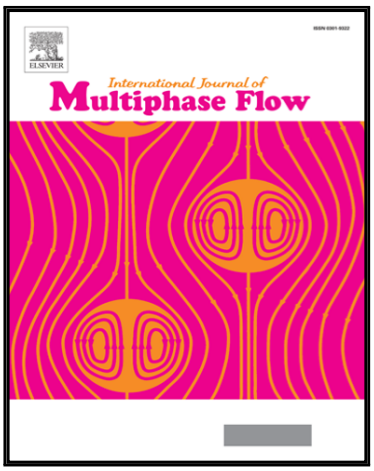

Modeling transient churn-annular flows in a long vertical tube

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Highlights

- Hyperbolic model for transient high gas fraction gas-liquid flows in vertical pipes
- Steady-state results were compared with 1500+ data points from eight sources
- Pressure and flow rate transients were simulated in a 42-m long, 49-mm ID facility
- Successful prediction of transient churn-annular behavior observed experimentally
- Transient pressure drop and holdup were predicted with AAD of 14.5% and 7.9%