

Interactive comment on “Dispersion of traffic-related exhaust particles near the Berlin urban motorway: estimation of fleet emission factors” by W. Birmili et al.

W. Birmili et al.

Received and published: 11 February 2009

Thank you for your comments to the manuscript. For clarity, your statements appear in italic face in the following, our response in standard face.

1. *Section 3.1 Traffic counts: This section needs to be re-written in a better way and to be clearer. For example, the authors described the daily pattern of the traffic density but sometimes they did not specify the day as working day or weekend.*

According to your suggestion, the entire section (Section 4.1 in the final layout) was rewritten.

2. *Section 3.4 Diurnal cycle: When talking about the finger print of aerosol particles*

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



emitted from traffic combustion a reference is needed, and 3. Section 4.1 modeling techniques: this section should be moved to the methods, and 4. Sections 4.2 and 4.3 are better if they are switched, and 5. Section 4.4 should be also moved to the methods.

All sections were also moved according to your suggestion. The final structure of the manuscript is now as follows:

1 Introduction

2 Experimental methods

3 Modelling technique

3.1 3-D dispersion modeling

3.2 Vehicle emission factors

4 Field observations

5 Dispersion modelling results

5.1 3-D Simulation results

5.2 Validation of wind parameters

6 Experimental vehicle emission factors

6.1 Fleet emissions on weekdays

6.2 Weekend effects and lorry/passenger car split

6.3 Emission factor size distributions

7 Discussion

8 Conclusions

The traffic emissions should be interactively compared to the available literature.

S11171

ACPD

8, S11170–S11172, 2009

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



According to your suggestion, several sentences were added to the corresponding text in the Discussions section.

The authors already presented and discussed the previous results in Figure 13, but they should also take into account measurements performed on road with mobile laboratories such the Sniffer (Pirjola et al.)

We browsed through several papers dedicated to on-road measurements with mobile laboratories. All those studies did not report particle emission factors. Therefore, the inclusion of such works would distract us from the main discussion, which actually deals with particle emission factors, not with measured concentrations. However, since you made us aware of the several studies carried out with such “rolling” measurement laboratories, we added the following sentence in the Introduction of our paper: “On the road, this nucleation mode could be detected already 5 m behind vehicles (Ronkko et al., 2006).”

Ronkko, T., Virtanen, A., Vaaraslahti, K. *et al.*: Effect of dilution conditions and driving parameters on nucleation mode particles in diesel exhaust: Laboratory and on-road study, *Atmos. Environ.*, 40, 2893–2901, 2006.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 8, 15537, 2008.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

