Geophysical Research Abstracts
Vol. 20, EGU2018-6003, 2018
EGU General Assembly 2018

Paleointensity variation around 30 Ma obtained from Ethiopian Large Igneous Province (LIP)

Yutaka Yoshimura (1), Toshitsugu Yamazaki (1), Yuhji Yamamoto (2), Hyeon-seon Ahn (3), Tesfaye Kidane (4), Yo-ichiro Otofuji (5), and Naoto Ishikawa (6)

(1) Atmosphere and Ocean Research Institute, The University of Tokyo, (2) Center for advanced Marine Core Research, Kochi University, (3) Gyeongsang National University, (4) School of Agricultural, Earth, and Environmental Sciences, University of KwaZulu Natal, (5) Japan geochronology network, (6) Graduate School of Human and Environmental Studies, Kyoto University

Paleointensities from the Ethiopian Large Igneous Province (LIP) were estimated using the Tsunakawa-Shaw method [Tsuunakawa and Shaw, 1994; Yamamoto et al., 2003] and the pseudo-Thellier method [Tauxe et al., 1995] to understand geomagnetic field behavior in the Oligocene. This LIP erupted in a short time span at 30 $\pm$ 0.4 Ma according to Hofmann et al. [1997] and Rochette et al. [1998]. Paleointensities from the Ethiopian LIP were previously reported by Riisager et al. [1999], providing VDMs ranging from 3.0 to 10.5$\times$10ˆ22 Amˆ2 from 8 lava flows by the Thellier method with pTRM check. In order to clarify variations in geomagnetic field intensity in more detail, we analyzed samples collected from 93 lava flow units taken along the Lima Limo section. We obtained paleointensities from 28 lava flows by the Tsunakawa-Shaw method. VDM data in this study range from 0.2 to 10.2 10ˆ22 Amˆ2 and the mean is 3.20 $\pm$ 2.24$\times$10ˆ22 Amˆ2. The mean VDM is a little smaller than that during the last 5 Myr (3.64 $\pm$ 2.10 Amˆ2) [Yamamoto and Tsunakawa, 2005]. The large variations of our VDMs suggest that the geomagnetic field around 30 Ma has variability similar to that of the present field represented by relative paleointensity curves such as the Sint-800 stack [Guyodo and Valet, 1999]. Paleointensities were also estimated from 48 lava flows by the pseudo-Thellier method. The paleointensity variations were similar to those obtained by the Tsunakawa-Shaw method, which provides us a prospective that non-heating methods of paleointensity estimation may be useful and practical.