



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

## **The IUGG Electronic Journal**

**Volume 21 No. 11 (1 November 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 (XXIII)**

#### **Liss Marie Andreassen, President of the International Association of Cryospheric Sciences (IACS), 2021-2025**

I grew up in Fredrikstad, Norway, 90 km southeast of Oslo, near the coastline close to the Swedish border. I liked skiing and every winter we had winter holidays in the Norwegian mountains, as skiing opportunities were rare around my hometown. I was an eager reader, using my doll's pram to take my books for a stroll. Every summer we visited Denmark where my father comes from. My first direct meeting with a glacier was not until I was 20 years old, hiking over a glacier on the way to Norway's highest peak, Galdhøpiggen. At that time, I had started studies at the University of Oslo, initially planning for a degree in chemistry. After taking introductory classes in geophysics, however, I changed my mind, aiming for a degree in hydrology instead. I also took classes in geomatics and physical geography. During my studies, we went on several excursions and fieldwork courses to glaciers in mainland Norway and Svalbard. I got the chance to do a master's project in glacier hydrology, studying water flow through a glacier using dye tracing, discharge and ice thickness measurements combined with modelling in geographic information systems (GIS). It was a perfect



*Doing snow pit measurements at Juvfonne in May this year, an ice patch in Jotunheimen I have studied since 2010 (photo: Frys film)*

choice combining my background in hydrology, glaciology and geomatics. I spent a total of seven weeks doing fieldwork on Midtdalsbreen, an outlet of Hardangerjøkulen, Norway's sixth largest icecap. I was involved in many activities at the university: teaching, course activities and the geography student association, and it was hard to see myself somewhere else. But two weeks before my master's exam I found it timely to investigate job options and called the section for Glaciers, Ice and Snow at the Norwegian Water Resources and Energy Directorate (NVE), with whom I already had contact with -

loaning equipment for my field work and receiving advice for my analyses. I was lucky and was granted a 6-month temporary engagement to start with, which after a few years was turned into a permanent position. I started off with database management, digitising glaciers maps and conducting GIS analyses. I also wrote reports and my first two peer-reviewed papers. I joined the team undertaking glacier mass balance fieldwork and spent many days in the field. I also worked on several snow and remote sensing projects. After a few years I was asked to lead the glacier monitoring programme for Jotunheimen, including the long-term mass balance programmes of Storbreen (since 1949), Hellstugubreen and Gråsubreen (since 1962). Jotunheimen is the highest elevated area in Norway with many smaller valley and mountain glaciers. I was thrilled to get this responsibility in such a beautiful area.

After a few years and having two kids, my then boss encouraged me to follow up my research by taking a PhD as part of my NVE work. At that time the University of Utrecht, Netherlands, had erected automatic weather stations on Midtdalsbreen and Storbreen. I did my PhD on glacier changes, surface energy balance and mass balance modelling, supervised by Hans Oerlemans. I defended my PhD in 2008 at the University of Oslo. I have continued my work maintaining the NVE mass balance programme with fieldwork and analyses. My research also includes glacier changes using surface elevation surveys, aerial and satellite images both for detailed studies of individual glaciers and national inventories. Collecting as much data as possible to document the past and present changes of Norwegian glaciers is key to my work. Glaciers are landscape elements that are constantly changing. I find them very fascinating.



*Field work on Storbreen, Jotunheimen, my favourite glacier and study object for over 20 years. The glacier has shrunk, the crevasses on the lower part have almost vanished and new nunataks are appearing (photo: Jostein Aasen)*

