



Deciphering the Weichselian glacial history of Jan Mayen with the K-Ar system

Morgan Ganerød, Roelant van der Lelij, Astrid Lyså, and Eiliv Larsen

Geological Survey of Norway, Postboks 6315 Torgarden, 7491 Trondheim, Norway

The volcanic island of Jan Mayen is situated on the southern part of the active Jan Mayen transform fault zone in the Norwegian – Greenland Sea. Jan Mayen hosts the world's northernmost active volcano, the spectacular Beerenberg which rises 2277 meter above sea level. Jan Mayen has an arctic – maritime climate influenced by the northwards flowing Atlantic current and the southwards flowing East Greenland current, suggesting that the island is sensitive to climatic changes. In 2015 we started a project to investigate the glacial and climate history of the island. In this presentation we focus on the glacial history of the island until the Last Glacial Maximum (LGM).

Stratigraphic investigations in coastal cliffs indicate that the island was covered by ice also prior to the LGM. At several locations, glaciogenic diamictites at stratigraphic positions below the LGM are found in association with lava flows. Interaction between glaciers and volcanic eruptions cause complex sediment associations, but also provide opportunity for dating glacial events. $^{40}\text{Ar}/^{39}\text{Ar}$ and K/Ar dating are in progress in order to constrain pre-LGM glacial events, and results so far indicate that possible two ice advances may have taken place in Jan Mayen prior to the LGM.