

New Directional Archaeomagnetic Data from Seven Baked Clay Structures Excavated at the Archaeometallurgical Site of Agia Varvara-Almyras, Cyprus

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Abstract

The first directional archaeomagnetic results from Cyprus are presented, based on the study of seven baked clay structures excavated at the copper smelting site of Agia Varvara-Almyras, situated some 20 km south of Nicosia. This ancient copper working site represents a unique example of complete primary production of the copper metal in Cyprus. In total five furnaces, one ore roasting pit and an oven were sampled in situ for an archaeomagnetic investigation. All the studied structures are well dated, based on pottery finds and radiocarbon analyses, with ages ranging from 600 BC to 50 BC. Several rock magnetic experiments were performed to determine the main magnetic carrier and to investigate the thermal stability of the studied material. The direction of the Characteristic Remanent Magnetization (ChRM) for each structure has been determined by demagnetization of 7 to 15 specimens in alternating magnetic fields up to 100–120 mT. Mean directions were calculated assuming a Fisherian distribution and are very well defined for five out of the seven structures studied. The new directions are compared with the few directional data available for the area, mainly coming from Greece, and with the predictions of global geomagnetic field models. They are an important contribution to improving our knowledge of the geomagnetic field variations in the eastern Mediterranean and emphasize the need for more directional data from well dated structures in order to acquire a better understanding of the geomagnetic field's short-term variations in this region.

Keywords: archaeomagnetism, secular variation, Cyprus; Eastern Mediterranean.

