



Palaeointensity determinations and rock magnetic properties on rocks from Izu-Bonin-Mariana fore-arc (IODP Exp. 352).

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IODP Expedition 352 cored igneous rocks from the Izu-Bonin-Mariana fore-arc crust: Sites U1440 and U1441 recovered Eocene basalts and related rocks whereas Sites U1439 and U1442 recovered Eocene boninites and related rocks. We selected samples from Holes U1439C, U1440B and U1440A for paleointensity measurements. Hysteresis measurements and high and low-temperature magnetization curves show that samples from Hole U1440B undergo magnetochemical changes when heated and are mostly composed of single-domain (SD) or pseudo-single-domain (PSD) titanomaghemite. In contrast, the same measurements show that most selected samples from Holes U1439C and U1442A are thermally stable and are composed of either SD or PSD titanomagnetite with very little titanium content, or SD ferromagnetic grains with a large paramagnetic contribution. Thellier-Thellier paleointensity experiments carried out on U1439C and U1442A samples give a good success rate of 25/60 and Virtual Dipole Moment values between 1.3 and $3.5 \times 10^{22} \text{ Am}^2$. Multispecimen paleointensity experiments carried out on 55 samples from Hole U1440B (divided into 4 groups) and 20 from Hole U1439C gave poor quality result, but they seem to indicate a VDM around $4\text{-}6 \times 10^{22} \text{ Am}^2$ in Hole U1440B fore-arc basalts. These results are in agreement with the low few VDM values previously measured on rocks from Eocene. However, they do not support an inverse relationship between intensity of the field and rate of reversal, since the rate of reversal in Eocene was rather low.