

Archaeointensity of Nishiyama 1st Kiln of Shino Old Kiln Complex –the Attempt for Cross Check by Multi Methods –

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A study about archaeomagnetism in Japan has been processed to be performed toward to recently, and it seems that the interest has been increasing in the community of archaeology. Therefore, most of archaeomagnetic practice is the study for paleodirection. On the other hand, archaeointensity study has not performed except a few cases (e.g. Sakai et al., 2015), because the experiments are very hard and the reference has not constructed. Based on these, we have been carrying out the restoration of the past field intensities using baked earth of ancient kilns since few years ago. Especially, in the case of the remain had non-demagnetized samples, we have been trying to cross check the value of paleointensities obtained by two different methods; Tsunakawa-Shaw method (e.g. Yamamoto et al., 2003) and IZZI-Thellier method (e.g. Yu and Tauxe, 2005) to assess the validity of paleointensity experiment itself. We have done crosscheck for the baked earth samples from Sayama Higashiyama-Oku kiln in Bizen city, Okayama, and confirmed that the value of intensity obtained by two different method consistence each other within the very narrow range as coefficient of variation is less than 10 % (Kitahara et al., SGEPS 2016 meeting).

In the present, we are carrying out the same experiment using new archaeological materials to support the previous result. The experimental sample is the baked earth from floor surface of Nishiyama 1st kiln of Shino old kiln complex placed Kameoka city, Kyoto. And the measurement of paleodirection of the sample has done, and the results had high reliability, and showed coincidence with archaeological hypothesis have obtained (Hatakeyama et al., JpGU this meeting). Until the present, Tsunakawa-Shaw experiment for three specimens (the cubic specimen processed from block sample) taken in the kiln and one specimen taken from out of the furnace opening, and IZZI-Thellier experiment for the 3+1 specimens taken from the same place like Shaw method' s one have ended. About Thellier experiment, the straight line was not able to identify on Arai diagram, because all graphs curves downwards. On the other hand, about Shaw experiment, the result as 37.6 ± 3.8 uT (coefficient of variation=10.0 %, success rate=100 %) obtained from three specimens of in the kiln. And a value of Shaw method from a specimen from out of the furnace opening is 26.3 uT. It is significantly different from the average of the sample taken from in the kiln. We are going to do the crosscheck among different methods, especially Thellier experiment, as future works.

Keywords: Archaeointensity, Tsunakawa-Shaw Method, IZZI-Thellier Method, Cross Check, Sue Ware Old Kiln