

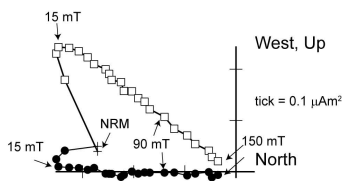
Paleomagnetism of plagioclase-hosted exsolved magnetite in oceanic gabbros

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Exsolved magnetite in silicate minerals gathers much attention due to their widespread occurrence in Precambrian terrains, and their peculiar rock magnetic characters including high coercivity, strong anisotropy and low thermoremanence saturation field have been documented. Studies of Precambrian rocks often lack well-constrained reference paleomagnetic data for comparison, in particular for paleointensity. Consequently, paleomagnetic significance of exsolved magnetite is still uncertain. Many oceanic gabbros contain exsolved magnetite in plagioclase and pyroxenes. During the last decade or so, relatively young (younger than 2 Ma) gabbros have been recovered with a wealth of data on tectonics and thermal history. Those samples represent unique opportunity to check the paleomagnetic significance of exsolved magnetite as well as to clarify the magnetism of oceanic crust. We measured single plagioclase crystals separated from gabbros from the ODP Holes 923A and 1275D using newly employed signal averaging and clean sample handling techniques at JAMSTEC, Yokosuka.

Demagnetization of NRM so far revealed results consistent between bulk samples and corresponding plagioclase crystals. Specifically, multiple polarity components defined in some bulk samples are also found in the plagioclase samples, indicating that the magnetite exsolved early in the cooling history of the rock units. This result supports the suggestion that selective measurement of silicate is useful in studying some oceanic gabbro. We will also report the preliminary results of Thellier experiments in relation to the paleointensity model for the last 2 Myr.

Bulk sample



Plagioclase (unoriented)

