##### 174

##### Subramanian, A., Lupien, R., Russell, J., Potts, R., Deino, A.L., Behrensmeyer, A. K., and Dommain, R. (2018). PP31C-1677: Middle to Late Pleistocene Paleoenvironmental Variations at the Olorgesailie Basin, Kenya. AGU Fall Meeting, Washington, D.C.

Climatic changes in tropical Africa are hypothesized to have influenced the evolution of humans during the Plio-Pleistocene. A lack of terrestrial paleoclimatic records from East Africa, however, makes testing this hypothesis difficult. Here we examine a record of the carbon isotopic composition of sedimentary organic matter (δ13Cbulk) and terrestrial plant waxes (δ13Cwax) spanning the last ~ 1 Ma from a core located immediately adjacent to the Olorgesailie Basin, an ancient lake basin in southern Kenya with a well-documented history of early human activity. The δ13C record exhibits intervals of high amplitude variability corresponding to periods of high amplitude variation in tropical insolation, most prominently in the interval between 180–260 ka. Spectral analyses find a persistent and statistically robust signal in δ13Cbulk at the periodicities between 19–23 kyr, corresponding to orbital precession, supporting the hypothesis that seasonal insolation changes exert a dominant influence on the East African monsoon. The spectral analyses also reveal weaker signals at periodicities corresponding to the Earth’s orbital obliquity and eccentricity, suggesting the potential influence of high latitude glacial-interglacial cycles on climatic variability at Olorgesailie. The high variability interval between 180–260 ka in the δ13Cbulk record corresponds with the interval during which the earliest Homo sapiens is thought to have appeared (between ~160–315 ka), suggesting the influence of environmental variability during this interval on the evolution of modern humans.