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Erosion mechanisms in rain impacted flows and their effects and interactions

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Rain-impacted flows dominate the transport of sediment from sheet and interrill erosion areas. Detachment (plucking of soil particles from the cohesive soil surface) in these areas results largely from raindrop impact with the subsequent transport away from the site of detachment occurring through a number of different mechanisms (splash, raindrop induced saltation, raindrop induced saltation, complete suspension in flow, flow driven saltation, flow driven rolling).These various transport processes are described and their effects and interactions illustrated. In particular, the effect of particle travel rates on the composition of the sediment discharged by raindrop induced saltation and the material on the eroding surface will be discussed. The effect of temporal and spatial changes between raindrop induced and flow driven saltation of the sediment composition will also be illustrated.