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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Tracer concentration profiles measured in central London as part of the REPARTEE campaign" *by* D. Martin et al.

Anonymous Referee #1

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It was encouraging that a dispersion experiment in a very complex urban situation was able to be analysed in a systematic way. References to earlier dispersion experiments and to DAPPLE put the work into perspective. Also it was good to see mention of the dependence of the vertical profile on the vertical wind profile (Section 3.2).

However closer examination of Figure 7 show that there is a wide spread in concentrations. Low values, representing concentrations off the plume axis, are to be expected. Would it not be better, given that one was able to determine the crosswind profile, to extract centre-line concentrations and do the analysis on these, hopefully reducing the scatter. As mentioned in the paper the wind speed profile varies with height. Again would it not have been better to determine the friction velocity for each case, again reducing the variability? A non-dimensional plot using friction velocity and cen-

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treline concentrations might have less variability and would strengthen the case that channelling is less important at longer distances. There is therefore scope for further analysis which it is hoped will be presented in a later paper.

Minor details. A sentence explaining factors influencing the choice of source location would have been useful. Figure 1 showing a plan of the experiment contains a lot or unnecessary detail. Although 10 times higher I was surprised that there was such a large ratio between the wind speed on the roof at Westminster and the BT Tower. Is the former sheltered in some way? The lidar results were not very useful except in confirming that the BT Tower was within the atmospheric boundary layer. Could more have been made of them?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 25245, 2009.