



**INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**  
**UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE**

## **The IUGG Electronic Journal**

**Volume 21 No. 12 (1 December 2021)**

This monthly newsletter is intended to keep IUGG Members and individual scientists informed about the activities of the Union, its Associations and interdisciplinary bodies, and the actions of the IUGG Secretariat, Bureau, and Executive Committee. Past issues are posted [here](#). E-Journals may be forwarded to those who will benefit from the information. Your comments are welcome.

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### **1. IUGG – The People at the Forefront (XXIV)**

#### **Monika Korte, Secretary General of the International Association of Geomagnetism and Aeronomy (IAGA), 2019-2023**



*Measuring the geomagnetic field at a so-called repeat station in Namibia*

I work at the German Research Centre for Geosciences (GFZ) in Potsdam, Germany, studying the main geomagnetic field originating in the Earth's core. The career path that took me there might seem straight at first glance, but in reality it involved lucky coincidences. Although I have spent over 20 years at the same institute I have many international collaborations and I very much enjoy the friendly and welcoming atmosphere in our global community.

I studied geophysics at the Ludwig-Maximilians-University in Munich, Germany, close to where I grew up and without a clear aim of what to do afterwards. During my studies I became more interested in applied geophysics, but to earn some money on the side I took a job as student assistant at the

Geophysical Observatory Fürstfeldbruck. There I had the tasks of digitising and checking geomagnetic observational data. When my supervisor offered me the possibility to do my diploma thesis with him on geomagnetic field secular variations I took the opportunity, more out of convenience than a particular interest in the field. However, I then started to get genuinely intrigued by the unpredictable changes of the geomagnetic field, this invisible and intangible property of our planet originating deep inside its core. Nevertheless, I still did not imagine a scientific career in this field, and applied for PhD positions with a different, and again more applied focus. But lo and behold, at the end of a PhD job interview at GFZ I was told that another candidate was favoured for the position that I had applied for, but if I was interested I might do a PhD there on the geomagnetic core field and its secular variation! This was the time of preparation of the CHAMP satellite mission (a gravity and magnetic field mission managed by GFZ), and Prof. Volker Haak at GFZ wanted to build up a geomagnetism group at the institute.

*I am the fourth from the left here, with several IAGA and Indian colleagues at a visit to Alibag geomagnetic observatory after the XIV IAGA Geomagnetic Observatory Workshop in Hyderabad, India, October 2014*

I attended my first IAGA conference shortly after starting the PhD at GFZ. This was the 1997 IAGA Scientific Assembly in Uppsala, Sweden. It was a fascinating experience, for the first time, to see and meet people whose publications guided me through my daily work. Through my subsequent work with European geomagnetic repeat station data I made contacts within the European community. However, important support for my career came when Richard Holme joined GFZ and introduced me to the wider international geomagnetic community. As a consequence, I managed to get a Feodor-Lynen fellowship from the Alexander von Humboldt Foundation to spend some time as a post-doc at the Institute of Geophysics and Planetary Physics, at Scripps Institution of Oceanography, with Cathy Constable after finishing my PhD. This led to a long-standing, highly enjoyable and exciting collaboration on reconstructing the global geomagnetic field on geological timescales in order to understand the processes and consequences of the variations of our Earth's magnetic shield against cosmic radiation and solar wind. Upon my return to Germany, I was lucky to get a permanent position at GFZ in 2003. For eleven years I worked for the growing network of geomagnetic observatories operated or supported by GFZ in several parts of the world, and I particularly enjoyed working with Mioara Manda, who was our Section Leader from 2005 to 2009, and another great mentor for me. This work included several fieldwork trips to measure the change of the geomagnetic field at so-

called repeat stations not only in Germany, but through a fruitful collaboration with the Hermanus Magnetic Observatory (South African National Space Agency) in South Africa, Namibia and Botswana. Since 2014, I have been building up a group working on reconstructing the global field on increasingly longer time-scales, including geomagnetic excursions and reversals, using paleomagnetic and archeomagnetic data produced in laboratories around the globe. Recently I became interim head of the geomagnetism section at GFZ.

