



## **Formation of structure in the clay soil of taiga zone in Siberia**

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lay soil form on river terraces in Siberia under cold environments with seasonal and perennial frost action, which gives the specific appearance of the soil. We studied the cryogenic structure of clay soil in middle taiga zone of Western and Eastern Siberia.

The climate of Western Siberia is moderately cold with mean annual temperature  $-4$   $-2^{\circ}\text{C}$ , mean January temperature  $-20^{\circ}\text{C}$  and mean July temperature  $+18^{\circ}\text{C}$ . The annual precipitation is 580 mm. The area has insular permafrost. The climate of Central Yakutia (Eastern Siberia) is more continental with mean annual temperature  $-10.2^{\circ}\text{C}$ , mean January temperature  $-38,6^{\circ}\text{C}$ , and mean July temperature  $+19,5^{\circ}\text{C}$ . The annual precipitation is 238 mm. The area has continuous permafrost. Both are covered with taiga forests with larch, pine and Siberian pine. The parent materials of the studied soils are loams, sandy loams, sands of alluvial and ancient alluvial origin.

Soils have brownish and pale colors. They have specific caviar structure in B horizons and ryogenic platy structure consolidated with ice in lower horizons. The latter feature is typical for permafrost-affected soils. Micromorphological study of soil thin sections in transmitted and reflected light showed the presence of numerous rounded aggregates with and without Fe-Mn nodules in the center. Mercury porosity showed the presence of a large number of pores of different configurations, predominantly of small and medium size. The mineralogical composition of clays is characterized by the presence of chlorite-vermiculite, kaolinite and smectite. There are some types of coatings: clay, humus-clay and carbonate. The West Siberian soils are strongly acid and Eastern Siberia soils are neutral-alkaline. Soils were identified as Cambisols, Alisols, Cryosols, and Planosols according to the WRB.

We hypothesized that the specific caviar structure may be ascribed to the frost action.

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