

## ***Interactive comment on “Intra-community spatial variability of particulate matter size distributions in southern California/Los Angeles” by M. Krudysz et al.***

### **Anonymous Referee #2**

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Interactive comment on [“Intra-community spatial variability of particulate matter size distributions in Southern California/Los Angeles”](#); by Krudysz et al.

This manuscript presents ambient aerosol size distribution measurements conducted over long time period in several sites in Los Angeles. The data is valuable and well presented. The manuscript contains new novel science. This a good manuscript and should be published in ACP after considering the issues discussed in the following.

Major comment:

The local meteorology is known to play a major role in shaping the spatial distribution of

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ultrafine particles in urban areas due to several near ground sources. The authors say that these are studied in more detail elsewhere. However, several of the phenomena studied here could have been better characterised if the local meteorology had been taken into consideration. (see e.g. my last detailed comment) I recommend that more discussion on these items are included into the manuscript.

#### Detailed comments

Introduction, 1st paragraph: The study by Puustinen et al 2007 is an European study.

Introduction, 2nd paragraph: The authors discuss about processes that shift the mean diameter toward larger sizes. This should be explained more. I have difficulties to understand why e.g. the evaporation of volatile compounds or dilution with clean air lead to shift toward larger sizes.

Section 2.3., first paragraph: The authors state that the various instruments indicated the same size distribution within 10%. How was this value calculated?

Section 2.3., 2nd paragraph: The reason for 20-30% lower concentration should be discussed. Some of the likely reasons should be indicated.

Section 2.3., 2nd paragraph: It remains somewhat unclear what concentration  $x_{if}$  indicates. Is this CPC concentration for fixed size? Do explain also better, how the 10% uncertainty is determined.

Section 3.1., first paragraph: What does it mean that average temperatures and relative humidity were consistent?

Section 3.2.3., 4th paragraph: In connection with LB5, the authors say that the local meteorology does not play major role. As the site is next to the freeway, I would expect the upwind vs. downwind situation being a major issue. Why it is not?

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 9641, 2008.

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