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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The distribution and trends of fog and haze in the North China Plain over the past 30 years" *by* G. Q. Fu et al.

Anonymous Referee #1

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Review of "The distribution and trends of fog and haze in the North China Plain over the past 30 years" by G. Q. Fu, et al. In this paper, the authors utilized 30 years data to determine the horizontal distribution and decadal trends of low visibility, haze and fog events throughout the North China Plain which is the most polluted area in China. This topic is an interesting and important issue for environment in the rapidly-developing economic growth regions of China (also in the world). The data used appears to be reliable and the analysis method is reasonable. Therefore, I recommend publication of this paper in Journal ACP. However, I have a few questions, suggestions, and corrections that the authors should address prior to publication.

1) Page 3 line21-28, could author explain more clear about the difference (or definition) between haze and fog ? Hazy or foggy days are judged by human naked-eye

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observation or by RH value? If the hazy and foggy data were judged by same unified standard (or definition) over the 30 year?

2) Page 9 line 3, could author give more evidences that the low wind speeds are caused primarily by the Taihang Mountains ?

3) Page 9 line 30 : 8 am should be 8 a.m.

4) Page 9 at section 3.3.2: the author just give out the 1000 hPa wind field during a continuous fog event that occurred between the 9th and 19th Dec 2002 to explain the impact of wind on fog, and mention the wind convergence is the important factor, the question is the wind convergence occurred just in this specific case or is this usually events in the North China Plain? It seems the section 3.3.2 is not sufficient to explain the impact of wind on fog.

5) Page 11 line 12: Significant increasing trends can be found in the ratio of haze event RH and average RH at all four stations (Figure 9a), the phenomenon is true or not depend on the hazy and foggy data used, only make clear about question 1) can explain the phenomenon.

6) Page 24 Figure 8 which does not appear in main manuscript? It seems the color scale ruler is not an appropriate unit for RH. Here I suggest to show one more figure of the average RH on foggy days. I guess the distribution of RH maybe better explain the difference distribution between haze and fog as showed in Figure 2 c) and d).

7) Here I suggest to add RH analysis on continuous fog event that occurred between the 9th and 19th Dec 2002 at section 3.4.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 16123, 2014.