AGU FALL MEETING
San Francisco | 12–16 December 2016

PP23A-2309: Chew Bahir, southern Ethiopia: an archive of environmental history during the evolution and dispersal of anatomically modern humans

Tuesday, 13 December 2016
13:40 - 18:00
Moscone South - Poster Hall

Chew Bahir is a tectonic basin in the southern Ethiopian Rift, close to the Lower Omo valley, site of earliest known fossil of anatomically modern humans. It was drilled in Nov-Dec 2014 as part of the Hominin Sites and Paleolakes Drilling Project (HSPDP) and the Collaborative Research Center (CRC806) “Our Way to Europe”. Two overlapping cores of mostly clayey silts, reaching a composite depths of 280m, were collected and may cover the last 500,000 years, thus providing a potential record of environmental history during the evolution and spread of anatomically modern humans. Here we present the lithology and stratigraphy of the composite core as well as results of high resolution MSCL and XRF scanning data. Initial sedimentological and geochemical results show that the Chew Bahir deposits are a sensitive record of changes in moisture, sediment influx, provenance, transport and diagenetic processes, evident from mineralogy, elemental concentration and physical properties. The potassium record is highly sensitive to changes in moisture balance (Foerster et al. 2015). XRF and XRD data suggest that the process linking climate with potassium concentrations is the diagenetic illitization of smectites during dry episodes with high alkalinity and salinity in the closed-basin lake. The core records will allow tests of the various hypotheses about the influence of environmental change on the evolution and dispersal of anatomically modern humans.

Foerster, V., Vogelsang, R., Junginger, A., Asrat, A., Lamb, H.F., Schaebitz, F., Trauth, M.H. (2015): Environmental Change and Human Occupation of Southern Ethiopia and Northern Kenya during the last 20,000 years. Quaternary Science Reviews, 129: 333-340. doi:10.1016/j.quascirev.2015.10.026.

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