My strong involvement in IAGA started just as much by chance as several other steps in my career. During the Joint IAGA-IASPEI Scientific Assembly in Hanoi, Vietnam, in 2001, a colleague from my institute encouraged me to attend the business meeting of the IAGA Division V Working Group (WG) on Magnetic Anomalies. I learnt how the working groups try to coordinate international scientific efforts. At the end of the business meetings elections for a new chair and co-chair of the WG took place. Seeking candidates, someone suggested Susan McLean from the World Data Center in Boulder CO, USA, as co-chair. She declined, and, sitting next to me and knowing me from some interactions regarding geomagnetic observatory data she suggested me instead. Taken completely by surprise I agreed. After only two years the WG chair resigned and I became chair and was involved in re-structuring Division V working groups and reducing their number from five to three. Subsequently, I became chair of IAGA Division V from 2007 to 2011, and then a member of the Executive Committee. From 2015 to 2019 I was IAGA Vice-President, and in 2019 became IAGA Secretary General. I enjoy international interaction and collaboration, and, in my view, IAGA and the other IUGG Associations play an important and highly useful role towards these aims, e.g., with scientific meetings and specialised workshops, by fostering free data exchange or defining standards by community agreement. It is an honour and a pleasure for me to contribute to these efforts and serve the community as an IAGA officer. I also highly value the experiences I gained in my different roles for IAGA and can only encourage early career colleagues to get involved in international association activities. For the future, I look forward to continuing to coordinate IAGA activities as Secretary General, and in particular to contribute to the organisation of the 2023 IUGG General Assembly, and seeing many of you there.

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## 2. Call for Invitations to Host the 29th IUGG General Assembly in 2027

Proposals to host the 29th IUGG General Assembly in 2027 are now being accepted and must be submitted to the [IUGG Secretariat](#) by **11 January 2023** (six months before the next General Assembly, consistent with IUGG By-Law 6). The [requirements](#) and [guidelines](#) for the proposals are now available. All proposals will be evaluated by the [Site Comparison Committee](#), and a report will be given to the IUGG Council before its final vote. The IUGG Council, at its meeting during the [28th IUGG General Assembly](#) in Berlin, Germany, in July 2023, will make the final selection of the venue of the 29th IUGG General Assembly.

For more information, please contact the [IUGG Secretariat](#).

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## 3. IUGG Meeting Support 2022 – Awarded Meetings

IUGG co-sponsors symposia and workshops appropriate to Union disciplines of study. In 2021, IUGG will support a total of 13 scientific meetings as listed below (the IUGG Association that endorsed the meeting is indicated in brackets):

1. [2nd World Conference on Meteotsunamis](#), Maó and Ciutadella, Menorca, Spain, 18-20 May (IAPSO)
2. 1st Workshop on Data Science for GNSS Remote Sensing, Potsdam, Germany, 13-15 June (IAG)

3. [Cermak7 – 7th International Meeting on Terrestrial Heat Flow and the Thermal Structure of the Lithosphere](#), Potsdam, Germany, 20-22 June (IASPEI)
4. [International Radiation Symposium 2022](#), Thessaloniki, Greece, 4-8 July (IAMAS)
5. [8th IAGA/ICMA/SCOSTEP Workshop on Vertical Coupling in the Atmosphere-Ionosphere System](#), Sopron, Hungary, 11-15 July (IAGA)
6. [44th COSPAR Scientific Assembly](#), Athens, Greece, 16-24 July (IUGG)
7. [3 ECEES – 3rd European Conference on Earthquake Engineering and Seismology](#), Bucharest, Romania, 4-9 September (IASPEI)
8. [International Mountain Conference 2022](#), Innsbruck, Austria, 11-15 September (IUGG)
9. [100th Anniversary of German Geophysical Society \(DGG\)](#), Berlin and other cities, Germany, 19-25 September (IUGG)
10. [8th SOLAS Open Science Conference](#), Cape Town, South Africa, 25-30 September (IAMAS)
11. [International School of Space Science - Course on Radiation Belt Dynamics and Remote Sensing of the Earth's Plasmasphere](#), L'Aquila, Italy, 26-30 September (IAGA)
12. [4th Regional Assembly Latin American and Caribbean Seismological Commission \(LACSC-2022\)](#), Quito, Ecuador, 3-5 October (IASPEI)
13. 14th General Assembly of the Asian Seismological Commission, Egypt, 20-21 October (IASPEI)

