



## **Geological and Geochemical Aspects of the Deep Origin of the Oil Fields of Volga-Ural Region in East-European Platform**

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The study area for research is territory of Tatarstan and the South Tatarstan Arch located in the Volgo-Ural Region, which is an enigmatic crustal segment that occupies the eastern third of the East European Craton. The tectonic structure and history of geological development of this region are mainly defined by the fact that Tatarstan is a junction between several first-order tectonic elements. The present-day structure of the crystalline basement is a result of the evolution of the faults and blocks originally formed in Late Proterozoic times and those that partly originated from the older dislocations.

The South Tatarstan arch contains Tatarstani largest oil fields [U+F02D] Romashkino, Novo-Elkhovo and Bavli. The analysis of areal and sectional distribution of the oil fields has allowed the tracing of the close link between the oil bearing capacity of the sedimentary cover and the block structure of the basement. All the oil fields above the South Tatarstan arch are controlled by the faults crosscutting the crystalline basement and the sedimentary cover. Oil accumulations in the lower productive strata of the sedimentary cover are confined to the basement zones with the maximum degree of tectonic fracturing and to the fault-intersection nodes. Genetic identity of oils and bitumens of the sedimentary cover, and the confinement of oil pools to tectonic faults confirm the role of the vertical migration it plays in the formation of commercial oil and bitumen accumulations in the Palaeozoic sedimentary sequences.

The report contains data of analyse the distribution of oil in the sedimentary cover of Tatarstan in general and the location of the Romashkino oil field in particular from a new viewpoint, in their relation to the following factors: the composition and tectonomagmatic evolution of the crystalline basement in the pre-platform stage of its development; the fluid dynamic evolution in Phanerozoic times; and neotectonic processes.

Cumulative oil production in Tatarstan has already reached 3.1 B tons, thus substantially exceeding hydrocarbons quantity, calculated geochemically on the basis of the Paleozoic source rock potentials of all sedimentary strata. The insufficient maturity of organic matter in Domanic clay-cilicon-carbonate formations obviously shows the impossibility for the commercial amounts of hydrocarbons of being generated from the available material of the sedimentary cover.

Integrated analysis of deep drilling, geological data, geochemical characteristics of oil composition and trace elements of oil, geochemistry of dispersed organic matter of Devonian and Carboniferous deposits except the remote migration of oil from the sedimentary strata of the Urals Foredeep and Prikaspiian depression toward the South Tatarstan Arch. Dominated role of the deep factors in generation of oil is grounded by results of deep drilling and geological, geochemical, geophysical investigations.