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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.

T. Bond (Editor)

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This manuscript presents the results of on-board emissions measurements of three ships under Chinese ownership. These measurements are difficult to make and could be valuable in developing emission inventories.

Both reviewers supported the measurement methods and data quality. However, one reviewer mentioned the need to consider the dilution when evaluating organic carbon, and to present more standard emission measures. The other reviewer requested a better treatment of uncertainties.

Both reviewers indicate a need for context in this manuscript. That context will need to improve to make the manuscript publishable. Simply stating that one needs Chinese

emission factors won't be sufficient. While China is a large and important country, especially with regard to shipping, this manuscript does not contain an understanding of WHY Chinese ships might be different. China's fleet probably contains a wide range of ships and fuels. In that case, the emission factors presented here may not be representative of the Chinese fleet. Other emission factors, not measured in China, also may or may not be representative. Without an understanding of what causes a difference in emissions, one can't discuss whether measurements are representative.

We may not fully understand what causes a difference in emissions. But the simple fact that these ships are measured in China is not the cause of a difference in emissions. These results may be applicable beyond China, and other emission measurements may be valid for Chinese ships. Both reviewers ask for a discussion that relies on physical factors, such as fuel or ship type. Even a simple breakdown for Chinese ships or usage in Chinese waters would be helpful. When comparing with previously published results, comparison with regard to the type of ship would be more instructive. I suggest that authors provide discussion to help readers understand how these measurements, as well as other measurements, would best be used to develop an emission inventory. This could be accomplished, in part, by comparing with a wider range of measurements, as the first reviewer requests. The second reviewer also suggests that authors update their understanding of how measurements are typically presented. Both of these improvements would provide a better context for the potentially useful measurements presented here.

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