Although my work has been geographically restricted to glaciers in Norway, I have enjoyed international cooperation with many good colleagues and through international organisations such as IACS and the International Glaciological Society. My first IACS and IUGG related assembly was the MOCA-09 IAMAS/IAPSO/IACS Joint Assembly in Montreal 2009, where I convened a session. This turned out to be a great experience and a successful meeting. In 2011, I joined the newly established Advisory Board for the Global Terrestrial Network for Glaciers (GTN-G), which is chaired by IACS. In 2015, I joined the IACS Bureau as division head for glaciers and ice sheets, and held this position for four years. The IUGG General Assembly in Prague in 2015 was my first General Assembly. In 2019, I was back in Montreal for the IUGG General Assembly, where I was elected President-Elect of IACS. The terms of the IACS President, the President-Elect and the Immediate Past President are staggered to maintain continuity. After having served as President-Elect for two years, the presidency was transferred to me at the end of the IACS Annual Meeting on 13 September this year. I am honoured and humbled to take over this responsibility from Regine Hock. I am blessed to work with such a skilled and efficient team in the IACS Bureau, with Richard Essery being a great support as Secretary General and Charles Fierz and Andrew Mackintosh with institutional memory as previous President and previous Secretary General respectively. We now have 15 members in the IACS Bureau, including three deputies; and have a good gender and age balance and wide geographical spread. I really look forward to continue working with our eminent Bureau Members as well as our Working Groups, Commissions and Standing Groups. I also look forward to working with IUGG in my role as IACS President. I hope we can work efficiently together on our goal to reduce our carbon footprint while supporting the advancement of cryospheric sciences.

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## **2. IUGG Yearbook 2022 – in preparation**

Corrections and updates to the information contained in the [IUGG Yearbook](#) for 2022 are now being finalised. Please contact the [IUGG Secretariat](#) by **30 November 2021** with additions and corrections.

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## **3. IAGA-IASPEI Joint Scientific Assembly 2021 – Report**

The International Association of Geomagnetism and Aeronomy (IAGA) and the International Association of Seismology and Physics of the Earth's Interior (IASPEI) had planned to have a joint Scientific Assembly in August 2021 in Hyderabad, India. In the midst of the preparations in 2020 it became clear that a normal in-person meeting will likely not be possible in summer 2021 due to the COVID-19 pandemic. The two Associations and the local organisers decided together to convene the meeting as a virtual event at the originally planned dates.

Thus, the virtual Joint Assembly was held from 21 to 27 August 2021, hosted by the Indian National Academy (INSA) and the CSIR-NGRI with the support from other Earth science institutes of the Indian Governments' Department of Science & Technology, CSIR and Ministry of Earth Sciences. The meeting attracted 828 participants from 53 countries, over 500 from IAGA and nearly 300 from IASPEI and included 212 students from 37 different countries. These numbers are quite satisfying, although a somewhat higher participation was originally expected for an in-person meeting.

The programme did not differ much from the originally planned one, and included three joint plenary talks, eight joint sessions, 27 IAGA and 17 IASPEI symposia with altogether 778 abstracts for oral and poster presentations. It was preceded by the NGRI-CSIR Diamond Jubilee Symposium, which celebrated the 60th anniversary of the institute with eight invited lectures.

During its Opening Plenary, IASPEI presented the IASPEI Medal 2021 to Barbara Romanowicz with a laudation given by Guy Masters. Furthermore, IAGA held its award ceremony where this year's Shen Kuo Medalist, Jay Johnson, gave a well-received lecture entitled "From microphysics to system science: Approaches to understanding dynamics from the sun to Saturn".

Due to the COVID-19 pandemic the Asian Seismological Commission (ASC), one of IASPEI's Regional Commissions, could not hold its General Assembly in 2020. Therefore, the ASC took the opportunity of the Joint Assembly with many participants from Asian countries and organised a General Assembly during the conference.

The Joint Assembly was preceded by the IAGA and IASPEI Schools for Early Career Scientists and a GIFT Workshop to educate teachers from India and neighbouring countries on IAGA and IASPEI topics (see special reports below). All these also were organised for the first time in virtual formats. The International Association of Physics Students, IAPS, that signed a memorandum of understanding for collaborations with IAGA earlier this year, organised another virtual event (IAPS@IAGA) where Early Career Scientists could discuss in small groups with international experts in different fields of IAGA sciences.



*The opening ceremony of the IAGA-IASPEI Joint Scientific Assembly 2021 was attended in person by selected local participants and streamed online for all others*

The challenge to accommodate all global local times for the presentations at the Joint Assembly led to a concentration of sessions in the period 16:45 to 22:15 IST (10:45 to 16:45 UTC), which resulted in some unfortunate overlaps of sessions. However, all presentations were recorded (either pre-recorded or recorded during live session) and are available for later viewing. The live oral sessions included some lively discussions despite the online limitations, and after some initial difficulties the Association business meetings, an important part of the IAGA and IASPEI Scientific Assemblies, also went well. The only aspect solved less satisfactorily were the poster sessions, which could not be arranged as live discussions.

