

## **The gravitational sliding structures on Romanian Black Sea shelf, during Miocene-Pliocene times**

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Generally, the Western Black Sea Basin is considered as being a back-arc basin formed like an answer of the subduction and then of the continental collision, with northern vergency of Neotethys.

The tectonic evolution of the Black Sea Romanian Shelf has been studied for a long time by different Romanian and foreign authors so resulting many models, depending on the time being material and concepts. However, the opening of this basin is generally considered as being Albian-Aptian. After this intercontinental initial rifting period follows an Upper Cretaceous-Paleogene second extensional phase, that led to the basin extension until the oceanic crust appearance. Starting with the Upper Paleogene the entire basin was affected by the compressional regime, this regime continuing on the Black Sea Romanian Shelf until Miocene. In Pontian (Upper Miocene-Pliocene) only structures generated by gravitational faults are detected, some authors assuming the existence of an extensional regime in this period, the proves being, however, insufficient.

The sediments pack settled down on the Black Sea Romanian Shelf reflects this complex interplay between tectonics and sea level oscillations. In this connection, our study proposed itself the description of the Pontian (Upper Miocene) tectonic structures and formations from the north-western area (Albatros-Cobalcescu area) of the Black Sea Romanian Shelf. This matter was possible through the analysis of the seismic sections and of the drilling data as well as the existing literature. The study emphasizes the important thickness of the Pontian (Upper Miocene) formations (up to 2 km) divided in two big sequences, by an important unconformity: a lower one, generally characterized by a chaotic facies, sometimes with parallel reflectors with weak continuity and an progradant upper one, characterized by an oblique-sigmoid seismic facies. The main structural elements, identified in the studied area, are: gravitational drift faults and roll-over structures associated, extensional faults due to the differentiated packing which generated, also, clay diapirs, as well as reversed faults, due to the gravitational expansion.

In conclusion, the tectono-stratigraphic evolution during Pontian (Upper Miocene) of the Black Sea Romanian sector is the added effect of the emphasized subsidence, the rising of the enviroining orogenic areas (the material source), of the sea level oscillations as well as the differentiated packing which led to the formation of the gravitational extensional complex structures and, subsequently, to reversed faults due to the gravitational expansion.