Layer-averaged models for bedload and suspension sediment transport with erosion and deposition effects

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Abstract: Understanding the dynamics of bedload and suspesion sediment movement in a variety of natural and ingeneered systems is crucial for sediment transport and erotion modeling. Based on a multilayer Shallow Water system approach [**?**], we introduce in this work in progress a novel model that incorporates erosion and deposition of sediment in suspension. We also consider non-hydrostatic pressures to better capture dispersive effects.

Moreover, we discuss the application of non-equilibrium bedload transport models [**?**], particularly in scenarios involving erosive dam breaches in 2D, employing a finite volume approach on rectangular meshes [**?**].

Through this approach, our work seeks to advance in sediment transport modelling by improving the understanding of this phenomena and practical implications in real-world applications.

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