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The last deglaciation as recorded in the western Black Sea: a multi-proxy approach

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During the last glacial a decrease in the global sea level cut the Black Sea off from the Mediterranean Sea, transforming it into a closed lacustrine basin. Considering the Black Sea a lake, its enormous size and landlocked location perfectly qualifies it to record environmental and hydrologic changes in the continental interior of Central-Eastern Europe and Asia Minor and to assess mid-latitude responses to high-latitude climate variability.

The investigated sediment core MD04-2670 was retrieved in the southwestern Black Sea offshore northern Anatolia, next to the Sakarya River mouth. Comparing our data with northern Black Sea records, projected on changing temperature and precipitation conditions in the late glacial in the Mediterranean region (Cacho et al., 1999; Jones et al., 2007), enabled new insight into the course of Termination I in continental mid-latitudes.

Relative precipitation changes reconstructed for NW Anatolia were related to Mediterranean SSTs and as such teleconnected to the North Atlantic climate regime. According to lithology, sediment composition, and sedimentation rates, an increase in precipitation in the Eastern Mediterranean/Black Sea region took place as early as 16.4 cal ka BP and was concomitant to mitigation of North and Central European climate. However, simultaneous changes in $\delta^{18}O_{bulk}$, Mg/Ca and Sr/Ca of ostracods

imply that warming of the Black Sea waters took place earliest at the onset of the Bølling. Similarly, the development of vegetation cover, inferred for NW Anatolia, took place during the Bølling. Consequently, our record suggests that the increase in local precipitation (related to the early hemispheric warming) predated the increase in local temperature. After the Bølling warming, the Black Sea experienced environmental changes which were in-phase with the North Hemispheric trend (B/A, YD, Early Holocene). A decoupling of precipitation (NW Anatolia) and inherent basin signals (W Black Sea) during the early deglaciation may be explained by a too small basin response to the millennial-scale changes of the glacial atmospheric circulation. This finding has an important implication for the eastward extent of a North Atlantic influence on the continental climate.

Cacho et al., (1999), *Paleoceanography* **14,** 689-705.

Jones et al., (2007), *Quaternary Research* **67,** 463-473.