Last deglaciation as recorded in the western Black Sea: a multi-proxy study

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Comparison of multi-proxy records from western Black Sea sediment cores, projected on changing temperature and precipitation conditions in the late glacial in the Mediterranean region [1,2] 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. 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 probably in-phase with the North Hemispheric trend (B/A, YD, Early Holocene). An asynchrony of precipitation (NW Anatolia) and inherent basin signals (W Black Sea) during the early deglaciation implies that the Bølling warming released the Black Sea basin out of is previous glacial steady-state and was decisive enough to induce internal changes within the basin. This finding has an important implication for the eastward extent of a North Atlantic influence on the continental climate.

[1] Cacho, I., Grimalt, J.O., Pelejro, C., Canals, M., Sierro, F.J., Flores, J.A., and Shackleton, N. (1999) *Paleoceanography* **14**, 689-705.
[2] Jones, M. D., Roberts, C.N., and Leng, M.J. (2007) *Quaternary Research* **67**, 463-473.