

## ***Interactive comment on* “Chemical composition of atmospheric aerosols between Moscow and Vladivostok” by S. Kuokka et al.**

**Anonymous Referee #1**

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This article presents interesting results on the chemical composition of atmospheric aerosols between Moscow and Vladivostok, as obtained during a train-based campaign from 4 to 18 October 2005. The discussion of the results is to the point. Considering that the short campaign provided only a “snap shot” of the aerosol composition in the area between the two cities, the title of the article may be too general. The article is overall fairly well-written, but to my taste, the definite or indefinite article (“the” or “a”) should be added on a number of occasions. Another general comment is that more details and/or appropriate literature references should be given for some of the chemical analyses and for the backtrajectories, that additional meteorological would be welcome, and that references should be given for some statements made (Details on all this are given under the Specific Comments below).

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## Specific comments:

1. Page 7478, lines 16-18, and Page 7479, lines 14-16: More details or a literature reference should be given on the hydroxide gradients used.
  2. Page 7479, lines 22-24: A literature reference and/or more details are needed here. What separation column was used?
  3. Page 7480, lines 16-22: Are there no data on precipitation (rain)? It is well-known that precipitation removes particulate matter (PM) from the air and thus reduces the absolute atmospheric concentration of the PM and the various aerosol constituents. There is no mention of precipitation or rain in the “Results and discussion” of the paper.
  4. Page 7481, lines 9-10: Information (or a literature reference) is needed on the trajectory model used and the type of trajectories shown in Fig. 2.
  5. Page 7487, line 24: The term “combustion sources” is too general. I suggest replacing it by “biomass burning”.
  6. Page 7490, lines 3-5: Literature references are needed for the statement in this sentence.
7. Technical corrections:
- p. 7475, l. 21: replace “quantities natural” by “quantities of natural”
  - p. 7478, l. 7: replace “in a series” by “in series”
  - p. 7482, l. 4: replace “observed urban” by “observed in urban”
  - p. 7484, l. 2: replace “are shown” by “is shown”
  - p. 7486, l. 22: replace “have probably” by “has probably”
  - p. 7489, l. 17: replace “whreas” by “whereas”
  - p. 7490, l. 22: replace “considerable lower” by “considerably lower”

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