
*IACS promotes the advancement
of cryospheric sciences of
the Earth and solar system*



IACS

International Association
of Cryospheric Sciences

IACS NEWSLETTER

January 2022

New joint body: Status of Mountain Snow Cover

A joint body is a way for IACS to organize joint activities with other organizations. IACS is pleased to announce the establishment of a new Joint Body 'Status of Mountain Snow Cover (JB-SMSC)' together with the World Meteorological Organization (WMO) and the Mountain Research Initiative (MRI).

Climate change is clearly impacting the amount and distribution of mountain snow cover over space and time. Knowledge of these changes is of great importance for research and practice, not least given the important role that snow plays for mountain ecosystems, natural hazards, and tourism, as well as a source of water for ecosystems and humans. Despite the high relevance of snow in mountain regions, an inventory for mountain snow cover and the underlying processes comparable on a global scale are still lacking. Even regional inventories are strongly limited to a few well-monitored mountain ranges, such as in the U.S. Rockies and the European Alps.

The JB-SMSC will address these knowledge gaps by providing robust information on mountain snow cover changes at a global scale in the past few decades by compiling and analyzing existing data (covering data from stations, remote sensing, and model simulations) at sufficiently high resolution. In addition, the JB-SMSC also aims to better understand processes of accumulation and ablation based on existing modelling and observational studies. Another important objective is to provide open access to the snow data for the benefit of the research community, and thereby contribute to the operational capacity building.

The JB is co-chaired by Dr Wolfgang Schöner (IACS), Shawn Marshall (MRI) and Lijuan Ma (WMO). For more information on how to contribute, please contact the chairs: wolfgang.schoener@uni-graz.at, marshals@ucalgary.ca or malj@cma.gov.cn. Read more on: <https://cryosphericciences.org/activities/jb-status-mountain-snow-cover/>



Snow cover in the Austrian Alps near to the Sonnblick Observatory in winter 2018. Photo: W. Schöner

Joint IACS-IAG Commission on Cryospheric Deformation

- IAG Co-Chair: Jeff Freymueller (Michigan State University, East Lansing, Michigan, USA)
- IACS Co-Chair: Bert Wouters (Utrecht University /Delft University of Technology, Netherlands)
- Vice-Chair: Natalya Gomez (McGill University, Montreal, Canada)

This commission joint with the International Association of Geodesy (IAG) was established in spring 2020. It is a joint effort of IACS and IAG, which has built upon a history of separate activities in the two Associations. The overall goal of our commission is to get a better understanding of the interaction between the cryosphere - in particular the ice sheets and glaciers - and the Solid Earth. Clearly, this is a topic relevant to both glaciologists and geodesists. Studying how the earth deforms in response to ice mass changes helps us to infer properties of the Earth's rheology, while at the same time, several feedbacks exist between the solid earth and the cryosphere. Ice mass loss near the grounding line of a glacier, for example, will cause the solid earth on which the glacier rests to rise, which will relocate the grounding line and may be a negative feedback to ice retreat. Furthermore, if we want to study the mass loss of the ice sheets from space, for example using altimetry or gravimetry, corrections need to be made for solid earth effects. Several other interactions and feedbacks exist between the two systems, and better understanding of these links would be beneficial to both communities.

The goals of our joint commission cover a wide range of topics. Most relevant to the cryosphere community is to improve our knowledge of the history of ice loading, i.e., how the area and mass of the ice sheets changed over the past millennia. Linked to that we want to improve models of the Earth's rheology, which is the second ingredient we need to model the deformation of the Earth's surface in response to changing ice loads. Furthermore, we want to stimulate and encourage the development of open source software to model earth deformation, which can then be included in ice sheet models. We also aim to assess current models against present day observations, and support and facilitate and intercomparison of existing 1-d and 3-d models of the Earth rheological models. Many of these tasks require efforts by a broad group (for example, model benchmarking or intercomparisons), and a key role for the commission is to promote information exchange and action by members of the broader community on these topics.

