



The mass proportions of ejected material during soil splash phenomenon

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Soil, as a very important component of many ecosystems may be subjected to various degradation processes dependent on different factors. One of the form of degradation is water erosion, which the first stage is splash phenomenon. This process is initiated when water drops hit the soil surface during rainfall resulting in the detachment and ejection of splashed material (which can include: solid soil particles, water droplets, solid particles within the water sheath), and their transport on different distances. The aim of this study was to define the mass proportions in the splashed material during the single raindrop impact, taking into account its division into the solid phase (soil) and liquid phase (water).

The measurements were conducted on three types of soil differentiated in terms of texture and variants of different initial moisture content (pressure head equal to 0.1 kPa, 1.0 kPa and 3.16 kPa). Water droplets with a diameter of 4.2mm fell on a soil samples from a height of 1.5m. The use of a modified splash cup with an internal trough gave the possibility to collect all the splashed material (both soil and water particles). With the use of a laboratory scale, the collected material was immediately weighed to define total mass. Then the splash cup was dried and weighed one more time to specify the mass of only the solid phase (soil); the difference between the measured values defined the mass of the liquid phase. Based on those calculations the mass proportions of the ejected material during soil splash phenomenon were determined.

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