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Tectonic Evolution of Western Part of the Moesian Platform-Implications on the Exploration of Hydrocarbons

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The Moesian Platform is bordered to the north and to the west by the South Carpathians, to the south by the Balkanides, and to the east by the Black Sea. The Danube River divides this platform in a Romanian side and a Bulgarian side.
The geo-tectonic evolution of the Moesian Platform is mainly characterised by the four main sedimentary cycles: Middle Cambrian-Upper Carboniferous, Permian-Triassic, Jurassic-Cretaceous and Neozoic, being defined in connection with the tectonic activity.

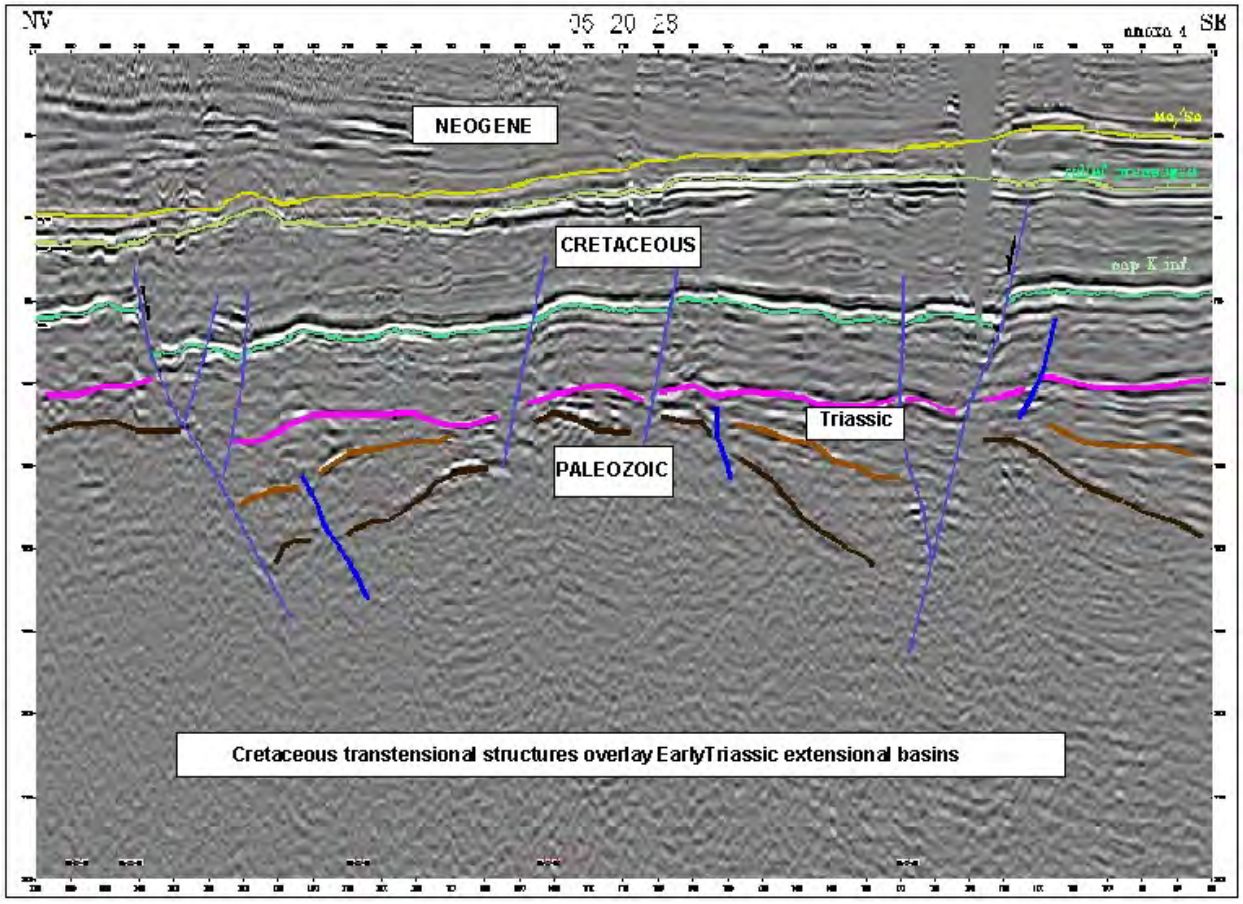
The western part of the Moesian Platform (Romanian side) constitutes an important sector of this tectonic unit from an oil and gas perspective, some of the largest hydrocarbon pools in the Moesian Platform being situated in this area.