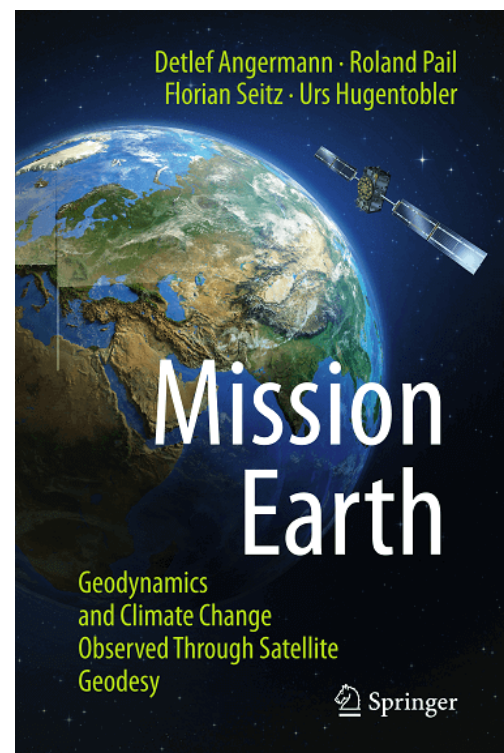
#### 4. IAG/GGOS Publication: Mission Earth. Geodynamics and Climate Change Observed Through Satellite Geodesy

The science of measuring the Earth  
Presented in an exciting and easy to understand way  
Illustrative examples from satellite navigation to climate change  
How geodesy has become an integral part of our daily life

How does your cell phone know where you are right now? How is our planet changing due to geodynamic processes and ongoing climate change? How can we measure these changes precisely from space in order to obtain reliable information about the melting of ice sheets or the threat to coastal regions from rising sea levels? This popular science book provides answers to these and many other socially relevant questions. With interview contributions by Günter Hein, Harald Lesch und Stefan Rahmstorf.

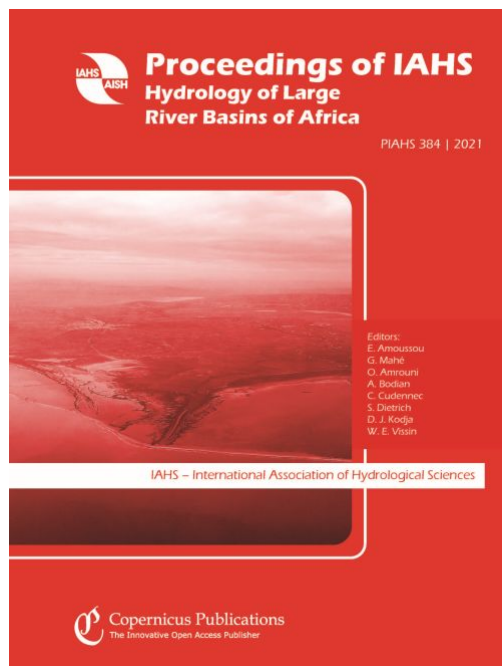
[Mission Earth](#) is aimed at interested non-professionals who want to learn more about our fascinating planet, but also at experts in natural sciences. You are taken on an exciting journey through time from the first surveys in ancient times to the satellite era, which is providing us with a global view of our home planet. Using illustrative examples, the authors convey how deeply global positioning and navigation with satellites pervade our daily life, and what fundamental contributions geodesy makes to understanding the Earth system and determining the effects of climate change.

The [English version](#) will become available in early 2022. The [German version](#) is already available.





## 5. IAHS Publication: Hydrology of Large River Basins of Africa



The papers from the 4th International Conference on the Hydrology of Large River Basins of Africa, which was held in Cotonou, Benin, from 16 to 20 November 2021 were published in the Proceedings of IAHS (PIAHS) and are available [online](#) for free.

This conference is the fourth of a series started in 2015 in Tunisia, followed by a second conference in Senegal in 2016, and a third one in Algeria in 2018. As usual this conference is the occasion to organise training courses, side-event workshops, and for the first time a PIAHS volume. This cycle of conferences also contributes to the World Large Rivers Initiative launched by UNESCO in 2014 to which it provides the African contribution. The scientific coverage is comprehensive across the global theme of large rivers; ranging from observation, characterisation and modelling of various processes and settings, to the analysis of regimes, changes and security issues. Articles published in this issue, are related to most of the 10 International Commissions of IAHS, and to cross-cutting and agenda-

setting initiatives: innovation and assimilation in hydrometry and the data-service value chain, Prediction in Ungauged Basins – PUB, hydrological change – Panta Rhei and related water security and nexus approach, and socio-hydrology and citizen engagement. The clustering of the articles in three sections captures that alignment through a progression from hydrological dynamics, to regimes and changes, and to security. The range of African Large Rivers addressed across these articles is a richness as such, with an ultimate value for comparative hydrology; whereas some local studies are also included, which are valuable for documenting knowledge and models.

