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Seismostartigraphy of the Maykopian clinoforms in the Middle Caspian

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Clinoform bodies are often associated with non-structural traps of oil and gas. But they are not only perspective exploration objects, clinoforms are also of scientific interest as elementary stratons which mark relative sea level changes and paleoslopes position. Clinoforms allocation helps to determine paleolandscapes changes in limited time frames and to reconstruct the evolution of sedimentary basins.

As an outcome of this work, clinoform structure is the characteristic feature of Oligocene-Miocene Maykopian series deposits in Caucasian-Caspian region. By means of sequence stratigraphy methodology clinoform bodies were clearly detected on seismic sections through Tersko-Sulakskaya depression and Peschanomysky arc of Middle Caspian. The sedimentary cover here is represented by Mesozoic-Cenozoic terrigenous and carbonate sediments. Studied Maykopian complex is represented predominantly by clay and carbonate-clayey coastal-marine sediments. Complex's thickness reaches its maximum (2-2.5 km) in the Terek-Caspian trough. On the Peschanomysky arc it does not exceed a first hundred meters.

Maykopian complex lays with unconformity on the Eocene deposits and forms system of clinoforms. On the seismic sections it reveals 7 progradational clinoforms, which relay each other from north to south. Clinoforms are also revealed all around the framing of Terek-Sulakskaya depression.

The present structural plan of the territory is due to subsidence of the Terek-Sulakskoy depression (which was started in Oligocene) and differs from the structural plan during Maykopian time. In this case paleoreconstructions of sedimentary complexes (i.e. consistent horizons alignment) would be preferable. It makes possible to remove the influence of post sedimentation tectonic movements and represent section of sedimentary bodies for the time of their accumulation. Also, it allows to judge more accurately about the circumstances of their formation.

Paleoreconstruction revealed that accumulation of Maykopian strata was occurred in offshore conditions and compensated by tectonic subsidence of the bottom. Based on the interpretation of clinoform position within seismic sections, Scythian plate and Volga paleoriver would be consider as the main material sources.

Sequence stratigraphy research, namely construction relative sea level changes curve and chronostratygraphy scheme, shows that since the beginning of the Maykopian time there was a gradual extension of the accommodation area and shelf's edge progradation. Subsidence of the Terek-Sulakskaya depression caused shelf's accrual and gradual relative sea level rise.

Due to tectonic stabilization and basin shallowing, upper Maykopian reveals normal layered structure. The geological history of Maykopian basin ends by regional sea regression and fixation of long-term continental conditions. As a result, it led to a deep erosion of Maykopian series in large areas of the studied region.