

IODP ルイビル海山列掘削試料から得られた白亜紀後期～古第三紀初期の古地磁気強度

山崎 俊嗣 [1]; 山本 裕二 [2]
[1] 東大大気海洋研; [2] 高知大

Paleointensity obtained from late Cretaceous and earliest Paleogene basalts drilled from Louisville seamount trail

Toshitsugu Yamazaki[1]; Yuhji Yamamoto[2]
[1] AORI, Univ. Tokyo; [2] Kochi University

<http://ofgs.aori.u-tokyo.ac.jp/member-j.html>

IODP Expedition 330 occupied six sites on five seamounts along the northwestern part of the Louisville seamount trail. The ages of the seamounts range between 50 and 74 Ma. Fresh basalts were recovered by drilling despite the old ages. From onboard examination of the rocks, it is considered that part of basalts erupted in subaerial or shallow submarine conditions and probably suffered high-temperature oxidation, in particular at Sites U1372 and U1373, suggesting that they may be suitable for absolute paleointensity estimation.

We conducted paleointensity measurements using the Tsunakawa-Shaw method with low-temperature demagnetization (LTD) and double heating (DHT). First, thermomagnetic curves were measured for all samples with a Curie balance at the Center for Advanced Marine Core Research, Kochi University. Samples that showed evidence for being suffered low-temperature oxidation were excluded. Then, samples from which characteristic magnetization component was isolated by stepwise alternating-field demagnetization were subjected to the paleointensity experiments; samples with MAD of larger than 10 deg. were excluded.

Paleointensity of 22.1±8.4 micro T was obtained at Site U1372 on the Canopus Seamount, the oldest seamount drilled (ca. 74 Ma), as the mean of 18 lithological units (lava flows) that passed the selection criteria of Yamamoto and Tsunakawa (2005). Sites U1373 and U1374 on the Rigil Seamount (ca. 70 Ma) yielded paleointensity of 21.7±9.0 micro T (n=22), and Site U1376 on the Burton Seamount (ca. 64 Ma) resulted 21.9±6.8 micro T (n=12). The mean paleointensities are converted to virtual axial dipole moment (VADM) of approximately 3.5×10^{22} Am² based on a paleolatitude of 47 deg. S of the Louisville hotspot between 50 and 74 Ma from onboard paleomagnetic results. The results of this study suggests that paleointensity of latest Cretaceous to earliest Paleogene was about a half of the present field intensity and similar to the mean of the last 5 Ma by Yamamoto and Tsunakawa (2005).