

Interactive comment on “Temporal and Spatial variation of Contribution from Ship Emissions to the concentration and deposition of air pollutants in the Baltic Sea” by Karin Haglund et al.

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Dear editor

We have read the comments from the reviewers and agree with most of the comments and suggestions for improving the manuscript. We will rewrite and re-arrange sections to better keep the line of thought. The method to produce the deposition scenarios will be described more clearly. Also, the main focus of the manuscript will be transferred to the scenario study and the measurement study will be treated as validation and contribution to the discussion. The scrubber output will be more thoroughly discussed. Further, we will clarify and discuss the present study in relation to the Jonson (2015) paper, a very parallel and complementary (and partly overlapping) study.

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To reviewer 1 For clarification and emphasis reasons we will rewrite and re-structure parts of the MS. More discussions will be inserted and a more detailed description of the method used. The summaries or outcome from reports will be expanded. The language will be checked as well. Figures will be improved according to suggestions. Additional improvements: methodology section will be expanded/improved. Specific suggested changes and clarifications will be introduced.

To reviewer 2 We will work to better keep the line of thought and hence re-structure and rewrite some parts. The methodology will be clearer. Further the Jonson (2015) paper will be more thoroughly discussed in relation to our work. Differences in EMEP model versions will be discussed. For clarification and emphasis reasons we will rewrite and re-structure parts of the MS. More discussions will be inserted and a more detailed description of the method used. The summaries or outcome from reports will be expanded. The language will be checked as well. Figures will be improved as suggested. We agree that the title could be changed, our suggested new title is: “Present and future variation of Contribution from Ship Emissions to the concentration and deposition of air pollutants in the Baltic Sea” We agree that the North Sea is partly included, but not in the scenarios, this is why we would like only the Baltic Sea to be in the title. We will have a more through explanation on the choices of years and the model versions used. For the minor comments we agree with the reviewer’s suggestions and will change accordingly.

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