173

Billingsley, A., Yost, C. L., Worthey, K., Fenerty, B., Kielhofer, J., Fox, M., Naiman, Z., Cohen, A. S. and Lamb, H. F. (2018). [PP31C-1673 A 400 thousand year record of climate variability around Africa and implications for human dispersals. AGU Fall Meeting, Washington, D.C.](https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/380790)

Numerous hypotheses have attempted to correlate key periods of human evolution and migration with climate and landscape changes. Most of these hypotheses operate within a unidirectional backdrop of increasing aridity while others, like the variability selection hypothesis, focus on increasing climatic variability. The more recent accumulated plasticity hypothesis states that a species which experiences increased temporal changes in their environment develop adaptive strategies which allow for dispersal into multiple habitats. We use new metrics to quantify and define climate variability through 32 climate/environmental records. The new methods allow direct comparisons between different records offering insight into complex climate dynamics of the last 400,000 years. Furthermore, the records span the African continent as well as the southern Levant and Southern Europe offering an unparalleled spatial understanding of how multiple regions relevant to the rise and expansion of *Homo sapiens*responded to global climatic events.

Our study shows that five separate climate regions experienced both periods of high and low climate variability, and that these periods are not synchronous across Africa and into Europe. Higher latitude regions are more susceptible to global climate forcing as is tropical Africa. East Africa has a dampened response to glacial/interglacial cycles except for the transition out of MIS 5 and into MIS 4 and 3, which is a period of high climate variability for the region. Furthermore, major human migrations occur after periods of increased climate variability in a least one of the regions, with the prolonged period of repeated migrations during MIS 5 occurring during a period of increased variability everywhere but East Africa. However, the migration of 60ka occurred after a period of extreme variability in East Africa.