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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The influence of spatiality on shipping emissions, air quality and potential human exposure in Yangtze River Delta/Shanghai, China" *by* Junlan Feng et al.

Anonymous Referee #2

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General comments: This study presented the importance of geographical locations of ship emissions to the environmental and human health effects. The manuscript has been well written and organized. Take the YRD region– one of the busiest port cluster in the world as the example, this study result is helpful to understand the meaningful points of future ECA policy. The authors should explicit the key implication through the paper, including the abstract, result and conclusion part. Also, there are some minor details should be improved.

The details should be improved: Page6∼7, 2.2.2 Non-shipping emission inventories part For the national scale domain and regional scale domain, several sets emission

data has been used. The authors should make clearer how they merge the emission together. How did they use 2015 national emission database to make a regional 27 km × 27 km resolution that included 5 pollutants? Did they use spatial interpolation method? Which year are the IIASA data for CO and NH3? Page7ïijŽLine 15∼16ïijŽ "The initial and boundary conditions for meteorology were generated from the Chinese National Centers for Environmental Prediction (NCEP) Final Analysis (FNL) "ïijŇhere the authors should confirm the NCEP FNL data source.

Page 9, line 12-17: The authors compared the result of YRD shipping emission with Fan et al.'s and Chen et al.'s studies. The authors quoted Liu et al. (2018) to compare the proportion of YRD shipping emissions in whole China. However, Liu et al. (2018) also reported YRD shipping emissions. Why not compare the result with the values in Liu et al. (2018) as well?

Page 10, line 12-16: The authors quoted Fu et al. (2012), which used 2010 vessel call data to estimate shipping emissions. I suggest authors reviewed recent studies using AIS data to make comparisons in Shanghai port.

Page 12, line 6-15: The contribution to SO2 from ships in different coastal areas was not discussed in this paragraph. But in the following paragraph, the authors discussed cumulative contributions from ships at different distance to both SO2 and PM2.5. It shows no consistency when authors discussed SO2 results throughout the section 3.2.2.

Page 14, line 1-6: The authors discussed the population-weighted PM2.5 from both shipping source and all pollution sources. Then, what's the proportion of population-weighted PM2.5 from the shipping source among all pollution sources? I suggest some discussion here.

Page 15, line 25: The uncertainty analysis is lacked in the section of result and discussion. The uncertainties of shipping emission inventories should be discussed here.

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