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Magnetostratigraphic Study of the Continental Sedimentary Sequence of the Chiang Muan Basin, Northern Thailand: Implications for the Age of the First Miocene Hominoids from Thailand

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We report results of a magnetostratigraphic study of the Chiang Muan Basin sequence (northern Thailand) that contains the recently discovered Middle Miocene hominoid, cf Lufengpithecus chiangmuanensis (Chaimanee et al., 2003). Rock magnetic investigations indicate the presence of both high- and low-coercivity minerals. Specimens subjected to progressive thermal demagnetization procedures show that nearly all of them exhibit a low-temperature magnetization component, and a high-temperature one, characterized by either normal or reverse polarity, considered as the characteristic Miocene magnetization. The two directions (D = 9.8˚ I = 32.8˚, n = 15, and D = 175.9˚, I = -37.5, n = 5) are not exactly antipodal, but pass the analytical reversal test with "C" quality classifications. The mean direction is close to the expected direction derived from the apparent polar wander (APW) path of Eurasia for the Middle Miocene. The inclination value is lower than expected at the site latitude, consistent with a sedimentary inclination error for the original depositional remanent magnetization. The section studied was tentatively correlated with the geomagnetic polarity time scale, using biostratigraphic data previously proposed for the fauna found in the same basin. These correlations have been achieved by comparing variations in the sedimentation rate derived from alternative correlations. The proposed correlations suggest an age between 13.5 and 10 Ma for the new hominoid fossil cf. Lufengpithecus chiangmuanensis.