Combined archaeomagnetic and thermoluminescence study of a brick kiln excavated at Fontanetto Po (Vercelli, Northern Italy)


Abstract

A combined archaeomagnetic and thermoluminescence study was carried out as part of a rescue archaeological excavation on a kiln discovered during the installation of methane gas pipelines beneath a rice field, along the southern border of Fontanetto Po village (Vercelli province, Italy). A total of 23 independent brick samples have been collected, oriented in situ with an inclinometer; the use of magnetic and sun compass was not possible due to the existence of metallic tubes beneath the kiln and a plastic cover above it. Standard archaeomagnetic procedures have been used for the determination of the archaeomagnetic inclination and absolute geomagnetic intensity. Stepwise thermal demagnetization shows a very stable characteristic remanent magnetization and the calculated mean inclination of the 23 samples is \( I = 65.3^\circ \) with \( \theta_{500} = 2.4^\circ \) and \( k = 156 \). Archaeointensity experiments have been performed using the classical Thellier method as modified by Coe, with regular partial thermoremanent magnetization (pTRM) checks. The cooling rate and remanence anisotropy effects upon thermoremanent magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens. A total of 19 archaeointensity determinations (at specimen level) that correspond to linear NRM magnetization (TRM) have been investigated in all the specimens.

1. Introduction

Dating of archaeological material is a key issue in the archaeological research as it can significantly contribute to determine the age and duration of the human occupation of a site and define the chronology of cultural and economic development of a certain area. A wide variety of established and newly developed archaeometric techniques can offer valuable dating tools and in some cases different techniques can be applied to the same artefacts. Archaeomagnetic and thermoluminescence dating methods can, under...