

## Report on UK activities related to the International Union of Geodesy and Geophysics (IUGG) during 2019

### General Assembly

The main IUGG event in 2019 was the IUGG 27th General Assembly held from 8 – 18 July in Montreal, Canada. It consisted of three components: (i) an open Scientific Assembly, (ii) a meeting of the duly accredited Delegates of the IUGG Member Countries and guests invited in accordance with the By-Laws (referred to as the Council Meeting); and (iii) business meetings of the IUGG, its Associations, and their scientific bodies. UK scientists participated in all parts.

The Scientific Program of the General Assembly consisted of 234 symposia, 18 workshops, and 558 sessions in total. Among the more than 4,580 presentations at the General Assembly there were 9 Union Lectures (see below), 437 invited presentations, 2,329 oral presentations, and 1,814 poster presentations. Of the 3952 attendees 869 were from Canada, 680 from USA and 161 from the UK (#7 of all countries represented).

Nine distinguished speakers delivered the Union Lectures including one from Prof Ed Hawkins (U. Reading, UK) entitled “Improving Atmospheric Reconstructions for Historical Extreme Events by Rescuing Lost Weather Observations”.

UK scientists hold positions of responsibility centrally in the IUGG and within most of its associations. Senior positions for 2019-2023 include:

- IUGG President Kathryn Whaler (U. Edinburgh)
- IACS Secretary General Richard Essery (U. Edinburgh)
- ISC Scientific Committee on Antarctic Research Liaison Officer John Turner (BAS)
- UNESCO Intergovernmental Oceanographic Commission Liaison Officer Denise Smythe-Wright (NOC)
- Group on Earth Observation Liaison Officer Kathryn Whaler (U. Edinburgh)

The Minutes of the IUGG Council meeting held during the assembly are attached to this document. Links to [all the presentations made to the Council can be found here](#); they include reports from officers and presidents of the associations, describing many of the achievements and activities, as well as details of organisation and finance. Some key points of the meeting are summarized below.

The Council approved the following resolution intended to reducing the Carbon Footprint of the Research Community: “The research community, which is well aware of the origins and impact of climate change, should exhibit an exemplary attitude by modifying its professional practices in order to rapidly reduce its carbon footprint.”

It was decided that the 2023 General Assembly will be held in Berlin.

Honours to UK scientists were bestowed:

- Phil Woodworth (NOC) elected Honorary Member (Fellow) of IUGG
- Emilie Capron (BAS) as awarded IUGG Early Career Scientists Award
- Corinne Le Quéré (UEA) received the IAPSO Prince Albert 1 medal

### **IUGG 100th anniversary celebrations**

More than 150 people joined the Centennial Celebration Day at UNESCO headquarters in Paris on 29 July 2019. It started with the Opening Ceremony attended by senior representatives of ISC, UNESCO, WMO, the United Nations Office for Disaster Risk Reduction (UNDRR), the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), and the guest of honour H.S.H. Prince Albert II of Monaco.

In her opening remarks, IUGG President Kathryn Whaler said: “The underpinning fundamental science we all do is as important to-day as it was a century ago, but the research landscape in which we operate and the societal issues we aim to address have transformed the way we work – supercomputers (even computers!), the space age and satellite observations, the world-wide web, sustainable development goals, the Sendai Framework for Disaster Risk Reduction, climate change, ecosystem services and many other terms familiar to to-day’s scientists were unknown then. Over the intervening century, the Unions and other international organisations have enabled scientists to collaborate and co-operate more effectively, and brought a spectrum of ideas to bear on the question of how to solve the world’s most serious problems. The need for the IUGG and its counterparts is as great as ever as we move into our second century.”

Highlights included talks by:

- Marcia McNutt (President of the US National Academy of Sciences) on “Disasters and Society”
- Valerie Masson-Delmotte (Research Director at the French Alternative Energies and Atomic Energy Commission) on “Climate and our Planet”
- Abdelkrim Aoudia and Fernando Quevedo (Former Director of the Abdus Salam International Center for Theoretical Physics, Trieste, & Professor of Theoretical High Energy Physics at U. Cambridge) on “Science education in the developing world”

Centennial Memorial Plaques were awarded to IUGG Founding Members: Australia, Belgium, Canada, France, Italy, Japan, Portugal, the United Kingdom and the United States of America, and to its Partner organizations.

