

Paleointensity-assisted chronology of a sediment core from Okhotsk Sea

Seiko Inoue[1]; Toshitsugu Yamazaki[2]

[1] Earth Evolution Sci., Univ. Tsukuba; [2] GSJ, AIST

We conducted a magnetic study on a sediment core MR0604-PC5. The core, about 17.9 m in length, was obtained in the central Okhotsk Sea at 54 deg 19 min, 149 deg 10 min. Water depth of the coring site is 831 m. The core is composed of diatom bearing silty clay of olive gray in color. Anisotropy of magnetic susceptibility (AMS) was first measured on all discrete samples using a Kappabridge KLY-3S susceptometer. The result shows that most samples have preserved primary fabric. Next, natural remanent magnetization (NRM) measurements with stepwise alternating-field (AF) demagnetization were performed using a cryogenic magnetometer system with an inline static AF demagnetizer. Then anhysteretic remanent magnetization (ARM) was given. Stepwise AF demagnetization shows that remanent magnetization of most samples consists of single component except for the first few demagnetization steps. The average inclination is close to the value expected from the geocentric axial dipole at this site. Relative paleointensity was estimated from NRM intensities normalized by ARM. Magnetic susceptibility shows four peaks at 3 m, 9.5 m, 12.5 m and 15 m in depth. The density record shows similar four peaks at the same horizons. The peaks of b^* occurred later than the susceptibility peaks. According to Nurnberg and Tiedemann (2004), the peaks of susceptibility were caused by increases of terrigenous flux at glacial-interglacial transitions, and the peaks of b^* were synchronous to high-productivity events in interglacials. Thus it is considered that the variations of susceptibility, density and b^* show glacial-interglacial cycles, and the peak at 15 m in depth corresponds to 430 ka. Based on this age, we correlated a relative paleointensity record of PC5 with the global paleointensity stack SINT-800 (Guyodo and Valet, 1999). We converted depths into ages by the correlation, and estimated that the age of the bottom of this core reaches to 580 ka.