

## ***Interactive comment on “Cold fronts – a potential air quality threat over the Yangtze River Delta, China” by Hanqing Kang et al.***

**Hanqing Kang et al.**

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This manuscript presents a very interesting story combining synoptic weather and transport of air pollutants. Both process analysis and source apportionment techniques can confirm the results, which are scientifically solid. I only have minor concerns on the presentation of results. Specific comments are listed below:

1. Page 2, line 7: references should be added here.

Response: Thanks for your suggestion. We added 3 references here. Please refer to page 2, line 12 in the paper.

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2. Page 2, line 32: “Liu (2003). . .” this sentence is very confusing. Please make it more clear.

Response: Thanks for your suggestion. We replaced this sentence by the original sentence of the cited paper. It's more clear now. Please refer to page 3, line 5 in the paper.

3. Page 8, line 20: EPT should be defined.

Response: Thanks for your suggestion. EPT is equivalent potential temperature. We added the definition in page 9 line 5.

4. Page 9, line 2: please indicate how is cold front (red line) is diagnosed and plotted?

Response: The cold front is diagnosed from the densely EPT contour near surface and the significant vertical wind shear. The cold front (red line) is manually plotted.

5. Fig 6: the color scale is too large. I would suggest using 0-500.

Response: Thanks for your suggestion. Actually, the color scale is only large in Fig. 6a. In Fig. 6c and Fig. 6d, the maximum PM<sub>2.5</sub> fluxes are larger than 2000  $\mu\text{g m}^{-2} \text{ s}^{-1}$ , if we use 0-500 color scale, we can not distinguish the differences of PM<sub>2.5</sub> fluxes between surface and up level.

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