Castañeda, I.S., Thompson-Munson, M., Lupien, R., Russell, J. 2015. Late Pliocene and Early Pleistocene temperature reconstructions from paleolakes of the West Turkana and North Awash Basins, East Africa. AGU Fall Meeting 2015, Dec. 14-18, 2015, San Francisco.

Abstract

The Hominin Sites and Paleolakes Drilling Project (HSPDP) aims to reconstruct past environments of the East African Rift Valley from locations in close proximity to some of the world’s most important fossil hominin and artifact sites. In this study, we investigate sediments from the West Turkana and North Awash Basins, which were recently drilled as part of the HSPDP. The North Awash Basin contains abundant early hominin fossils and the lakebeds of the Hadar Formation (~3.6 to ~2.9 Ma) will provide a record of climate variability during the Pliocene, prior to the intensification of Northern Hemisphere glaciation at ~2.7 Ma. The lakebeds of the Turkana Basin are Early Pleistocene in age (~1.9 to ~1.45 Ma) and span the interval that includes some the earliest fossils of *Homo rudolfensis*and *H. ergaster/erectus*. Here we examine the organic geochemistry of West Turkana and North Awash Basin sediments and investigate the use of proxies based on isoprenoid and branched glycerol dialkyl glycerol tetraethers (GDGTs) to reconstruct temperature, including TEX86 and the methylation and cyclization (MBT and CBT) ratios and relative abundances of branched GDGTs. We also examine variability in the abundances and ratios of plant leaf waxes (*n*-alkanes) to provide insight into past vegetation changes on the East African landscape.