



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

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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 about the actions of the IUGG Secretariat, Bureau, and Executive Committee. Past issues are posted on the IUGG website (<http://www.iugg.org/publications/ejournals/>). E-Journals may be forwarded to those who will benefit from the information. Your comments are welcome.

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1. IUGG's Centennial Anniversary – historical note II

The first four general assemblies (GAs) of the IUGG are overviewed in this historical note.

First General Assembly (3-10 May 1922, Rome, Italy)

The First General Assembly brought together delegates from the founding Member countries and from four new Member countries (Brazil, Greece, Mexico and Spain), and some representatives from countries that had not yet joined the Union. The sessions were held in the Reale Accademia dei Lincei. The delegates were welcomed by the Minister of Public Instruction at the Capitol in the presence of His Majesty the King of Italy (Lyons, 1922). Work plans were adopted for the next three years. In 1919 at the founding meeting in Brussels, it was suggested that the study of variation of latitude should be confined to the International Astronomical Union (IAU). In Rome it was decided that the subject should remain with the Section of Geodesy, and a joint committee of geodesists and astronomers was appointed to direct the work. The IUGG Section of Seismology was formally constituted at Rome as successor to the International Association of Seismology. Seismologists discussed topics related to microseisms, earthquake focal depths, and wave propagation (Lyons, 1922). An important discussion among meteorologists at the GA was related to cooperation with the International Meteorological Organization (IMO, the predecessor of the WMO), which brought together meteorological services of several countries. It was agreed that scientific investigations,

which required international cooperation, could be difficult for the national services to include in their activities, and hence the Section of Meteorology could initiate and promote such investigations. The Section of Terrestrial Magnetism and Electricity discussed the methods of observation required for different types of instruments, and the possibilities for international comparison of instruments. The Section of Physical Oceanography discussed how to facilitate international cooperation in physical oceanography, and how the collection of tidal information could be improved. The Section of Volcanology discussed the classification of volcanic phenomena, and studies of the thermal gradients in several regions. A new Section of Scientific Hydrology was added, making a total of seven Sections. Also, it was decided that instead of electing Vice-Presidents, the Presidents of the IUGG Sections would serve in that capacity. Charles Lallemand (France) was elected IUGG President, and continued in this role until 1933. Sir Henry G. Lyons (UK) was elected Secretary General and continued in this role until 1930.

Second General Assembly (1-8 October 1924, Madrid, Spain)

The Second General Assembly of IUGG was held in Madrid at the invitation of the Spanish Government. Ten new Member countries adhered to the Union by 1924. The scientific work of the GA was carried on in the seven Union Sections. In the Section of Geodesy, an International Ellipsoid of Reference (a surface that approximates the geoid, that is, the Earth's figure) was discussed and adopted. In the Section of Seismology, it was decided to continue the publication of the International Seismological Summary at Oxford. A joint meeting of the Sections of Meteorology and Physical Oceanography on marine meteorology, and a joint meeting of the Sections of Meteorology and Scientific Hydrology on the measurement of rainfall data were organized. The Section of Terrestrial Magnetism and Electricity decided to promote studies on the international comparison of instruments, and on the magnetic and electrical characterization of days. Much attention was given to echo-sounding and to tidal phenomena by the Section of Physical Oceanography, which also discussed jointly with the Section of Geodesy the subject of earth tides. Changes of the geothermal gradient in the vicinity of volcanoes were discussed at a joint meeting of the Sections of Volcanology and Seismology. Reports on the 1923 Great Kanto earthquake in Japan and on the gauging of the Nile discharge were presented at the GA. The extension of the work by the Section of Scientific Hydrology to the phenomena of glaciers was also considered. The Spanish Government hosted the GA in the Chamber of Deputies, and His Majesty the King of Spain presided at the Opening Ceremony; a reception was held at the Palace by their Majesties the King and the Queen, to which all the delegates were invited (Lyons, 1924).

