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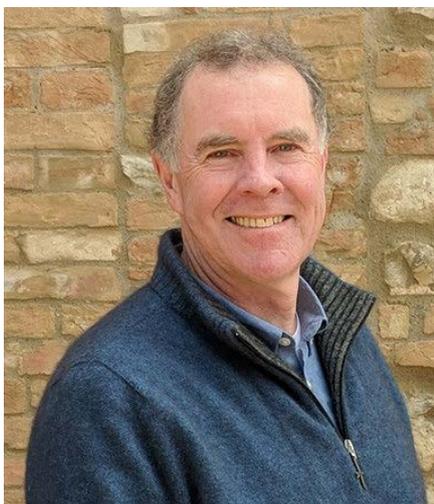
This monthly newsletter is intended to keep IUGG Members and individual scientists informed about the activities of the Union, its Associations and interdisciplinary bodies, and the actions of the IUGG Secretariat, Bureau, and Executive Committee. Past issues are posted on the IUGG [website](#). E-Journals 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 (XVIII)

Trevor McDougall, President of the International Association for the Physical Sciences of the Oceans (IAPSO), 2019-2023



*Trevor McDougall, IAPSO
President, 2019-2023*

Trevor McDougall is a member of the IUGG Executive Committee, being the President of IAPSO (the International Association for the Physical Sciences of the Oceans). Since 2012 he has been the Scientia Professor of Ocean Physics in the School of Mathematics and Statistics at the University of New South Wales in Sydney, Australia. He is a Fellow of the Australian Academy of Sciences, a Fellow of the Royal Society of London, and in 2018 was made a Companion of the Order of Australia.

Early Influences

I began my journey through the education landscape with some advantages and a single large disadvantage. I grew up in Adelaide where my family's home was located directly opposite the Division of Mathematics and Statistics of Australia's largest government research organisation (CSIRO), and this may have planted the seed of one day becoming a research scientist. I

attended Unley High School and benefitted greatly from a string of committed, inspiring teachers and a friendly, positively competitive environment.

Like many undergraduates of the early 1970's, an era when only 12% of the student-age population undertook tertiary education, I was the first person in my extended family to go to university. Since I knew a couple of engineers and my abilities lay in that direction, I enrolled in Mechanical Engineering at the University of Adelaide where, in 1973, Dr Garry L. Brown supervised my Honours thesis and was a key inspirational influence. Garry would go on to spend most of his career at Princeton University, New Jersey. The electronic data collection system that we built for my Honours thesis won a national design prize from the Australian Institution of Engineers.

Until near the end of my undergraduate days I had one large disadvantage, namely that I had been brought up in a closed religious cult (the Exclusive Brethren) that forbade marrying, having friends, eating or drinking with anyone that did not belong to this reclusive cult. Listening to the radio or watching TV were also forbidden, while using a computer was soon to be outlawed. Slowly at first, and then growing into an absolute conviction, I decided that this strange religious cult made no sense and that I couldn't imagine spending my life in it. So, in the last term of my fourth year at Adelaide University, I faced my parents and told them that I could not remain in the religious cult that had directed our whole lives. I knew the consequences that would inevitably follow from this decision, namely that I was never to see my parents, siblings or friends again. Such a life-changing decision was incredibly difficult to make but, having made it, I felt empowered and a whole world of opportunities suddenly became possible. I kick-started a new life at age 21.

I did my PhD in the Department of Applied Mathematics and Theoretical Physics at the University of Cambridge, under the guidance of Professors Stewart Turner and Paul Linden, doing mostly laboratory-based studies on turbulent mixing processes in the ocean. This is where the drift from engineering to oceanography began. The head of the department, Professor George K. Batchelor, assigned me to Stewart Turner who had me work on a laboratory-based study of turbulence in the ocean mixed layer, and also the study of bubble plumes rising in a density-stratified ocean. The paper on bubble plumes became popular when the Deepwater Horizon oil-well blew out in 2010, because the paper explained why only half the oil reached the surface of the Gulf of Mexico, with the other half spreading horizontally at mid-depth.

Being a physical oceanographer

My career as a physical oceanographer took me to the Australian National University (in Canberra) for 5 years, the marine laboratories of CSIRO in Hobart for 29 years, and for the past 9 years, the University of New South Wales in Sydney.

