



Proxy evidence from Chew Bahir (Ethiopia) that environmental change promoted human dispersal out of Northeast Africa

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The Chew Bahir rift between the Main Ethiopian Rift (MER) and the Kenyan Rift and is filled with up to 5 km of sediment. It is a failed rift located within the Miocene-aged Broadly Rifted Zone of Southern Ethiopia marking the transition between the active MER to the north and the Turkana Basin to the south. The study site is in the prominent corridor from the source area of the anatomically modern humans to the Arabian peninsula and Levant. Proxy records from lake sediments drilled in the Chew Bahir basin (Ethiopia), close to the key hominin site of Omo-Kibish, show two distinct hydroclimatic phases. An initial period between 120 to 75 kyr, with highly variable conditions with rapid shifts from very wet to extreme aridity, is coincident with the east 'African megadroughts' period. This is followed by a more stable hydroclimate interval between 62 to 32 kyr, which is then followed by the onset of the Late Glacial maximum and later the North African Humid Period. In between these two distinct climatic periods is a gradual shift to drier conditions with an extreme drought at 62 kyr. We propose that this shift, from more to less variable hydroclimate, may help account for the anatomically modern human dispersal events out of Africa from <62 kyr.