Third General Assembly (3-10 September 1927, Prague, Czechoslovakia)

The Third General Assembly was held in Prague at the invitation of the Czechoslovakian Government. Six new Member countries adhered to IUGG by 1927. The GA urged the countries concerned to improve the network of existing seismic stations by establishing new stations. A proposal of the US National Committee on international cooperation in the studies of ocean deeps was strongly supported. The Section of Meteorology worked closely with IMO, complementing the work of the other (Davies, 1990); IMO was occupied with matters related to the working of the meteorological services in various countries and the Section dealt with many scientific matters related to meteorology and atmospheric physics. The Section of Terrestrial Magnetism and Electricity considered among other topics the works on atmospheric ionization and the observations of aurorae, and expressed the need for additional earth current installations. The Section of Physical Oceanography considered investigations of the different great sea areas and of tidal phenomena. The Section of Volcanology adopted a resolution that countries in which active volcanoes occur should be invited to undertake the measurement of their thermal gradient. The Section of Scientific Hydrology discussed the problems related to the flow of water and the transport of silt in suspension. Also, the work of the International Committee on Glaciers (established in 1894) was transferred to

the Section. Generous hospitality was shown to the GA's delegates by the Czechoslovakian Government and by the municipality of the city of Prague. The President of the Republic was to have received the delegates on one evening, but unfortunately, his health did not allow him to return to Prague, and the Minister of Foreign Affairs hosted the reception on his behalf (Lyons, 1927).



Participants of the Third General Assembly (modified after Ismail-Zadeh and Joselyn, 2019).

Fourth General Assembly (15-23 August 1930, Stockholm, Sweden)

The Opening Ceremony of the Fourth General Assembly was held in the Concert Hall, where the Chancellor of the Universities and Chairman of the Swedish National Committee welcomed the delegates, and IUGG President Charles Lallemand replied and expressed thanks for hospitality and the excellent arrangements of the meeting. Bulgaria, Hungary, and Romania joined IUGG in 1930. The scientific and business meetings of the GA were held in Parliament House. Scientific topics were discussed by the Union Sections. Felix A. Vening Meinesz presented work on the determination of gravity at sea, and the GA expressed the hope that other nations with submarines could cooperate in the work of gravity determination over ocean areas (Lyons, 1930). Several Union Sections dedicated time to discuss activities during the Second International Polar Year (IPY; 1932-1933); for example, it was decided to publish an auroral atlas as soon as the material could be selected and brought together (Lyons, 1930).



Participants of the Fourth General Assembly (modified after Ismail-Zadeh and Joselyn, 2019).

The GA discussed changes in the Union's Statutes regarding the admission of new members that resulted from IRC permitting its Union Members to arrange their own affairs by defining a new type of relationship – a “cooperative independence” under the IRC umbrella (Spencer-Jones, 1960). As a

result, the GA agreed to allow Union Sections greater autonomy in arranging their activities. The GA decided that future IUGG Presidents would hold office for one term and should not be immediately eligible for re-election, which would assist in maintaining the organization's international character. Swedish hospitality provided a number of occasions at which the delegates could discuss matters of common interest. The City Council gave a banquet in the City Hall, and H.R.H. the Crown Prince and H.R.H. the Crown Princess received the delegates at the Royal Palace (Lyons, 1930). During this GA, Harold St. John Lloyd Winterbotham (UK) became Secretary General of the Union, serving until 1946. (This note has been reproduced from Ismail-Zadeh and Joselyn (2019) with some modification.)

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2. Special Issue "The International Union of Geodesy and Geophysics: from different spheres to a common globe"

To celebrate the Centennial Anniversary of the Union, the IUGG Bureau proposed in 2014 to develop a special volume dedicated to the history of the Union and its Associations. In agreement with the COPERNICUS society, the special issue (SI) has been published by the journal of *History of Geology and Space Sciences*. The SI can be read and each peer-reviewed article can be freely downloaded from the web-site of the journal: https://www.hist-geo-space-sci.net/special_issue996.html

"The SI's purpose is not to relay a definitive history of the development of international cooperation in the geosciences, but to summarize IUGG's remarkable role during the 100-year span of its existence. The first part of the SI "The union: bringing together geophysical disciplines" begins with the present overview of the IUGG mission and structure, and the circumstances of its founding and early development are presented up to the beginning of World War II. The second article starts with recovery after World War II and addresses the years of extraordinary development of geophysical science through the International Geophysical Year (IGY; 1957–1958) and the concurrent evolution of IUGG structure and programs extending up to the General Assembly of 1999. The rapid advances that have occurred thus far into the 21st century are reviewed in the third article, and foresights on IUGG future development conclude this first part of the SI. The history of each of the IUGG associations is then recounted.

