Archaeomagnetic dating: Examples from Euboea and the missing link between central Greek mainland and the islands

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Archaeomagnetism is a discipline which combines geophysics and archaeology and has several applications, the most prominent being the dating of sites through the study of the past geomagnetic field as recorded by baked clays which contain iron oxides. Upon heating to high temperatures and subsequent cooling, these oxides record the direction and intensity of the Earth's magnetic field at the time and place of the operation. This information can be recovered and has a two-fold application:
If the studied material is dated with independent methods, the results are used for the construction of the reference curves-SVC-for the area.
If the material is of uncertain age, then these curves, if available, can be used for its dating ,with a low cost and destruction procedure.
Systematic archaeomagnetic research in Greece during the last two decades led to an important set of data and fairly well-constrained SVC, which nevertheless present several gaps, as shown in the following figure (Fig.1). The uneven distribution of studied sites is also a problem which needs to be solved.
The region of Central Greece, Euboea and the islands have been very poorly covered and the need to fill this gap is urgent. New results on well-dated materials were recently published for Neolithic Thessaly (Aidona et al., 2012; Fanjat et al., 2012). Previously published results in the broader area are reported by Evans (2006) who studied two kilns in Eretria and Avlis with very uncertain ages. In order to improve the general pattern and using the recently updated SVC for Greece, we proceeded to the dating of these two sites with the following results:

1.ERETRIA : 1665-1550 BC **2.AVLIS** :978-281 BC

The possibilities and restrictions of the method will be discussed and the need to mobilize the archaeological community will hopefully be demonstrated.

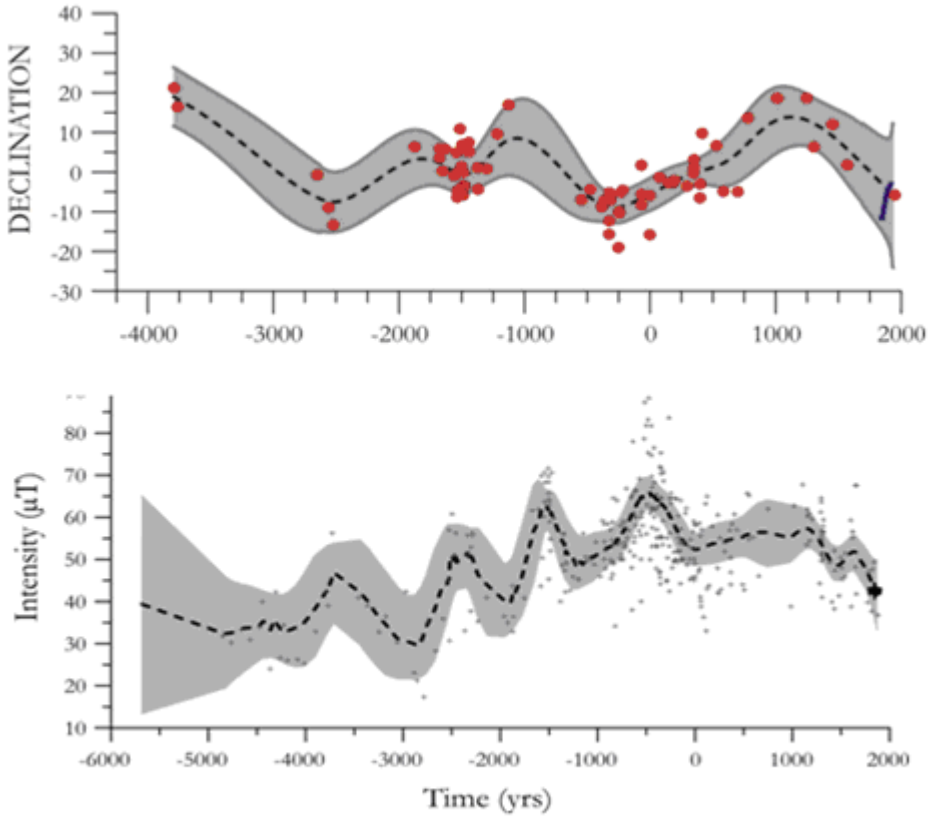

Figure 1. Secular Variation Curves for Greece (From DeMarco, 2007)