

Interactive comment on “High-resolution mapping of vehicle emissions of atmospheric pollutants based on large-scale, real-world traffic datasets” by Daoyuan Yang et al.

Anonymous Referee #2

Received and published: 18 March 2019

This paper reports the results of a high resolution study of traffic emissions in the Beijing area. High resolution emission modeling such as that described in this paper combined with high spatial and temporal resolution ambient air quality measurements will become increasingly important in future urban atmospheric chemistry research. I have the following suggestions for improvement of the paper:

- (1) The paper was difficult to read in places. It would benefit from careful proof reading by a native English speaker.
- (2) It would be useful if the results were put into context in terms of impacts on human or ecosystem health. For example, in the abstract what is the significance of “high”

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carbon monoxide and hydrocarbon emissions from traffic during rush hour. Do the CO and HC concentrations exceed air quality guidelines, and if so by how much, and how important is this?

(3) It appears that the NO_x concentrations were estimated using a dispersion model without chemistry. If that is the case, the modeling estimation neglects losses of NO_x via conversion to nitrate aerosol and HNO₃. If so, the computed NO_x concentrations are upper limits. Addition of clarification and an estimate of the overestimation if appropriate are needed.

(4) The results are based on traffic in 2013. My understanding is that there has been a large increase in the fleet size, and substantial decreases in the emissions from new vehicles, since 2013. These factors presumably offset to some degree. Discussion of the emission changes since 2013 resulting from changes to the vehicle fleet is needed.

(5) There are several examples of the use of non-scientific language in the paper. Terms such as “vivid”, “soaring”, “dramatically”, “massive”, “flooded”, and “tales” should be replaced by more quantitative scientific text. The claim that “Beijing is a microcosm of other megacities” does not make sense.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-32>, 2019.

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