

Responses to the Comments from Reviewer 2

1. One of the main issues that should be addressed in large watershed studies is the hydrological effect of spatial heterogeneity. However, probably limited by the available research achievements from current studies in the Minjiang watershed, the effect of spatial heterogeneity of forest cover and other land surface characters on the water yield was not analyzed in the large watershed scale in this paper; meanwhile, the influence of vegetation structure and vegetation change on the water balance and water balance components was not systematically analyzed in stand scale. Thus, the linkage between the large scale and small scale is still loose.

Response: We agree that the effect of spatial heterogeneity of forest cover and other land surface characters on the water yield is an important issue in the eco-hydrological studies. However, there are limited studies on this subject in the study watershed. To address this concern, we have added a few references and explanations (P6517-6518, L284 to 311). More importantly, we also indicated that this is one of the future research priorities (P6526, L541-562).

2. The review in this paper should not be limited within the studies carried out in the Minjiang watershed; other studies in the surrounding regions with similar natural condition can also be included in this paper to discuss the scientific issue, rather than just to summarize the studies in the watershed of Minjiang.

Response: Thanks for the suggestion. We have cited more papers in the Upper Yangtze River, and made comparisons between the study watershed and Yellow River basin. We have to say that this is not a standard review so our addition of more references is mainly for setting up a broader context.

3. It should be better, that the detailed water budget and its relation with forest structure parameters can be given and compared with other non-forest vegetation. Then the process-based linkage of findings and understandings between different scales can be improved through revising the current manuscript, or this paper should point out how to strength the process-based linkage between different scales in the discussion section.

Response: This is an excellent question. However, there is lack of studies in this subject. Instead, we have added a section to describe future research priorities, and pointed out that the process-based linkage should be one of the most important priorities (P6526, L541-562).

4. P6513L0-8: Here it needs a detailed description of forest change dynamics, with a

table or figure.

Response: We have added more descriptions on forest change dynamics (P6513-6514, L180-192).

5. P6514L5-14: Is the canopy interception based on rainfall event or annual precipitation? Here it should be clarified and uniformed for the data cited from different literatures. I prefer it is based on annual precipitation, since the main topic of this paper is the annual water yield change.

Response: It is based on annual precipitation, but data were collected on all rainfall events so that interception for different rainfall intensities can be assessed. We have added more detailed descriptions (P6515, L224-230) to clarify our comparisons.

6. P6515: The review of isotope studies looks not closely related with the main topic of this paper. You may delete or rewrite this part.

Response: We have modified the descriptions. In addition, we have also added a few more references to further strengthen our evaluation (L284-311).