

Interactive comment on “Consistency of satellite precipitation estimates in space and over time compared with gauge observations and snow-hydrological modelling in the Lake Titicaca region” by Frédéric Satgé et al.

Anonymous Referee #1

Received and published: 25 October 2018

This is a well-written paper. The analysis is quite thorough although the generalizability of the findings may be limited given the small size of the study region. I recommend publication after a minor revision.

* In Section 1.3, other evaluation studies were criticized for focusing on "a single or a limited sample of SPEs". The current study can be criticized in a similar vein since it ignores reanalysis-based datasets (WFDEI, ERA-Interim, JRA-55, ...). Yes, these datasets have a coarser spatial resolution, but this does not necessarily mean that they perform worse than satellite-based datasets. Yes, I understand that the current

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study focuses on satellite-based datasets, but from an end-user perspective the specific source of the precipitation estimates may not matter much.

* The analysis is limited to the 10-day time scale because some of the datasets are only available as daily accumulations starting at midnight UTC. This is a drawback of the study since the daily and subdaily variability is, in my opinion, much more important than the 10-day variability. In addition, focusing only on 10-day means hides much of the difference among the datasets. I understand that the paper is already quite long and I don't expect you to add a daily evaluation but this drawback should at least be mentioned.

* For some of the precipitation datasets it is incorrect and confusing to refer to them as "satellite precipitation estimates (SPEs)". I'm referring to those that are also based on reanalysis and/or gauge data. Consider using "P datasets" instead of "SPEs" throughout the paper.

* Page 11 line 13: "useless" could be misinterpreted. Perhaps "less suitable" or "less well-performing"?

* "Pixel" should be "grid cell" throughout the manuscript.

* Please use perceptually uniform colormaps in the figures. For an explanation, see the following website: <https://peterkovesi.com/projects/colourmaps/>. Use a divergent colormap with either white or gray in middle for the %B panels in Figure 5c. This will help the interpretability of the figures.

* The title is pretty long. How about: "Consistency of satellite precipitation estimates with gauge observations and snow hydrological modeling in the Lake Titicaca region"?

* Please use dataset version numbers throughout the manuscript for reproducibility.

* "12 hydrological years (2000-2012)": 12 should be 13 I think.

* The Beck et al. (2017) citation is outdated (the title has changed and the paper is

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not in discussion any more). In addition, the citation for MSWEP is wrong (it should be <https://journals.ametsoc.org/doi/10.1175/BAMS-D-17-0138.1>).

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-316>, 2018.