The second part of the SI "Around the earth: glaciers, rivers, air, and oceans" presents articles about the histories of the International Associations of Cryospheric Sciences (IACS: past, present, and future of the International Association of Cryospheric Sciences), Hydrological Sciences (IAHS: a brief history of hydrology), Meteorology and Atmospheric Sciences (IAMAS: a century of international cooperation in atmospheric sciences), and Physical Sciences of the Oceans (IAPSO: tales from the ocean frontier).

The third part of the SI “Within and on the earth: gravity, magnets, earthquakes, and volcanoes” presents articles about the histories of the International Associations of Geodesy (The International Association of Geodesy: from an ideal sphere to an irregular body subjected to global change), Geomagnetism and Aeronomy (IAGA: a major role in understanding our magnetic planet), Seismology and Physics of the Earth's Interior (IASPEI: its origins and the promotion of global seismology), and Volcanology and Chemistry of the Earth's Interior (IAVCEI: from small beginnings to a vibrant international association).”

The SI was edited by Alik Ismail-Zadeh, IUGG Secretary General (2007-2019) and JoAnn Joselyn, IUGG Secretary General (1999-2007). The editors are grateful to Gregory Good, Franz Kuglitsch, Katina Rogers Roopchansingh, Kristian Schlegel (HGSS editor-in-chief), and Hans Volkert for their assistance in producing the SI.

Jo Ann Joselyn and Alik Ismail-Zadeh

3. Final Slate of the IUGG Bureau and Finance Committee (2019-2023)

Given below is the list of nominations for the IUGG Bureau and the Finance Committee as submitted by the Nominating Committee on 21 April 2019. Following publication of the first slate of candidates, the Committee received additional nominations for the Bureau and the Finance Committee that have been incorporated into the final slate of candidates for the IUGG Bureau and Finance Committee, which is:

President: Kathryn WHALER (UK, IAGA)

President-Elect: Chris RIZOS (Australia, IAG)

Secretary-General: Aksel HANSEN (Denmark, IAMAS)

Alexander RUDLOFF (Germany, ILP)

Treasurer: Niels ANDERSEN (Denmark, IAG)

Bureau Members

Position #1: Eduard PETROVSKY (Czech Republic, IAGA)

Harald SCHUH (Germany, IAG)

Position #2: Virendra TIWARI (India, IAG)

Jun XIA (China, IAHS)

Position #3: Stephen MCNUTT (USA, IAVCEI)

Gordon YOUNG (Canada, IAHS)

IUGG Finance Committee

Position #1: Corina RISSO (Argentina, IAVCEI)

Position #2: József ÁDÁM (Hungary, IAG)

Position #3: Priscilla GREW (USA, IAVCEI)

4. News from the International Science Council

The Third Meeting of Governing Board (GB) of the International Science Council (ISC) was held in Paris on 18-19 March 2019. Highlights of key outcomes of the GB are presented below.

