



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

## **The IUGG Electronic Journal**

**Volume 23 No. 12 (1 December 2023)**

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 supports scientists at risk**

IUGG notes with alarm and dismay the escalation of conflict and suffering in the Middle East since 7 October 2023. IUGG opposes any discrimination or harassment of individuals based on factors such as age, citizenship, disability, ethnic origin, gender identity, language, political or other opinion, religion, or sexual orientation. IUGG recalls the [International Science Council Declaration: Supporting at-risk, displaced and refugee scientists: A call to action](#) and urges universities, research centers, and scientific organisations to take every possible measure to prevent any incitement to worsen the situation by the exclusion of scientists who may be at risk based on the given conditions.

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### **2. IUGG Meeting Support 2024 – Awarded Meetings**

IUGG co-sponsors symposia and workshops appropriate to Union disciplines of study. In 2024, IUGG will support 19 scientific meetings with a total of USD 100,000 as listed below (the IUGG Association that endorsed the meeting is indicated in brackets):

1. Molecular Understanding of Atmospheric Aerosols Workshop and School, Cargèse, Corsica, France, 1-4 April (IAMAS)

2. Marine Heat Flow: Assessment of the Southern Hemisphere and Kick-off for the Development of Marine Heat Flow as an Essential Ocean Variable, France, May (IASPEI)
3. [12th International Workshop on Long-Term Changes and Trends in the Atmosphere](#), Ourense, Spain, 6-10 May (IAGA, IAMAS)
4. Course on Operational Space Weather Fundamentals, L'Aquila, Italy, 13-17 May (IAGA)
5. Workshop on Computational Geosciences for Sustainable Development (as a side event of the 34th IUGG Conference on Mathematical Geophysics), Mumbai, India, 30 May – 1 June (IASPEI)
6. Combined ANGIN/VCAIS Meeting, Fredericton, New Brunswick, Canada, 2-7 June (IAGA)
7. [International Summer School in Glaciology](#), McCarthy AK, USA, 7-17 June (IACS)
8. Quadrennial International Radiation Symposium 2024, Hangzhou, China, 17-21 June (IAMAS)
9. [International Atmospheric Rivers Conference 2024](#), La Jolla CA, USA, 24-27 June (IAMAS)
10. 4th Regional Assembly Latin American and Caribbean Seismological Commission, San José, Costa Rica, 24-28 June (IASPEI)
11. From Meso to Sub-mesoscale Ocean Circulation Structures: Satellite and In-situ Measurements, Physical Mechanisms and Biological Impact, Buenos Aires, Argentina, 8-13 July (IAPSO)
12. Workshop on Scientific Directions for Cloud Chamber Research (precedes the International Conference on Clouds and Precipitation), Seogwiposi, Jeju, Rep. of Korea, 13-14 July (IAMAS)
13. Workshop on Evaluation of Cloud Probe Processing Software (precedes the International Conference on Clouds and Precipitation), Seogwiposi, Jeju, Rep. of Korea, 13-14 July (IAMAS)
14. [45th COSPAR Scientific Assembly](#), Busan, Rep. of Korea, 13-21 July (IUGG)
15. Quadrennial Ozone Symposium, Boulder CO, USA, 14-20 July (IAMAS)
16. [39th General Assembly of the European Seismological Commission](#), Corfu, Greece, 22-27 September (IASPEI)
17. 4th General Assembly of the African Seismological Commission, South Africa, October (IASPEI)
18. 9th International Water Resources Management Conference of the International Association of Hydrological Sciences; 14th International Workshop on Statistical Hydrology of the International Association of Hydrological Sciences; and 1st Encontro Brasileiro de Hidrologia Estatística, Florianópolis, Brazil, 4-7 November (IAHS)
19. 15th General Assembly of the Asian Seismological Commission, Antalya, Türkiye, 10-13 November (IASPEI)

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### 3. IUGG President visits China Association of Science & Technology

The IUGG President, Chris Rizos, recently visited China and took the opportunity on 2 November 2023, to meet with colleagues at the China Association of Science & Technology (CAST). CAST is the organisation that is responsible for the management of many of China's professional and scientific associations, including the payment of subscriptions to international bodies such as the IUGG.

At the invitation of Professors Dang Yamin and Yang Yuanxi, Secretary General and President, respectively, of the IUGG National Committee for China, the IUGG President met with Dr. Luo Hui, Director General, Department of International Cooperation, CAST. Discussions ranged over topics that included the recent IUGG General Assembly, the overall contributions made by Chinese

geoscientists and institutions, how to increase the number of Chinese researchers in IUGG leadership positions, and strategies for expanded Chinese international engagement in the geosciences.



