100 Ma palinspastic restoration of the Anemzi syncline from paleomagnetic results.

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The Atlas system is an ENE-WSW intracontinental chain that extends from Morocco to Tunisia. It is the result of the Cenozoic inversion of a set of intraplate extensional basins that started its development during the Triassic and continued during the Jurassic. The Central High Atlas (CHA) is located at the Moroccan part of the Atlas System, characterised by NE-SW to ENE-WSW tight anticlines that limit wide synclines with the same orientation.

In this work, we present a high resolution structural and paleomagnetic study in a representative area with a tectonic evolution characteristic of the CHA. The study area is formed mainly by the Anemzi syncline, a structure of about 28 km long and 12 km wide. This structure is filled in by lower to mid Jurassic marine carbonates, which gradually change upwards to continental red beds. Towards the south, the Anemzi syncline limits with a vertical set of Jurassic intrusive bodies together with Triassic shales and basalts. On the other hand, towards the north crops out Lower Jurassic carbonates in the north limb of the syncline, which overthrust Middle Jurassic rocks.

Alongside with other areas of the CHA, in the study area can be identified a widespread remagnetization that has been dated ca 100 Ma. This remagnetization happened after the extensional period, and before the Cenozoic deformation started. The fact that it is an inter-folding record, allows using an already proved method in the CHA\textsuperscript{[o1]} to restore the structures of the area, and so, erase the Cenozoic deformation to better understand all the structural evolution of the area.

Samples from 90 palaeomagnetic sites were collected from sedimentary rocks, together with 170 bedding sites. The paleomagnetic results can be divided depending on the lithology. (1) Jurassic\textsuperscript{[o2]} limestones show, in addition to a viscous component, the remagnetization typical from the CHA: a component with maximum unblocking temperatures between 450°C and 550°C carried by magnetite. Also in this lithology, in few samples a component carried by pyrrhotite can be observed. (2) Red beds show also a Cretaceous overprint, but carried by hematite.

By applying Small Circles methods to the Cretaceous remagnetization, we have obtained the paleobedding at the remagnetization acquisition time (ca. 100 Ma). These results allow us to restore two geological cross-sections at the remagnetization time and compare their with the present-day geometry. Besides, two maps of dip domains have been done, one showing the
present day structure and the other one using the dips at the remagnetization. This methodology is a remarkable tool to assess the evolution of singular structures and to separate the deformation related with the basinal period with those related with the subsequent inversion. This restoration is part of a bigger project, whose objective is to build two 3D model of the Anemzi syncline with both the present-day and the restored structure at ca. 100 Ma using the palaeomagnetic data.