

Publication**A New European Slope Length and Steepness Factor (LS-Factor) for Modeling Soil Erosion by Water****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3135212**Author(s)** Panagos, P.; Borrelli, P.; Meusburger, K.**Author(s) at UniBasel** [Di Bella, Katrin](#) ;**Year** 2015**Title** A New European Slope Length and Steepness Factor (LS-Factor) for Modeling Soil Erosion by Water**Journal** Geosciences**Volume** 5**Number** 2**Pages / Article-Number** 117-126

The Universal Soil Loss Equation (USLE) model is the most frequently used model for soil erosion risk estimation. Among the six input layers, the combined slope length and slope angle (LS-factor) has the greatest influence on soil loss at the European scale. The S-factor measures the effect of slope steepness, and the L-factor defines the impact of slope length. The combined LS-factor describes the effect of topography on soil erosion. The European Soil Data Centre (ESDAC) developed a new pan-European high-resolution soil erosion assessment to achieve a better understanding of the spatial and temporal patterns of soil erosion in Europe. The LS-calculation was performed using the original equation proposed by Desmet and Govers (1996) and implemented using the System for Automated Geoscientific Analyses (SAGA), which incorporates a multiple flow algorithm and contributes to a precise estimation of flow accumulation. The LS-factor dataset was calculated using a high-resolution (25 m) Digital Elevation Model (DEM) for the whole European Union, resulting in an improved delineation of areas at risk of soil erosion as compared to lower-resolution datasets. This combined approach of using GIS software tools with high-resolution DEMs has been successfully applied in regional assessments in the past, and is now being applied for first time at the European scale.

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