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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Individual particle analysis of aerosols collected under haze and non-haze conditions at a high-elevation mountain site in the North China plain" *by* W. J. Li et al.

Anonymous Referee #1

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General comments:

This paper investigated physical and chemical properties of individual aerosols at the summit of Mt. Tai over NCP, where anthropogenic pollutants including NOx and fine particles are most abundant in the world. In addition, particle mixing states and new particle formation were also determined. Since most of similar measurements have been performed at urban and rural sites in China, the current mountain observation is helpful to improve our understanding on the impact of aerosols from East Asia on the regional and global climate This study shows a good indicative function for the future study. The method is reasonable and the data is reliable. In my opinion, this paper

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could be accepted for publication after a minor revision. Detail comments is given below:

Specific comments 1) Page 22387, line 18, are “subjected” to. 2) Page 22388, line 2, “. . . to answer how aerosols are transported into . . .”. 3) Page 22389, section 2.1, I suggest to give a map here, which would be helpful for readers to understand where the location is. 4) Page 22391 line 3-5, I suggest to change the sentence as “although this instrument has a range of 10 nm to 10 um, we set the upper limit as 1umm because of low collection efficiency of larger particles”. 5) Page 22392, line 4-8, how to recognize the haze event? Based on visibility or other meteorological parameters? It’s better to give some explanation. 6) Page 22393 line 11 different compositions 7) Page 22396 line 1-4. During the dust storm, the dust particles transported by cold front are well known. Thus, these sentences could be removed. 8) Page 22396, section 3.4 and Fig 6, I suggest to show the phase I, II and III on the figure, and mark the x-axis with hour intervals. 9) Page 22396, line 21-22, give more explanation why NPF was weak and particle growth events were robust in phase-III compared to phases I and II. 10) Page 22397, line 23-25, how to obtain this result? Please give a brief explanation. 11) Page 22400, line 21-23, the conclusion section. Since this study did not determine the radiation of aerosol particles with sulfates and soot particle, this conclusion should be deleted. 12) In Fig.1, relative humidity after noon increased quickly. However, the author didn’t consider its effects during the particle growth process in section 3.4. It is difficult to quantitatively calculate the contribution, but a qualitative description of the role of humidity in the growth process should be indicated.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 22385, 2011.