

IACS (International Association of Cryospheric Sciences)

Activities' Report - Year 2023

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1. Introduction

The International Association of Cryospheric Sciences (IACS) is the youngest of the associations within the IUGG. In 2007, at the General Assembly in Perugia (Italy), IACS became the eighth association within the IUGG as transformed by the International Commission on Snow and Ice of the IAHS. For further information about IACS History see <https://cryosphericciences.org/about/history/>.

One of the main objectives of IACS is to support cryosphere science by promoting and sponsoring workshops and symposia organized by its divisions, working groups, as well as by other organizations. Moreover, IACS has an important role in education and public awareness about cryosphere topics, as well as in standardization of measurements, data collection and sharing. More on this at <https://cryosphericciences.org/about/objectives/>.

In 2021 IACS has adopted a resolution and an action plan to reduce the carbon footprint by the research community (<https://cryosphericciences.org/about/resolutions/>).

In February 2019, the new IACS Website was opened: <https://cryosphericciences.org/>.

The IACS Bureau posts, three-four time a year, an "IACS NEWSLETTER" which reports on IACS activities and is downloadable in pdf format from the website.

The individual membership of IACS is free of charge. You can register at the following link: <https://cryosphericciences.org/members/membership/>.

At the same link you will find interesting statistical information, with data updated in real time. This data shows a continuous increase in individual enrolment in IACS, which has triplicated since 2019. Enrolments from European countries (42.8% at 2024-05-09) predominate and the category that is most represented is that of doctoral students (31.7%). Both figures, which are also of relevance for Italy, demonstrate the interest and importance of these topics, which are closely linked to the ongoing climate changes in which the cryosphere plays a significant role.

It should be noted that the IACS does not have a similar reference association in Italy, as is the case for the other IUGG associations.

2. Main activities carried on by IACS during 2023 relevant for Italy and for CNR

In July 2023 many IACS members gathered at the 28th International Union of Geodesy and Geophysics (IUGG) General Assembly in Berlin, Germany. IACS organized 15 symposia, in addition to 24 joint symposia with other IUGG Associations.

IACS was a partner organization of the "One Planet Polar Summit in Paris" (8-10 November 2023) and the IACS president Liss M. Andreassen was a member of the Scientific Advisory Board, which prepared the scientific background in a document building on IPCC recommendations and with recent updates.

The new IACS bureau for 2023-2027 was elected at the IACS plenary meeting on 15 July 2023.

IACS has successfully nominated Prof. Valerie Masson-Delmotte for the IUGG Gold Medal, the highest honour of IUGG.

The 7th EGU Snow Science Winter School took place at the end of January 2023 in Davos, Switzerland.

A survey of the IACS members was conducted following the 2023 IUGG General Assembly in Berlin with questions on the Assembly and some general questions (<https://cryosphericciences.org/members/member-surveys/>)

It is worth mentioning that following their recently renewed partnership agreement, the International Arctic Science Committee (IASC) and Scientific Committee on Antarctic Research (SCAR) announced in 2023 that preparatory work has started for a 5th International Polar Year (IPY) in 2032-33. Organizing the 5th IPY 25 years after the last IPY in 2007-08 reflects the urgent need for coordinated international research to tackle the biggest challenges of polar research, for both the Polar Regions themselves and for the world as a whole. As in the past editions it is expected that IACS will be strongly involved in this initiative and CNR, which have strong interests in the polar regions, will be a key actor for representing Italy in this initiative. In preparation of 5th IPY, a joint SCAR-IASC Polar Conference in 2030 has been announced. As happened in the past conference (Davos 2018) it is expected that IACS will be involved in this conference.

In 2023 it was also confirmed that the IAMAS-IACS-IAPSO Joint Assembly, BACO-25 (http://baco-25.org/2025/english/main/index_en.asp), will be organized in Busan (Republic of Korea) in 2025 (20-25 July). Actions with the Italian members of other organizations need to be promoted.

3. Activities carried on by Barbara Stenni within the Union during 2023 and impact on the Italian scientific community

The activities focused on:

-Dissemination of information and newsletters from IACS to the Italian glaciological community, the Italian Glaciological Committee, colleagues at the Institute of Polar Sciences of the CNR, the OGS, PhD students in Polar Sciences, and the PhD students of the new National Doctoral Program in Polar Sciences (<https://www.unive.it/web/en/2142/programme>), both afferent to Ca' Foscari University of Venice. The dissemination of information was also carried out within a network of PhD students of the ITN DEEPICE project (EU funded), of which Italy is also one of the beneficiaries. On all these occasions, I renewed the possibility of individual membership in IACS.

-Attention was also always paid to the deadlines and the possibility of submitting nominations for the Early-Career Scientist Award that IACS promotes every two years. A nomination has been submitted but unfortunately it was not successful. The next call for nominations will be in early 2025.

- In the last five years, the number of IACS members has triplicated and exceeded 1,200. Of these, 88 are Italian and are working in Italy and another 12 are Italian but reside outside Italy. Italy ranks sixth among the 60 countries represented among IACS members, with a significant increase from the previous year (56+8).

- I co-convened the session C06 entitled '*New Frontiers in Paleoclimate Reconstructions and Proxy Interpretations from Ice Cores*' in collaboration with French and American colleagues, at the 28th IUGG General Assembly 2023 in Berlin. The session was disseminated widely through various mailing lists.

