

Dear Editor,

Thank you for the reviewer's constructive comments on the revised manuscript.

Following the suggestion that the flow could be improved around some newly added paragraphs, we have carefully revised the relevant sections of the manuscript.

In particular, we have:

- i. streamlined the transition in the Introduction by removing repetitive contextual information and improving the connection between the scientific gap, the suitability of Dome C, and the objectives of the study (former Lines 71-76) ;
- ii. condensed the newly added discussion of depolarization calibration, retaining the essential definitions of the gain ratio and cross-talk coefficient while avoiding repetition with the subsequent description of the calibration procedure (former Lines 176-186);
- iii. removed the paragraph discussing the role of the minimum geometrical thickness criterion in the microphysical classification, as this information was not essential in that location and interrupted the transition to the optical-weighting section (former Lines 332-337).

These revisions improve the readability and continuity of the manuscript without altering the methodology, results, or conclusions.

We thank the reviewer again for this helpful suggestion.

Kind regards,

Francesco Cairo

on behalf of all authors