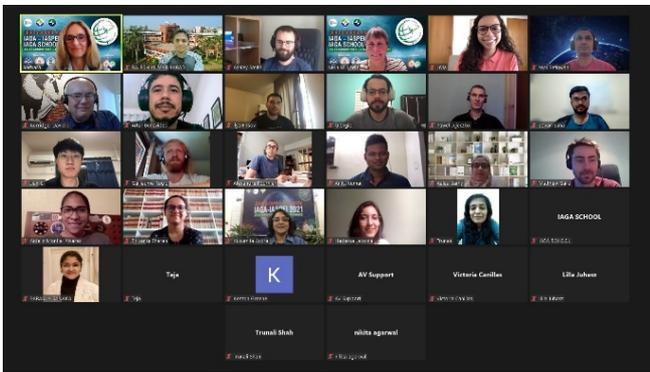
Overall the technical arrangements worked well. Our Indian colleagues had done a tremendous job to set up the fully virtual environment in less than a year. We sincerely thank the local organisers and the personnel from the professional conference organising company for their dedication. We thank all who made this first virtual IAGA-IASPEI Joint Assembly a great success, including the IAGA and IASPEI officers, symposia organisers, session conveners and chairpersons, who all faced new challenges with the conversion to the virtual format.

IAGA and IASPEI plan to organise another Joint Assembly in Lisbon, Portugal for 2025. We are looking forward to hopefully have this, as well as the IUGG General Assembly in 2023 in Berlin, Germany, as regular meetings with in-person participation.

Monika Korte, IAGA Secretary General  
Johannes Schweitzer, IASPEI Secretary General

#### 4. 5th IAGA School for Early Career Researchers – Report

IAGA Schools aim at providing excellent Early Career Scientists with a good basic understanding of a wide range of the scientific topics covered by IAGA. The 5th IAGA School was planned in the week before the IAGA-IASPEI Joint Assembly in Hyderabad, India, but like the Joint Assembly, the 5th IAGA School also had to be delivered in a fully virtual format due to the COVID-19 pandemic. The 5th IAGA School thus was held from 16 to 20 August 2021 and organised by IAGA’s Interdivisional Commission on Education and Outreach (ICEO), with assistance from the Joint Assembly local organisers. For lectures and part of the practical exercises the main conference software was used. However, in addition to gaining scientific knowledge, networking among the participants has always been an important aspect of the IAGA Schools. To mimic as best as possible the usual personal interactions, the [Gather software](#) was used for a social event, during breaks, and for the distribution of information and further interactions an instant messenger group was set up. This combination of virtual tools worked well and the participants mostly gave positive feedback. The 5th IAGA School was attended by 34 students from 16 countries. Seven international lecturers provided 10 lectures of 90 minutes each, and practical exercises on three topics using, e.g., Jupyter notebooks running Python programs.



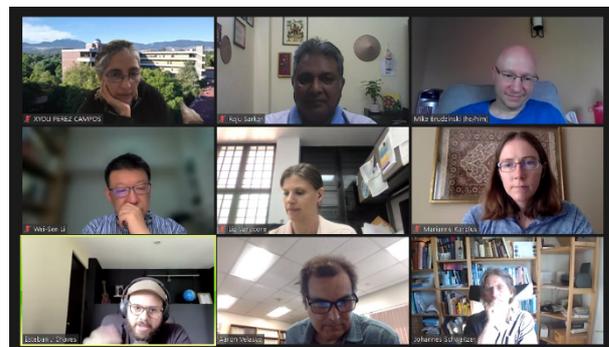
*Group photo in the virtual lecture hall (Zoom, left) and virtual social interactions in Gather (right)*

We sincerely thank all who made the 5th IAGA School a success under difficult circumstances, in particular ICEO chair Barbara Leichter, Kusumita Arora from the Local Organising Committee, all the expert lecturers and especially Ashley Smith, who suggested and managed the combination of the different virtual tools.

