

O13-7**POST -BYZANTINE ARCHAEO-MAGNETIC INTENSITY RESULTS FROM PAROS ISLAND****V. SPATHARAS¹, M. KOVACHEVA² and I. LIRITZIS³**¹ University of Thessaloniki, Greece. E-mail: vspath@lemnos.geo.auth.gr² Geophysical Institute, Sofia, Bulgaria. E-mail: marykov@geophys.bas.bg³ University of Aegean, Greece. E-mail: liritzis@rhodos.aegean.gr

From the island of Paros a sampling has been done into 4 churches. The samples were bricks (from each church we took one piece and we cut totally 9 cubes – 2x2 cm.

Nine specimens from four Paros churches have been studied in Sofia palaeomagnetic laboratory to obtain the intensity values of ancient geomagnetic field. The classical Thellier method has been applied (Thellier and Thellier, 1959). Their results are represented as normalized values with the field corresponding to the present earth's magnetic dipole for the geographic latitudes of the sampled churches. Thus these results can be compared with the existing geomagnetic field intensity variation curve for Bulgaria for the corresponding period of time (Kovacheva et al., 1998). Some rock-magnetic studies have been carried out before the intensity experiment, which quality is quite good and the anisotropy correction has been applied to the values, obtained. This correction is in the frames of 10% of the values.

The studied churches were archaeologically dated as follows: PANAGIA SEPTEMPRIANI - 1592 AD; XALARA - 1612 AD; MAKRIGIANI - 1836 AD; and AGIOS IOANIS - 1898 AD. The comparison of the obtained results with the Bulgarian intensity variation curve show that the dates of the bricks taken from the first three churches are completely acceptable from the archaeomagnetic point of view. At the same time the value obtained for the church Agios Ioanis does not correspond to the intensity variation curve. On the basis of the value obtained of F_a/F_d (1.48) and taking into consideration the intensity variation curve we think that the fabrication of this brick is made earlier: about 16-17 c. AD. There are also other archaeomagnetic intensity results from the Greek churches of 16 c. AD having values of F_a/F_d as 1.40 and 1.24. Our conclusion is that this brick is secondary utilised for the construction of the church of 19 c. AD (Agios Ioanis), but it has the remanence of its fabrication taking place much earlier (about 16 c. AD).

The presented results show the applicability of the archaeomagnetic method for dating purposes, provided that the geomagnetic field variation curves are known for the region

Table 1. Description of the studied samples for paleointensity.

SITE	AGE	MATERIAL	$F^A/F^D \pm s$
PANAGIA SEPTEMBRIANI	1592 AD	BRICK	1.31 ± 0.03
XALARA	1612 AD	BRICK	1.21 ± 0.18
XALARA	1612 AD	BRICK	1.24 ± 0.02
MAKRIGIANI	1836 AD	BRICK	1.09 ± 0.03
AGIOS IOANNIS (2 samples)	1889 AD	BRICK	1.48 ± 0.04

References

- Kovacheva, M., Jordanova, N., and Karloukovski V. : Geomagnetic field variations as determinations from Bulgarian archaeomagnetic data. Part II: the last 8000 years. *Surveys in Geophysics* 19 :431-460.
- Thellier, E. and Thellier, O., 1959, Sur l'intensité du champ magnétique terrestre dans le passé historique et géologique, *Ann. Geophysique* 15, 285-376.