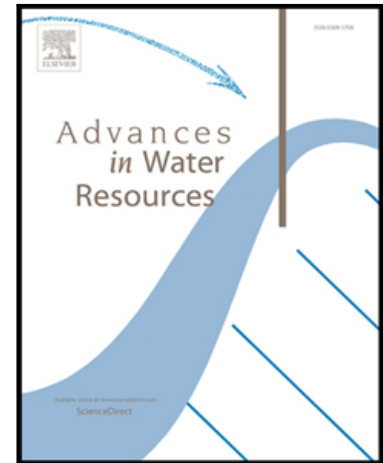


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References and benchmarks for pore-scale flow simulated using micro-CT images of porous media and digital rocks

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Highlights

- We generate a novel reference (benchmark) dataset to quantify the impact of numerical solvers, boundary conditions, and simulation platforms
- We consider a variety of microstructures ranging from idealized pipes to digital rocks (36 in total)
- Multiple numerical engines are included, e.g., Lattice-Boltzmann, computational fluid dynamics, voxel based, fast semi-analytical, and known empirical models
- We notice relatively larger variability in computed permeability of digital rocks with coefficient of variation (of up to 25%)
- Differences between solvers observed due to boundary conditions, numerical convergence criteria, and parameterization of fundamental physics equations

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