

Interactive comment on “Evaluation of global fine-resolution precipitation products and their uncertainty quantification in ensemble discharge simulations” by W. Qi et al.

Anonymous Referee #2

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General comments

This manuscript presents the evaluation of global precipitation products and the uncertainty propagation through hydrological models over the Biliu basin, located in north-east China. The evaluation is very helpful in improving the future precipitation products. For example, additional improvement to Global Precipitation Measurement (GPM) could be achieved by incorporating cloud motion vector into GPM. The uncertainty analysis reveals that the interaction between precipitation products and hydrological models contributes significantly to the uncertainty of discharge simulations. This finding indicates that coalition between precipitation products and hydrological models is

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of importance in reducing the uncertainty of discharge simulations. The manuscript provides valuable information for precipitation products and river discharge simulations and is suitable for the HESS. I recommend accepting the manuscript with minor revision.

Specific comments:

1) Page 3, Line 11: the full name of APHRODITE is “Asian Precipitation–Highly Resolved Observational Data Integration Towards Evaluation of Water Resources” instead of “Ground rain gauge-based interpolation products”. It is more appropriate to cite Yatagai et al. 2012 on APHRODITE.

Yatagai, A., K. Kamiguchi, O. Arakawa, A. Hamada, N. Yasutomi and A. Kitoh (2012): APHRODITE: Constructing a Long-term Daily Gridded Precipitation Dataset for Asia based on a Dense Network of Rain Gauges, Bulletin of American Meteorological Society, doi:10.1175/BAMS-D-11-00122.1

2) Page 6, Line 8: It is better to put “the average annual temperature is 10.6 C” right after “This basin is characterized by a temperate monsoon marine climate”

3) Page 21, Line 6: Simulation is from 2000-2007, start date should be specified, since the first few month of 2000 is not available for some of precipitation products (for instance, TRMM3B42RT is available after 1 Mar 2000).

4) Page 15, Line 11: observations should be “gauge observations”.

5) Page 15, Line 16: “The number is the same, and therefore we used basin average rainfall amount in our evaluations.” There is no causal relationship between “The number is the same” and “we used basin average rainfall amount in our evaluations”. In addition, authors should describe how to get the basin-averaged rainfall for gauge observations and the gridded products.

6) Page 16, Line 9: “This improvement may be attributed to the assimilation with precipitation radar, gauge data and histogram matching.” The Buliu basin (39.54N-40.35N)

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is beyond the of TRMM TMI/PR coverage (38S-38N). The authors should investigate other causes for the improvement.

7) Page 35, Table 1, start data for APHRODITE should be 1 Jan 1961.

8) Page 41, Figure 3: the caption is too brief. It would be better to name each panel with a) – f), and describe what each panel represent.

9) Page 46, Figure 8: “Same as Figure 7” in caption is not proper words, since Figure 8 is very different from Figure 7.

10) Page 47, Figure 9: y axis should be rain (or rainfall) in mm.

11) Page 48, Figure 10: it could be better to present PDF instead of CDF, and to include rainfall intensity less than 1mm/day.

12) Page 49, Figure 11: it could be more readable if the values on x axis are integers.

13) Page 50, Figure 12: the texts overlap with circles.

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