

We would like to thank the editor for their comments. We included the original comment in black font and **our response in bold violet font**.

Any planned changes or additions to the text are in violet font with boxes around them.

Response to editors comments

Dear authors,

Thank you for the detailed and serious responses to the questions raised by the reviewers.

Thank you for a timely review process, our paper has definitely been improved by the reviewers and your comments.

It remains a bit unclear to me what happens when the “unresolved TKE” expressed in k_{min} is larger than the “resolved TKE”. Do we need to have a turbulence model in such case? I agree that it is important to add more details and perhaps open questions into the SI

In GOTM, if the TKE calculated from wind shear is lower than k_{min} , TKE is set to k_{min} , so that at any time $TKE \geq k_{min}$. We added a sentence to the methods section explaining this:

In GOTM, whenever the simulated TKE is lower than the calibration parameter k_{min} , it is set to the value of k_{min} .

As written in the response to the reviewers we added a section to the supplemental material discussing the results of the new calibration round (with reduced k_{min} and a_{seiche} set to zero). We end the section with the open question why GOTM is behaving so different from the other models in regard to the calibrated scaling factors:

An open question remained as to why the values for the calibrated wind speed and shortwave radiation scaling for GOTM behave so differently compared to the other lake models (Figure S14 and S15). This is especially unexpected for Simstrat, which is the most similar to GOTM in terms of process description and even showed a similar reaction in the additional calibration round (reduced k_{min} and $a_{seiche} = 0$) where we saw decreased performance in some of the lake clusters (Figure S13).

In addition, we made some small changes in the text to improve language, make the text more consistent in terms of the used terminology and units, and added two more references to calibration parameters in the methods section. All changes are highlighted in the marked-up manuscript version.

I am looking forward to seeing the revised version

Best