

Interactive comment on “Tipping the ENSO into a permanent El Niño can trigger state transitions in global terrestrial ecosystems” by Mateo Duque-Villegas et al.

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Received and published: 15 July 2019

Comment:

Overall, the manuscript is well written, aptly detailing a thorough and comprehensive investigation on a highly relevant topic to ESD. Technically, the study is well developed and discussed, making for a smooth and instructive read.

This being said, my recommendations would be to make it further clear to the readers that this study has exploratory nature, portraying a modelling exercise based on assumptions that may or may not necessarily correspond to the reality. In this sense, I

C1

agree with comments 1 and 2 of the other reviewer.

Response:

We thank the reviewer for his/her comments. We will add a short sentence near the end of the introduction section that will emphasize the exploratory nature of our paper. Please also refer to our response to comments 1 and 2 by Anonymous Referee #1. Also please refer to the supplementary material to Referee Comment #1 where you will find new figures supporting our responses, which numbering is prefixed by a ‘C’.

Comment:

The more detailed discussion of working assumptions e.g. on stability and equilibria and how realistic or not they are would thus further benefit the realistic framing of the simulation results in a way that would allow the reader to better appreciate their relevance and value. I would also appreciate if the authors could provide thorougher sensitivity tests to perturbations in initial conditions in order to further substantiate the relatively basic sensitivity assessment that, while informative, could strongly benefit from such tests.

Response:

The revised manuscript will include extended results and discussion subsections to further explain our assumptions and results, as well as their implications. This includes clarification of the sensitivity tests to perturbation in initial conditions (include Fig. C7 as part of the manuscript’s supplementary material).

Comment:

In conclusion, I am mostly satisfied with the manuscript quality. The raised concerns are relatively minor. Therefore, I would definitely recommend publication after these concerns are addressed.

Response:

C2

Thank you for your recommendation.

Interactive comment on Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2019-14>, 2019.