



Visualizing transport of microplastic particles on soil surfaces with an advanced-imaging sCMOS camera

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The impact of microplastics in different ecosystems has recently become subject of numerous studies. However, the research of the last years has focused mainly on marine ecosystems and neglected terrestrial environments so far. This has led to a substantial lack of knowledge of the transport mechanisms of microplastic in soils and sediments. While first studies in this field investigate the abundance of microplastic in soils, only little is known about surface transport of microplastic particles.

The new approach of time-series analysis acquired by advanced scientific complementary metal-oxide-semiconductor (sCMOS) high-resolution cameras (Hardy et al., 2017, doi:10.1016/j.catena.2016.11.005) could enhance the understanding of surface transport mechanisms of microplastic. We used a flume-box filled with different materials to trace the movements of fluorescent microplastic particles of 100 µm diameter under artificial irrigation. Furthermore, soil material from the German Wadden Sea was used to trace the run-off transport of microplastic in natural sediments. Here, we present first results on microplastic particle distribution, transport and accumulation as well on macroscopic as on microscopic scales.