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Sedimentary organic matter variations in the Chukchi Borderland since the last interglacial period

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It is well established that anthropogenic climate change has a particularly strong impact on the Arctic through decreasing sea ice extent, northward vegetation shifts, permafrost thawing, changes in the hydrological cycle, coastal erosion, river discharge and marine productivity. These changes in turn lead to changes in carbon cycling potentially affecting atmospheric carbon dioxide and methane concentrations. In order to assess the future impact of anthropogenic influence on the carbon cycle in the Arctic, it is essential to reconstruct the range of natural carbon cycle variation and associated environmental conditions during the last glacial-interglacial cycle. For this reason sediment piston cores have been recovered in recent years from the so far poorly studied continental margins of the Chukchi Borderland region, an area potentially strongly responding to climate change through changing ocean currents, summer sea ice extent, as well as variable marine and terrigenous organic matter supply. In this study we would like to present organic matter variations in the Chukchi Borderland since the last interglacial period and discuss implications for oceanic and climatic conditions in the Chukchi Sea area and adjacent land masses.

Keywords: organic carbon, coastal erosion, freshwater influx, glacial-interglacial cycle, sediment transport