

Interactive comment on “Feasibility and difficulties on China new air quality standard compliance: PRD case of PM_{2.5} and ozone from 2010 to 2025” by H. Liu et al.

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Received and published: 10 October 2013

In addition to the comments from two referees, I give the following additional comments/suggestions for authors' consideration:

Overall, the discussions on the ozone problem can be strengthened and improved, as the current study addresses both PM and ozone issues. The model simulations show significant reduction of PM (~50%) in Guangzhou but a large increase in ozone non-attainment rate in 2025. What is the reason, increases in VOC/NO_x emission ratios (from a larger reduction of NO_x than VOCs), or due to an increase in regional input?

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Specific comments/suggestions are listed below. (1) Abstract, page 2, line 3: add the percentage reduction in 2025 (compared to 2010) for the air pollutants in addition to absolute emission.

(2) Abstract, page 2, line 8-9: direct reference to the specific VOC/NO_x ratio in California may not be relevant as the composition of VOCs in the two regions may be different, so that ozone response to the same VOC/NO_x may be different.

(3) Page 4, line 5-7: to be consistent with the discussion on PM, add some info. on peak conc. of 8h-ozone in the three regions. If such info. is not available from the 2013 MEP Report, try to cite the results from previous papers. For example, hourly ozone conc. of 200-300 ppbv (or 400-600 ug/m³) was observed downwind Beijing (T. Wang, GRL, VOL. 33, L21806, doi:10.1029/2006GL027689, 2006). Even after full control during the 2008 Beijing Olympics, nearly 200 ppbv was seen in Beijing (T. Wang et al., ACP, 10, 7603–7615, 2010). Other investigators also reported high ozone in Beijing and the two other regions.

(4) Page 12, line 14 to page 13, line 8: This whole part on the reason of high PM in GZ contains a lot of speculative discussions. I suggest either omit it as that part is not necessary to be there, or provide more analysis/reference to support the discussions. There have been several papers on the seasonal variations of air pollutants in the HK-PRD region.

(5) Page 15, line 12: add the percentage reductions from 2010.

(6) Page 27, section 4.3: Here it is important to discuss the reason why the ozone violation rate is projected to have a large increase in 2025, is it because an increase in VOC/NO_x ratio this enhance ozone production, or due to long-range transport? What is peak conc. in 2025? How are future emissions outside the GZ region determined? Have similar control measures in other regions of China been considered in calculating future emissions outside the HK-PRD region? Discussions of these points will lend additional support of the modeling results and demonstrate the importance of multi-

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pollutant control.

(7) Page 33, line 1-2: On regional transport of ozone, previous observation (T. Wang, ACP, 9, 6217–6227,2009) and modeling (Li et al, JGR, DOI: 10.1029/2011JD017340, 2012) have already shown significant impact of long-range transport on ozone in HK/PRD region. These results should be more relevant to GZ city than California experience to support the statement of the importance of transport for GZ. Consider modify the statement.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 20923, 2013.

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