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Interactive comment on “Modelling the impact of megacities on local, regional and global tropospheric ozone and the deposition of nitrogen species” by Z. S. Stock et al.

Anonymous Referee #2

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This paper presents a a very nice study of the impact of megacity emissions on tropospheric ozone distributions. Two techniques are used, perturbation and tagging. The 2 techniques give slightly different results due to the change in background chemical composition. This has been shown before by other groups, that are referenced, but it is worth highlighting again. In addition, the impact of redistributing emissions from the megacities throughout its country are analyzed, along with changes in chemical regimes (NO_x-limited vs VOC-limited). The role of PAN in the downwind impacts of megacities is also shown. As further consequences of these model scenarios, the change in the number of days with ozone exceedances, and the change in nitrogen

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deposition.

I find all of these components of value to report and therefore recommend publication. The paper is well-written and clear, and the figures clearly depict the results.

A minor, technical correction:

Fig. 8: It would be more accurate to write the label for the 25% perturbation line as: "(Pert.25%)*4, and in the text (p.17692, line 5) to say: (25% increase - base) x 4.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 17675, 2013.

ACPD

13, C7231–C7232, 2013

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