

## Late Pleistocene variation of biomarkers from the central Arctic Ocean

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Biomarkers in late Pleistocene sediments collected from the IODP-ACEX Hole M0004C and HOTRAX (the Lomonosov Ridge) and Core HLY0503-08JPC (the Mendeleev Ridge) were investigated. The major biomarkers were long-chain n-alkanes, n-fatty acids and n-alkan-1-ols, indicating fresh organic matter (OM) derived predominantly from higher plants. The dominance of terrestrial biomarkers is attributed to severe OM degradation caused by slow sedimentation in oxygen-rich benthic water and/or low primary production due to permanent sea-ice coverage. High organic carbon content was present in the IRD-rich dark grey layer deposited during marine isotope stage (MIS) 6. The layer contained a significant amount of branched glycerol dialkyl glycerol tetraethers (branched GDGTs), suggesting ice erosion of organic-rich continental soil followed by transportation to the central Arctic by drifting ice. High-resolution biomarker records from Core HLY0503-08JPC indicate that higher-plant derived compounds were less abundant manganese-rich bouwn layers. This finding, along with changes in mineral composition, suggests that source region was changed in response to millennial-scale climate variability.