*Chris Rizos, IUGG President, with Luo Hui, Director General, Dept of International Cooperation CAST, on 2 November 2023 in Beijing, China*

#### **4. IUGG Secretary General at the 6th World Landslide Forum**

The IUGG President gave a pre-recorded [welcome address](#) while the IUGG Secretary General Alexander Rudloff was present at the opening ceremony and participating in a high-level panel discussion of the 6th World Landslide Forum (WLF) in Florence, Italy, on 14 November 2023.

IUGG was one of the early signatory parties of the KLC2020, the Kyoto Landslide Commitment in 2020. The renewed and expanded [Florence Declaration 2023](#) aims to further reduce disaster risks from landslides worldwide.

The 6<sup>th</sup> World Landslide Forum, organised by the University of Florence and its partners, attracted more than 1,100 participants from all over the world. More than 850 scientific contributions were submitted.



*Alexander Rudloff, IUGG Secretary General with John Ludden, IUGS President, and Veronica Tofani, WLF6 SG on 14 November 2023 in Florence, Italy (left), Panel and Signatory Parties (right); Source: WLF6*

## 5. IUGG National Committee Report

### IUGG ITALY – Annual Reports 2019-2022 of the National Committee



The National Research Council ([CNR](#)) is the Italian Adhering Body to IUGG. To fulfil the functions of the Italian National Committee, and to provide guidelines and proposals for an effective Italian participation in the activities of the Union, as well as to assist the CNR in matters related to the international initiatives and activities promoted by the Union, the CNR has established a Commission for Participation in the Activities of the IUGG. For the four-year period 1999-2022 the CNR-IUGG Commission was composed of Fausto

Guzzetti (National Delegate and President of the Commission), Claudia Pasquero (Deputy National Delegate and Deputy President of the Commission), Barbara Stenni (National Delegate to [IACS](#)), Mattia Crespi (National Delegate to [IAG](#)), Umberto Villante (National Delegate to [IAGA](#)), Alberto Montanari (National Delegate to [IAHS](#)), Mario Marcello Miglietta (National Delegate to [IAMAS](#)), Katrin Schroeder (National Delegate to [IAPSO](#)), Warner Marzocchi (National Delegate to [IASPEI](#) and Secretary of the Commission), and Giuseppe de Natale (National Delegate to [IAVCEI](#)), supported by Cecilia LALLE for the Secretariat. On 4 April 2023, the CNR President Maria Chiara Carrozza, confirmed the same team for the period 2023-2026.

Each year, the National Delegates prepare a report summarising the main scientific and organisational activities carried out in Italy and abroad by the Union and its Associations. The reports consist of a short introduction of IUGG and the CNR-IUGG Commission, a description of the main IUGG activities in each year which are relevant for Italy and for the CNR, a summary of the activities carried out by the National Delegates, an evaluation of the Italian participation to the Union in terms of benefits and membership costs, an evaluation of the Italian participation with proposals to increase interest and involvement, a list of prizes and recognitions awarded to Italian scientists, and a short summary of the Commission's activities. The annual reports are published on a [dedicated website of CNR](#) and linked to the [Nation Committee Reports section](#) of the IUGG website.

I take this opportunity to thank my fellow National Delegates of the International Associations and their deputies, as well as my deputy Claudia Pasquero, for the work they have done to promote the IUGG and to organise the activities within the International Associations. I would also like to thank the coordinator and the staff of the CNR International Relations Unit for their constant support to the activities of the CNR- IUGG Commission.

Fausto Guzzetti, IUGG National Delegate for Italy

*IUGG National Committees are invited to submit their annual/quadrennial reports at any time.*

## 6. IACS – New Working Group on the delineation of glaciers, ice sheets, and ice sheet basins

IACS is pleased to announce a new working group on the delineation of glaciers, ice sheets, and ice sheet basins. The working group is an effort aiming (a) to build a community standard product defining what is considered the 'main' ice sheet and what is a 'peripheral glacier', and (b) to define standardised drainage basins within the ice sheets as well as for the peripheral glaciers. This should include developing



IACS

International Association  
of Cryospheric Sciences

and making available both the ruleset and tools used for separating glaciers from ice sheets and defining ice sheet basins as well as ice divides for glaciers along with recommendations to facilitate comparison between studies. To ensure broad acceptance, this standardised reference should be developed through an open, democratic process, enabling future revisions.

The lack of a widely accepted standard across communities in delineating ice sheet vs glaciers and defining basins within ice sheets has hampered comparisons between studies and most likely has also led to errors of accounting, for example, in recent IPCC reports, such as AR5, AR6, and the Special Report on the Ocean and Cryosphere in a Changing Climate.

