

383 Room 911 4:30-5:15 Panel 7

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Understanding the Environments in which Early Humans Lived: Insights from Organic Geochemical Analyses of East African Rift Valley Paleolakes

The idea of climate as a driver of human evolution has become significant in recent scientific studies. However, many different hypotheses about human evolution drivers exist, and there is much debate surrounding this issue. Our knowledge of climate and environmental conditions at the times that our ancestors lived is poorly constrained, and often the nearest paleoclimate records are located thousands of kilometers away from fossil hominin and artifact sites. The Hominin Sites and Paleolakes Drilling Project (HSPDP) aims to resolve these outstanding issues by reconstructing past environments through examining sedimentary archives located near key hominin archaeological sites. In this study, we use organic geochemical techniques to reconstruct the vegetation and temperature from two lake basins in the East African Rift Valley. We reconstruct temperature from bacterial membrane lipids, and vegetation from ancient plant leaf waxes preserved in lake sediments. These sediments come from the West Turkana (Kenya) and Northern Awash (Ethiopia) Basins, which are areas of great anthropological significance. The West Turkana Basin spans from ~1.9 to ~1.45 Ma and has yielded some of the most complete *Homo habilis/rudolfis* and *H. ergaster* fossils. The Northern Awash Basin spans from ~3.6 to ~2.9 Ma and has one of the greatest abundances of *Australopithecus afarensis* fossils. Our study provides new constraints on temperature and vegetation at these critical intervals in human evolution.



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