R004-03
D 会場 ：11/25　PM2 （15:00-18:00）
15:30〜15:45

IODP Expedition 392 でアガラス海台にて掘削された玄武岩コアの古地磁気強度研究

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Paleointensity study on basalt cores from the Agulhas Plateau drilled during IODP Expedition 392

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The Agulhas plateau in the Southeast Indian Ocean had been formed during breakup of Africa and East Antarctica in the Late Cretaceous. Owing to its locality and period of activity, it is expected that the igneous basement of the Agulhas Plateau records absolute paleointensities during the Cretaceous Normal Superchron (CNS) at southern mid to high latitudes. During International Ocean Discovery Program Expedition 392, three sites (U1579, U1580, and U1582) were drilled on the Agulhas Plateau. Two units of basaltic sills with various thicknesses were recovered at Site U1579, while six at Site U1580, and a unit of pillow basalt was recovered at Site U1582.

For absolute paleointensity experiments, less-altered portions of the basaltic cores were searched based on the results of on-board measurements by the superconducting rock magnetometer (SRM) and off-shore rock-magnetic studies. Paleomagnetic cube specimens taken from depths which showed relatively high ($>$10 mT) median destructive field (MDF) of the natural remanent magnetization (NRM) in the on-board SRM measurements were selected for off-shore studies. Magnetic hysteresis measurements and thermomagnetic analysis were conducted on small chips cut from the cube specimens. All studied samples showed pseudo-single domain (PSD) and/or mixture of single domain (SD) and multi domain (MD) behavior upon magnetic hysteresis measurements by an alternating gradient magnetometer. Js-T curves were obtained in a DC field of 300 mT at ˜50 to 700 C in vacuum (˜1 Pa) by a Curie balance, and samples which showed reversible heating and cooling curves were chosen for paleointensity experiments. Tsunakawa-Shaw paleointensity experiments were conducted on the selected specimens using an automated spinner magnetometer with an AF demagnetizer. The obtained paleointensity ranged from 52 to 103 micro T (7.3×10^{22} to 15.2×10^{22} Am^2 in virtual dipole moment). These results suggest that the strength of the geomagnetic field was variable during the CNS.