Abrupt temperature changes and environmental dynamics in the Black Sea "Lake" during the last glacial

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The Marine Isotope Stage (MIS) 3 stands out due to frequent and abrupt changes from cold stadials to warm interstadials, the Dansgaard-Oeschger (DO) cycles [1]. Our knowledge about the Eurasian temperature anomalies during DO cycles is poor, although crucial for our understanding of glacial atmospheric teleconnection patterns. Here, we present the first continental temperature record from the formerly isolated Black Sea "Lake" for the period between 64 and 20 ka BP. Based on the TEX_{86}-paleothermometer, temperature amplitudes of up to 4° clearly coincide with DO cycles suggesting a deep inland propagation of northern hemisphere climate variability [2]. By using e.g. major and trace elements, *n*-alkane fluxes, and $Sr/Ca_{ostracods}$, we also reconstruct the environmental response to these climate changes in the formerly lacustrine Black Sea [3]. During the warm and more humid interstadials, the Black Sea "Lake" became fresher and more productive and the water level probably increased. During the colder and more arid stadials the freshwater supply was reduced and productivity was low. Aridity and stronger westerly winds favoured the input of aeolian transported detritus. As reflected e.g. by the amount of coastal ice-rafted detritus, the long-term pattern suggest a strong influence of the orbital-driven changes in the Eurasian ice volume and associated atmospheric circulation patterns over the Black Sea region.

[1] Dansgaard et al. (1993) *Nature* **364**, 218-220. [2] Wegwerth et al. (2015) *Geophys Res Lett* **42**, 8147-8154. [3] Wegwerth et al. (2016) *Quat Sci Rev* **135**, 41-53.