

Interactive comment on “Predicting the response of the Amazon rainforest to persistent drought conditions under current and future climates: a major challenge for global land surface models” by E. Joetzjer et al.

Anonymous Referee #1

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The authors explore the ability of the ISBAcc land surface model to represent drought response of the Amazonian forest. A combination of four climate scenarios and four strategies of tree responses to drought are considered to match observations of two through fall exclusion field experiments. The main conclusion is that ISBAcc represents well the soil hydrology but poorly represents the response of the vegetation to drought due to a lack of mechanistic plant drought response mechanisms.

Please better define what are the physiological meanings of the linear and SiB3 water stress functions? Could you describe in few words how the plant responds to different

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soil moisture contents according to these functions?

Page 5309, line 10: the s of gs needs to be an index.

The meaning of gs is explained in the table 1 and 3 but not in the text and you are using it a lot. Maybe it could be nice to have it in the text too for readers less familiar with this term, and to see it contrasted with mesophyll conductance.

Page 5309, line 11: please clarify that the LAI is also overestimated in Tapajos for 2002.

Page 5311, line 17: is fo a typo or do you mean f0?

Page 5313, line 11: typo: imporove instead of improve.

You start by saying in the second section that the two original water stress functions have been calibrated on saplings of *Pinus pinaster* and *Quercus petraea*. However in your discussion you simply say that the concepts of iso- and anisohydric plants are not suitable for ISBAcc. Please could you comment more on what the lesson's learned from this modeling exercise mean for how to parameterize, and measure in the field, a tropical WSF.

Interactive comment on Geosci. Model Dev. Discuss., 7, 5295, 2014.

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