Since very early in my career it became obvious that we humans were changing the climate of our planet through our release of greenhouse gases into the atmosphere. At about the same time (mid 1980's) the El Niño / La Niña phenomenon was discovered, and in the past thirty years the ocean's roles in both climate variability and climate change have been the main reasons for undertaking research in physical oceanography, since the ocean, with its huge mass, is the dominant thermal flywheel of the climate system.

Countries around the world need answers to climate questions such as "will the rainfall and the growing conditions in specific regions improve or deteriorate as the planet continues to experience global warming?" To find answers to these, and a host of other climate-related questions, computer models are needed of (a) the global atmosphere, (b) the global ocean, (c) the sea ice and glaciers in the polar regions, and (d) the ways in which the atmosphere, ocean and ice interact. Constructing these computer models so that they behave realistically is a massive global challenge and, in the case of ocean models, is undertaken by many hundreds of scientists around the world, including myself.

My research has concentrated on understanding turbulent mixing processes in the ocean and the ways in which these processes are incorporated into computer models of the ocean and of climate. I have discovered four new ocean mixing processes and my work has led to improvements in climate models and in the ways that oceanographic observations and model output data are analysed and interpreted,

thereby increasing our confidence in models of the coupled atmosphere-ocean-ice climate system. One of the new mixing processes, “thermobaricity”, is a process in which the mixing of two water parcels with different temperatures and pressures – but equal density – results in a water parcel which is (generally) denser than the two original water parcels. This is a leading-order process at work in the Southern Ocean.

Another topic that has fascinated and challenged me with equal measure is understanding and defining the ‘neutral surfaces’ along which strong lateral mixing occurs in the ocean. Along with co-workers, we have developed a new density variable called ‘Neutral Density’ which is now a basic tool of physical oceanographers worldwide, as well as an efficient algorithm to form the individual two-dimensional surfaces.

International committees

I have been fortunate over the years to be a member of four SCOR working groups, and also the international scientific steering group of WOCE (the World Ocean Circulation Experiment). This provided exposure to how the science of oceanography is planned internationally, and also to the cutting edge of the field.

With the thermodynamic background that I was taught as an engineering undergraduate, I was not satisfied with the oceanographic practice of using potential temperature as being proportional to the heat content per unit mass of seawater, and on 1st July 1994, while on sabbatical at the Woods Hole Oceanographic Institution, I was swimming in Crooked Pond before breakfast and I asked myself the question of whether potential enthalpy, referenced to atmospheric pressure, might do a better job. By morning tea that day, the answer was clear; potential enthalpy was better, by a factor of 100, at representing the heat content per unit mass of seawater than was potential temperature. This simple question, and its resolution, led on to more general thermodynamic questions about seawater that were to occupy a good ten years of my career.

Rainer Feistel of the Baltic Sea Research Institute in Warnemünde, Germany began publishing increasingly accurate Gibbs functions of seawater and of ice Ih, and in 2015 we were successful in being selected to lead a SCOR working group (WG-127) aimed at improving the thermophysical properties of seawater. There followed a very intense five year period where four of us (Rainer Feistel, Rich Pawlowicz, Dan Wright and myself) were working virtually full time, in different time zones. This effort led to the publication of around 20 papers and the adoption, from 1st January 2010, by the Intergovernmental Oceanographic Commission of UNESCO, of TEOS-10 (the international Thermodynamic Equation Of Seawater – 2010). Despite its name, TEOS-10 actually specifies the thermodynamic potentials and the thermophysical properties of not only seawater, but also of freshwater, of ice Ih, and of humid air. The adoption of TEOS-10 has meant that oceanographers now publish their results using new types of both temperature and salinity; instead of potential temperature and Practical Salinity, we now use Conservative Temperature and Absolute Salinity. Recently I have been working on the dynamical consequences of the observed bottom-intensified nature of small-scale mixing in the deep ocean. This bottom-intensification causes downwelling (rather than upwelling), with upwelling occurring only in thin bottom boundary layers very close to the sea floor. This pattern of intense upwelling along sloping boundaries, and sinking in the ocean interior, has literally turned conventional wisdom upside down, and we are not yet close to understanding the full implications.



