

## Geomagnetic behaviors of the Brunhes-Matuyama polarity reversal recorded in lava flows of Tahiti: paleodirectional results

# Masahiko Kurata[1], Nobutatsu Mochizuki[2], Hideo Tsunakawa[3], Hirokuni Oda[4], Toshitsugu Yamazaki[5], Kozo Uto[5], Osamu Ishizuka[6]

[1] Earth and Planetary Sci., T.I.Tech, [2] Earth and Planetary Sci., Tokyo I.T., [3] Earth and Planet. Sci., TITECH, [4] MRE, GEJ, AIST, [5] GSJ, AIST, [6] GSJ/AIST

We have obtained paleodirections at the period of Brunhes-Matuyama reversal from the lavas of the northern side of the Punaruu Valley (17.7S, 149.7W), Tahiti. There have been reported that B-M reversal was recorded in the lavas of the southern wall of the Punaruu Valley (Chauvin et al., 1990). Chauvin et al. reported the paleointensity results. However, there are paleointensity data for only three lavas corresponding to the B-M reversal interval. Therefore, study of paleodirection and paleointensity are necessary to clarify the behavior of the B-M reversal.

For investigating the rock-magnetic properties, we performed the thermomagnetic analyses and hysteresis measurements with a vibrating sample magnetometer. Three typical thermomagnetic curves are observed: they show (a) Curie point ( $T_c$ ) of about 550C, (b)  $T_c$  of about 550 and 200C, and (c)  $T_c$  of 200C. They correspond to titanomagnetite with titanium content  $x$  of (a)  $x=0.1$ , (b)  $x=0.1-0.6$ , and (c)  $x=0.6-0.8$ , respectively. In the Day plot, data fall in the PSD area relatively close to SD area.

Thermal (TH) and alternating field (AF) demagnetization were performed on at least two samples from individual lavas, respectively. 93 samples were subjected to the demagnetizations (TH: 43 samples, AF: 50 samples). The lower half of 21 lavas generally yielded  $\alpha_{95}$  ranged in 2-5 degrees. Since several samples of the upper lavas show significant secondary components, higher coercivity or blocking temperature component were carefully analyzed. We adopted the mean direction of lavas with the conditions that a consistent direction is detected from more than three samples and  $\alpha_{95}$  is not quite higher than 20 degrees. As a result, 16 mean directions are obtained from 21 measured lavas. The lower about 2/3 of 21 lavas showed reversed directions, which correspond to the Matuyama Chron. The upper lavas records reverse-normal-reverse polarity changes. The second reversed polarity is recorded in the most upper of 21 lavas, which may correspond to the rebound after the B-M transition reported in sediments, though there is a difference that the former is full reversal direction while the latter is an intermediate one. Before the reversals, inclination shallowed and then returned to GAD field direction, which showed 40 degrees change. This behavior is also observed in the results of Chauvin et al. (1990), suggests larger directional variation than secular variation occurred before starting the reversal.

NRM intensity/susceptibility values suggest the weak intensity field occurred before and during the B-M reversal.