

## ***Interactive comment on “LakeSST: Lake Skin Surface Temperatures in French inland water bodies for 1999–2016 from Landsat archives” by Jordi Prats et al.***

### **Anonymous Referee #1**

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This paper presents a useful dataset of remotely sensed surface temperature (Landsat series) over French water bodies, including also some ancillary data. The dataset is described in detail, and one of the most remarkable things is the detailed discussion on the problems related to the direct comparison between temperatures retrieved from satellites (skin) and water temperatures measured by contact at different depths. The paper also shows a rigorous validation of the dataset. Therefore, this paper address the main topics of this journal, and my recommendation is to publish the paper after some minor comments:

GENERAL COMMENTS

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As a general comment, I think the validation part could be improved (if not now, then in a future work). I would be nice to measure with a thermal radiometer over particular lakes and then compared contact temperatures with radiometric temperatures. Radiometric temperatures are also better indicator of the performance of the surface temperature retrieval from satellite data. Another option is to perform an intercomparison between standard and well-validated remote sensing SST/LST products. In this case most of the products available are at low spatial resolution (around 1-km), so this intercomparison may be restricted to the largest lakes.

It should be also justified why Landsat-8 is not used, since the straylight problem in the TIR bands was partially solved.

#### SPECIFIC COMMENTS:

-Section 3.2, page 6, line 11: If I am not wrong the algorithm used by Simon et al 2014 is the same than the algorithm presented by Jimenez-Munoz & Sobrino 2009, so it is not a new version.

-Section 5.3, page 13: Please include some comments about the SCL-off problem in Landast-7, and how this problem is addressed in the presented dataset. If Landsat-8 is not used for any technical resason (e.g. straylight problem), then some sentence could be also added in this section.

-Section 5.4, page 14, lines 31-32: "... we applied the algorithm also when clouds were partially present." This is a critical issue, because all the surface temperature retrieval algorithms working with Thermal-Infrared data are developed to be applied under clear sky conditions. This is well-known, so I think it has no sense to apply the algorithm in the presence of clouds. I would remove the data points contaminated by clouds and redo again the analysis to assess which are the main variables contributing to the seasonal bias. May be it is related to different atmospheric water vapor contents (?)

-Table 1: The header of the table should be more informative.

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-References: in page 6 line 7-8 the authors refer to Sobrino 2004 with a strange symbol (#2738), but Sobrino 2004 is not included in the references list. Please correct.

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