

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2022-154

Anonymous Referee #2

Referee comment on "Evaluation of aerosol number concentrations from CALIPSO with ATom airborne in situ measurements" by Goutam Choudhury et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-154-RC2>, 2022

The manuscript deals with very important problem: evaluation of CCN and INP concentration from CALIPSO measurements. For this they apply OMCAM and POLIPHON algorithms, that were previously used for analysis of ground base lidar measurements. The derived values are compared with in situ aircraft observations, performed during ATom campaign. Authors very carefully choose data sets for comparison and their results demonstrate good agreement between in situ values and values derived from CALIPSO profiles. Manuscript is well and clearly written with very detailed Introduction. Authors are recognized specialist in the field and the methods used in this study are rigid. Manuscript is suitable for ACP, I have just technical comments.

Fig.3b. "Age of parcel". Units are not shown

Fig.4(a-d). From where the extinction profiles of dust, smoke, etc are taken from? Is it CALIPSO product? Are these extinctions for dry particles? When separating the aerosol types, was the dependence of depolarization on RH considered?