

Numerical Modeling of Reservoir Sedimentation, Effect of Data Aggregation

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Modeling long term reservoir sedimentation is very sophisticated. The major reasons to be mentioned are the complexity of physically based numerical flow and transport models, the temporal variation of governing input parameters, i.e. discharge, sediment load and field data required for model calibration and validation. This study is a systematic investigation on the impact of discharge and sediment data aggregation on the sedimentation processes predicted by a model. The study was made based on the field data of Lautrach reservoir located on River Iller, Germany.

The hydrodynamic model TELEMAC-2D coupled with the suspended sediment transport model SUBIEF-2D was used at different level of input data aggregation: 15 minutes; hourly; daily; in steps to fit the peak flood and averaged monthly. The length of computational period was 30 days. Based on the simulation results, the level of data aggregation which facilitates the computational effort and allows results with an acceptable uncertainty was investigated.