

The manuscript “Long-Term Aerosol Profiling over Albania and the Adriatic Sea with Satellite and Ground-Based Lidars” by Malollari et. al. presents aerosol extinction profiles, and mass concentration profiles using 15 years of Cloud–Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) data and one year of ground–based Raman lidar measurements. The results are useful to present the aerosol variations over Albania over several years.

Overall, the presentation of data is clear, and the conclusions are scientifically sound. Therefore, I recommend the paper for acceptance. However, major revisions regarding the following aspects are needed:

1. In the Introduction, is mentioned that the CALIPSO dataset is compared with Polly dataset. My concern is how these two datasets can be directly compared, given that they differ substantially in both spatial and temporal coverage. First, the datasets have different spatial representativeness. CALIPSO observations cover a much broader region, including Albania, Greece, North Macedonia, and the Adriatic Sea, whereas the Polly measurements are performed locally, only above the University of Tirana. Second, the temporal coverage is also substantially different. The CALIPSO dataset covers the period 2006–2021, while the Polly measurements cover 2022–2023. Given these substantial differences in both spatial and temporal coverage, I do not think that a comparison between the two datasets is appropriate. A possible approach could be to restrict the CALIPSO observations to a smaller geographical area if possible or extract the portion of the CALIPSO dataset that is representative of the region surrounding Tirana. In this way, the CALIPSO dataset could potentially be used to derive a climatology for the region, which could then provide a more appropriate basis for comparison with the Polly measurements.
2. The current preprint format is not compatible with the ACP formatting requirements and should therefore be carefully revised to comply with the journal's guidelines.

Specific comments

1. Section 2.3., last paragraph: “The parameter p_{ext} ...” it would be useful to provide a justification for the values used or to include an appropriate reference supporting their selection.
2. Section 3.1., paragraph 2: “Moreover, between 2006 and 2021, the Balkan region experienced significantly more intense Saharan dust outbreaks compared to the period 2022–2023.” Would it be possible to provide an appropriate reference supporting this statement? Alternatively, could you provide some information on which specific years or periods within 2006–2021 were characterized by particularly intense Saharan dust outbreaks?
3. Section 3.2., paragraph 2: “Calipso extinction products involve a greater geographical area and a longer period than POLLY, covering more than 15 Saharan dust seasons. Although the vertical aerosol development is very similar in both cases throughout the seasons, unique observations were taken with Polly during the 2023 spring season.” As mentioned here, the two datasets have substantially different spatial and temporal coverage. Therefore, it is not clear how these datasets can be directly compared.
4. Section 3.2., Figure 4.: It would be useful to explain in parenthesis the values of the plot. Maybe like: total (ext_{tot}), dust (ext_{d}) and non-dust (ext_{nd})
5. Section 3.4., Figure 6.: Please delete the “(a)” at the beginning of the caption and rewrite the caption to clearly explain what panels (a), (b), (c), and (d) represent, as I

- understand that they correspond to the different seasons. The author could also add the corresponding letters in parentheses, for example, “(a, DJF)”, etc.
6. Section 3.4., last paragraph: “The highest cluster trajectory frequency in winter at 1 km height ...” Please specify in parentheses which figure you are referring to (e.g., Fig. 6a).
 7. Section 3.5.1., second paragraph: “the non–dust component (anthropogenic pollution).” Why do authors refer specifically to anthropogenic pollution? Could the non-dust component also include marine aerosol, smoke, or other non-anthropogenic aerosol types?
 8. Section 3.5.1., Figure 7.: On the caption is mentioned that “Uncertainties are shown as error bars.” Please explain in the text how these uncertainties are calculated.

Typos and wording

1. In the Introduction, last paragraph: CALIOPO → CALIOP
2. In the Methodology, first paragraph: Calipso → CALIPSO
3. In Section 3.4.: (see Figure 6. → (see Figure 6).
4. In the Abbreviations: Cloud-Aerosol Lidar with Orthogonal Polarization) → without the parentheses in the end
5. In the Abbreviations: (Hybrid Single Particle Lagrangian Integrated Trajectory → without the parentheses at the start