

Subproject: Climate and lake ecosystem dynamics, in the high Arctic, over the Holocene, using lake sediment records

Actual field dates: April 29th starting with a snow mobile course on Svalbard – May 23rd

Field site: Station Nord

Number of man-days in the field: 32

Summary:

The limnology group mainly worked in Finderup Land 30-50 km south of the Villum Station (Fig. 1). The group used snow scooters and sledges to bring the equipment to the field sites (Fig. 2) and their main task was to collect undisturbed sediment samples from lakes using various coring equipment. In addition they collected water samples for water chemistry and zooplankton analysis, and measured conductivity in the surface and bottom water in order to test for differences, especially in the Isolation Basins, which could be former marine basins. Long piston cores (Fig. 3) and short gravity cores (Fig. 4) were collected from five Threshold Lakes associated with small ice caps, and from six Isolation Basins in Finderup Land (Fig. 1). In total, ca. 20 m sediment gravity cores were recovered. In addition one short core was recovered from each of the lakes for detailed analysis of biological remains in the upper 10-40 cm to study biological changes during the recent centuries. The long cores have not been opened yet but it was possible to see changes from dark grey to light colours in many of the cores suggesting that the transition from marine to lacustrine sediments is present. The next step is to open the cores and analyse them using various sedimentological and biological proxies. The short cores have been split into 0.25 cm subsamples, and selected cores will be analysed for algae pigments, diatoms and zooplankton remains. Besides sediment surface samples (upper 1 cm) were taken and will be included in an existing and still developing calibration dataset.

Photos:

Fig.1: Sampled lakes are marked as orange Isolation Basins (possible former marine basins) and yellow Threshold Lakes (lakes receiving meltwater from

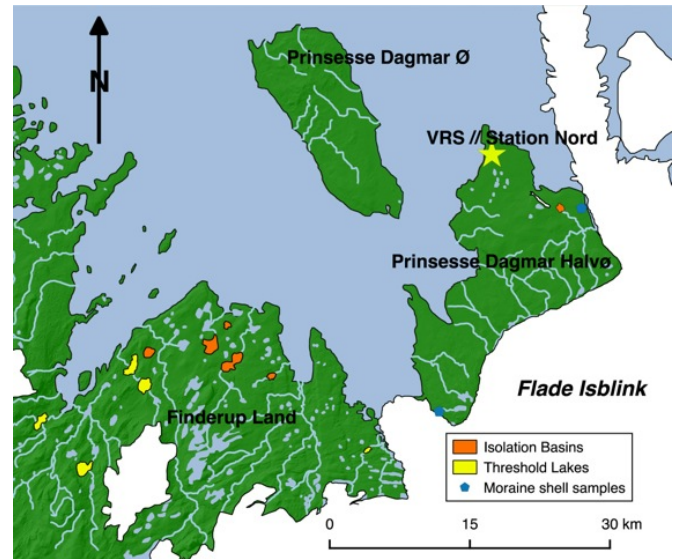


Figure 1

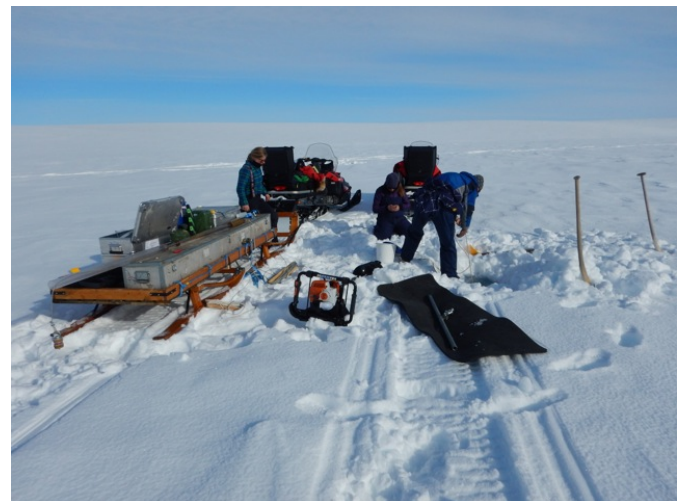


Figure 2

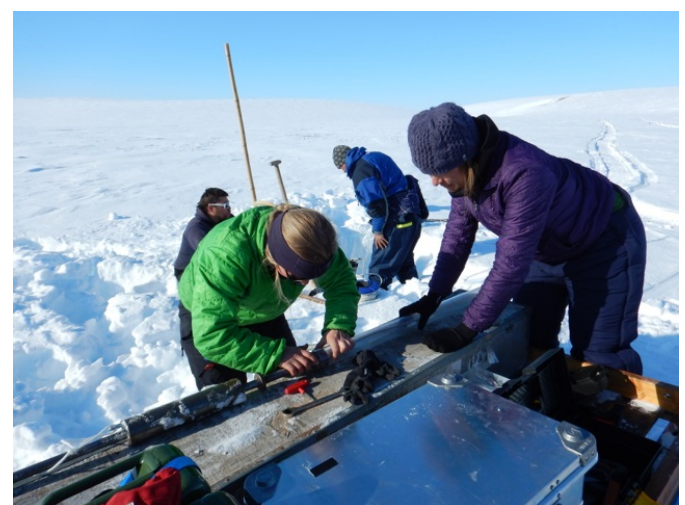


Figure 3

glaciers). Sites sampled for marine sea shells are marked blue.

Fig. 2: Snow mobiles, sledges and different coring equipment was used for sampling the lakes in Finderup Land and at Prinsesse Dagmar Halvø.. Credit: Nicolaj Krogh Larsen

Fig. 3: Preparing the piston corer for sampling long sediment cores (1-1.8 m). Credit: Nicolaj Krogh Larsen

Fig. 4: The shorter gravity cores were sampled with either a Tapper corer (this photo) or shorter Piston cores. Credit: Nicolaj Krogh Larsen

Participants:

Nicolaj Krogh Larsen, Laura Levy, Astrid Strunk, Torben Lauridsen

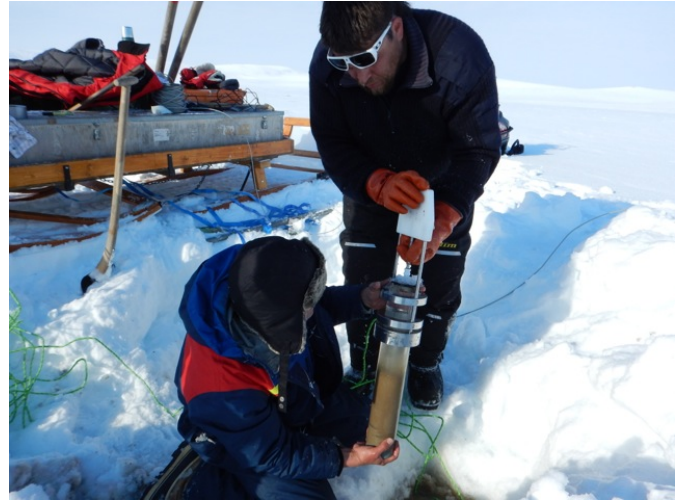
Acknowledgements:

Figure 4