

Interactive comment on “Sources and composition of urban aerosol particles” by M. Vogt et al.

Anonymous Referee #1

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This manuscript presents atmospheric measurements of aerosols on three locations in urban locations in Stockholm. The data are valuable and well presented. The manuscript contains new novel scientific results. However, there are several issues the authors need to address before potential publication.

Major comments:

The fact that bothers me the most is that this manuscript is one more in the series of publications based on one data set. At this point it seems, that the manuscript would be much stronger if containing more comprehensive analysis. The authors seem to optimise the data to publish many detailed investigations in separate papers. While I understand the reasons for this, I must say that it is somewhat bothering issue.

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Interactive Discussion

Discussion Paper

This specific MS has title, which is much too broad. The authors need to focus the title more in order to give right impression for the reader.

Scientifically the main issue is the choice of the instruments. Much of the analysis is focusing on the number concentrations and number fluxes of aerosol particles. However, the instrument that is used is an optical counter that has the lower size limit of $0.25 \mu\text{m}$. This means that most of the particles (in number) are not detected and included in the analysis. The authors also noticed this issue. I am not sure whether the presented data is interesting enough for a separate publication. Definitely not, if the title is as written.

Detailed comments

For the eddy flux analysis, it is essential to be able to determine the footprint area. Is there analysis on this matter?

The experimental setup includes a heater before one of the counters. I wonder if the authors performed any test using some standard aerosol to check the operation of the heater. The concerns I have are: is the residence time within the heater long enough?, is there a possibility that some of the compounds that evaporate from the particles, condense again on the particle surfaces after the heater?

In several parts of the manuscript the authors should indicate: 1) the exact time periods of the data (e.g. line 260 and elsewhere) and 2) the number of observations (e.g. line 360 and elsewhere).

Line 124: Some symbols are not correctly printed.

Line 167: How was the 5 % losses determined?

Lines 237-238: Please discuss the possible explanations for values larger than 1.

Line 264: The figure 7 appears before figure 6.

Line 286: I am rather surprised of the low correlation coefficient. Is it really the correlation coefficient, not for instance the slope?

Line 305: Why is this analysis done only for the heated aerosol?

Figure 4: The plots do not present the concentration but the size distribution function. It would be also interesting to know the time period for the data on each of the curves.

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