

Reviewer Comment 5: “discuss what temporal averaging was applied to the data and how the vertical gradient was computed (I suggest using Savitzky-Golay method)”

Response: We thank the reviewer for this practical and constructive suggestion. We agree that clearly documenting the temporal averaging applied to the radar data and the procedure for computing the vertical gradients is important for the transparency and reproducibility of the method. In particular, based on the reviewer’s suggestion, we have incorporated a Savitzky–Golay filtering approach into our data processing. The radar time–height data are smoothed in time (over a short moving window of a few minutes, similar to Planat et al., 2021) and in the vertical (using a 3-gate window) using a second-order Savitzky–Golay filter. These clarifications have been added to Section 2.2.2 of the revised manuscript “*Before computing the vertical gradients, we apply temporal averaging and vertical smoothing to the radar data to reduce small-scale noise while preserving the underlying microphysical signal. Specifically, following Planat et al. (2021), we average each radar profile with its neighboring profiles over a 10 minutes time window to filter out high-frequency fluctuations. Next, we smooth each profile in the vertical using a three-gate moving window (90 m) to reduce gate-to-gate noise. To implement these smoothing steps effectively, we employ a Savitzky–Golay (SG) filter in both time and height dimensions, fitting a second-order polynomial within the chosen window in each dimension. This SG-based smoothing approach preserves the shape of the vertical profiles while suppressing random noise, thus providing robust estimates of the gradients.*”

We have also re-plotted the relevant figures using the improved smoothing scheme and included them in the revised submission.

