Hydrol. Earth Syst. Sci. Discuss., 9, C6132–C6133, 2013
www.hydrol-earth-syst-sci-discuss.net/9/C6132/2013/


Hydrology and Earth System Sciences Discussions



# *Interactive comment on* "Assessing the hydrological effect of the check dams in the Loess Plateau, China by model simulations" *by* Y. D. Xu et al.

**Anonymous Referee #1**

Received and published: 3 January 2013

This paper quantitatively evaluated the hydrological effect of check dams in the Loess Plateau region of China, including the runoff and sediment. Such study was rare, so this paper addressed the relevant scientific questions within the scope of HESS. Using the model SWAT, the authors simulated the runoff and sediment yield with calibrated model with measured data in reference period with few check dams, and then compared the simulated results with the observed data in the treated period. The difference between the simulated and observed runoff and sediment yield was viewed as the effect of check dams. Using this new approach, this paper realized the quantitative evaluation of the hydrological impact of check dams in large catchment. I think the



Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

results based on the model simulation are reliable and can contribute to understand the hydrological impact of check dams in the Loess Plateau region. Thus, I suggest accept this paper after minor revision.

Followings are the suggestions for authors for the manuscript revision: 1)Do you have the data of check dam quantity or density in the Yanhe Watershed in different periods? If you have such data, can you give the check dam densities in the main text and abstract? Can you analyze the varying efficiency of check dame in regulating runoff and sediment with increasing density of check dams? Then the value of this paper will be greatly increased. 2)P13494, L13-16: How Ran (2008) calculated the area percentage of check dams? Do you mean the area covered by check dam (pond)? or the basin area above check dam(s)? 3)P13497, L6-10: How you get the areal parameters of meteorology, such as precipitation from only two stations? or did you use them directly as the areal data? In addition, the meteorological station of Wuqi should be marked in Fig. 3. 4)For making an easier use of this paper results by readers, can you also discuss the absolute difference in runoff and sediment yield caused by check dams, rather than only the percentage change? 5)P13499, L9-10: The first sentence here is a repeat of earlier description. Please delete this. 6)P13502, L9-15: Can you estimate the optimal check dam density or its rough range based on your study and data available? If you can do this, it will bring more practical guidance.

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/9/C6132/2013/hessd-9-C6132-2013-supplement.pdf

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 13491, 2012.