

Interactive comment on “Contribution of ship emissions to the concentration and deposition of air pollutants in Europe” by S. Aksoyoglu et al.

Anonymous Referee #2

Received and published: 1 December 2015

The present study uses a CTM to calculate the annual, seasonal and spatial impacts of shipping emissions in the European waters to ozone and fine particle levels and composition. Background is very clear but the motivation and aim should be detailed further. What is the expected outcome of this modelling exercise? Similar studies have been done before and the impacts are more or less known. On the other hand it is an advantage to use a finer resolution to capture more local impacts and the study focuses on the impact on organic and inorganic composition as well as dry and wet deposition. I have a number of comments a list below to be clarified:

- 1) How are the Mozart fields translated into CAMx?
- 2) How about biomass burning, dust and sea-salt emissions?

C9960

- 3) How are the anthropogenic emission distributed vertically?
- 4) How are the SOA calculated (2-product, vbs, etc)? This is actually described much later in the discussions but I think it should also be described in the methodology section.
- 5) Figure S1 does not show the contribution of ships emissions, it show the absolute ship emissions used in the study.
- 6) How are the deposition velocities calculated?
- 7) Although published, a few sentences of the model performance of the base case scenario should be written in this study.
- 8) Page 5, line 19: ...due to reduced NO_x-titration effect by the exclusion of ships.
- 9) Page 7, line 21: ...of secondary aerosols produced from shipping emissions increased....
- 10) I think the first paragraphs of sections 3.3.1 and 3.3.2 fits better to the introduction.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 30959, 2015.

C9961