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Geoinformation mapping of soil erosion in the Middle Volga region

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Abstract

© 2017, Pleiades Publishing, Ltd.The results of a medium-scale geoinformation mapping of soil erosion on an area of about 150000 km2 in the Middle Volga region are analyzed using the catchment-based approach. A quantitative index of the development of soil erosion on the agricultural lands is suggested. It reflects the intensity of soil erosion on slopes within the river catchments. A computer-based vector map of the boundaries of 3331 elementary catchments has been developed. It represents the territorial units for the analysis of soil erosion. Archive materials from the former institutes for land survey have been used to compile a series of the maps of soil erosion in river catchments on a scale of 1: 200000. The zoning of erosional processes has been performed, and the natural and anthropogenic levels of soil erosion in different basins have been estimated. The analysis of these materials shows that the topography and agricultural activity of humans are the major factors controlling the development of erosion. The maximum development of soil erosion in the studied region is typical of the subzone of broadleaved forests.

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Keywords

basins, eroded soils, geographical information systems (GIS), index of erosion, mapping, soil erosion, zoning

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