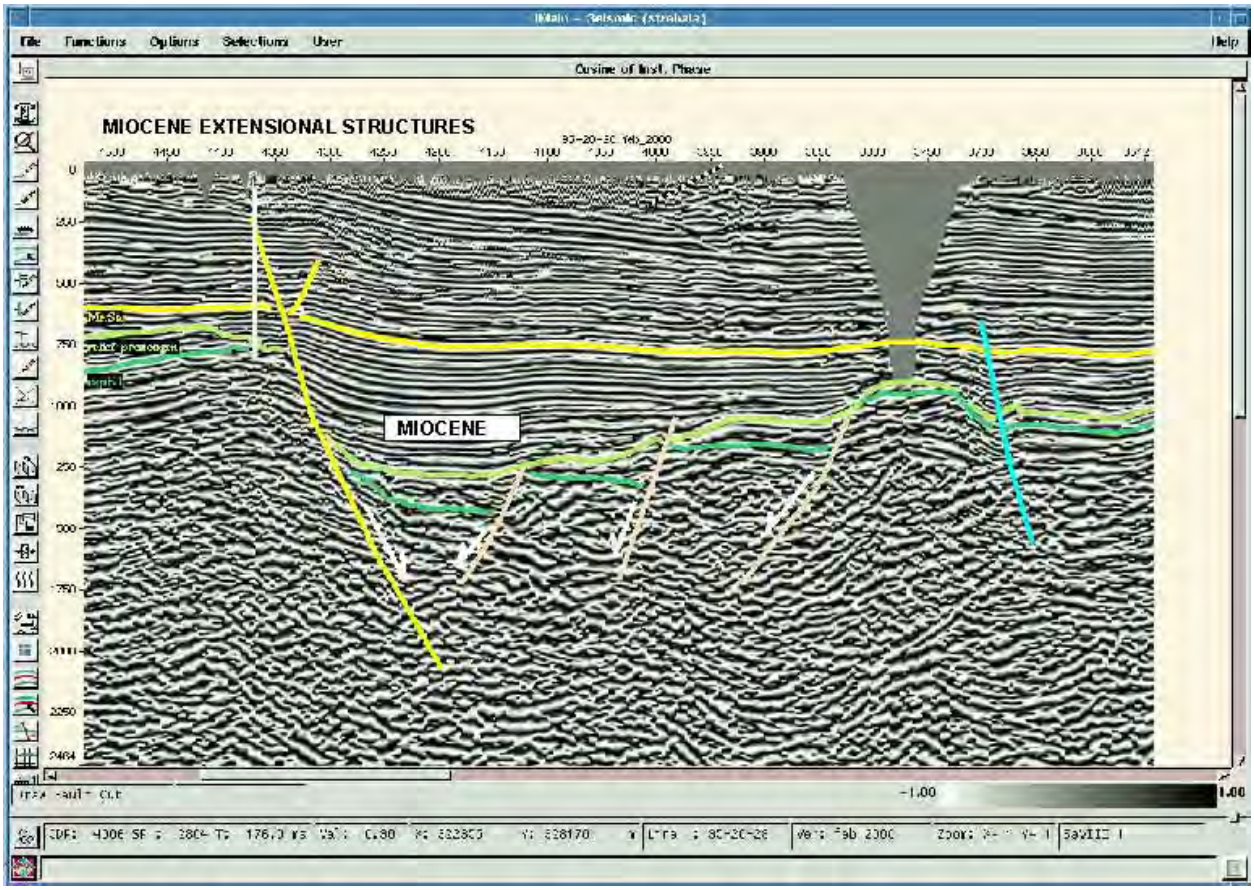
The integrated analysis of the new seismic and drilling data from the western part of the Moesian Platform permitted to obtain new information on the tectonic evolution of this region. Interpretation of more than 1000 km seismic lines has provided a complex three-dimensional image of subsurface Neozoic/Mezozoic and has offered an opportunity to identify the major tectonic events.Thus, there has been identified a series of major events during the Triassic, Cretaceous and Sarmatian, characterised by an Early Triassic large scale extension to a compresional regime in Late Triassic, a transtensional regime in the Upper Cretaceous and two main events in the Sarmatian characterised by extensional to transpression.

The most extensional process has been recorded since Early Triassic, the widespread Anisian-Carnian volcanism indicates an aborded rifting period, with E-W trending. The extensional period was replaced during the Late Triassic times by a compressional regime. During the Late Cretaceous, a NE-SW directed transtensional basin was formed in the central-western part. In the Early Sarmatian, large scale extensional structures can be identified in the whole western part of the Moesian Platform, being mainly characterised by steep normal faults.Fault strike changes from N-S, in the middle part to NW-SE in the western edge.

The last deformation episode recorded in the area is related to NNW-SSE trending transcurrent deformation during the Middle Sarmatian. The transpressive structures associated are gas bearing structures, developed in closely spaced wavelike bands.

The depositional environments set during the evolution of this area pertaining to the Moesian Platform created the architecture and geometry of the carbonate and siliciclastic reservoir in the study area and the tectonic processes that affected these deposits contributed to the formation of varied and complex traps over the entire area.

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