Unexpected Jurassic to Neogene Vertical Movements in "Stable" Parts of NW Africa

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Considered as a meta-stable area of NW Africa from Paleozoic to Cenozoic time, the low-thermal history of the Moroccan Meseta was assessed for the first time by apatite (UTh)/ He (AHe) and Fission track (AFT) data. Thermal evolutions of the Rehamna and Rommani inliers were constrained by low thermochronology tools and tectonic factors. The Post- Hercynian granites and their contact metamorphic corteges (303-270Ma) indicate a long residence at low temperature with two exhumation phases. The main exhumation which is following subsidence contemporaneous to the Atlantic opening yields AFT and AHe ages of 160-120 Ma. After minor subsidence with Cretaceous to Eocene sediment deposits thicknesses of less than 1,5km, the second exhumation phase describes a thermal history related to the Alpine orogeny with AHe ages around 50-30 Ma. The two vertical movement events are disjoined by the major marine transgression during the Cenomanian-Turonian. This new insight reopens the debate of the "Moroccan Arch" and the role of the western Meseta during the Atlantic rifting.