

## ***Interactive comment on “Climate change and its impacts on river discharge in two climate regions in China” by H. Xu and Y. Luo***

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Response: We really appreciate your valuable interactive comments and supports about the manuscript, that really helpful for us to improve the current manuscript, and that for future scientific paper organizing. Our responses are as follows. For point 1 to 4, 7 to 9, and 14-15, the great supports from the reviewer really encourage us both for the further revision of the manuscript and for future scientific paper organizing. For point 5, we would like to clarify all the streamflow discussed in the results is coming from the hydrological model and not from the GCMs in Section 3.2 by changing the title to “3.2 Projected discharge based on hydrological model” in revised manuscript. For point 6, we are totally agreed with this suggestion that the description of calibra-

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tion method will make our manuscript looks more stand on. We would like add a paragraph in section 2.2.1 (line 13 page 7104) “Calibration was performed manually and automatically using ParaSol autocalibration routine (van Griensven and Meixner, 2007) embedded in AVSWAT2005. The first step for model evaluation was based on the graphical techniques with hydrographs and percent exceedance probability curves for monthly time scale. The results showed a general visual agreement between observed and simulated discharge. Then, the evaluation was performed with the statistics included coefficient of determination (R<sup>2</sup>), and Nash-Sutcliffe efficiency (Ens). Model performance was evaluated as “satisfactory” if Ens > 0.50 and R<sup>2</sup> > 0.58 (Moriassi et al., 2007). The performance statics Ens and R<sup>2</sup> are “poor” for River Xiangxi in the calibration period with 0.43 and 0.44 respectively, while “satisfactory” for River Xiangxi in validation period and for Huanfuchuan River both in calibration and validation period. For point 10, we could like delete the statement “We used a previously calibrated SWAT model of River Huangfuchuan and River Xiangxi (Xu et al., 2011)” in section 2.2.1 line 18-20. We also would like stick to the details in this section in our revised manuscript. We think some details of the models, the data they employed, how they were calibrated, and their performance could make the current paper “stands on its own”. For point 11-12, as we response to Referee J. Ngaina, we are really happy to check on the grammar, abbreviations, symbols and units used to improve the quality of the manuscript. For point 13, as response to point 10, we definitely would like to modified section 2.2.1 and delete the use of already calibrated mode and stick to discuss the calibration methods. For other sections needed to be summarized we would like to consider your suggestion in our revised manuscript.

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