Dear Reviewer,

Thank you for allowing a revision of our manuscript, with an opportunity to address your comments.

We are uploading our point-by-point response to the comments (below).

Reviewer#1, Concern # 1: In lines 262-263, the authors state "Hence, the L1-norm AFTER superensemble method is adopted to predict future variations in September SIT". The rankings in Table 3 show that overall, AFTER.L2 has the top ranking, although overall similar to the second ranked AFTER.L1. Please comment on your selection. I assume it is because L1 was ranked first in RMSE (space and time), CC(space and time), and SSIM.

Author response: Thanks for your kindly advice. As the results from AFTER.L1 are similar to the AFTER.L2, we adopted only one algorithm in the study, that is, AFTER.L1. The results of AFTER.L2 are not mentioned in this manuscript.

Reviewer#1, Concern # 2:

Line38: Please provide an example of "other forecasting"?

Line 81: Briefly describe the four emission scenarios.

Line 49: Yang (2001a or 2001b)?

Line 84: Replace "into" with "onto"

Line 85: Should 2050 be 2049? Throughout the rest of the text, the years 2019-2049 are used.

Table 1: RCP's should be labeled as "2.6, 4.5, 6.0, 8.5"

Line 91: Replace "they" with "the"? Is this what is meant?

Line 99: Is there a reference for the Fifth Report?

Line 107: Specify Melia et al. (2015a, 2015b or 2015c).

Figure 1: Provide more details in caption.

Table 3: Include in caption that colors of boxes represent rankings as well.

Figure 7: I assume the results for AFTER.L1 lay underneath AFTER.L2 as I don't see that data represented on the plot?

Figure 12: Can you add boxes that show the 10 regions discussed?

Author response: Thanks for your advice.

1) Line 38 (new line 49), the unclear statement has been removed.

2) Line 81 (new line 89), The representative concentration pathways (RCPs), including 2.6, 4.5, 6.0, and 8.5 (van Vuuren et al., 2011), which corresponds to the radiative forcing of +2.6, +4.5, +6.0 and +4.5 Wm in 2100 relative to pre-industrial levels.

3) Yang (2001b)

4) New line 91, "into" has been replaced with "onto"

5) In this paper, 2050 has been used throughout the paper

6) New Table 1, RCPs are labeled as 2.6, 4.5, 6.0, 8.5

7) Line 91 (new line 98), "they" has been replaced with "them", representing multiple information sources

8) The reference has been added in new line 108, (Stocker et al., 2013)

9) New line 72, only one reference Melia, (2015) has been remained.

10) In order to highlight the study purpose, some ensemble methods are not mentioned in the revised paper, so as some test methods. Thus, the original Figure 1 and ranked table have been removed.

11) As the results from AFTER.L1 are similar to the AFTER.L2, we adopted only one algorithm in the study, that is, AFTER.L1. The results of AFTER.L2 are not mentioned in this manuscript.

12) The new Figure 9-10 are provided to show the results from different regions.