



Quantitative Mesozoic rifting and subsidence analysis of the Moroccan-Doukkala margin in relation to the Meseta domain and the Atlas Basin: New approach.

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The Atlantic passive margin of Morocco developed during the Mesozoic times in association with the opening of the Central Atlantic. During the same time period, extension to the E of the margin caused rifting in the zones of the future High and Middle Atlas. The Atlas rift system, therefore, must be considered as part of the rift system which led to the formation of the Moroccan passive continental margin.

To provide the first quantitative analysis of the evolution of the rifted margin, we have constructed a crustal section from the Anti-Atlas (the plate interior) to the Atlantic Ocean crossing the Atlas system, the Meseta and the Atlantic continental margin in the region of Doukkala Basin. We apply numerical models to test quantitative relations between amounts and distribution of extension and isostasy-related vertical movements.

A region of particular interest is the Moroccan Meseta which is generally considered as a stable region separating the subsiding Atlas and Atlantic margin system. This picture is incompatible with the recent findings of *Ghorbal et al.* (in Press) who, on the basis of low-termochronology, have demonstrated the existence of a Late Triassic to Middle Jurassic stage of subsidence followed by a Late Jurassic to Early Cretaceous exhumation.

We use the results of the quantitative analysis presented above to address the impor-

tance and regional tectonics of these syn-rift and post rift vertical movements.

Keywords: Morocco, Passive continental margin, Moroccan Meseta, Rifting, Subsidence, Basin modelling.