

Relative paleointensity record of sediment with slow-sedimentation rates in the West Philippine Sea Basin

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Paleointensity records on sediments of high sedimentation rates have been applied to the stratigraphic correlation in sub Milankovitch scale (e.g. Stoner et al., 1998, Laj et al., 2000, Stoner et al., 2000), and proved its usefulness, because the sediment geomagnetic paleointensity data makes possible the fine time correlation between cores on the older sediment than the range of AMS 14C. On the other side, the paleointensity record of the slower sedimentation sequence is supposed to show the convoluted record by the filtering effect of the post-depositional remanent magnetization, then a unique and different pattern depending on the sedimentation rate (e.g. Guyodo and Channell, 2002). In order to document the record of slow-sedimentation, we examined the sediment paleointensity record obtained from the West Philippine Sea Basin (Water depth ca. 5000 to 6000 m). The cores consist of the brown pelagic clay showing a homogeneous rock-magnetic property except the upper diatom ooze intervals. The analyses of paleomagnetic direction proved that the cores contain Jaramillo and Olduvai Events. The sedimentation rates of cores estimated from magnetostratigraphy are less than 1cm/kyr (0.6-0.4 cm/kyr). Proxy of paleointensity (NRM20mT/ARM20mT) applied to cores reveals the variations in the records are dominated in c.a. 100 ky cycle. Comparing to other paleointensity record (c.a.SINT800: Guyodo and Valet, 1999), it is clear that the record includes minima of ca.100-ky cycle in chrons and at polarity boundaries in spite of the slower sedimentation rate, although other high frequency records were not identified. It suggests that geomagnetic events of a few to several kys time interval (excursions and polarity reversals) are recordable in these sediment, but signals of much shorter events might be disappeared. The paleointensity in the slow-sedimentation record is still useful for the age control utilizing the lower frequency signal, especially for investigating of less age information sequence such as the deep sea sediment below CCD, but not for fine correlation by high frequency data.