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## ***Interactive comment on “Volatile Organic Compound (VOC) measurements in the Pearl River Delta (PRD) region, China” by Y. Liu et al.***

**Y. Liu et al.**

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General Comments from Reviewer #2: This is a very nice summary of VOCs measured in the Pearl River Delta during Oct–Nov 2004. There are no obvious scientific flaws and the conclusions are well justified by the data, with some caveats as given by the authors. The manuscript is clear and concise, and the review of earlier literature is adequate. The paper is suitable for publication in ACP. Some very minor comments follow.

Response: Thanks very much for the compliments.

Specific Comments Figs. 5 and 6: It is interesting that at GZ, O<sub>3</sub> is not well correlated with NO, while at XK it is clearly correlated with NO. This would suggest that O<sub>3</sub> production is NO<sub>x</sub>-limited at XK (the downwind site) but not in GZ.

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Response: Agree. The results obtained at XK indicate that O<sub>3</sub> production is probably NO<sub>x</sub>-limited in suburban area of the major cities, and higher O<sub>3</sub> are found when the meteorology favors the transport of the precursors of ozone. In the urban center of Guangzhou, it's likely VOCs-limited. These phenomena are consistent with those in previous studies.

Were SO<sub>2</sub> measurements also made at GZ? Currently, they are only shown for XK (Fig. 9), and attributed to power plant emissions (14717/16). It would be interesting to see if such relatively high values were also observed in GZ.

Response: Yes, SO<sub>2</sub> measurements were also made at GZ, but there were no such high values of SO<sub>2</sub> observed at GZ. Please see the revised Figure 8, its diurnal variations reflects the coal burning emissions from industries and its degradation in the daytime, and the daily changes of boundary layer height.

Technical Comments from Reviewer #2: The site Tai O is defined twice: 14709/12: "a site on the north-south centerline of the Pearl Estuary" 14710/4: "a remote site between the PRD region and Hong Kong"

Response: Accepted. In the revised manuscript, we defined TaiO when it was mentioned for the first time.

14711/6: change "are" to "area" 14713/10: change "Inte-" to "Inter-" 14713/16: Should be Figure 2, rather than Table 2 14715/7: insert "of" between "fractions" and "aromatic" 14720/9: Delete "The"

Response: Accepted. Thanks for the correction.

Table 3: why such large uncertainties?

Response: Such large uncertainties at GZ and XK were probably due to the two heavily polluted periods, the averaged VOCs in these periods were about 2-4 times higher than in non-episodic days.

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Table 1: replace "porpane" with "propane" replace "isobutnae" with "isobutane" replace "1,4-Dicrorobutane" with "1,4-Dichlorobutane" Freons are a brand name. Should use chemical names

Response: Accepted. Thanks for pointing out the mistakes.

Figure 10: The two panels are labeled as (a) alkenes in GZ, and (b) aromatics in XK. The figure caption only mentions alkenes.

Response: Accepted. The figure caption is corrected to "Relative contribution of measured alkenes and aromatics to OH loss rate at Guangzhou and Xinken, respectively";

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Interactive comment on Atmos. Chem. Phys. Discuss., 7, 14707, 2007.

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