

Paleomagnetic secular variation and rock magnetic characteristics for the last 30 kyrs from the Nankai Trough sediments, Japan

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The geomagnetic field constantly fluctuates in direction and intensity, known as secular variation (PSV). Paleomagnetic studies using marine and lake sediments, and archeological materials have been conducted globally for understanding PSVs over the past several tens of thousands of years. In Japan, Ali *et al.* (1999) presented a Holocene PSV master curve of declination and inclination from Lake Biwa, central Japan. This curve has widely been used to correlate cores and estimate ages. But this master curve has some problems including the accuracy of age axis. In addition, recent progress of paleomagnetism has made it possible to discuss relative paleointensity (RPI) using marine sediments.

For PSV studies using marine sediments, especially for RPI studies, it is desirable that the sediments are magnetically relatively homogeneous and have stable remanent magnetization (Yamazaki *et al.* 2017). In addition, it is necessary that the sediments can be dated and have a sedimentation rate enough for targeted resolution. Seafloor sediments off Kumano in the Nankai Trough are considered to satisfy these conditions based on current knowledge (Okutsu, 2019, Ph.D thesis). On the other hand, it is necessary to take into account intercalated turbidite layers. Okutsu (2019, Ph.D thesis) has identified turbidite layers in the sediment core used in this study from various analyses including particle size analysis, magnetic susceptibility measurement, X-ray CT scan, and XRF core scan (ITRAX).

In this study, we intend to present a new PSV record (declination, inclination and RPI) for the last 30 kyrs from Nankai Trough sediments. We aim to construct a more accurate and reproducible PSV curve in Japan than those of the previous studies, and to newly obtain a RPI record. These PSV curves will be useful for inter-core correlation and age estimation of sediments around Japan.

We will introduce mainly the results of paleomagnetic and rock magnetic measurements on 293 discrete samples (7 cc cube) taken from core PC04 of the Hakuho-maru KH-17-2 cruise off Kumano of the Nankai Trough.

Keywords: paleomagnetic secular variation (PSV), relative paleointensity (RPI), rock magnetism, turbidites, the Nankai Trough, Holocene