

中国レスの高精度気候層序に基づく Matuyama-Brunhes 地磁気逆転の解析

兵頭 政幸 [1]; 番匠 健太 [2]; 安田 裕紀 [1]; 楊 天水 [3]
[1] 神戸大・内海域; [2] 神戸大・理・惑星; [3] 中国地質大・地球科学

Analysis of Matuyama-Brunhes reversal based on high-resolution climatostratigraphy of Chinese loess

Masayuki Hyodo[1]; Kenta Banjo[2]; Yuki Yasuda[1]; Tianshui Yang[3]
[1] Research Center for Inland Seas, Kobe Univ.; [2] Planetology, Kobe Univ.; [3] Earth Sciences, China Univ. Geosciences

<http://www.planet.sci.kobe-u.ac.jp/geol/hyodo.html>

Multiple millennial-to-centennial scale paleoceanic and climatic events were recently found in the Marine Isotope Stage (MIS) 19 interglacial, in which the Matuyama-Brunhes (MB) geomagnetic reversal occurred. The events enable to construct a detailed chronostratigraphy for MIS 19. We applied the method to the summer monsoon (SM) record from a 7-m thick loess-paleosol sequence of Lingtai in the Chinese Loess Plateau. As a result, we obtained bi- to sub-centennial resolution records of the MB transition as well as of the East Asian monsoon. Progressive thermal demagnetizations at 15 steps for all samples show stable decay curves of magnetic vectors, yielding reliable paleomagnetic field directions with MAD of 3.0 in average by principal component analysis. Transitional magnetic fields, defined as those having directions with a virtual geomagnetic pole (VGP) latitude deviated by > 45 degrees from the pole, lie within a 60-cm thick section between the SM peak of S8 and the SM minimum of L6, correlated with sea-level highstand MIS 19.3 and lowstand MIS 19.2, respectively. This directional transition zone consists of a main polarity boundary, two precursor episodes, and a rebound episode. The new chronostratigraphy date the main MB boundary at about 778 ka, and the directional transition zone to range from about 779 to 777 ka. The durations of episodes are estimated to be about 100 years. The VGPs of Lingtai have a cluster in the southwest Pacific together with those from Java, Hawaii, and Canary.