

We sincerely thank both reviewers for their time and effort to review the current manuscript and for their helpful comments! Please find below a detailed answer to your comments. The reviewers' comments are highlighted in *italic*, while our response is in normal font.

Reviewer 1:

(general comments)

This paper is the first well-organized study on the validation of ATLID using ground-based lidar, and it serves as an extremely valuable report for both ATLID users and algorithm developers. It evaluates ATLID products using reliable ground-based lidar systems at locations scattered around the world for various types of aerosols. The text is clear and easy to read, and the figures are of high quality. While I believe this paper is nearly ready for publication, some technical corrections and few additional explanations are needed, so I consider minor revisions to be necessary.

Thanks for your evaluation and your positive words!

(specific comments)

- *Please clarify whether, for all selected cases, the profile closest to the ground site was used, or whether, in some cases, the profiles were averaged. For example, line 89 states “all but one within 20 km,” which I interpreted to mean that all profiles within 20 km were used; however, as noted in line 357, Fig. 9 states that the closest product was used.*

Thanks for this hint. The closest profile of ATLID has always been used. We describe this now explicitly in the manuscript.

„We screened the co-located observations for overpasses in close vicinity (shortest distance between ground-site and EarthCARE ground track < 20 km for all except one case study) and appropriate atmospheric conditions to select seven case studies for a detailed discussion on the potentials and limitations of ATLID profiling products of Baselines B. The closest available profile from the respective ATLID product was then used for comparison.“

- *Regarding lines 416–417, it states, “Dedicated investigations have shown...”; if there is a reference, please include it.*

Unfortunately, there is no reference, as the investigation was done by some of the co-authors. However, we added some more information to this

„Dedicated investigations performed for this study in the framework of DISC (EarthCARE Data Innovation & Science Cluster) have shown that...“

(technical corrections)

- *Line 254: It says 14.4 N, but based on Fig. 3, isn't 14.1 N correct?*
 - you are right, corrected – thanks!
- *Line 278: Regarding “100 km vertical smoothing,” isn't this a typo for “horizontal”?*
 - Of course, thanks!
- *Line 399: Since “ore” is a proper noun, it should be written as “Ore.”*

- Corrected!
- *Line 573: “)” is missing in “(see Fig. 19”.*
 - Thanks!