



Neotectonic deformation in Tunisia (North of the African plate)

Abdelkader Soumaya (1,3), Noureddine Ben Ayed (2), Ali Kadri (2), Damien Delvaux (4), Hayet Khayati Ammar (3), and Ahmed Braham (3)

(1) Faculty of Sciences of Tunis (University of Tunis El Manar), Tunisia, (2) University of Carthage, Tunisia, (3) National Office of Mines, Tunis, Tunisia, (4) Royal Museum for Central Africa, Tervuren, Belgium

In Tunisia, at the extreme North of the African plate, the neotectonic context is largely influenced by the Eurasia-Africa convergence. The aim of this work is to characterize the neotectonic regime that affected this region during the Quaternary. Field work investigations integrated with published data allowed to evidence a spatial-temporal variation of the tectonic stress regime during this period.

The spatial repartition of the different types of Quaternary to historical deformation shows a North-South neotectonic zoning in Tunisia. After the early Quaternary, the Telliian domain (Maghrebides) in the North, and its Atlantic foreland in the center of Tunisia are affected by NNW-SSE compression. It generated folds and reverse faults, well developed in the Plio-Quaternary molassic basins of Kechabta and de Jendouba (Northern Tunisia). In the Atlas, the large pre-existing faults of E-W and N-S orientation have been reactivated as dextral and sinistral faults, associated to en-echelon folds (Kasserine, Sbiba, Axe N-S; Central Tunisia). After the Tyrrhenian, a submeridian compressional regime affected Nord Tunisia (Bizerte region). It was responsible for the E-W folding of marine strata. More to the South, in the Tunisian Sahel, transtensional tectonics with a NW-SE horizontal maximal compression (SHmax) deformed the Tyrrhenian marine series (Khénis, Skanès, Monastir...). During the Holocene and up to present-day times, N-S compressional tectonics reactivated the E-W to NE-SW pre-existing faults with a reverse movement in Northern Tunisia (Bulla Regia, Utica...), generating historical earthquakes. In Central Tunisia, the Aqueduct of Cherichira (built around AD 850) is displaced by a N-S normal fault. Similarly, a mosaic of a roman house is shifted by 10 cm, along a N-S wrench fault. These deformations evidence a transtensional tectonic regime.

During the Quaternary, all the NW-SW oriented grabens are subsiding (e.g., Bizerte Lake, Grombalia, and central Atlas ...). This is explained by the coexistence of extensional and compressional structures in a general compressional tectonic regime with NNW-SSE SHmax.