

Earth Syst. Sci. Data Discuss., referee comment RC1  
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## Comment on **essd-2021-151**

Anonymous Referee #1

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Referee comment on "An integrated dataset of daily lake surface water temperature over the Tibetan Plateau" by Linan Guo et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-151-RC1>, 2021

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Guo et al. produced an integrated daily lake surface water temperature for 160 lakes across the Tibetan Plateau by combining satellite data and modeling and found that LSWT of lakes in the TP have increased significantly during the period 1978-2017. The result is interesting and important to understand the response of lakes to climate changes. Some major comments are as the following:

1: validation of the modeling result is important at some specific lakes. For example, in situ observation data are available at Dazeg Co, Bangong Lake, Nam Co, Paiku Co etc. Why not use the in situ data at these lakes to compare with satellite or modeling result. It is also very useful to compare the modeling result with satellite data at specific lakes, rather than just like that in figure 4.

2: the method of satellite data (part 3.1) is not clear enough for me. As we know that, lakes in the TP are often covered by cloud and MODIS LSWT is easily affected, especially in summer. From my experience, the quality of MODIS LSWT is low for many lakes in summer due to the cloudy weather and anomalous value of LSWT can be produced. The authors do not mention how they deal with this. When there is missing data, how do you calculate seasonal or annual LSWT and their trend?

3: About the quality of reconstructed LSWT by air2water. As the author mentioned, the daily air temperature were interpolated from the nearest meteorological stations with elevation adjustment. In fact, there are very few meteorological stations in the vast west part of TP, while most lakes are located here. So the reliability of the modeling result need to be further tested.