

Rockmagnetic and Paleomagnetic examinations for the Matuyama-Brunhes polarity transition recorded in the Kazusa Group

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We report results of rockmagnetic and paleomagnetic examinations for the Matuyama-Brunhes polarity transition recorded a marine sequence of the Kokumoto Formation, Kazusa Group in the Boso Peninsula. We have taken 130 oriented mini-cores from a 13 meters interval of sandy-siltstones spanning across the TNTT bed (Byakubi-ash layer) at the Tabuchi section along to the Yoro River and at the Yanagawa section. Results from thermal magnetic experiments suggested that the samples include iron sulfide, magnetite as a primary remanence carrier and no hematite. Measurements of magnetic hysteresis indicated that a domain state of the samples was PSD. Results of progressive alternating field demagnetization indicated a reversed to normal polarity transition boundary was observed at around 1.5 meter below the TNTT bed as well as previous studies, however the transition boundary was observed at around the TNTT bed in thermal demagnetization results. In the samples showing this discrepancy, a magnetite derived reversed polarity component was observed after a normal polarity component completely demagnetized at around 300-400 °C. This phenomenon would be due to that the magnetite derived primary component was slightly acquired under a weak magnetic field condition just before the M-B boundary, and then chemically yielded iron sulfide magnetic minerals acquired a much stronger normal polarity component under a strong filed condition after the polarity transition. Those results exhibited that the M-B boundary situated at around the TNTT bed where about 1.5 metes above the position reported in previous studies.

Keywords: Matuyama-Brunhes boundary, rockmagnetism, paleomagnetism, L-M Pleistocene boundary, Boso Peninsula, Kazusa Group