Monika Korte, IAGA Secretary General

#### 5. 1st IASPEI Summer School for Early Career Research Scholars – Report

The IASPEI Summer School on “Principles of Earthquake Location and its Correlation with Seismic Network Designs” was held from 16 to 20 August 2021 just before the IAGA-IASPEI Joint Assembly in virtual mode. The Local Organising Committee (LOC) of the IAGA-IASPEI Joint Assembly assisted. The Summer School was a 15-hour training course on the principles of earthquake location and seismic networks, distributed over five days. 30 Early Career Research Scholars in the fields of Seismology, Earthquake Engineering and Geophysics from ten countries participated in the



*Group photo of the tutors*

School. 13 instructors from eight countries delivered lectures, each of 90 minutes duration, where theory and hands-on exercises were included by using the main conference software. Apart from gaining scientific knowledge, networking among the participants was another motive for organising the IASPEI Summer School.

The IASPEI Commission on Education and Outreach would like to thank all who made the 1st IASPEI Summer School a success under the present pandemic time, in particular all the lecturers, LOC, and IASPEI Bureau.

Raju Sarkar, Xyoli Perez Campos, and Aaron Velasco,  
IASPEI Commission on Education and Outreach

## 6. IAGA GIFT Workshop 2021 – Report

GIFT stands for Geosciences Information for Teachers. The IAGA Interdivisional Commission on Education and Outreach (ICEO) has started to organise GIFT Workshops following the example of such workshops organised at the meetings of the European Geosciences Union (EGU). On the occasion of the IAGA-IASPEI Joint Assembly, the GIFT Workshop planned for Hyderabad, India, had to be turned into a fully virtual format due to the COVID-19 pandemic. It was held from 19 to 21 August 2021.

54 teachers from India and Nepal, and one from Morocco were registered. 12 international experts delivered lectures in three topical sessions and organised six hands-on activities. The topics covered Earth's history through space and time; climate forcing, feedback and responses; and a general session on Earth science.

We sincerely thank the organisers of the GIFT Workshop 2021, i.e., Carlo Laj, Jayashree Bulusu and Barbara Leichter from the IAGA ICEO and Kusumita Arora from the LOC, for organising this important outreach event under difficult circumstances.

Monika Korte, IAGA Secretary General

## 7. IAHS2022 – Submit your Abstract and Apply for Travel Awards



The XIth Scientific Assembly of the International Association of Hydrological Sciences ([IAHS2022](#)) will take place Montpellier, France, from 29 May to 3 June 2022 – in the centenary year of IAHS.

The [registration](#) is now open at early bird prices.

The [call for abstracts](#) will be open until **1 December 2021**.

In the meantime, please find attached the latest [scientific](#) and [workshop](#) programmes.

Applications are invited for the IAHS SYSTA (Sivapalan Young Scientists Travel Awards) towards the costs of participating in the IAHS 2022 Scientific Assembly ([IAHS2022](#)) in Montpellier, France, from 29 May to 3 June 2022.

Full details of the SYSTA eligibility criteria and application procedure are available [here](#).

The key criteria are that applicants should be from, and currently reside in, a financially disadvantaged country, be within five years of their PhD award and be first author of a paper in Hydrological Sciences Journal (HSJ) or Proceedings of the International Association of Hydrological Sciences (PIAHS) or another listed hydrological journal. Applicants must have submitted an abstract for the IAHS2022. Those who have previously received a SYSTA award for intercontinental travel are not eligible to apply. The maximum award value is EUR 2,500.

The closing date for SYSTA applications for the IAHS2022 is on **12 December 2021** (noon; GMT).

Christophe Cudenneq, IAHS Secretary General

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## 8. CMG Keilis Borok Medal: Call for Nominations

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 **1 December 2021**.

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## 9. ILP Awards: Call for Nominations



INTERNATIONAL  
LITHOSPHERE  
PROGRAM

### *Evgueni Burov Medal*

In honour of Evgueni Burov, the International Lithosphere Program (ILP) established a medal recognising pioneering contributions by mid-career scientists. The aim of the Evgueni Burov Medal is to promote high class solid Earth science in combination with community service. The Evgueni Burov Medalist will be honoured with a dedicated event during the [EGU General Assembly 2022](#).

### *Flinn-Hart Award*

The Flinn-Hart Award is presented by the ILP Bureau to an outstanding young scientist for contributions to the solid earth sciences covered by ILP. It consists of a travel grant and a citation, and aims to encourage the participation of promising young scientists in the Program.

The nomination guidelines and more information can be found [here](#).

All proposals must be received by the [ILP Secretariat](#) before **15 December 2021**.

