

## ***Interactive comment on “One-year observations of size distribution characteristics of major aerosol constituents at a coastal receptor site in Hong Kong – Part 1: Inorganic ions and oxalate” by Q. Bian et al.***

### **Anonymous Referee #1**

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Review of manuscript “One-year observations of size distribution characteristics of major aerosol constituents at a coastal receptor site in Hong Kong – Part 1: Inorganic ions and oxalate” by Bian et al.

This study describes a year-round observation of the size distributions of inorganic ions and oxalate in atmospheric aerosols at a coastal site in HK. A total of 43 sets of size-segregated samples were collected from March 2011 to February 2012 using a 10-stage MOUDI sampler. Although the topic on the size distributions of inorganic

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ions is not new, some interesting and valuable findings are presented in this study. For example, the authors provide evidence that sea salt plays an important role in modulating the amount of nitrate residing in the fine-mode particles. In addition, sulfate was successfully used to estimate the importance of local formation and regional transport to the coastal aerosols in HK through PMF analysis. In general, the methods and interpretation in the manuscript are acceptable, and the topic is certainly relevant within the scope of ACP. I recommend this paper to be published in ACP after some minor revisions listed below.

1. P1447, L21-22: The authors mentioned, “One quarter of each filter substrate was extracted with 3 mL of double de-ionized water...”. The extraction of a relatively large quartz fibre filter with such a small amount of water (3 mL) may result in high uncertainties of the reported species. The authors should report the QA/QC in this section.
2. P1451, Section 3.2.1: As appeared in the title of the manuscript, a little bit more information on the sources of oxalate in the atmosphere is needed in this section.
3. P1453, L24: I suggest the authors provide the analytical method of Si in Section 2.
4. P1456, L18: (Zhuang et al., 199b)?
5. P1460, L20: “... sulfate mainly exist as...” should be “... sulfate mainly exists as...”
6. P1460, Section 3.3.2: The authors mentioned that the regional pollutant transport plays an important role in sulfate formation. Are there any correlations between the oxidative capacity/oxidant potential and the concentrations of sulfate in different seasons (especially in winter/spring when the impact of regional pollutant transport is significant)?
7. P1461, L13: “... characterized by abundant presence of...” should be “... characterized by the abundant presence of...”

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