

## **Geochemical Preconditions of Oil-Gas-Bearing Capacity of the Alboran Basin**

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Neogene basin of the Alboran Sea corresponds to the westernmost Mediterranean extensional basin located within a Miocene arc-shaped thrust belt formed by Betic and Maghrebian Cordilleras (Comas et al., 1999). It has been the site of a vigorous program of oil and gas exploration since 1970's and attracts attention nowadays as a potential oil-gas-generating basin.

Materials to research work are obtained during TTR-9 and TTR-12 UNESCO cruises. Four mud volcanic structures were discovered, investigated and subsampled (Kalinin and Perejil on the Spanish margin, Dhaka and Granada on the Morocco margin). Cores from mud volcanic structures are characterized by relatively high concentrations of HC gases as comparing with background concentrations. Geochemical data suggest thermogenic or mixing origin of gases and their migration through the sedimentary sequence. Geochemical data show that sedimentary sequence of the Alboran Sea includes medium and high-quality source rocks able to generate HC fluids. These are Upper Miocene claystones accumulated in anoxic subbasin (TOC=7,37%, S<sub>2</sub>=43,5HC,mg/rock,g; HI=622HC,mg/TOC,g); Upper Paleocene carbonates (TOC=0,68%, S<sub>2</sub>=1,27HC,mg/rock,g; HI=186HC,mg/TOC,g); Upper Cretaceous siltstones (TOC=2,94%, S<sub>2</sub>=17HC,mg/rock,g; HI=577HC,mg/TOC,g). Content, composition and level of maturity of organic matter from rock clasts of mud breccia suggest that these rocks can generate significant amounts of HC fluids.

Presence of thermogenic gas and gas and oil inflows from Miocene silty beds in seabed cores provides strong evidence for presence of an active petroleum system within this basin (Weinzapfel et al., 2003). Highly HC-potential strata are identified along the 7-9 km thick sedimentary sequence. These geochemical compilations will prove to be a critical guide for future exploration and thorough investigations within the basin.

Key words: mud volcano, oil-bearing capacity, source rock potential