

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

Anonymous Referee #1

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This manuscript presents results from a VOC study in the Pearls River Delta, China. It is important to know more about sources and concentrations of air pollutants in this region. Variations of VOC concentrations at different locations are discussed in detail and compared well with earlier VOC data and other air quality and meteorological data available. In addition to this some major sources are identified. The results are generally well presented and discussed adequately. Main concern was that usually stainless steel canisters are used only for measuring light C₂–C₆ hydrocarbons. In this study even trimethylbenzenes, MTBE and monoterpenes were measured. For these higher VOCs (C₆–C₁₀) losses to the walls of the canisters is usually a problem. Have this been taken into account? Maybe it has been tested in some earlier study and a reference could be added? If not, some tests should be conducted to show the performance of

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the canisters, for example by running calibration gas from the stainless steel canisters several days after filling.

Specific comments:

Section 2.2: How canisters were cleaned? Were they pre-evacuated?

Section 2.3: What compounds were used as internal standards (line 15)? Were there all quantified compounds in the calibration gas? If not, how they were quantified?

Section 2.4, line 16: Table 2 should be Figure 2.

Section 3.3.1: You state that evening peak coincided with heavy traffic, but VOC concentration is high already at 18:00. Do you have any explanation for that? Why it is much higher than during morning rush hour? As shown in figure 8 especially CO and VOCs are higher, but not NO_x that much. Is it possible that there could be some other combustion source than traffic? For example in wood/vegetative/biomass burning emissions there are lots of CO and VOCs and not that much NO_x.

Section 3.5.: Acetylene is also found in wood combustion and biomass burning emissions. In addition to exhaust of gasoline-powered vehicles, evaporation of gasoline (from motors or from gasoline stations) may be a source of MTBE.

Page 14720, line 4: Maybe you could add that these tunnel measurements are local and therefore really describe the local traffic emissions. There can be significant differences between different regions, because of different gasolines used and differences in car fleet.

Page 14722, line 2: I would say that also traffic may be contributing. In my opinion traffic can not be ruled out based on these correlations.

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

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