

Geomagnetic observation by deep-tow magnetometers in Suiyou seamount

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The KR01-15 cruise using R/V Kairei of JAMSTEC was conducted at the area of seamounts of Suiyo and Myoujin from 8th to 28th of December,2001, for the comprehensive research of sea-bottom thermal activity, namely, from the geophysical,geochemical,microbiological and geological point of view. The geophysical survey included measurements with onboard conventional equipments, deep-towed sidescan sonar/echo-sounder/three component magnetometer(DTCM) and ocean bottom seismometers.

Suiyo seamount located at 28 34'N,149 38'E has a caldera around which DTCM survey was carried out with a deep-towed echo sounder survey at the same time. DTCM was towed 200m above the sea bottom by winch control. DTCM measurement was conducted on 8 tracks directed N52E with about 2 mile intervals. During the survey, we got a great deal of good data due to a tidal current from SW to NE, especially inside and NW edge of the caldera. However, we had a malfunction in DTCM system and could not get the attitude data(yaw,pitch and roll) of towed frame, then we must use the magnetic data as the total intensity data.

There is a positive magnetic anomaly at the northeastern edge of caldera and a negative one at the southwestern edge of caldera with amplitude of 500-1000nT. In the northeastern part outside of caldera, there is a positive anomaly and a negative one in the southeastern with 200-500 nT amplitudes. At the place 7km apart from caldera, where the water depth is 2500m, there is a great increase of magnetic field.