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Oil and Gas Prospects Within the North and Middle Caspian Sea and Geodynamic Interpretation of Geological and Geophysical Data

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The "DV-SeisGeo" is 3 D geological model of the North and Middle Caspian built with the use of the domestic DV software package (dynamic visualization). New computer technologies allowed construction of the three- dimensional model in conditions of minimum available initial geophysical digital information (this information has non-uniform coverage of the area, belongs to different bodies and has different access levels). The required 3D database was established to include the information on the behavior of the five horizons' structural surfaces (tops of pre-Jurassic, Jurassic, Lower Cretaceous, Upper Cretaceous, Paleogene sediments) and sea bottom surface.

Building of the 3D geological model made it possible to get an idea about the North and Middle Caspian structure in any of the sections of interest- vertical (any radius of strike) and horizontal (any cut of the depth).

The spatial link of the subsurface oil-and-gas capacity with the local areas, which were subject to relatively high tectonic activity for a long period of time, and active growth of local highs in the compacted interval of the geological time was established.

3D paleotectonic analysis performed on the regional and local levels allowed determining the tectonic development features of the various rate structural elements.

Building of the geological 3D model common for the North and Middle Caspian, revealed the new local highs, which are of interest in terms of oil and gas potential. Geological model of the parts of the sea, which are the "white spots" in terms of their geophysical study (shallow water and isles zones), is of special interest. Results of joint analysis of the geodynamic development features of the considered part of the Caspian offshore with the features of abnormal temperatures change over the section in different parts of the sea revealing their connection in space and time are of interest.