

## **Dating of ancient baked clays: A combined archaeomagnetic and thermoluminescence analysis applied to a brick workshop at Kato Achaia, Greece.**

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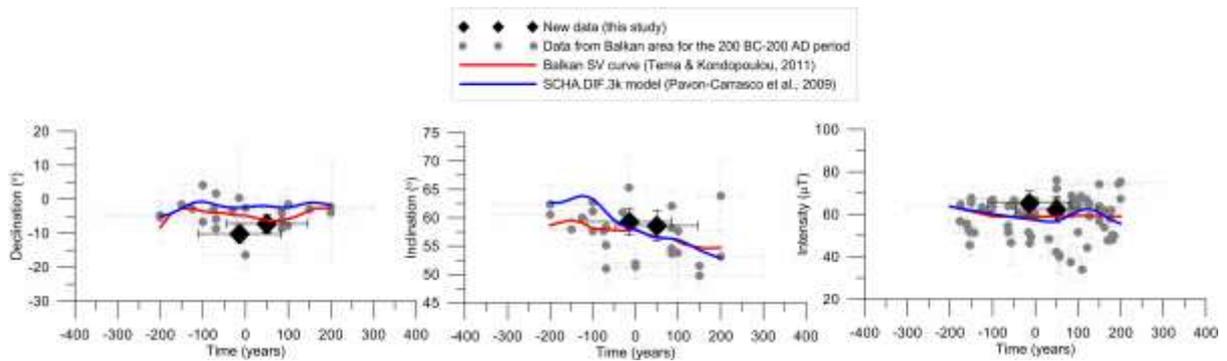
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**Abstract:** We present here the results of a detailed archaeomagnetic and thermoluminescence investigation of two ancient kilns excavated at Kato Achaia, Greece. Magnetic mineralogy measurements have been carried out to determine the main magnetic carrier of the samples and to check their thermal stability. The directions of the characteristic remanent magnetization of each structure have been obtained from standard thermal demagnetization procedures and the absolute archaeointensity has been determined with the Thellier (Thellier and Thellier, 1959) modified by Coe (Coe, 1967; Coe et al., 1978) method, accompanied by regular partial thermoremanent magnetization (pTRM) checks. The full geomagnetic field vector was used for the archaeomagnetic dating of the two kilns, after comparison with the reference secular variation curves calculated directly at the site of Kato Achaia. Independent dating has also been obtained from thermoluminescence (TL) analysis of four samples from each kiln. The dating results obtained from the two methods have been compared and the last firing of each kiln has been estimated from the combination of the two techniques. Using the independent date offered by TL dating, the new archaeomagnetic data have been compared with other data from the same time period and they can further be used as reference points to enrich our knowledge about the past secular variation of the Earth's magnetic field in Greece.

**Keywords:** Dating; Archaeomagnetism; Thermoluminescence; Baked clay; Secular variation



**Figure 1:** The new declination, inclination and intensity data obtained in this study plotted together with literature data from the Balkan area for the 200 BC-200 AD period and the Balkan (red line) and SCHA.DIF.3k (blue line) SV curves.

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