Age estimation of ancient kilns based on archeomagnetic secular variation: Ushikubi-Hondo site, Ohnojyo City, Fukuoka Prefecture

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We made an archeomagnetism study at Ushikubi-Hondo site, Ohonojyo City, Fukuoka Prefecture. This area is one of the well-excavated ancient kiln sites in Japan. We collected samples from four 'noborigama' type kilns and one 'sumiyakigama' type kiln there. hd10, hd12, hd13-lower and hd13-upper are archeologically dated as the Nara Period. Whereas hd11 is estimated for the early Showa Period.

These samples were progressively AF demagnetizated at more than 13 steps. The stable component of remanence was then determined on the Zidervelt diagram. The remanent direction of the stable component was calculated with help of the principle component analysis.The Fisher-mean direction of each kiln was calculated and compared with the secular variation curve. We transferred the standard secular variation curve for Kinki District (Shibuya, 1980) to the locality of Ohnojyo City on the basis of dipole hypothesis.

Finally, we could estimate the archeomagnetic age of the two kilns as AD. 1875 +50, -25 (hd11) and AD. 600 +150, -25. These age show good agreements with the archeological estimation. However rest of the kilns were failed to give reasonable ages. The reason of unsuccessful result is not clear, but the application of the standard secular variation curve which was established for Kinki District should be examined in more detail.