

Interactive comment on “The dual-field-of-view polarization lidar technique: A new concept in monitoring aerosol effects in liquid-water clouds – Case studies” by Cristofer Jimenez et al.

Anonymous Referee #3

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In this manuscript, the authors present a novel technique that is based on a dual field of view depolarization lidar. This setup allows the calculation of multiple cloud properties near the cloud base and the technique can be applied without the need of long averaging. This facilitates the monitoring of aerosol-cloud interactions based solely on lidars. The technique is rather interesting with great potential for future applications and adaptations and the manuscript is well written. I recommend this paper for publication in the ACP.

Below some suggestions:

1) To me it is not clear why figure 10 is necessary for the analysis. Differences can be

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seen in the cloud droplet concentration and the effective radius between updrafts and downdrafts. But this is a single case. Is this behavior expected or systematic? It would be interesting to see more cases and determine whether the observed correlations are systematic but this is probably out of the scope of this paper.

2) In Fig. 11 and 12, it can be seen that the aerosol cloud interaction is stronger for the updrafts than it is for the downdrafts. The authors could mention some physical processes that would explain this behavior.

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