

Greenland Ice Sheet/Ocean interaction (GROCE)

IASC workshop 8./9. December 2014

Workshop summary report

The report states a summary of IASC/CliC-sponsored workshop which was held on 8-9 December 2014. The meeting took place in Alfred Wegener Institute in Bremerhaven, Germany. The keynote of the workshop was Greenland ice sheet/ocean interactions.

The workshop was on invitation only and in total, the meeting was attended by 28 participants of which 9 were early career scientists, from scientific institutions of different countries. The workshop brought together researchers covering wide range of scientific disciplines with observational and modeling approaches in remote sensing, oceanography, meteorology, paleo studies, glaciology, tracers and geochemistry.

During the meeting series of urgent, research questions have been developed as well as methods which help us to understand recently observed climate changes in Arctic.

Greenland ice sheet has experienced rapid and large changes during at least last two decades, increasing net mass loss in great extent by the outlet ice tongue and tidewater glaciers. Considering further dramatic changes the general goal of the workshop is to promote research on Greenland ice sheet/ocean interaction as one of the Arctic research priorities for the next decade. The meeting was organized in unconventional way with an emphasis on brainstorming work in sub-groups and discussion to make the best use of our time on the problem and to take an active part in the meeting. There were two main parts in which particular tasks were realized:

- formulation of research questions for next decade
- how to tackle this questions in the next decade?

The ultimate goal will be to prepare the paper that will be presented at the ICARPIII conference in Toyama in April 2015 and will state a roadmap for research priorities and partnerships.

The first day of the workshop was devoted to the formulation of research questions for the next decade. The meeting started at 8.30 am with coffee and registration of all participants. Shortly after welcoming words there was a short introduction to the workshop during which main goal of the meeting was presented, as well as the actual situation of Greenland and Arctic in general and why should we put a special attention to Greenland region. As there was no time to present large knowledge of 28 participants, they were asked to briefly introduce the study they were involved to and their expertise in the field. In the next step each participant was obliged to present the most urgent questions to be addressed in the coming decade in a form of drawn sketch. It was suggested not to feel constrained only to today questions but to look far into the future. In result, three sub-groups were extracted focusing on processes on different spatial scales, from large ocean/atmosphere circulation to narrow ice/ocean interaction zone. Second part of the day was focused on brainstorming work in particular sub-groups. Every group developed a list of open research questions that should be addressed in the next decade. At the end of the day all groups were met together to present their results and

eventually change the group to better fit and support the scientific problem. The meeting was end up with a group photo of all participants.

The second day was focused on discussion about methods that can be used to tackle the scientific questions, which raised a day before. The meeting started at 8.30 am with reminding words of obtained list of questions, after which there was a reformation of break-out groups for compilation of measures for tackle the questions. Every sub-group were supposed to create a list of measures that are necessary to address or answer these questions. As previously, it was suggested not to feel constrained by today technology but to think of new, original technology and scientific equipment as well as new, developed techniques of measurements that will help us to better understand processes that lead to dramatic changes in Greenland ice sheet. Moreover, the application of new techniques would let us to expand our knowledge in the areas which cannot be measured by ourselves (e.g. narrow glacier/ocean zone). After a few hours of brainstorming discussion all groups were asked to present their results of work and further discussion were continued. The meeting was closed by summary of 2-days outcomes and discussion on the form of workshop report.

The unconventional way of workshop organization has led to successful work and the optimal use of time. A brainstorming discussion allowed to better understand and use of knowledge of each participant. After 2-days meeting considering Greenland ice sheet/ocean interaction the list of urgent questions that should be addressed in the next one or even two decades have been obtained as well as methods and approaches that should be used to better understand the fate of Greenland region. However, two days of work was not sufficient and more and more questions have been raised.

The ultimate outcome of the project will be the paper prepared for the ICARPIII conference in Toyama in April 2015. The paper will serve as a roadmap for research priorities and partnerships.

Agnieszka Promińska