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SEM032-04 Room: Exibition hall 7 subroom 2 Time: May 25 09:45-10:00

Paleomagnetic and rock magnetic studies of basement basalts recovered during IODP Expeditions 320/321

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During IODP Expeditions 320 and 321, basement basalts with estimated ages of about 53, 50, 46, 38, 26, 24 and 18 Ma were recovered from eastern equatorial Pacific. We took cylindrical mini cores with 2.5 cm diameter from split core-catcher samples or working halves.

Most of the basement basalts were recovered as fragments in the size up to about 10 cm. Stepwise alternating field demagnetization (AFD) effectively removed secondary components by 6-26 mT and revealed characteristic components from all measured mini cores (six specimens). Unfortunately, no orientation information is available for these samples and it is impossible to convert the characteristic components in to geographically meaningful paleomagnetic directions.

From Site U1337 (estimated crust age of 24 Ma), four and two mini cores were taken from azimuthally unoriented core segments with about 10-20 cm long from Holes C and D, respectively. Secondary components were erased by 2-14 mT AFD and gave characteristic components except one specimen. Median destructive fields (MDFs) of the samples range between 10 and 25 mT, and thus the characteristic components are not considered to be affected by drilling remanence. Mean paleomagnetic inclinations (I) are estimated as I=-23.1 (N=3) for Hole C and I=17.2 (N=2) for Hole D, based on the inclination-only statistics by McFaden and Reid (1982). The two inclinations are only spot-reading of the ancient geomagnetic field and cannot be used for estimation of the paleolatitude. However, they appear to be compatible with equatorial eruptions.

For most samples, thermomagnetic experiments showed Curie temperatures of 300-400 C for main phase and irreversible increase in induced magnetizations above 400-500C on heating. This indicates that main magnetic carriers of the samples are Ti-rich titanomagnetite and their low-temperature oxidation products of titanomaghemite. However, some samples did not show titanomaghemite-like thermomagnetic curves. They might be able to use for absolute geomagnetic paleointensity determinations.