Hydrology and Earth System Sciences

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Discussions

Interactive comment on "Simulating the regional water balance through hydrological model based on TRMM satellite rainfall data" *by* D. Li et al.

Anonymous Referee #1

Received and published: 27 February 2015

GENERAL COMMENTS

The manuscript deals with topic that fits well with the journal's scope.

I see a number of major deficits in the present manuscript. In particular, I miss important methodological information regarding (a) model calibration as well as (b) a thorough discussion of the obtained results. In the present version of the manuscript a discussion is essentially lacking. Hence, the current paper does not meet basic scientific standards.

The authors need to point out the novel aspects of their study (if any). What _new_ and _non-trivial_ information can a reader extract from your paper?

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Interactive Discussion

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The authors seem to be less familiar with English grammar. A revised or re-submitted version needs to undergo correction by a professional or native speaker.

SPECIFIC COMMENTS

Abstract: You state that TRMM data perform reasonably well at monthly and annual scales. Please make clear whether the TRMM data you used have undergone gage-adjustment, e.g. at the monthly scale (read your own page 2502, line 6). I have some doubt that your conclusions (lines 11 and 12 of abstract) are meaningful. You need to consider the aspect of gage-adjustment in the discussion of your results, at least.

page 2498, lines 22-25: Don't understand the meaning of this sentence. Is a model like SWAT well founded in physical theory?

page 2500, line 11: You need to mention the identifier of the TRMM product here.

page 2500, line 11: What is the exact difference between aim 1 and 2?

page 2502, line 16: What is your definition of a model component. Is 'weather' a component?

page 2502, line 21: Since you mentioned the resolution of the DEM, what was the source?

page 2502, line 22: What is 'evaporation capacity'?

pages 2502-2506: You introduced a number of indicators here (unecessarily blowing up the number of subsection). I suppose that not all of these indicators are required. Please indicate, for each of the indicators, why it is appropriate/needed in the context of your study. What specific errors are captured by each particular index?

page 2504, line 15: What was the rationale behind choosing a threshold of 1 mm/day. Why don't you present results for higher thresholds?

page 2506, line 6: Why is it advantageous to also report r-squared?

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Interactive Discussion

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page 2507, lines 16 and 25: Isn't that a trivial finding given the fact that TRMM 3B42 is adjusted to monthly gage data? Note: If a revised manuscript does not contain other meaningful findings beyond that, I'll vote for rejection.

page 2507, line 19: Figure reference seems to be missing.

page 2508, lines 4-11: Make clear whether data from these stations are used in the monthly gage-adjustment of TRMM 3B42. Also provide a reference where this information can be verified.

page 2508, line 16/17: Please elaborate on that problem a bit more. What do you mean by 'calibrated value' here? A parameter or a simulated quantity?

page 2508, line 17: What is the 'effect' of two data sets?

page 2508, line 20: You didn't spent a single sentence on the procedure of model calibration. This is not acceptable. Which method did you use (and why)?

page 2508, line 25: You provided a table, OK. Do you expect that the reader interprets this table own his own?

Table 2: You found that the GW-delay parameter differs by a factor of 4 between your two calibrations. Please give a reason for that. Also make clear which calibration variant (if any) is meaningful considering the geomorphology of the basin.

Table 2: Same as above for Manning's n. What is a reasonable roughness value for the channels/floodplains in the study area? Why does it make sense to optimize that quantity?

Table 3: What is the underlying temporal resolution of the data?

page 2509, line 18: I doubt that such a general statement makes sense.

page 2509, line 22: In order to test the validity you need to compare with observations. How (and where) did you do that?

Table 4: Non-informative table caption.

page 2510, lines 23-25: Please verify the validity of this statement, e.g. by reporting measured relative contributions of runoff components.

MINOR COMMENTS

Abstract: Check logic in 2nd sentence.

Abstract: What is the foreseeable future?

Abstract: "hydrological model" is redundant in 1st sentence of abstract.

page 2499, line 25: check grammar

page 2500, line 7-10: A study that covers those aspects can be found here, for example (same journal) doi:10.5194/hess-18-2493-2014

Section 2.1: The contents of this section is a bit mixed-up. Please rework and remove any information that is not relevant in the context of this study.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 2497, 2015.