Atmos. Chem. Phys. Discuss., 15, C9101–C9103, 2015
www.atmos-chem-phys-discuss.net/15/C9101/2015/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Emissions factors for gaseous and particulate pollutants from offshore diesel engine vessels in China" *by* F. Zhang et al.

F. Zhang et al.

zhangfanshuangyue@163.com

Received and published: 10 November 2015

Thanks very much for your comments. Our replies are given as following according to your comments:

1 Standard deviation for both fuel-based EFs and power-based EFs are added in Table 3 and Table 4, which are shown in supporting information 1.

2 The vessel HH indeed had relative larger standard deviation compared with the other two vessels. We infer the main reason is that vessel HH is a much smaller vessel compared with the other two research vessels, outside conditions such as wind speed and water flow rate could influence it more directly and significantly. The sampling of vessel HH was conducted in October 2013, with not so good weather, which might

make the measurement results relative unstable.

There were different operating modes for the three vessels according to actual sailing conditions, including six modes of HH: low speed (4 knots), medium speed (8 knots), high speed (11 knots), acceleration process, moderating process and idling, four modes of DFH: cruise (10 knots, medium speed for DFH), acceleration process, moderating process and idling, and five modes of XYH: low speed (3 knots), high speed (10 knots), acceleration process, moderating process and idling. Each vessel has its own limit speed, we classify the actual highest sailing speed as the high speed, the actual lowest sailing speed as the low speed according to the vessel condition, and as a result, even the same operating mode had different speeds for different vessels.

3 In this study, the eight-stage particulate sampler was used to give mass distribution of particulate matters, which was not shown in this paper as it was not the key point when it came to the EFs. The results indeed proved that fine particulate matter even superfine particulate matters with aerodynamic diameter less than 1 μm were the main PM from ship exhaust. As for organic matters such as PAHs and Alkanes in PM, they will be shown separately in another paper in the near future, including the EFs and characteristics. We were focused on the common pollutants from shipping emissions in this manuscript.

HC data were also given during the sampling periods, but due to the unavailable of some data, we didn't use them. So we are sorry that comparative result of HC and TVOCs was not given in the study.

4 Thanks very much for your advices, in fact, sampling of an ocean-going vessel with heavy fuel is ongoing these days, and other typical vessels such as cargo ships and passenger ships with heavy fuel are under consideration.

Thanks again.

Please also note the supplement to this comment:

http://www.atmos-chem-phys-discuss.net/15/C9101/2015/acpd-15-C9101-2015-supplement.pdf

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 23507, 2015.