

Leading material complexes of the crystalline basement of the tatar arch (East of the Russian plate) in the formation of weathering crust

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Abstract

© SGEM2016. Conducting of quantitative mineralogical analysis of metamorphic rocks penetrated by deep wells in the territory of the South-Tatar arch (East of the Russian Plate) provided an opportunity to examine and identify the leading formational types of rocks or metamorphic formations. According to the results of long-term mineralogical and petrographic research, followed by petrochemical analysis, the rocks have been grouped into two major formations. The first one – mafic-silicate formation is characterized by a predominance of mafic and mafic-silicic rock complexes. Ortho and clinopyroxene, amphibole and biotite are leading femic minerals. The second formation – high-alumina formation is characterized by a wide development of cordierite, sillimanite, garnet, biotite. The content of pyroxene, amphibole among the rocks of this formation is reduced dramatically. Leucocratic mineral component of these two formations is the same. However, the relation between minerals within the formation is different. Formation of buried weathering crust is located on the border of the sedimentary cover and the surface of crystalline basement. It was found that the material composition of the weathering crust is associated with mineralogical and petrographic features of leading metamorphic complexes. The mineral composition of weathered rocks, peculiarities of the development of finely dispersed and clay minerals in various areas of the crystalline basement are also variable and related to the original composition of the substrate in the studied territory.

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Keywords

Clay minerals, Crystalline basement, Metamorphic formation, Weathering crust