69.Beck, C.C., Feibel, C.S., Gravina, A.N., Van Der Lubbe, J.H., Joordens, J., Cohen, A.S., and Campisano, C.J., 2016 What do you do with “homogeneous” fine-grained intervals? Lessons learned from comparing facies and ostracod records between core and outcrop, West Turkana, Kenya. Geo. Soc. Amer. Ann. Mtg., Denver, CO 26-29 Sept., 2016.

A drill core collected by the HSPDP from the Kaitio and Natoo Members (Nachukui Formation) in 2013 provides a unique opportunity to reconstruct paleoclimate and paleoenvironment during a key interval in hominin evolution spanning ~1.8-1.4 Ma. The resolution of the core allows for cm-scale facies characterization, highlighting the previously unrecognized degree of dynamic fluctuation on the margin of Paleolake Lorenyang. So-called “lam-scram” (laminated to scrambled) facies assemblages, comprising basal sands (S), laminated fine-grained intervals (Fl), and pedogenically overprinted facies (P), document the repeated rise and fall of the lake. These facies are easy to recognize in the freshly split cores but fade as the cores oxidize. Having observed the sub-Milankovitch frequency of these high-order facies transitions in the core, in 2016 we revisited the parallel outcrop exposures of the Kaitio and Natoo Members to look for evidence of these small-scale oscillations. In addition to describing the facies, the outcrop was regularly sampled to look for ostracods. The goal of this study is to compare ostracod records from a well-documented facies assemblage in the core to a homogeneous-appearing interval in the corresponding outcrop to detect otherwise invisible facies shifts in the outcrop. The oxidization of outcrop sections decreases the preservation potential for indicator records such as pollen, pyrite, and ostracods. By sampling ostracods from well-preserved lam-scram facies associations in the HSPDP core, this study documents how ostracods vary through the facies transitions. These data are compared with a similar resolution sample set collected from the associated outcrops to better understand how ostracod assemblages and preservation track fine-scale facies transition that may not be visibly identified in outcrop due to weathering and oxidization.

This work reflects contributions from all members of the Hominin Sites and Paleolakes Drilling Project (HSPDP) and the Turkana Cyclostratigraphy Project (TCP) field and laboratory teams.