



EGUsphere, referee comment RC4
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Comment on egusphere-2022-664

Anonymous Referee #4

Referee comment on "GEB v0.1: a large-scale agent-based socio-hydrological model – simulating 10 million individual farming households in a fully distributed hydrological model" by Jens A. de Bruijn et al., EGU sphere,
<https://doi.org/10.5194/egusphere-2022-664-RC4>, 2022

The paper has received several critical comments already, which I agree with, and therefore do not want to repeat the same comments and criticisms here.

First of all this is an ambitious attempt at developing a large-scale agent based socio-hydrological model. I applaud the authors for embarking on this adventure.

However, as the other reviewers are saying, the authors present a rather superficial and half-hearted attempt at building such a model. It comes across to me as a "proof of concept" type of approach to announce to the world they are developing this model, and to demonstrate they have the elements of such a model in hand. To qualify as a scientific journal article, what lessons have been learned from this exercise? The authors may want to think about this some more.

My second point is that the paper does not articulate for me a vision or underlying design of such an agent based socio-hydrological model? Of course there are agent based models developed at small scales. What are the kinds of questions that the authors want to answer using this larger-scale model? I especially want them to think of "large" scale. How do they organize the model, the agents, the interactions, feedbacks etc in such a way as to answer these questions? At present, the model focuses only on the mechanics of building the model.

Finally, one of the features of agent based models from standard water management models is the idea of emergent dynamics or patterns that arise from the two-way feedbacks between humans and nature (water, hydrology), and between different agents and different kinds of agents. I am concerned that the way the model is presented (perhaps this is an issue of presentation quality) that this model comes across as just a water management model, and the two-way feedbacks is missing and the interactions

between different agents is either not present or does not lead to emergent dynamics. I would like the authors to think through this and improve the presentation of the model.

Given the journal, I do not consider this a traditional scientific article. Yet, I would like them to substantially improve the presentation to make it more interesting and appealing to the readers. I recommend major revision, but the paper should ultimately be published in GMD