### **UK Annual Reports**

In the following pages are presented the annual reports for 2019 from the UK national representatives to the IUGG Associations.

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF CRYOSPHERIC SCIENCES (IACS)**

*Bryn Hubbard, University of Aberystwyth, UK National Representative to IACS*

Dr Duncan Quincey attended the Montreal IUGG General Assembly on behalf of IACS UK. UK interests were well represented at the Assembly, including at working groups and as session chairs and presenters. Three IACS Working Groups held meetings at the Assembly: 'Ice Thickness', 'Debris Cover' and the 'Randolf Glacier Inventory'. As well as these, IACS organised 15 sessions and a further 15 joint symposia with other IUGG Associations.

IACS bureau members served important roles in authoring or as review editors the IPCC's Special Report on the Ocean and Cryosphere in a Changing Climate (<https://www.ipcc.ch/srocc/>), which was approved in Monaco on 24 September, 2019. Notably, current IACS President, Regine Hock, was the Report's Coordinating Lead Author and outgoing bureau member Valerie Masson Delmotte is Co-chair of IPCC's Working Group I.

I am pleased to report that the new Secretary General of IACS, to serve until 2023, is Richard Essery of Edinburgh University.

IACS continues to operate and liaise closely with several professional bodies, including the International Permafrost Association (IPA), the International Arctic Scientific Committee (IASC), the Scientific Committee for Antarctic Research (SCAR), Climate of the Cryosphere (CliC), and the International Glaciological Society (IGS).

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF GEODESY (IAG)**

*Peter Clarke, University of Newcastle, UK National Representative to IAG*

The Mission of the Association is the advancement of geodesy. IAG implements its mission by furthering geodetic theory through research and teaching, by collecting, analyzing, modelling and interpreting observational data, by stimulating technological development and by providing a consistent representation of the figure, rotation and gravity field of the Earth and planets, as well as their temporal variations. ([www.iag-aig.org](http://www.iag-aig.org) )

The IUGG General Assembly in Montreal was well-attended by UK delegates in the geodesy community. IAG-sponsored sessions JP01 “Tides of the Oceans, Atmosphere, Solid Earth, Lakes and Planets”, JG01 “Interactions of Solid Earth, Ice Sheets and Oceans”, JS01 “Probabilistic & Statistical Approaches in Geosciences” were all convened by UK participants. 51 presentations in IAG-sponsored sessions had UK authors, and at least 6 other presentations in non IAG-sponsored sessions were made by members of the UK geodesy community.

Philip Woodworth (National Oceanography Centre, Liverpool) was elected Fellow of the IUGG “for his significant advancement of sea-level science and outstanding contributions to international scientific cooperation, and especially his leadership of the Permanent Service for Mean Sea Level (PSMSL)”. PSMSL is a service of the IAG responsible for the collection, publication, analysis and interpretation of sea level data from the global network of tide gauges, and is based at NOC, Liverpool, under the current directorship of Lesley Rickards.

The annual IAG EUREF Symposium ([www.euref.eu](http://www.euref.eu)) in Tallinn, Estonia, was attended by Mark Greaves (Ordnance Survey) who presented the national report of Great Britain, and Geoff Bell (Land and Property Services) who presented that for Northern Ireland. The UK’s national mapping agencies continue to base their respective GNSS datums on the ETRF89 which in turn derives from the IAG’s International Terrestrial Reference Frame.

Matthew Wilkinson (NERC Space Geodesy Facility, Herstmonceux) presented at the International Laser Ranging Service Technical Workshop in Stuttgart, October 2019.

Marek Ziebart (UCL) continues as chair of the International GNSS Service working group on Satellite Vehicle Orbital Dynamics.

