Hydrology and Earth System Sciences Discussions

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Interactive comment on "Experiences in using the TRMM data to complement rain gauge data in the Ecuadorian coastal foothills" *by* M. Arias-Hidalgo et al.

Anonymous Referee #1

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The authors tried to use locally available rain gauge data to adjust TRMM rain data and then feed the adjusted TRMM data to a hydrologic model. The results based on gauge-adjusted TRMM rainfall were comparable to gauge-only driven model performance. This will give a good reference for some local applications where both rain gauge data and satellite data are available. I have two major concerns as below.

1. What TRMM data the authors were using is not clear. Is it 3B42 real time data or the research data? The 3B42 research data are monthly adjusted by gauge measurements. If the latter was used, whether rain gauge data are involved in the TRMM

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data production needs to be clarified. Are they as same as the gauges as the authors were using? Furthermore, the authors used the TRMM data only till year of 2006. I would encourage the authors to download the TRMM data from the TRMM official data portal and use the newest TRMM data (latest version is 7.0) which includes all latest improvement efforts. Both data and data document can be available from ftp://trmmopen.gsfc.nasa.gov. I would also encourage the authors extend the experiment/hydrologic simulation time period to multiple years instead of only one year with the old version TRMM data. Using a longer time period instead of the calibrating year for comparisons will be more convincing.

2. What is the hydrologic model spatial resolution? Given the small sizes of the catchments (e.g. Table A1), there will be only a few (or only one) TRMM grid cells (at quarter degree). The spatial pattern provided in satellite precipitation data is almost not resolvable for these small catchments. In this regard, the authors may need to perform the experiment at larger catchments, e.g. the comparison of adjusted TRMM driven simulation against the gauge based simulation for the entire Guayas River Basin.

Line28/page 6: Was the model calibrated using gauge rain? As the year of 2006 was used for calibration, I would consider to use a different validation time window for the comparison between TRMM driven simulation and gauge driven simulation.Line24-26/p7, the monthly bias correction has already been conducted in TRMM 3b42 research data. See Huffman et al., 2007.

Line3-15/p8, I am wondering whether the interpolation of the TRMM data to the exact point where the gauges are located is necessary.

Line 15/p11, is the year 2006 used for calibration using gauge data? The comparison should use a different year.

Line 20-22/p12, this is probably true, but is there dam operation involved?

Figure1, The vince sub-basin boundary is not clear. The locations of river gauges for

each catchment are needed.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 12435, 2012.

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