Geoscientific
Model Development
Discussions

Interactive comment on "Developing a sequential cropping capability in the JULESvn5.2 land–surface model" *by* Camilla Mathison et al.

Anonymous Referee #3

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Mathison et al. presented the work enabling the JULES model to simulate sequential cropping system. While it is important for land surface models to account this process and the model performance looks reasonable, the model developments presented and the tests run are not yet informative to the community. I have several major concerns on the manuscript.

As a manuscript for GMD, model developments should be carefully and clearly presented. However, the section described the model development only took about half page with a simple flowchart, which is also not very informative. Even the settings of the simulations are described in more detail. In addition, all the equations presented are developments made by previous studies. All these make the reviewer think the manuscript is more like a model application rather than a model development.

Although the authors presented a lot of figures, many of them are not central to questions in which readers may be interested. The authors show the model performance accounting sequential cropping, but how does it compare with the one not accounting sequential cropping? What will be the difference if simulating two seasons of crops as two tiles? Will the LAI be different? Will the yield? At least to this reviewer, the authors fail to prove the improvements brought to the land surface model.

The authors set a "deadline" to harvest a crop even if it is not mature, in order to facilitate the next season of crop. However, it is hard to imagine this is a reasonable manner to simulate farmers' behavior. Will farmers cut down their crop grown for several months just for growing a new season of crop? Large scale applications of sequential cropping may face a lot more challenges than the few tested sites here. It is not yet convincing that the model is ready for larger-scale application at its present form.

Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2019-85, 2019.