Members of SCOR/IAPSO Working Group 127. Trevor McDougall is fourth from the left, and Rainer Feistel is fourth from the right

Things I've learnt along the journey

It was a bit of a rude surprise when, early in my career, I began to have manuscripts rejected by journals. I was to discover that original ideas may be met with resistance. My best five papers were all initially rejected by leading journals. My advice to young scientists is not to be discouraged when reviewers don't understand your work and when the editor rejects your manuscript. Rather, take this rejection as a badge of honour. Perhaps your rejected manuscript is a great piece of work that is too original for the reviewers to grasp on first reading. I say that if you haven't had a paper rejected by a good journal then you're probably not aiming high enough!

It's not easy to put my finger on what it takes to be original in science. Firstly, you need to know enough of the background knowledge in your field so that the cutting edges and the unsolved issues can be identified. Secondly, you need to ask the hard questions - not simply follow the crowd. Thirdly, and perhaps most importantly, you cannot allow yourself to be too busy. That is, it's easy to be so busy achieving the things that you know how to do that there is little time left to explore the difficult or off-beat things that lie beside the main highway. Some of these are gems that will reward close attention, but only if you make the time to examine them.

Support along the way

Another huge advantage that I've had throughout my whole career is an incredibly supportive wife and children. My wife, Brita, put her career on hold for eleven years to be a full-time mother, doing the lion's share of bringing up our three children, and was very willing to go on five extended sabbaticals overseas with the family. In this way my career has been boosted compared with the careers of those female contemporaries who have shouldered more than half the responsibility of raising their children. As a community of academics, we can and we must do better.

One of the most satisfying things about a career in research is seeing young talent maturing and succeeding in research, and I have been incredibly fortunate to have worked with some outstanding early career researchers.

It has been an enormous privilege to be able to spend my whole career to date pursuing topics that I find fascinating, all the while knowing that the increased understanding of how the ocean affects the climate of the planet has immediate and lasting benefits for humanity. To achieve a scientific breakthrough is a wonderful thrill; to do so jointly with colleagues is even better, making bonds of friendship for life.

What are we humans going to do?

We humans have inhabited this earth for thousands of generations (actually, about 350,000 years) and yet we are now on a trajectory to deliver a seriously degraded planet to our children and grandchildren, with the damage having been done in just six generations. Are we really going to knowingly do this? This is the biggest question that we, as a species, face. We now know the magnitude of the challenge and we have many of the tools at our disposal to address the challenge. What we are missing to date is the political will.

2. IAGA – Blogs



The Social Media Working Group (a subsection of Interdivisional Commission on Education and Outreach) of IAGA has recently started a [blog](#), where you can opt to subscribe to e-mail notifications. The first two blog posts are currently online about (i) an overall introduction to IAGA, and (ii) an interview with Simon Wing, Chair of IAGA Division III: Magnetospheric

Phenomena. Further posts from the other division chairs will be available soon, followed by short summaries of research, outreach, and interviews with members from across IAGA.

You are also invited to check out (and alert your students to) the other IAGA social media activities at [Facebook](#), [Twitter](#), and [Instagram](#).

All these activities aim at promoting cross-division communication and facilitating international networking within the IAGA community. The IAGA Social Media Working Group welcomes anyone to contribute to these activities. If you wish to write a blog post or have interesting research content to share, please [contact](#) the group.

3. IAMAS – Early Career Scientist Committee Formed

The IAMAS Early Career Scientist Committee officially formed in December 2020. The committee consists of 10 early career scientists (ECS), representing the 10 IAMAS commissions. They are from seven countries including China, Australia, United States, Germany, France, Switzerland, and Egypt. Led by the committee



IAMAS

International Association of Meteorology
and Atmospheric Sciences

Chair Jing Li and Co-Chair Sarah Perkins-Kirkpatrick, the committee will be involved in ECS activities in all aspects, including organising conferences and webinars, establishing a global ECS database, and maintaining social media accounts. The goal is to promote communication and collaboration between young scientists worldwide. The committee will also coordinate with the executive committee of IAMAS and its commissions to address the needs of early career scientists. The first committee meeting was held virtually on 13 January 2021. During the meeting, the members discussed setting up an ECS webpage, establishing an ECS mail list and an ECS database. Many great ideas were proposed to promote ECS events and activities. Please join our mail list if you are interested in our events, by signing up on our [website](#), or sending an [e-mail](#) with a brief introduction.



