



New views on the geological structures of the Carpathian region

A. Koval, P. Chepil, O. Demianchuk, T. Dovzhok, U. Yankevych

Research Institute NAUKANAFTOGAZ, National Joint-Stock Company “Naftogaz of Ukraine”, Kiev, Ukraine, (koval@naukanaftogaz.kiev.ua / Fax: +38-044-248-71-01 / Phone: +38-044-5850219)

Application of remote sensing data during the last 15 years permits to study buried structures of Ukrainian part of the Carpathians, to improve the efficiency of researches of the oil and gas-bearing territories, to increase success of structural forms forecasting, to create models of hydrocarbons traps and to improve the prediction of hydrocarbon-bearing structures.

The geodynamics peculiarities of the Panonian and the Black Sea basins, and its surroundings on the basis of the study of relations between parameters of modern relief and abyssal structures, morphostructure analysis and satellite imaging are determined.

The development of the orogenic structures of the Carpathians, the Crimea and the Caucasus occurred under the conditions of activating the ascending motions of mantle substance in the convection windows during the collision of Eurasian and African-Arabian continents, and forming of the Panonian and the Black Sea cavities is caused by weakening this activity and by inversion of the motion of upper mantle substance was predicted.

New views on the geological structure of the Sub-Carpathian autochthon and features of structure formation in the allochthon and paraautochthon depending on the base structure are established. The ways of looking for oil and gas traps in the buried structures and in the platform autochthon are contemplated as well. The geotectonic criteria of the platform autochthon continuation under the Folded Carpathians, the development of rift trough in the pericraton and large tectonic dislocations of submeridional direction, the structural features of the Krosno zone and its association with the rift trough are determined on the basis of the remote sensing of the Earth from the space.

Separated out are tectonic dislocations permitting to combining the Lezhaisk and the Marmarosh massives onto a single band of regional uplifts and the South-Western part of the Krosno zone (Borynska depression) and the Solotvinsky trough of the Transcarpathian deep into a single neotectonic depression which crosses the Folded Carpathian along the diagonal direction.

The morphological features of discovered traps and hydrocarbon accumulation in the West-Ukrainian oil and gas region are considered. The possibility and efficiency of morphostructural analysis application are proved for the purpose of prediction of hydrocarbon-bearing structures in different tectonic areas.

The priority perspective objects for further oil and gas prospecting within of the Folded Carpathians are founded.