

Features of the geological structure, zoning and the hydrocarbon geology of the North Caspian region

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The North-Caspian region has the complex geological structure caused by multiphasic geodynamic evolution and location of this region to zone of a joint of a Pre-Caspian megasyneclise of Pre Baikal platform and Scythian - Turanian plates of an epi - Paleozoic platform. The developed model of geodynamic evolution of this region has allowed to establish, that its northern part at Middle - Late-Paleozoic stage of development represented the isolated basin of sedimentation, in connection with formation in a Devonian in the south of a Pre-Caspian megasyneclise of the island arch divided at a time stage a middle Devonian - Carboniferous Pre-Caspian megabasin on two large basins of sedimentation: central Near-Caspian prearc and North-Caspian - behind arc. Only from the end early Permian the above-stated basins of sedimentation were again united in uniform largest mega-basin of sedimentation, and from now on the North Caspian region is perycraton the basin generated on earlier rift systems.

As a result of generalization and the analysis of new geology-geophysical data by considered northern part of the North Caspian region all its basic structural elements have been grouped by a principle of similarity of a geological structure and development in a Paleozoic - Cenozoic and their arrangements concerning the center of a downwarping of a Pre-Caspian megasyneclise in three tectonic zones (from the north - on the south):

- 1- Barrier zone of blocks uplifts on the base (hypothetical buried island arc system);
- 2-Zavolzhsk-Tugarakchansk depression region (on the base) in which are developed inversion tectonic- sedimentation reef uplifts in the Upper Devonian - Middle Carboniferous with which the basic prospects of oil and gas of this region are connected;
- 3- Transitional, nappe-overlap zone - from a southern part of the megasyneclise to the epi-Hercinian platform.

Tectonic and geodynamic models of a structure and development of the North Caspian region have laid down in a basis developed with use of the retrospective analysis of evolution of sedimentary-rock basins of the new system schematic map of oil and gas geological zoning. Northern part of North Caspian region, within the works on oil and gas. By development of the schematic map the oil and gas geological zoning for the North Caspian oil and gas region, essentially differing from known, made basically according to research of the upper oil and gas complexes within the limits of Upper Permian - Mesozoic deposits, new data about a structure, histories of development and an oil and gas bearing of this territory both on subsalt (Middle - Upper Paleozoic), and by post-salt (Upper Paleozoic-Mesozoic) sedimentations have been considered.

The extreme southern part of the North-Caspian region is already northern part of the Scythian plate of epi - Paleozoic platform where from the north on the south following large geostructural elements are marked: east zone of immersing of a range of Karpinsky, zone of Manych troughs, the Prikumsk zone of uplifts and the Nogaisk stage. Considering, that during formation of the basic oil and gas complexes this tectonic region was a part of the largest sedimentary-rock basin, it is carried to the North Caucasus - Mangyshlak oil and gas province. Within the limits of a southern part of the North-Caspian region, we allocate South-Kalmyk and East pre - Caucasian oil and gas regions of this oil and gas province, and a number of oil and gas areas and zones of oil and gas accumulation.

In the off shore zone of a southern part of North Caspian Sea tectonic elements of East Ciscaucasia with which prospects of oil and gas of Triassic, Jurassic and Cretaceous deposits are connected continue all.

The lead search drilling already has confirmed the basic conclusions about prospects of oil and gas bearing and directions of search works on a shelf of North Caspian Sea, made by results of

system zoning this region (discovered large Kashagan oil field in sub salt deposits and a little oil-gas - condensate fields of hydrocarbons - in Mesozoic deposits).