

Interactive comment on “Correlation between traffic density and particle size distribution in a street canyon and the dependence on wind direction” by J. Voigtländer et al.

Anonymous Referee #3

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In this manuscript results from particle size distribution measurements in a street canyon are presented. The correlation between particle concentrations and traffic density considering also meteorological data is investigated. This analysis shows that wind direction mainly influences the correlation, whereas the other parameter only have minor influence. The flow field is calculated by a simple CFD model. To estimate the contribution of traffic to PM concentrations and to validate model calculations these kind of investigations are relevant. The paper is clearly written and mainly of adequate length, perhaps the number of figures can be reduced, on the other hand the discussion of the results should be more detailed (see the following suggestions). A number of similar experiments have already been done, several models to simulate the situa-

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tion have been made. The authors cite previous work, however, at least to my opinion, they should point out more clearly what is really new in their work compared to former work. They mainly argue that in contrast to previous work they measure the particle size distribution with a high size resolution, not just total mass or total number concentration. But when looking at the discussion of the results, only little use is made of the information, obtained from the size distributions. Some results are presented, but not really discussed. As all limits and many previous studies are based on mass measurements, it would be helpful to have some mass based information for comparison to other work - even if I fully agree that the information, obtained from the number size distribution, is more relevant. Compared to the amount of data presented, the discussion part is relatively small, I would appreciate a more detailed discussion of the results, e.g. the meaning of Fig. 7. Some arguments why the authors developed their own CFD model instead of using an existing one would be helpful - as well as some more info on the model (boundary conditions etc.). Ev. Fig. 5 could be included in Fig. 4. The number of figures showing the traffic density can ev. be reduced. When the road construction started, the traffic density was reduced by almost a factor of 10, the particle concentrations only by about 50 %. This is in contradiction with the high correlation between number concentration and traffic density, mentioned already in the introduction. Again, this should be discussed.

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