ESSDD

Interactive
comment

Interactive comment on "A national topographic dataset for hydrological modeling over contiguous United States" *by* Jun Zhang et al.

Anonymous Referee #2

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I don't have major comments on the technical aspect of the manuscript; the presentation is also ok. But I am not very sure whether the work of this manuscript can be considered as a new dataset. My feeling is that it is an improved version of the National Water Model (NWM) v1.2 hydrographic data. All three inputs of the algorithm come from the NWM hydrographic data which are processed data, not raw data product. Besides, I am not sure whether the improvements are necessary. As a hydrologic modeler, my focuses are more on the simulation performance. True that the drainage area of the basins are more consistent with those provided by the USGS gauges, but how about the streamflow simulation performance? Does it have obvious improvements for real case simulations? Perhaps the authors can show the improvements using a real storm event for some basins in complement with the synthetic experiment

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[Discussion paper]

they already had. Rather than those, I am also not sure how is this improved NWM dataset compared to other hydrographic data products for the CONUS and for the globe (HydroSHEDS) in terms of a visual inspection and, more importantly, hydrologic simulations.

Here are some minor suggestions:

I suggest to merge Figure 3 and 4 and add four more panels. Two panels represent the area differences between figure 3 and 4; the other two for the selected regions illustrate the improvement from the manual processes.

A better way is needed to present the y-axis labels of Figure 10.

I suggest to use a log-transform drainage area map for Figure 11c.

Please align the panel number in Figure 12.

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2020-291, 2020.