

## **Workshop report: Geology of Svalbard:**

### **'Environmental changes in Svalbard since the last glacial maximum – integrating marine and terrestrial records'**

**Fram Centre, Tromsø, Norway, 27-29 April 2011**

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The idea of the workshop within Svalbard geology developed 2 years ago. However, it has taken about 1.5 years of planning and searching for a suitable theme before the workshop planning group has made it happen. The planning group was led by Matthias Forwick (UiT) and furthermore included Dorthe Klitgaard Kristensen (NPI), Riko Noormets (UNIS), Grzegorz Rachlewicz (UAM, Poland) and Marzena Kaczmarek (SSF) and they have decided that focus should lie in 'Environmental changes in Svalbard since the last glacial maximum – integrating marine and terrestrial records'.

The workshop took place at the Fram Centre, Tromsø on 27-29 April 2011 and it gathered 22 geologists (mostly with interest in sedimentology) from both terrestrial and marine geological communities. The key Svalbard geologists were invited to participate but the workshop was open to all. The workshop aimed to bring together scientists from multiple disciplines dealing with the reconstruction of environmental change on Svalbard since the last glacial maximum. The participants came from 10 different countries (Norway, Sweden, Iceland, Poland, Russia, the Netherlands, UK, USA, Estonia and Finland) and Norway was represented by 9 people from 7 institutions (UNIS, NPI, UiT, UiB, UiO, UMB, and NGU). All participants are very active in field-based research in Svalbard and they will continue their activities at least for the next 2-5 years.

The main workshop goals were to:

1. exchange knowledge between terrestrial and marine scientists
2. identify critical scientific questions and define ways to answer them
3. inform about ongoing research activities and projects,
4. find common scientific goals possible to implement (develop project ideas)
5. define regions and areas of interest for different groups (where to concentrate efforts, 'uncharted territories') where potential collaboration would be possible
6. coordinate future research plans

The main part of the workshop was dedicated to individual presentations that included the scientific interest, as well as current and planned research activities of the presenters. The remaining time was to a large degree used to identify potential areas of interest and to discuss possibilities for joined research in the future. This session was extremely useful for both participants and planning group as it provided ideas for research activities.

## *The outcome:*

- A core of terrestrial/marine geology forum has been created. Since it is a challenge to combine, compare and couple different scales and sizes of process studies in terrestrial and marine environments the forum will focus on these uneasy problems and discuss ways to solve them;
- SSF website and RiS (e.g. publications) will be utilized as a tool to stay informed (publications added) and as a discussion forum (if feasible);
- Modern processes in geology (e.g. sediment fluxes and depositional architecture) with transect-based observations in 4-5 key locations (Adventdalen, Billefjorden/Petuniabukta, Braganzavågen, Linnédalen and Tempelfjorden/Sassenfjorden) have the potential to be the first step for collaboration. The group is interested in meeting on board of Horyzont (in 2012?) to have a field trip to all the key locations and to discuss in field the possibilities for a joined project and the implementation phase (Maria Jensen from UNIS is the contact person for this group);
- Another potential field of collaboration could be research with focus on specific time scales e.g. LIA, last 2000 years, past warm events etc.;
- A need to interact with permafrost and periglacial scientists has been identified (joined session during some meetings in the future?);
- East Svalbard will become a key area for future investigations (hydrocarbon industry), therefore regular & informal Svalbard meetings, exchange information with people from different disciplines and working on different time scales with added benefit of better coordinated research will be both useful and necessary also in order to receive permissions from Governor to access key locations in Eastern Svalbard for geological sampling;
- Logistical benefits: building on existing work and keeping in mind existing material (e.g. cores and samples), taking advantage of UNIS (its location, staff in geology department being part of the group and using students to help out while learning)
- Links to SSF (coordination and funding for project planning), and SIOS (observations of modern processes and instruments needed might be acquired through SIOS)
- Next workshop in 2013

The participants have also mentioned increased frustration by repeated rejections from the Governor's office to access key geological sites where sampling is necessary to better understand the timing of ice-sheet build-up and decay, as well as the dynamics of ice-sheets. This is highly relevant to understand modern processes, as e.g. in Antarctica and on Greenland; Because there are no other sites with the same geological information preserved, it is absolutely essential to be able to work in these specific locations before natural processes

erode these deposit and remove this invaluable information to understanding natural environmental changes.

- Therefore, it is planned to formulate a letter to the authorities with including arguments for why these sites have to be accessed and including a list of other concerns the geologists working in field are facing in current regulation framework. It should be informative about its implications for the environmental protection (and other environmental issues). The letter is meant as an initiation of a good-will dialogue with the Governor and other authorities in charge.
- SSF should (and will) be used as a channel to communicate their needs to the high level of the Svalbard governing bodies.