

GLACIAL HISTORY AND PALEOENVIRONMENTAL CHANGES FROM THE EASTERN ARCTIC OCEAN (YERMAK PLATEAU) DURING THE LAST 200 KA

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Late Quaternary glacial history and paleoenvironmental changes from the eastern continental margin of the Yermak Plateau were reconstructed by using two sediment cores taken during the "Polarstern" ARK-XX/3 Expedition (2004). Multi-proxies such as stable isotopes of planktonic foraminifera *N. pachyderma* sin., organic-geochemical parameters, opal, grain-size distribution (including IRD contents) were investigated in details for this study. Organic-geochemical proxies were used to assess characteristics and origin of organic matter (terrigenous vs. marine) deposited in the Eastern Arctic glaciomarine sediments associated with glacial history and productivity in surface water during seasonally ice-reduced warm periods.

The stratigraphic framework of investigated sediment cores is primarily based on several AMS-14C dating, oxygen and carbon isotope measurements on the planktonic foraminifera *N. pachyderma* sin., occurrence of *P. bulloides* (Holocene, MIS 5.5) together with geochemical proxies such as $\delta^{13}\text{C}_{\text{org}}$ and $\delta^{13}\text{C}_{\text{bulk}}$ compositions. Based on these combined chronostratigraphic frameworks, core PS66/325-3SL retrieved from the northern continental margin of the Barents Sea (ca. 896 m in water depth) represents glacial history over the last 142 ka (MIS 6.3?), while core PS66/321-4SL taken in the deep-sea basin east of the Yermak Plateau (ca. 2359 m in water depth) appears to extend back to the MIS 6/7?. The investigated sediment cores seem to have well recorded distinct paleoenvironmental changes, reflecting repeated waxing and waning of Svalbard/Barents Sea ice sheet (SBIS), changes in surface water productivity and sea-ice coverage during the late Quaternary glacial-interglacial cycles. A couple of pulses with the maximum IRD contents occurred during MIS 6, 6/5, 4/3, 2, T1 and 8.2 ka cooling event along with markedly enhanced amounts of sand fraction ($>63\mu\text{m}$) reflect advances/retreats of the near-by Svalbard-Northern Barents Sea Ice sheet. In general, paleoproductivity within the surface water appears to be strongly suppressed during the glacial periods (MIS 6, 4 and 2). As a result, the glaciomarine sediments along the eastern margin of the Yermak Plateau are mainly predominated by terrigenous

origin organic matters during glacial periods. In contrast, during interglacial stages (Holocene and MIS 5.5), an increased productivity in the surface water is represented by high opal contents and relatively heavy values $\delta^{13}\text{C}_{\text{org}}$ and $\delta^{15}\text{N}$.