

## ***Interactive comment on “The snowmelt runoff forecasting model of coupling WRF and DHSVM” by Q. Zhao et al.***

**Anonymous Referee #2**

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The topic covered in the paper is drawing much attention since the climate extremes enhanced by the global warming is thought to accelerate the vulnerability to flood and drought damages. The reliable snowmelt runoff forecasting with a certain leading time will be a practical solution to minimize flood damages. Thus, this kind of study merits to be published and fits the scope of HESS in general. The authors' efforts for the coupling simulation in such a region are highly valuable. However, I feel more investigation is needed. As other reviewer's comments suggested, a single event validation is not enough to meet the level of peer-reviewed journals like HESS. A more detailed explanation is required although only a few information is provided regarding the model parameters and calibration processes. The paper should have a native check as many grammatical errors and misspelling are found. References should be correctly referred.

C1711

Thus I evaluated this paper requires first a major revision.

Following specific points should be addressed in the revised manuscript.

The leading time is an important factor for the reliable and practical forecasting. If it is too long, there will be a big difference between observed and forecasted floods. In the paper, 24hour forecasts are explained (24hour leading time). But, it says that the forecast period is 144 h, from 0 to 72 h with 3 h interval and 72 to 144 h with 12 h interval (P3340). On the other hand, the simulation results are shown as continuous lines in Fig.5 and Fig.7. It seems these are inconsistent with each other and somewhat confusing. Please clearly describe the simulation methodology regarding the leading time and an additional explanation is necessary for both figures.

P3341L3, the computational domain of WRF should be indicated in Fig.1. P3342, notations of eqs.1&2 should include unit. P3345L8 (Fig.5), indicate or define the location these comparisons are made. P3345L12, the height of the lowest sigma level should be given. P3346(eq.4)  $Q_{fore}$  in the denominator should be  $Q_{obs}$ . P3346L14, a symbol is missing.

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