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF GEOPHYSICS AND AERONOMY (IAGA)**

*Mark Clilverd, British Antarctic Survey, UK National Representative to IAGA*

The main focus for IAGA this year was the 2019 IUGG Assembly in Montreal, Canada. The Assembly, took place from 8-18 July 2019. During the assembly IAGA provided a platform for scientists from about 70 member countries around the world to present their research within the topic areas of magnetism and Aeronomy of the Earth, of other bodies of the solar system, and of the interplanetary medium and its interaction with these bodies. IAGA was subdivided into the following Divisions and Commissions with working groups on subjects of interest: Division I: Internal Magnetic Fields; Division II: Aeronomical Phenomena; Division III: Magnetospheric Phenomena; Division IV: Solar Wind and Interplanetary Field; Division V: Geomagnetic Observatories, Surveys and Analyses; Division VI: Electromagnetic Induction in the Earth and Planetary Bodies.

In all there were 22 IAGA Sessions at the Montreal Assembly, with 6 of the sessions being convened by UK scientists. Similar UK involvement was associated with joint sessions, providing 6 convenors out of 18 joint sessions. There were 243 abstracts submitted to IAGA-only sessions for oral presentation, and 190 abstracts for posters. Within these IAGA sessions UK-based authors gave 18 of the oral presentations and were associated with many of the posters. As can be seen from these summary figures, IAGA had a busy year, and the UK-IAGA scientists contributed >7% of the abstracts, and provided similar levels of session convenors to this successful meeting. Currently, there is UK representation on the IAGA executive committee (providing 1 out of the 11 members). The UK is one of about 70 member countries.

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES (IAHS)**

*Kate Heal, University of Edinburgh, UK National Representative to IAHS*

### **27<sup>th</sup> IUGG General Assembly, Montréal, Canada, 8-18 July 2019**

IAHS is committed to serving the hydrological community world-wide, including hydrologists in developing countries. The distinctive features of IAHS compared to other hydrological fora are its highly international nature and reach beyond Europe and North America and the diversity and more applied nature of the research presented. IAHS membership is free and IAHS has 8600 individual members, in almost 200 countries, of which 40% are in financially disadvantaged countries. IAHS publishes *Hydrological Sciences Journal* (HSJ) and an online open-access proceedings journal, *Proceedings of the International Association of Hydrological Sciences* (PIAHS). IAHS activities are organised by ten Commissions which all include early career representatives: Continental Erosion, Coupled Land-Atmosphere Systems, Groundwater, Snow and Ice Hydrology, Statistical Hydrology, Remote Sensing, Surface Water, Tracers, Water Quality, and Water Resources Systems. There are also fixed-term working groups, currently: Panta Rhei – Everything Flows, Education in Hydrological Sciences, MOXXI (measurements & Observations in the 21<sup>st</sup> Century), and CandHy (Citizen AND Hydrology).

There were 550 IAHS-registered delegates for the General Assembly. IAHS convened 29 symposia during the General Assembly, comprising 58 x 1.5 hour oral presentation sessions plus poster sessions. Reflecting the scientific breadth of IAHS, topics included statistical hydrology, prediction in ungauged basins, uncertainty assessment, sediment source fingerprinting techniques, water quality and the water-energy-food nexus, coastal hydrology, short-range hydrometeorological forecasting, remote sensing data in water management, water-related education, and many more. In addition, IAHS led five joint symposia (including Scientific Inputs to Water-related SDGs, and Citizen Science and Crowdsourced Data for Water Risk Management) and contributed to 17 joint symposia led by other associations. UK-based scientists were lead convenor for four of the IAHS symposia, and co-convenor of six symposia.

IAHS also led two community meetings during the General Assembly to present and discuss progress and the next steps in: 1) the ongoing IAHS scientific decade (2013-2022) entitled “Panta Rhei – Everything Flows” which is dedicated to research activities on change in hydrology and society and so far has involved around 300 scientists from five continents, and 2) “Unsolved problems in Hydrology” (UPH) to which 230 scientists contributed to identify 23 UPH published in an open access paper in *Hydrological Sciences Journal* in June 2019 ([doi.org/10.1080/02626667.2019.1620507](https://doi.org/10.1080/02626667.2019.1620507)), and which will be used to guide future IAHS activities.

