EGU21-8548
https://doi.org/10.5194/egusphere-egu21-8548
EGU General Assembly 2021

Raindrop driven erosion – what is in the black box ?

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Many experiments applying rainfall to produce erosion on soil surfaces consider the inputs and outputs in a black box situation where little or no consideration is given to the actual mechanisms controlling erosion. It is well known that rainfall erosion is caused by raindrop impact and flow forces acting singly or together. Raindrops impacting directly or through surface water detaches soil material from where it is held within the soil surface by cohesion and inter-particle friction and erosion occurs if the detached material is transported away from the site of detachment. The movement of detached material downslope may be in the air by splash or more importantly in surface water flows where raindrop impact may induce coarse sediment may to move when sediment transport normally associated with undisturbed flow does not occur. These transport processes vary in space and time during laboratory and field experiments. How this influences the amounts of soil loss during these experiments is the subject of this presentation .