

Active Deformation and Seismic Risk in the Oriental Tunisia

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The Oriental Tunisian platform (Tunisian Sahel), occupying the biggest part of the Tunisian oriental coastal fringe, corresponds to a vast collapsed flat shape and tilted block, resulting in irregular topography. This domain is characterized by discontinuous cliffs, vast littoral plain and of vast valleys and salty depressions. The coastline of the Tunisian Sahel, long of more than 700km, shows a succession Mio-Pliocene sequences and mixed continental and marine Quaternary deposits affected by intensive deformations and translating some variations important variations of sea level changes recorded. This domain constitutes the eastern part of the seismic zone bordering the northern African plate as indicated by the large seismic events that occurred periodically. The Coastal area, more particularly concerned by the seismic risk, is bordered to the west by the NW-SE trending Atlasic fold and to the South by the stable Saharian platform marked by NWSE faults system. This region is known by recent intra-plate compressive deformation included in the global geodynamic context of convergence between the African and Eurasian plates. In fact, in the last decade several earthquakes caused important material damages. The magnitude of these earthquakes ranges from 3 to 5.

Extensive brittle deformations analyses have been occurred during Neogene-Quaternary time. The most active tectonic deformation is related to the reactivating of preexisting NW-SE and E-W trending strike-slip faulting.

Paleostress and calculated focal mechanism solutions for the recent earthquake show that the active stress field is a NW-SE trending compression. These results are consistent with focal mechanism solutions and neotectonic data and can be incorporated in the convergent plate model for the European and African plates.

In this paper, complementary approaches (seismotectonic, seismology and geodesy) will be used to optimise the field measurements and to evaluate the seismic risk.

Key Words: Seismotectonic, geodesy, seismic risk, oriental Tunisia