

NEAR-BOTTOM MAGNETIC FIELD OBSERVATIONS AT THE MARIANA TROUGH BACK-ARC SPREADING CENTER

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Near-bottom magnetic measurements provide us high-resolution magnetic anomaly. The high-resolution anomaly is valuable for the studies of the detailed magnetization structure of ocean crust and paleointensity recorded on the ocean crust. We visited the Mariana Trough in the western Pacific to dive in the 17°N segment with the Japanese submersible *Shinkai 6500* in June - July 2008. Objectives of the submersible survey were: 1) observation of lava flow morphology, faults, and fissures and their spatial variation, 2) collection of rock and sediment samples for chemical and age analysis, and 3) geophysical measurements using a deep-sea magnetometer and a sub-bottom profiler to investigate magnetization of the lava flow and thickness of sedimentary layers that cover the lavas. Because the magnetization intensities relate to age of lava, deep-sea magnetic data may provide geophysical evidence for discussion of old and new lava flows. Quantifiable degrees of sedimentation superposed on the lavas suggest relative age differences of formation. In this paper we focus on our visual geological observation and the spatial and temporal variations of the magnetization of the ocean crust.

magnetic anomaly, submersible, magnetization of ocean crust

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