

New paleomagnetic records of the Cretaceous remagnetizations in eastern Iberia (Maestrat Basin).

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Abstract: The paleomagnetic studies developed in the intraplate inverted sedimentary basins in Iberia and North Africa have shown pervasive remagnetizations dated about the beginning of the Late Cretaceous (Camerons Basin, Cabuérniga, Polientes in the Basque-Cantabrian Basin, Organyà Basin, as well as the High Atlasic Mesozoic basins). The Cretaceous remagnetization affects different rock types, mostly continental red beds or lacustrine and marine limestones. The analysis of these overprint directions allows separating the pre- and post- remagnetization deformation: i.e. syn-extensional tilting vs. compressional folds related to the Cenozoic inversion of the basins.

The Maestrat Basin is one of the most important depocenter of the second stage of the Mesozoic rifting in the Iberian Chain. It shows syn-rift marine and continental deposits of Cretaceous age. Other basins studied until now (Camerons, Basque-Cantabrian, High Atlas, etc.) show higher thickness and more gradual thickness changes towards the basin margins. Conversely, the Maestrat Domain is defined by several sub-basins with marine and terrestrial sediments separated by sedimentary highs with thinner sequences. The aim of this work is to characterize the record of the Cretaceous remagnetization event in areas with different rock types and sedimentary thickness.

36 paleomagnetic sites have been sampled from the Galve and Salzedella sub-basins in Upper Jurassic to Aptian red-beds and marine limestones.

In the Galve sub-basin whose depocenter shows maximum thickness of 600 m, the limestones show very low NRM intensity and do not register the remagnetization. However, the wealdian, red bed sequences do carry the Cretaceous remagnetization with hematite as magnetic carrier. In the Salzedella sub-basin that shows thickness of more than 2500 m of basinal deposits, the limestones register the Cretaceous

overprint. Connection between magnetic properties and paleotemperature data based on fluid inclusion analysis has been established. The analysis of the remagnetization directions has allowed determining the relative ages of diverse structures of the area.

Keywords: Paleomagnetism, remagnetization, Iberian Chain, sedimentary basin, rock magnetism.