The manuscript by Hua et al. investigated the role of regional transport on the formation of PM pollution in Beijing by combining ground and vertical measurements during a unique period (APEC). The results showed that regional transport played a major role in PM pollution but varied substantially among different episodes. In addition, the impact of emission control on PM reduction was also discussed. This study provide new insights into the formation of PM pollution from the view of vertical measurements, and the conclusions showed that vertical measurements are of critical to explain the ground observations. This manuscript falls within the scope of ACP. I recommend it for publication after addressing the following comments.

1. Abstract: it is better to mention the exact location for the ground and vertical measurements.
2. Page 2, line 1: suggest using “aerosol optical properties, winds, relative humidity, and temperature”
3. Page 5, line 19: change “semi volatility” to “semi volatile”
4. Page 6, line 3: no blind area for CFL-03?
5. Page 6, line 15: Cite Jia et al. (2008) where this technique was developed, not in this study. In addition, the approach in Jia et al. (2008) might have large uncertainties in determining the baseline (the lowest points) because of multiple influences from local emissions, regional transport, and secondary processes, I suggest the authors adding several sentences to discuss the uncertainties in quantification of the contributions of regional transport.
6. Page 7, line 19: It is not appropriate to call “PM_1 chemical components” because BC was not included. Either use non-refractory PM_1 or adding BC in Figure 1.
7. Please mark the three episodes in Figures 2 and 3, or explain the vertical dash lines in the captions.
8. Please try to combine Figures 4, 9 and 10 in one page for easy reading. Also, add the units for the color bars.
9. The colors of chemical species in the figures should be synchronized, e.g., Figure 1 vs. Figure 2, otherwise, it is very confusing.
10. Figure 4: change “wind vertical direction and wind speed” to “wind vertical speed”. The wind direction of “up” and “down” was already mentioned in the notes. Same as in Figure 5 and Figure 9.
11. Suggest combining Figure 5 and Figure 8 together for easy reading and comparisons.