Reply on RC2
Caiyi Jin et al.

Author comment on "An optimized semi-empirical physical approach for satellite-based PM$_{2.5}$ retrieval: embedding machine learning to simulate complex physical parameters" by Caiyi Jin et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-946-AC4, 2022

We would like to take this opportunity to gratefully thank the reviewer for his/her constructive suggestions for improving the paper. According to the comments, we will make further adjustments to our manuscript:

1) Change the structure of the article and optimize the experimental expression, to make the expression clearer.

2) Add more discussion to make the experiment more reliable (such as the mentioned machine learning method and experimental results).

The major revisions will include:

1) Adjust the article structure: the suggested structure is "data-method-result".

2) Clarify the expression of the design experiment: add tables or statements.

3) Clarify the relevant statements of the article: such as the time scale, time range, and experimental area.

4) Consider adding more discussion, including:

   - Uncertainty of embedded RF, such as problems outside the sample and uncertainty of PM$_{2.5}$ estimation related to different data sources.
   - Spatial or temporal distribution of the deviation between the two methods.

5) Change the details of the language expression and drawing, etc.

We will carefully revise the paper according to these comments, then send the specific response and revised manuscript soon. Gratefully thank the reviewer for his/her encouragement and suggestions again.