

## The Structure of Southern Tunisian Atlas Deformation Front: Integrated Geological and Geophysical Interpretation

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**Abstract :** The southern Tunisian Atlas is a part of the wide Cenozoic intracontinental deformation that affected North Africa as a result of convergence between African and Eurasian plates. The Southern Tunisian Atlas Front (STAF) corresponds to the chotts area that covers several hundreds of Km<sup>2</sup> and represents a 60 km wide transition between the deformed Tunisian Atlas to the North and the undeformed Saharan platform to the South. It includes three morphostructural alignments, a fold and thrust range in the North, a wide depression in the middle and a monocline to horizontal zone to the south. Four cross-sections have been constructed across the chotts area to illustrate the structure of the Southern Tunisian Atlas Front based on integrated geological and geophysical data including geological maps, petroleum wells, and seismic data. The fold and thrust zone of the northern chotts is interpreted as related to a detachment level near the Triassic-Jurassic contact. The displacement of the basal thrust seems to die out progressively under the Fejej antiform and it is responsible to the south dipping of the southern chotts range. The restoration of the cross-sections indicates that the Southern Tunisian Atlas front is a weakly deformed wide zone developed during the Cenozoic inversion with a maximum calculated shortening in the order of 1000 m. The wide structure of this STAF has been influenced by a pre-existing large thickness of upper Jurassic-Aptian sediments related to the rifting episodes associated to the evolution of Tethys in the Maghreb. During Jurassic to Aptian period, the chotts area corresponded to a highly subsiding basin.

**Keywords :** Southern Tunisian Atlas Front, subsident sub- basin, wide deformation, balanced cross-sections.

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