S15-O06 - A 550,000 yr lacustrine environmental record from Chew Bahir, south Ethiopia: towards an understanding of climatic influences on early human populations. International Paleolimnology Association-International Association of Limnogeology Meeting, Stockholm, Sweden June 18-21, 2018

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Chew Bahir is one of six sites in eastern Africa currently under investigation as part of the Hominin Sites and Paleolakes Drilling Project (HSPDP), in which Jean-Jacques Tiercelin was a much-valued colleague. At 4°40’N, 36°50’E and 600 m a.s.l., Chew Bahir is a 30 x 70 km area of playa mudflats overlying >4 km of unconsolidated sediments in the Broadly Rifted Zone between the Main Ethiopian and Kenya-Turkana Rifts. It lies ~80 km east of Omo-Kibish, site of 195 ka Homo sapiens fossils, the earliest known from eastern Africa. In November 2014, we drilled duplicate 280 m cores, aiming to determine the major climatic and environmental changes during the last 500 kyrs, and to test the hypotheses that periods of directional change or heightened climatic variability drove key events in human cultural and biological evolution. The composite core record represents >90% recovery, verified through multi-proxy inter-core correlation, and analysed with high-resolution µXRF, XRD, stable isotope, biomarker and sedimentological data. An initial age model, based on radiocarbon and OSL ages from the uppermost 80 m and three 40Ar/39Ar single-crystal K-feldspar ages, shows that the record extends to ~550 ka. We focus here on the last 200 kyrs, in which mineralogical, geochemical, and colour reflectance data document pronounced hydroclimatic variability. This variability is similar to Indian Ocean sea-surface temperature and atmospheric CO2 variations, as a consequence of orbital (mostly precessional) forcing, and to wet-dry oscillations elsewhere in northern and eastern Africa. These climatic changes may have implications for understanding early human population dynamics in the region, including multiple ‘Out of Africa’ dispersal events.