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Palaeomagnetic investigations of sediments cores from Axios zone (N. Greece): implications of low inclinations in the Aegean

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Abstract. Sediment cores from 13 deep boreholes (1–4.1 km) from Axios zone in Northern Greece have been studied by means of palaeomagnetism. Both low field magnetic susceptibility and intensity of the natural remanent magnetization (NRM) indicate rather weakly magnetised materials. 390 samples have been subjected to demagnetization process (AF and thermal) revealing in most of the cases the presence of magnetite. Isothermal remanent magnetization (IRM) acquisition curves and thermomagnetic analysis suggest the dominance of magnetite. 30 thin sections were studied in order to more precisely characterise the magnetic mineralogy of the samples. This investigation also reveals the presence of magnetite and pyrite in framboidal form. An attempt to re-orient some of the samples was partially successful by using the viscous component and the anisotropy method. Re-orientation techniques were applied in order to correct the palaeomagnetic directions due to the orientation ambiguity of the core samples. The palaeomagnetic results confirm the clockwise Cenozoic rotation, in the study area in agreement with the overall pattern of the onshore results from previous investigations.

Finally, the observed inclinations of characteristic remanences in these rocks are much lower than the expected ones but converge with those obtained from formations on land.

Discussion Paper (PDF, 4826 KB) Interactive Discussion (Closed, 3 Comments) Final Revised Paper (eE)

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