

## Responses to the reviewers' comments

Re: Hydrological recovery in two large forested watersheds of Southeastern China: importance of watershed property in determining hydrological responses to reforestation

### Reviewer: 1

1. In the abstract, it is better to give the period (years to years) of data used.

**Response:** Done as suggested.

2. If there is data about the difference in soil thickness (also soil physical properties) of the 2 watersheds, they can be listed in the watershed description and used in the discussion. Or if the author can find some literature about the relation between slope gradient and soil thickness (water-holding capacity), they can be used in the discussion to support your main conclusion.

**Response:** We have carefully considered the reviewer's suggestion. Unfortunately, soil thickness usually exhibits a large spatial variability especially for large watersheds, and this data are unavailable for our studied watersheds. As we all know, when soil types are similar in the two watersheds, water-holding capacity in a flatter terrain is greater than that in a steeper one because the former has slower surface runoff. Although data on soil thickness is unavailable, the difference in slope between the two studied watersheds can also indicate variations of water-holding capacity.

3. P2L9: Since the study area is in humid region, I suggest at the beginning of this paper to say that "the water quantity and time distribution is of utmost importance ....", instead of "Water availability"?

**Response:** Done as suggested.

4. It is necessary to say if the watersheds were obviously affected by reservoir construction? or have the same effect?

**Response:** As far as we know, there are no large reservoirs were constructed in the upper reach of studied watersheds. Thus, the effects of reservoir construction on flow regimes can be ignored.

5. P5L8-11: Since the big difference in watershed area, it is better to give the flow discharges per unit watershed area for an easier comparison.

**Response:** We agree with the reviewer's suggestion. We have calculated those data per 1000 km<sup>2</sup> for easier comparisons. Our manuscript has been upgraded accordingly.

6. P9L20-22: If you look at the difference in the extreme high flows between the deforestation and reforestation periods, you can see the forest impact. You may add some words about this in your research result and conclusion.

**Response:** We agree with the reviewer's suggestion. We have added some descriptions which can be found in P15.line5-9.

7. Fig. 3: I doubt the too low LAI in watershed Xiangshui, just between 1-2.5? It may also low in Pingjiang? Please check.

**Response:** Thank the reviewer for pointing this out. The data on LAI in the two studied watershed were obtained from the global LAI at the spatial resolution of 0.05 degree and temporal resolution of 8-day for the period of 1981 to 2014 (<http://www.bnu-datacenter.com/>). We agree that our LAI may be underestimated because those estimates are from remote-sensing based methods. However, because the LAI data were mainly used to show forest change history and were not involved in any calculations, they would not affect our comparisons.

8. P7L20-21: Delete the words in parentheses which is a repeat of former explanation (L11-12).

**Response:** Descriptions in Line 11-12 described the definition of high flows, while the statements in Line 20-21 were used for locating some similar and comparable rainfall events between the reforestation and deforestation periods to eliminate the effects of climate variability on high flows. Thus, they are not a repeat, and they served difference purposes.

9. P8L1-2: Paired years were selected not only for low flow, but also for high and median flow. Correct the text.

**Response:** Thank the reviewer for pointing this out. Paired years were selected for low and median flows, while some similar and comparable rainfall events were selected to make pairs for high flows.

10. P9L7: Delete "forest" before "reforestation".

**Response:** Done as suggested.

11. P9L18: Replace "Fig. 4b" with "Fig. 4c". P9L21: 4c replaced by 4b. P14L16: Add ".".

before "nevertheless".

**Response:** Thank the reviewer for careful reading. We have corrected these mistakes.

12. Table 1: Please check the slope range classification. Why not continuously?

**Response:** Thank the reviewer for pointing this out. After checking the slop range classification, we have updated Table 1 accordingly.