This open access bilingual issue is of particular interest and value for a large community of researchers and readers in Africa, in terms of knowledge capitalisation and sharing, both at the regional and international levels, within academia and in the science-policy bridging – as advocated by learned societies and UNESCO in terms of Open Science and Public Good. Leading authors come from 15 African countries, as well as Canada, France and the UK. This issue also highlights the expectation of African researchers to integrate international institutional activities and share common scientific reflections. This PIAHS volume, as a contribution to the FRIEND-Water program, follows the one published in 2020 out of the Beijing Global FRIEND-Water conference in 2018. The next Global FRIEND-Water conference is scheduled to be held in Dakar, Senegal in March 2023. The contribution of the African scientific community to IAHS activities is strongly increasing, which is also visible by the very large registration of African colleagues to the ongoing 23 Unsolved Problems in Hydrology (UPHs) in Africa initiative, whose results should be integrated in the global 23 UPHs discussions scheduled for the [IAHS Scientific Assembly 2022](#) (IAHS2022) in Montpellier, France.

Christophe Cudennec, IAHS Secretary General

## 6. IAHS – Early Career Committee: Call for Applications

Early Career scientists make up a significant portion of our community, creating an opportunity to include a new generation of hydrologists as active contributors to IAHS.

During its Bureau Meeting in July 2017 IAHS decided to strengthen its early career scientist representation to enable more active participation of those members within IAHS Commissions and

Working Groups. An Early Career Committee (ECC) was created consisting of the Early Career Representative of each IAHS Commission plus a chair and co-chair.

The first two-year mandate started at the IUGG General Assembly 2019 and was extended to end at the [IAHS Scientific Assembly 2022](#) (IAHS2022) in Montpellier, France. A call is made for applicants for all Commissions for the second term of three years which commences during IAHS2022.

The IAHS definition of “early career” embraces scientists up to 5 years after completion of the PhD (allowing for an extra year per child for parents if they took parental leave). More information on the [IAHS Commissions](#) and the [Early Career Committee](#) (ECC) is available on the IAHS website.

If you are interested in becoming an Early Career Scientist Representative for one of the IAHS Commissions, you can apply by completing the [form](#) by **21 December 2021**. The ECC embraces equal opportunity for all its members, and strives to have a diverse composition in terms of gender and geography. Please do not hesitate to contact the [IAHS secretariat](#) and individuals involved in the commissions if you have any questions.

Christophe Cudenneq, IAHS Secretary General

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## **7. CMG Keilis Borok Medal: Call for Nominations (extended deadline)**

The Union Commission on Mathematical Geophysics (CMG) calls for nominations for the Vladimir Keilis-Borok Medal. The medal recognises middle career scientists who made important contributions to the field of mathematical geophysics. The medal will be awarded during the 2022 biannual CMG meeting in the Republic of Korea ([CMG2022](#)). Scientists after 10 years and within 20 years of receiving their PhD are eligible to be nominated. The details of the award, including the instructions on submitting a nomination package, can be found [here](#). The nomination deadline is on **31 January 2022**.

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## **8. Joint ICTP-IUGG Workshop on Data Assimilation and Inverse Problems in Geophysical Sciences – Report**

Understanding the complex operation of the Earth system requires an interdisciplinary approach and international collaboration. Data assimilation and modern methods of solving inverse problems provide unique opportunities to exploit such approach and collaboration by integrating data and information from disciplinary sources. These techniques become major forecasting tools in meteorology, oceanography, atmospheric chemistry, hydrology, and recently they started to be applied to solid Earth problems. To discuss state-of-the-art, applications, and perspectives of data assimilation and inverse problems in major IUGG disciplines, the Union Commission on Mathematical Geophysics (CMG) in cooperation with the Abdus Salam International Centre for Theoretical Physics (ICTP) and the East African Institute for Fundamental Research (EAIFR) organised the workshop hosted by ICTP in Trieste, Italy, virtually from 18 to 29 October 2021. Workshop participants received welcome addresses from Kathryn Whaler, IUGG President, and Atish Dabholkar, ICTP Director and Assistant Director General of UNESCO. World leading scientists from Australia, Canada, Germany, Italy, Republic of Korea, Russia, Spain, Switzerland, and USA lectured at the workshop and discussed with participants the topics in relation to specific geophysical disciplines.

