



The Mesozoic margin of the Maghrebian Tethys in the Rif belt (Morocco): Evidence for poly-phased rifting, and related magmatic activity.

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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 important Cenozoic, i.e. Alpine) compression, remnants of the Mesozoic North African margin are still preserved. This contribution aims to characterize the Mesozoic architecture and geodynamic evolution of this rifted margin preserved in the External Rif showing complex interaction between poly-phased rifting history. We present detailed field observations and geochronology data mainly from two tectonic zones (Eastern Mesorif and Intrarif Zones) preserving the necking zone and the distal parts of the former North African margin. The Mesorif exhibits several exceptional outcrops where rift-related geometries can be investigated and dated. In particular, it preserved complex lithostratigraphic associations characterized by gabbros overlaid by dismembered and discontinuous blocks of Lower Jurassic carbonate platform associated with Upper Triassic evaporites, covered by Middle to Upper Jurassic deep-marine sediments. U–Pb zircon dating of 4 samples of gabbro shows ages at the Upper Triassic-Lower Jurassic boundary (195 ± 5 Ma). To the north, at base of the Intrarif units, serpentized peridotites of Beni-Malek are exposed exhibiting ophicalcites locally associated with pervasive brittle deformation, with Upper Jurassic limestones rest directly on top. Such relations suggest the exhumation of the mantle at the distal part of the North African margin at the end of the Jurassic. Altogether, these observations enable us to characterize the evolution of the western part of the North African margin and its connexions with the Moroccan Atlantic margin and Tethys system.