

Interactive comment on “Assessment of potential implications of agricultural irrigation policy on surface water scarcity in Brazil” by Sebastian Multsch et al.

Anonymous Referee #2

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The focus of this manuscript is the trade-off of the expansion of irrigated agriculture and blue water availability across Brazil but with a regional focus on the Cerrado. The authors use 2012 as their base-line scenario and compare this to an 'all crops as irrigated' scenario. The results presented are interesting, yet I agree with Reviewer #1 (R1) on certain points, and there are other small areas where the methodology and text could be clarified to make the paper more robust.

Major points: Methodology: As R1 it is important to note when the Q95 values were derived. However, unlike R1, I think the derivation of Q95 for each catchment basin should incorporate the spatial variability in flow and hydrologic conditions.

C1

The methods section needs to be reworked and clarified. Or at least included in some sort of supplementary material – as much of the details or the methodology are discussed in broad and vague terms. It is unclear how the grid scale (and what spatial resolution grid scale) relates to catchment basins related to municipality scale (where the areal ratio of crops was used to determine water consumption) when performing these analysis – as these boundaries surely overlap. Thus, the spatial components and nuances associated with these methods need to be described in more detail.

Moreover, how were the individual crop-calendars used and applied? A table of which crop calendars and where they were used and how would be useful.

I also agree about R1's point conveyance and distribution losses. Although they do not have to be explicitly incorporated in the model, they do warrant consideration in the discussion.

Minor points: Define 'green water.' I'm not sure why green water is discussed at all – it is just brought up seemingly randomly throughout the manuscript. Either go into more detail re: green water, or intentionally focus the manuscript on blue water.

Move Section 3, "Data" to before Section 2, "Methods"

There are many sentences throughout the manuscript that could be improved for clarity.

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