General response: Thank you for the reviewer's comments. The comments are given in **black typeface** and the authors' responses are given in **blue typeface**. Line numbers refer to those in the revised manuscript. Changes in the manuscript are shown in **Blue color.**

The authors addressed most of my comments. Based on that, I suggest a couple of minor points to be revised.

1. Some explanation is needed in the caption of Figure 1, for example, the meaning of the numbers and the signal "*".

Response: Thanks for pointing out this. We thought the reviewer means Figure 2 rather than Figure 1. The numbers in Figure 2 are the spatial correlations of precipitation amount between rain gauge data and precipitation products. The signal "*" represents that the correlation is significant at the 95% confidence level. These contents were added to the caption of Figure 2 in revised manuscript (Line 188-190).

2. Line 320-325. "According to the definition of APG and RPG, if Abias is spatially homogeneous, the APG in this study is equal to that derived from rain gauge data, and if Rbias is uniform in space, the RPG in this study is consistent with that from rain gauge data." This sentence is difficult to understand for me. Therefore, the results from Figure 7 need to be further interpreted.

Response: Sorry that this sentence is not very clear. We have added a schematic and relevant formulas to further clarify this. As shown in Figure R1, if absolute bias (Abias) is spatially homogeneous (i.e. the precipitation product has the same absolute value of overestimation or underestimation at all locations in a region), the slopes of the regression line (i.e. the APG) derived from the product (the blue line) and rain gauge data (the black line) are the same because these two lines are parallel (as shown in Figure R1); if the relative bias (Rbias) is uniform in space (i.e. the precipitation product has the same percentage of overestimation or underestimation), the calculated RPG is consistent with that from rain gauge data because the basin-average precipitation and the APG in Equation 2 have the same percentage of bias (as shown in Figure R1b). These contents were added to the revised manuscript (see Line 328-335).

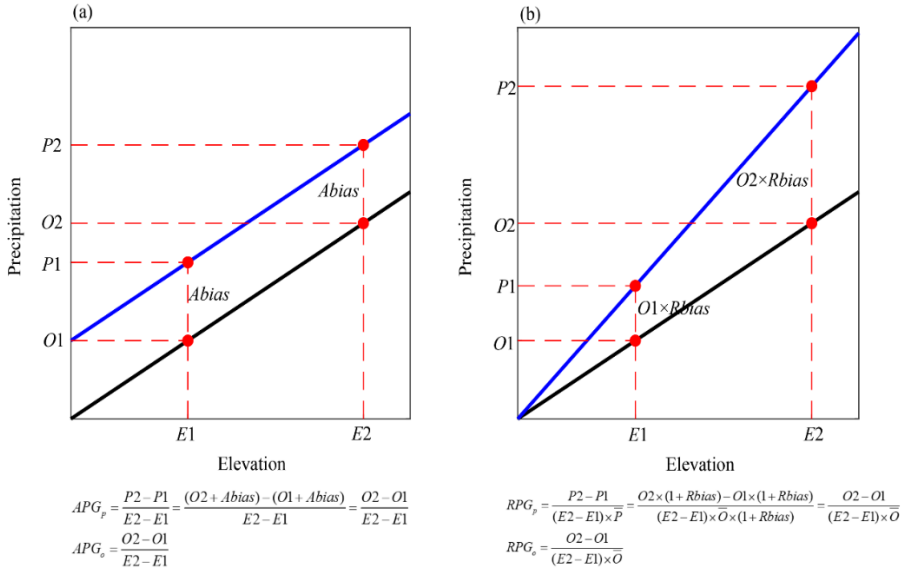

Figure R1 Schematic of the impact of bias in precipitation product on the calculation of APG and RPG. (a) Precipitation product with spatially homogeneous Abias. (b) Precipitation product with

spatially homogeneous Rbias. O and P represent precipitation from rain gauge data and biased product, respectively. E is the elevation. $\bar{O}$ represents the basin-average precipitation amount of rain gauge data. The black and blue lines are the fitted regress lines between elevation and precipitation from rain gauge data and precipitation product, respectively.