



IACS

International Association
of Cryospheric Sciences

<http://www.cryosphericciences.org>

2020 IACS annual report

INTRODUCTION

The International Association for Cryospheric Sciences (IACS) is the Association of the International Union of Geodesy and Geophysics (IUGG) concerned with snow and ice science and provides expert advice on cryospheric issues to governmental and non-governmental organisations. The objectives of IACS are to:

- promote studies of cryospheric subsystems of the Earth and solar system;
- encourage research in the above subjects by members of the cryospheric community, national and international institutions and programmes, and individual countries through collaboration and international coordination;
- provide an opportunity on an international basis for discussion and publication of the results of the above research;
- promote education and public awareness on the cryosphere, and facilitate the standardisation of measurement or collection of data on cryospheric systems and of the analysis, archiving and publication of such data;
- promote and support diversity, inclusion and equality within the field of cryospheric science, including but not limited to career stage, gender, racial and ethnic identities, and geographic origin.

ADMINISTRATION

The current IACS Bureau was elected at the IACS Plenary Administrative Meeting during the 27th IUGG General Assembly in Montreal. It consists of Regine Hock (President), Liss Andreassen (President Elect), Richard Essery (Secretary General), Minghu Ding (Vice President), Stanislav Kutuzov (Vice President), Andrew Mackintosh (Vice President), Charles Fierz (Head, Snow and Avalanches Division), Gwenn Flowers (Head, Glaciers Division), Sophie Nowicki (Head, Ice Sheets Division), Anaïs Orsi (Head, Cryosphere, Atmosphere and Climate Division), Christine Schøtt Hvidberg (Head, Planetary and Other Ices of the Solar System Division) and Takenobu Toyota (Head, Sea Ice, Lake and River Ice Division). To run the day to day business of IACS, an Executive Committee (EC) consisting of the President, Secretary General and President Elect holds regular teleconferences, in which all Bureau members are welcome to join.

IACS Division Deputy Heads

The IACS by-laws have a provision that the Bureau may appoint deputy heads for IACS divisions on request from the Division Head. The Division Head can temporarily delegate the right to vote on Bureau matters to the Deputy, but no Division can have more than one vote. Although there is no assumption that the Deputy Head will succeed the Head when they reach the end of their term, this is seen as a way to introduce early and mid-career



researchers to the workings of IACS. Following the November 2020 Bureau meeting, the following Deputy Heads were nominated and approved by Bureau votes:
 Marie Dumont, Deputy Head of Snow and Avalanches Division
 Lauren Vargo, Deputy Head of Glaciers Divisions
 Alex Fraser, Deputy Head of Sea Ice Division

ACTIVITIES

IACS Bureau Meeting

The annual meeting of the IACS Bureau for 2020 was held online on 16 and 17 November, with different times each day to facilitate the participation of Bureau members in different time zones. Although an online meeting was required by travel restrictions, the format was judged to be a success and will be used in future years that do not have a General or Joint Assembly that the majority of Bureau members will be attending. This is intended to better accommodate busy work schedules and home responsibilities, and to minimise greenhouse gas impacts associated with air travel.

Carbon Footprint resolution

In support of IUGG “Resolution 1: Reducing the Carbon Footprint by the Research Community”, IACS has resolved to reduce travel (particularly by air) related to symposia organization and other IACS business. IACS acknowledges the importance of close ties and communication with the local organizers of IUGG/IACS Assemblies, and will strive to provide input via video-, tele-conferencing or other suitable means, rather than participating in site visits that require carbon-intensive travel. Video-conferencing will also be used to conduct annual bureau meetings between IACS Assemblies and to allow remote participation in bureau meetings at the Assemblies.

Survey of National Correspondents

An online survey sent to all IACS National Correspondents in May 2020 included a question regarding the length of IUGG General Assemblies. Results showed that a large majority favour a reduction to 7 (70%) or 8 days (90%). Results were detailed in a report in the IACS and IUGG Newsletters.

IACS communications

The IACS homepage (<https://cryosphericciences.org/>) is hosted at the World Glacier Monitoring Service in Zurich and is linked to twitter account @iacscryo (<https://twitter.com/iacscryo>). IACS newsletters feature announcements and reports of IACS activities (<https://cryosphericciences.org/newsletter/>). Three newsletters were published in 2020.