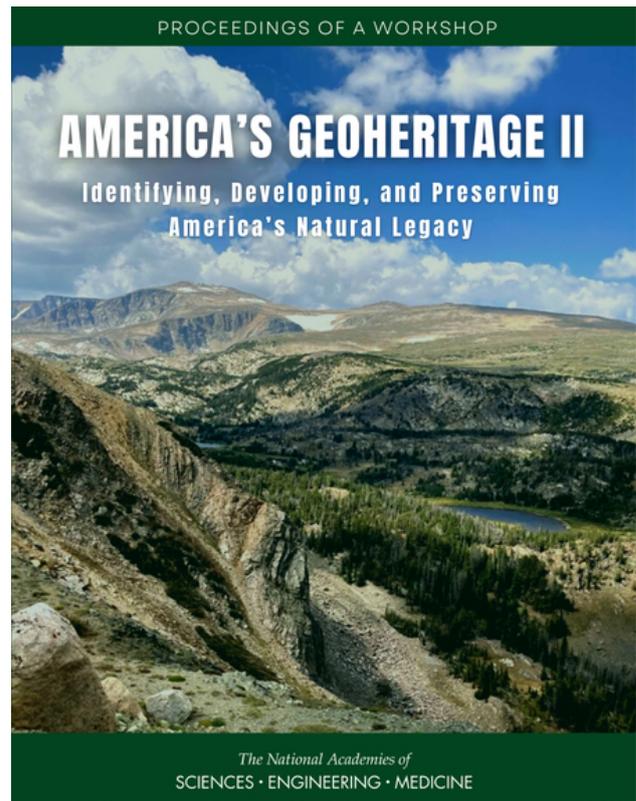
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## 10. America's Geoheritage II: Identifying, Developing, and Preserving America's Natural Legacy - Proceedings

The National Academies of Sciences, Engineering, and Medicine – the IUGG Adhering Body for the U.S.A. – have released the proceedings of the workshop *America's Geoheritage II: Identifying, Developing, and Preserving America's Natural Legacy*. This publication, released on 22 September 2021, is now freely available on the National Academies Press [website](#). Additionally, it is linked on the workshop [website](#).

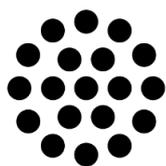
### *Description of the work*

America is endowed with places that embody a rich geoheritage, from sites where indigenous people subsisted for millennia, to mines that furnished the raw materials that built U.S. industry, to mountain ranges and river gorges with unparalleled recreational opportunities, to field sites where students can truly understand a geological process, to places of aesthetic or spiritual value, and many more across all states and territories. In order to assess the status of geoheritage and the activities of its practitioners in the United States in light of social, political, and environmental changes over the past ten years, the National Academies of Sciences, Engineering, and Medicine convened a series of virtual webinars and a workshop. From September to December 2020, a Distinguished Speakers Webinar Program composed of eight webinars provided an overview of geoheritage initiatives, as well as focused presentations on geoheritage related to federal and state lands, cultural heritage, education, research, and economic development and geotourism. In January 2021, 101 land managers, state geologists, educators, researchers, and members and staff of professional societies and nongovernmental organisations participated in a virtual writing workshop to aggregate and organise community input on strategies and best practices in developing geoheritage sites across the United States. The participants were divided into focus groups that roughly aligned with the topics explored in the Fall 2020 workshops. The groups worked synchronously and asynchronously over the course of a week, then presented their ideas in a plenary session. This publication summarises the presentations and discussion of the webinars and workshop.



David Mogk, Chair, U.S. National Committee for Geological Sciences,  
Ester Szein, Assistant Director, Board on International Scientific Organizations, NASEM  
James Manning, Senior Program Assistant, Board on International Scientific Organizations,  
NASEM

## 11. ISC Governing Board 2022-2024



# International Science Council

At the 2nd General Assembly of the International Science Council (ISC), a new Governing Board (2022-2024) was appointed to lead the ISC, an international nongovernmental organisation (and umbrella organisation of IUGG) that works to provide a global voice for science. The

Governing Board is the central decision-making body of the Council, which was formed in 2018 by the merger of the International Council of Science (ICSU), representing the natural sciences, and the International Social Science Council (ISSC).

