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## Human responses to hydroclimate fluctuations over the last 200 kyr in Ethiopia

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Humans have been adapting to more demanding habitats in the course of their evolutionary history. Nevertheless, environmental changes coupled with overpopulation naturally limit competition for resources. In order to find such limits, reconstructions of climate and population changes are increasingly used for the continent of our origin, Africa. However, continuous and high-resolution records of climate-human interactions are still scarce.

Using a 280 m sediment core from Chew Bahir\*, a wide tectonic basin in southern Ethiopia, we reconstruct the paleoenvironmental conditions during the development of *Homo sapiens*. The complete multiproxy record of the composite core covers the last ~600 ka, allowing tests of hypotheses about the influence of climate change on human evolution and technological innovation from the Late Acheulean to the Middle/Late Stone Age, and on dispersal within and out of Africa.

Here we present results from the uppermost 100 meters of the Chew Bahir core, spanning the last

200 kiloyears (ka). The record shows two modes of environmental change that are associated with two types of human mobility. The first mode is a long-term trend towards a more arid climate, overlain by precession-driven wet-dry alternation. Through comparison with the archaeological record, humid episodes appear to have led to the opening of 'green' networks between favourable habitats and thus to increased human mobility on a regional scale. The second mode of environmental change resembles millennial-scale Dansgaard-Oeschger and Heinrich events, which seem to coincide with enhanced vertical mobility from the Ethiopian rift to the highlands, especially in the time frame between ~65–21 ka BP. The coincidence of climate change and human mobility patterns help to define the limiting conditions for early *Homo sapiens* in eastern Africa.

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