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Microfluidic platform studying transport dynamics in weathering crust soil

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Microfluidics provides an excellent technology for studying fluid flow and solute transport in porous media with high temporal-spatial resolution, making it possible to observe fluid movement in the pore network. However, microfluidic chips are typically composed of artificial materials such as polymer, silicon, and glass, with limited research incorporating natural samples. This has hindered the progress of microfluidics. This study introduces a new microfluidic platform that encapsulates natural soil samples of weathering crust. By utilizing an inverted microscope, flow and transport dynamics in the natural soil were observed at the pore-scale with varying levels of saturation. As saturation increased, the fluid moved more easily through the pore network, and the solution diffused more rapidly. This newly developed microfluidic platform enables researchers to reveal complex transport dynamics in natural media.

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References

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