### ***Objectives:***

- Make a community standard agreement on which ice masses in and around Greenland and Antarctica fall into the ‘glacier’ category and which are part of the main ice sheets;
- Make a community standard agreement on internal ice sheet basins, subregions and boundaries;
- Develop methods and tools to support mass change estimates that avoid under- or over-counting;
- Engage a sustainable community.

### ***Organisation and membership***

The working group is organised with two co-chairs: Ken Mankoff (USA) and Fabien Maussion (UK). It has a steering committee consisting of co-chairs and 10 other scientists. The working group is also open for members that are to be determined following an open call for participation on cryolist. One can also be involved as observers that are invited to annual meetings and kept informed of the progress; no expected contribution. The full proposal of the working group is available [here](#).

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## **7. IACS – One Planet Polar Summit in Paris**

From 8 to 10 November 2023, scientists, explorers, heads of international institutions and policymakers were gathered in Paris, France, for the [One Planet - Polar Summit](#). They shared their results and concerns about the ongoing changes of the cryosphere. The conclusion was clear: we must strongly and urgently decrease global greenhouse emissions to achieve the goals of the Paris agreement so we limit the consequences of massive ice melt. We need to collaborate internationally and secure long term observations from space and in the field.



IACS was a partner organisation of the summit and IACS President Liss M. Andreassen was a member of the Scientific Advisory Board. She gave a 10 min statement from IACS on the first day of the meeting. The Scientific Advisory Board prepared the scientific background in a document building on IPCC recommendations and with recent updates. Antje Boetius and Jerome Chapellaz presented the Scientific Advisory Board statement to President Macron and other Heads of State and government on 10 November. The official video of the presentation is available [here](#) (statement starts around 05:20).

*Group photo after breakfast meeting at the Norwegian embassy in Paris on 10 November 2023. From left: Tore Furevik, Prime Minister of Norway Jonas Gahr Støre, Liss M. Andreassen and Camilla Brekke. The three researchers briefed Prime Minister Støre about the findings from the first two days of the meeting.*

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## 8. CMG – 34th IUGG Conference on Mathematical Geophysics: Announcement



The 34th IUGG Conference on Mathematical Geophysics ([CMG2024](#)), organised by the IUGG Union Commission on Mathematical Geophysics ([IUGG-CMG](#)), will be hosted by the Indian Institute of Technology Bombay, Mumbai, India from **2 to 7 July 2024**. The main theme of the conference is ‘*Mathematical Geophysics for Sustainable Development*’. The conference covers many interdisciplinary topics and relevant mathematical approaches, including inverse problems, artificial intelligence, machine learning, natural hazards, climate and environmental changes. The conference aims to discuss key theoretical and observational aspects of solid earth, ocean, atmosphere, cryosphere, climate and other contemporary topics in mathematical geophysics. The [Conference Programme](#) covers several themes: (i) Artificial Intelligence, Machine Learning, Deep Learning, and Data Science; (ii) Developments in Theoretical and Computational Geophysics; (iii) Earth and Environmental Sciences and Mathematics for Sustainability; (iv) Atmosphere, Ocean and Sea-Ice Dynamics; and (v) Mathematics for the Terrestrial Water Cycle. A keynote lecture will be given by the 2024 Vladimir Keilis-Borok Medalist (to be announced later). **The deadline for abstract submission is on 15 March 2024, and for registration on 15 April 2024.** A preconference workshop on “*Computational Geosciences for Sustainable Development*” will be organised at IIT Bombay from 30 May to 1 June 2024 to impart scientific knowledge and technical know-how to the graduate and undergraduate students of national and international universities on the applications of novel mathematical techniques in several areas of Sustainable Development Goals. CMG2024 is a contribution to the United Nations General Assembly proclaimed ‘International Decade of Sciences for Sustainable Development’ (2024-2033). For more information, please visit the [CMG2024 website](#).

Alik Ismail-Zadeh (Chair) and E. Chandrasekhar (Vice Chair), IUGG-CMG

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## 9. SEDI/IASPEI/ILP – Improving earthquake preparedness through geoscience education in the Himalayas: Report

Since 2017, we have been running a successful educational seismology programme in Nepal which stands on two main pillars, (i) the installation of low-cost seismometers in schools to span an operational seismic network, and (ii) the training of local teachers to teach about earthquake preparation and related topics including hands-on activities with seismic sensors.

In the proposal submitted to IUGG for funding from the IYBSSD grants round, we stated an aim to develop a new module, namely the Earthquake Evacuation Procedure Guide, to continue educational activities in Nepal, and to extend the initiative to neighboring countries. Below, we present major activities done with the support of the funding.

