Thank you for the opportunity to review the second draft of the manuscript entitled “Holocene climates of the Iberian Peninsula: pollen-based reconstructions of changes in the west-east gradient of temperature and moisture” by Mengmeng Liu and coauthors.

The text has been improved, especially the introduction and the parts on pollen data (modern and fossil) and method. It is much clearer. Thanks to the authors for that.

However for the figures, most of the changes I asked for were not taken into account (see below).

Introduction is better, papers are now cited (Tarroso et al); the paper of Davis et al., 2003 is still lacking.

line 73: contradiction better than contra-distinction;

line 80 and in the text: update the ref Shen et al 2021 as Shen et al 2022 Clim. Past, 18, 1189–1201, https://doi.org/10.5194/cp-18-1189-2022, 2022

Lines 84-87: “These analyses allow us to confirm that the west-east gradient in moisture was less steep during the mid-Holocene and indicate the importance of changes in atmospheric circulation in explaining observed patterns of climate change across the region”.

This sentence is a result, avoid it in the introduction

Line 78 :The term pollen and transfer function is required here; better as: Here, using pollen-inferred transfer functions, we re-examine the trends in summer and winter temperature…

Methods

Line 92, could also add Salonen et al 2019?

Line 103: add a brief sentence on the recent RForest and BRT new methods (Salonen papers).

BRT is a nice and powerful tool to provide robust climate reconstructions

Results

Line 238: Mid-Holocene not Middle

Discussion

Line 300: add the ref for the transient output

Line 311: “The differences between the three data sets probably reflect differences in the number of records used, but the lack of coherency points to there not being a strong, regionally coherent signal of summer temperature changes during the Holocene”.

I think that the differences are also probably linked to the method used (MAT with PFT for Mauri et al. and Davis et al, PDF for Tarroso et al. and improved WAPLS for your study). Please add a sentence on that.

What about the results from Davis et al., 2003? Did you compare with your results? I think their reconstruction of MTWA indicate cooler conditions in south west Mediterranean during mid-Holocene.

Line 412: human impact: this part is still too short. Human impact on pollen data is probably the most important problem on climate reconstruction during the mid to late Holocene. Even if archeological evidences are not found, human societies may influence vegetation for the Bronze age, especially in Mediterranean regions. So please, add more sentences on this topic.(Did you find NPP or specific pollen taxa related to human impact in your dataset). What about fires and its possible impact on vegetation?

Line 425; "Thus, the finding that winter temperatures are a direct reflection of insolation forcing whereas summer temperatures are influenced by land-surface feedbacks and changes in atmospheric circulation is robust to the method used."

I agree that results are close if you use WAPLS, but if you use another method (MAT, BRT, RF, Bayesien, ANN…), results could be strongly different, so please modify your sentence.

Conclusion: too short, you can improve it!

Figures

- **I already asked to include the synthesis figures (S8 and S9) in the text and not in supplementary material. This has not been done.**

Most of the discussion is based on these figures: it must be included in the text.

I ask the editor to carefully check this point before acceptation of the manuscript.

Tables

- Pollen data must be better taken into account in the text.

I already kindly asked to include Table S1 in the text as table 1. The description of the data sources of fossil pollen used to reconstruct the climate in the Iberian Peninsula must be included directly here in the text and not in supplementary material.

This has not been done. I insist because we need to check easily the pollen sites, the chronological frame…

I ask the editor to carefully check this point before acceptation of the manuscript.