

Interactive comment on “What could irrigated agriculture mean for Amazonia? A review of green and blue water resources and their trade-offs for future agricultural production in the Amazon Basin” by M. J. Lathuillière et al.

Anonymous Referee #1

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General comment:

This manuscript provides an overview on the water balance, and human effects on it, in the Amazon basin. Besides a rough analysis of possible future irrigation water requirements it does not present original research but appears to be designed as a review paper. That might be fine if HESS accepts such paper formats, and I do not have any major concerns about the presented summary of previous studies. However, even if this HESSD paper considered a review paper, I have several suggestions for improvement and focus of the final HESS, as follows.

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Major comments:

The discussion of green vs. blue water (entire section 2) is much too lengthy; basically it provides a summary of ideas by Rockström, Falkenmark and colleagues which can be read elsewhere: I suggest to cut major parts of this section, only briefly summarize it and focus it more directly on the study area (Amazon) while if possible leaving out discussion of findings from other areas (like the Zeng et al. analysis etc.). There are only two figures in the main document but many more in the Supplement; why not include e.g. Table S3 and S4 in the main text? They are at least as informative as Figs. 1 and 2, especially since they include numbers on the Amazon which is your study area for this paper. I also think that some of the Amazon-based discussion in the SI belongs to the main text, while the discussions of global ET etc. could be moved to the SI or removed as a whole. Besides I miss a figure with any quantitative information on the (green-blue) water flows and the impacts of e.g. land use change, which would be very helpful as an overview and to support the four main conclusions from section 5. Otherwise it is difficult for readers to extract the main observations and findings from sections 3 and 4 and assign them to specific regions within the Amazon basin. What is still lacking is a good and illustrative overview of the main findings / concerns.

Technical/minor comments:

Title: The first part on the possible role of irrigation is a bit misleading, as this discussion is only a smaller part of this paper, and thus it could be removed (the title is too long anyway). In general (in the Abstract and the Intro) the scope of the paper could be made even clearer, i.e. pointing out that it is a review of previous studies. In line with my above comment on being clearer about the scope and structure of the paper: At the end of the Intro it should be stated what irrigation scenario is analysed here. At the end of section 2 it should be clarified how you “explore these implications...”. Tables 1 and 2 are not very informative nor do they say anything about the Amazon region – remove?

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