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## Smectite-bearing clays of the Middle Eocene Kievskaya Formation in the Russian Plate and their genesis

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### Abstract

The component composition and specific features of the structure of smectite-bearing clays in the Middle Eocene Kievskaya Formation of the Russian Plate were studied by the scanning electron microscopic, X-ray phase analysis, and complete chemical analysis methods. The clays are characterized by metastable (unstable) state of material expressed as abundance of the semidissolved clasts of felsic volcanic ashes and radiolarian skeletons, as well as colloidal segregations of siliceous, aluminosiliceous (Al-Si) and ferroaluminosiliceous (Fe-Al-Si) gel-type materials and newly formed smectite. Three stages of the diagenetic alteration of Middle Eocene dacite ashes are identified. Mechanism of the further transformation of rocks into smectite clays with siliceous nodules is proposed. The viewpoint suggesting the volcanosedimentary origin of clays of the Kievskaya Formation is confirmed. Sources of the pyroclastic material (suppliers of material for clays) in the Kievskaya Formation could be related to active explosions in the Caucasian volcanic arc in the Middle Eocene. © 2012 Pleiades Publishing, Ltd.

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