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Geoscientific Model Development Discussions

Interactive comment on "HETEROFOR 1.0: a spatially explicit model for exploring the response of structurally complex forests to uncertain future conditions. I. Carbon fluxes and tree dimensional growth" *by* Mathieu Jonard et al.

Anonymous Referee #3

Received and published: 3 August 2019

This piece is sophisticated and well written. It may be publishable in GMD with some moderate revisions. However, the proposed model is not free and this gets on my nerves . . . a little bit. Open access has been the prevailing trend in academia and is good for science. There are many free codes available. If HETEROFOR is not free of charge, I am not sure the point of getting this piece published. I urge the authors considering to release the codes for the public.

My main comment is on the name of the model HETEROFOR, since I am not quite sure if the validation data is heterogeneous enough (only 2 broadleaf species). The

site was pretty homogenous to me comparing to the canopies in the tropical region. In addition, how representative is the validation site and data?

Here are my specific comments:

The abstract is a little bit disjointed. More information should be provided to clarify the sentences such as: Why the models called HETEROFOR and CAPSIS (acronyms for what), and how well is the radical growth prediction? Also, did you mention the effects of thinning in the abstract?

P2L19-20: These are not news and we know these all along. Why we need HETEROFOR?

P3L14: "To explore forest response to new silvicultural practices . . ." Did you do that in this paper?

P5L12-13: "As the whole model could not . . ." Why is that? Please elaborate on it.

P10L30: I am not sure about eq. 6. Why the NPP/GPP ratio depends on the crown to stem diameter ratio?

P17L12-13: "Tree mortality occurs when trees reach a defoliation of 90%, considering that a tree with less than 10% of its leaves will never recover." Any reference for the statement?

P17L25-26: More detailed geographic and topographic information should be provided.

P18L13: Please justify the use of the Wallonia data.

P18L16: If the mean temperature of the site is 8 degrees C, why you used 15?

P20L6: Statistics to show no difference between the intercepts?

P23L10: CASTANEA

P46: Table 1 is not indexed in the ms.

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