invited the first General Assembly of IUGG in Asia to Japan, and led its success as the chair of the organizing committee for the IUGG 2003 in Sapporo. He has also served as editor-in-chief of Tectonophysics and on the editorial boards of many international journals. He has received international recognition for these achievements, including the Alexander Agassiz Medal of the US National Academy of Sciences (1972), the Award for International Cooperation in Geophysics of the USSR Academy of Sciences (1985), the G. P. Woollard Award of the Geological Society of America (1989), the Walter H. Bucher Medal of the American Geophysical Union (1989), and many other scientific awards.

He has also played a leading role in the field of solid earth science in Japan for many years, making various proposals for the development of this field and devoting himself to their implementation. One example is his insistence on the importance of ocean observation science, which realized research cruises conducted in the 1980s as a part of the International Lithospheric Program (ILP) and lead to the current large number of cruises by various research vessels, submersibles, and a drilling vessel in Japan.

In addition, he has interacted with young researchers in a wide range of fields of earth science, providing them with guidance and stimulation, and promoting and fostering the exchange of information among them. It should be noted that his books "Island Arcs: Japan and its Environs" (1973), and "The New View of the Earth: Moving Continents and Moving Oceans" (1978) were published globally and have served as guideposts for many students following him in the study of earth sciences. His significant contributions to research, education, and the advancement of earth science have been highly recognized by various academic societies. He was elected an honorary member of the Seismological Society of Japan in 2007 and a Fellow of the Japan Geoscience Union in 2014.

As described above, he has achieved outstanding research results in a wide range of fields of solid earth science and has played a leading role in international earth science research, particularly in the fields of geothermics and plate tectonics. He thus provides a shining example to all of an energetic lifelong researcher whose work will long be remembered.

Toshiyasu Nagao
EMSEV chair

Phil Wannamaker (1954 - 2022)

The Earth Science community lost a pillar on August 22, 2022 with the passing of Prof. Phillip (Phil) Wannamaker at age 67, a proud and loving father to daughter Alexis and a kind and generous friend to many in the Electromagnetic Induction and Magnetotelluric (MT) community. To me Phil was not a work colleague but rather a friend I happened to work with. Originally from Ontario, Canada, Phil completed his undergraduate education in Engineering Geology at Queens University, Kingston Ontario - Canada, before relocating to Salt Lake City where he completed his PhD with Gerry Hohmann at the University of Utah. Beyond his scientific pursuits Phil was an avid traveler, music lover, and enthusiastic shopper, decorating his walls with pieces from his travels, especially ceramics.

Phil spent his entire professional career as a research Professor at the Energy Geoscience Institute (EGI) of the University of Utah and was named a fellow of the Geological Society of America in 2011. Phil was an unusually well rounded and broad scientist who worked on topics ranging from petrology to large-scale tectonics to the mechanics of geothermal systems; as well as making foundational contributions to the numerical modelling of electromagnetic data sets. During his nearly 40-year career at the University of Utah, Phil sustained a prolific scientific output which included the first 'ice-breaking' MT work in Antarctica and data collection in New Zealand and throughout North America (e.g. the Basin and Range Province, the Canadian Shield, the Appalachians, and the Pacific North-West). In the Basin and Range Phil's work demonstrated the value of large-aperture MT surveying, which led to the identification of regional-scale underplating and fluid egress across regimes of distributed extension. Phil was a key player in the groundbreaking EMSLAB experiment in the Pacific Northwest, which was a large community effort to carry out an amphibious MT study of the Juan de Fuca subduction zone. His 2D models of those data, done not with an inverse algorithm but the neural net that was his own mind, made the front page of EOS in 1988, with Phil as the lead author of this contribution from the large EMSLAB team. His work in New Zealand revealed that subduction interface fluids from 100 km depth can rise and induce (previously) enigmatic damaging (> M7) high-angle thrust earthquakes in the upper crust due to a reduction of normal stress.

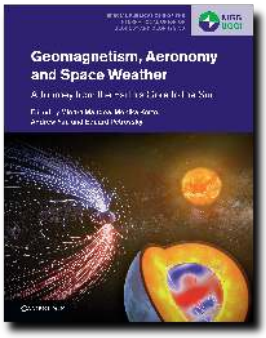
Antarctica in particular held a special fondness for Phil. His pioneering efforts developing sensors and electronics for use in ice and snow led to the collection of high-fidelity MT data equaling that of the best temperate zone data, producing results that have contributed to the broader tectonic understanding of the frozen continent. I was fortunate that Phil (for reasons known only to him) saw fit to introduce me to Antarctic research as part of a project he led investigating the West Antarctic Rift System. During this work MT data collected along a 600 km long transect spanning the Transantarctic Mountains showed that the support of the Central Transantarctic Mountains is non-thermal but rather a result of large-scale crustal flexure. By opening the door to Antarctic Science, Phil provided me the opportunity to build a research focus that would have been infinitely more difficult without his support, something I will be forever grateful for but which I am sure he would have seen as nothing more than him being himself. The five seasons we spent working together in 'big frosty' produced science to be proud of, but more importantly are full of wonderful stories and memories frozen in the ice.

