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# Dynamic Effects on Solute Transport in an Unsaturated Soil

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The influence of flow regime and soil saturation on solute transport processes is significant, yet the associated effects have not been adequately addressed. To address this gap, we conducted three sets of solute transport experiments in a sandy soil, complemented by numerical modeling, under both steady-state and dynamic drainage conditions. The results from steady-state experiments revealed a non-monotonic relationship between dispersivity and saturation.Both classical advection-dispersion and dual-porosity (mobile-immobile) type transport equations were used to simulate the measurements. The fitted well defined dispersivity - saturation function was employed to the simulations of dynamic experiments. Taking into consideration the dynamic capillarity effect, our model accurately simulated solute transport processes and flow. Contrary to previous reports, our findings suggest that the flow regime does not significantly impact the dispersivity of solute transport.

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## References

## Conference Proceedings

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