During the General Assembly, IAHS held two Bureau meetings which are attended by IAHS and Commission post holders. In these meetings, there are reports on past IAHS activities in terms of conferences and workshops, research community initiatives and publications, but importantly planning for future activities, particularly for the next IAHS Assembly in June-July 2021 to be held in Montpellier, France.

Other IAHS developments of note during the General Assembly were:

- The launch of the IAHS Early Career Committee (ECC) of 10 members affiliated with each Commission, including Honeyeh Iravani (UCL). The ECC organised five workshops at the General Assembly, particularly targeted at early career hydrologists.
- The first awards of the newly established IAHS award, the Sivapalan Young Scientists Travel Award (SYSTA), which aims to foster participation at IAHS meetings of promising early career hydrologists from financially disadvantaged countries. Fifteen SYSTA awards were made for attendance at the General Assembly.
- The launch of an IAHS Committee for Africa to stimulate a larger involvement of African hydrologists in IAHS; Endorsement of a proposal to establish a "Fellows of the IAHS" programme which would recognise the achievements of ~10 middle-senior career scientists per year.
- Currently the UK has the 3<sup>rd</sup> greatest number of individual members of IAHS (456 members) after India and the USA, and UK-based hydrologists continue to play an active role in IAHS. Previously UK-based hydrologists were post holders on five of the 10 IAHS Commissions. This level of representations has been maintained following the IAHS elections during the General Assembly with current post holders comprising: Adrian Collins (Rothamsted Research) as President of Continental Erosion, Christopher White (University of Strathclyde) as Secretary of Coupled Land-Atmosphere Systems, Melody Sandells (CORES Science and Engineering Limited) as President-Elect of Snow and Ice Hydrology, David Hannah (University of Birmingham) as President-Elect of Surface Water, Wouter Buytaert (Imperial College London) as President and Stefan Krause (University of Birmingham) as Vice President of Water Quality. Kate Heal (University of Edinburgh) continues as IAHS Treasurer and Chair of IAHS Ltd.

Kate Heal also represented the British Hydrological Society (BHS) at the 5<sup>th</sup> meeting of National Hydrological Associations (NHAs) during the General Assembly. This meeting is held every 2 years alongside IAHS Scientific and IUGG General Assemblies, to enable NHAs, like BHS, to share experiences, activities and good practice, for example around hydrology education, engaging early career hydrologists, and professional recognition and accreditation of hydrologists. Further evidence of the continuing role of the UK in IAHS is the location in the UK of the IAHS Office plus the strong support of the BHS Exeter Fund in providing travel grants to enable the participation of BHS members in IAHS Scientific and IUGG General Assemblies.

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF METEOROLOGY AND ATMOSPHERIC SCIENCES (IAMAS)**

*Tom Lachlan-Cope, British Antarctic Survey, UK National Representative to IAMAS*

27th IUGG General Assembly, Montréal, Canada, 8-18 July 2019

IAMAS aims to provide the scientific community with platforms to present, discuss and promote the newest achievements in meteorology, atmospheric science and related fields. IAMAS also facilitates and coordinates research that requires international cooperation, especially through its ten commissions and one committee. It organises a biennial scientific assembly that was held this year in Montreal as part of the general assembly of IUGG.

3,991 people attended the scientific programme of the Montreal General Assembly that consisted of 234 symposia, 18 workshops, and 558 sessions in total. Among the more than 4,580 presentations at the General Assembly there were 9 Union Lectures, 437 invited presentations, 2,329 oral presentations, and 1,814 poster presentations. There were 773 IAMAS registrations – and this was the largest number of all the Associations that attended Montreal.

In Montreal there were 25 IAMAS symposia and of those 10 had convenors from the UK. There were also 10 joint symposiums led by IAMAS and IAMAS were involved in 23 more that were led by other associations. The General Assembly was considered a success by all who attended. There was a discussion in the IAMAS business meeting on making virtual attendance at the assemblies easier, both to cut down carbon emissions and to encourage more participants.

Over the last year IAMAS has sponsored the 1<sup>st</sup> Quantifying the Indirect Effect: from Sources to Climate Effects of Natural and Transported aerosol in the Arctic (QUIESCENT Arctic) workshop in Cambridge, this was very successful with 45 participants from all over the world.



## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION FOR THE PHYSICAL SCIENCES OF THE OCEANS (IAPSO)**

*Michael Meredith, British Antarctic Survey, UK National Representative to IAPSO*

### ***IAPSO Early Career Scientist Working Group***

An important initiative during 2018 was the establishment of the IAPSO Early Career Scientist Working Group. As a leading international association in ocean physics and chemistry, IAPSO will provide a significant platform for early career scientists to network and integrate into the scientific community. In November 2017, the President invited expressions of interest in setting up such a network and at the end of January 2018 the Group was established, chaired by Alejandra Sanchez-Franks (United Kingdom) and co-chaired by Malin Ödalen (Sweden). The first IAPSO ECS networking event was organized on 9 July, 2019, during the IUGG 2019 General Assembly in Montreal (see below). About 30 young scientists participated. The email address, [iapso.ecs@gmail.com](mailto:iapso.ecs@gmail.com) is active, and the working group welcomes new members.

### ***IAPSO Best Practice Study Groups***

As a new initiative, IAPSO has put out a call (in early September 2019, <http://iapso.iugg.org/component/acymailing/archive/view/mailid-88.html>) to fund IAPSO Best Practice Study Groups. It is expected that one of these will be funded each year. In carrying out oceanographic research, a choice must frequently be made between a few options for measuring data, analysing data, processing software, or modelling a system. The reasons for choosing between competing methods are often not well documented and the relative strengths and weaknesses of the options are usually not published or well known. An IAPSO Best Practice Study Group will address an issue such as this whose resolution will assist in the conduct of oceanographic research. Each Best Practice Study Group will receive up to US\$10,000 towards the costs of a meeting.

### ***IAPSO at IUGG General Assembly***

For the period through to early 2019, much IAPSO activity was focused on planning for the IUGG 2019 General Assembly held in Montreal, Canada (July, 2019). This included 11 IAPSO symposia (216 oral presentations and 94 posters) and 5 IAPSO-lead Association Joint symposia (111 oral presentations and 51 posters). IAPSO also co-sponsored 12 Joint symposia led by another Association (189 oral presentations and 104 posters). The General Assembly attracted approximately 4000 participants, of which 360 registered as IAPSO. As ever, there were copious opportunities for valuable networking and interactions, which are essential in promoting progress in the field.

### ***Medals and Awards***

A highlight of Montreal was the award of the Prince Albert I Medal to Prof. Corinne Le Quéré FRS (University of East Anglia, UK), who gave her medal lecture on 'Decadal variability in the ocean CO<sub>2</sub> sink'. Corinne is the tenth recipient of this medal.

IAPSO awarded its first Early Career Scientist (ECS) Medals. The ECS Medal in Physical Oceanography was awarded to Gerard McCarthy (Maynooth University, Ireland) who gave a talk entitled 'Overturning variability with observations'.

The ECS Medal in Chemical Oceanography was awarded to Dr. Mar Benavides (Mediterranean Institute of Oceanography, France), who gave a medal talk entitled 'Nitrogen fixation across scales'. The award committee was greatly impressed by the number of high quality nominations for these ECS medals, and the two successful medallists gave brilliant talks.

IAPSO awarded the Eugene Lafond Medal, to a developing world scientist who gave a notable paper at an IAPSO sponsored or co-sponsored symposium. This went to Mr. Rohith Balakrishnan, for his oral presentation 'Basin-wide sea level coherency in the tropical Indian Ocean driven by Madden-Julian oscillations' delivered within the IAG-IAPSO joint symposium 'Monitoring Sea Level Changes by Satellite and In-Situ Measurements'.

