

Thermal Regime and Hydrocarbon Generation in the Apsheron Trough of the South Caspian

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Changes in maturity level of organic matter (OM) and realization of hydrocarbon potential by of the South Caspian Basin are analyzed numerically by the example of sedimentary sections of the South Absheron and Pre-Elburz depressions. The modeling suggests that the “oil window” is located at depths from 4.5 to 9 km in the modern sections of the depressions and includes the rocks of the Productive and Pontian formations. However, these rocks are no source rocks, because they have very low TOC and contain mainly kerogen of the type III. Source rocks in the Basin are the deposits of the Diatomic and Maikop formations. The non-steady thermal regime of the mantle in the region and avalanche sedimentation in the Pliocene-Quaternary had a significant influence on the history of hydrocarbon generation in the basin, shifting the time of intense hydrocarbon generation to the present time. According to the calculations, the maximum generation of light oil by the rocks of the Maikop and Diatomic formations occurred for the last 2 to 7 million years. Such recent hydrocarbon generation and significant role of vertical migration of hydrocarbons determine leading contribution of the Maikop and Diatomic suites to formation of oil and gas accumulations, despite these suites in present-day sedimentary section locate below “oil generation window”.

Biography:

Dr. Yurii I. Galushkin (born 1941) is leading scientist in the Earth Science Museum in Lomonosov States University. He graduated from the Moscow Institute of Physics and Technology. His main scientific interest is focused on thermal evolution of the lithosphere, basin modeling, numerical estimation of organic matter maturity and oil and gas generation.