Geophysical Research Abstracts
Vol. 15, EGU2013-160, 2013
EGU General Assembly 2013

Splash erosion under natural rainfall on three soil types in NE Spain

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Splash detachment and transport of soil particles by raindrops impacting a soil surface are the initiating mechanisms of water erosion. The amount of splash depends on rainfall characteristics (mainly kinetic energy and intensity) and soil properties. Experimental results of rainfall and splash monitoring in three soil types under natural rainfall in NE Spain are presented. Some 27 rainfall events were evaluated, during which high rates of soil splash were measured ($\leq$6.06 g per splash cup), stressing its importance as an erosion process on bare soils. Sources of variation of soil splash were analyzed by a linear mixed-effects (LME) model. Significant relationships were found between the splash erosion rates and the rainfall erosivity index EI30. No significant differences in erosion were found among the soil types analyzed. The LME model explained 55% of variance in the erosion rates, and most of the residual variability ($\leq$74%) was due to differences between splash cups within a single soil type and event, i.e. random effects.