MAGNETIC PROPERTIES OF SOME THOLEIITIC BASALTS DREDGED FROM THE GULF OF CALIFORNIA, MEXICO

by
J. URRUTIA-FUCUGAUCHI
School of Physics,
The University, Newcastle upon Tyne
NE1 7RU Great Britain

ABSTRACT

This study is based on dredged samples collected from the mouth of the Gulf of California, a young opening oceanic basin. The samples are distributed between the East Pacific Rise crest and the Baja California continental slope. Ages are assigned on their position relative to magnetic anomalies and bathymetric profiles. Results from (1) non-destructive measurements, e.g. NRM intensity and direction, initial susceptibility, magnetic anisotropy and viscosity effects ; (2) semi-destructive measurements, e.g. ARM acquisition and AF demagnetization of NRM and ARM ; and (3) destructive measurements, e.g. viscous-partial TRM acquisition, are presented. Geochemical results of major and trace elements, including REE, are also presented. The samples show increasing alteration effects and

enrichment of light-REE with distance away from the rise crest. Among the results we may mention: (1) the intensity pattern does not conform that usually expected for profiles normal to spreading centers; (2) low-temperature weathering is of considerable importance, and its effects correlate well with time; (3) viscous effects at high temperatures (up to 200-300° C) are important in controlling the intensity pattern; and (4) magnetic anisotropy may constitute an alternative feature for determining orientation of dredged basalts.

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