

Paleosols as a Recording Systems in the Late Permian and Early Triassic Red Colored Sediments of the Russian Plain

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The end of Permian is of special interest as it marks the beginning of the longest nonglacial period in the Earth's history. An extended belt of red clayey sediments covered almost all medium and low latitudes, was formed during that time.

Some facies of the Late Permian deposits contain buried soil layers distinguished in having bright patchy coloration (bluish dendroidal spots on the red background) in the contrast with homogenous red colored calcareous mudstones enclosed soils. Paleosols are unique recording systems in the geological sediments bringing information about environmental conditions during discontinuities in sedimentation. Series of paleosols were studied in the river basin of Sukhona; they form sequences of 10 to 12 superimposing members subdivided into two or three genetic horizons. Dense net of drab haloed root traces branching downward; well expressed complex multiordered pedality of clay mass; micromorphological pedofeatures indicated soil processing of the sediments. Being very similar in common paleosols likely have been forming in a similar paleoenvironmental conditions of each non-depositional interval. Mineralogical, granulometric and chemical composition of paleosols studied indicate low stage of weathering processes during pedogenesis, and the latter supposedly went on in the semi-arid climate conditions with rare, but extended overflowing of the area.

Triassic paleosols studied in Vetluga river basin are not so well expressed and do not manifest any clear internal subdivision due to a shorter intervals of pedogenesis or due to soil formation during accretionary faces of pedogenesis.