
Branched tetraether lipids used as novel proxies of continental air temperature : insights into Central Europe temperature evolution over the past 40000 years

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Résumé

The MBT/CBT proxy based on the relative distribution of branched tetraethers, found in various terrestrial environments and ancient sediments, is a promising tool for past annual air temperature estimation. Its applicability has been recently supported in studies on modern soils and estuaries sediments, but to date there are only a few published temperature reconstructions based on long paleosequences at high resolution. We present here a MBT/CBT-derived temperature reconstruction from a sediment core retrieved in the north-western Black Sea, covering the last 40 kyrs BP. The mismatch between reconstructed and instrumental modern temperatures in the Black Sea drainage basin evidences the need for regional calibration as well as better constraints on the branched tetraether sources. But despite uncertainties on absolute MBT/CBT-derived temperatures, the relative temperature signal on the last glacial provides insights into the millennial scale climate variability in Central Europe. Notably, the LGM-modern temperature (6-9°C) and the imprints of Younger Dryas and Heinrich stadials (1.5-4°C) are in line with other paleorecords in the Northern Hemisphere.

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