Hydrol. Earth Syst. Sci. Discuss., 10, C6048–C6049, 2013
www.hydrol-earth-syst-sci-discuss.net/10/C6048/2013/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Correcting basin-scale snowfall in a mountainous basin using a distributed snowmelt model and remote sensing data" *by* M. Shrestha et al.

Anonymous Referee #1

Received and published: 9 December 2013

This paper shows the bias correcting method in estimating snowfall distribution using water and energy balance-based snowmelt model. They elucidated that the WEB-DHM model bias is caused by the snow estimation error due to altitudinal difference of the location between observation point and model grid. The paper could be published in this journal after some minor revisions as follows:

Minor comments

1. p. 11722 Equation (1)
Second line should be better in this form.

$$C_f = \begin{cases} C_{frain} & (T_{grid} > T_{th}) \\ C_{fsnow} & (T_{grid} \leq T_{th}) \end{cases}$$

2. p. 11725 l.16-26, Figure 4
River discharge in 2003 is well-simulated, but the discharge is underestimated in 2001, 2002, 2004. What is the difference of snow features (snow distribution and snow events) in between 2003 and 2001, 2002, and 2004?

3. p. 11722 l. 11
What is "ng"? Could you correct the word?

4. Abstract and many sentences.
"4 yr" is not adequate for the paper. Please spell out "yr" to "year".

5. p. 11722, Equation (3)
"where α is the weight. Here, α was taken to be 0.25, so it reflects an equal contribution of discharge and snow error components to the main objective function." Could you explain about the weight, α? Why does "α is 0.25" mean equal contribution of snow and discharge error? Please show us the ranges of values (i.e., S_{err}, R_{err}) and other related parameters.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 11711, 2013.