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Interactive comment on "Influence of initial soil moisture in a Regional Climate Model study over West Africa. Part 2: Impact on the climate extremes" *by* Brahima Koné et al.

Anonymous Referee #2

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This paper by Koné et al. builds on a companion manuscript by evaluating the effect of initial soil moisture conditions on climate extremes. This paper could be of interest to the scientific community, but my previous concerns from the companion paper apply to this manuscript as well. My previous concerns were about the choice of initial soil moisture conditions for the sensitivity experiment and the choice of study years. Below I outline one additional major concern and a few minor concerns.

Model evaluation: The authors need to either demonstrate that the model used can reproduce precipitation or temperature extremes in the study region or provide a citation demonstrating this, otherwise this model may not be a good tool for this research

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question. It's important that the evaluation be of precipitation extremes rather than the means or seasonal cycle (as in Koné et al. 2018) since that is what the authors are focusing on.

Minor points: Statistical significance: Perhaps I misunderstood the methods, but it seems like statistical significance can't be evaluated using this model setup (which is okay) but it shouldn't be presented as if it can. Each point only has a control year and two model runs right? Please explain this further, the methods section does not provide enough detail here. What is your null distribution and what is your test distribution at each point?

PDF figures: In my opinion the PDFs don't add information and should probably be removed from both manuscripts to save space. The PDFs duplicate the spatial maps of changes, which provide more information, and double the number of figures presented.

Pattern correlations in Table 3: It's not clear exactly how to interpret the pattern correlations for temperature. A value of 0.99 for every single value seems to imply that either there's an error in the calculation or that the metric is not useful. Are the temperature datasets this closely aligned, and if so would it be more useful to assess pattern correlation of temperature anomalies rather than the absolute temperature? I assume that the labels for TRMM should be EIN here as well.

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