Jing Li, Chair
Representing IRC



Sarah Perkins-Kirkpatrick, Co-Chair
Representing ICCL



Nikolaos Daskalakis
Representing iCACGP



Sonja Behnke
Representing ICAE



Odran Sourdeval
Representing ICCP



Fei Zheng
Representing ICDM



Gabriel Chiodo
Representing ICMA



Lee J. Welhouse
Representing ICPM



Ayman Elshahat Badawy
Representing IO3C



Yeon Joo Lee
Representing ICAPAE

Members of the IAMAS ECS Committee

4. IAMAS Announcement: 17th International Conference on Atmospheric Electricity 2022



It is with great pleasure that we invite you to the 17th International Conference on Atmospheric Electricity ([ICAE 2022](#)) to be held from 19 to 24 June 2022 in Tel Aviv, Israel. The quadrennial ICAE conference is the world's largest event devoted to the science of atmospheric electricity.

Topics include:

- Thunderstorm research, including lightning discharge physics
- Thunderstorm charging and meteorology
- Upper atmospheric discharges (TLEs)
- Fair weather electricity, including the global electric circuit (GEC)
- Aerosols and ions
- Planetary electricity
- Impacts of climate change on thunderstorms
- Thunderstorm safety and protection

The ICAE 2022 meeting will provide a platform for researchers and students from all over the world to present their latest atmospheric electricity research and discoveries, while exchanging ideas, networking with colleagues and making new friends. ICAE 2022 will take place in the metropolitan city of Tel Aviv, Israel's cultural centre. The scientific program will be complemented with an excursion and various social activities.

We look forward to welcoming you to Israel, for what will be a stimulating and inspiring scientific, social and cultural event.

Colin Price and Yoav Yair, Co-Chairs of the Local Organising Committee (LOC)

5. International Year of Basic Sciences for Sustainable Development 2022: we need it more than ever



For almost a year and a half now, the world has been disrupted by the COVID-19 pandemic caused by the SARS-CoV-2 virus. But how much worse could the situation have been without the progress and results produced for decades, even centuries, by curiosity-driven scientific research?

We deplore the many deaths due to COVID-19, and the future is still very uncertain, especially with the detection of new variants, some of which are spreading more quickly. But, in the first place, how could we have known that the infection was caused by a

virus, what this virus looks like and what its genetic sequence and variations are without basic research? Viruses were discovered at the beginning of the 20th century, thanks to the work of Frederick Twort, Félix d'Hérelle and many others. The first electron microscope was built in the 1930s by Ernst Ruska and Max Knoll; and DNA sequencing began in the mid-1970s, notably with research by the groups of Frederick Sanger and Walter Gilbert.

We could continue such a list, with basic research at the root of tests, treatments, vaccines, epidemiological modelling, etc. We even owe high-speed, long-distance communications, which allow us to coordinate the fight against the pandemic and reduce interruptions in education, economic activities and even the practice of science, to the discovery and study of electromagnetic waves and optic fibres during the 19th century, and to the development of algorithms and computers codes during the 20th century. The COVID-19 pandemic is a reminder (so harsh and brutal that we would have preferred to have been spared) of how much we rely on the continuous development of basic sciences for a balanced, sustainable and inclusive development of the planet.

On many other issues, basic sciences have an important contribution to make to progress towards a sustainable world for all, as outlined in [Agenda 2030 and its 17 Sustainable Development Goals](#), adopted in September 2015 by the United Nations General Assembly. They provide the essential means to address major challenges such as universal access to food, energy and sanitation. They enable us to understand the impacts on the climate, and on life on Earth and in aquatic environments of the nearly 8 billion people currently living on the planet, and to act to limit and reduce these impacts. Indeed, unlike our use of natural resources, the development of the basic sciences is sustainable *par excellence*. From generation to generation, it builds up a reservoir of knowledge that subsequent generations can use to apply to the problems they will face, which we may not even know about today.

