

Interactive comment on “Effects of land-conversion in a biosphere–atmosphere model of Northern South America – Part 2: Case studies on the mechanisms of differential hydrometeorology” by R. G. Knox et al.

Anonymous Referee #2

Received and published: 14 January 2014

General comments

This paper follows straight on from part 1, also submitted for review in HESSD, extending the regional analysis of Northern South America in part 1 to two case study sites. Though these case studies are interesting and valuable, they do not constitute a separate study. Therefore this paper has a lack of clear, justifiable, significant conclusions. Neither does it have a methods section, or engage with the literature. Ultimately, this paper does not stand on its own.

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I therefore strongly suggest that this paper should be integrated into the ‘part 1’, also currently in HESSD. As a section in that paper, a concise version of the case studies presented here would be a good addition. There is no apparent reason for the case studies to be a separate paper and the quality of this paper suffers as a consequence.

With that proviso, I support the comments of reviewer #1 and add the following comments. Please note that though the comments below are quite general, they apply to almost every paragraph.

Specific comments

1. The paper shows the results from the model, but frequently presents only the results, with no context, comparison, analysis or explanation of the significance of the information being given. It is somewhat informative but not enlightening. It is not explained why the reader should care.
2. Further to the first point, it seems likely that the length of these results could be reduced considerably (by approximately 50%) were only the most salient ones that added to the argument presented.
3. Similarly, 18 figures is an unnecessarily large amount of figures, most of which are presented with no analysis. By combining figures and removing figures only mentioned in passing, it would be feasible to present this work in 3 or 4 figures.
4. This paper does not engage adequately with the literature. A much more extensive use of the existing literature on the Amazon regional climate, tropical deforestation and tropical climate is needed. It is unacceptable that most assertions are left unsubstantiated. They should either be properly referenced from the literature or explicitly refer to the results quantitatively.

Technical corrections

1. I would strongly encourage the authors to review the figure colour schemes. Figures 1, 6 and 15 particularly would be very difficult for someone who is colour blind. A

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diverging sequential colour scheme would also make it easier for all readers to see the positive/negative areas. You may want to consider www.colorbrewer2.org for finding alternative colour palates.

2. The colour schemes in the figure plots (e.g. figure 9) are also not very colour blind friendly. Neither is the colour explained in the figure caption or the legend.

3. The map figures (1, 6, 15) need units and axis labels.

4. Many of the figures need explanations of the acronyms used (AGB, LAI, ET, LT, etc.) in the figure caption.

5. Many of the figure numbers are out of sequence compared to where they are first referred to in the text.

6. The use of acronyms for the two simulations (AV and PV) should be explained once at the beginning and then used consistently thereafter. The use of 'converted lands', 'forested', 'deforested' etc. does not aid comprehension.

7. Similarly, the naming of the two regions should be consistent. As it is, Site 2 is referred to variously as 'Chacco', 'Site 2', 'Bolivia', etc. This is confusing for the reader.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 15337, 2013.