



Is the Chew Bahir sediment record influenced by wet-dry fluctuations due to monsoonal changes?

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The 280 m-long Chew Bahir composite sediment record covers the last 550 ka of eastern African climate history. The core was taken in December 2014 in southern Ethiopia as part of the ICDP-HSPDP (Hominin Sites and Paleolakes Drilling Project) and CRC-806 project (Collaborative Research Centre) “Our way to Europe”. Both projects aim at better understanding human-climate interactions, including the potential impact of environmental influences on hominin evolution and mobility. Here we present preliminary results of a comprehensive Principal Component Analysis using the high-resolution Chew Bahir geochemical and sedimentological data sets. These comprise grain-size analysis including endmember modelling, MSCL, XRF geochemistry and stable isotope data. Correlations of our PCA results with Indian Ocean SSTs (e.g. Bard et al. 1997), the Soreq cave speleothem $\delta^{18}\text{O}$ record (Bar-Matthews et al. 2003) as well as the North African wet-dry index (Grant et al. 2017), suggest that wet-dry climate fluctuations in Chew Bahir might have been driven by changing monsoonal activity. Moreover, several long-term wet-dry oscillations reveal variations mostly in the precession ($\sim 15\text{-}25$ kyr), but also eccentricity frequency bands ($\sim 90\text{-}120$ kyr). Based on these results we will be able to test climate related hypotheses on human evolution and dispersal.

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