

Tectogenesis Around Kalaat Es Senan, Northwest of Tunisia: Structural, Geophysical and Gravimetric Study

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Abstract : This study, involving the interpretation of geological outcrops data (structures, and lithostratigraphic columns) and subsurface structures (seismic and gravimetric data) help us to identify and precise (i) the lithology of the sedimentary formations between the Aptian and the recent formations, (ii) to differentiate the sedimentary formations from the salt-bearing Triassic (iii) and to specify the major structures through the tectonic effects having affected the region during its geological evolution. By placing our study area in the context of Tunisia, located on the southern margin of the Tethys show us through tectonic traces and structural analysis conducted, that this area was submitted during the Triassic period at an active rifting triggered extensional tectonic events and extensive respectively in the Cretaceous and Paleogene. Lithostratigraphic correlations between outcrops and seismic data sets on those of six oil wells conducted in the region have allowed us to better understand the structural complexity and the role of different tectonic faults having contributed to the current configuration, and marked by the current rifts. Indeed, three directions of NW-SE faults, NNW-SSE to NS and NE-SW to EW had a major role in the genesis of folds and open ditches collapse of NW-SE direction. These results were complemented by seismic reflection data to clarify the geometry of the southern and western areas of Kalaa Khasba ditch. The eight selected seismic lines for this study allowed to characterize the main structures, with isochronous maps, contour and isovites of Serdj horizon that presents the main reservoir in the region. The line L2, keyed by the well 6, helped highlight the NW-SE compression that has resulted in persistent discrepancies widely identifiable in its lithostratigraphic column. The gravity survey has confirmed the extension of most of the accidents deep subsurface whose activity seems to go far. Gravimetry also reinforced seismic interpretation confirming, at the L2 well, that both SW and NE flank of the moat are two opposite faults and trace the boundaries of NNW-SSE direction graben whose sedimentation of Mio-Pliocene age and Quaternary.

Keywords : graben, graben collapse, gravity, Kalat Es Senan, seismic, tectogenesis

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