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Palaeoenvironmental development of the accumulative fan in Western Russia from the Little Ice Age to the present time

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The accumulative fan was formed at the mouth of a well-developed system of erosive cuts in the lower Serteyka River valley in western Russia. The length of the fan reaches 70 m, and its thickness is up to 2 m. The erosive cuts (gullies) were formed on the steep and short slopes of the tunnel valley (transformed later into the river valley) and dissect the surface of the glaciofluvial plain for a length of ca. 110 meters. The absolute chronology of the development of that relief form was determined based on ¹⁴C and ²¹⁰Pb data set. It was started at the earliest in the second half of the 17th century, and finished before the mid-19th c. AD. These processes can be correlated therefore with palaeoenvironmental changes during the pessary of the Little Ice Age (LIA), as well as with human impact during the agrarian and industrial revolution in Eastern Europe. Studied accumulative fan is formed of deluvium with the insertion of the proluvium and an agricultural diamikton which is developed in ceiling part. The research based on the results of analysis of depth diversity of textural features (mean grain-size diameter, sorting index, skewness and

kurtosis), geochemical features (chemostratigraphy determined on the basis of X-ray fluorescence spectroscopy – XRF) of the fan's sediments and palaeoecological features (palynology analysis, subfossil Chironomidae and Cladocera analysis, plant macrofossil analysis) of biogenic deposits from under the fan.