In January 2013, one of the worst haze events on record swept over much of central-eastern China including North China Plain. This wintertime haze and smog covered a quarter of the total land area in China with half of the Chinese population, exposed to the haze air pollution. The suffering of those in China from haze and poor air quality has attracted worldwide attention. It is urgent to comprehensively understand the large-area haze formation in atmospheric Environment. This work made the extensive analysis on aerosol optical properties and radiative forcing during the severe haze-fog month over North China Plain based on ground-based sunphotometer and meteorology measurements, and the authors present the fine results of the study with well-written in English. This manuscript is appropriate for the publication in the"ACP" with minor revisions as follows.

1) Line 16-20, page 29695: "On 24 January, the Alpha values at Shangdianzi, RADI, CAMS, and Nanjiao were all lower than 0.80, which suggests that coarse particles were dominant. This could be due to the decreasing relative humidity and increasing wind speed (Fig. 1), which is not conducive to the hygroscopic growth of fine particles and their diffusion." This interpretation is unreasonable from the hygroscopic growth of fine particles and their diffusion. Coarse particles could be from more natural and anthropogenic dust emission with increasing wind speed.
Response: The authors agree to the reviewer's comments. It has been corrected as "This could be due to the decreasing relative humidity and increasing wind speed (Fig. 1). Coarse particles could be from more natural and anthropogenic dust emission with increasing wind speed."

2) Line 4-9 of page 29697: "Alpha at Shangdianzi (1.06±0.15) is lower than at the other sites, which indicates that the aerosol size is larger than in the urban and suburban sites. In contrast to the AOD, Alpha decreased from the north (RADI) to the southern location (Nanjiao) during both the polluted and non-polluted periods in Beijing, suggesting that larger size aerosol particles exist in the southern suburbs of Beijing." Please add "in the rural site "into the first sentence so as "Alpha at Shangdianzi (1.06±0.15) is lower than at the other sites, which indicates that the aerosol size in the rural site is larger than in the urban and suburban sites" please give a brief discussion about this statement that the aerosol size in the rural site is larger than in the urban and suburban sites.
Response: The phrase of "in the rural site "has added. A brief discussion has been added in the revised paper as following:
"This is because Shangdianzi is located about 100 km northeast of urban Beijing and surrounded by a mountain chain where is sparsely populated (Hänel et al., 2012). Thus fewer fine anthropogenic aerosol particles could affect this area."

3) Line 14 of page 29699; what is the "them"?
Response: The word of "Them" refers the radiative forcing (ARF) of aerosols. In the revised paper, "them" has been replaced as "AFR of atmospheric aerosols"

4) Line 16-17 of page 29701: Please clarify the sentence "This is not affected by aerosol scattering and absorption processes."
Response: It means "The faster increasing of backscattered energy towards the top of atmosphere in non-pollution conditions is not affected by by aerosol scattering and absorption

processes." The sentence has been clarified in the revised paper.

5) Line 19-20 of page 29703: The last sentence "More detailed description about the impacts of NRT data application in the haze forecast and assimilation will be illustrated in our colleagues' works following." Could be unnecessary. Please delete it.
Response: This sentence has been deleted in the revised paper.