We are working on organizing a symposium on this topic, which would follow a series of several such meetings organized by the IAG Sub-commission 3.4. Plans for the symposium have been delayed by the pandemic, like so much else, but we hope to make it happen in 2023. In spring 2021, we partnered with colleagues from the World Climate Research Program and PALSEA (Paleo-reconstruction of sea level) to host a highly successful virtual seminar series on ice sheets, glacial isostatic adjustment and sea level. This monthly seminar series drew over 100 participants worldwide to each seminar, and it led up to a successful PALSEA virtual workshop in September 2021. We plan to restart the seminar series again this spring.

Please visit our website <https://com3.iag-aig.org/sub-commission-34> for more information.

(Report by Jeff Freymueller, Bert Wouters, and Natalya Gomez)



Photo from POLENET (The Polar Earth Observing Network) - a global network dedicated to observing the polar regions in a changing world.

IACS open plenary meeting

IACS usually holds an open plenary meeting at the IUGG or IACS assemblies run every second year. In the absence of an assembly in 2021, IACS held an online Open Plenary meeting on 17 November 2021. The meeting included short presentations from all our working groups, standing groups and joint commissions, providing excellent updates on recent and ongoing activities (thanks to all speakers!). The meeting ran twice on the same day with repeats of the presentations to facilitate participation from different time zones. 32 participants joined the first meeting (08:00-09:00 UTC) and 31 the second (16:00-17:00 UTC). A recording of the first meeting is available from <https://www.geos.ed.ac.uk/>

Richardson and Weertman award to Regine Hock

Our immediate-past president Regine Hock received the IGS Richardson Medal at the IGS Nordic Branch meeting on 5 November in Oslo in recognition of her given long-standing and ongoing service in support of glaciology within the IGS and much more broadly.

We also congratulate Regine on being awarded the Julia and Johannes Weertman Medal of the EGU for 2022. Regine will receive her award at the EGU General Assembly in April 2022.



Regine Hock received her Richardson medal at the IGS Nordic Branch meeting in Oslo, Norway, 5 November 2021. To the left: past IGS president Francisco Navarro and to the right IGS Secretary General Magnus Mar Magnusson. Photo: Liss M. Andreassen

Webinars on field manual for debris-covered glaciers

The IACS working group on debris-covered glaciers is conducting a series of six webinars in support of a 'Field manual for debris-covered glaciers'.

Each webinar will cover a different "chapter topic" of interest and establish a dialogue between the editors, 4-5 expert panelists, and the audience that will help identify current state of the art practices and community guidelines.

The field manual is to be published in cooperation with UNESCO as an open access book. Learn more about the panel series and [register here](#).

