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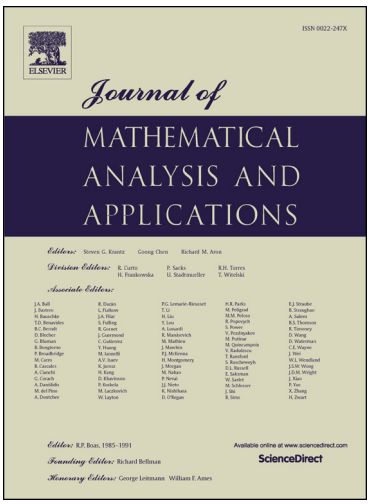

Local martingale solutions to the stochastic one layer shallow water equations

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Local Martingale Solutions to the Stochastic One Layer Shallow Water Equations

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Abstract

We consider the single layer shallow water equations on a bounded domain $\mathcal{M} \subset \mathbb{R}^2$ forced by a multiplicative white noise, and obtain the existence and uniqueness of a maximal pathwise solution for a short period of time. The proof relies on the Skorohod representation theorem, the Gyöngy-Krylov theorem, stopping time arguments, and isotropic estimates.

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