Dear commenter,

Thank you for your comments and suggestions. Based on your suggestion, I have made certain revisions to the manuscript. The first is to describe the XGB algorithm in more detail. The second is to discuss the deficiencies of the RF algorithm in more detail. The main revisions include the following:

1. **Introduction:** Added description of shortcomings of RF algorithms

2. **Methods:** Added the description of the main formula of the XGB algorithm

3. **Result 1:** Added the comparison results using boxplots for all SM products and in situ observed SM.

4. **Result 2:** Given that random forests have proven good methods in some literature and our computational results, we added the RF-based downscaled SM in Figures 9 and 11 (Figures 8 and 10 of the original manuscript).

5. **Discussion:** Based on the simulation results of random forests, the advantages of the
joint approaches are discussed.

Looking forward to your next suggestions. Thank you!

Please also note the supplement to this comment: 