

Modelling Submerged Vegetation – Validation and Application

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In this paper two numerical models will be introduced, which are applicable to the modeling of overbank flows with a vegetated floodplain. The first model, which is a 2D finite Element model, uses a modified Darcy Weisbach friction factor, and the second model, a 3D finite volume code, uses a drag force approach to account for the additional flow resistance due to submerged vegetation. As it will be shown in a series of validation tests both models are able to predict flow velocities for smooth floodplains fairly well. In the case of vegetated floodplains the 3D approach showed the advantages in terms of model accuracy. However, both models will be applied to a field situation modelling non-vegetated inbank flow as well as overbank flow with vegetated floodplains.

