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## Experimental laboratory setup for identification and quantification of transported soil particles in subsurface flows

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There is a knowledge gap concerning the identification and quantification of transported soil particles in subsurface flows. If these soil particles reach relevant amounts, protective measures against soil erosion applied on the surface may be partially ineffective, and the soil may degrade further and unnoticed. In consequence, there is a need to develop a method to determine this subsurface particle transport in situ. A laboratory flume experiment was developed to examine the processes of fine soil material transport as well as the development of sediment traps for in situ measurements. Since, steep-slope vineyard soils are especially prone to subsurface flows they were subject of first investigations: The shallow steep-slope vineyard soils of the Mosel wine region are mainly developed from Devonian argillaceous schists and Pleistocene terrace sediments. Among the main physical characteristics are a very high rock fragment content and a loose surface layer over a strongly compacted layer caused by the combined action of tillage and weathering. This structure is presumably prone to subsurface flows within the upper horizon, especially in periods of very high soil moisture. The results of this laboratory experiment clearly confirm the presence of subsurface particle transport and the applicability of a sediment trap prototype consisting of a relatively simple and low-cost drain structure.