We would like to thank the reviewer for the comments and suggestions, which have helped us to improve this paper significantly. Our detailed responses are provided point by point below.

Major issues

1. The authors set up five experiments for the inter-comparison of the precipitation products, each experiment compared two products. However, in anywhere of the manuscript, the accuracy scores and probability distribution of all the six products were calculated and showed together, then, what's your purpose for setting up these independent experiments? I appreciate the amount of work from the authors on data processing analysis and efforts being made for an English journal paper, but the clarity of the manuscript should be further improved.

Response:

Thanks for the suggestion. Because Fig. 2 and related experiments set up are not relevant to this study, Fig. 2 and related experiments has been removed in the revised paper as the request from the reviewer 4.

The overall aim of this paper is to develop a framework to quantify the contributions of uncertainties from precipitation products, hydrological models and their interactions to uncertainty in simulated discharges. This is to answer one question asked by modelers: which product and model I should choose and which is the main uncertainty source as there are so many products and models? To achieve the aim, the first step is to understand the performance of the 6 products selected when applied to the two hydrological models. That is why we assessed the 6 products in terms of accuracy scores and probability distributions. Building on this, the second step is to quantify the respective uncertainties from products and models, and the combined uncertainties from the interactions between products and models.

As suggested by the reviewer, we have revised the second paragraph from the back in the introduction section and added more explanations to clarify the purpose of the experiments.

'The overall aim of this paper is to develop a framework to quantify the contributions of uncertainties from precipitation products, hydrological models and their interactions to uncertainty in simulated discharges. To achieve the aim, the first step is to understand the performance of the selected precipitation products including TRMM3B42, TRMM3B42RT, GLDAS/Noah (GLDAS_Noah025SUBP_3H), APHRODITE, PERSIANN and GSMAP-MVK+, when applied to the chosen hydrological models. Two hydrological models of different complexities - a water and energy budget-based distributed hydrological model (WEB-DHM) (Wang et al., 2009a; Wang et al., 2009b; Wang et al., 2009c) and a physically-based semi-distributed hydrological model TOPMODEL (Beven and Kirkby, 1979) - were employed to investigate the influence of hydrological models on discharge simulations. Building on the assessment of precipitation products, the second step is to quantify the respective uncertainties from precipitation products and hydrological models, and the combined uncertainties from the interactions between products and models. This is achieved using a global sensitivity analysis approach, i.e., the analysis of variance approach (ANOVA). A river basin in northern China with a series of 8-year data is used to demonstrate the methodology.'

2. For the hydrology models WEB-DHM and TOPMODEL, precipitation data is not the only input. Other input data include temperature, downward solar radiation, long wave radiation, air pressure, wind speed and humidity. These input data can also bring nonnegligible uncertainty to the discharge simulating, especially after heavily processing to meet the model

demand. It's unreasonable for the authors didn't consider the uncertainty from other input in uncertainty quantification.

Response:

Thanks for the suggestion. Fig. 9 in the revised paper shows that the simulated discharge data are acceptable particularly at monthly and inter-annual scales using the temperature, downward solar radiation, long wave radiation, air pressure, wind speed and humidity. Research has shown that the land surface temperatures are highly accurate compared with MODIS satellite land surface temperature observations (Wang et al., 2011; Qi et al., 2015). Thus, the uncertainties from other inputs are not considered in our case study river basin.

Having said this, a paragraph in section 5 in the revised paper has been added as below.

'It should be noted that other input data including temperature, downward solar radiation, long wave radiation, air pressure, wind speed and humidity may also have uncertainties. However, Fig. 9 shows that the simulated discharge data are acceptable particularly at monthly and inter-annual scales using these data. Research has shown that the land surface temperatures are highly accurate compared with MODIS satellite land surface temperature observations (Wang et al., 2011; Qi et al., 2015). Thus, the uncertainties from the other inputs are not considered in our case study river basin.'

Minor issues

1. There are four precipitation products whose start dates were late than 1 Jan 2000, what's exact date the simulation and evaluation start from?

Response:

Thanks for the suggestion. Changes have been made in the first paragraph in section 4.2 in the revised paper as below.

‘It should been noted that the start dates are different for precipitation products, and observed data were used when product data are not available: from 1 January 2000 to 29 February 2000 for TRMM3B42RT, GSMAP-MVK+ and PERSIANN; from 1 January 2000 to 23 February 2000 for GLDAS/Noah. These time periods were not considered for accuracy comparison.’

2. Figure 5 is really not that informative, and this figure should probably be removed from the manuscript.

Response:

Thanks for the suggestion. The figure has been removed in the revised paper.

3. Sections 3 and 4 has repetitions. Some of it can be edited out for brevity, i:e: it’s useless to say ”Observations are shown on the x axis and precipitation product data are shown on the y axis”, but you mentioned it twice in section 3.1.

Response:

Thanks for the suggestion. Changes have been made accordingly.

4. Page 9359, lines 19-20: Don’t use “significant” if you didn’t do the significance test.

Response:

Thanks for the suggestion. The words ‘significant’ and ‘significantly’ have been replaced in the entire paper where possible.

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