- Beck, C,C,m van der Lubbe, J., Alexander, E., STickhecke, M., Wegter, B. and Feibel, C., 2019, Cyclic climate change and its implications for paleoenvironments in the Turkana Basin, Kenya from 1.9 to 1.4 Ma AGU Annual Fall Mtg., San Francisco, CA PP44A-10-

Grain size properties are an important component of sedimentological analysis to reconstruct variations in depositional environment and the associate paleoclimate. Leveraging existing core and outcrop studies from the Turkana Basin (Kenya), this study examines whether cyclical climatic signals are tracked by recurring lithogenic grain size variations from the dynamic Pleistocene lacustrine margin. This grain-size record originates from the West Turkana Kaitio core (WTK13) drilled as part of the Hominin Sites and Paleolake Project in 2013. The long and almost continuous core spans from ~1.9 Ma to 1.4 Ma, and is constrained by 7 geochemically distinct tephra (4 with $^{40}Ar/^{39}Ar$ dates) and a paleomagnetic reversal. By combining grain size data, bulk geochemistry obtained by XRF core scanning, and facies analysis, we evaluated if orbital forcing paced sedimentation changes. We analyzed 629 sediment samples collected at ~32 cm intervals along the length of the 216 m of WTK13 core. Prior to analysis, all samples were pre-treated to remove carbonate, organics, and biogenic silica (e.g. diatom frustules and phytoliths). Silt dominates WTK13 core (~70-80%) and the general fine-grained, homogeneous nature of the sediment reflects the overall low energy depositional environment. Using end-member modeling, grain size distribution can be further subdivided into 3 end members (r^2 = >96). Spectral analysis revealed that the lithogenic sediment deposition along the basin margin varies with eccentricity and precession band. The latter agrees with the evidence of processional forcing of Omo inflow between 1.96 and 1.84 Ma as is indicated by Sr isotope record of the eastern paleo-lake margin.