

## ***Interactive comment on* “The impact of ship emissions on air quality and human health in the Gothenburg area – Part II: Scenarios for 2040” by Martin O. P. Ramacher et al.**

### **Anonymous Referee #2**

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This study conducted simulations to assess the impact of ship emissions on air quality over the Gothenburg area, as well as their health impacts between 2012 and 2040. The manuscript is well written and organized. I recommend this manuscript to be published if the comments are addressed.

Major comments:

1. Please add general descriptions of Gothenburg, including its graphical locations. Moreover, please add longitudes, latitudes and geographical information for all the spatial distribution maps in the manuscript.
2. This study adopted meteorological field of 2012 in the simulation. The diffusion con-

ditions may influence the impacts of emission reduction on air quality. So please add descriptions of the meteorological fields of 2012 to describe whether it is a year with good diffusion conditions or not. I suggest selecting a year of which the meteorological conditions are close to the climatological conditions, and then conduct the simulation.

3. In Section 5, this study assessed the impact of future shipping on human health, including premature deaths because the decrease of ambient PM<sub>2.5</sub>, O<sub>3</sub>, and NO<sub>2</sub>. Exposures to PM<sub>2.5</sub>, NO<sub>2</sub>, and O<sub>3</sub> can all lead to premature deaths due to respiratory diseases. So in Table 3, I am wondering whether there are overlaps between the number of premature deaths due to PM<sub>2.5</sub> with those due to NO<sub>2</sub> and O<sub>3</sub>.

Minor comments: 1. P6 Line 10-15: Add more information for the simulation, including a figure to present the domains of the simulation, the period of the simulation, model spin-up, etc. 2. Cite Figure 1 in the manuscript, or delete it. 3. Please show the spatial distribution of the emission inventories of 2012. 4. In Figure 4, the unit for figure in row 3 column 3 should be  $\mu\text{g}/\text{m}^3$ ; the unit for figure in row 3 column 4 should be %.

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