

Interactive comment on “Assessment of high-resolution satellite rainfall for streamflow simulation in medium watersheds of the East African highlands” by M. M. Bitew and M. Gebremichael

Anonymous Referee #2

Received and published: 14 December 2010

The paper evaluates the performance of high resolution satellite rainfall products for stream flow simulation at two different scale watersheds. Generally the paper attempts to describe interesting and relevant topic. However, the manuscript needs a considerable revision before publication.

Specific comments

1. Comments on the title of the paper: “...high resolution satellite rainfall...” it is good

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if you replace it with “...high resolution satellite rainfall products”

In the title I don't think it is wise to use the word “east African highlands”

2. Page 8215 line 3, “...no any weather radar...” is not clear. Is that data?

3. Page 8216 line 9, “...there is no quantitative information on the estimation errors associated with the operational satellite rainfall products.” It is not a good idea to conclude without reviewing enough research papers that have been done in the area. It seems you haven't seen at least the following articles:

Dinku, T., Chidzambwa, S., Ceccato, P., Connor, S. J. and Ropelewski, C. F. (2008) 'Validation of high-resolution satellite rainfall products over complex terrain', International Journal of Remote Sensing, 29:14, 4097- 4110.

Dinku, T., Ceccato, P., Grover-Kopec, E., Lemma, M., Connor, S. J. and Ropelewski, C. F. (2007) 'Validation of satellite rainfall products over East Africa's complex topography', International Journal of Remote Sensing, 28:7, 1503-1526

4. Page 8216 line 18-20, your justification for using SWAT is not robust

5. Page 8217 line 21, you mentioned “...30-m USGS NED...”. Is the 30m USGS NED available for areas outside US? If yes, you should support it with reference. Basically the accuracy of NED is dependent on the source DEM used to develop the NED. So you have to mention which source DEM you used. It is also good if you can give us reference to all datasets you used.

6. Page 8223 line 10-12, “Depending on the main input, satellite rainfall algorithms can be grouped into two categories: those that use primarily microwave data (e.g., CMORPH, 3B42RT) and those that use primarily infrared data (e.g., PERSIANN).” This is redundant information because you have already mentioned the idea in P 8215 line 9, 10, and 11.

7. Page 8223 line13 “fare better”. Do you mean “far better”

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8. Page 8224 line 4-14. I feel a little an easy when you finally come to conclude about the performance of satellite stream flow simulation and effect of watershed size. Because you compared only two watersheds. You haven't given us enough scientific ground to conclude so. The idea of effect of watershed size is not there initially in your objective but finally comes as a surprise.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 8213, 2010.

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