



Evaluation of a discharge-sediment hysteresis model to calculate catchment sediment load

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Water quality data typically shows a (mostly clockwise) discharge-sediment hysteresis loop which is usually not taken into account in load estimation techniques. In this study, we investigated a simple empirical model to describe the hysteresis using discharge measurements in the Petzenkirchen watershed (65 ha), Austria. The model was calibrated successfully against continuous turbidity measurements on a storm event basis. It will be shown that the model was able to reproduce important dynamics such as loops within the main hysteresis loop that are caused by multiple discharge peaks. However, the calibrated model parameters changed for the different storms investigated, indicating time-variant shapes and magnitudes of the hysteresis loops. Before the model can be applied robustly in practice we plan to: investigate the mechanisms behind the variable hysteretic behaviour by looking for relationships between the single event model parameters and event characteristics; and evaluate it within an uncertainty estimation framework that accounts for model and data uncertainties.