



## Quantification of Splash and Splash-Saltation

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To efficient investigation and quantification of the influence of wind on soil erosion by rain, the Portable Wind and Rainfall Simulator (PWRS) was constructed and applied on autochthonous soils. First results on differing sites show erosion rates that are far from uniform: depending on substrate and surface conditions, the influence of wind was either a minor one or increased erosion considerably. To further enlighten the complex interactions of wind-driven rain related processes, a simple experimental setup was designed. It extracted the subprocesses of detachment and transport of soil particles by raindrops (splash) and by wind-driven raindrops (splash-saltation) inside the PWRS. The splashed particles were caught by means of a guttersystem which allowed for measurement of quantity as well as distance from the substrate source.

In this way, the detachment and transport by splash (-saltation) could be observed separately from detachment and transport by runoff and the influence of wind on raindrop erosion were analysed and quantified.

Results clearly show a considerably higher amount of detached material with applied wind compared to tests without wind, and distances of transport are greater than without wind. Furthermore, the displacement of particles via splash-creep is much more accentuated.

Reasons are higher terminal velocities and kinetic energy of wind-driven drops as well as a flatter impact angle and therefore altered angle of splash and energy transfer which result in a greater erosion of soil material.