



Unravelling the Jurassic rifting history of the Rif Belt (Morocco): Interactions between the Central Atlantic and the Maghrebian Tethys

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The Rif belt (Northern Morocco) represents a key area located at the junction between the Mediterranean domain and the Central Atlantic. Although this domain suffered strong Cenozoic Alpine compression, remnants of the North African margin are still preserved, showing a poly-phased rifting history, with a major event during the Early-Middle Jurassic.

This contribution aims to characterize the Mesozoic architecture and evolution of the North African margin preserved in the Rif belt and its relationships with the opening of both the Central Atlantic and the Maghrebian Tethys.

This work focuses on the External Rif units originating from the North African margin. We present detailed field observations from two tectonic zones (Mesorif and Intrarif) preserving key elements of different parts of the former North African distal margin.

Previous studies of Mesorif units emphasized the chaotic aspect of this zone in relation with the Cenozoic compression. Our results suggest that such configuration is mainly the result of the Jurassic rifting. This zone exhibits few outcrops of gabbro (dating in progress) overlaid by dismembered and discontinuous blocks of Lower Jurassic carbonate platform embedded in Upper Jurassic shales and sandstones.

More to the north, at base of the Intrarif units, serpentinized peridotites of Beni-Malek are observed. The top of the serpentinized mantle are characterized by ophicalcites, locally associated with pervasive brittle deformation. Upper Jurassic limestones are directly overlying the mantle. Such relations suggest the exhumation of the mantle at the distal part of the African margin at the end of the Jurassic rifting.

These observations provide critical new data for our understanding of the evolution of the western part of the North African margin and its connexions with the Moroccan Atlantic margin. A geological restoration, integrating the conjugate Iberian margin will be finally proposed.