

This paper provides important observational and analytical information in the understanding of the complex systems of a pollution event in Beijing. The materials worth to be published. I have the following minor comments/suggestions.

Thanks for helpful comments.

1. Introduction - 1st Paragraph, at the end: Cite sources of the numbers quoted. ("... heavy, and severe pollution days at 27.1%, 10.5%, 6.8% and 3.2% of the year, respectively")

Done.

2. Check the availability of the quoted website <http://www.ium.cn:8088/dataCenter/>; from my site it's not accessible (timed out).

Thanks for catching it. We changed the website address as <http://www.ium.cn/dataCenter/>

3. Section 4.1: The role of turbulence was explained; no mention of advection, one way or another.

We did mention the role of horizontal transport of pollutants but didn't mention the word "advection". We revised the sentence in the revised version to make it clear.

4. Section 4.2: "As the wind direction changed to southerly, the polluted air was transported into Beijing": Seems not relevant to this section and can be deleted.

This is the important part for explaining the PM_{2.5} increase in the first half of the night. The stable boundary layer only provides a "shelter" to cap whatever is near the surface. Because PM_{2.5} was low in the afternoon, the high PM_{2.5} concentration in the first half of the night has to be transported in horizontally. The observation indicates that during the relatively slow establishment of the northwesterly downslope flow, the wind direction rotated clockwise from easterly to northwesterly. As the wind direction was from south, the heavy polluted air was transported into Beijing and was trapped near the surface. We modified the sentence to make this explanation clear.

5. Not required for this paper publication: It would be great to create a visualization movie/animation of the events analyzed here!

We wish that we could have it. The schematics in Fig. 11 are our attempt to help readers to visualize what happened. Maybe the story will inspire someone to simulate the case and create a movie. One difficulty is to get the stable boundary layer right in numerical models.