The ISC Members elected four Officers of the Governing Board and ten Ordinary Members to join the incoming President of the ISC, Peter Gluckman, who takes up his presidency at the conclusion of the 2021 General Assembly.

**Motoko Kotani** (Mathematics; Japan) has been elected President-Elect, assuming the Presidency at the next General Assembly in 2024.

**Anne Husebekk** (Medicine; Norway) has been elected Vice-President for Freedom and Responsibility in Science, **Salim Abdool Karim** (Medicine; South Africa) Vice-President for Outreach and Engagement, and **Sawako Shirahase** (Sociology; Japan) Vice-President for Finance of the Council.

The elected Ordinary Members of the Governing Board are: **Karina Batthyany** (Sociology; Uruguay); **Françoise Baylis** (Bioethics, Philosophy; Canada); **Geoffrey Boulton** (Geology; UK); **Melody Burkins** (Geology, Ecosystem Studies; USA); **Mei-Hung Chiu** (Chemistry, Science Education; China-Taipei); **Pamela Matson** (Environmental Science; USA); **Helena Nader** (Biomedical Sciences; Brazil); **Walter Oyawa** (Civil Engineering; Kenya); **Maria Paradiso** (Geography; Italy); and **Martin Visbeck** (Oceanography; Germany). The Chief Executive Officer, Heide Hackmann, is an ex-officio Member of the Governing Board.

A summary of the 2nd ISC General Assembly is available [here](#).

***Congratulations!***

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## 12. Awards and Honours

### ***The Nobel Prize in Physics 2021***

On 5 October 2021, the Royal Swedish Academy of Sciences awarded the [Nobel Prize in Physics 2021](#) “for groundbreaking contributions to our understanding of complex physical systems” with one half jointly to **Syukuro Manabe** (Princeton University, USA) and **Klaus Hasselmann** (Max Planck Institute for Meteorology, Germany) “for the physical modelling of Earth’s climate, quantifying variability and reliably predicting global warming”, and the other half to **Giorgio Parisi** (Sapienza University of Rome, Italy) “for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales”. Klaus Hasselmann, Syukuro Manabe, and Giorgio Parisi are part of the IUGG family. The IUGG Secretary General, Alexander Rudloff, and Executive Secretary, Franz Kuglitsch, attended the [Nobel Colloquium](#) given by Giorgio Parisi on 22 October 2021 at the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy. The colloquium can be watched [here](#).

### ***International Association of Hydrological Sciences (IAHS)***

The IAHS 2021 Tison Award goes to **Svenja Fischer** (Germany) and **Philipp Bühler** (Germany) for their 2019 Hydrological Sciences Journal paper: Svenja Fischer, Andreas Schumann & Philipp Bühler (2019): [Timescale-based flood typing to estimate temporal changes in flood frequencies](#), Hydrological Sciences Journal, 64:15, 1867-1892, DOI: 10.1080/02626667.2019.1679376

*The IAHS [Tison Award](#), established in 1982, aims to promote excellence in research by young hydrologists. The award is granted for an outstanding paper published by IAHS in a period of two years previous to the deadline for nominations.*

### ***International Association of Seismology and Physics of the Earth's Interior (IASPEI)***

The IASPEI Medal 2021 was awarded during the (virtual) Opening Plenary at the IASPEI Scientific Assembly in Hyderabad, India, to **Barbara Romanowicz** (USA/France).

*The [IASPEI Medal](#) is awarded for merits in seismology: for sustaining IASPEI goals and activities and for scientific merits in the field of seismology and physics of the Earth's interior.*

### ***Congratulations!***

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## **13. Meeting Calendar**

### ***November***

- 2-6, WLF, Kyoto, Japan, [5th World Landslide Forum](#)
- 8-11, CODATA, WDS, Seoul, Rep. of Korea, [International Data Week 2021](#)
- 13-15, IAHS, IAHR, WMO, Cotonou, Benin, [5th International Streamgauging Course](#)
- 15-16, CODATA, Online, [32nd CODATA General Assembly](#)
- 16-20, IAHS, Cotonou, Benin, [Hydrology of the Major African Basins](#)
- 17, IACS, Online, [Open Plenary Meeting](#)
- 23-26, GEO, Online, [GEO Week 2021](#)
- 29-1 December, IAG, Online, [SIRGAS Symposium 2021](#)

### ***December***

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

### ***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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