

## ***Interactive comment on “IPA (V1): A framework for agent-based modelling of soil water movement” by Benjamin Mewes and Andreas H. Schumann***

**Anonymous Referee #1**

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This manuscript proposed a framework for agent-based modelling (ABM) of soil water movement. The proposed ABM was applied to simulate the changes of the soil moisture in soil columns with homogeneous and heterogeneous soils. The simulation results were used to compare with the cmf framework in a single soil column. The results show that the agent-based model performs well and that its results are comparable to the classical physical-based approach (cmf).

The traditional numerical modelling for soil movement involves computational-consuming processes. The proposed agent-based modeling framework gives an innovative and interesting simulation approach for soil water movement. Nevertheless, this manuscript does not provide sufficient information for readers, especially without agent-based modelling background, to understand the framework and follow it. In

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addition, the explanation of the rule set for layer agents should be enhanced as I mentioned in the following detailed comments. Overall, I would recommend to the Editor acceptance of the manuscript after a revision. Please check the attached pdf file for detailed comments/questions.

Please also note the supplement to this comment:

<https://www.geosci-model-dev-discuss.net/gmd-2017-318/gmd-2017-318-RC1-supplement.pdf>

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-318>, 2018.

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