

Morocco basins: Upper Cretaceous Proven Petroleum Systems

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Hydrocarbon in Morocco has been produced since the beginning of the 19th Century. Small and superficial accumulations were produced in the Prerif Ridges, Ain Hamra and Sidi Fili in northern Morocco, liquid hydrocarbon, Gas & condensate were discovered in many areas within Essaouira basin. Most of them produced and being produced.

Geochemical analyses and HC to source rock correlations show that Ain Hamra and Tselfat Oil fields, in Northern Morocco, are sourced from Upper Cretaceous source rock (Cenomanian-Turonian in age). This source is largely developed in many basins; In Tangiers area, oil was extracted from Cenomanian and Turonian Oil Shale at the beginning of the Forties. In Tarfaya-Laayoune coastal basin, Cénomanian-Turonian subcropping shale provides very good potential for Oil Shale development. From tectonic point of view, Tarfaya Oil Shale is slightly dipping southward reaching depths around a thousand meters in Laayoune and depths between 1500 and 1800 m in Boujdour. Recorded TOC's in Boujdour, from samples taken in IRE 180/120 water well, are up to 15%. Heavy oil was sampled from the water well in Boujdour. Thermal modeling, undertaken in this area, shows that Upper Cretaceous shale and limy shale are located at the beginning of oil window. The maturity increases southwestward, improving the Petroleum potential of both onshore and the adjacent Boujdour-Lagwira offshore segment.

Upper Cretaceous source rock is also well developed in the Middle Atlas at the proximity of Timahdit village. Pilot plant for experimental techniques to extract oil from this shale, was set up in the region during the eighties.