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Discussions

Interactive comment on "Satellite-driven downscaling of global reanalysis precipitation products for hydrological applications" *by* H. Seyyedi et al.

Anonymous Referee #2

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This manuscript (satellite-driven downscaling of global reanalysis precipitation products for hydrological applications) presents very impressive downscaling scheme by combining the satellite and reanalysis datasets. I recommended that this work gets published after the authors address the following issues.

Major:

1. More details are needed about how you prepare the training and validation datasets. You mentioned this: "Sixty percent of the events in each season were used for the downscaling model calibration, and the remaining 40 % were kept for determining error

statistics (results presented in this study). " Do you mean: this 60% calibration and 40% validation datasets are from same period of time (2002 to 2011)? Or they are totally independent? Say, 60% is from 2002 to 2008, and the other 40% is from 2009 to 2011? I suspect this two schemes will generate very different results. Please explain and justify your selection.

2. The GLDAS, as a reanalysis datasets, performs poorly. And your objective is to "incorporate" the TRMM3b42V7 to improve its performance for the hydrological applications (e.g, runoff simulation, flood monitoring). And I am convinced that it works much better by doing so. (e.g., Fig. 5). However, my question is: why not directly use TRMM3b42V7 to do the simulation? If TRMM3B42V7 is too coarser, why not directly downscale TRMM3B42V7?

Minor:

1. what is the 949m a.s.l.? Do you mean (above sea level), full name is better.

2. For the Fig. 4e, you mentioned that "The summer events exhibit the lowest values whereas fall and spring have higher POD values." I am not sure about this. Generally, the POD in the summer should be the highest since it is more convective-nature. And it seems that from you figure summer is the highest value (the purple line??), and spring is the lowest one (the red line ??). I think you have a typo here. Do you mean "summer is the highest POD". If not, please explain.

3. Fig. 1, it is difficult to see the yellow and black grid, especially, the black grid.

4. Fig. 7 and 11, the Line style is hard to separate. Either because the line is too thin or the line style is too similar to each other.

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