

Interactive comment on “Measurements of ozone and its precursors in Beijing during summertime: impact of urban plumes on ozone pollution in downwind rural areas” by J. Xu et al.

Anonymous Referee #1

Received and published: 24 August 2011

General comments

The manuscript Measurements of ozone and its precursors in Beijing during summertime: Impact of urban plumes on ozone pollution in downwind rural areas by Xu et al present a field measurement on ozone and its precursors in 4 sequential sites in Beijing city, to investigate the effects of transportation and local chemistry in ozone concentrations. The experimental design is very interesting, and could be valuable for the proposed research goal. However, the current manuscript could not provide convincing evidence for the relative importance of regional transportation and local production in observed ozone levels. I would recommend a major revision before the MS could be

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accepted for publication.

Specific comments: 1 I wonder why the author use the current title suggesting the importance of transport, in fact, from the data evaluation, e.g. the correlation between ozone and chemical aging, it seems to me that the local chemistry might be more relevant. 2 The author provide very high levels of biogenic VOCs, namely isoprene, a-pinene and b-pinene, due to their high reactivity, the actually contribution could be much higher to ozone formation (because these species were largely consumed after being emitted into air); and secondly, their chemistry in ozone formation will be very local. I suggest the authors to do more detailed evaluation for these species. 3 I doubt the use of the ratio between benzene and toluene for source identification. The ratio could be very different from current source measurements, and also the ratio will change due to aging processes, I think it would not be appropriate when long-range transport was considered. 4 The LOH and OFP analysis did not provide support for the relative importance of transport and local chemistry, and this section uses mainly well-known method, I would suggest largely shorten this discussion, and pay more attention to evaluate the role of transport and local production.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 17337, 2011.

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