The International Year of Basic Sciences for Sustainable Development 2022 ([IYBSSD 2022](#)) will focus on these links between basic sciences and the Sustainable Development Goals. It is proposed to be organised in 2022 by a consortium of international scientific unions and scientific organisations led by [IUPAP](#) (other members are [IUCr](#), [IMA](#), [IMU](#), [IUBS](#), [IUGG](#), [IUPAC](#), [IUHPST](#), [IUMRS](#), [IUVSTA](#); [CERN](#), [IRD](#), [IIASA](#), [EPS](#), [JINR](#), [NuPECC](#), [ICTP](#), [ISC](#), [Rencontres du Vietnam](#), [SCOR](#), [SKAO](#), [SESAME](#)), with the recommendation of a resolution approved by the UNESCO General Conference during its 40th session in 2019. Over 50 national and international science academies and learned societies and around 30 Nobel Prize laureates and Fields Medallists also support this initiative. The Dominican Republic agreed to propose a resolution for the promulgation of the International Year during the 76th session of the United Nations General Assembly, beginning in September 2021.

We very much hope that scientists, and all people interested in basic science, will mobilise around the planet and take this opportunity to convince all stakeholders (the general public, teachers, company managers, policymakers, etc.) that through a basic understanding of nature, inclusive (especially by empowering more women) and collaborative well-informed actions will be more effective for the global common interest. We especially invite all earth scientists and their organisations to create or join national IYBSSD 2022 committees to organise events and activities during this international year.

More information, as well as communication material, can be found [here](#). This will also be shared through social media accounts (look for @iybssd2022 on [Facebook](#), [Twitter](#), [LinkedIn](#) and [Instagram](#)). You are also invited to subscribe to the Newsletter [here](#).

Michel Spiro, President of the International Union of Pure and Applied Physics (IUPAP) and
President of the Steering Committee for the proclamation of IYBSSD 2022

6. Awards and Honours

International Association of Hydrological Sciences (IAHS)

The Hydrological Sciences Journal ([HSJ](#)) is the official Journal of the IAHS and provides a forum for original papers and for the exchange of information and views on significant developments in hydrology worldwide. It is published by Taylor & Francis and is available online and in print format.



International Association
of Hydrological Sciences

We recognise the time and effort provided by our editors and manuscript reviewers in supporting authors to produce better papers, and it is with this in mind that IAHS recently announced new awards:

1. The Hydrological Sciences Journal Associate Editor Award is granted for outstanding overall contribution to the journal's impact and visibility, and excellence in supporting authors and editors through the peer review process. The award (a significant cash prize) is granted annually by IAHS, with the support of Taylor & Francis, to one Associate Editor identified by the HSJ Editors. In 2020 it was awarded to **Konstantinos Soulis** (Greece).
2. The Hydrological Sciences Journal Reviewer Award is granted for outstanding contribution to the journal, and excellence in supporting authors and editors with timely and relevant reviews. The award (comprising a cash prize and book tokens) is granted annually by IAHS, with the support of Taylor & Francis, to reviewers identified by the HSJ Editors. In 2020 awards were granted to **Ozgur Kisi** (Turkey) and **Andrzej Walega** (Poland).

International Association of Meteorology and Atmospheric Sciences (IAMAS)



IAMAS

International Association of Meteorology
and Atmospheric Sciences

This year's recipient of the IAMAS Early Career Medal is **Marta Abalos** (Spain) from Universidad Complutense de Madrid. Her research aims to improve knowledge on the links between stratospheric ozone, climate change and the transport circulation in the stratosphere and upper troposphere.

The IAMAS Early Career Medal was established in 2015, and is presented every two years, from a selection of candidates nominated by one of the commissions of IAMAS or the Members at-Large.

IUGG Adhering Body for Germany

Ralph Watzel, President of the Federal Institute for Geosciences and Natural Resources (Bundesanstalt für Geowissenschaften und Rohstoffe; BGR), which serves as the IUGG Adhering Body for Germany, is the new President of the European Geological Services, EuroGeoSurveys ([EGS](#)). As the head of the representation of 38 national and regional institutions, he will represent the interests of these geoscientific institutions at the European level over the next two years. The non-profit



organisation based in Brussels, Belgium aims to strengthen cooperation between the services and to support the European institutions with the necessary geo-expertise. EGS supports the implementation of EU programs in central policy areas and carries out joint research projects on this. These include in particular the subject areas of raw materials, groundwater, geohazards, geochemistry and geodata. “The harmonisation and standardisation of the knowledge base about the geological subsurface is a central challenge for Europe. We want to continue to be successful on this path”, says the new EGS President. Cooperation between the European geological services in a network (ERA-NET) is currently being funded by the EU.

Congratulations!

