Review Comments (egusphere-2023-3132)

Oloruntoba et al. analyzed how various soil data and forcings impact CLM5 water-related variable simulations across Africa. This work could be valuable in guiding future simulations. However, the paper is not well-written. Below, I list some of my comments for improvement.

1. The title is confusing. What do you mean by "temporal model resolution"? It needs to be modified. It does not reflect the important points mentioned in your abstract about different soil textures and forcing sources, which are crucial to your paper.
2. The abstract is not well organized. From your summary of your experiments (4 soil textures and 3 forcings), readers might expect results on how soil impacts the simulations and how different forcings affect the simulations. However, the abstract does not mention how different forcings affect your simulations, i.e., the IV point in your conclusion section. Thus, I think the abstract is not well organized.
3. The introduction should be reorganized or rewritten. Many paragraphs in the introduction belong in the method section. For example, paragraphs 4 through 6, about specific soil data, forcing, and experiment design, respectively, should be mentioned in the methodology section. Therefore, the introduction should be more thoughtful and include more logical content with citations. As you have written the method in the introduction section, it makes some information in the method section somewhat fragmented; for example, L275 mentions “The four (4) soil texture maps”, which originally comes from L81 of the introduction.
4. In L265, please clarify if one year of spin-up is enough. Running the entire domain for a long time may be challenging, but you need to check if one year is sufficient. I suggest picking several typical grid cells with typical plant functional types and/or soil textures, to test if the one-year spin-up is enough for your analyzed variables (ET, runoff) to become stable enough to show the difference between your 12 different experiments. That is to say, can your conclusion made here represent results if run the simulations for 30 years?
5. For the different soil texture upscale data, is it common in our community to "randomly select a single SoilGrid cell"? If so, please provide some references; if not, why do you want to test it here if few uses it in the community?
6. L274. Is the metric termed “average margin” developed by you? If not, you need to add proper citations.
7. Figure 2 could be moved to the supplementary because it is not part of your main story but an explanation for your main story.
8. It is better to use some quantitative metrics to quantify the differences in model simulations between different experiments, instead of a qualitative way, to distinguish which factors (e.g., different soil, different forcing) are the most important.

9. The analysis would be better if further compared with benchmark datasets.
10. L52. Correct the typo of the degree symbol from “0.5o”, and check for other similar errors throughout the document.
11. In the Data Availability section, it would be better to include where (URL or platform) you specifically obtained the data, e.g., SoilGrids, different forcings, etc.
12. The discussion section includes numerous analyses which, although sufficient, feel oddly placed. If there are so many analyses based on new tables, why not include them in the results section (e.g., Tables and new figures)? Additionally, the discussion does not provide a broad scope that shows how your study could further connect with or guide future research.