ESSDD

Interactive
comment

Interactive comment on "A Maximum Entropy Production Evaporation – Transpiration Product for Australia" *by* Olanrewaju Abiodun et al.

Anonymous Referee #2

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I completed the review of the manuscript titled "A Maximum Entropy Production Evaporation - Transpiration Product for Australia". Here, the authors used the maximum entropy production (MEP) for evaporation and transpiration estimation at 5 km resolution for entire Australia. They compared the ET estimation between the eddy covariance tower, MEP method, MOD16 and Australian Water Resource Assessment Landscape (AWRA-L). I think the authors produced useful data for Earth Science studies. However, this manuscript is not ready for publication and the mechanics and discussions of the manuscript need improvement. They are given below:

The results and discussion needs lots of work. It will be good to describe the spatiotemporal dynamics of MEP E and T in detail for 2003-2013 period and connect them with local and regional hydroclimatic fluctuations. Possible challenges can be expanded

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Discussion paper

using uncertainty of the input dataset. What can we learn from these MEP products? What is the new knowledge this dataset can inform us that we do not know right now? What types of future studies this MEP dataset can generate for our scientific community?

Figure 3 caption is inadequate (Mean maps of which product??? MEP?). Presenting the mean annual ET is not enough to claim the conclusion. I think maps of standard deviation, ET map of max ET (the year of Maximum at study area scale) and min ET map (the year of Minimum ET at study area scale) are required.

Figure numbering got messed up. Figure 3 was labeled twice. As a result, it was difficult to follow the manuscript.

Line 111: What is the source of vegetation fraction (Not provided/explained?)?

Figure 1: Did you use rainfall, humidity, and temperature from one station? If multiple stations, then how did you distribute/interpolate across the entire content? How much is the spatial variability of precipitation across Australia?

Please add a discussion regarding the propagation of the uncertainty or errors in the input dataset to your MEP product. I believe the vegetative fraction and soil moisture have quite a bit of uncertainty.

What is the extent of footprint for eddy covariance tower estimates? How this extent compare to the pixel size of the MEP product? Please add this discussion somewhere.

Line 236-238: I don't see any ET reduction between 2003 and 2008 in figure 3. How this is consistent with Jung et al., (2010) Line 309: NSE is not reported in this manuscript. Table 2 does not show any NSE.