

# **Deep Lithospheric Structures in Geodynamical Evolution of South Tien-Shan**

**Irina Sidorova**

*Institute of Geology and Geophysics of Uzbek Academy of Sciences  
49, N. Khodjibaev Str., Tashkent, 100041, Uzbekistan  
E-mail: sidoirina@yahoo.com*

This paper present results of comprehensive analysis of the geological-geophysical data in Uzbekistan using GIS&RS, whish show in the spatial interrelations between the peculiarities of the Lithospheric structures of the region and geodynamic processes occurring there. Deciphering of structural units of South Tien-Shan territory using space images allows us to reveal regional, deep rooted lineaments, extending in latitudinal direction over Uzbekistan territory and neighboring countries. These lineaments or zone of lineaments with anomalous geological objects widening from 50 up to 250 km are originated from a significant heterogeneity of upper mantle. The lineaments could penetrate the Earth up to deep lithosphere layers, inheriting a position of old fault-lineament systems which origin related to Precambrian to Paleocene tectonic processes. Some of these structural discontinuities are poorly expressed in surface geology, but can be detected by remote sensed methods, as well as by the magnetic and gravity anomalies. This study was made with complex geophysical and geological observations by the DSS-MOVZ profiles, that cross Uzbekistan and revealed a number of features, which are characteristic of the upper mantle rocks, related to morphology of bodies, their physical properties, consisting mainly in their contrasting values for contiguous blocks, and general increased velocity and density of the rocks they contain. Anomalous geological objects in Central Kyzylkum having anomalous high velocity and density values have been mapped at different depths within Central Kyzylkum: Muruntau, Kokpatas, Auminza-Beltau, Kuldjuktau, Darbazatau. The alteration zones, the tectonic lines and the circular structures related to the cones and calderas determined these methods and checked by group truth studies may be target areas to explore for some new deposits. New regional features have been revealed: they include peculiarities of the Earth's crust's deep geological structure and spatial distribution of deposits; they are contact areas of the Earth's crust geoblocks with anomalously high and low seismodensity parameters. Mapping of these zones helps select new ways in the search for mineral deposits.

**Key words:** *lithospheric structures, anomalous geoobjects, mineral deposits*