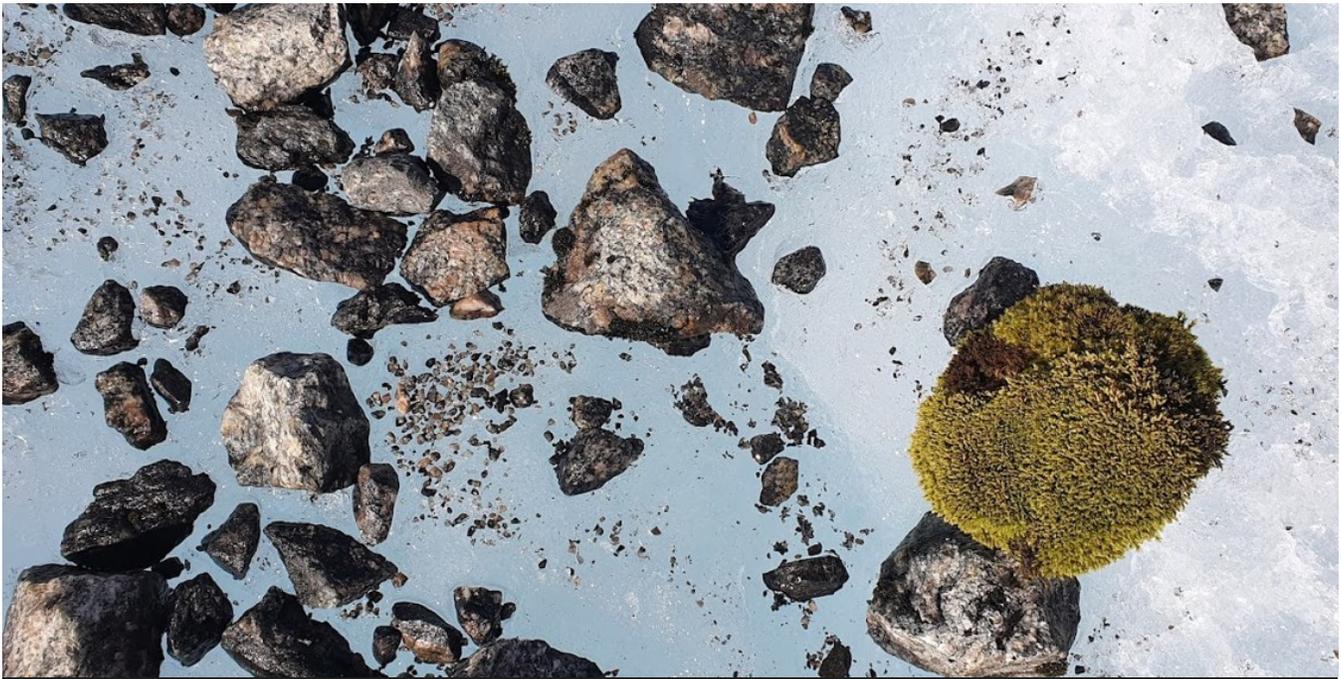
IACS Membership Status

IACS membership is increasing steadily and is now on its way towards the 1000 mark ([see statistics here](#)).

To keep our member database up to date and conform to European data protection rules, we recently (September 2021) asked all of you who registered for IACS membership before 2019-02-02 to update their record.

Thanks to all who already edited their records and we would like to remind the others to do so at their earliest convenience. Please also check carefully your primary email as well as the fields 'Nationality', 'Dual citizenship', and 'Country'.

In case you lost your private ID, please get it [here](#). If this does not work, please contact the IACS webmaster at webmaster@cryosphericsscience.org.



So-called 'glacier mice' are moss balls found on some glaciers worldwide. This moss ball is ca 7 cm in diameter and was found on the glacier surface of Austerdalsbreen, an outlet of Jostedalbreen, Norway. Photo: Liss M. Andreassen, September 2021.

IPCC Government and Expert Review

The IPCC Government and Expert Review of the Synthesis Report of the Sixth Assessment Report will take place from 10 January to 20 March 2022. IACS encourages interested experts to register for participation in the review. More info:

<https://ipcc.ch/2022/01/03/government-and-expert-review-ar6-synthesis-report/>

Gwenn Flowers new president of IGS

IACS congratulates our division head for glaciers, Gwenn Flowers, with her new position as president of the International Glaciological Society (IGS) for 2021-2024. IACS looks forward to continuing work with Gwenn within IACS and with the International Glaciological Society.



Gwenn Flowers at Fisher Glacier in Yukon, Canada, one of many surge-type glaciers in the Yukon-Alaska region. Photo by Canadian astronaut David Saint-Jacques.

About IACS

The International Association of Cryospheric Sciences (IACS) is a constituent Association of the International Union of Geodesy and Geophysics (IUGG).

- IACS promotes and sponsors workshops, symposia and educational activities.
- IACS has targeted working groups on cryospheric topics.
- IACS offers free individual membership: www.cryosphericosciences.org
- The IACS newsletter is issued 2-4 times a year.
- Previous newsletters can be found on: cryosphericosciences.org/newsletter/