

THE LAST 150,000 YEARS IN THE NORDIC SEAS: SEA SURFACE TEMPERATURE AND SEA ICE RECONSTRUCTIONS BASED ON DIATOMS AND ORGANIC PROXIES

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The overall goal of the presented study is a reconstruction of the exchange of Polar water with Atlantic surface water in the Nordic seas (Faroe Islands and Svalbard margin). Long-term changes in summer sea surface temperatures, palaeoproductivity and sea ice distribution in relation to natural variations in climate, focusing the past 150,000 years, are investigated. A combination of the results of the most commonly used marine biological proxies, diatoms and foraminifera, together with reconstructions of the relatively newly implemented biomarker IP25 is used to solve the general problem of extended gaps in marine records aiming reconstructions of palaeoproductivity and palaeoceanography in the polar- and Nordic seas. These gaps very often arise out of a poor preservation and a high degree of dissolution of both diatom frustules and foraminifera shells. Therefore, the presented study is based on diatom species determinations, quantitative temperatures and sea ice distribution calculated by transfer functions together with geochemical measurements of marine biomarkers (e.g., IP25), plus determination of paleoproductivity of diatoms and silica. Special focus is put on the Eemian interglacial and the Holocene.

Preliminary results of an ongoing multiproxy investigation (e.g.: quantitative diatom analysis, foraminifera analysis, multi-sensor core logging, XRF- colour and mineralogical scanning - heavy minerals, X-ray, TOC and $\delta^{13}\text{C}$ measurements, IP25) of sediment core JM11-FI-19PC are presented. The core has a length of ~11 m and was recovered from the Northern Faroe slope at 1179 m water depth during a scientific cruise with R-V "Jan Mayen" in April/May 2011. According to the measurements of the magnetic susceptibility, sediments up to Marine Isotope Stage 5 were successfully recovered.