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##### Castañeda, I. S., Thompson-Munson, M. E., Gilchrist, S., Lupien, R., Russell, J. M., Salacup, J., Feibel, C. S. and Cohen, A. S. (2018)[.](https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/431971) [PP22B-04 Early Pleistocene temperature history of Paleolake Lorenyang, West Turkana Basin (Kenya)](https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/431971) AGU Fall Meeting, Washington, D.C.

During the Plio-Pleistocene, Earth experienced significant changes as Late- to Mid-Pliocene warmth gave way to colder conditions and Northern Hemisphere glaciations intensified. The Plio-Pleistocene also represents a critical time period for hominin evolution and it has long been hypothesized that hominin speciation, extinction and migration events are linked to changes in global or regional climate. Here we report the first organic geochemical temperature reconstructions from paleolake Lorenyang in the Turkana Basin spanning the interval from ~1.9 to 1.4 Ma (approximately equivalent to Marine Isotope Stages (MIS) 70 to 50). This study is part of the Hominin Sites and Paleolakes Drilling Project (HSPDP), which aims to better characterize the climates and environments that our human ancestors lived in. We analyze isoprenoid and branched glycerol dialkyl glycerol tetraethers (GDGTs) from drill core WTK-13-A (4.1097◦N, 35.8718◦E) and apply the TEX86 and MBT’5Meproxies to reconstruct past temperature. Close agreement between both proxies is noted throughout the entire record. MIS 65 – MIS 70 are particularly pronounced at Paleolake Lorenyang with large temperature fluctuations occurring between glacial and interglacial cycles. Notably, our new temperature reconstructions span the interval when the Homo erectus/ergaster fossil “Nariokotome Boy” or “Turkana Boy” lived. This fossil is dated to approximately 1.6 Ma, it was collected from a location close to core WTK-13-A, and it represents the most complete Homo erectus/ergaster specimen recovered thus far (Brown et al., 1985). At around this time, MIS 55 is registered in our TEX86 and MBT’5Me records as one of the warmer interglacials of the study interval and it is followed by a dramatic cooling into MIS 54. In agreement with the results of Lupien et al. (2018) who generated a leaf wax hydrogen isotopic hydroclimate reconstruction from the same samples, our temperature records also indicate high variability but little change in the long-term mean from 1.9 to 1.4 Ma. Overall, our GDGT data provide new information on the temperature history of East Africa while adding support to the hypothesis that climate variability played a central role in hominin evolution.