

## Diary 12 - 29 August 2013

On Wednesday 21 August, a group of geographers from the Nordic countries arrived at Zackenberg station with beautiful weather. This group is composed of mainly PhD-students from the Universities of Oslo, Copenhagen, Stockholm, Oulu and the University Centre in Svalbard (UNIS) and are taking part in a course entitled AG-833 High Arctic Permafrost landscape dynamics in Svalbard and Greenland. The field course is a Perma-Nordnet PhD course financed by Norden (part of "Nordic Ministerial Council" Arctic collaboration programme) and further supported by Centre for Permafrost (CENPERM), University of Copenhagen financed by Danish National Research Foundation as well as UNIS). The course focuses on performing geomorphological field studies such as detailed mapping and drilling sediment cores through periglacial landforms and link observation to carbon and nitrogen cycling and stocks. An improved understanding of present and former regional climatic conditions can be gained from these methods. In addition, the course compares regional conditions across the largest climatic gradient in the Arctic, Zackenberg NE Greenland to central Spitsbergen in the Svalbard archipelago.

On the first day the entire group went out on a large excursion to gain an overview of the region and the different landforms found around the Zackenberg Station. A discussion developed around a thaw slump roughly 350 meters up on the hill slope to Aucellabjerg. The slump exposed large amounts of ground ice as the unstable soil detached from the slope and flowed down hill. Questions arose as to whether the exposed ice was of glacial or periglacial origin. The slump was a new feature or something that had reactivated seasonally, and what was the best form of studying such a feature. The muddy active slope became a perfect playground for some of the participants!

The course participants were divided into two groups that will each study and map half of Zone 1A. One additional challenge to the mapping was to determine what sites would be interesting drill locations for collecting sediment cores. Participants have started by focusing on the active periglacial processes on the Aucella hill slope with intent to locate possible drilling sites, while others have begun to better understand the active delta of the river Zackenberg. A differential GPS used to obtain accurate elevation data has been a good tool to study the numerous flat plateaus at different elevations surrounding the area. The data will further be utilized to analyse past sea levels in the area.

This past Monday the first core was drilled in the fen area near Kamelen. This site is likely to be part of an extensive (nival) fan system coming down from Aucellabjerg. Knowing the depth and age of the deposit would be a great step towards understanding the processes and dynamics of the landform over the Holocene. Last year a core was obtained in one of these fans, but the almost three meter deep borehole did not penetrate through the fan into the underlying sediments. This year, drilling started further down the fan system with hopes of actually coring through the feature. Fortunately enough coring started out very well with a possible record breaking 455 cm hand drilled core. Further analysis will tell whether our aim to sample through the fan has been achieved.

All in all the first week of the field course has been both very interesting and challenging. It is impossible not to feel fortunate with an "office" surrounded by massive mountains, beautiful red and orange hillsides, musk oxen grassing down in the low lands and possible polar bears strolling around in the area.

/ Kjersti Gisnås on behalf of Student Group 1