

Interactive comment on “High-resolution global atmospheric moisture connections from evaporation to precipitation” by Obbe A. Tuinenburg et al.

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The authors did a great job in providing a global dataset with comprehensive information on the downwind areas of re-precipitation for evaporated water as well as for the upwind source areas of precipitation. Furthermore, it is the first global study of this sort using the recently published ERA 5 reanalysis data. The document is well written and understandable and provides interesting examples to exemplify possible uses.

I have a few comments as shown below:

1) The work does not provide a comparison of some of the results with previous work

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and a rationale for occurring differences. The recycling numbers (global land evaporation which re-precipitates over land & global precipitation over land originating from land sources) seem to be comparatively high. While reading the manuscript, the reader might interpret that differences to previous studies might solely be due to the usage of better data (most actual reanalysis data and finer resolutions). However, it would perhaps also be relevant to relate those relatively high numbers to errors in the precipitation and evaporation. Figure 8b indicates within this context significant differences (Deviation between UTrack and ERA5).

2) The sample scripts seem not to work completely or there could be a bit more information on the necessary steps need to be done to get them running (e.g. how to derive the suitable net CDF file with monthly ERA5 data)

3) Minor comment to caption of Figure 1:

Perhaps the last phrase could be formulated a bit more precise in order to avoid misunderstandings:

For instance from:

“The examples show the distribution of evaporation that precipitated (B) and the precipitation that evaporated (C) from Utrecht, the Netherlands, during 2008-2017, given as percentages of allocated moisture.”

To:

The examples show the distribution of re-precipitation for evaporated water from Utrecht (B) and the distribution of the city’s sources of precipitation, given as percentages of allocated moisture.

4) Regarding the PANGAEA dataset, it would perhaps be a nice add-on to have the results also as yearly averages. But users might of course simply build them by their own and this should not be considered as a “must-have”.

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