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*Well-balanced mimetic mesh-based and meshless schemes for the shallow-water equations with bottom topography*

We formulate a general criterion for the exact preservation of the lake at rest solution in general mesh-based and meshless numerical schemes for the strong form of the shallow-water equations with bottom topography. The main idea is a careful mimetic design for the spatial derivative operators in the momentum flux equation that is paired with a compatible averaging rule for the water column height arising in the bottom topography source term. We demonstrate the well-balanced property numerically using finite difference and RBF-FD schemes in the one- and two-dimensional case. This is joint work with Scott MacLachlan.