

Comparative analysis of the Lena-Tunguska (Russia) and Tarim (China) oil- and gas-bearing basins

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The Lena-Tunguska and Tarim oil- and gas-bearing basins are highly prospective for further addition of hydrocarbon reserves in Russia (Siberia) and China.

The Tarim basin (northwest China) is one of the largest oil- and gas-bearing basins, in which oil fields with reserves exceeding 300 million tons have been discovered (Lunnan, Toshono). The oil accumulations are located within a large dome-like uplift; the reservoirs are fractured carbonates of the Lower Paleozoic (Ordovician).

In the Lena-Tunguska basin of the Siberian platform, a large Yurubchen-Takhom zone of oil and gas accumulation has been discovered in the sub-salt formations, with the Yurubchen and Omorin fields containing the aggregate reserves of more that 1 trillion m³ of gas and about 300 million tons of oil. Here, as in the Tarim basin, the hydrocarbon accumulations are mainly restricted to the fractured carbonates of the Lower Paleozoic and, to a less degree, to the Pre-Cambrian (Riphean) carbonates (cavernous dolomites).

A complex analysis of geological-geochemical parameters accomplished by the authors indicates that both basins are similar in their geologic structure and conditions of petroleum occurrence: sub-salt Lower Paleozoic carbonates, localization within large arches, Paleozoic source rocks with sapropel-type organic matter, methane type of oils and condensates.