



Hominin Sites and Paleolakes Drilling Project. Chew Bahir, southern Ethiopia: How to get from three tonnes of sediment core to > 500 ka of continuous climate history?

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In search of the environmental context of the evolution and dispersal of *Homo sapiens* and our close relatives within and beyond the African continent, the ICDP-funded Hominin Sites and Paleolakes Drilling Project (HSPDP) has recently cored five fluvio-lacustrine archives of climate change in East Africa. The sediment cores collected in Ethiopia and Kenya are expected to provide valuable insights into East African environmental variability during the last ~ 3.5 Ma. The tectonically-bound Chew Bahir basin in the southern Ethiopian rift is one of the five sites within HSPDP, located in close proximity to the Lower Omo River valley, the site of the oldest known fossils of anatomically modern humans. In late 2014, the two cores (279 and 266 m long respectively, HSPDP-CHB14-2A and 2B) were recovered, summing up to nearly three tonnes of mostly calcareous clays and silts. Deciphering an environmental record from multiple records, from the source region of modern humans could eventually allow us to reconstruct the pronounced variations of moisture availability during the transition into Middle Stone Age, and its implications for the origin and dispersal of *Homo sapiens*.

Here we present the first results of our analysis of the Chew Bahir cores. Following the HSPDP protocols, the two parallel Chew Bahir sediment cores have been merged into one single, 280 m long and nearly continuous (>90%) composite core on the basis of a high resolution MSCL data set (e.g., magnetic susceptibility, gamma ray density, color intensity transects, core photographs). Based on the obvious cyclicities in the MSCL, correlated with orbital cycles, the time interval covered by our sediment archive of climate change is inferred to span the last 500-600 kyrs. Combining our first results from the long cores with the results from the accomplished pre-study of short cores taken in 2009/10 along a NW-SE transect across the basin (Foerster et al., 2012, Trauth et al., 2015), we have developed a hypothesis linking climate forcing and paleoenvironmental signal formation processes in the basin (e.g. the inverse correlation of the K flux with precipitation in the catchment), providing an important prerequisite for understanding the environmental record contained in the long sediment cores. The good recovery and anticipated high time resolution of the cores will give us a continuous record of environmental fluctuations on decadal to orbital timescales, which will allow us to test current hypotheses of the influence of climate on human evolution and dispersal.