

Interactive comment on “Forest response to increased disturbance in the Central Amazon and comparison to Western Amazonian forests” by J. A. Holm et al.

Anonymous Referee #2

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The manuscript analyzes the impact of disturbance regimes on the aboveground biomass of forests in the Central and Western Amazon. Empirical data are compared with results of two simulation models (ZELIG-TROP, CLM-CN 4.5). Simulations are based on a Central Amazonian parameterization and were analyzed under different disturbance regimes (no disturbance, high disturbance, periodic disturbances).

The manuscript contributes to new knowledge on the impact of disturbances on the carbon stocks, stand structure and species composition in Central and Western Amazonian forests. Moreover, a highlight of this work is the comparison of processes responsible for the biomass decrease under high disturbances between empirical observations and the simulations using ZELIG-TROP and CLM-CN 4.5, which showed

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inconsistencies to empirical data.

Overall, this paper is very interesting, but I would recommend improving its structure and emphasizing the central idea (or leitmotif).

General comments:

- The introduction is not easy to read and too long. The motivation of the authors' work in the introduction is difficult to follow and to understand. I would recommend reducing the length of the introduction by about 30%, being more concise and structured in the argumentation and less redundant.
- Until the discussion, it remains unclear why two simulation models are used to compare their results to the empirical observations. I would again recommend motivating this clearly and concisely in the introduction. Furthermore, in the methods section too less general information are provided for the CLM-CN 4.5 model.

Specific comments:

- Line 25-27, page 7729: Please provide references and more information for these species-specific rankings.
- Line 6, page 7731: The subtitle “Calibration methods” is misleading as only the validation of the parameterization in ZELIG-TROP is described. If calibration has been performed, then please state more clearly which parameters of ZELIG-TROP are calibrated by using which methods.
- Line 27, page 7733: “. . . densest area of biodiversity.” Please provide references.

Technical comments:

- There were several spelling and grammatical errors. Sentences (esp. in the introduction, methods and section 3.1 and 3.2.1) are too long with redundant information.
- Please use equal descriptions of variables in the text and in tables (e.g. Age max in

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Table 1 vs. AGEMAX in line 21 on page 7729).

- Table 1: Please also provide units within the tables for all parameters (e.g. generation stocking, wood density ...).

- Figure 2: Why are those species belonging to the same growth form not ordered, so that there are discontinuities. Please excuse, if I did not understand it correctly, but this figure seems to be a cumulative plot and I would expect grouped species to be ordered. Further, the transparency of colors on top of the plotted lines is confusing.

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