



Application of RUSLE method to assess the intensity of erosion due to land use changes in a small Polish Carpathians catchment

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Intensity of soil erosion is mainly depends on land cover changes, soil properties, heavy rainfalls and slope gradients. This study compared the influence of land use changes on soil erosion in the Homerka catchment, an area of 19.3 km² located in the West Polish Carpathians, using GIS techniques such the Revised Universal Soil Loss Equation (RUSLE) method and cartographic materials from 1977, 1987, 1996 and 2009. RUSLE is the most common method which allows to predict the average size of the soil erosion due to specific soil properties, relief as well as rainfall erosivity factor. The period between 1977 and 2009 covers the transformation of the Polish economy from a communist system to a free-market economy after 1989. The analysis indicates an increase in the forest area of the Homerka catchment by 18.14% and a decrease of cultivated land by 82.64%. The grasslands did not change significantly in their area, however, their spatial pattern was very dynamic related to their reduction due to forest expansion and enlargement due to cultivated land abandonment.