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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Urban population exposure to NO_x emissions from local shipping in three Baltic Sea harbour cities – a generic approach" *by* Martin Otto Paul Ramacher et al.

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Dear Authors,

Congratulations for your work. It was an interesting reading and I believe that the generic approach you proposed to account for dynamic population will be used again in future exposure studies. The thorough description of the methodology is helpful to understand the results and support the conclusions. The content of the paper is somewhat richer than the title suggests, I would recommend to modify the title or the text accordingly. For example, if one focuses only on NOx emissions are the second part of Section 2.5 (pg 10 l.25 to pg 11 l.3) and the last part of Section 3.2 (pg 18 l.23 to

28) relevant? Furthermore, I feel like one studies an exposure to concentrations rather than to emissions, but I know that such expression can be found in the litterature. The overall presentation is well structured, the language seems fluent and precise for the non-native speaker who I am and the quality of the figures is good.

Here below you will find two questions about your work: - If you wanted to reduce uncertainty on the presented results, how would you prioritize the following tasks improvement of emission inventories, improvement of model performance (better fit with observed values, higher spatial resolution, etc.), use of more precise/diverse activity patterns, use of more precise/diverse infiltration factors, etc.? - Have you tested the impact on exposure of a different emission sector such as traffic?

Finally, here are some minor comments about the article: - pg 1 l.15 exposure TO outdoor (...) - pg 7 l.26 grid resolution of 4 km or 2 km but not 4 km2 - pg 10 l.21 I think the first reference should be Hulskotte and Denier van der Gon, 2010 - pg 10 l.28 mechanics/electronics instead of mechanic/electronic - pg 10 l.30 modeling is here used with one l instead of two - pg 16 l.1 I'd stop the sentence after "the observed values" (+ FAC2) - pg 27 l.16 I wouldn't include a reference in the conclusions - pg 27 l.20 to 22 I wouldn't keep the part about PM10 and PM2.5 - pg 27 l.29 a four-step approach is mentioned in the conclusions while a five-step one is mentioned in Section 2.6.2 - pg 29 l.11 the code for exposure modelling should be made available before publication or this sentence should be deleted

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