# Relative paleointensity variation in the Middle Eocene estimate to the marine sediment cores recovered from IODP Site U1403

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From the Cretaceous to the present, geomagnetic reversal frequency is known to increase from zero to five times in 1 million year (e.g. Merrill et al., 1996). The characteristic of the geomagnetic polarity change for such a long term is elucidated. However, the paleomagnetic intensity continuous variation are elucidated in detail in the past only for about 2-3 million years (e.g. Valet et al., 2005; Channel et al., 2009; Yamazaki & Oda, 2005), and reversal frequency and the relationship of plaeointensity do not become clear. Integrated Ocean Drilling Program (IODP) Expedition 342 recovered marine sediment cores from the Northwest Atlantic, off Newfoundland, to investigate the environmental change from the Paleocene to the Eocene. We conduct paleomagnetic/rock magnetic measurements of marine sediment cores drilled from Site U1403 (25-160 mcd: meter composite depth), and estimate the relative paleointensity (RPI) in Paleocene to the Eocene.

It was estimated that 25-160 mcd covered 40.145 Ma (chron C18n.2n/C18r) to 49.344 Ma (C22n/C22r) from the paleomagnetic polarity stratigraphy based on the result of the natural remanent magnetization (NRM) measurement. As a result of Anhysteretic remanent magnetization (ARM), Isothermal remanent magnetization (IRM), ARM/SIRM and S-ratio (-0.1, -0.3 T), 50-101 mcd (40.145 Ma (C18n.2n/C18r) to about 44 Ma (C20r)) interval is considered relatively homogeneous rock magnetic property. Thus, we estimated RPI of this interval.

According to the RPI variation, the shows the minimum on the chron boundary and variation with the big amplitude within chron. In three chron (C18r/C19n, C19n/C19r, C19r/C20n) boundary before and after showed that the intensity decreased with a reversal gently for about 50 ka and the intensity suddenly increased and recovered for about 10 ka. These characteristics are similar to a characteristic to be seen in the RPI of the past 2 million years and the five times reversal boundary during this period (Valet et al., 2005). The reversal frequency of middle Eocene was about half of the present (Merrill et al., 1996). It is suggested that these characteristics are common to paleointensity, regardless of the reversal frequency, continuous middle Eocene to the present.

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