Hydrology and
Earth System
Sciences

Discussions

EGU

Interactive comment on "Large watershed flood forecasting with high resolution distributed hydrological model" *by* Yangbo Chen et al.

Anonymous Referee #2

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This manuscript discusses an interesting topic of using a physically-based distributed model for flood forecasting in large watershed. It deals with challenges of computational speed and forecasting accuracy, possibly advancing flood mitigation and control decisions in practice. Following suggestions will help the authors improve the manuscript:

(1) Sections 3.2 $\sim$ 3.4 need to be reorganized by moving the results of the model (e.g., calibration and validation performances) to a subsection of "5. Results." These three sections can be combined into one subsection to just discuss the approaches for model calibration and validation.

(2) A section of Discussion is lacking. This section should be added to thoroughly discuss the major findings of this study and assess these findings in accordance with

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those reported by others. The purpose of this section is to put this study on the international arena.

(3) Both section Abstract and Conclusions are too long. They need to be rewritten to concisely highlight the importance/scientific contributions of the study, study approaches, and major findings. Some generic statements can be deleted.

(4) Appropriate details of formalization should be provided to help audiences better understand your contributions. For example, the descriptions of the model core components, including saturation excess method, kinematic wave approximation, diffusive wave approximation, and particle swarm optimization (PSO) algorithm, are too simple. Some necessary formulas/equations should be presented because these methods could have distinctly different complexity levels, depending on how they are formulated.

(5) More descriptions should be provided for the statistics (e.g., Nash-Sutclife coefficient and water balance coefficient). What are the thresholds of these statistics, above which the model can be judged to have a good performance?

(6) Some subject terminologies should be clarified. For example, the manuscript uses several different adjectives, such as "disastrous", "serious", "huge", and "large", to describe flood magnitude. How do you classify the floods, in terms life or economic losses?

(7) In Table 6 and other tables/figures, the units for some quantities are missing. Also, the values of Manning's n are larger than one. How can this be possible? In Table 6, you reported Manning's n = 1.17 $\sim$ 1.49.

(8) Lines 292-294: if observed data are not available, how can you optimize the model parameters? What to be optimized?

(9) The annotated manuscript has some specific comments. I suggest that the manuscript be proofread by an English native speaker. There are a number of awkward phrases/words and confusing sentences.

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Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/hess-2016-489/hess-2016-489-RC2-
supplement.pdf

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