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Comment

## ***Interactive comment on* “The effect of reported high-velocity small raindrops on inferred drop size distributions and derived power laws” by H. Leijne and R. Uijlenhoet**

**Anonymous Referee #1**

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This paper addresses an issue that clearly required analysis; the provocative finding of Montero-Martinez et al. that the breakup of a single large raindrop into small raindrops which initially fall with the velocity of the parent drop means that uncertainties are associated with measured drop-size distributions and all quantities derived from them. The authors ably take on this task and deliver a thorough and convincing analysis of the issue at hand, both well-written and providing clear conclusions.

Some specific comments: At the beginning of Section 3.1, it is stated that for diameters below 0.6 mm, all drops are assumed by the authors to fall at their theoretical terminal fall velocity. I assume this is based on Montero-Martinez et al., but a reference and

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explanation would be appropriate.

I had difficulty interpreting Figure 4: perhaps different line-plotting options could be tried to make the curves more quickly discernible. More importantly, it isn't clear from the text where Table 1 comes from and how it relates to the differing velocity ratios which are being analyzed.

At the end of Section 3.2, the statement is made that "Another aspect of these graphs is that the effect of turbulence-induced variations in fall velocities becomes apparent...." but it is not explained how this is apparent.

Overall the authors are commended for this necessary and worthwhile contribution and I recommend its publication in ACPD.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 9121, 2010.

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