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Plume tectonic nature of geo-dynamical development of Kazakhstan

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In the Paleozoic Kazakhstan was a separate continent and consisted of three concentric rings of bounded geometry sutures. The rings under the active influence of mantle plume made vertical movement and their axes made horizontal movement. The development of variously oriented lineaments led to the formation of clumpy-block structure. The modern structure of Kazakhstan was formed during the interaction with Europe, Siberia and southern continents during the Paleozoic-Cenozoic. The end of the century was marked by a dramatic breakthrough in understanding of the deep Earth's interior based on well-designed studies including the subsurface geophysical studies, ultra-deep continental and oceanic drilling as well as instrumental studies at the Earth's surface and from the space. New data on the deep structure of the crust and upper mantle of continents form complex studies of the international system geo-traverses were collected. Some of them have been laid through the territory of Kazakhstan. On their basis, the models of the lithosphere to a depth of 100-200 km in the Republic were established which revealed non-uniform-block structure of the upper mantle. At a depth of about 200 km, the mantle electrical resistance is dramatically reduced which presumably is linked with the rise of the roof of the asthenospheric layer. The structures of the crust in some cases are continuing in the upper mantle. Asthenosphere in the geo-suture areas rise to the level of 80-100 km and asthenolith penetrate above the Moho in the crust.

Biography

Adilkhan Baibatsha is a Professor in Kazakh National Technical University named after K.I. Satpayev, Republic of Kazakhstan. His main research fields are Mineral deposits, Earth dynamics, the mineralogical studies, the problem of developing the theoretical, methodological provisions of assessment, forecasting of natural, anthropogenic factors and geo-environmental condition of mining. His research results went into the regulations for the design of mine workings, technological regulations on management and safety of mining operations in underground mines. He is the author of more than 450 scientific publications including 36 monographs, textbooks.

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