

A record of Island Basin excursion and its field morphology from Lake Bikal

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Paleomagnetic and rockmagnetic studies were conducted on a piston core Ver96-2, St.7 from Academician Ridge, Lake Bikal. Paleomagnetic measurements were made on u-channel samples taken from both halves of the vertically split core. The measurements on Ver96-2, St.7 were conducted by passing through the magnetometer at 5mm intervals and the results were deconvolved by the method of Oda and Shibuya (1996). Records of geomagnetic excursion were obtained and the age of the excursion was estimated as ~190 ka by the correlation of variations of biogenic silica with the deep-sea oxygen isotopic records.

Anhyseretic remanent magnetization (ARM) and isothermal remanent magnetization (IRM) were measured and the relative paleointensity was estimated by dividing the natural remanent magnetization (NRM) with ARM and IRM. The relative paleointensity can be correlated with the record of Sint-800 by Guyodo and Valet (1999) which was consistent with the above correlation based on biogenic silica. The core Ver96-2, St.7 has its minima at 76cm, 159cm, and 245cm, each of which can be correlated with the minima at 40, 100, and 190 ka in Sint-800. The Island Basin excursion itself coincide with the minima of relative intensity at 190 ka.

The VGP paths during the excursion show two loops. The first loop make a path from Atlantic to eastern Pacific reaching the southern tip of the South America, then move northward through eastern Pacific. The second loop make another path through Atlantic southward to the southern end of South Africa, move to Australia, then move to north. The southern most part is different in longitude about 180 degrees. The first loop cannot be clearly seen in the record of Ver98-1, St.6 (Oda et al., 2002), however, the second swing through south Africa to Australia can be recognized. The local field morphology of Island basin at Lake Baikal will be constructed with the recent record of core CON 01-603-2 by Demory et al. (2005) and compared with the global records. The low relative paleointensity for the whole excursion period in all records may indicate the decay of axial dipole component prior to and subsequent to the excursion.