74. Garello, D., Deino, A., Campisano, C.J., Kingston, J. and Arrowsmith, J.R., 2016 An update on the Chemeron Formation tephrochronology: challenges in correlating the Baringo-Tugen Hills hominin sites and paleolakes drilling project (HSPDP) core tephra to outcrop tephra.Geo. Soc. Amer. Ann. Mtg., Denver, CO 26-29 Sept., 2016.

Chemical characterization of volcanic glass shards can provide a geochemical fingerprint to establish isochronous markers in the stratigraphic record. We use this technique to link the Baringo-Tugen Hills (BTB) HSPDP sedimentary core to nearby outcrops of the Chemeron Formation. The Plio-Pleistocene Chemeron Fm. contains over 100 fossil vertebrate localities, including hominin fossils, and spans a temporal interval that includes the onset and intensification of Northern Hemisphere glaciation, a period of hominin diversification including the origin of the genus *Homo*, and the earliest evidence for lithic tool manufacture and use. Thus, this provides us with an opportunity to investigate potential effects of environmental and climatic change on hominin and faunal evolution in eastern Africa.

Only 2 of the 49 tephra sampled from the BTB core contain volcanic glass; the remainder are crystal-rich. These vitric tephra are found ~17 and ~100 meters below surface within the 230m core. Major element geochemical analyses were conducted on these 2 core tephra along with 40 outcrop tephra. Bivariate plots and statistical distance analyses of the glass compositions establish at least one core to outcrop link and ≥25 chronostratigraphic links between outcrops of the Chemeron Fm. To test the potential use of feldspars for geochemical correlations and to increase the number of chronostratigraphic links, we conducted major element geochemical analyses on feldspars from 13 BTB core and 17 outcrop samples. Core and outcrop feldspar samples generally group in a loose sanidine -anorthoclase population (Or20-52) on Ab-An-Or ternary diagrams. The lack of distinct feldspar populations suggests low potential for feldspar geochemical correlations. However, bivariate plots broken into age groups comparing major element weight percent of Fe-Al and K-Ca, and percentages of albite-orthoclase show small differences in some of the samples. These small differences may be enough to use as complementary correlations with volcanic glass or 40Ar/39Ar dates for preliminary correlations when additional correlative data is not available. These geochemical links are important in aiding the integration of the high resolution paleoclimate records of the BTB core with the fossil-associated sediments exposed in outcrops in the Baringo basin.