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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Assessment of meteorology vs control measures in China fine particular matter trend from 2013–2019 by an environmental meteorology index" *by* Sunling Gong et al.

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General comments

Based the MM5/CUACE model and observational data, an environmental meteorological index EMI2.5 and an assessment framework were developed in the present work. The roles of meteorology and control measures in China fine particular matter trend from 2013 to 2019 were separately assessed. It was found that the nationally averaged PM2.5 concentration had declined about 50

Specific comments

1. The current framework considers only the effects of emissions and meteorological conditions on PM 2.5 change. Actually, atmospheric chemistry plays a crucial role in shaping PM2.5 concentration. Can the authors include this factor in the framework? It would be more nice and convincing. Otherwise, the conclusions could not be so solid.

2. In the model simulations, both primary and pre-cursor emissions of PM are based on the 2016 MEIC inventory. However, the present work focused on the tendency of PM2.5 from 2013 to 2019. Did the authors use the same inventory for every year or change the inventory year by year?

3. Table 2 shows the observed PM2.5 difference between 2019 and 2015, why not 2019 and 2013 to be consistent with the title and other parts?

4. In Eq.(3) why the integration is just over dz, not dxdydz?

Technical corrections

There are numerous typos need to be corrected. I suggest the authors carefully proof read the manuscript to make sure all language problems are fixed.

1. Page 8 Line 2: "Results and Discussion secession" should be "Results and Discussion section". This should be corrected all over the entire manuscript.

2. Page 8 in Figure 2: "Natiaonal" should be "National"; "t0" should be "to"!

3. Page 11 Line 17: "sing" should be "sign"; Line 18 "vise visa" should be "vice versa"

4. Page 12 Line 11: I think Kx, Ky and Kz should be turbulent diffusion coefficients; Line 16-17: "on and to" should exchange position; Line 19 "compared" might be "computed"

5. Page 13: Line 5 and Lines 10-11. The explanation on /EMI(p)2.5 is not consistent; Line 13 "Figure 2" should be "Figure 3".

6. Page 14: Lines 7 to 9, why January 2103 (should be 2013!) to January 2016?; Line

15 “combined” should be “combine”.

7. Page 17: Lines 3-10, I could not understand what the authors meant. Line 8 (Wang et al.) is not a proper citation; Line 13 the introduction of Figure 4 is not consistent with the actual caption in Page 18 Lines 2-4.

8. Page 19: In Figure 5 the subcaptions of (c) and (d), “contributions” should be “contributions”.

9. Page 22: Line 4 “2103” should be “2013”; Line 6 (Wang et al.) is not a proper citation; “to” should be removed from “pointing out to”.

10. Page 25: Line 20, “favorite and un-favorite” might be “favorable and unfavorable”. This is also true for other statements hereafter.

11. Page 29: Line 14 “2105” should be “2015”!

12. Page 30: Line 10, to judge whether the meteorological conditions are favorite or not to. . .

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