

Atmos. Chem. Phys. Discuss., referee comment RC1  
<https://doi.org/10.5194/acp-2021-281-RC1>, 2021  
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## Comment on acp-2021-281

Anonymous Referee #1

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Referee comment on "High-resolution mapping of regional traffic emissions using land-use machine learning models" by Xiaomeng Wu et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-281-RC1>, 2021

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The manuscript entitled "High-resolution mapping of regional traffic emissions by using landuse machine learning models" had made the effort to assess two different machine learning approaches as well as some transport strategies to mitigate the fleet emissions. First, I had significant concerns about the scopes of the study. This is a research study with a dominant theme of the transport environment, whereby I could not find any synergies between the scopes of current research and ACP. In terms of technical point of view, I think the research was not designed in an appropriate approach. There are significant confusions in the paper which cause many troubles for the potential readers. The major issue (in my point of view) is the main message of the paper. The paper has designed in two directions of transport and environment. Although the authors tried to provide a new methodology for traffic flow estimations (Transport part) and employ their methodology for emission mitigation strategies (environmental part), neither directions could provide a clear and useful message for potential readers across the world. I would literally suggest them deciding on the direction of the research. They should discuss in detail different machine learning methods, advantages and disadvantages of each method, a comprehensive literature review, why did they select these methods, discuss each of them in detail and conclude the best way for the other parts of the world, if they going to stick with the transport part of their research. On the other hand, they should discuss the existing mitigation strategies, discuss the available literature, ...., and then conclude which scenario is the best and why, if they are going to have the environmental part of their study.

This

"NOX, PM2.5 and BC emissions from HDTs have higher emission intensity on the highways connecting to regional ports."

is not a new message for potential readers around the world.

In other words, the results of the present study in this format is a local report and could not be expanded to the other parts of the world or add new values to the scientific committee.

As a technical issue, they talked about fleet composition (fleet mix) but they did not mention that how they involve the role of fleet composition in their emission analysis. Fleet composition is defined as the contribution of vehicle subsets according to their EURO standard (in EU countries), fuel consumption, and/or mileage travelled, etc, to each vehicle class. Fleet composition is totally different from traffic composition (what they report in their paper).