Geoscientific

Model Development
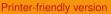
Discussions

[GMDD]

Interactive

comment

Interactive comment on "Hydrostreamer v1.0 – improved streamflow predictions for local applications from an ensemble of downscaled global runoff products" *by* Marko Kallio et al.

Anonymous Referee #1

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Comments to the Author In this manuscript, a useful tool is developed for non-hydrologist to use runoff products estimated by various land surface models. The tool mainly has three functions: 1) mapping the runoff components from the land surface model to units in the hydrological model, 2) modeling the river routing processes, and 3) assimilation via modeling averaging. The article is well written and well organized. I have a few suggestions which might help make the paper stronger. I think it could be done as a major revision.

1. In the manuscript two mapping methods are provided by the developed tool. The area-to-line interpolation is not looking reasonable to me. In this approach, the inter-

secting portion of the river line within the source zone is used as average weight. The approach did not respect the actual drainage area controlled by the river line, actually, somehow recalculate the drainage area of each river line during the mapping process. In an extreme case, if a river line flows along the boundary of the grid, then no runoff will contribute to that river line.

2. Two simple methods are offers for river routing. I would suggest adding more routing options for example diffusive wave, hydrological routing approaches. It would be interesting to also assimilate the simulated streamflow from different routing methods, not only using different runoff inputs.

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Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2020-276, 2020.