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Interactive comment on “A comprehensive inventory of ship traffic exhaust emissions in the European sea areas in 2011” by J.-P. Jalkanen et al.

Anonymous Referee #3

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The manuscript Jalkanen et al. presents a new inventory of the exhaust emissions of ship traffic over Europe.

A key result is the divergence of ship emissions projected by the author’s STEAM model and those previously assumed by the EMEP inventory. I believe that the methods used are technically sound, and that the results are novel. I consider the manuscript a worthwhile contribution to transport science and atmospheric science.

What I am missing, however, is a clear explanation and motivation, how these things connect to atmospheric science. (Remember, you submitted to ACP!) In its present

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version, the article could well appear in a journal for transport science, with no connection to the atmosphere at all.

I therefore suggest to expand particularly the introductory part of the manuscript, providing more motivation why this work is so important, and how it connects to research activities in the atmospheric domain (modelling, climate studies, health studies?).

I am adding a few questions that came to my mind while reading the paper. These may guide you through the process.

Why are ship emissions so important for atmospheric effects, for atmospheric modelling and/or science in general? (You may add references to some key atmospheric model works here.)

I assume that your updated ship emissions are to be used in atmospheric modelling. Can you make a a priori guess (non-quantative) what the expected benefits/impacts will be if an atmospheric model uses your updated ship emissions in contrast to the existing inventories?

I am somehow missing a statement on the consequences of the findings of this paper (STEAM simulations disagree with EMEP inventory.) Does this imply that atmospheric models should try to incorporate your inventory, or your ship emissions model? Who could be the user of the results/products/methods of your research?

Can your inventories be made available to other atmospheric researchers (e.g., through a website or a data base)? This would greatly enhance the usefulness of your work.

Minor issues:

I. 8 "Emissions originated from ship traffic in European sea. . ." -> "Emissions originating from ship traffic in the European seas. . ."

Update the references list.

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