



A Cretaceous syn-extensional remagnetization in the Iberian Ranges. Overprint as an indicator of pre-inversion basin geometry

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Previous palaeomagnetic studies have indicated widespread remagnetizations in Jurassic limestones of the Iberian Chain (Northeast Iberia). Some of these studies suggest Cretaceous ages for these overprints considering their palaeodirection. We are developing systematic palaeomagnetic studies in different areas to characterise the extension and timing of this remagnetization. We have performed a detailed paleomagnetic study in the northern border of the Cameros basin. This was a strongly subsiding extensional basin located in the north-westernmost part of the Iberian Chain. Its evolution is characterised by a Late Jurassic-Early Cretaceous rifting stage, with 8000 m of cumulative thickness of sedimentary deposits, and a Late Eocene-Early Miocene inversion stage, which allowed for the syn-extensional deposits to be exposed at surface. This thick sequence of sandstones, siltstones and shales of Berrasian to Albian age shows a normal polarity remagnetization carried by hematite. Several fold and conglomerate tests indicate that remagnetization was acquired before compressional deformation and post-dates the main extensional stage of basin formation (Berriasian-Albian). Incremental fold tests show best clustering solutions with scattered results far from the expected directions. This result can be explained if we consider that the overprint was recorded in beds already tilted during the extensional stage and subsequently folded. This is not compatible with the hypothesis of symmetric restitution assumed by the incremental fold-test method. An alternative procedure to obtain fold test solution has been applied. This procedure allows to determine the tilting of beds at the moment of acquisition of magnetization and therefore the original geometry of the northern basin border, later modified during the Tertiary inversion stage. We have also sampled dif-

ferent jurassic carbonate units and continental lower cretaceous sandstones and lutites from the Sierra de la Demanda, situated westward of the Cameros area. The NRM of carbonates and also of lutites presents an only normal syn-tectonic overprint. The directions of this remagnetization agree with the pattern observed in the Cameros basin, showing also a consistent extensional geometry previous to the tertiary folding.