The ISC Governance System

A call for nominations for candidates to be appointed to four ISC Advisory Committees was launched in April 2019. The Committees and GB members who agreed to be Chair and Vice-Chair of these Committees are:

- Committee for Science Planning (CSP): Peter Gluckman (Chair); Geoffrey Boulton (Vice-Chair)
- Committee for Outreach and Engagement (COE): Martin Visbeck (Chair); Melody Burkins (Vice-Chair)
- Committee for Freedom and Responsibility in Science (CFRS): Daya Reddy (Chair); Saths Cooper (Vice-Chair)
- Committee for Finance and Fundraising (CFFR): Renée van Kessel (Chair); Sirimali Fernando (Vice-Chair)

Four independent advisors were appointed to assist the GB in selecting and appointing Committee members. They are *Gudmund Hernes* (Norway; sociologist, politician, former President of the International Social Science Council); *Julie Maxton* (UK; academic lawyer, former Registrar of the University of Oxford, Chief Executive of the Royal Society of London); *Bruce Alberts* (USA; biochemist, former President of the US National Academy of Sciences, former Editor-in-Chief of Science); and *Zakri Abdul Hamid* (Malaysia; Founding Chair of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), former Chief Science Advisor to the Government of Malaysia, and member of the former UN Secretary General's Science Advisory Board).

The GB appointed representatives to the ISC Regional Committees: Daya Reddy for the Regional Committee for Africa; Elisa Reis for the Regional Committee for Latin America and the Caribbean; and Jinghai Li for the Regional Committee for Asia and the Pacific. The GB agreed on the terms of reference for establishing a Forum of Patrons. Mary Robinson (Ireland) and Ismail Serageldin (Egypt) accepted the ISC President's invitation to become founding Patrons of the ISC. These two Patrons will work closely with the GB on expanding the Forum during the course of 2019.

The 2021 ISC General Assembly

In preparing for the ISC's next General Assembly (GA), to be held in Oman from 10-14 October 2021, the GB has agreed to develop a new format for the Council's triennial membership meetings. The idea is to convene, every three years and in conjunction with the GA, a Global Science Dialogue or Summit as a platform for strategic exchange and debate with the leadership of global science and science policy, including from the UN and the growing range of ISC partners. The tentative theme of the 2021 Summit, which will include a high-level scientific event, will be '*Science Creating Solutions for the World*'.

Source: ISC Communiqué No. 2

5. UNESCO International Geoscience Programme call for host institutions

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Earth Sciences and Geo-hazards Risk Reduction Department is currently developing an international exchange network for young researchers. The initiative was approved by the UNESCO Council in 2018 and will establish opportunities for post-graduate (PhD and post-doc) researchers to participate in pre-existing fieldwork projects within the subjects of Earth Sciences (Earth Resources, Geo-Hazards, Climate Change, and Hydrogeology). In the preliminary stages of the project, UNESCO is seeking interest from host institutions that offer local and international fieldwork studies as part of graduate and postgraduate research degrees. Host institutions will receive one or two postgraduate research students from an overseas institution for the duration of a fieldwork project. This will provide an invaluable learning opportunity for young researchers, primarily from developing and least developed countries, and host institutions would be involved in the selection process of potential participants. Institutes that wish to express interest in hosting researchers are invited to provide the following information: (i) details about local or international research fieldwork programs and field sites, primary subject of the field studies, and academic and professional staff organizing the programs; (ii) the approximate dates and duration of the field program; (iii) accommodation, costs and capacity of the field program. Contact details: Ozlem Adiyaman Lopes: O.Adiyaman@unesco.org or Marie-Laure Faber: ml.faber@unesco.org.

6. Awards and honors

The Prince Albert I Medal is an award, offered by the Foundation Rainier III of Monaco and managed by the International Association of Physical Sciences of the Oceans (IAPSO), to a scientist who has made outstanding contributions to the enhancement and advancement of the physical and/or chemical sciences of the oceans. *The 2019 Prince Albert I Medal* is awarded to **Corinne Le Quéré** (University of East Anglia, UK) for her fundamental contributions to our understanding of ocean biogeochemistry and global carbon cycling, and her work to quantify the ocean's role in the uptake of global carbon emissions. IAPSO Early Career Scientist Medals honor young scientists for their outstanding research in the physical or chemical sciences of the oceans, and for their cooperation in international research. *The 2019 IAPSO Early Career Scientist medal in physical ocean science* is awarded to **Gerard McCarthy** (Maynooth University, Ireland) for his outstanding contribution to research on the Atlantic Meridional Overturning Circulation and its role in Earth's climate system. *The 2019 IAPSO Early Career Scientist medal in chemical ocean science* is awarded to **Mar Benavides** (Mediterranean Institute of Oceanography, Marseille, France) for her development of original strategies, integrating disciplines, to introduce a novel and comprehensive oceanographic approach to nitrogen cycling research.

