1 Notes on changes indicated in the response but not made in the manuscript

The responses to reviewers were not always reflected by the actual changes (or lack thereof) made in the revised manuscript. It seems that the additional text, as presented in the response document, was further edited in the manuscript, making it difficult to reconcile in some instances. Please ensure that these documents are consistent.

Inconsistencies that need attention (line numbers are from the response document):
Lines 57-59. The text 'EMAC contains no dynamic vegetation model...' does not appear in the revised manuscript.
Lines 114-117. These three sentences do not appear in the revised manuscript. This is especially important to address because it appears to be the only place where Figure 7 is cited.

We implemented the changes consistently and extent it to "EMAC contains no dynamic land surface model". The text can be found in line 89.

2 Other technical corrections that should be made

Line 2. "Thus, their opening..." does not follow very well the previous sentence. Suggest "Leaf stomata are the conduit of transpiration, and their opening..."

We changed the text as proposed.

Lines 14. Delete "but"?

We deleted this.

Line 19 surfaces

The 's' was added to 'surface'.

Line 21. "with 60-75%" makes no sense here. Do you mean transpiration makes up 60-75% of ET?

Yes, we changed the sentence accordingly.

Line 23. ET is already defined. Do you mean to define TE? Only do this if you continue to use the term throughout the paper.
No, also ET is meant here. We delete the explanation in the brackets.

Lines 24-25 and 28-29. There is too much duplication between these.

We agree and removed the sentence in line 29: 'The resulting change in latent heat flux (of evaporation, λ) reduces the likelihood of rainfall (Miralles et al., 2019).' The explanation 'latent heat flux (of evaporation, λ) was integrated in the sentence in line 25.

Line 99. What about non-water-stressed plants?

The β factor is related to the soil moisture and thus is used to constrain the transpiration and stomata opening due to the content of moisture. The application of soil moisture stress can be seen in CLM4.5 (Oleson et al., 2013) and Noah LSM (Niu et al., 2011). For the non-water-stressed plants it can not transpire when there is no water for root-uptake.

Line 158. VERTEX is not mentioned in Section 2.1.2.

We added this to line 94: '[....] the model formulation in EMAC (submodel VERTEX) [...]'.

Line 183. What is the reference (saf, 2018)?

It is the Product User Manual For Evapotranspiration and Surface Fluxes. We corrected the reference.

Line 199. Priestly should be spelled "Priestley".

Corrected

Line 251. "photosyntetic" – mis-spelt.

corrected

Line 310. "This is here also shown here. . . ". Please correct.

Corrected

Figure 7. This is not referenced in the text, although it was proposed to be in the reviewer response document.

Yes, we apologize. The proposed changes are now implemented consistently in the revised manuscript in e.g. line 369.

Line 386 ". . . has a two effects . . . " - delete "a"

done

Line 390. ". . . plant transpiration of plants . . . " – please resolve duplication of "plant/s"

done

Lines 394-5. I'm sure that 2 m temperature does not double, especially in K units! Please revise

Yes that needs correction. We changed the sentence in to:
As a consequence, the 2m temperature increases by up to 3 K (Figure 9b) [...].

References

Niu, G.-Y., Yang, Z.-L., Mitchell, K. E., Chen, F., Ek, M. B., Barlage, M., Kumar, A., Manning, K., Niyogi, D., Rosero, E., Tewari, M., and Xia, Y.: The community Noah land surface model with multiparameterization options (Noah-MP): 1. Model description and evaluation with local-scale measurements, J. Geophys. Res., 116, D12 109, https://doi.org/10.1029/2010JD015139, 2011.

Oleson, K., Lawrence, D., Bonan, G., Drewniak, B., Huang, M., Charles, D., et al.: CLM 4.5 NCAR technical note, NCAR Tech Note, 2013.