

別府湾のピストンコア試料に記録された完新世古地磁気永年変化

林田 明 [1]; 安樂 和央 [2]; 大野 正夫 [3]; 加 三千宣 [4]; 竹村 恵二 [5]

[1] 同志社大・理工・環境; [2] 同志社大・理工・数理環境; [3] 九大・比文・地球変動講座; [4] 愛媛大・沿岸環境; [5] 京大・理・地球熱学研究施設

Holocene paleomagnetic secular variation recorded in piston-core samples from Beppu Bay, Southwest Japan

Akira Hayashida[1]; Kazuhiro Anraku[2]; Masao Ohno[3]; Michinobu Kuwae[4]; Keiji Takemura[5]

[1] Environmental Systems Science, Doshisha Univ.; [2] Doshisha Univ.; [3] Division of Earth Sciences, SCS, Kyushu Univ.; [4] Ehime Univ.; [5] Beppu Geo. Res. Lab., Kyoto Univ.

An increasing number of studies have been made on paleomagnetic secular variation (PSV) in recent years, utilizing archaeological materials, volcanic rocks, and marine or lacustrine sediments. The Holocene PSV data from Lake Biwa (Ali et al., 1999) is regarded as a representative record of Japan or East Asia. It is expected, however, to further improve the data distribution and quality in Japan, following recent advances in stratigraphy and geochronology of the Holocene sediments. We investigated sedimentary magnetism of core samples from Beppu Bay, a tectonic basin, where thick Quaternary deposits have been derived mainly from active volcanic fields on Kyushu Island. Previous studies utilizing multiple piston-core samples from northwestern part (Ohno et al., 1991) showed that the Beppu Bay sediments are characterized by stable remanent magnetizations suitable for reconstruction of the Holocene PSV. Then we made pass-through measurements of natural remanent magnetizations of u-channel samples from piston-cores recovered in 2009 and 2015 from the deeper southwestern part, where a new age-depth model was developed through detailed sedimentological analysis and AMS radiocarbon dating (Kuwae et al., 2013; Yamada et al., 2016). These core sediments are composed of hemipelagic clay intercalating several event layers of turbidites and tephra deposits. Although our declination data was partly discontinued at section boundaries, variation of the relative declination is generally consistent with the data from the northern site (Ohno et al., 1991) and with the PSV records from Lake Biwa (Ali et al., 1999), particularly for the last 3,000 years. Long-term trends of the inclination variations are also consistent with the Lake Biwa record; however, anomalous inclination changes were observed at horizons of the event layers, even after deconvolution of the pass-through data by UDECOR (Xuan and Oda, 2015). Except these intervals, the paleomagnetic data from Beppu Bay is expected to play a key role in synthesizing PSV records in Southwest Japan.