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Geophysical criteria of revealing the mantel plums in Southern Kazakhstan

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On basis of complex interpretation geophysical methods (gravimetry, magnetometry, calorimetry, seismic survey, magneto-tellurium probing) in the South Kazakhstan (Central Asia) extracted mantel plum, which has kept residual influence till our time and confirming of the geological data. The analysis of geologic -geophysical materials on a deep structure and geodynamics of the mountain-folded area Tien Shan, spent in connection with its high seismicity, has allowed to obtain also the new data confirming residual influence deep the asthenolit. New interesting results on studying modern movements by means and methods GPS are received. It is established, that Tien Shan now experience on some sites with a speed 8 millimeter/year and is characterized inside of a slider bed by cow seismicity. According to a seismic tomography, in northeast part Tien Shan in the top cloak downturn of speed of passage of the longitudinal waves, reaching 3 % from its average value is marked. Sites of distribution cloaks are characterized by the high temperature gradients, the raised electric conductivity which on 1-2 orders exceeds conductivity above- and underlying rocks. The analysis of gravitational data has shown that low-speed cloaks are dated for areas intensive negative, and high-speed - poorly negative and positive anomalies.

Geological surveying in the south of Kazakhstan, in Kirghizia, Tajikistan reveals a wide circulation of young volcanic formations. Studying helium and argon isotope systems in young basalts Tine Shan has shown mantle the attitude of isotopes in xenoliths and in xenocrystes that is occurrence in xenoliths samples of an ancient cloak contacts their rise to a surface by mantel plums.

Thus, allocated by geophysical methods low-speed the cloak possessing in the lowered density both electric resistance and in the raised thermal parameters corresponds to a zone of distribution mantel plum, kept residual influence till our time, proving to be true and geological methods, in particular, wide development Mesozoic alkaline basalthoids insideslabbly character above local hot points.