### ***IUGG/IAPSO support to scientific meetings***

IAPSO endorsed three scientific meetings that were supported by IUGG in 2018:

- The 2<sup>nd</sup> IndOOS Review Workshop was held in Jakarta, Indonesia from 21-23 March, 2018. The review seeks critical assessment of what is working well and what is not with the present Indian Ocean observing system, and advise on fruitful future directions for IndOOS.
- The International Conference 'Understanding the Problems of Inland Waters: Case Study for the Caspian Basin', held in Baku, Azerbaijan, from 12-14 May 2018. The aim of the conference was to increase the exchange and cooperation between different international organizations and scientific teams ('communities') dealing with studies of the Caspian Sea, Aral Sea, and Urmia and Van lakes.
- The X Jornadas Nacionales de Ciencias del Mar (Conference on Science of Seas), was hosted by the University of Buenos Aires, Argentina, and held from 30 July - 3 August 2018. The main goal of this conference was to create an adequate framework for the exchange of opinions among the various national and foreign experts, and to increase cooperation among professionals with the aim of understanding, assessing and solving problems related to the care of the marine environment.

### ***IAPSO and the Intergovernmental Panel on Climate Change***

IAPSO had strong representation in the production of the recently-released IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. This is a landmark assessment of the state of the ocean, its recent changes and likely future changes, cutting across physical science, biogeochemistry, ecology, social science, governance and law. It is intended to provide policymakers with the underpinning scientific evidence on which to base the best possible policy decisions, in order to optimise sustainable management of the oceans and their benefits to society. Mike Meredith (new UK IAPSO representative) led the Polar Regions chapter, which includes information on changing Arctic and Southern Ocean properties and circulation, in both observations and climate models. Other chapters covered global ocean issues, including the Atlantic Meridional Overturning Circulation, marine heatwaves and uptake

of anthropogenic carbon and heat by the ocean. The report is now available at <https://www.ipcc.ch/srocc/download-report/>

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF SEISMOLOGY AND PHYSICS OF THE EARTH'S INTERIOR (IASPEI)**

*James Hammond, Birkbeck, University of London, UK National Representative to IASPEI*

The main event this year was the IUGG meeting from July 8-18 in Montreal, Canada. For UK IASPEI, the highlight was seeing UK born and educated, if not UK based seismologist Brian Kennett awarded the IASPEI medal. Additionally, UK IASPEI affiliated scientists were involved in convening a number of sessions including those on data centres (Dmitry Storchak), Earthquake forecasting (Maximilian Werner), Earth structure (Hauke Marquardt, Christian Schiffer, Mike Kendall), Planetary Seismology (Tom Pike), Education (Paul Denton) and volcanology (Jurgen Neuberg). Dmitry Storchak represented the UK at all IASPEI business meetings and voted for the IASPEI officers, with a motivation to support the free open access to data and free collaboration between scientists across the globe. Where necessary, our position was to maintain the principle that IASPEI meetings, unlike some others, are there to bring scientists from different countries together, therefore financial requirements to participants had to be maintained to allow participation of scientists from developing countries.

Other meetings well attended by UK IASPEI scientists were the European Geosciences Union (EGU) meeting in Vienna on 7-12 April, the Seismological Society of America (SSA) on 23-26 April in Seattle the Science and Technology Conference hosted by CTBTO in Vienna on 24-28 June and the upcoming AGU meeting in San Francisco on 9-13 December.

Closer to home, the *'British Seismology Meeting: Frontiers of Seismology'* was held from 4-6 September in Edinburgh. This meeting aims to bring together seismologists from the UK and abroad, from both industry and academia to present and discuss a wide range of seismological research. Also, the British Geophysical Association (BGA) sponsored New Advances in Geophysics meeting was held at Burlington House on 11-12 November on *'Geophysics in the critical zone: Modern approaches to characterising near-surface materials'*. Finally, the BGA sponsored their annual *'Postgraduate Research in Progress (PGRIP)'* meeting, a PHD student organised conference held in Bristol on 29-30 August.

One organisation that deserves special mention this year is the International Seismological Centre. The UK (Oxford University) continues to host the International Seismological Centre (ISC) that acts under the supervision of IASPEI. During past year, by collaboration with ~150 institutions in ~100 countries, the ISC continued with production and update of the following products that are widely used by UK and international scientific community and referenced in several hundred research publications. Of particular note is the complete rebuild this year of the ISC-EHB dataset that contains relocated seismicity data from 1964-2016 and the new ISC Seismological Dataset Repository, which allows individual researchers or groups to submit seismological datasets that they wish to be openly available to scientific community for a long period of time, especially to assist free access to data used in scientific publications.

