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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characterization of ambient volatile organic compounds and their sources in Beijing, before, during, and after Asia-Pacific Economic Cooperation China 2014" *by* J. Li et al.

Anonymous Referee #2

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General comments: This manuscript reported the ambient concentrations' changes of VOC species and investigated their source contributions before, during and after the APEC meetings held in Beijing in November 2014. The manuscript worth a publication in ACP but some of its conclusive statements especially those related to emissions reductions needs more careful and convincing analysis. Specific comments: (1) Regulations reduce emissions, weather conditions do too. According to Figure 3, temperature drops significantly during the three periods. Emissions change due to change of temperature. For example, VOC evaporation decreases due to lower temperature,

meanwhile emissions increase due to increasing heating needs (as authors found out). Also, when wind pattern changes, emissions change too. It clearly shows in Figure 3 that more northerly winds happened in "during" period than in "before" period, while with northerly winds air mass bring much less emissions to Beijing from upwind. To make some conclusive statements sounder, it would be better to compare changes of VOC concentrations and contributions under similar weather conditions. (2) Was reduction of SOA formation a fact between the periods? Please provide measurement data to support it before stating and discussing the "reduction". SOA formation is complex; precursor emissions can change SOA formation, while temperature can change its formation too. Lower temperature somehow leads to more SOA. How come the unit of SOAP-weighted mass contribution is μgcm-3? (3) P12456, L5 M. Wang -> Wang; P12464, L14, resident -> residential; P12468, L23, concentrated -> focus.

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