

Palaeoenvironmental research of the south yellow sea in the last glaciation and interglacial periods

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Glycerol dialkyl glycerol tetraethers (GDGTs) are membrane lipids that occur ubiquitously in a wide range of environments, including the ocean. The GDGT distribution patterns provide evidence that they might be an indicator for certain environmental parameters. As a result, proxies based on GDGTs are increasingly being utilized in palaeoclimatology to reconstruct palaeoenvironmental parameters. Core sediments collected from the mud area of the central South Yellow Sea were measured for TOC, $\delta^{13}\text{C}$, GDGTs, and related indicators to determine palaeoenvironmental variations in the South Yellow Sea during the last glacial-interglacial cycle. The results reveal: the source material of the sediment was derived mainly from ocean deposition; the climate warmed during this period; seawater generally was alkalescent, and the alkalinity increased as the sediment samples became younger; alkaliphiles were the dominant species, and the amount of alkaliphiles increased overall; trends in sea surface temperature (SST) and mean annual air temperature (MAAT) were consistent with each other, and demonstrate a generally decreasing tendency, but with SST consistently lower than MAAT; over the course of the period of interest, both the early stage and the late stage were characterized by the stabilization of environmental change, whereas the middle stage was characterized by diverse environmental fluctuations.