Line 25: Change PM2.5 to PM2.5. Please correct the similar issue thorough the manuscript.

Lines 45-46: change “;” to “,”.

Line 59: “factor of influence” -> “impacting factor”?

Line 86: “Henan Province” 🡪 “Henan province”

Line 102: Full name of INTEXX-B?

Line 117: area 🡪 areas

Line 119: “five topography and surface type” 🡪 “five different categories of topography and land surface”?

Line 211: mentioning 🡪 mentioned

Figures 1-7, and 9: Please add a), b), c), …. into each panel of all the plots, and make corresponding changes in the figure captions and associated text description.

Figure 3: Please correct the y-axis labels. PM2.5🡪 PM2.5, µg/m3🡪 µg·m-3.

Figure 4: Please correct the subscript and superscript for PM2.5 and its unit, as well as the unit of vertical diffusivity.

Figure 5: The similar problem as Figure 3. The label fonts for x-axis and y-axis are small. It is better to increase font size. Please check the similar issue for other plots.

Figure 6: The ACM2 simulated PM2.5 is much higher than other three cases. Is it due to too low vertical diffusivity within the PBL? Correct the subscript and superscript for y-axis labels.

Figure 7: Why are the vertical diffusivities of ACM2 close to zero from layers 1-17 (see middle panel)? This could be the reason why the ACM2 has much higher predicted PM2.5. I doubt something wrong with the simulations with ACM2 PBL scheme. Please double check. Again, correct the subscript and superscript for x-axis labels.

Figure 8: It is better to replot panels c) and d) by reversing y-axis labels (i.e., from -50 to 3000 (m2/s)). Increase font size for x-axis and y-axis labels and correct the subscript and superscript issue for all the panels. More detailed figure caption is required.

Figure 9: Please increase font size for x-axis and y-axis labels and correct the subscript and superscript issues.