



A combined archeomagnetic and mycrostratographic study of Neolithic anthropogenic burnt sediments from the Can Sadurni cave (NE Spain)

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Knowledge of the variation of the Earth's magnetic field in the past is an important topic in Earth Sciences today. New archeomagnetic data are crucial to expand the regional and global geomagnetic field models. However, very few archeomagnetic data are available in Europe before the third millenium BC. Recent archeomagnetic studies demonstrated that burnt anthropogenic cave sediments (fumiers) can provide a unique record of past geomagnetic field directions. In this study we present a combined archeomagnetic and microstratigraphic analysis of Neolithic anthropogenic sediments from the Can Sadurni cave (Begues, Baix Llobregat, northeastern Spain). Can Sadurni archaeological site is a cave located at the Garraf mountains, 450 m above sea level and about 25 km west of Barcelona (northeastern Spain). Excavations started in 1978 and are still in progress. Twenty-eight different levels have been identified, ranging from Epipalaeolithic (10 840–10 410 cal. BCE) to the Roman period. The samples studied here were sampled in a fumier corresponding to the E.XIV level and dated between 5650 and 5700 BP by archeological and radiocarbon results. Alternating field demagnetization experiments allow us to obtain a well-defined archeomagnetic direction for this period. Together with additional rock-magnetic analysis, the results indicate that the magnetisation is carried by low-coercivity ferromagnetic minerals. The new archeomagnetic direction is compared with previous archeomagnetic data and models. The microstratigraphic analysis allows us to document some animal stabling practices in which two units can be distinguished: a) mineralized residues (ash) with charcoal fragments and, b) charred dung.