With Phil's passing the Earth Science community has lost one of its most generous and humble members, whose work significantly influenced those working across numerous disciplines of Solid Earth studies. His deep laugh and wide grin will be missed by all. Through this work Phil showed the world how to make geological inferences from the electrical conductivity models that come out of the MT data, and contributed greatly to our understanding of tectonics and magmatic processes in North America, New Zealand, and Antarctica. On a personal level, although never officially a student of Phil, I benefitted enormously from the lessons he passed on and I could not have asked for a better mentor, colleague and most importantly friend.

Graham Hill
Institute of Geophysics, Czech Academy of Sciences

9 General Information about IAGA

9.1 Book: Geomagnetism, Aeronomy and Space Weather



On the occasion of the IUGG centennial in 2019 IAGA published a book with Cambridge University Press providing a comprehensive overview of the IAGA fields of research. The volume, edited by M. Mandea, M. Korte, A. Yau and E. Petrovsky and entitled "Geomagnetism, Aeronomy and Space Weather – A Journey from Earth's Core to the Sun" was published in November 2019.

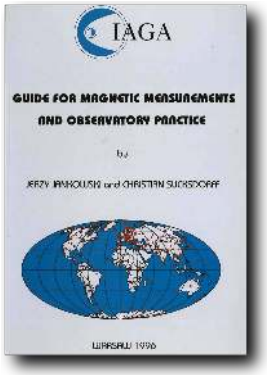
9.2 IAGA books series

A series of five books, representing the five IAGA Divisions, provides a comprehensive overview over all fields of IAGA science, including the state of the art at the time of writing (~2010). The books are written and edited by experts in their fields. Published by Springer, the income from the books supported scientists to attend the IAGA Scientific Assembly in Sopron.

9.3 IAGA Guides

IAGA has published four practical guides to observation. These are available as pdf documents from the IAGA web site, or they may be ordered from the IAGA Secretary General.

IAGA Guide for Magnetic Measurements and Observatory Practice

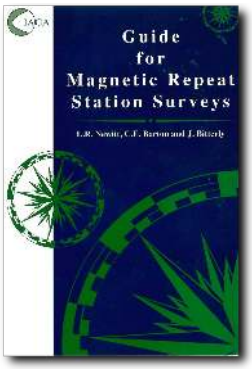


by J. Jankowski and C. Sucksdorff, 1996, 232 pages, ISBN: 0-9650686-2-5; Price: USD 50.

This Guide provides comprehensive information about how to organize and run a magnetic observatory and make magnetic measurements. The main topics are:

- A brief description of the magnetic field of the Earth
- Selection of observatory sites and layout
- Magnetometers
- Absolute magnetic measurements
- Recording of magnetic variations
- Data processing
- Testing and calibrating instruments

IAGA Guide for Magnetic Repeat Station Survey



by L.R. Newitt, C.E. Barton, and J. Bitterly, 1997, 120 pages, ISBN: 0-9650686-1-7; Price: USD 25.

This Guide provides a comprehensive description of the theoretical basis, operational details, and instrumentation for making magnetic repeat station survey measurements.

IAGA Guide to Observing Noctilucent Clouds

by M. Gadsden and P. Parviainen, 1995, ISBN: 0-9650686-0-9; Price: USD 25.

This manual and instruction book was written by a group of active researchers, both professional and amateur. There are chapters giving practical advice for taking visual observations, photographing the clouds with film or with video equipment. A summary of observations from space is included, as well as comments on the connection between noctilucent clouds, seen from the ground, and the polar mesospheric clouds that so far have been measured only from orbit. Noctilucent clouds are seen in the summer months, shining in the poleward sky at night-time.

Measurements show that the clouds are higher than any others. Lying at a height of 80-85 kilometres, the clouds mark a boundary between meteorology and space physics.

This book is beautifully illustrated with photographs, and will help everyone recognize and appreciate these "sailors in the summer night".

IAGA Guide for Calibrating a Compass Swing Base

by L. Loubser and L.R. Newitt, 2009, 35 pages, available only as Electronic version (PDF).

In this guide a general description of a compass swing base calibration procedure is presented which was developed at the Hermanus Magnetic Observatory. The procedure is based on the use of DI flux magnetometers as these types of magnetometers are widely in use. Although there are also other methods in use the "DI-method" should be seen as an IAGA recommendation.

9.4 IAGA History

A special issue of the open access journal History of Geo- and Space Sciences (HGSS) was published on the occasion of the IUGG centennial in 2019. It contains articles about the history of IUGG and its eight associations. The IAGA contribution is authored by M. Mandea and E. Petrovsky, entiteld "IAGA: A major role in understanding our magnetic planet[22]" (Hist. Geo Space. Sci., 10, 163-172).

