

Interactive comment on “An Inversion of NO_x and NMVOC Emissions using Satellite Observations during the KORUS-AQ Campaign and Implications for Surface Ozone over East Asia” by Amir H. Souri et al.

Anonymous Referee #2

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This manuscript performs an inversion using satellite data to estimate improvements to emission inventories of VOC's and NO_x in East Asia. The research seems thorough, the results are interesting and the implications are relevant and important. I am happy to recommend publication subject to minor revisions.

Averaging Kernels are an important part of the work. They are mentioned in passing in the abstract, given a theoretical definition in the method section and then more discussion in the results. I would recommend adding a sentence in the abstract to help the non-specialist, and a more extensive explanation in the methods section to explain not

C1

just the mathematical definition but also the physical interpretation.

In a similar vein, I felt that S_o and S_e could be described in greater detail, especially giving more specific descriptions of the values used.

Line 258: “WRF-CMAQ largely underestimated (56%) tropospheric NO₂ columns” – It would be interesting to also quote the bias in molec/cm². CMAQ is too high in urban areas and too low in rural ones. Citing over/under predictions in molec/cm² would give a useful perspective on some of these changes.

Minor language edits are needed throughout. For example, sometimes the text should say *the* US, *the* PRD. “representivity”, “intertwisted” need correcting.

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C2