

## **IASC Network on Arctic Glaciology workshop report**

### **Workshop on the Dynamics and Mass Budget of Arctic Glaciers & the IASC Network on Arctic Glaciology Annual Meeting**

23 - 25 January, 2017; Bethel, Maine, USA

## Summary report

The 2017 annual workshop and open forum meeting of the IASC Network on Arctic Glaciology took place in Bethel, Maine, USA. 27 participants from 8 IASC member countries came together to discuss a broad range of topics in Arctic Glaciology. The meeting was organized by the IASC Network on Arctic Glaciology in collaboration with the Climate Change Institute at the University of Maine, USA.

The 2017 workshop featured three special sessions: (1) glacier-atmosphere interactions; (2) glacier-ocean interactions, including impacts on the marine ecosystem, and (3) the importance of calving (frontal ablation) for the mass budget of Arctic glaciers. In addition, presentations addressed topics such as glacier and ice cap mass balance, ice dynamics and advancements in methodology used to monitor glacier processes and glacier change.

Discussions continued outside the meeting room at joined meals, as well as on the local ski tracks and slopes. The open forum meeting provided an opportunity to discuss further activities and development of the Network on Arctic Glaciology.

The next Workshop on the dynamics and mass budget of arctic glaciers and the 2018 NAG annual meeting will be held in Obergurgl, Austria, 21 - 25 January 2018.

## Full workshop report

### **Overview**

The workshop on the Dynamics and Mass Budget of Arctic Glaciers and the IASC Network on Arctic Glaciology Annual Meeting took place in Bethel, Maine, USA, 23 - 25 January, 2017. The meeting was organized by the IASC Network on Arctic Glaciology (NAG) in collaboration with the Climate Change Institute at the University of Maine, USA. 27 participants from 8 IASC member countries came together to present their research in oral or poster sessions (Fig. 1). The workshop agenda/program and participant list is attached to this report.

### **Workshop objectives**

The general objectives of the meeting are:

- to present and discuss new results on observations and modelling of the dynamics and mass budget of Arctic glaciers, including the Greenland ice sheet,
- to plan and coordinate field work on Arctic glaciers with the aim of using the available infrastructure and logistics in the most efficient way,

- to develop ideas for future projects and collaboration.

### Scope of the workshop

Bring together both experts and early-career scientists working in a broad range of topics within Arctic Glaciology. Contributions to three special sessions were particularly welcomed:

1. **Special session on glacier-atmosphere interactions** inviting contributions such as
  - Regional patterns of atmospheric warming and links to changes in atmospheric circulation over the Arctic
  - Firn processes and implications on glacier-mass balance / mass-balance assessments
2. **Special session on glacier–ocean interactions**
  - Process studies on glacier calving/frontal ablation
  - Frontal-ablation results for selected glaciers or regions
  - The importance of subaqueous melt for frontal ablation and link to ocean temperatures
  - Glacial freshwater runoff and effects on fjord/ocean circulation and the marine ecosystem
3. **Workshop session on the importance of calving (frontal ablation) for the mass budget of Arctic glaciers.**

This session followed up activities initiated at the IASC workshop in Poland, Sopot, 15-17 October 2016, with the aim to derive the first consistent pan-Arctic frontal-ablation estimate for the period 2000-2015.

**Expected outcome of this workshop session:** a paper that will provide the first measure of northern hemisphere ice discharge to the ocean over the period ~2000-2015 for all glaciers and ice caps (including the periphery of Greenland, but excluding the Greenland ice sheet).

### Open Forum meeting

The annual open forum provided an arena to discuss issues related to the organization, activities and general agenda of the network. The background of IASC, its working groups and the Network on Arctic Glaciology was presented to the audience.

NAG is supported by national contacts from 18 IASC member countries. During the passed year, 4 contacts were renewed, these include contacts from Finland, Japan, UK and USA.

An important component of the open forum was the IASC network review - all networks are reviewed by the IASC executive committee every 5 years. The executive committee was pleased with the NAG report and IASC will continue supporting and endorsing NAG. However, NAG should be more closely linked to the Cryosphere Working Group (CWG) and become a program of CWG, while keeping its name as a network.

Recent activities were reported, namely two thematic workshops during 2016: Importance of Calving for the Mass Balance of Arctic Glaciers, Sopot Poland, 15-17 October, 2016; and Observing and modelling meltwater retention processes in snow and firn on ice sheets and glaciers, Copenhagen. Denmark, 1-3 June 2016.

Finally, the location of upcoming meetings were discussed. The next Workshop on the dynamics and mass budget of arctic glaciers and the 2018 NAG annual meeting will be held in Obergurgl, Austria, 21 - 25 January 2018 (the meeting venue was already booked by Michael Kuhn). Japan and Norway were presented as candidates for 2019. Norway was favoured by the majority, partly in order to keep the meeting in Europe for two subsequent years. Possible location is Skeikampen north of Lillehammer, which earlier served as venue for an IGS conference.

### **Workshop funding**

The workshop received funding from the Cryosphere working group for the initiative “Understanding glacier-atmosphere-ocean interactions and their implications for the pan-Arctic glacier mass budget”, amounting to 6000 EUR. 5000 EUR were allocated for ECS travel fund, supporting 9 young scientists, and 1000 EUR for general workshop funding, such as costs for the meeting room and refreshments during coffee breaks. Ellyn Enderlin coordinated the applications for travel funds on behalf of the US branch of the Association of Polar Early Career Scientists (USAPECS).



*Figure 1: 26 participants representing 8 IASC-NAG member countries came together in Bethel Maine to discuss a broad range of topics in Arctic Glaciology.*