Carpathians Foreland Hydrocarbon Systems and Tectonic Control

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The hydrocarbon distribution in Carpathians foreland is strongly related with regional tectonic frame. The Carpathian Orogene - part of the Alpine system - has in front of it the foreland units: Moldavian Platform with his fallen step - Barlad Depression and Moesian Platform. Between these platforms, delimited by crustal faults, the oldest orogenic unit- Dobrogea Hercynian Orogene develops.

The Moesian Platform, located in the Western part of the European Platform, has a complex evolution determined by more tectonic and sedimentary events: pre-extensional, extensional (rifting) and transtensional-transpresional (Tertiary) stages, related to the Hercynian, Cimerian and Alpine orogeneses.

Moldavian Platform- part of East European Platform- is the oldest Romanian foreland with Precambrian basement and long periods of emersion. Sedimentation ends in Sarmatian. Between Caledonian - Styrian orogeneses west and southern edges were recorded strong negative movements.

The complex Tertiary movements *of Dobrogea Orogene* played an important role in subsidence control and hydrocarbons distribution.

The differences between Eastern and Southern Carpathians Foreland evolution led to the development of various petroleum systems.

In Moesian Platform, an effective Paleozoic -Mesozoic Petroleum System was developed with reservoirs and seal rocks especially in Triassic, Upper Jurassic, Cretaceous and Upper Miocene time. The Mio-Pliocene Petroleum System is also developed, with liquid and gaseous hydrocarbons. Prospective areas are related to unconventional shale gas play, deep traps formed after Triassic deformation, and subtle traps in carbonate sediments.

In Moldavian Platform the region can be divided into two petroleum systems: a Mesozoic Thermogenic Petroleum System, proven only in southern, plunged side of the platform and a biogenic one, the Mio-Pliocene Petroleum System, but only for gaseous hydrocarbons, at the Badenian and Sarmatian deposits levels. The continuous shoreline withdrawal led to the building of same delta systems.The main prospective areas are structural uplifts under Pericarpathian unit and biogenic accumulations in Sarmatian deltaic sequences.