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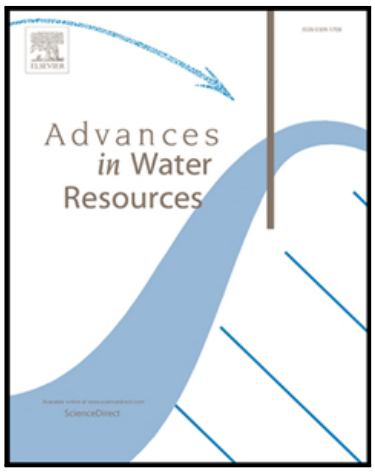

Transient Modeling of Non-Fickian Transport and First-Order Reaction Using Continuous Time Random Walk

Daniel K. Burnell , Scott K. Hansen , Jie Xu

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Highlights

- Generalized advection-dispersion equation for heterogeneous advection, multi-rate mobile-immobile mass exchange, and first-order reaction
- Analytical solutions are in agreement with numerical CTRW particle tracking results
- Relationship between flux and resident concentration for non-Fickian transport and first-order reaction
- Results indicate that anomalous plume transport may appear Fickian in breakthrough curves but spreading rate and plume spatial distribution are non-Fickian

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