

Dear Reviewer and Editor,

Thank you very much for taking the time to review our manuscript again and provide feedback. We are glad to hear that the manuscript has substantially improved and that only minor revisions are needed. We have carefully addressed all comments and suggestions in the revised version.

More precisely, to address the remaining concerns regarding the framing of our results, throughout the manuscript, we consistently adjusted the language to ensure that our findings are clearly presented as model-specific results tied to JeDi-BACH.

Below, you find our detailed response to this remaining point, with the reviewer's comments reproduced in bold font and our responses in *blue italics*.

Sincerely,

Pin-Hsin Hu and coauthors

I thank the authors for their careful revisions and detailed responses. In my view, the revised manuscript is substantially improved. The distinction between model behaviour and broader ecological interpretation is now clearer, the terminology has been improved, and the added explanation linking potential diversity, biomass scaling, evapotranspiration, and the simulated cooler/wetter climate makes the proposed mechanism easier to follow.

We thank the reviewer for the suggestions as well.

I especially appreciate the added caution that the tendency towards wetter and colder climates at high diversity has not been fully analysed, is likely related to biomass scaling, and may not apply generally, for example in dry climates where strategies minimizing transpiration may be more successful.

We are glad to hear this.

My main remaining concern is minor but still important for framing. Some statements still sound broader than what the experiments demonstrate, especially claims that a systematic effect of biodiversity on climate has been demonstrated. I suggest rephrasing this more cautiously as a model-specific result, for example: “a systematic effect of potential diversity on simulated terrestrial climate has been demonstrated in JeDi-BACH.” Similarly, in the abstract, “a systematic dependence of terrestrial climate on diversity” could be clarified as “a systematic dependence of simulated terrestrial climate on potential diversity in our experiments.”

Provided that this cautious framing is maintained consistently throughout the abstract, results, and conclusions, I consider my main concerns addressed.

Following the reviewer’s suggestion we carefully reviewed our text and made the following changes:

L11: The original formulation was:

“We find a systematic dependence of terrestrial climate on diversity.”

We changed this to:

“We find a systematic dependence of simulated terrestrial climate on potential diversity in our experiments.”

L12: The original formulation was:

“..., we find that at low diversity, local climate varies with the particular composition of vegetation, while at high diversity terrestrial climate proves to be rather insensitive ...”

We changed this to:

“..., we find that at low diversity, simulated local climate varies with the particular composition of vegetation, while at high diversity simulated terrestrial climate proves to be rather insensitive ... ”

L74: The original formulation was:

“These simulations provide for the first time indications that climate is not only affected by diversity, but that climate also depends in a systematic way on diversity...”

We changed this to:

“These simulations provide for the first time indications that climate is not only affected by diversity, but may also depend in a systematic way on diversity.....”

L1016: The original formulation was:

“Note that by the material presented here – to our knowledge – for the first time a systematic effect of biodiversity on climate has been demonstrated.”

We changed this to:

“Note that by the JeDi-BACH simulations presented here – to our knowledge – for the first time a systematic effect of potential biodiversity on climate has been demonstrated. ”