



Postglacial changes in sea surface conditions of northwestern Barents Sea based on palynological records

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Changes in hydrographic conditions, including sea ice cover, summer temperature and salinity, in the northwestern Barents Sea were reconstructed from the analyses of dinocysts assemblages in core S-2528 spanning the last 15,500 years. Due to the poor content of biogenic carbonate in the Holocene sediment, there are only few ^{14}C ages. Hence we have developed a probabilistic chronology using the bayesian age-depth modelling implemented in R with the software Bacon. The results show harsh glacio-marine type conditions until 11134.8 (95% interval : 10925.1 – 11362.8) cal yrs BP, possibly linked with limited flow of Atlantic Waters into the Barents Sea and/or proximal influence of the Svalbard-Barents Sea Ice Sheet. The transition towards full interglacial conditions lasted until 9587.7 (8169.8 – 9936.9) cal yrs BP. It was marked by cold conditions with quasi-perennial ice cover and low salinity pulses related to freshwater or meltwater discharge. The shift to interglacial conditions was marked by a major transition from dominant heterotrophic to dominant phototrophic taxa in the dinocyst assemblages. Large amplitude fluctuations in sea-surface salinity and sea-ice cover characterized the early and mid-Holocene, until 3959 (2136.9 – 5793.9) cal. yrs BP when maximum sea-surface temperature (up to 4°C in summer) and salinity (~ 34 psu) together with minimum sea-ice cover (< 2 months/yr) were reached. After 1959.6 (819.5 - 3706) cal yrs BP, a distinct cooling trend was recorded in surface waters.