

Interactive comment on “Baseflow simulation of SWAT model in an inland river basin in Tianshan Mountains, Northwest China” by Y. Luo et al.

Anonymous Referee #1

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The paper presents an improvement of the SWAT model for baseflow component modelling in application to the snow/glacier melt dominated streamflow processes in Northwest China. The approach is described clearly, and the results are convincing. However the language should be checked by a native speaker (e.g. by one of the co-authors). The manuscript can be accepted for publication after a minor revision.

The following corrections/amendments are needed:

1. It is recommended to add the logarithmic Nash and Sutcliff criterium (LNSE) to the study in addition to NSE and PBIAS. LNSE is especially useful as a criterium of fit for the low flow periods.

Response: thanks for the comment.

We noticed that Samuel et al. (2011) used the NSE of log transformed (NSE_{\log}) streamflow as a criterion for model performance evaluation. We calculated the NSE_{\log} values for streamflow series simulated by the one-reservoir and the two-reservoir approaches, respectively. The NSE_{\log} for the one-reservoir approach is -4.91 and 0.87 for the two-reservoir approach, respectively. This may indicate a much better performance of the two-reservoir approach than the one-reservoir approach. We are not familiar with the rating of NSE_{\log} . So, we prefer to use the NSE as a criterion for its rating system given by Mariosi et al. (2007).

2. Table 1 mentioned on p. 10404, l. 12 (Physical features) does not exist. Please add it.

Response:

The table of physical features of the watershed was thought to be trivial and citation of the table was deleted.

3. Please add a small map of China to Fig. 2 indicating where your study area is located.

Response:

A small map of China to Fig. 2 indicating the study area was added.

4. Language should be checked by a native speaker. There are many small grammar mistakes, e.g.: - Title: "of SWAT model" -> "using SWAT model" - p. 10399, l. 2: are -> is - l. 10: of the -> the - l. 12: constant -> constants - l. 12: comprise -> compromise? - l. 13: tried -> used? - l. 15: Soil Water -> Soil and Water - l. 16: one - reservoir -> one-reservoir - l. 20: remove "-" - l. 24: base flow -> baseflow - l. 27: is due primarily -> is primarily due - l. 29: in during -> during - p. 10400, l. 10: constant -> constants - l. 22: are detailed -> is described - l. 23: thus, -> thus - p. 10401, l. 15: remove "then will be" - p. 10402, l. 6: enters -> entering - p. 10403, ll. 4-7: divide sentence into two: dot at the end of line 5. Then: "It was used, among others,..." - p. 10404, l. 17: remove "within the" - p. 10405, l. 2: How can it be: unpublished publication? Maybe a report? - p. 10406, l. 4: snowpack -> snow - l. 6: Winter -> winter, Spring -> spring - l. 8: of the river flows -> for the rivers - p. 10407, l. 10-12: please reformulate the sentence (now: "using ... reproduced") - l. 14: took out -> taken - l. 20: summery -> summary - p. 10408, l. 9: was depleted -> depleted - l. 13: become -> becomes - p. 10409, l. 12: turns -> turned - ll. 25-26: remove "In point view of mathematical simulation" - p. 10410, l. 25: achieved -> lead to

Besides, in a number of places should be: "an issue", "an initial estimation", etc. instead of "a issue", "a initial estimation".

Response: We have made corrections to the manuscript following comments above and have improved the English.