

Interactive comment on “Incorporating infiltration modelling in urban flood management” by A. S. Jumadar et al.

Anonymous Referee #1

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In this paper, the authors introduce a component for infiltration to the storage unit of a rainfall-runoff model EPA-SWMM 5.0, operationally used for storm water management. The authors use the Green-Ampt method to model infiltration loss in the storage unit with consideration of the ponding depth within the unit. A validation of the added component was performed by comparing results with a simulation done using a one dimensional infiltration model based on Richard’s equation. They implemented the modified model to compare the effectiveness of a regional storage versus a source control storage in reducing flood flows in two case study catchments.

While the paper is written clearly and concisely, I have some concerns regarding the execution of the work and I believe the authors need to address the issues before the paper is published.

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Specific Comments

I do not see the need for spending a lot of effort in validating the Green-Ampt model in the context of the present work. It is a model that has been applied for years and is one of the standard infiltration models (as the authors themselves have articulated as, '...has been a model of choice for infiltration estimation in many physically-based hydrological models'). It would have made more sense if the authors had tried to validate the EPA-SWMM model after incorporating the infiltration model in the storage unit by using observed data from a real system with storage units. While the outflow from the storage obviously decreases when infiltration is taken in to account, the runoff downstream may also be affected by the possible return flow from the infiltrated water. Validation of the entire model with observed data would enable one to assess this impact as well.

Technical Corrections

Maidment, 2007 is cited on page 1536 line 15 but does not appear in the list of references

Page 1547, line 10: 'from' instead of 'form'

Table 4. Is the unit of External Outflow Volume really ml?

Avoid initials while citing references in the text (for instance, on page 1535, line 19-20: Wallis et al., 2003 instead of S.G. Wallis et al., 2003). There are many similar incidents in the entire text.

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