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##### Lupien, R., Russell, J. M., Beck, C., Feibel, C., and Cohen, A. S. (2018). [PP31C-1674 Early Pleistocene Millennial-Scale Hydroclimate Fluctuation in Kenya with Implications for Hominin Evolution](https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/359262). AGU Fall Meeting, Washington, D.C.

Our hominin ancestors in East Africa responded to dramatic oscillations in climate, according to the variability selection hypothesis (Potts, 1996, DOI: 10.1126/science.273.5277.922). Orbitally-resolved records confirm large changes in the amplitude of East African climate variability through time, yet it is unclear how such long-term variations, well beyond human generational time-scales, influenced hominin evolution. To date, there are very few records that evaluate East African climate variability at sub-orbital timescales that extend beyond the latest Pleistocene. We have produced a hydroclimate record based on the hydrogen isotopic composition of terrestrial leaf waxes (δDwax) preserved in a paleolake sediment drill core from West Turkana, Kenya (WTK), a hominin fossil locale famous for Turkana Boy and other Homo erectus fossils. A previous orbital-scale hydroclimate record of δDwax from WTK indicated an interval of extremely high climate variability at ~1.7 Ma, a time that corresponds with multiple hominin evolutionary events (species turnover, new stone tool technology, Out of Africa I dispersal; Lupien et al., 2018, DOI: 10.1016/j.quascirev.2018.03.012). Here we compare millennial-scale variability in δDwaxduring this high variability interval to a time interval with low orbital-scale variability to evaluate whether the amplitude of millennial-scale variability scales to the amplitude of orbital variations. We further this evaluation by comparing these early Pleistocene hydroclimate variations with high-frequency δDwaxvariations during more recent intervals of higher global ice volume. We find that δDwax fluctuations during the early Pleistocene in West Turkana were on the order of ~10 ‰, about half amplitude of the Younger Dryas event in Lake Turkana (~20 ‰). More importantly, the millennial-scale hydroclimate fluctuations between the high and low orbital-scale variability intervals are similar. This suggests that we cannot assume that changes in the amplitude of orbital-scale climate change directly impacts higher-frequency variations, with important implications for the mechanism of human evolution and variability selection.