

Reconstruction of paleointensity during 5 to 9 th century from Mt. Fuji lavas

Hiromichi Komatsu², *Tadahiro Hatakeyama^{1,4}, Akira Baba³

1. Information Processing Center, Okayama University of Science, 2. Faculty of Biosphere-Geosphere Science, Okayama University of Science, 3. Mount Fuji Research Institute, Yamanashi Prefecture, 4. Graduate School of Biosphere-Geosphere Science, Okayama University of Science

The origin of the Earth's magnetic field is due to the electromagnetic fluid motion in the Earth's core by self-exciting dynamo. Therefore, the geomagnetic field varies each place, and it is changing over time. Observation of the changing geomagnetic field in each place is indispensable for the development of the global geomagnetic field model.

In Japan, measurements of paleointensity since the dawn of history are made using archeological materials that is well known age. On the other hand, in this study, we measured the paleointensity of the samples taken from 16 sites of basaltic lava flows showing the secular variation of geomagnetic field direction in the 5th - 9th century erupted from Mt. Fuji where geologic stratigraphy was described in more detail in recent years. The obtained paleointensity was compared with the archaeo- and paleointensity measured by the old methods and with the recent archeointensity work derived from the floor surface of the old kiln.

In this study, we used the latest, Tsunakawa-Shaw method (Tsunakawa and Shaw, 1994). We obtained successful results from 39 specimens out of 62 specimens taken from 16 sites, and we could calculate the mean and variance from 9 sites where more than 3 acceptable samples were obtained. From these results, it was concluded that the basaltic lavas from Mt. Fuji is suitable to restore the paleointensity.

Many of the old works done in the last century using old methods (Thellier and Thellier, 1959) indicated high paleointensity around $60 \mu\text{T}$ in this time window, while, paleointensity by modern methods, IZZI Thellier method (Tauxe and Staudigel, 2004) and Tsunakawa-Shaw method, indicated lower values of intensities (Kitahara, 2018). The paleointensities obtained in this study are consistent with the latter with similar trends of the field fluctuation. In addition, the results of this study inter- and extrapolated the paleointensity of the age of the recent work and the geomagnetic field variation in Japan becomes clear.

Keywords: Paleointensity, Mt. Fuji