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An Overview of the Paleozoic Petroleum Systems of Morocco

Exploratory drilling in the Palaeozoic basins has established significant Palaeozoic petroleum potential. The discovery of gas and condensate in the Essaouira basin, oil productions in the Sidi Fili trend and also the various oil and gas shows encountered in the subsalt Palaeozoic rocks in number of wells drilled in Morocco, have stimulated the considerable interest in exploring and study petroleum potential of the Palaeozoic depositional system.

Geochemistry analyses suggest that these hydrocarbons are generated from Palaeozoic source rocks. They were trapped in structures that are essentially Hercynian structures that were cut later in the Triassic by normal faults.

The tectonic events responsible of the structuring of the Palaeozoic beds are the passive margin stage that lasted from the Cambrian to Middle Devonian and was followed by the Upper Devonian to Carboniferous syn-sedimentary compression.

During this folding event, a series of ridges and depocenters took place. These ridges may have regional size such as the Western Meseta.

This uplift introduced progressive unconformities, changes in thickness and variations in source and reservoir distribution during the Hercynian.

All these geological considerations led to better definition of the subsalt play concept, and therefore, will make more attractive this play and minimize the risks in future exploration. The previous oil and gas discoveries in subsalt sequence in the country are to great extend related to the Hercynian structures which were cut later by normal faults. This makes the subsalt play viable. More similar prospects and larger are present and await to be tested.