Geoscientific

Model Development

Discussions

[GMDD]

Interactive

comment

Interactive comment on "The impacts of data constraints on the predictive performance of a general process-based crop model (PeakN-crop v1.0)" *by* Silvia Caldararu et al.

Anonymous Referee #2

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The manuscript touches an interesting topic; however, the coverage of it is unsatisfying yet. Introduction The introduction could be much more focused. The extensive linkage to 'food security' is not necessary and the meaning of the own contribution overstated. The use of categories is not convincing. How can statistical models be considered non-mathematical and process based models mathematical? (line 16-17). The influence of the different data sources on parametrization is not considered. For example, the inclusion of farm yield data would necessarily imply that management effects influence the parametrization. This is similar to the parametrization of statistical models and should have been addressed in a different way on page 2 lines 30-35. The introduction ends with three valid research questions, however, the concrete model that will

be used to address these questions remains open. Material and Methods Instead of using an established crop model in their exercise the authors claim the development of a 'general process-based crop model' which is then used in an initial set-up and in different forms of a data constrained mode. The claim for a new model (page 5 line 15) adds surprising additional dimensions to the paper. The description of the model is totally unsatisfying. The presentation of the equations does not follow a systematic scheme. Essential information is missing. How was the soil variability parametrized? The original parameter values are not given and any validation results are missing. As one consequence prior expectations about the parameter values cannot be given. The assigned uncertainties for the given data sources are difficult to follow. A systematic reasoning for the chosen uncertainty values is missing. Results The presentation of the results continues the deficits of the M&M section. It does not fulfill the existing standards. It is like an experimental paper that gives information about explained and unexplained variability, but no information about the means and the quantitative extend of effects. What was the quantitative propagation of the initial parameter setting? This leads to my main criticism of the paper: the results given are not reproducible. In the current form the paper is the technical description of an achieved status, it has not yet reached the maturity for publication in a scientific journal.

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-243, 2016.