We thank the reviewers for their thoughtful and constructive comments. Our responses are embedded below in red. Quoted line numbers refer to the tracked-changes version of the manuscript.

Reviewer 2:

In my opinion, this is an excellent paper that will provide helpful guidance to the community in designing instruments and data processing algorithms for stereoscopic retrievals of cloud top height. The methodology is sound, and the presentation is of a high quality. A particular strength of the manuscript lies in the in-depth explanations and discussions it offers. Even so, the manuscript needs some minor improvements. Please find my specific comments below.

Contents:

Lines 134, 327-328, and Section 3.5: I wonder if it is important that the paper compares cloud top height variability statistics obtained differently for observed clouds than for simulated clouds. Specifically, for clouds observed during the CAMP^{2}Ex campaign, the paper calculates the standard deviation of cloud heights encountered along an 8 km long straight line—whereas for simulated clouds, the paper uses the standard deviation of all cloud height values within 8 km by 8 km areas. It may be worth adding a brief note into Section 3.5 about whether the comparisons would look different if (instead of calculating an overall standard deviation of all cloud height values within a simulated field) we calculated cloud height standard deviation values for several individual 8 km long transects and then we used the mean of these standard deviation values to characterize cloud top height variations within each simulated cloud field.

We compared standard deviations of cloud top height estimated from 1D transects vs. the full area (8 km)^2 for the synthetic clouds. On average, the standard deviation of cloud top height from 1D transects is only ~15 m smaller. Based on this good agreement we can be confident in the comparison with the airborne data. We have added a note to this effect in Section 3.5 at Line 631-634.

Lines 133-149: It would help to clarify how the geometric and optical thicknesses of individual cloud columns are related to each other. Within an individual cloud field, do geometrically thicker clouds tend to have larger (or smaller) optical thicknesses and/or column-average extinction coefficients?

It is correct that geometric thickness is correlated with optical thickness. This is now stated explicitly (Line 154).

Lines 289-291: If my interpretation is correct, the wording should be changed to clarify that the sampling bias is the difference between the true heights of two sets of pixels (identified by colors other than gray or dark blue in Figs. 1b and 1d, respectively). This is needed because the current wording suggests that the sampling bias includes the differences between the non-zero height values shown in Figs. 1b and 1d. (The difference between the values in Figs. 1b and 1d would not provide the sampling bias, as Fig. 1d shows retrieval results that are affected by retrieval errors as well as sampling issues.)

Thank you for catching this, the reviewer is correct. We have revised the corresponding sentence to clarify this (Line 322).

Presentation:

Line 193: It would help to explain what four relative azimuth values are the possibilities when selecting an azimuth value for each cloud and solar zenith angle.

We have added the list of the solar azimuth angles (Line 208-211). They were chosen so that the 3DRT simulations can also fulfill a different purpose. Specifically, so that the different oblique views sample scattering angles at the peak and edge of the rainbow.

Lines 209-211: This sentence contains the words "utilize" and "which" twice; one of the occurrences of each word should be replaced.

Done.

Line 248: I suggest replacing "Errors statistics" by "Error statistics".

Done.

Line 346: I recommend changing "As above" to something like "As in the left panel".

Done.

Lines 480-481: I suggest replacing "comparative" by "comparable". Also, it is unclear how providing a comparable amount of information implies that the information provided by the two predictors is independent.

We have made this change and clarified that it is the fact that the r-squared increases when used together that demonstrates that the two predictors provide independent information.

Figure 10: The caption should clarify what the grey and black lines (at 30 and 45 m, respectively) represent.

Done.

Line 582: The reference Loveridge and Di Girolamo (2024) is missing from the reference list.

Added, thank you for spotting this.

Lines 609-610: I recommend refining the wording, as extinction profiles do not have a magnitude.

Done.

Line 717: I recommend changing "cloud" to "clouds".

Done.