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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Integrating multiple satellite observations into a coherent dataset to monitor the full water cycle – Application to the Mediterranean region" *by* Victor Pellet et al.

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Comments on 'Integrating multiple satellite observations into a coherent dataset to monitor the full water cycle - Application to the Mediterranean region' by Pellet et al.

The MS presents a substantial effort in integrating multiple satellite observations into a coherent data set for monitoring the water cycle of the Mediterranean basin. From a technical point of view, many data products and acronyms are introduced but the reader is rather overwhelmed by the details and misses the central message the MS is trying to convey.

I would suggest the following revision:

1. Since the described project and the MS aims to produce a satellite observations of water cycle, I would suggest that the logic and methods proposed for generating climate data records be followed and organized as such (see e.g. Su et al., 2018, BAMS).

2. There is a need to make sure that the used datasets are independent of each other. For example the GLEAM v3c evaporation dataset is used, but the GLEAM dataset uses also precipitation dataset as input. Could the authors check and verify the independence of such datasets?

3. In the first ESA WACMOS project (Su et al., 2014, JAG), an independent evaporation product was generated and is updated continuously. The monthly evapotranspiration for global land area from satellite data (global land 5 km spatial resolution monthly ET dataset, 2000-2017) is produced with a revised SEBS algorithm (Su et al., 2002, HESS; Chen et al. 2013, JAMC) with input as MODIS LST, NDVI, Global forest height, GlobAlbedo and meteorology from ERA-I. A recent comparison of the SEBS ET has reported by Bhattarai et al, 2018, HESS, with the MOD16 ET and a method by integrating radiometric surface temperature (TR) into the Penman-Monteith (PM) equation (STIC). The authors are advised to take a look. The data may be accessed at: http://en.tpedatabase.cn/portal/MetaDataInfo.jsp?MetaDataId=249454.

4. The authors presented statistics as a quality criteria of the WC closure. I suggest to spend some effort in checking the dynamics and physics of the different datasets. I am not sure the correlation coefficients and RMSDs are the most suitable relevant statistical criteria for spatial-temporal datasets.

5. The English needs improvement. There are lots of typos and awkward expressions.

References:

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