## **2019 REPORT FOR UK IUGG COMMITTEE ON THE INTERNATIONAL ASSOCIATION OF VOLCANOLOGY AND CHEMISTRY OF THE EARTH'S INTERIOR (IAVCEI)**

*Sally Gibson, University of Cambridge, UK National Representative to IAVCEI*

UK-based scientists continue to lead numerous IAVCEI scientific commissions: Kathy Whaler (University of Edinburgh) is the new IUGG President and co-leader of IASPEI/IAVCEI Joint Commission on Physics and Chemistry of Earth Materials; Dr Claire Horwell (Durham University) is sole lead on the International Volcanic Health Hazard Network (IVHHN); Dr Mike Widdowson (University of Hull) is Vice-Chair of the Commission on Large Igneous Provinces; Prof Jurgen Neuberg (University of Leeds) is co-leader of the IASPEI/IAVCEI Commission on Volcano Seismology and Acoustics; Carina Fearnley (UCL); Janine Kavanagh (University of Liverpool) is co-leader of Commission on Volcano and Igneous Plumbing Systems. James Hickey (University of Exeter) is on the IAVCEI ECR-Net committee. Three UK volcanologists (Prof Kathy Cashman, University of Bristol; Dr Mike James, University of Lancaster; Dr Richard Brown, Durham University) serve on the editorial board of IAVCEI's journal, the *Bulletin of Volcanology*.

A new IAVCEI Executive Committee and President, Patrick Allard, was elected in 2019. Allard was the vice-president (2015-2019) and was elected by the IAVCEI membership by popular vote. Allard outlined the key objectives for the EC during his tenure: 1) Improve the functioning of IAVCEI, 2) Reduce the number of IAVCEI Commissions and increase their horizontal interactions, and 3) Re-structuring and strengthening the interactions between IAVCEI and Volcano Observatories worldwide.

This year also marks the 100<sup>th</sup> birthday of IAVCEI. To commemorate the occasion, IAVCEI asked its members to submit designs for a new logo for a competition. The winning logo was selected by popular vote, achieving 43% of the 647 online votes, and was launched at the IUGG conference in Montreal in July 2019. The new IAVCEI logo was jointly designed by Mai Sas and Robert Dennen, who will each receive a four year membership of IAVCEI and waived registration fees at the next IAVCEI conference of their choice.

The main event for IAVCEI in 2019 was the IAVCEI General Assembly, which was hosted at the 27<sup>th</sup> International Union of Geodesy and Geophysics (IUGG) General Assembly meeting in Montreal (8-18<sup>th</sup> July, 2019). IAVCEI itself had 22 symposia, 7 of which were joint with other Associations under IAVCEI leading. IAVCEI was also involved in 17 other multidisciplinary joint symposia and was represented by P. Papale (INGV, Italy) for one of the 9 Union Lectures. A unique full-day symposium (V01) on July 12, was entitled "CELEBRATING 100 YEARS OF VOLCANIC ACTIVITY: 1919-2019", that involved 11 invited oral presentations.

Additional meetings associated with IAVCEI in 2019 included: the LASI (Laccoliths and Sills) VI workshop (Argentina, November 2019) - associated with the IAVCEI Commission on Volcanic and Igneous Plumbing Systems. The 1<sup>st</sup> ALVO congress was scheduled to happen in Antofagasta, Chile in November 2019. However, due to political tensions in the area it was agreed that the meeting should be postponed. The Executive Committee of IAVCEI expressed its total support for the organisers of the congress.

The next large IAVCEI-related conference will be Cities on Volcanoes 11 (Heraklion, Crete from 23-27<sup>th</sup> May 2020). Preparations are also well underway for the 'Soufriere Hills Volcano 25 Years on' Conference

(Montserrat, West Indies, 20-24<sup>th</sup> July 2020), the 8<sup>th</sup> International Maar Conference (Russia, 24-30 August 2020) and the IAVCEI 2021 General Assembly, which will be held in Rotorua, New Zealand (15-19<sup>th</sup> February, 2021).