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Wet feet or walking on sunshine? Reconstruction of wet-dry variations in the source region of modern man: the Chew Bahir project, southern Ethiopia

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Chew Bahir, today a saline mudflat in a tectonically-bounded basin in southern Ethiopia, lies between the Main Ethiopian Rift and the Omo-Turkana basin, site of the oldest known anatomically modern human fossils. Sedimentary records from Chew Bahir can therefore provide fundamental data for reconstructing Late Quaternary environments in the source region of Homo sapiens. This project focuses on rapid climate shifts and their influence on the biosphere, and is a preliminary study for the ICDP "Hominid Sites and Paleolakes Drilling Project", and part of Cologne University's CRC-806 programme "Our Way to Europe", which aim to determine climatic and environmental history of East Africa during the last 200 ka – 1 Ma. Reconstruction of the major dry-wet-dry alternations is crucial for understanding the impact of climate variability on the emergence and dispersal of Homo sapiens from Africa into Eurasia. We present new results from six cores (9-18 m depth) drilled in a NW-SE transect across the basin. Sedimentological, geochemical, physical, magnetic and biological indicators, and a suite of AMS radiocarbon dates, reveal substantial variations in moisture availability during the last 45 ka. The data provide valuable insight into the timing, possible abruptness and synchronicity of precession-driven climate shifts like the African Humid Period (AHP $\sim$ 15-5 ka BP), the last major alternation from dry to wet to dry conditions, and show that the site responded sensitively to older climatic fluctuations on millennial to centennial timescales. Chew Bahir therefore presents a suitable climate archive of a highly variable environment and offers an opportunity to retrieve 200 ka sediment records of paleoenvironmental history during the physical and cultural evolution of Homo sapiens.