Response to reviewer 2
Responses to reviewer comments are highlighted in italic.

Manuscript: Varying soil moisture-atmosphere feedbacks explain divergent temperature extremes and precipitation projections in Central Europe

The authors have performed an excellent analysis on understanding the uncertainty in precipitation projections with soil moisture-atmosphere feedbacks. I thoroughly enjoyed reading the manuscript and I recommend acceptance of the manuscript with very minor revision.
We thank the reviewer for his positive feedback and we are pleased that reading of the manuscript was enjoyable. We will incorporate the suggestions in the revision of the manuscript.

1. The authors have used kernel density estimation to get the trimodal pdf of changes in the projected summer precipitation. I have a small query, what is the impact of selection of bin size on the shape of the derived distribution. This is clearly a tri-modal case, no doubt, but in my humble opinion, if a K-S test can be performed to just show that the distribution across models differ statistically significantly from uniform distribution and unimodal distributions such as normal and gamma, it may strengthen the claims made by the authors.
It is unfeasible to test against all possible unimodal distributions. Here we use the classification into three model groups rather qualitatively to explain the different feedback processes. Note that the distribution of summer precipitation has no influence on the applied constraint to identify the most realistic models.

2. A minor check, in Table 1, the del LH for wet model, does it have negative sign? I guess it is positive, as I can see from the plots. Kindly recheck.
Thank you for the comment. This is indeed true and we will remove the negative sign.

3. Another minor comment, just to strengthen the conclusions, made by the reviewer, is it possible to statistically show that the classes of very dry, dry and wet models are independent (with the help of multi-variate statistics) when we consider multiple variables, presented in Table 1. This is just a suggestion.
We are not aware of an approach that would allow us to test this. The independence of climate models is typically very challenging to assess, as many models share similar code and such an assessment would need to go much beyond long-term trends and consider natural variability and the relationships between multiple climate variables.

4. Constraining the model with correlations from observation gets rid of extreme models and hence the multi-model projections of summer precipitation shows almost no change. The other way round, probably the models which are not performing well showing extreme and abrupt changes. May be some discussion on this would be a good addition. A small point with this, are we assuming that the correlation will remain unchanged in future? I may be missing something here, but if we are making such assumption, do we have a justification for the same.
The models that agree less with the observations do not necessarily show extreme and abrupt changes. They merely show slightly stronger trends. However, the idea of constraining models with present-day observations indeed includes the strong assumption that the correlation between summer precipitation and TXx does not change in future. Figure 5a shows present-day versus future correlations of summer precipitation and TXx. It can be seen that there is indeed a strong relation. This provides some confidence that our assumption is met. We try to describe this in the Discussion section 4.3 and will add a further comment.

5. Fig 9 is an excellent figure summarizing the theory. Just wondering, due to evaporative land surface cooling, is there a possibility of reduction in advective moisture from a distant source?
In our study we did not focus on non-local processes. It might be possible that wet models have stronger local latent heat release and therefore moisture advection, for example from the ocean, is changed. This cannot be answered with our analysis. However, we find it a useful comment and will add a sentence on this.

Finally, this is a fantastic analysis and I am sure this will be a great addition to the literature on understanding the projected climate from models
Thank you very much.