

## Tracing changes in High Arctic environments using microfossils and other biogenic proxies preserved in marine sedimentary archives: the case study of the Wandel Sea shelf

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The extent and consequences of the ongoing melting of the Arctic sea ice is one of the most important uncertainties for predicting the evolution of the future climate. Obtaining detailed information on its natural variability and impacts on the ocean circulation and primary production is crucial to the development of more accurate climate models.

Present-day sea ice and hydrographic data are linked to the modern distribution of 11 biogenic proxies (resting cysts of dinoflagellates, benthic and planktic foraminifera, diatoms, IP<sub>25</sub>, HBI III, biogenic silica, and the elemental and isotopic composition of organic matter) preserved in surface sediments from the remote High Arctic Wandel Sea shelf (eastern North Greenland). The objective is to establish a reference dataset for recent conditions that can help in assessing past changes in primary production and environmental conditions in High Arctic fjord systems.

Results from this work provide important insights into the distribution of the cysts of dinoflagellates *Polarella glacialis* and cf. *Biecheleria* sp., which have the potential to represent useful proxies for reconstructing past seasonal sea ice. Furthermore, the results reveal a close match between the benthic foraminiferal distribution and the major bottom water masses, underlining their relevance for tracing past changes in the Arctic inflow in relation with changes in the Arctic sea-ice cover.