

Atlantic and Tethyan Geodynamic Impact on the Evolution and Subsidence History of North African Margins

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The passive margin of the central Morocco exhibits: (1) a singular geodynamic position showing the interplay with Tethyan and Atlantic opening history during Mesozoic times, (2) marks the along-strike transition between volcanic (to the South) to non-volcanic margins (to the North). (3) rapid lateral changes in the nature of subsidence processes linked with the location and importance of both rifting phases and N-S alpine shortening. The subsidence of several regions of Atlantic and Alpine Morocco have been modelled: the Atlantic margin, the Essaouira and Missour basins, the Middle and High Atlas and the Hauts Plateaux. The Moroccan margin endured a longterm rifting related heating phase lasting 100 Ma, which started at the end of Triassic time.

At a large scale, strong variations in time and amplitude of the subsidence rates in the analysed basins reflect their relationship to the structural location. Morocco, as well as the whole N. African margin (in Algeria and Tunisia), were highly compartmentalized since early Mesozoic times. From the beginning of the Triassic onwards, and due to the first identified Tethyan extension phase, locally amplified by Atlantic one, the initiation of the basins strongly depends on the tectonic heritage, as thickness variations and heterogeneities which are due to highly structured Paleozoic basement which define the crustal weak zones.

Tectonic evolution and subsidence history will be compared all over the N. African Margin, from extensive to compressive alpine events.