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# Microplastics and water in soils: two separate worlds

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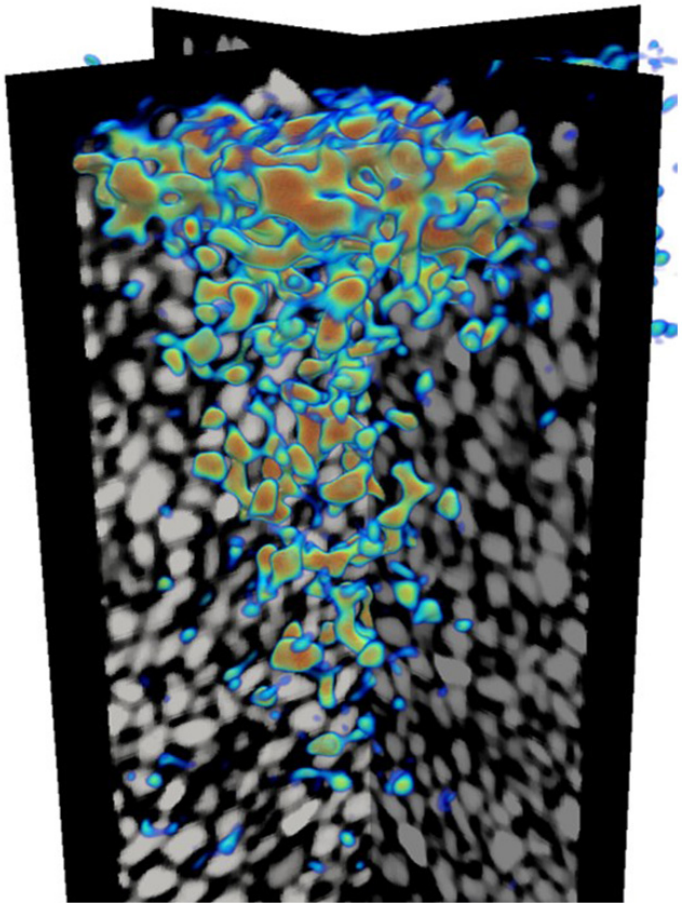

*Imaging of microplastic (blue to red indicating increasing concentrations) in a sandy soil as seen by combining x-ray and neutron tomography. Image courtesy of Andreas Cramer.*

Plastic is an emergent contaminant in many environmental systems. Among these, soils are large sinks of plastics, and contamination by plastic residues is an increasing concern for soil health, partially due to the degradation and fragmentation of plastics into microplastic particles. It is not clear what the fate of these fragments is, how they move in the environment, and what their effects on soil functions are.

To investigate this, researchers used complementary imaging techniques (x-ray to visualize pore space and neutrons to image microplastic and water dynamics) to study the transport and small-scale redistribution of microplastic in porous media. They found that during infiltration, water bypasses regions with high microplastic contents, and that in general, water and microplastic occupy complementary regions in the pore space.

The implication of these findings is that microplastic particles in soil are unlikely to be moved by water flow. Additionally, the segregation of microplastic from water might also impact its degradation. These findings are important to consider when assessing soil and groundwater plastic contamination risk.

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Cramer, A., Benard, P., Kaestner, A., Zarebanadkouki, M., Lehmann, P., & Carminati, A. (2026). Imaging of microplastic distribution–related unsaturated water flow in sand. *Vadose Zone Journal*, *25*, e70092. https://doi.org/10.1002/vzj2.70092

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