

focused on lacustrine sedimentary sequences to maximize both the temporal resolution of the records from basin depocenters and to increase the number of proxy and indicator records of environmental change that could be interpreted.

Five study areas have been drilled with 12 boreholes to date by HSPDP, with a total of ~1580 m of core collected (at an average of 95% recovery). Collectively they span many of the critical intervals of hominin evolution in Africa. The Tugen Hills core, collected in the central Kenya rift, spans from about 3.5–2.5 Ma, and encompasses a series of precessionally-driven lake cycles. Three cores from the N. Awash basin (Afar region of northern Ethiopia) record both deep and shallow lakes between ~3.5–2.9 Ma. One core from the west side of Lake Turkana (northern Kenya) covers a major deep to regressive lake phase between ~2.0–1.45 Ma. Lake Magadi, an extant soda lake of southern Kenya, yielded cores from two sites spanning the last ~800 ka. The Chew Bahir basin of southern Ethiopia was drilled with a ~42 m pilot hole in early 2014, to be followed by two ~400 m holes to be drilled in late 2014, which may span the last ~750 ka. In addition to analytical studies of the HSPDP cores, an extensive suite of modeling experiments is also underway to better understand the earth system dynamics underlying our palaeoclimatic findings and the implications of these dynamics for human origins.

Keywords: human origins, East African Rift, scientific drilling, palaeoclimate, lacustrine deposits

COMPARING THE QUATERNARY PALAEOENVIRONMENTS OF TWO MAJOR HOMININ SITES: THE OLGESAILIE AND KOOBI FORA BASINS, KENYA

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East Africa is famous for numerous early hominin sites that have provided quality archives of human evolutionary history that addresses questions regarding the origin of mankind. Among these sites, Koobi Fora and Olgorgesailie basins have contributed greatly to scientific data that have filled gaps not only in human evolutionary history but also other life forms and, palaeoenvironmental and palaeoclimatic reconstructions both temporally and spatially. Both basins are located within the Kenyan rift system; Olgorgesailie is in the Southern rift while Koobi Fora is in the northern rift, approximately 900 km apart.

Despite the distance separating both basins, they share some similarities; they are located within arid regions and they are palaeolake basins with lithostartigraphic sequences that span from the Pleistocene and beyond, to Holocene periods. From each basin, the sequences are well correlated spatially across the landscapes.

In addition a common hominin species: *Homo erectus* and, the associated archaeological artifacts have been well preserved in both basins. In the Olgorgesailie basin only this hominin species is found, while in Koobi Fora basin several other *Homo* species have been found: *Australopithecus/Paranthropus* sp. and *Homo habilis*. We hypothesize that, this disparity exists due to difference in palaeoenvironments between the two basins. The research therefore intends to investigate the vegetation dynamics that existed in Olgorgesailie and Koobi Fora basins during the mid-Pleistocene and Holocene periods and especially investigate the changes between the C3 and C4 plants by analyzing fossil phytoliths as the main proxy for past vegetation reconstruction.

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Keywords: phytoliths, Olgorgesailie, Koob Fora, Quaternary, hominins

LATE PLEISTOCENE ROCKSHELTER STRATIGRAPHIES AND PALAEOENVIRONMENTS IN NORTHEASTERN AFRICA – CASE STUDY MOCHENA BORAGO (ETHIOPIA)

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In prehistoric times, the rock shelter Mochena Borago served as a retreat for anatomically modern humans in the southwestern Ethiopian Highlands. During the last decade, archaeological analyses from the joint research project of the Southwest Ethiopia Archaeological Project (SWEAP) and Collaborative Research Centre 806 (CRC 806) helped in gaining insight into the history of the settlement of the rock shelter in the last 50 ka. Our understanding of the depositional history of Mochena Borago has been increased through element and micromorphological analyses of the shelter sequence and through investigations on potential sediment sources and transport within the site catchment.

The sediments include a sequence of palaeo-surfaces and indications of both local continuous sedimentation and spontaneous mass movement input at the site. Furthermore, researchers have found indications of humid periods with high sedimentation rates, in contrast to the low sedimentation rates resulting from climatic and/or morphological changes at the rock shelter. Cultural remains of *Homo sapiens* are especially common in protected areas within Mochena Borago, which are associated with sediment accumulation in the northern part of the cave. The southern part shows high-energy erosion through fluvial processes, which is related to the morphological structure of the rock shelter itself and indicated by erosion features within the subsurface. Existing high-energy processes in the past have probably partly removed sediments with archaeological findings from the cave. This removal has to be taken into account, because it means that there might have been an earlier occupation of the rock shelter. The depositional history is still not fully understood and consequently more investigations are necessary at Mochena Borago; a research site with urgent need for interdisciplinary work on early human history. In the future, the regional connection between different palaeoenvironments in southwestern Ethiopia has to be examined and more climate archives in this region have to be involved.

Keywords: rockshelter stratigraphy, palaeoenvironments, micromorphology, geomorphology, human dispersal

WHAT INFLUENCES THE SEDIMENT COMPOSITION OF A ROCKSHELTER IN A HYPERARID ENVIRONMENT? INSIGHTS FROM SEDIMENTOLOGICAL AND MICROMORPHOLOGICAL ANALYSES AT THE ARCHAEOLOGICAL SITE SODMEIN CAVE, EGYPT

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Cave sediments in archaeological context are often very heterogeneous and adapted analyses should be applied. One focus in hyperarid environments, where geochemical parameters due to the absent of strong chemical weathering are quite rare or missing, is the detailed analyses of grain-size parameters and the micro- and macroscopic sediment composition. Different processes in the cave influences the sediment composition and varying portion of aeolian sand and silt indicate diachronic changes in aeolian input into a cave/rockshelter. With the determination of allochthonous and autochthonous sediments, inferences to climate conditions outside the cave and site formation processes in the cave are detectable.