IASC Network on Arctic Glaciology meeting & cross-cutting activity

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Summary

In a beautiful winter setting in Niseko, Japan, on 21-23 January 2025, glaciologists, social scientists, atmosphere scientists, and terrestrial scientists gathered for the IASC Network on Arctic Glaciology (NAG) meeting and cross-cutting activity on "Impacts of the changing land-based cryosphere on Arctic society". The 2.5-day meeting was attended by 60 in-person participants from 15 countries, of which about half were early-career scientists. A livestream ran during the entire meeting with up to 38 registered participants. The meeting received financial support from IASC, Climate and Cryosphere (CliC) and the Japanese Tourism Agency. We were able to use the entire funding from IASC of €7,375 to support 16 early-career researchers (ECRs). Another 9 ECRs received funding from CliC ($5,000 in total), whereas a grant from the Japanese Tourism Agency covered costs for meeting logistics. We are very grateful for the financial support which we believe contributed strongly to the above-average attendance compared to previous NAG meetings!

The meeting program included oral presentation sessions, a poster session, cross-cutting discussion session, and the NAG open forum. Total contributions, i.e. to both the NAG meeting and cross-cutting activity, included as many as 57 presentations, of which 33 oral presentations and 24 posters; about 20 of the presentations were within the theme of the cross-cutting activity. Some scientific highlights of the workshop and cross-cutting activity are listed below. The general workshop on Arctic glaciology (five sessions) included glacier mass balance, glacier hydrology, and glacier dynamics. The cross-cutting activity consisted of two oral presentation sessions and a cross-cutting discussion. Poster contributions to the general workshop and cross-cutting activity were presented in the afternoon session on January 21. The two cross-cutting oral presentation sessions kicked off with keynote lectures on *Glacier hazards: Will they change in the future?* (Regine Hock) and *Scientific Contributions to Avalanche Safety Management at Ski Resorts: Co-Creation with Local Governments and Ski Resorts in Niseko* (Satoru Yamaguchi). Other cross-cutting presentations covered a wide range of inter-disciplinary topics connecting the fields of glaciology, social science, atmosphere/snow science, and terrestrial science. Examples of this include talks and posters on:

1) **Glacier hazards** [overview by *Regine Hock*], including e.g. glacier lake outburst floods & proglacial hydrology [*Iwo Wieczorek, Bastien Charonnat, Luke Copland, Brittany Main*], retreat-induced landslides [Qiao Liu], and methane emissions from glaciers and snow [*Archana Dayal, Keiko Konya*].
2) **Iceberg - ship coexistence** in Arctic fjords [*Abigail Dalton, Evgeniy Podolskiy, Erika Brummel*]
3) **Avalanche safety** & seasonal snow trends [*Satoru Yamaguchi, Stephanie Matti, Bernhard Hynek*]
4) **Rain-on-snow and extreme rainfall events** in Greenland [*Baojuan Huai*]
5) **Co-productive projects** involving glaciologists, social scientists, and local Arctic communities in Greenland and Iceland [e.g. ArCS II Coastal Environments Project, *Shin Sugiyama*; and the ICELINK project, *Gudfinna Adalgeirsdottir*]

In a dedicated discussion session, scientists from various backgrounds and fields of expertise engaged in a lively cross-cutting discussion, led by Regine Hock and Satoru Yamaguchi. The main theme of the discussion was on how to connect environmental sciences and Arctic Indigenous community interests. Points of discussion included e.g. how to communicate with local communities, how to deal with scepticism of local communities towards science, the relevance of establishing long-term relations

with local communities (and how to avoid researcher 'fatigue'), and the relevance of supporting Arctic communities with their local problems (which may differ considerably from our scientific problems). During the discussion, stories were shared by several participants (e.g. Shin Sugiyama and Brittany Main) about how they managed to engage with Indigenous communities, which highlighted the major effort involved in establishing trust-based relationships (patience is key). Towards the end of the discussion session, funding opportunities for co-productive and cross-cutting research were discussed. Furthermore, challenges for future cross-cutting work were discussed, e.g. highlighting the problem that natural scientists and social scientists commonly use a different scientific 'language' and methodology.

The cross-activity we had in Niseko connects directly to a new activity we propose on "Glacier hazards", for which we request support from the IASC Cryosphere, Atmosphere, Terrestrial and Social & Human WGs. After the very positive feedback from participants in the recent activity, it would be great if we can continue the cross-cutting work and discussions at the next IASC NAG meeting in Obergurgl in January 2026!

Scientific highlights of the cross-cutting activity:

- Two invited presentations on current and future glacier hazards (Regine Hock) and avalanche safety in Niseko (Satoru Yamaguchi).
- A wide variety of cross-cutting oral and poster presentations on, among others, Arctic glacier hazards, iceberg -ship coexistence, avalanche risk, extreme precipitation events, rain-on-snow, and co-production of science and knowledge with Indigenous communities.
- Stimulating discussions between social scientists, glaciologists and snow experts, e.g. on connecting natural sciences, social sciences and the interests of Arctic communities.

Photo album:

A photo album with pictures of the meeting by Shin Sugiyama can be accessed here: https://www2.lowtem.hokudai.ac.jp/gisg/sugishin/photo_album/nag2025/nag2025.html. The group photo is also attached below.

Participants of the IASC NAG meeting and cross-cutting activity (photo by Shin Sugiyama)