Hydrology and
Earth System
Sciences

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Discussions

Interactive comment on "Precipitation in the Amazon and its relationship with moisture transport and tropical Pacific and Atlantic SST from the CMIP5 simulation" *by* G. Martins et al.

G. Martins et al.

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Dear Reviewer,

The suggested modifications are below.

1) Suggestions of reviewers:

1.1) Anonymous Referee #2

Scientific and writing quality of the manuscript is below average. It does not offer new findings of treatments, and it has some typos and grammatically incorrect sentences.

I find the analysis very elementary and even not useful at times. Lag correlation with SST may not explain biases in Amazon precipitation. Vertical temperature profile over the Amazon basin has different structure than the surrounding oceans due to the monsoon which leads to a different local convective behavior.

Also, the analysis does not touch on energetic controls of precipitation (moist static energy budget), particularly turbulent surface fluxes in the wet and dry seasons. Although accurate observations of these important fluxes may not be available, I expected at least a discussion.

Finally, utilizing ERA reanalysis is not favorable because of the many errors and biases the dataset contains.

2) Modifications suggested by the reviewers:

2.1) Anonymous Referee #2

Scientific and writing quality of the manuscript is below average. It does not offer new findings of treatments, and it has some typos and grammatically incorrect sentences.

Authors: We checked the text and made many minor edits that should have improved the readability of the text.

I find the analysis very elementary and even not useful at times. Lag correlation with SST may not explain biases in Amazon precipitation. Vertical temperature profile over the Amazon basin has different structure than the surrounding oceans due to the monsoon which leads to a different local convective behavior.

Authors: Lag correlation is an accepted technique, while we agree that the thermal structures play a role, analyzing these, and their impact on precipitation producing mechanisms would be another, quite different paper.

Also, the analysis does not touch on energetic controls of precipitation (moist static energy budget), particularly turbulent surface fluxes in the wet and dry seasons. Although

accurate observations of these important fluxes may not be available, I expected at least a discussion.

Authors: The idea of the study is to assess the possible influence of the adjacent oceans by CMIP5 models on precipitation in the Amazon and not check the thermodynamic structure.

Finally, utilizing ERA reanalysis is not favorable because of the many errors and biases the dataset contains.

Authors: We agree but, ERAI datasets is used for various analyzes, among them, the vertically integrated moisture transport. For example, Arraut et al. (2012).

Reference: Arraut, J. M.; Nobre, C.; Barbosa, H. M. J.; Obregon, G.; Marengo, J. Aerial rivers and lakes: Looking at large-scale moisture transport and its relation to amazonia and to subtropical rainfall in south america. Journal of Climate, 25, 2, 543–556, 2012.

Sincerely,

Guilherme Martins.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 671, 2015.

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