



## **Tectonostratigraphic Evolution of the Levant domain since Late Palaeozoic: a Review**

Eric Barrier

Institut des Sciences de la Terre Paris (iSTeP), UPMC University-UMR 7193 CNRS, 4 place Jussieu, 75252, Paris, France ;  
e-mail : eric.barrier@upmc.fr

During the last 270 my, the evolution of the African/Arabian platform and margins in Levant and surroundings is controlled by a succession of regional tectonic events, starting with a rifting period in the late Paleozoic, and ending with the ongoing Arabia-Eurasia collision.

The main rifting period initiated in the mid-late Permian and lasted until the early-Jurassic, as a consequence of the Pangea break up. During this period the Anatolian blocks are still attached to southern Pangea, but some of the Palmyra-Levant and East Mediterranean basins were initiating. From the Mid-Late Permian to the Early Triassic the sedimentation is clastic-dominated in the continental platforms and basins. In the Early Mesozoic, with the initiation and development of the Levant and East Mediterranean basins, the sedimentation changed from clastic to carbonate deposition. Widespread Triassic to Liassic sediments accumulated in subsiding basins (Levant, Palmyride, Sinjar) and margins (East Mediterranean Basin). The rifting aborted in the Palmyride Trough and Levant Basin in the early Jurassic, while the East Mediterranean Basin (Mesogea) the oceanic accretion probably developed during the mid-Jurassic.

Then, a 60 My-long cycle lasted from the late Jurassic to the Turonian, mainly characterized by the thermal subsidence of main the basins and margins. Only the early Cretaceous is marked by an extensional tectonic event, associated with magmatism, widespread all around the East Mediterranean Basin. This event, together with the early Cretaceous eustatic regressions, originated a major stratigraphic gap with emersions at the top-Jurassic - Neocomian period, and the deposition of thick clastic sequences in grabens. The following Cenomanian - Early Turonian interval is a major transgressive period characterized by the extension of the carbonate platforms on the African platform, and subsidence of the margins.

The Senonian is characterized by an increase in water depth, mainly resulting from the opening of NW- to WNW-oriented major Senonian grabens (e.g. the Sirt, Azraq and Euphrates grabens). The main pulse of rifting is Campanian in age. In the northeastern African plate this extensional tectonics is coeval with the obduction of the Neo-Tethyan ophiolites onto the Northern Arabian platform where thick flysch sequences deposited.

Within the upper-most Maastrichtian to Paleocene times, some of the basins and margins were inverted, resulting in unconformities in some of the Mesozoic basins. A 1600 km long right lateral strike-slip zone developed in the southern Mesogean margin (Cyrenaica, northern Egypt, Negev).

In the Eocene-Oligocene period a sub-meridian extension prevailed in the Levant area pre-dating the Arabia-Anatolia collision. Chalky deposits are widespread in the western Arabian platform, significantly thickening and deepening westward toward the Levant Basin.

The Neogene period is dominated by compressive deformations following the closure of Eastern Mesogea, and related to the Arabia/Anatolia collision that initiated at the Oligocene-Miocene boundary. This period is marked by the inversion of the Mesozoic basins in the western Arabian plate (Afrin, Palmyrides, Sinjar) Finally, in the Late Miocene, a regional strike-slip fault system developed, including the Levant Fault, and the eastern and north Anatolian faults in Anatolia.