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Investigation of the dynamics of erosion-accumulating processes using ¹³⁷Cs and excess ²¹⁰Pb as a marker of soil material displacement

Global ploughing up the areas, especially increased in last 2 century, lead to fundamental changing of the sediment load balance of flat territories, at first by repeatedly increasing erosion-accumulating processes. Using ¹³⁷Cs as a marker of erosion-accumulating processes allow estimate of intensity these processes by the period from the middle of 50-th years, and in a number of cases (especially, in zones of Chernobyl contamination) by the more fractional periods. Atmospheric part of ²¹⁰Pb (excess ²¹⁰Pb) recently begin to conform as a marker for estimating of the rate of erosion-accumulating processes at the 100-120-years interval. At the same time here is a row methodical problems of radioplumbum method, in particular the excess ²¹⁰Pb falling out spatial variability has been study insufficiently. Also there are other factors, bearing on the precision and reliability output quantity of rates of erosion-accumulating processes.

Application of these methods in the centre of Russian plane has showed: that arrangement of erosion and accumulation zones naturally changed along cultivated slopes in depend of their morphology; the dynamic of rate of sediment load accumulation in dry valley bottoms defines the intensity of repeated involved sediment load in transport at the expense of secondary erosion breakout development.

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