



Consequences of land cover changes on soil erosion distribution in Slovakia

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Soil erosion is a complex process determined by mutual interaction of numerous factors. The aim of erosion research at regional scales is a general evaluation of the landscape susceptibility to soil erosion by water, taking into account only main factors influencing this process. One of the key factors influencing the susceptibility of a region to soil erosion is land cover. The natural as well as human-induced changes of landscape may result in both the diminishment and acceleration of soil erosion. The recent studies of land cover changes indicate that during the last decade more than 4 % of Slovak territory has changed.

The objective of this study is the assessment of the land cover changes influence on the intensity and resulting spatial pattern of soil erosion in Slovakia. The calculation is based on principles defined in the Universal Soil Loss Equation (USLE) modified for application at regional scale with the use of the CORINE land cover (CLC) databases from the years 1990 and 2000. The land cover/management factor (C factor) for both time horizons was derived from the CLC databases by assigning the individual classes the appropriate value. In the second step, the C factor values for arable land (class 211) were refined using statistical data on the mean crop rotation and the acreage of particular agricultural crops in the districts of Slovakia.

The results indicate that the land cover changes had the significant influence on soil erosion pattern predominately in the mountainous part of Slovakia where large areas of deforested land evolved as a result of natural disasters and timber production.