

Geosci. Model Dev. Discuss., referee comment RC1  
<https://doi.org/10.5194/gmd-2021-59-RC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## **Comment on gmd-2021-59**

Anonymous Referee #1

---

Referee comment on "Using terrestrial laser scanning to constrain forest ecosystem structure and functions in the Ecosystem Demography model (ED2.2)" by Félicien Meunier et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-59-RC1>, 2021

---

The concept for this study is strong, using TLS to constrain forest structure and function in the ED2.2 model, follows a decade and a half's work on using remote sensing to constrain predictions made by ecosystem models (in reducing process and initialization errors). While this idea is worth publishing, the execution is not clear, the structure of the study needs improvement, and the actual constraining of the ED2.2 model is adequately done. Concerning this last point. Essentially you want to know how well your TLS-constrained ED2.2 simulations has fared compared to Ground-based-initializaed ED2.2 simulations and compared to bare-ground simulations. To assess the improvement you need to compare all 3 of these simulations to observed data (like GPP, plot basal area changes, and/or growth and mortality dynamics). You need to do this for both TLS-structure and TLS allometric improvements.

There are many more comments in the text attachment below.

Please also note the supplement to this comment:

<https://gmd.copernicus.org/preprints/gmd-2021-59/gmd-2021-59-RC1-supplement.pdf>