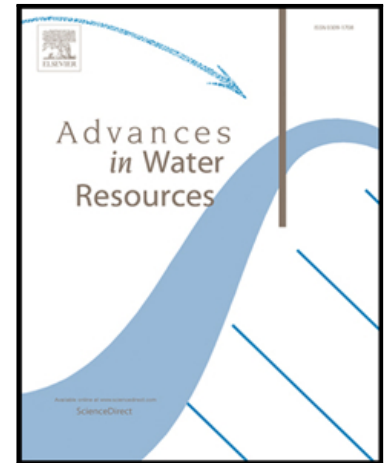


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Minimum divergence viscous flow simulation through finite difference and regularization techniques

Rodolfo A. Victor, Maryam Mirabolghasemi, Steven L. Bryant, Maša Prodanović

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Highlights

- A new algorithm to simulate viscous flow through a three-dimensional Cartesian representation of a porous space is proposed.
- The method adds Tikhonov regularization to finite difference techniques to find a solution with enforced fluid incompressibility.
- Tests performed using synthetic and real sandstone samples show good agreement with established finite volume technique and experimental/theoretical values.
- The new technique is used in conjunction with level set methods to estimate relative permeability curves.

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