



The migmatite-granulite complex of the Miass Pluton (Southern Urals)

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The Miass granite-gneiss dome is one of the structures of the Southern Urals that were most affected by endogenous plumes. This structure was formed in the Riphean rifting phase, which is characterised by the intensive migration of thermal plumes. The resulting formation of granite-gneiss structures was accompanied by ultrametamorphic and rock-remelting processes. However, thermal plumes have a heterogeneous structure, and the magnitude of ultrametamorphic processes in various areas of the Miass granite-gneiss dome is featured by some zonation.

In the central portion of the dome, ultrametamorphism was most intensive and lead to the formation of homogeneous granite masses. Anatectites – "shadow" migmatites that retain vague cleavage relics of the pre-Riphean metamorphic complexes – were formed in the peripheral portions of this structure. Striated migmatites with a lit-par-lit structure are observed in the more remote peripheral areas of the complex. Other peripheral rocks are diadysites – gneissic rocks with aplitic veinlets – replaced by typical augen gneisses (granulites).

Thus, the consistent structural study of the rock homogenisation under the action of endogenous plumes can help to reconstruct metamorphic transformations of the substratum and to locate the zones of maximum intensity of the mantle plumes.