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Hydrology and Earth System Sciences
Discussions
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Interactive comment on "A High-Resolution Dataset of Water Fluxes and States for Germany Accounting for Parametric Uncertainty" *by* Matthias Zink et al.

Anonymous Referee #2

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The authors provide a description of a publicly available dataset that they have developed for Germany. Their product will be useful for the scientific community. Aside from a few problematic oversights, the paper is generally well-written, with appropriate figures and references. In my opinion the paper will be suitable for publication after a minor revision.

Major

A major oversight of this paper is the lack of referencing a relevant paper that provides a similar dataset, at least in scope. The dataset of Newman et al. (2015) is also a 100-sample ensemble and needs to be cited here. The similarities and differences of the authors dataset with that of Newman et al. (2015) should be noted.

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It is surprising that ET would have less uncertainty than streamflow since the latter is a more direct measurement. The authors only evaluate ET at 7 locations, while discharge is evaluated at over 200. It seems inconsistent to suggest that uncertainty across these two observations could be readily compared. Additional discussion is warranted here, including the scale mismatch between a 4kmx4km grid cell and a point observation. Further, the authors should comment more directly on why they did not evaluate the spatial patterns of their model against remotely-sensed ET and consider doing this evaluation.

The validation watersheds range in size by nearly two orders of magnitude. If the model spatial resolution is the same for all, the authors should comment and hypothesize whether they see higher model performance in larger basinsâĂŤdoes performance increase monotonically with basin size?

In Figure 4, climatic regime does not appear to be a good predictor of model performance, with some of the highest NSE scores distributed throughout the range of conditions. The authors should comment on what, if anything, will best predict model performance, to guide a potential user of the dataset.

Minor

P1L24: Grammar: “have a footprints”

P1L24: “827 stations worldwide”âĂŤperhaps more apt to say “less than 1,000” locations worldwide”, since there are other observational sources beyond fluxnet.

P2L1: replace “reanalysis data” with “reanalysis products” and make this change elsewhere

P2L9: Maurer et al (2002) and Livneh et al. (2015) also cover a significant area in Canada (i.e. not just US, MX, and China).

P9: Here and elsewhere the use of the plural form of the word “performance” as “performances” is grammatically incorrect. Please correct this.

References

Newman, A. J., M. P. Clark, J. Craig, B. Nijssen, A. W. Wood, E. D. Gutmann, N. Mizukami, L. Brekke, and J. R. Arnold (2015). An observationally based gridded ensemble of precipitation and temperature data for the contiguous USA.ÂăJ. Hydrometeorology,Âădoi:10.1175/JHM-D-15-0026.1.

Livneh, B., Bohn, T. J., Pierce, D. W., Munoz-Arriola, F., Nijssen, B., Vose, R., & Brekke, L. (2015). A spatially comprehensive, hydrometeorological data set for Mexico, the US, and Southern Canada 1950–2013.ÂăScientific data,Âă2.

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