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Comment on essd-2022-162

Hanyang Man (Referee)

Referee comment on "Spatially resolved hourly traffic emission over megacity Delhi using advanced traffic flow data" by Akash Biswal et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2022-162-RC2, 2022

This study presents a multi-pollutant hourly gridded vehicle emission inventory over Delhi, with a bottom-up methodology. Hourly congestion data from TomTom were used to account for hourly changes in the speed. The traffic flow was derived from speed based on fitting formula established by the previous research. The percentage share of vehicle technical parameters (vehicle type, fuel used, emission standards, etc.) was provided by survey reports or previous study in Delhi. Emission factors were calculated by COPRET-5. This paper is well-written and presents results that would be interesting to the air quality modeling community or policy makers. However, I have several concerns that the authors should consider when revising the manuscript, as listed below. I recommend this work to be published after the following comments are adequately addressed.

- Section 2.1.1., Values in Table S2 were different from those given in Malik et al., 2021. This would lead to huge deviations in subsequent calculations. What are the reasons for this revision?
- Line 2018-220, How to correct the speed and traffic volume, all roads or some specific roads?
- Whether the vehicular share (%) was constant for the specific road throughout the day? It was not reasonable. And, this directly determined the result of vehicular volume and emission share (section3.1 and section 3.6).
- Table S4, all 3W vehicles were Euro 4 ?
- Section 3.3 and 3.4, The authors seem to assume that as long as the road types are the same, the relationship between speed and vehicle flow were the same too. The resulting spatial distribution may have large errors. Authors should consider making some corrections.