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Good times for leaving home? The paleoenvironment of Chew Bahir in south Ethiopia: implications for human evolution, dispersal and technological innovation

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The sediments of the Chew Bahir playa lake in southern Ethiopia were cored down to 280 m depth in the context of HSPDP (Hominin Sites and Paleolakes Drilling Project) and CRC (Collaborative Research Center) 806 “Our way to Europe” projects. The main aim is to reconstruct the paleoenvironmental conditions during the development of anatomically modern humans (AMH) and to test hypotheses about human evolution, dispersal and technological innovation. Based on several dating methods (14C, Ar/Ar, optical stimulated luminescence, chemical fingerprints of tephras) the composite core is shown to cover the last ∼600 ka and therefore brackets the time period of important steps in cultural evolution, from Late Acheulean to Middle/Late Stone Age technologies, the origin of AMH, as well as the most recent “Out of Africa” human dispersal events. The multiproxy record of the composite core (e.g., chemical and physical sediment properties, stable C, O and Sr isotope ratios of carbonates, microfossil assemblages and biomarkers) indicates long- and short-time hydroclimatic changes mainly driven by orbital controlled insolation (mostly the Earth’s precession ∼15-25 ka, but also eccentricity ∼90-120 ka). We compare our Chew Bahir data with results from other long marine and terrestrial paleoclimatic records. Here we focus on particularly strong wet and dry fluctuations at Chew Bahir during the last 200 ka to test established hypotheses for human dispersal and technological innovation. The record indicates that at least some of the human dispersal waves have taken place during wetter environmental conditions offering green corridors in East Africa, one of the source regions of our ancestors.