



SW Barents Sea sediment composition in response to Late Glacial-Holocene ice sheet retreat and provenance changes

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The SW Barents Sea sediments preserve the data of Late Glacial to Holocene development in this area. The marine sediment components are the most reliable recorders for climatic and environmental changes, providing valuable information for reconstructions of past ice sheet dynamics in high latitudes. Detailed investigations of the distribution of clay minerals, geochemical composition of heavy minerals and ice-rafted debris (IRD) of Late Glacial–Holocene sediments from the SW Barents Sea provide important new information about the prominent provenances and retreat of Scandinavian Ice Sheet (SIS).

Our particular interest is a study of geochemical composition of Late Glacial-Holocene sediments from the SW Barents Sea via mineralogical proxies and compilation the final results. This may help to advance the knowledge on distribution, pathways and sources of sediment components in these sediments which are currently poorly studied. The mineralogical and geochemical data were generated from the three sediment cores located in Nordkappbanken, SW Barents Sea and display mostly sedimentation cycles from the last deglaciation and Holocene.

Sediment analysis will include clay mineral content analysed using X-ray diffraction (XRD), IRD counting and heavy minerals compositions obtained by Electron Probe Microanalyzer (EPMA). It will represent an integrated input function over time which will provide a chronological record of glacial history and paleoclimate. Furthermore, integrated study of these sediment components will elucidate the development of SIS during Late Glacial time. Preliminary results show variations in content of clay minerals. The Barents Sea sources of kaolinite are referred to Franz Josef Land, rock outcroppings on the sea floor, and to a lesser extent the Fennoscandian Shield weathering crust. This can be supported by the lithologies of IRD and heavy mineral contents.