7. Obituaries

Pierre Hubert (1943-2020)

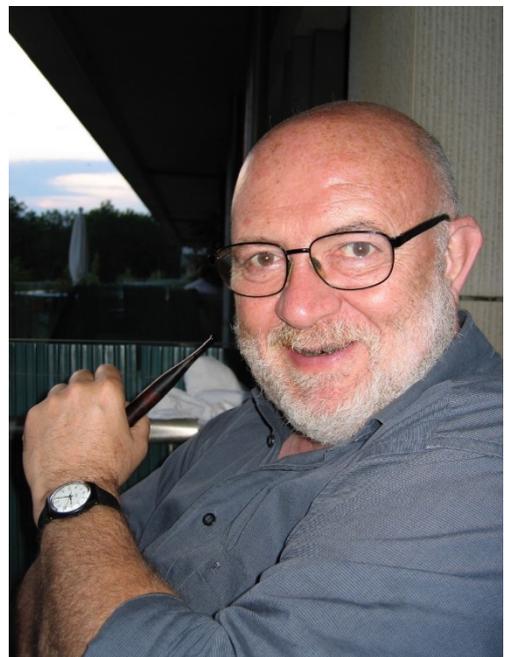
Pierre Hubert (1943-2020) passed away on 31 December 2020. He became an engineer with a degree from Ecole Centrale in Paris in 1967, and received his PhD in 1971 and Doctorat ès Sciences (Habilitation) in 1986 in hydrology, from Université Pierre et Marie Curie in Paris. He worked from 1971 to 2007 for Ecole des Mines de Paris, and has always been at the heart of the Paris multi-institutional master and doctoral curricula on hydrology.

Pierre developed research activity on hydrology in the widest sense, from theoretical to science-management aspects, with a strong engagement in exploring multi-disciplinary approaches, and with an intense international focus which allowed him to tackle the diversity of challenges across hydroclimatic, socio-hydrological and geopolitical contexts; and back to have a panoramic view and contribution.

Pierre was at the scientific forefront on several topics, including isotopic hydro(geo)logy, modelling, scaling (fractal and multifractal), geo-statistics, change detection, as applied to various hydrometeorological variables and settings. The Hubert segmentation method is now a key one in the toolbox of any hydro-climatologist addressing the question of change. His methodological developments improved the design of monitoring networks, increased the understanding of processes and patterns, and then facilitated the modelling and the optimised management of resources and hazards.

Pierre developed bilateral and multilateral cooperation between France, Québec, Tunisia, Algeria, Western Africa, Romania, Russia etc. – always supporting individuals, groups and networks to accompany dynamics towards governance and scientific gap filling. He did so with a deep trust in the humanistic values of Science and Education being universal and independent from politics, and in the epistemological values of Hydrological Sciences benefitting from studying the hydrological diversity across the world.

Pierre was rapidly identified as a multifaceted expert, as well as a very pleasant character, in the French, francophone, and international institutions and communities. He benefited from his multiple engagements to encourage the emergence, funding and articulation of cooperation mechanisms. He has been active in the French SHF – Société Hydrotechnique de France and its Milon Prize. He has



Pierre Hubert (photo credit Gaël Hubert)

been a long-term contributor to the UNESCO International Hydrological Programme and the WMO Commission for Hydrology through the representation of France and then of IAHS and IUGG.

Pierre was a key player in the organisation (front of stage and backstage) of conferences and publications, on both sides of science content and of accessibility/open access, seen as platforms for science sharing, consolidation and dissemination. Beyond editorial and peer-reviewing tasks, he has been particularly active in the francophone side of the at-the-time bilingual Hydrological Sciences Journal of IAHS, and of the multilingual UNESCO-WMO International Glossary of Hydrology that he expanded in linguistic coverage and online accessibility, <http://hydrologie.org/glu/aglo.htm>. Early on he took the opportunities offered by the Internet to facilitate the open archiving of publications and the networking of scientists, in particular with the setting and mastering of the francophone portal <http://hydrologie.org>.

