**Lake Nordlaguna, Jan Mayen: The potential for a palaeoclimate record from the island**

E. LARSEN[12*], A. LYSÅ[1] AND M. LUDVIGSEN [3]

[1] *Geological Survey of Norway, P.O.Box 6315 Sluppen, 7491 Trondheim, NORWAY (*correspondence: eiliv.larsen@ngu.no)*

[2] *The National Laboratory for Age Determination, NTNU University Museum, 7491 Trondheim, NORWAY*

The arctic island of Jan Mayen situated in the Norwegian – Greenland Sea, has an arctic – maritime climate influenced by the northwards flowing Atlantic current and the southwards flowing East Greenland current. It is hypothesized that small shifts in these current systems will greatly influence the climate on Jan Mayen. It follows that the island might be very sensitive to climate change. Therefore lake coring will be performed in April of 2016.

The only lake on the island suitable for coring is Nordlaguna situated ca. 2 m a.s.l. on the western coast. It is separated from the sea by a long and wide beach ridge. Jan Mayen has active volcanism, but it appears likely that no Holocene lava flows entered the lake. Preliminary data indicates that the lake area was just inside the the Last Glacial Maximum limit. Thus, in theory, the lake might hold a long Late Weichselian – Holocene palaeoclimate record. In order to prepare for the drilling we have mapped lake bathymetry, bottom sediments and sediment sources around the lake.

An AUV mounted side scan sonar including other sensors combined with ROV mounted video cameras revealed that the lake is less than 40 m deep and has a very gentle/flat bottom topography in the southwestern part. Mainly fine-grained bottom sediments are found, with occasional blocks. Driftwood that are thrown over the beach ridge in heavy storms are quite frequent. GPR profiling across and along the beach ridge provides evidence that it developed in an end moraine. The postglacial relative sea-level history of Jan Mayen is unknown. Nevertheless, marine sediments is expected in the sediment sequence.