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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aerosol size-resolved trace metal composition in remote northern tropical Atlantic marine environment: case study Cape Verde Islands" *by* K. W. Fomba et al.

Anonymous Referee #2

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Comments to paper Cape Verde Islands

This paper presents the unique dataset of size resolved elemental concentrations in particulate matter obtained during nine 4-6 weeks long measurement campaigns at remote site in Cape Verde Islands. It is the first representative dataset obtained using a cascade impactor in northern tropical Atlantic marine environment. Therefore it is worthy of publishing. The paper is generally well written with several minor corrections or clarifications needed. The suggested changes are summarized below.

The whole text: Although I respect the selection of analysed elements, the ratio to the seasalt (if known) would improve interpretation possibilities of the results. For some

reason, Se is mentioned as “selenium“ while the other elements are named by their chemical symbols. Detailed comments have one number per page of ACPD text and one or more line numbers when neccessary.

1) Abstract page 29537 line 1 In my opinion, the sentence about the origin of most Se in oceanic emissions is not justified by the data and the sentence does not agree with the conclusions

2) Introduction, p. 29538 line 11 -12 Probably should be “trace metals concentrations in PM are enriched above their concentrations in oceanic and crustal sources“ instead of the text there.

3) Experimental, p. 29539. line 25 Cut diameter of a HV Digitel sampler sampling head should be specified here.

4) p. 29540, line 5. The sampling on ungreased foils may result in the increased particle bounce inside a cascade impactor depending on aerosol properties and ambient relative humidity. Some comment on this issue should be given here.

5) p.29542, line 10-13 The method of vertical velocity calculation should be specified.

6) Results, p. 29546 line 2 If Sr, Ba, and Rb concentrations were all explained by emissions from oceans due to high wind speeds we might expect that their concentrations will be in the ratios similar to those in sea water. This was not the case here. Please comment.

Line 21 Ref. Kriews and Schrems (1998) is not in the reference list.

7) P. 29547, line 3 "Haung“ should be Huang

8) P.29549 line 8-9 Steel production should be also mentioned as a source of Mn (as done further in the text) Line 10 : La should be placed in the next group based on the results – it was almost all found in the fine mode Line 18: the coal and waste combustion are also Pb sources

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9) P. 29550, line 2 If gas to particle conversion took place or re-volatilisation/condensation process was present in case of Se then the surface size distribution of the aerosol should be taken into account.

Line 7 La PM1.2/PM10 ratio variability is relatively small in comparison with other elements and should be in the next group. Lines 7 and 16 Messages about Mn are different at these lines

10) Size distribution of Se in fig.4 does not correspond to PM1.2/PM10 ratio of Se shown in fig 5. Moreover, Se in fig. 5 is probably shown as Sc (the first element on x axes)

11) P. 29550, line 22 Reference Wedepohl (1995) is not in reference list

12) P. 29551, line 18 The message about Mn is again different in comparison with what was mentioned earlier in the text

Line 24 Size range for stages 2 and 3 was 140-1200 nm, not 140-520 nm as it is in the text.

13) P. 29552 line 13 Pb can be also from coal and waste combustion

14) Conclusions, p. 29555, lines 3-6 In my opinion, this statement is not sufficiently justified by presented data. Neither Co nor Cd are analysed in this work

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Interactive comment on Atmos. Chem. Phys. Discuss., 12, 29535, 2012.

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Interactive Comment