- **PP13C-2307:** *Tephrochronology of the East African Baringo-Tugen Hills Cores: Hominin Sites and Paleolakes Drilling Project (HSPDP)*
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The Baringo/Tugen Hills basin (BTB) in central Kenya is one of five Hominin Sites and Paleolakes Drilling Project (HSPDP) localities targeting lacustrine sediments associated with key fossil hominin sites. The fossiliferous Plio-Pliestocene Chemeron Formation, within the BTB, contains geochemically analyzed outcrop tephras, 8 of which have $^{40}Ar/^{39}Ar$ dates of 3.2-2.35Ma. Tephras have been crucial in developing chronologies in human evolution, paleontology, archaeology, and rift basin development. The HSPDP paleo-lake cores provide a high resolution and continuous record of sedimentation, as well as additional tephras not found in outcrop. For BTB, approximately 20 vitric tephras have been logged in the cores, including several previously unobserved tephras, providing a more complete record of volcanic activity. Major element geochemical analyses of the BTB tephras collected from the cores are critical for establishing chronostratigraphic links to the outcrop stratigraphy of the Chemeron Formation, as well as correlations outside of BTB.

The Chemeron Formation, composed of alternating fluvial and lacustrine sediments, is associated with the onset and intensification of the Cenozoic Northern Hemisphere glaciation and encompasses the period of great hominin diversification of *Paranthropus* and *Homo*, as well as the earliest evidence for stone toolmaking. Within the Chemeron stratigraphy, there are sequences of diatomites that record a 23kyr-processional periodicity indicating a dominant climatic forcing. By correlating the BTB tephras, and thereby the BTB climate-forced lacustrine cycles, with other East African rift basins' stratigraphy, we can determine if this climatic wet/dry pattern observed at BTB had occurred in other East African rift basins. This knowledge can help in understanding the influence of climate and tectonics on the evolution of hominins during the Plio-Pleistocene.

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