

Abstract

## Raindrop Influence on the Soil Surface <sup>†</sup>

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**Abstract:** Soil erosion through various water processes is a worldwide problem. This research is focused on raindrops' impact on soil surfaces, which is generally considered the initial stage of the erosion process. Splash erosion monitoring was conducted across three experimental sites: Petzenkirchen, Mistelbach (Austria) and Prague (Czech Republic). At each site, the rainfall characteristics (intensity and kinetic energy) were measured by rain gauges and disdrometers, and the impacts on soils (soil loss, soil surface consolidation, changes in soil surface roughness) were evaluated. Several disturbed soil samples with an area of 78.5 cm<sup>2</sup> were placed into splash cups prior to each event. The splash cup collects the soil particles that are splashed out of the sample area when a raindrop hits the soil surface. The collected sediment suspension is processed in the laboratory after each event to determine the lost soil mass. Ground photogrammetry was utilized to determine the surface consolidation of a sample caused by a given rainfall event. Results for more than 500 soil samples were included in this study. Relationships between kinetic energy, rainfall intensity and soil loss and consolidation were evaluated.

**Keywords:** rainfall; kinetic energy; soil loss; splash erosion

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