9.5 List of World Data System members

Following is a list of the World Data System (WDS) members as of December 2022 who serve the data closely related to IAGA research fields. The members who serve very wide range of disciplines so called "general repositories" are not included in this list. On the definition of "regular", "network" (*A) and "partner member" (*B), please visit **https://worlddatasystem.org/**. Total 125 repositories/organizations are currently certified as the WDS members.

- Atmospheric Radiation Measurement Data Center[23]
- Atmospheric Science Data Center[24]
- Australian Antarctic Data Centre[25]
- Crustal Dynamics Data Information System (CDDIS)[26]
- Goddard Earth Sciences Data and Information Services Center (GES DISC)[27]
- INTERMAGNET[28] (*A)
- International GNSS Service[29] (*A)
- International Service of Geomagnetic Indices[30]
- International Space Environment Service[31] (*A)
- International Union of Geodesy and Geophysics[32] (*B)
- NASA ESDIS Project[33] (*A)
- National Center for Atmospheric Research[34]
- National Centers for Environmental Information[35]
- National Geoscience Data Centre[36]
- National Space Science Data Center[37]
- Research Institute for Sustainable Humanosphere, Kyoto University[38]
- Scientific Committee On Solar Terrestrial Physics (SCOSTEP)[39] (*B)
- UNAVCO, Inc.[40]
- WDC - Solar-Terrestrial Physics, Moscow[41]
- WDC - Sunspot Index and Long-term Solar Observations (SILSO)[42]
- WDC for Geophysics, Beijing[43]
- WDC for Solid Earth Physics, Moscow[44]

- WDC for Geoinformatics and Sustainable Development[45]
- WDC for Geomagnetism, Copenhagen[46]
- WDC for Geomagnetism, Edinburgh[47]
- WDC for Geomagnetism, Kyoto[48]
- WDC for Ionosphere and Space Weather[49]
- WDC for Solar Activity / BASS2000[50]

(A) Network member; (B) Partner member; Other: Regular member

9.6 IAGA website

Information on IAGA can be found at:
http://www.iaga-aiga.org

9.7 IAGA on social media

The social media working group within the Interdivisional Commission on Education and Outreach (ICEO) promotes and shares topics of IAGA interest on several platforms. The activities kicked off in November 2019 and you can now follow IAGA on Facebook, X (former Twitter), Instagram and LinkedIn at the following sites:


www.facebook.com/IAGAandAIGA/


www.twitter.com/IAGA__AIGA


www.instagram.com/iaga_aiga/


https://hr.linkedin.com/company/iaga-international-association-of-geomagnetism-and-aeronomy

There also is an IAGA blog:

- **https://iaga-aiga.blogspot.com/**

If you notice any exciting IAGA science that should be advertised there or if you would like to get permanently involved in generating content for regular social media posts and become part of the task group please get in touch at socialmedia@iaga-aiga.org.

9.8 IAGA contact

The Secretary-General is the main point of contact for all matters concerning IAGA:

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Telegrafenberg
14473 Potsdam
Germany

email: sg@iaga-aiga.org

Apendix

1. https://iaga-aiga.blogspot.com
2. https://www.iaga-aiga.org/about/
3. https://iaga-aiga.org/iagaschool/
4. https://earthref.org/events/MagIC/2023/2023MagICVolume.pdf
5. https://earthref.org/events/MagIC/2023/
6. https://www.youtube.com/@magneticsinformationconsor5873/videos
7. https://cobs.zamg.ac.at/iaga2023/
8. http:/iono-gnss.kmitl.ac.th (potentially insecure website)
9. https://iaga-aiga.org/about/
10. https://www.mtnet.info/EMinars/EMinars.html
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15. https://www.youtube.com/channel/MagNetZ
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17. greig.paterson@liverpool.ac.uk
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29. https://igs.org/
30. https://isgi.unistra.fr/
31. http://www.spaceweather.org/ (potentially insecure website)
32. https://iugg.org/
33. https://www.earthdata.nasa.gov/eosdis
34. https://ncar.ucar.edu/
35. https://www.ncei.noaa.gov/
36. https://www.bgs.ac.uk/ngdc/
37. https://www.nssdc.ac.cn/eng/
38. https://www.rish.kyoto-u.ac.jp/?lang=en
39. https://council.science/what-we-do/affiliated-bodies/scientific-committee-on-solar-terrestrial-physics-scostep/
40. https://www.unavco.org/data/gps-gnss/gps-gnss.html
41. http://www.wdcb.ru/stp/index.en.html (potentially insecure website)
42. https://www.sidc.be/silso/
43. http://www.geophys.ac.cn/ (potentially insecure website)
44. http://www.wdcb.ru/sep/ (potentially insecure website)
45. https://kpi.ua/en/web_wdc
46. https://www.space.dtu.dk/english/research/scientific-data-and-models/world_data_center_for_geomagnetism
47. http://www.wdc.bgs.ac.uk/ (potentially insecure website)
48. https://wdc.kugi.kyoto-u.ac.jp/
49. https://wdc.nict.go.jp/IONO/wdc/index.html
50. https://bass2000.obspm.fr/home.php

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