### Teachers’ workshop

With the support of various institutions including IUGG, we have organised a two-day workshop for Nepali school teachers from 1 to 3 May 2023 in a centrally located city in Nepal, Pokhara. There were 49 teachers participating, of which most were science, computer science, and social science teachers, as well as several school principals. The workshop topics covered a broad spectrum of topics

such as seismic hazard in Nepal, demonstration of a teaching tool for teachers: Sismobox, an earthquake evacuation procedure guide, earthquake location using school-seismometer recorded data, and an educational card game 'Beat the Quake'. The program was designed to offer a mixture of scientific talks, demonstrations, open question-and-answer sessions. All presentations were well received, and Nepali clarifications and translations have been ensured where necessary. What has clearly gone well beyond our expectations was the open Q&A session. All speakers sat in front of the audience, and we received literally any type of question about the Earth, Earth Sciences, earthquakes, and much more, leading to great discussions.

Five speakers, including Prof. Dr. György Hetényi (University of Lausanne, Switzerland), Ms. Sarah Houghton (St. Michael Steiner School, United Kingdom), Dr. Fabrice Jouffray (University Côte d'Azur, France), Dr. Lok Bijaya Adhikari (National Seismological Center, Kathmandu), and Dr. Shiba Subedi (Seismology at School in Nepal) shared the stage for presentations, practical demonstrations, and discussions.



*Group photo during the teacher workshop in Pokhara, Nepal, from 1 to 3 May 2023*

### Running educational activities in 2023

In 2023, we also conducted various educational activities in participating schools, such as special lectures on earthquake awareness, answering questions with demonstrations, monitoring the seismometer to keep it online 24/7, introducing an educational card game for students, etc. During our school visits, we took the opportunity to provide religious and scientific explanations for earthquakes in the Himalayas. This is crucial for local people, because most of them, especially in the countryside, believe that earthquakes are caused by God. This is also mentioned in various Hindu scriptures, and it is difficult to convince older and poorly educated people of the scientific causes of the earthquake. We carefully explained the science of earthquakes to the public during our school visits.

### Earthquake evacuation procedure guide: preparation and test

As part of our Seismology at School programme in Nepal, we developed an earthquake preparedness module called the Earthquake Evacuation Procedure Guide (EEPG). Since there is no specific protocol to follow when an earthquake happens in Nepal, it would be very helpful to save lives in future earthquake occurrences. The main goal of this guide is to teach students in schools how to maximise their chances of saving their lives during earthquake shaking. The document includes information on what students can do to prepare for earthquakes, how to improve earthquake safety, the school's emergency plan, and a proposed earthquake education schedule. All action steps before, during, and after an earthquake are explained in detail in the guide, with an additional section for teachers.

Below are the main steps of the Earthquake Evacuation Protocol:

1. Secure space by identifying hazards and securing moveable items.
2. Plan to be safe by creating a school emergency plan and deciding how one will communicate.

3. Organise emergency supplies in convenient locations.
4. Prepare and organise important documents and strengthen the school building.
5. Good response during an earthquake: Where are you? Outside or inside?
6. Improve safety after earthquakes by evacuating, helping the injured, and preventing further injuries or damage.
7. There will be a need to restore daily life by reuniting with others, repairing damage, and rebuilding the community.

Shiba Subedi, Seismology at School in Nepal and György Hetényi, University of Lausanne

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## 10. Awards and Honours

### *Braga Science Film Fest 2023*

The IUGG funded movie '[Earth-human connections](#)' (by Katia Pinheiro) won the Audience Award of the [Braga Science Film Fest 2023](#) for Best Short Film, in a field of 29 other competitors.

### *European Geosciences Union (EGU)*

EGU announced its 2024 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 2024](#), which will be held from 14 to 19 April 2024 in Vienna, Austria and online. Among the 2024 medalists and awardees are the following scientists who have been active in IUGG:

#### 2024 Union Medal:

**Veronique Dehant** (Belgium), Member of the Belgian National Committee (1999-2019), will receive the Jean Dominique Cassini Medal.

#### 2024 Division Medals:

**Gwenn Flowers** (Canada), Head of IACS Division II (2019-2023), will receive the Julia and Johannes Weertman Medal; **Jeffrey T. Freymueller** (USA), Chair of the IUGG National Committee for the USA (2011-2015), will receive the Vening Meinesz Medal; **Annick Pouquet** (USA), Executive Committee Member of the Union Commission on Mathematical Geophysics (CMG; 2019-2023), will receive the Lewis Fry Richardson Medal.

### *Congratulations!*

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## 11. Meeting Calendar

### *December*

- 1-3, IAHS, Zhuhai City, China, [5th IAHS-ICWQ Workshop](#)
  - 11-15, AGU, San Francisco CA, USA, [AGU Fall Meeting 2023](#)
  - 15, IYBSSD, Geneva, Switzerland, [Closing Ceremony of the International Year of Basic Sciences for Sustainable Development](#)
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