IACS Working and Standing Groups

IACS facilitates the transfer of research methods and explores new avenues in cryospheric science through Standing Groups and Working Groups devoted to a theme or subject and composed of experts in the particular field of study. The currently active IACS Working Groups are:

- Randolph Glacier Inventory and its role in future glacier monitoring and GLIMS (2020-2023) has the objective of automating the process of generating digital glacier outlines to support research in glacier mass balance and contributions to sea level rise.
- Regional Assessments of Glacier Mass Change (2019-2023) brings together the research community that is assessing regional glacier mass changes from various observation technologies to come up with a new consensus estimate of global glacier

mass changes and related uncertainties.

- Debris Covered Glaciers (2018-2022) aims to advance our ability to map debris thickness, to identify the level of model complexity required to estimate sub-debris melt, and to coordinate knowledge exchange.

Two more papers have been published following the end of the working group on Glacier Ice Thickness (2014-2019):

- Welty et al. Worldwide version-controlled database of glacier thickness observations. *Earth System Science Data*, **12**, 3039–3055
- Farinotti et al. Results from the Ice Thickness Models Intercomparison eXperiment Phase 2 (ITMIX2). *Frontiers in Earth Science*, **8**.

The IACS/IPA Standing Group on Glacier and Permafrost Hazards in High Mountains (GAPHAZ) aims to:

- improve international scientific communication on glacier and permafrost hazards;
- compile knowledge related to glacier and permafrost hazards in high mountains;
- work towards greater transfer of information and improved communication between the scientific and governmental communities;
- signpost sources of advice to international and national agencies, responsible authorities and private companies;
- act as a focal point for information for international media during relevant crises.

IACS is part of the Global Terrestrial Network for Glaciers (GTN-G) Steering Committee. GTN-G is a framework for internationally coordinated monitoring of glaciers jointly run by the US National Snow and Ice Data Center, the Global Land Ice Measurements from Space initiative, and the World Glacier Monitoring Service.

IACS Joint Commissions

Joint Commissions with other IUGG Associations aim to foster collaboration and coordination on topics of overlapping interests. IACS established two joint commissions in 2020: the IACS-IAG Joint Commission on Cryospheric Deformation and the IACS-IAPSO Joint Commission on Ice-Ocean Interactions. IACS and IAVCEI had agreed to wind up the Joint Commission on Volcano-Ice Interactions after a period of inactivity, but new leadership has now emerged on the IAVCEI side. Discussion between IACS and IAVCEI will now decide the best way to transition to the new Joint Commission structure.

Co-sponsored events and activities

IACS supports events that are of interest to the cryospheric community. Our contributions typically cover part of the travel costs for early career scientists and scientists from developing countries attending cryosphere related events, or IACS awards for scientists in these categories. Funding requests must be submitted for deadlines on 1 February, 1 June and 1 October and at least two months prior to the event that is to be supported. Proposers are informed of decisions approximately two weeks after the deadline. The events supported in early 2020 before the imposition of travel restrictions were:

- 7th International Conference on Mars Polar Science and Exploration, Ushuaia, Argentina, 13-17 January
- 6th Snow Science Winter School, Col du Lautaret, France, 16-22 February

Obituaries

We were saddened in 2020 to hear of the passing of two staunch supporters of IACS: Koni Steffen (<https://koni-steffen.wsl.ch/en/obituary.html>) and Pierre Hubert (<https://cryosphericsscience.org/members/obituaries/pierre-hubert-obituary/>)

FUTURE ACTIVITIES AND ANNOUNCEMENTS

IACS sponsorship for events that had to be postponed in 2020 will be carried over until they can be rescheduled. These events are:

- Third Annual Meeting of the Chilean Cryosphere Society (SOChiCri), online, 18-19 March 2021
- Juneau Icefield Research Program, Alaska, 14 June - 5 August 2020 (postponed to 2021)
- International Summer School in Glaciology, McCarthy, Alaska, 6-16 June 2020 (postponed to 2021)

IACS, IAMAS, IAPSO and the BACO-21 local organizing committee had to take the decision to cancel the 2021 joint assembly scheduled for Busan, Republic of Korea, but agreed to hold a joint assembly there in 2025. To replace BACO-21, an online IACS-IAMAS-IAPSO seminar series with invited speakers and Association early career award winners is being planned for the same period (19-23 July 2021). Details of the programme and registration will be announced in Association and IUGG newsletters and web sites.



The IACS Bureau.

Back row, l-r: Minghu Ding, Andrew Mackintosh, Anaïs Orsi, Takenobu Toyota.

Front row, l-r: Charles Fierz, Christine Schøtt Hvidberg, Regine Hock, Gwenn Flowers (on screen), Liss Andreassen, Richard Essery.

Inset, l-r: Stanislav Kutuzov, Sophie Nowicki

Right, top to bottom: newly-appointed Division Deputy Heads Marie Dumont, Lauren Vargo, Alex Fraser.

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