

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2022-39

Anonymous Referee #2

Referee comment on "Wintertime Saharan dust transport towards the Caribbean: an airborne lidar case study during EUREC⁴A" by Manuel Gutleben et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-39-RC2>, 2022

General comments

The authors focused their study on the airborne lidar measurements done in the vicinity of Barbados, upstream the Caribbean Island in January/February 2020. Measurements, methodology, data and analysis are of high interest to the remote sensing scientific community. The overall quality of the preprint paper is high. This is well written study with new findings related to wintertime long-range transport of Saharan dust plumes across the tropical Atlantic. The structure and the content of each paragraph is appropriate. Therefore, I recommend this work to be published in ACP.

The Reviewer 1 and comment#2 provided detailed review, so I can add just some technical comments.

First, I would like to underline that I consider the title to be appropriate and also, I like the presentation of the results in Fig.3. This way it is more visible the variability of the measurements during the three flights.

I agree with TROPOS team (comment#2):

- the lidar scientists will use your measurements in follow-on papers, so please consider TROPOS suggestions
- previous campaigns should be mentioned and also references to their publications

Minor technical suggestion /corrections

- Figure 1 should be moved in section 2.1 (after it is mentioned in the text). I think it should be kept in the manuscript; it gives the exact overlaying of the flights
- Table 1 should be moved in section 3.1 (after it is mentioned in the text)
- Please specify in the caption what is the grey shaded areas on the right panels of fig.3