

船上三成分磁力計による地磁気観測に基づいた北西太平洋の中生代磁気異常縞模様

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Mesozoic magnetic lineations in the northwestern Pacific Ocean using shipboard three component magnetometers

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We present the Mesozoic magnetic anomaly lineations identified using geomagnetic data by the shipboard three component magnetometer (STCM) mounted on deck of R/V MIRAI in the northwestern Pacific Ocean. Mesozoic magnetic anomaly lineation map was made by Nakanishi et al. (1989; 1992). The map comprises several blank areas where no magnetic anomaly lineations were identified because of lack of geomagnetic data. Additional geomagnetic measurements have been necessary to complete the map. However, measurements of total forces with towed magnetometer such as a proton precession magnetometer have been not very often carried out in recent years unlike before the 1980s.

To break through the current difficulties, we are utilizing geomagnetic data obtained by STCM and bathymetric data obtained by multibeam echo-sounders. The results of multibeam data will be shown in the presentation by Nakanishi in this meeting.

Several research vessels of Japan Agency for Marine-Earth Science and Technology (JAMSTEC) continuously measure the geomagnetic field by the STCM in the transit of the survey areas. We are trying to identify magnetic anomaly lineations using geomagnetic data obtained by the STCM mounted on deck of R/V Mirai. The precision of STCM data is less than that by towed magnetometers, but it is useful to find strikes of magnetic anomaly lineations.

We processed the STCM data collected during the cruises of R/V Mirai from 2009 to 2013 on basis of the methods proposed Isezaki (1986) and Korenaga (1995). We examined critical values of intensity of spatial differential vector (ISDV) in the areas where magnetic anomaly lineations have been already identified by previous works. On base of our examination of ISDV, we newly identified magnetic anomaly lineations in the blank areas, especially near the Izu-Ogasawara and Mariana trenches.