

Magnetic Stratigraphy of a marine core from Antarctic Ocean

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In order to set the age on the SX09 piston core sample (SX09: S 65 deg 10.79' , W 174 deg 04.77', Depth; 3336 m, Length; 14.34 m) obtained during R/V Hakuho KH 04-5 cruise, we performed paleomagnetic measurements. This sample contains many IRDs throughout the core.

After physical measurements, we measured NRM, performed stepwise AF demagnetization (5 mT to 70 mT), and measured ARM in 2 cm intervals using U-channel samples. In this study we used NRM and ARM after 30 mT AFD.

Huge IRDs (greater than 1 cm) were found at seven horizons (190, 493, 550, 669, 995, 1317, 1396 cm) in X-CT image. The data from these horizons were not used because IRDs did not recorded the past geomagnetic field. We determined the following polarity zones by inclination: 0-548cm, 570-720cm, 1000-1090cm, 1380-1434cm: normal polarity; 720-1000cm, 1090-1380cm: reverse polarity.

By comparing the results to the geomagnetic polarity timescale, we estimated that 720cm is Brunhes/Matuyama boundary (0.78 Ma), 1000-1090cm is Jaramillo subchron (0.99-1.07 Ma), and 1380cm is the end of Cobb Mountain subchron (1.20Ma). We estimated that the age of the core bottom is 1.20-1.21 Ma.