



IUGG



IACS

International Association  
of Cryospheric Sciences

<http://www.cryosphericciences.org>

## 2022 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

In the absence of an in-person assembly in 2022, the IACS Annual Bureau Meeting was held online on 20 October 2022. Annual meetings include reports from all of the IACS Divisions, Working Groups, Standing Groups, Joint Bodies and Joint Commissions. We have found that splitting these online meetings into two sessions at different times of day to suit different time zones is an efficient and inclusive way to conduct IACS business while reducing carbon footprint.

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

### ACTIVITIES

#### 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/>). Four newsletters were published in 2022.



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## 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. RGI version 7 was pre-released for international review in 2022.
- Regional Assessments of Glacier Mass Change (RAGMAC, 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. The Glacier Mass Balance Intercomparison Exercise (<https://glambie.org>) was launched in 2022.
- 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. A one-year extension has been requested and approved to allow completion of WG publications following pandemic delays.

Two new WG suggestions on Antarctic Marginal Ice Zone Processes and Glacier - Ice Sheet Delineation were announced on Cryolist and in the November 2022 IACS Newsletter. The aim is to develop these plans into full proposals.

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 currently has three Joint Commissions:

- IACS-IAG Joint Commission on Cryospheric Deformation. IACS secured an IUGG grant in the 2022 special call to support the Glacial Isostatic Adjustment Training School.
- IACS-IAPSO Joint Commission on Ice-Ocean Interactions. An online workshop on ice-ocean interactions was held 17-19 October 2022. JCIOI Terms of Reference were approved by the IACS and IAPSO Bureaus.
- IACS-IAVCEI Joint Commission on Volcano-Ice Interactions. An EGU 2022 session was co-sponsored.

### 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.

A session on mountain snow cover was organized at the International Mountain Conference 2022 and a side event was contributed through the Cryosphere Pavilion at COP27.

### 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 2020 and 2021, IACS provided support for the International Mountain Conference and approved support for the Snow Science Winter School in 2022.

### Awards

The Graham Cogley Awards for 2022 were awarded to Gavin Piccione (University of California Santa Cruz, USA), Devon Dunmire (University of Colorado, USA) and Jonathon Preece (University of Georgia, USA) for student presentations at the Cryosphere 2022 conference in Reykjavik. 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 successfully nominated Valerie Masson-Delmotte (LSCE, France) for the IUGG Gold Medal and 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) for IUGG Early Career Scientist Awards.

## **FUTURE ACTIVITIES AND ANNOUNCEMENTS**

IACS has proposed 15 symposia and 6 joint symposia and is contributing to 9 other joint symposia at the IUGG 2023 General Assembly.

Nominations have been received by an independent panel for election of a new IACS Bureau, including a President-Elect, during the IACS Plenary Meeting on 15 July 2023. The only Bureau position that is not up for election at this time is President; following the IACS Statutes, Liss M. Andreassen will serve for another two years as President, and then a further two years as Immediate Past-President.

The Secretary General is representing IACS on the steering committee for the fourth International Conference on Arctic Research Planning (Boulder, USA, 2025).



“Glacier mice” are moss balls found on the surface of some glaciers. This one is circa 7 cm in diameter and was found on the surface of Austerdalsbreen, an outlet of Jostedalbreen, Norway (photo: Liss M. Andreassen, September 2021).