Reexamination of geomagnetic secular variation in Kinki District using samples from Suemura kilns (IV)

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In 1960s-70s, enormous number of kilns were excavated in Sakai city and its vicinity, Osaka prefecture for a large residential development. Enhanced archeological studies, especially for massive amount of pottery kilns (Sue ware of 5th to 10th century) were carried out by Osaka Prefectural Government. Archeomagnetic researches were also conducted by prof. Kawai and his colleagues of the Osaka University. As the result, the geomagnetic secular variation curve from the 5th century to the 10th century was drawn (e.g. Hirooka 1971; Shibuya 1980). However, there are problems from the present paleomagentic view point. The natural remanent magnetizations (NRM) were measured by astatic magnetometer and demagnetization was not made. Fortunately, those samples are stocked in Osaka Ohtani University, and we moved them to Okayama Science University and Kumamoto University, for conducting systematic remeasurement study of their NRM after alternating magnetic field demagnetization (AFD). We already reported the results in 2012, 2015 JpGU meeting. The preliminary secular variation curve for 5^{th} and 10^{th} century were also reported in 2015 SGEPSS meeting, and 2015 AGU fall meeting. However, the curve has some conflicts with archeological dates in the later part of the interval. This time, we reexamined the archeological age and its reliability of each kiln, and tried redrawing the secular variation curve. The discrepancy between the Sueki typological ages and the archeomagnetic ages inferred from the secular variation curve is smaller for the redrawn one. It is interesting that Hajiki (another category of earthen wares in Japan, which does not have secular typological change, thus hard to be dated by archeology) kilns have magnetic direction aligned in a line after the youngest Sueki kilns. It may indicates that those Hajiki kilns were used for producing earthen wares of daily life after the technique of Sueki had been lost. If it is correct, the secular variation curve can be extended to 12 CE. The density of the kilns and a couple of gaps in age may also be suggestive to the rise and fall of the craftsmen groups of Suemura.

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