

The evolution of Western Central Asia (WCA) domain based on geophysical data and potential new oil-gas occurrences-part Uzbekistan

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This study was made with complex geophysical observations by the DSS transects, which cross WCA Asia domain in the part Uzbekistan. New regional features have been revealed on the base of re-evaluation of the tectonic setting and history of WCA mainly from seismic, gravity and magnetic data. They include peculiarities of the Earth's crust deep geological structure and spatial distribution of deposits: they are disposing in contrast areas of the earth's crust geoblocks with anomalously high and low seismic and density parameters. The complexity of the region involved in the tectonic assemblage between the Central Asian Orogenic Belt and the tectonic blocks which were subsequently amalgamated from the south, probably involved multi-phase subduction/accretion of various micro-continents, ancient island arcs and fragments of oceanic islands. Linear positive magnetic anomalies and sharp gravity gradients reflect the position of associated faults, which define the location of palaeosubduction zones distinguished by DSS transects interpretation. Mantle-rooted structures represent pathways favorable for the transfer of heat, magma and ore-forming fluids, as well as seismic energy towards the Earth's surface. The intersections of the mantle-rooted pathways with structures of other trends may become preferential places for the release of seismic energy by earthquakes, or, in connection with lithology and geochemical parameters, become favorable loci for concentration of oil – gas or metals. Using obtained regularities it is carried out integrated interpretation and distinguishing of new potential oil-gas occurrences in Gissar and Nurata regions.