



Contribution ID: 716

Type: **Poster (+) Presentation**

Capillary pumping: a transport mechanism in partially wet porous networks

Thursday, 3 June 2021 14:40 (1 hour)

We present preliminary results from experiments investigating fluid transport in partially wet porous media. Our experiments mimic the natural processes that happen for example when a water-soluble pollutant is spilled on humid soil and is gradually transported inside the network, following the gradient of the matrix potential. We utilize a synthetic quasi 2D matrix of glass beads in a Hele-Shaw cell. The cell is prepared with a controlled degree of clear water saturation which in turn is put in contact with a droplet of dyed water. The cell is transparent and resting horizontally on a light box, with a camera monitoring from above. Through imaging and image analysis we have quantified the spreading efficiency of the networks and showed how this efficiency depends on the initial water saturation in the sample. Our observations indicate the existence of a critical soil water saturation, for which the spreading process attains maximum range. Our findings bring consequences of relevance to the understanding of pollution dispersion in natural soils and the associated mitigation and remediation strategies.

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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Student Poster Award

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Session Classification: Poster +

Track Classification: (MS18) Innovative Methods for Characterization, Monitoring, and In-Situ Remediation of Contaminated Soils and Aquifers