

Recent changes in sediment redistribution in the upper parts of the fluvial system of European Russia: regional aspects

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Abstract Quantitative assessments of soil loss from cultivated land and sediment redistribution along pathways from cultivated fields to river channels have been undertaken using a range of different methods and techniques, including erosion models, detailed studies of sediment redistribution in representative catchments, monitoring of gully head retreat and evaluation of sediment deposition in ponds and small reservoirs. Most of the sediment eroded from arable land is deposited between the lower portions of the cultivated slopes and the river channels. Less than 15% of the eroded sediment is delivered to the river channels. Sediment redistribution rates in the upper parts of the fluvial system have declined during the last 25 years in both the western and eastern parts of the Russian Plain, because of a major reduction of surface runoff during snowmelt and a reduction of the area of arable land in some parts of the study area.

Key words soil erosion; sediment deposition; gully head retreat; sediment budget; land-use change; climate change; Russian Plain