

## ***Interactive comment on “Integrated hydrological modelling of small- and medium-sized water storages with application to the upper Fengman Reservoir Basin of China” by C. Zhang et al.***

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Received and published: 15 May 2012

In this paper, the authors present an improved version of SWAT2005 using the satellite-based dataset Landsat, an empirical storage classification method, and some empirical relationships to estimate water storage and release from the various levels of flow regulation facilities to improve the simulation precision in regions with a large number of water storages. I agree that the research is interesting and useful. The adopted methodology is reasonable. However, I have the following concerns.

1. The authors have to state more clearly the differences between the original

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SWAT2005 model and your version and provide the intuitions for your improvement. I would like to see if your version has always a better performance than the original one. If yes, explain why. If no, identify conditions under which your version is better or provide intuition to explain why.

2. The authors use four hydrologic stations to validate the performance of the improved SWAT2005, and the results indicate that the precision of monthly streamflow simulation at the four hydrologic stations could be improved by the improved SWAT2005. However, the results only indicate that the improved SWAT2005 could perform well within the drainage of the four hydrologic stations. How can the improved model have the good performance in the sub-basin of the drainage of the four hydrologic stations.

3. Page 4022, line 3 to line 9, it is useful to explain the reasons for setting three scenarios and their usages.

4. Fig.5 and Fig.6 provide the results of monthly streamflow simulation during physical parameter calibration and human interference parameter periods. The authors should explain whether the results meet the precision requirements of basin hydrologic cycle.

5. It is not clear about the small-sized reservoirs from page 4006, line 6 to line 7. This should be defined clearly.

6. Page 4012, line 13 to line 18, the explanation of the direct inflow to water storage class  $r$  could have been clearer

7. There are several typos and grammatical errors. The authors should check the paper carefully before submitting it.

Based on the observation, I see the value of the research. Thus, I think that paper can be published after revision.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 4001, 2012.

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