



IACS

International Association
of Cryospheric Sciences

<http://www.cryosphericciences.org>

2023 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

To run the day-to-day business of IACS, an Executive Committee consisting of the President, Secretary General and President-Elect holds regular teleconferences in which all Bureau members are welcome to join.

Hybrid IACS Bureau Meetings on 11 and 17 July and an in person IACS Plenary Administrative Meeting on 15 July were held during IUGG Berlin 2023. The plenary meeting included reports from the IACS President and Secretary General, election of the new IACS Bureau for 2023-2027 (<https://cryosphericciences.org/organization/officers/>), election of Charles Fierz as an Honorary Member of IACS, presentation of IACS Early Career Scientist Awards, reports from all of the IACS Divisions, Working Groups, Standing Groups, Joint Bodies and Joint Commissions, and a preview of future IACS activities.

ACTIVITIES

IACS communications

The IACS homepage (<https://cryosphericciences.org/>) is hosted at the World Glacier Monitoring Service in Zurich. A process of cleaning the homepage to reduce CO₂ emissions per view was started in 2023. IACS newsletters feature announcements and reports of IACS activities (<https://cryosphericciences.org/newsletter/>). Four newsletters were published in

2023 and announcements were posted on twitter account @iacscryo. A code of conduct for IACS activities and communications was prepared and announced in 2023.

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 (2020-2024) 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. RGI version 7 (<https://www.glims.org/RGI/>) was released in 2023.
- Regional Assessments of Glacier Mass Change (RAGMAC, 2019-2024) 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. RAGMAC organized a pilot study workshop for the Glacier Mass Balance Intercomparison Exercise (<https://glambie.org>) in Zurich, 6 – 8 February 2023.
- A new Working Group on “Delineation of glaciers, ice sheets and ice sheet basins” (2024-2028) has been commissioned to develop community standards and methods for ice mass change estimation that avoid under- or over-counting.

The Debris Covered Glaciers working Group (2018-2023), which aimed 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, presented its final report to IACS. A publication on an intercomparison of sub-debris ice melt models is anticipated.

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.

GAPHAZ co-convoked a symposium on Mountain Cryosphere Hazards with IASPEI and IAVCEI at IUGG 2023 Berlin.

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 (NSIDC), the Global Land Ice Measurements from Space (GLIMS) initiative, and the World Glacier Monitoring Service (WGMS). IACS led an evaluation of WGMS in 2023; such evaluations are carried out every four years.

IACS Joint Commissions

Joint Commissions with other IUGG Associations aim to foster collaboration and coordination on topics of overlapping interests. IACS currently has three Joint Commissions:

- IACS-IAG Joint Commission on Cryospheric Deformation. IACS secured an IUGG grant to support the 2023 Glacial Isostatic Adjustment Training School in Gävle, Sweden.

- IACS-IAPSO Joint Commission on Ice-Ocean Interactions. A side meeting was held during IUGG 2023 Berlin to facilitate an international discussion on ice-ocean interactions opportunities for collaborations and priority research areas.
- IACS-IAVCEI Joint Commission on Volcano-Ice Interactions. New IAVCEI co-leaders were elected in 2023, and the current IACS co-leaders will serve for one more year.

Joint bodies

IACS approved the creation of a Joint Body with the Mountain Research Initiative and the WMO Global Cryosphere Watch on “the status of the mountain snow cover” in 2022. The objectives of the Joint Body are to:

- provide robust information on mountain snow cover changes at a global scale;
- better understand processes of snow accumulation and ablation based on existing modelling and observational studies;
- open access to snow data for the research community and operational capacity building for understanding mountain snow cover changes and impacts.

Joint body meetings were held during EGU Vienna 2023 and IUGG Berlin 2023.

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. After a decrease in applications in the pandemic years, IACS provided support for the Patagonian Icefields Research Program, the Glacial Isostatic Adjustment Training School, the RAGMAC–GlaMBIE Workshop and the Seventh EGU Snow Science Winter School in 2023.

Awards

The Graham Cogley Awards for 2023 were awarded to Laura Dietrich (University of Bergen, Norway) and Erik Loebel (Technische Universität Dresden, Germany) for student presentations at IUGG 2023 Berlin. This award, established in memory of Graham Cogley and generously sponsored by the Cogley family, recognizes excellence in glaciological research by early career scientists. It is awarded in alternate years by IACS and the International Glaciological Society.

IACS Early Career Scientist prizes were awarded to Yixi Zheng (University of East Anglia) and Veronica Tollenaar (Université Libre de Bruxelles). This prize is awarded every two years to two early career scientists for scientific papers on cryospheric subjects selected by an independent evaluation committee.

IUGG Early Career Scientist Awards were awarded to IACS nominees Mohd Farooq Azam (Indian Institute of Technology Indore), Natalya Gomez (McGill University, Canada) and Johan Gaume (WSL Institute for Snow and Avalanche Research SLF, Switzerland). The IUGG Gold Medal was awarded to IACS nominee Valerie Masson-Delmotte (LSCE, France).

FUTURE ACTIVITIES AND ANNOUNCEMENTS

IACS will hold its annual meeting on 26 June 2024. This meeting is held online and over two time zones in years without IACS assemblies to allow for maximum participation.

The call for symposium proposals for the Busan IAMAS-IACS-IAPSO Joint Assembly 2025 (BACO-25) is now open at <https://cryosphericsscience.org/baco-25/>.

The Secretary General will host the Arctic Science Summit Week (Edinburgh, UK, 2024) and is representing IACS on the steering committee for the fourth International Conference on Arctic Research Planning (Boulder, USA, 2025).

The United Nations General Assembly has declared 2025 as the International Year of Glaciers' Preservation and 21 March of each year as the World Day for Glaciers, starting in 2025. IACS is involved in the planning activities coordinated by UNESCO and WMO.



The newly-elected 2023-2027 IACS Bureau at IUGG 2023 Berlin.

Back row, left to right: Mohd. Farooq Azam, Rebecca Mott, Anaïs Orsi, Andrew Mackintosh, Regine Hock, Richard Essery, Christine Schøtt Hvidberg

Front row, left to right: Minghu Ding, Liss M. Andreassen, Ted Scambos, Sophie Nowicki, Mathieu Morlighem

Inset, left to right: Sandra Barreira, Alex Fraser, Lauren Vargo, Vincent Vionnet