Hydrol. Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/hess-2019-409-RC1, 2019

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Evaluation of global terrestrial evapotranspiration by state-of-the-art approaches in remote sensing, machine learning, and land surface models" *by* Shufen Pan et al.

Anonymous Referee #1

Received and published: 10 September 2019

The authors provide a nice refresh reviewing global ET data products. Generally, it's a good literature review.

Overall, however, the paper is excessively long and unfocused. Basically, the authors took a bunch of data products, calculated different comparative statistics, and discussed some patterns. That said, the title accurately depicts the unfocused nature of the paper, so it should not come as a surprise. The authors did try to throw in some science by looking at controls over ET, but this only served to make the paper even longer and more spread thin. Moreover, this type of product review has already been done by Mueller, Jimenez and others, so the novelty here is light. The science focus

and strength are mostly on the land surface models, while the remote sensing is noticeably weak (there might be zero ET remote sensing authors on the list of 15 authors). The balanced title does not reflect the unbalanced paper.

In general, I liked the paper as a source for a lit review.

Some additional references that may be useful:

âĂć Talsma, C.J., 2018. Sensitivity of evapotranspiration components in remote sensing-based models. Remote Sensing 10(1601): 1-28. âĂć Talsma, C., 2018. Partitioning of evapotranspiration in remote sensing-based models. Agricultural and Forest Meteorology 260-261: 131-143. âĂć Jiménez, C., 2018. Exploring the merging of the global land evaporation WACMOS-ET product based on local measurements. Hydrology and Earth System Sciences 22(8): 4513-4533. âĂć Badgley, G., 2015. On uncertainty in global terrestrial evapotranspiration estimates from choice of input forcing datasets. Journal of Hydrometeorology 16(4): 1449-1455. âĂć Polhamus, A.M., 2012. What controls the error structure in evapotranspiration models? Agricultural and Forest Meteorology 169: 12-24. âĂć Fisher, J.B., 2011. ET Come Home: Potential evapotranspiration in geographical ecology. Global Ecology and Biogeography 20: 1-18.

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