Geophysical Research Abstracts Vol. 15, EGU2013-7081, 2013 EGU General Assembly 2013 © Author(s) 2013. CC Attribution 3.0 License.



Archaeomagnetic dating in Greece: new directional results from two contemporaneous kilns

Evdokia Tema

Universita degli Studi di Torino, Scienze della Terra, Torino, Italy (evdokia.tema@unito.it)

Detailed archaeomagnetic study was carried out on a ceramic workshop excavated at Kato Achaia (Greece). Two ancient circular brick kilns were discovered during the works for the construction of a house at Parodos Papaflessa Street, in the center of Kato Achaia village. According to archaeological evidence, both kilns were part of a bigger ceramic workshop, probably used for the production of bricks or ceramics. Systematic archaeomagnetic sampling was carried out collecting 9 brick samples from the first kiln (KL3) and 12 brick samples from the second kiln (KL5). All samples were independently oriented in situ using a magnetic compass and an inclinometer. Systematic magnetic measurements have been carried out in order to determine the main magnetic carrier of the samples and to check their thermal stability. Isothermal remanent magnetization (IRM) experiments pointed to magnetite and/or Ti-magnetite as the main magnetic minerals in most of the samples. These results are also confirmed by the thermal demagnetization of the three IRM components curves that in almost all cases show the dominance of the magnetically soft fraction (< 0.1 T). Standard archaeomagnetic procedures have been used to determine the archaeomagnetic direction registered by the bricks during the kilns last firings. Stepwise thermal demagnetization procedures reveal a single-component, stable remanent magnetization. The direction of the Characteristic Remanent Magnetization (ChRM) has been obtained from principal component analysis and the kilns mean directions were calculated using the Fisher statistics. The archaeomagnetic ages of both kilns have been obtained using the most recent developments in data elaboration and were calculated after comparison of the kilns archaeomagnetic parameters with the declination and inclination reference curves produced by the SHA.DIF.3K European regional geomagnetic field model. Dating results are in very good agreement with archaeological evidence of the site and suggest that both kilns were in use during Hellenistic times. The new directional data together the most reliable archaeodirectional data from Greece previously published show that the directional secular variation of the Earth's magnetic field in Greece is well described for the 1600-1200 BC and 400 BC-400 AD time periods while for other periods more reliable data are still necessary in order to guarantee reliable archaeomagnetic dating.