



Effects of microplastic particles on vertical water flow in soil columns

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Since the introduction of synthetic polymers into the global material cycle, increasing amounts of microplastics have been deposited in soils. In contrast to their impact on marine environments, only little is known about the influence of these long-term contaminants on terrestrial ecosystems in general and on physical and chemical soil properties in particular. First studies highlight that microplastic particles might attach to and clog especially smaller than 30 μm pores which are crucial for the hydraulic conductivity and therefore the water flow of soils (Zhang et al., 2019, doi:10.1016/j.scitotenv.2019.03.149).

In our study, we analyse the effects of microplastic particles on vertical water flow in soil columns. In infiltration-drainage experiments, we contrast water flow in soil columns with and without microplastic particles. A bromide tracer is used to compare the arrival times of the wetting fronts and the tracer fronts, and water flow is characterized using the viscous flow approach (e.g. Bogner & Germann, 2019, doi:10.2136/vzj2018.09.0168). We show first results on how microplastic particles may affect the vertical water flow in soils and the breakthrough of the tracer.