



Magnetostratigraphy of the Plio-Pleistocene marine deposits of the SE Zakynthos island

M.D. Papanikolaou (1), E. Platzman (2), and M. Triantaphyllou (3)

(1) (mp350@cam.ac.uk) Department of Geography, University of Cambridge, Cambridge, UK, (2) (platzman@usc.edu) Department of Earth Sciences, University of Southern California, United States, (3) (mtriant@geol.uoa.gr) Faculty of Geology & Geoenvironment, Dept. of Historical Geology-Paleontology, University of Athens, Athens, Greece

The magnetostratigraphy of the Quaternary onshore marl-dominated marine sequence of the SE Zakynthos island is established supported by nannofossil biostratigraphy. The sedimentary succession comprises three formations: a) 130 m of marls of the Gerakas Formation b) calcarenites followed by 40 metres of alternations of marls and sandstones followed by more than two hundred metres of marls, Kalogeras Formation, and c) calcarenites of the Agios Nikolaos Formation. The high sedimentation rates (15–100 cm/kyr) are favourable for the detection of short-term magnetic intervals while the fine-grained lithologies are favoured for palaeomagnetic analysis. The majority of the samples (125) analysed were subjected to thermal demagnetisation and only a few to alternating field demagnetisation treatment.

In general, most specimens have a low intensity of NRM that varies between 0.04 to 4.2 mA/m while average values range from 0.2 to 0.8 mA/m. The intensity usually dies out around 400° C for most samples and around 200°–250° C for a few samples. Small increments of temperature were therefore applied for monitoring the short weakening of the intensity.

The Brunhes/Matuyama Chron boundary (0.781 Ma) is identified within the Kalogeras Formation, the Jaramillo Subchron (0.988–1.072 Ma) with a plausible excursion within it, and the top of the Olduvai Subchron (1.78 Ma) are identified within the Gerakas Formation. The occurrence of the Gauss Chron (2.58 Ma) is assumed by the HO of *Discoaster surculus* estimated at 2.51 Ma. Furthermore, the detection of a reversed polarity horizon within the Brunhes Chron is tentatively interpreted as the occurrence of the Delta (0.69 Ma) or the 17a (0.665 Ma) excursions. The highest and lowest occurrences of such nannofossil species as *Gephyrocapsa* sp. 3, *Gephyrocapsa oceanica* *Reticulofenestra asanoi* and *Discoaster brouweri* have contributed to the identification of the magnetic intervals. Moreover, the abundance fluctuations of *Gephyrocapsa* sp. 3 around the Brunhes/ Matuyama boundary corroborate already published records based on the study of marine deposits in Southern Italy.