



## **Structural heritage of a Mesozoic rifting stage in the Puglia region (Southern Italy)**

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The upper part of an about 7 Km thick sedimentary Mesozoic succession crops out in the Puglia region (Southern Italy) that is a sector of the Adriatic plate not involved in the Apennines-Dinarides orogenesis. This sedimentary cover overlies a Variscan crystalline basement and it represents a typical succession recording a continental rifting stage with red beds (Permo-Triassic), evaporites (Triassic) and carbonates (Jurassic-Cretaceous); the carbonate rocks make up the Apulian Carbonate Platform. During the Mesozoic rifting this platform and its adjacent basins (the Lagonegro basin toward West and the Ionian one toward East) underwent a regional tectonic tensional regime.

The outcropping Cretaceous carbonates show large-scale main faults. Fault surfaces basically dip north- and northeastward and their plunge ranges between 70 and 50 degrees. In a plan view they show an arcuate shape with a northeastward concavity. Faults strike NW-SE (north-eastward merging) in the northern sector of the region; in the southern one they curve along strike trending W-E (northward merging). On the NW-SE striking fault surfaces, the observed kinematic indicators suggest dip-slip movements; on the W-E striking ones, they suggest both transtensional and strike-slip dextral movements.

Main tensional and transtensional faults arranged the Apulian Platform in a domino block-faulting system and determined the regional dip of the carbonate Cretaceous

succession with southwestward (20 degrees plunging on the average) dipping stratal surfaces. The domino blocks are compartmentalized by variably-oriented smaller faults that are either antithetic to the NW-SE striking main faults or related to the dextral shear component affecting the W-E oriented faults.

The presence of positive Bouguer anomalies in the Puglia region can be related to the rifting stage of the Ionian basin during the Mesozoic age and both structural and stratigraphic field data suggest to locate the Apulian Carbonate Platform, characterized by subsidence compensated by a shallow water carbonate sedimentation.

The aforesaid large-scale main faults may be interpreted as structures grown during the Mesozoic structural history of a passive-margin in the Adriatic plate.