Transforming our understanding of Quaternary environments in Africa through continental scientific drilling. African Quaternary Association Meeting, Nairobi, Kenya, 14-22 July 2018

A S Cohen, Department of Geosciences, University of Arizona, Tucson, AZ 85721 USA cohen@email.arizona.edu For at least 40 years scientists interested in African environmental history have recognized the extraordinary potential value that could come from obtaining sediment drill cores from the African rift valley lakes. Interest in achieving that goal has been driven from a diverse range of scientific communities, including paleoanthropology, paleoclimatology, evolutionary biology and basin analysis/tectonics. The potential combination of geologically long and highly continuous records from multiple lakes across a wide geographic range, spanning up to 107 yr with annually-decadal resolution documented from short cores, made these lakes an obvious target for continental scientific drilling studies. Starting with the Lake Malawi Drilling Project in 2005 this dream became a reality, with the collection of a record of southern subtropical climate and ecological variability covering the last ~1.3Ma, which has radically altered our view of the timing and tempo of African Quaternary environmental change. Now, with the subsequent collection of numerous additional drill cores in Ethiopia, Kenya and Tanzania, under the auspices of the Hominin Sites and Paleolakes Drilling Project, the DeepChalla Project and the Olduvai Gorge Scientific Drilling Project, we are seeing the same approach being extended elsewhere in lakes and paleolake deposits elsewhere in the rift and adjacent areas. These studies collectively extend our knowledge of environments through critical intervals in human prehistory back to the Late Pliocene, with important implications for addressing hypotheses about environmental drivers of hominin evolution and dispersal. A future, planned drilling project for Lake Tanganyika could continue this trajectory, by providing an unbroken paleoclimate and paleolimnological record from a single lake back to 5-8Ma.