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The Shestakovo Late Pleistocene-Holocene section in Western Siberia: new data and evolution of formation conditions

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New data characterizing sediments of the Shestakovo section located in the southern part of the West Siberian plain have been obtained. The section lying in the undulating plain with altitudes of 100-150 m a.s.l. reveals the 10 m thick strata in which a number of paleosols are identified on the basis of cumulative features of pedogenesis. Paleosols reflect the pedogenic transformation of sediments in different environments during Karghinsk interval, Sartan Glaciation and Holocene periods. The lower part of the sediments at the depth of 7.5-8.0 m yielded radiocarbon dates from 25 to 18 thousand years (Derevianko et al., 2003). According to these dates, the deposits can be attributed to the Karghinsk thermochron finalend and to Sartan cryochron. Paleosols being studied correspond to 1-3 marine isotope stages. Currently, the forest-steppe with a specific climate is spread in the Shestakovo section area due to the orographic structure of this area and predominance of chernozem soils with various degrees of leaching and podzolization in the soil cover.

Sampling was performed at 5-10 cm (or less) spacings in compliance with visual boundaries of horizons. A set of pedogenic features being fundamental for the pedohumus method (Dergacheve, 2003), as well as humic acid spectral characteristics and relationships between humic acids and other humus components were among new data sources, which were not applied previously for recognition of formation conditions of Shestakovo deposits. The obtained characteristics of the composition, structure, and properties of humic substance, as well as comparing them with data obtained earlier by other methods of environmental reconstruction enable recognition of the environment at the southern margin of the West Siberia Plain during the last 20-25 thousand years to be performed in more detail.