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Interactive comment on "Variations of O_3 and CO in summertime at a rural site near Beijing" *by* Y. Wang et al.

Y. Wang et al.

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Comments: This is an interesting paper focusing on the summertime ozone in downwind Beijing. The paper is generally well written and organized. However, in this year several papers reporting related data in adjacent regions to the study site of this paper have been published on ACP or ACPD (including one of myself). The seasonal patterns and the possible related reasons in emission, local meteorological conditions as well as summer monsoons have also been discussed. So, I suggest the author making some discussions to compare with the precious findings in the revision.

Reference: Ding et al., Tropospheric ozone climatology over Beijing: analysis of aircraft data from the MOZAIC program. ACP, 8, 1-13, 2008.

Meng et al., Characteristics of trace gaseous pollutants at a regional background sta-

tion in Northern China, ACPD, 8, 9405-9433, 2008.

Lin et al., Contribution of pollutants from North China Plain to surface ozone at the Shangdianzi GAW station, ACPD, 8, 9139-9165, 2008.

– We thank Dr. Ding for the constructive comments. We’ve added the following discussions of the references and compared our analysis with their work:

– In Section 4: The O3 levels were found to peak also in June at another rural site north of Beijing (Shangdianzi) (Lin et al. 2008) and at a mountain site in the North China Plain (Mt. Tai) (Li et al., 2007). The surface ozone climatology over Beijing derived from the MOZAIC aircraft data (Ding et al., 2008) exhibits a narrow seasonal maximum in June.

– In Section 4.2:

Ding et al. (2008) suggested other two causes to explain the seasonal peak of O3 in June over Beijing derived from multi-year records of the MOZAIC aircraft data: more intense crop residue burning in June contributing to emissions of ozone precursors, and prevailing southerly winds in June facilitating long-range transport of regional emissions to Beijing. Our observations at Miyun in summer 2006 present an interesting case that when CO levels were higher in July than in June, the O3 levels still decrease in July. This suggests that at least in 2006 it is the radiative effect of monsoonal clouds on surface ozone, rather than changes in local and regional precursor emissions, that plays a dominating role in reducing surface ozone levels in July.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 10397, 2008.