The International Association of Seismology and Physics of the Earth's Interior (IASPEI) awards a Medal for sustaining the Association's goals and activities and for scientific merits in the field of seismology and physics of the Earth's interior. *The 2019 IASPEI Medal* is awarded to IUGG Fellow **Brian Leslie Norman Kennett** (Australian National University, Australia) for his outstanding career contributions to seismology and IASPEI.

Early Career Scientist Medals of the International Association of Meteorology and Atmospheric Sciences (IAMAS) honor young scientists for their outstanding research in meteorology and atmospheric sciences. *The 2019 IAMAS Early Career Scientist Medal* is awarded to **Lei Bi** (Zhejiang University, China) for his outstanding contributions to radiation research.

Early Career Scientist Awards (biennial cash prize of EUR 1,000) of the International Association of Cryospheric Sciences (IACS) honor two early career scientists, who have published the best scientific papers. The recipients of the *2019 IACS Early Career Scientist Award* are **Doug Brinkerhoff** (University of Montana, USA) and **Denis Felikson** (NASA Goddard Space Center, USA).

7. Meeting calendar

A calendar of meetings of interest to IUGG disciplines (especially those organized by IUGG Associations) is posted on the IUGG website (<http://www.iugg.org/calendar.php>). Individual Associations may list more meetings on their websites according to their disciplines.

May

- 8-12, IPCC, Kyoto, Japan, 49th Session of IPCC. Web: https://www.ipcc.ch/site/assets/uploads/2019/01/IPCCP49_Info_Participants.pdf
- 13-17, UNISDR, Geneva, Switzerland, Global Platform for Disaster Risk Reduction. Web: <https://www.unisdr.org/conference/2019/globalplatform/home>
- 15-17, IAG, Athens, Greece, 4th Joint International Symposium on Deformation Monitoring (JISDM). Web: <http://jisdm2019.survey.ntua.gr/>
- 20-24, IUGG, ICTP, Trieste, Italy, International Space Weather Initiative Workshop. Web: <http://indico.ictp.it/event/8682/>
- 22-24, IAG, Tallinn, Estonia, EUREF Symposium 2019. Web: http://www.euref.eu/euref_symposia.html
- 27 May-7 June, IUGG, ICTP, Trieste, Italy, Fifth Workshop on Water Resources in Developing Countries: Hydroclimate Modeling and Analysis Tools. Web: <http://indico.ictp.it/event/8685/>

June

- 10-14, ISPRS, Enschede, Netherlands, ISPRS Geospatial Week 2019. Web: <https://www.gsw2019.org/>
- 24-28, CTBTO, Vienna, Austria, SnT 2019. Science and Technology Conference. Web: <https://www.ctbto.org/SnT2019/>
- 26-28, IAMAS, WCRP, Bangi, Malaysia, 4th ACAM (Atmospheric Composition and Asian Monsoon) Workshop and 3rd ACAM Training School. Web: <http://www.ukm.my/acam/>

July

- 8-18, IUGG, Montreal, Canada, 27th IUGG General Assembly. Web: <http://iugg2019montreal.com/>
 - 15-20, ICA, Tokyo, Japan, 29th International Cartographic Conference and 18th General Assembly. Web: <http://www.icc2019.org/>
 - 25-31, INQUA, Dublin, Ireland, 20th Congress of the International Union for Quaternary Research. Web: <http://www.inqua2019.org/>
 - 28 - August 2, AOGS, Singapore, 16th Annual Meeting of the Asia Oceania Geosciences Society. Web: <http://www.asiaoceania.org/aogs2019/public.asp?page=home.htm>
 - 29, IUGG, UNESCO, Paris, France, Centennial International Cooperation in Earth and Space Sciences/ Web: http://100.iugg.org/events/unesco_program_draft.pdf
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