

# **The Hominin Sites and Paleolakes Drilling Project: Testing Hypotheses of Climate-Driven Human Evolution and Dispersal at Chew Bahir, Ethiopia**

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The Hominin Sites and Paleolakes Drilling Project aims to produce palaeoenvironmental records from five sites in east Africa, each being close to globally significant hominin sites. In December 2014, we drilled Chew Bahir, an area of playa mudflats in southern Ethiopia close to the site of the oldest known anatomically modern human (AMH) fossils, to a depth of ~280 metres.

There is currently a lack of long, continuous, Pleistocene records from this region, so these cores will be important in allowing us to investigate the relative influence of low- vs. high-latitude forcing on east African climate and to establish climatic conditions at the time of AMH origin and subsequent dispersal.

Based on sediment accumulation rates estimated from pilot cores, the new core sequence is projected to cover at least the last 500 ka. The core chronology will be constructed from  $^{14}\text{C}$ , OSL, palaeomagnetism,  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  of tephra and tephrochronology. Besides geochemical, geophysical and biological proxies, we will use  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  of carbonates to reconstruct environmental changes, first at millennial-scale resolution through the whole record, and then at centennial-scale resolution through key periods of interest, e.g. Termination II, 135-125 ka, when AMH may have dispersed from Africa for the first time. Here we present initial stable isotope data from Chew Bahir, to provide a preliminary palaeoenvironmental reconstruction and to help test the various hypotheses concerning AMH dispersal.