Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Compliance and port air quality features of ship fuel switching regulation: by a field observation SEISO-Bohai" *by* Yanni Zhang et al.

Anonymous Referee #2

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The issues raised in this paper are interesting and thoroughly approached from a broad perspective. The authors present a lot of new interesting results that is of high value to other researchers and in the long run to policy makers. I have one main concern on the presentation. I think the suggested method to use of the ratio SO2/NOX in order to determine whether a ship uses heavy fuel oil or distillate oil needs more discussion. NOX-emissions are mainly related to engine and combustion characteristics. My question is why not use SO2/CO2 ratio? Please add a discussion on that. I would also add that the manuscript needs a language check before publication.

Some details:

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Discussion paper

Rather specify sea areas than refer to emissions from ships in Europe, (page2, row 6) and if possible consider multiple references to the emission estimates. Similar comment to statement on row 14 on ship emissions in eastern China.

Page 2 row 24, The NOX reductions should not be confused to be accomplished by the fuel switch.

Page 4 row 10 on hourly measurements of PM2.5 and PM10 by β-ray absorption should be explained. This is probably not the μg/m3 measurements.

Suggest to change "aerosol sample" to something like e.g. "exposed filter"

Explain more on why only 16 plume events are identified - the period was long and the port is described as very busy.

page 6 row 16. Suggest rewrite "In addition, high concentrations of organics, metals and the compounds between are obtained in IFOs from their presence in the original crude oil." This is an unclear statement.

Page 6 on hybrid fuels: It is important to point out that these fuels can be anything from low sulphur heavy oils to qualities close to gasoils. The important issue is that there is no standard for these fuels (e.g. ISO-standard) and the only rquirement is that the sulphur is less than specified (<0.1%)

Page 10 row 7. The OC/EC ratio in ship emissions is probably both dependent to fuel (residual or distillate) and to engine characteristics and therefore varies a lot.

Figure 8. There should be an explanation to what is meant by the different “classes” in the Figure caption.

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