

北西太平洋ニューファンドランド沖の IODP Site U1408 から掘削された海底堆積物の古地磁気・岩石磁気学的研究 (予察)

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Preliminary paleomagnetic and rock magnetic studies on the sedimentary sections from IODP Site U1408 in the Northwest Atlantic

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We have conducted preliminary paleomagnetic and rock magnetic measurements on the sedimentary sections recovered from Integrated Ocean Drilling Program (IODP) Site U1408 in the Northwest Atlantic, off Newfoundland. Principal purposes are to establish an age model of the sediments and to investigate variation of the geomagnetic field in geologic past.

Stepwise alternating field (AF) demagnetizations (20-80 mT) on natural remanent magnetizations (NRMs) revealed that characteristic components of the sediments mainly resulted in (1) inclination between -60 and -30 degree and declination between -45 and 0 degree, and (2) inclination between 30 and 60 degree and declination between 120 and 180 degree. The intervals showing the components (1) obviously recorded normal polarity while those showing (2) recorded reversed polarity. In total we could identify nine polarity reversals in the studied interval (20-160 mcd; meter composite depth) of the sediments.

We correlated the obtained reversal pattern with the geomagnetic polarity time scale by Gradstein et al. (2012) (Geologic Time Scale 2012), with referring the shipboard biostratigraphy (Norris et al., 2014). The correlation suggested that the studied interval covered Chrons C17n.2n to C20r (approximately 38-43 Ma), and provided an age model which infer sedimentation rate of about 2-4 cm/kyr during these chrons. However, we could not find nor identified the interval correlatable to Chron C19n (41.154~41.390 Ma), suggesting some possible mis-splice at around 100 mcd.

After the measurements of NRMs, we imparted anhysteretic remanent magnetizations (ARMs, 50 micro-T biasing field with 80 mT AF) and isothermal remanent magnetizations (IRMs, 800 mT). Ratios of ARM to SIRM (ARM/SIRM) resulted in either about 0.20 or 0.05 for majority of the studied interval. The intervals showing the ratio 0.20 seem to be potentially suitable for relative paleointensity estimation, while those showing the ratio 0.05 are probably originated from diagenetic dissolution of fine magnetic particles.