

## ***Interactive comment on “Size-segregated characteristics of OC, EC and organic matters in PM emitted from different types of ships in China” by Fan Zhang et al.***

**Anonymous Referee #2**

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The issue discussed in this manuscript is important. If authors could satisfy reviewers and readers on the following major questions, this paper could be considered by ACP. 1. It's authors' duty to explain what's new in this paper compared to several other papers published by the same group, especially the one on Atmospheric Environment 2019. Both titles indicate similar contents. 2. The results were not organized in a clear way which made them very hard to follow. 1) For different particle size bins, what are the chemical component profile? No figure gives a comprehensive component profile. Only the OC/EC percentages compared among bins were provided. Authors failed to touch the whole picture of the "size-segregated characteristics", which should be the most important part of this study. For example, EC and OC were found very

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low for coarse PM. Then, which components are the major part for coarse PM? In addition, without a total mass analysis, it's impossible to judge the reliability of the sampling and analysis. 2) If the whole picture of size based chemical profile could be provided, then it's OK to discuss the distribution for each component in different size bins. However, this information is not very important compared with part 1). Currently, authors spent too much pages on discussing this, including Fig. 2, 6 and etc. 3) All figures were displayed in percentage or ratio. The mass of OC, EC, PAH or others should be provided directly. Is it still necessary to provide so many figures if the mass could be given? 4) Figure 1 is confusing. 'YK, GB1...' should be replaced with ship types, e.g. 'HDPV'.

3. Presentation quality in text also needs to be improved. 1) In abstract, line 30, 'in fine particles, OC and EC were the dominant components'. line 34, 'OC and EC have the lowest values for 0.43 to 1.1  $\mu\text{m}$ '. Are they still dominant? 2) Line 34, What are the OC1, OC2 and OC3? 3) Line 214, how can 5% be called the large proportion? 4) line 282, HFOV vessels should be HFOV. and 'HPDV ships' should be 'HPDV'. And this sentence is confusing. What's the meaning by 'HPDV accounted for 23%....'? Compared with what kind of ships?

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