Paleomagnetic secular variation recorded in a piston-core sample from Lake Biwa off Takashima

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We obtained a piston-core sample (BIW07-2) from in the cental part of Lake Biwa off Takashima in 2007,intending to reveal a detailed record of paleosecular variation (PSV). This core sample consists of gray and dark gray clay with several volcanic ash layers, including Kikai-Akahoya (K-Ah, 7.25 ka), Ulreung-Oki (U-Oki, 10.19 ka), Aira-Tanzawa (AT, 28.78 ka), Sanbe-Ikeda (SI, 49 ka). The age of these widespread tephra deposits made it possible to roughly estimate a primary age model. Assuming a constant sedimentation rate below the AT ash, the age of the core bottom is estimated at around 55 ka.

The data of anisotropy of magnetic susceptibility (AMS) suggest that most intervals were not deformed, except for some parts of around ˜2 m, 6.7 to 7.5 m and several volcanic ash layers. Results of stepwise alternating field (AF) demagnetization suggest that directions of characteristic magnetization can be obtained after AF demagnetization at 15 mT. Thus directional variation of natural remanent magnetization (NRM) after 15 mT AF demagnetization can be assumed as a PSV record for the last 55 kyrs.

Inclination record of this core is correlated with those of the BIW95-4 core (Hayashida et al., 2007), which recorded from close vicinity. Deviations of NRM directions occurring in low intensity interval between the AT and SI ashes may correspond to the Laschamp, Mono Lake excursions.