

Review #2:

General Comment: The authors addressed all my previous comments and I only have a few minor comments for the revised manuscript.

Response to general comment:

We are grateful for anonymous referee #2's recognition of this study's importance. We carefully revised our manuscript and provided a point-by-point response below. We have addressed all points raised in the revised manuscript.

Note: The individual comments (shown in black) are listed below including our responses (shown in blue). Line numbers (shown in **blue and bold font**) that we mention in this comment refer to our revised manuscript with all markup version.

Comment 1: Uncertainty analysis part need to be enhanced. First, it is strongly recommended to add an uncertainty map showing the degree of uncertainty. Second, some sources of the uncertainty are not mentioned. For instance, when you use the union rice area of 2000 – 2002 for the year before 2000, it also introduces some uncertainty.

Response to comment 1:

Thank you very much for your comments and suggestions.

We have enhanced Sect. 4.3 Uncertainty analysis. First, we added an uncertainty map based on the relative RMSE (*RRMSE*) to show the degree of the spatial uncertainty of AsiaRiceYield4km (**Line 431 - 436**). And the processing step of the uncertainty spatialization was added into Sect. 2.3.3 (**Line 295 - 300**). Second, the uncertainty of the union rice area was added into the manuscript (**Line 440 - 442**).

Comment 2: Some technical processing steps in the methodology is not clearly documented. For example, all the grid values were aggregated to administrative scale but it is not described that how the aggregation was done. Did you average all values over rice pixels or sum up of all rice pixel values?

Response to comment 2:

Thanks very much for your constructive comment.

We have improved the description of the technical process in our study. For the grid scale to administrative scale, all the grids located in one administrative unit were aggregated to this administrative unit which the values were averaged. We have described this step in detail (**Line 218 - 220**).

Comment 3: Line 130-131, Specifically, the union area of 2000, 2001, and 2002 was also applied to the years before 2001 because of the unavailable rice maps. Should 'before 2001' be 'before 2000'?

Response to comment 3:

Thank you.

In this study, the rice area union of the three years was used to represent the rice area of the current year. For 2000, the rice area is the union of 1999, 2000, and 2001 while the area of 1999 was unavailable.

The word “before” is misleading. To make it clear, we have changed “before 2001” to “from 1995 to 2000”.