The authors have put considerable efforts into addressing all my comments.

I am fully satisfied with most of their answers. However, I still have a problem with the validation exercise, which I still find incomplete (comment #2). The rationale for developing a new ET product at high spatial resolution is that common products available at coarser spatial resolution are not sufficient to characterize the very high heterogeneity of land surfaces. The validation strategy should therefore support this key point. In their response, the authors rely on a number of articles to support the better accuracy of their modeling approach at high resolution, but they do not provide any quantitative assessment using the in situ measurements available in this study. To better convince readers of the usefulness of this product, I would expect a comparison between 1 km resolution (S3-derived) ET estimates and in situ measurements. This would enable us to assess the performance of the high-resolution product in relation to more conventional products. Otherwise, is a validation exercise necessary after all?

Response 1:

Thank you very much for your comment. In order to investigate the impact of 1-km Sentinel-3 on final ET estimates, we rerun TSEB-PT using original LST at the flux sites used in this study, and then we compare validation results obtained from 100-m and 1-km ET simulations. On average, the resulting outcomes demonstrate an accuracy improvement when the model is forced by downscaled land surface temperature at 100 m spatial resolution. In fact, RMSE error dropped by around 13% and we observed a 12 % increase in R when high resolution LST was incorporated in TSEB-PT. We included this analysis and added some new text and tables in the revised version of the manuscript (lines 365-368; 432-434; 505-518; 648-651; 702-705).

Regarding comment #7, since the authors' response refers to Guzinski et al. (2021), I reread that paper and realized that the correction for topographic effects of solar radiation and air temperature was actually applied using a DEM at 300 m resolution. Is the same approach used in this study? If so, I think it is worth reminding this point in a revised version, as the target resolution (100 m) of the data set is considerably finer than that of the DEM used for topographic corrections of input meteorological data.

Response 2:

Thank you for pointing this out. In the revised version of the manuscript we refer to Guzinski et al. (2021) to give some information on the method for correcting topographic effects. Nevertheless, in our study we use high-resolution DEM obtained from Shuttle Radar Topography Mission at 90 m spatial resolution (see Table 2 in the revised manuscript on page 8).