

Sedimentary record of the Holocene paleomagnetic secular variation from Beppu Bay, Southwest Japan

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Although considerable efforts have been made for global data compilation and geomagnetic field modeling for paleomagnetic secular variation (PSV), it is desired to further improve the data distribution and quality in the Asia-Pacific region. We have investigated the Holocene PSV records from marine sediments of Beppu Bay, which is a tectonic basin adjacent to active volcanic fields of Kyushu Island in Southwest Japan. Previous studies utilizing multiple piston-core samples from northwestern part showed that the sediments of the Beppu Bay have preserved stable remanent magnetizations suitable for reconstruction of the Holocene PSV. Recently, an age-depth model was developed for the late Holocene sediments in the southwestern part through detailed sedimentological analysis and AMS radiocarbon dating, particularly for the last 3,000 years. We hence made pass-through measurements of natural remanent magnetizations of u-channel samples from newly obtained piston cores. Although our declination record was discontinued at section boundaries, relative variation within a u-channel sample was comparable with paleomagnetic records from the northwestern part. The inclination records showed consistent variation between the two areas and also correlative to a PSV record from Lake Biwa. It is thus suggested that the paleomagnetic data from Beppu Bay play a key role in synthesizing sedimentary and archeomagnetic PSV records in Southwest Japan.

Keywords: paleomagnetic secular variation, remanent magnetization, Beppu Bay