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Sediment transport during flushing flows in a small reservoir

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The transport processes during flushing operations of a reservoir is modelled by a 2D sediment transport model with focus on bed load transport.
Flushing often induces non-equilibrium conditions in the upper flow-regime. The model calibration shows the limits of bed load transport formulas which are developed for equilibrium bed load and plane bed conditions in most instances. A calibration factor is implemented to compensate the under-estimation of bed load transport in most parts of the reservoir. Depending on reservoir geometry and sedimentological parameters, the calibration factor exceeds the original formulation up to a factor of 10. Summarised, a good approach of measured and modelled bed levels after flushing has been achieved. The outcomes helped to optimise the reservoir operation during flushing.