Pierre early engaged in IAHS, recognising in the Association a unique worldwide network whose vocation was close to his values, and where he could scale up his own efforts for articulating hydrological sciences and players. He served as President of the French IAHS then IUGG sections from 1990 to 2000. After successive roles in the IAHS commissions and publication mechanisms, he was Secretary General of IAHS from 2000-2011, thanks to a nomination when the position became vacant and then to two re-elections. He was particularly involved and efficient in facilitating the functioning of the Association, the emergence of digitisation, the digital rescue and open archiving of the IAHS publication series, the shaping of the agenda-setting PUB – Prediction in Ungauged Basin decade, the partnership with UN Agencies (in particular UNESCO IHP and WMO CHy). He also accompanied the emergence of IACS, and facilitated the interfacing with sister associations and contributions to transversal initiatives of IUGG. From 2011 to 2019, he followed up as a Bureau Member of IUGG, not only representing hydrological sciences, but also contributing to the strategy of the Union, from the Earth System Science approaches to the celebration of the 100yr Anniversary. Pierre Hubert received the IAHS-UNESCO-WMO International Hydrology Prize / Volker Medal in 2015 as a recognition of his scientific excellence coupled with a profile of engagement for the community. He was made Knight of the Légion d'honneur in France. The many messages shared over the last weeks across various networks acknowledge this double reputation, and further list many anecdotes and testimonials of how Pierre was always mixing the scientific and the human adventures.

Christophe Cudennec, IAHS Secretary General

With great sadness IUGG reports the death of

***Peter Fox (1959-2021)**, a pioneer in informatics, particularly within the Earth and space sciences, founder and first Chair of the IUGG Union Commission for Data and Information (UCDI; 2009-2017). An obituary can be found [here](#).*

and

***Karl Fuchs (1932-2021)**, a prominent German seismologist and President of the International Lithosphere Program (ILP; 1985-1990).*

8. Meeting Calendar

May

- 17-21, CCEC, Online, [25th International Clean Air and Environment conference \(CASANZ 2021\)](#)
- 26-28, IAG, Online, [EUREF 2021 Symposium](#)

June

- 8-18, IACS, McCarthy AK, USA, [International Summer School in Glaciology](#)
- 12-15, ISC, Brisbane, Australia and Online, [Sustainability Research & Innovation Congress 2021](#)
- 14-16, IAVCEI, Heraklion, Greece, [Cities on Volcanoes 11th Conference \(POSTPONED TO 20-25 June 2022\)](#)
- 21-24, GEO, Online, GEO 2021 Virtual Symposium
- 21-25, IAMAS, Columbus OH, USA and Online, [16th Workshop on Antarctic Meteorology and Climate](#)
- 22-26, IAG, Wuhan, China, [19th International Symposium on Geodynamics and Earth Tides](#)
- 28-2 July, IAG, Beijing, China and Online, [IAG Scientific Assembly](#)
- 28-2 July, CTBTO, Vienna, Austria and Online, [CTBT Science and Technology 2021 Conference](#)
- 28-23 July, IASPEI, Les Houches, France, [2021 Summer School on "Core-Mantle Interactions through time"](#)

July

- 4-10, ISPRS, Online, [24th ISPRS Congress](#)
- 11-17, IAHS, Perugia, Italy, [2021 International Summer School on Hydrology](#)
- 12-16, IAHS, Online, [Hydro-JULES Summer School 2021](#)
- 16-18, IUGG National Committee for China, Qingdao, China, [4th Congress of China Geodesy and Geophysics](#) (in Chinese)
- 19-23, IACS, IAMAS, IAPSO, Online, [Seminar Series](#) (replaces the IACS-IAMAS-IAPSO Joint Scientific Assembly planned to be held in Busan, Rep. of Korea, from 18-23 July)
- 25-31, IUHPST, Online, [26th International Congress of History of Science and Technology](#)

Association Scientific Assemblies 2021-2023

- 28 June - 2 July 2021, IAG, Beijing, China and Online, [IAG Scientific Assembly](#)
- 19-23 July 2021, IACS, IAMAS, IAPSO, Online, [Seminar Series](#) (replaces the IACS-IAMAS-IAPSO Joint Scientific Assembly planned to be held in Busan, Rep. of Korea, from 18-23 July)
- 21-27 August 2021, IAGA, IASPEI, Online, [IAGA-IASPEI Joint Scientific Assembly](#)
- 30 May - 3 June 2022, IAHS, Montpellier, France, [IAHS Scientific Assembly](#)
- 30 January - 3 February 2023, IAVCEI, Rotorua, New Zealand, [IAVCEI Scientific Assembly](#)

The full IUGG Events Calendar 2021 can be found [here](#).

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