

Dear Editor:

Thank you very much for reviewing our manuscript titled “An integrated dataset of daily lake surface water temperature over Tibetan Plateau” (Manuscript ID: esd-2021-151). According to your suggestions, we have made minor revision in this version by addressing the comments in referee report #1. The reply ([in blue](#)) to the reviewer’s comments is presented below. We hope that our revisions and responses are sufficient and satisfactory.

Yours sincerely,

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REPLY TO COMMENTS FROM THE REFEREES:

The revision has been greatly improved. However, my concerns are still not fully addressed. The paper lacks the comparison of the modeling result with in-situ observation. Correlation analysis has been done, but it is not sufficient for me to evaluate the quality this data. A Figure about comparison of modeling result with in-situ observation should be added. As far as I know, there are several lakes with in-situ water temperature observation. If there is no figure about this, the read can not judge the quality of the data.

Reply: The in-situ water temperature observation data are not widely available for lakes in the Tibetan Plateau. Nevertheless, to ensure high quality of our dataset, we have compared the dataset against the best publicly available in-situ water temperature observations in the Tibetan Plateau, which include sequential observation of 4 lakes and sporadic observation of 41 lakes covering the period from 2009 to 2017 (see L214-219 in the manuscript and Table S1 in the Supplementary).

As suggested by the reviewer, in addition to Figure 6 showing the comparison between the modelling results and the in-situ observations, a new figure (Fig.S7) has been added in the Supplementary to show more the details of the comparison. In this revision, in addition to the evaluation based on correlation coefficient, the RMSE of the simulation against the in-situ observation is added in L220-227 according to the reviewer's comments, and presented below:

Compared against the in-situ observations, the RMSE of the simulated temperature is around 2.0 °C for the 45 lakes listed in Table S1. It is noticed that the bias in the simulation mainly due to its underestimation for the warmer seasons. Taking Ngoring Lake for example, for the season when the in-situ observed temperature is above 10°C, the RMSE could reach to 2.42 °C though R^2 is higher than 0.7. The bias of the simulated water temperature could be reduced or corrected if the model is calibrated against the observations. However, it is important to note that the simulated water temperature is not completely equivalent to the in-situ observations. This is because the simulations represent the lake-wide mean temperature of the skin layer, while the in-situ observation used herein is the profile mean temperature for a fixed location in the lake.