

Geodynamic Evolution and Structural Complexes of the Crimea

Yudin V.V.

Crimean Branch of Ukrainian State Geological Prospecting Institute, Simferopol,
AR Crimea, Ukraine; yudin_v_v@mail.ru

As a structural complex (SC) it is understood an ensemble of structures that were formed during one Wilson cycle. SC determines morphology and spatial distribution of oil and gas traps. New structural model of the Crimean Peninsula and Black Sea Region is featured by new reference tectonic sections, geological and geodynamic maps and a general geo-tectonic transect. Geodynamic evolution of the region includes three Wilson cycles. The latter ones have formed three SCs called the Scythides, Cimmerides, and Neo-Cimmerides. Each of them is manifested to the south from previous one to include structures of divergent and convergent stages.

Scythides are formed since Paleo-Tethys opening in Ordovician-Silurian times till its closure in Carboniferous-Mid-Triassic times. Convergent SC of the Scythides is continued about 100 Ma beginning from Early Carboniferous, perhaps Late Devonian till Early-Late Triassic. Thrusted and folded structures of the Scythides and its foredeep are controlled by the sub-latitudinal North Crimean collision suture of southern dip.

Cimmerides were formed during Triassic-Early Cretaceous time. At divergent stage in Late Triassic – Early Jurassic the rift-and-spreading structures are called as Early Cimmerian ones. These are represented by riftogenous depressions in the Plain Crimea and the divergent Tauric flysch to the south. Convergence stage occurred in Toarcian-Early Cretaceous period. It is controlled by the Predgornaya suture of northern dip accompanied by ophiolites. The complex is represented by compression structures, synchronous to it molasse and active margin magmatism in the Plain Crimea. The thrust of northern dip and overthrusts accompanied by mélanges and intensive folds of southern vergency are developed in the Mountainous Crimea.

Neo-Cimmerides are formed since Early Cretaceous. In this SC it is recognized a divergent ($K_1 - P_2$) and an incomplete convergent ($P_3 - Q$) stages. In the beginning of the first stage the Mountainous Crimea olistostromes and olistolithes of Upper Jurassic limestones were slid down from the pre-riftogenous uplift in Early Cretaceous time. Further on it was opened the fault-bounded back-arc grabens of the West and East Black Sea separated by the Mid-Black Sea horst.

Thrusts and overthrusts, duplexes and folds of southern vergency were formed during convergent stage. Main convergence zone dips north and accompanied by land and submarine olistostromes. All SCs reveals pop-up structures of different orders.