

The Hominin Sites Paleolakes Drilling Project, a challenging magnetostratigraphic record of the Baringo, Afar and West-Turkana cores

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The Hominin Sites Paleolakes Drilling Project (HSPDP) aims to build a precise chronological and environmental frame for human evolutionary studies by analyzing drilled cores near some of the most important archaeological and palaeoanthropological sites in Africa. Here, we present the magnetostratigraphic study of three HSPDP cores drilled in Afar (Ethiopia) and Baringo and West Turkana (Kenya). We find that ages range from 1.4 Ma to approximately 3.5 Ma. We also address the methodological challenges of cores drilled near the equator, having shallow inclinations that cannot reliably determine polarity. We present the methods we used to overcome these difficulties, which mostly involved a correction based on a present-day overprint. Because the cores contain mostly fresh unweathered sediments - apart from the present-day viscous overprint - we are confident that they have faithfully recorded the polarity after applying the correction. Finally, we raise awareness of how these results can affect the results of previously studied - and usually weathered - outcrop sediments. This may have consequences for the age models of these archaeological and paleontological records.