



Influence of slope steepness on soil erosion modelling with RUSLE, measured with rainfall simulations on subalpine slopes.

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The topographical factor LS are one of the main factors for soil erosion modelling approaches within the RUSLE environment. There exists a large variety of different S-factors, for the most used soil erosion modelling environment, which have highly significant influences on the calculated erosion values. All existing S-factors have only been derived from gently slope inclinations (up to 32 %). Particularly in Switzerland, many cultivated areas are steeper than these critical values. Therefore, there exists a research gap for water soil erosion modelling of slopes beyond this slope inclinations.

For the first time rainfall simulation could be made on very steep subalpine slopes (Uri, CH) with a portable field hybrid rainfall simulator. 18 plot measurements on transects ranging from 20 - 90 % slope steepness, were used for a qualitative assessment of the most suitable S-factors for steep subalpine slopes. The collected sediment and runoff amounts indicated a highly significant correlation between the soil loss, runoff and slope steepness. It was possible to make a first selection of an S-factor for slopes above the critical 25 % steepness. Additionally, the C-factor could be extracted from a supervised digital image analysis in ArcGIS.