4. Evaluation of the participation in terms of benefits and membership cost

The following evaluation is overlapping and equivalent to the one from the previous year. The objectives of IACS are to promote cryosphere studies and encourage research on cryosphere sciences through collaborations and co-operations between individuals, institutions and research programs, both national and international, to provide opportunities for international discussion and publication of research results on cryosphere structures and processes, and to promote public education and awareness on cryosphere issues. There is no doubt the importance that the cryosphere has and will have in the future on climate change as highlighted by the AR6 IPCC report, both globally and nationally. The involvement and sponsorship of events by IACS in the cryosphere are of fundamental importance to enhance the activities of the Italian scientific community at an international level. I believe that participation in the Union is of fundamental importance.

The presence of a CNR Polar Science Institute and the new National Doctoral Program in Polar Sciences at Ca' Foscari University in Venice (<https://www.unive.it/web/en/2142/programme>), which involves 20 Italian universities and research organizations are in themselves clear reasons to continue Italian participation in IACS and IUGG.

It is also worth mentioning that Italy has two important polar programs, one for the Antarctic (PNRA), which has been running for more than thirty years, and one for the Arctic (PRA), which has been set up more recently, and which involve numerous researchers throughout Italy, and that participation in IACS is relevant to both. It is important to note that CNR is funding, several PhD fellowships in Polar Sciences, also through PNRA

and PRA programs. Moreover, Italy has two scientific stations in Antarctica, one of which open all year round and one in the Arctic (Svalbard).

5. Evaluation of Italians' attendance and how to improve interest and involvement

The significant increase observed in the membership since the previous year demonstrates the interest of Italian researchers in IACS and in the cryosphere sciences. The possibility of registering individually and free of charge has certainly led to a greater involvement of the Italian scientific community, and in particular of young researchers, with Italy in sixth place among the 60 countries represented within IACS, confirming the importance of opening up individual membership to scientific associations.

As has already been mentioned several times over the years and as highlighted in the introduction, although there are many national realities that deal in various capacities and on various fronts with the association's topics of interest, there is yet no reference community that identifies with it as there is in other sectors. An action to strengthen the identity and improve the coordination of the national community, promoted through seminars, workshops, and exchanges would undoubtedly benefit and improve the association's positioning. Actions are underway to organize, together with other polar activity players, a first joint congress to strengthen the community's interest and involvement also in view of the joint international events mentioned at point 4.

6. Italian experts with important roles within the Union or within related Commissions and Programs (if known)

Marta Chiarle (CNR-IRPI) is participating in the advisory board of the standing group GAPHAZ, "Glacier and Permafrost Hazards in Mountains", a joint working group between IACS and IPA (International Permafrost Association).

Moreover, there are experts in other cryosphere related programmes such as:

Carlo Barbante (Ca' Foscari University of Venice and CNR-ISP) is national delegate of the IUGG International Arctic Science Committee (IASC) and representative, appointed by the Minister of University and Research, to the European Polar Board. Giovanni Macelloni (CNR-IFAC) is national delegate (alternate) of the IACS/IUGG, is Italian focal point of the Global Cryosphere Watch - of the WMO (GCW-WMO) and member of the Cryonet Team of the same organization. Silvano Onofri is president of the National Scientific Commission for Antarctica. Carlo Baroni (University of Pisa) is national correspondent of the WGMS (World Glacier Monitoring Service; <https://wgms.ch/contact-ncs/>), national representative of the Standing Committee on Antarctic Geographic Information (SCAGI) at SCAR (<https://www.scar.org/resources/scagi/members/>), member of the CNR-IUGS (International Union of Geological Sciences) commission.

In addition, Giovanni Macelloni (CNR-IFAC) is the national delegate to SCAR (Scientific Committee on Antarctic Research). SCAR is part of the International Science Council (ISC) and brings together representatives from 45 states. SCAR is responsible for initiating, developing and coordinating international scientific research in the Antarctic region and the Antarctic region's role in the Earth system. In addition to its scientific role, SCAR also provides objective and independent scientific advice to the Antarctic Treaty Consultative Meetings and other organizations such as the UNFCCC and IPCC. SCAR's scientific activity is conducted through its Science Groups where all scientific disciplines active in Antarctic research are represented. In addition to the regular scientific meetings, SCAR meets every two years, when its national delegates meet, to formulate its policy and strategy. Giorgio Budillon (University of Naples Parthenope) has been appointed as an alternate to the same group. For more information on SCAR <https://www.scar.org>.

7. If Union with CNR Commission, short summary about the 2023 CNR Commission activities

I participated by e-mail or videoconference in the various activities and requests by the CNR-IUGG Commission (two meetings on 16 May 2023 and 8 November 2023). In 2023, the Commission started the organization of a workshop dealing with "*potentially dangerous natural events: models, uncertainties, communication*", which will be held in Rome in September 2024.

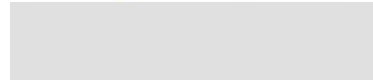
8. Notes (if any)

None

9. Conclusions

There's no denying the crucial role the cryosphere plays and will continue to play in global and national climate change. The opportunity for Italian researchers to engage in events hosted by IACS in the cryosphere domain is paramount for advancing the endeavors of the Italian scientific community on a global scale. Through dissemination efforts, there has been notable interest within the Italian scientific community in IACS activities, resulting in increased individual participation and positioning Italy among the most represented nations. Strengthening the Italian role and fostering better coordination within the national glaciological community would undoubtedly yield further benefits. Potential actions in this regard have already been identified.

Signature



Venezia, 10/05/2024