



Drilling a crater at the Equator-insides from ICDP DeepCHALLA

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Long and continuous sediment records from equatorial Africa are rare, resulting in a so far fragmentary understanding of the effects of a warming atmosphere on the tropical hydrological cycle at the regional scale. Severe and recurrent droughts is the principle weather-related hazard throughout sub-Saharan Africa, and the quality of long-term weather prediction a principle bottleneck hampering drought mitigation and adaptation. The impact of 21st-century anthropogenic climate change on the African rainfall is highly uncertain, implying unforeseeable effects on freshwater resources.

During the “CHALLACEA” project (2005-2008) detailed investigations of Lake Challa, a relatively small and deep crater lake on the border between Kenya and Tanzania, revealed the lake is a key site for reconstructing the climate and environmental history of equatorial East Africa. Various biological, bio-geochemical and sedimentological investigations of the ~22 m long CHALLACEA-core helped to understand the systematics of Lake Challa under present-day conditions as well as to reconstruct environmental changes over the past 25,000 years. Due to the good quality of the Lake Challa sediment and the high scientific outcome of the record, a new International Continental Scientific Drilling Programme (ICDP) project “DeepCHALLA” was established to drill a longer sediment record, going further back in time. During the drilling campaign in November 2016 a ~ 215 m long sediment sequence was obtained which will provide unique information about environmental changes in low-latitudes over a complete glacial - interglacial cycle. Therefore, the record opens new opportunities to study East African environmental changes and paleo-hydrological conditions much further back in time, encompassing the entire known existence of modern humans (*Homo sapiens*) in East Africa.

Here we present a compilation of the environmental reconstructions based on the CHALLACEA sediment sequence and will give an outline of future work on the DeepCHALLA record.