96 of 117 applications received were selected, and the applicants were invited to attend the workshop. Among them, 32% were female participants; 79% (12%) were participants from developing (least developed) countries, namely, from Africa and Middle East 33%, Asia 35%, Latin America 19%, and Oceania 3%. The workshop had two sessions (morning and afternoon) every working day allowing lecturers from different parts of the world to attend and deliver lectures. Three sessions (two oral and

one poster) were dedicated to presentations by the workshop's participants, whose abstracts were selected for presentation by workshop's directors. These sessions highlighted the research on data assimilation, direct and inverse problems in geosciences, and quantitative modelling done by the participants from Argentina, Brasil, Cameroon, Cuba, Ethiopia, Ghana, Hungary, India, Indonesia, Iran, Italy, Mexico, Nepal, Nigeria, Rwanda, Senegal, Sudan, Turkey, and UK. All the presentations were judged, and three best papers were selected. Maibys Sierra Lorenzi (Cuba; female scientist), Maria Alejandra Vesga Ramirez (Argentina; female scientist), and Hari Ram Thapa (Nepal) received the best paper awards. The workshop was supported in by IUGG (via grant to CMG) and ICTP.

*Group photo (source: ICTP)*

More information on the workshop (scientific programme, list of participants, lecture notes and videos) can be found [here](#).

Alik Ismail-Zadeh and Ilya Zaliapin, Co-Directors of the Workshop

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## **9. UNESCO Science Commission Adopts Open Science Recommendation**

The UNESCO recommendation on Open Science was unanimously adopted by Member States during the Science Commission plenary. The road to the Open Science Recommendation being adopted commenced with a resolution from the [40th session of UNESCO's General Conference](#) in 2019, where 193 Member States tasked UNESCO with the development of an international standard-setting instrument.



That instrument, the [UNESCO Recommendation on Open Science](#), has now been adopted by Member States at the Science Commission plenary at its 41st General Conference, paving the way for it to be passed at the full General Conference. As reported in the [IUGG E-Journal Vol. 21. No. 8](#) (item 5), the International Science Council (ISC) supported this initiative with a delegation. IUGG was represented by Christophe Cudennec and Nilay Dogulu (both IAHS).

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## 10. Awards and Honours

### *European Geosciences Union (EGU)*

EGU announced its 2022 Union Medals and Awards, Division Medals, and Division Outstanding Early Career Scientist Awards. These individuals are honoured for their important contributions to the Earth, planetary and space sciences. They will be celebrated during the [EGU General Assembly 2022](#), which will be held from 3 to 8 April 2022 in Vienna, Austria. Among the 2022 medalists and awardees are the following scientists who have been active in IUGG:

#### 2022 Union Medal:

**Günter Blöschl** (Austria), IAHS President (2017-2021), was awarded the Alfred Wegener Medal.

#### 2022 Division Medals:

**Yehuda Ben-Zion** (USA), Chair of the Union Commission on Mathematical Geophysics (CMG, 2011-2019), was awarded the Beno Gutenberg Medal; **Wouter Buytaert** (UK), President of the IAHS International Commission on Water Quality (ICWQ, since 2018), was awarded the Henry Darcy Medal; **Regine Hock** (Norway), IACS President (2017-2021), was awarded the Julia and Johannes Weertman Medal; **Paola Passalacqua** (USA), IAHS Vice-President since 2020, was awarded the Ralph Alger Bagnold Medal; and **Peter J. G. Teunissen** (Netherlands), IAG National Correspondent since 2003, was awarded the Vening Meinesz Medal.

### *Congratulations!*

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## 11. Meeting Calendar

### *December*

- 13-17, AGU, New Orleans LA, USA, and Online, [AGU Fall Meeting 2021](#)
- 14-18, ICA, Florence, Italy, [30th International Cartographic Conference](#)

### *February*

- 1-4, IAHS, Grenoble, France, [3rd International Conference on Snow Hydrology \(SnowHydro2022\)](#)
- 21-25, SCOSTEP, Online, [15th Quadrennial Solar Terrestrial Physics Symposium \(STP-15\)](#)
- 27-4 March, AGU, Honolulu HI, USA, [Ocean Sciences Meeting 2022](#)

### *Association Scientific Assemblies 2022-2023*

- 29 May-3 June 2022, IAHS, Montpellier, France, [IAHS Scientific Assembly](#)
- 30 January-3 February 2023, IAVCEI, Rotorua, New Zealand, [IAVCEI Scientific Assembly](#)

### *IUGG General Assembly 2023*

- 11-20 July 2023, IUGG, Berlin, Germany, [IUGG General Assembly 2023](#)
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