

**Thank you for bringing to our attention the issues that were left unresolved after the last round of reviews. Your feedback is much appreciated. A point-by-point list of correction is provided below in bold.**

Many thanks for your revisions to the paper, which have addressed almost all of the comments of the reviewers. Please provide a further revision of the manuscript but with the following minor changes:

1. In response to Reviewer #1's third bullet under minor comments, please clarify in the text at the very start of section 2.1 that there is no spatial overlap of these two scenarios.

**The following discussion has been added at the beginning of Sect. 2.1: "Two distinct situations are analysed: non-precipitating liquid clouds and clouds that generate light drizzle. These two scenarios do not overlap spatially with each other or with pixels classified as precipitation, where the OE algorithm is used. When a radar volume is classified as a liquid cloud or light drizzle, an appropriate power-law formula is utilized to estimate the combined liquid water content of the cloud and any drizzle that may be present. In the case of the OE retrieval, the liquid water path is one of the retrieved state vector unknowns. Once retrieved, it is distributed adiabatically in the column to provide an estimate of the liquid water content. The algorithm clearly distinguishes between the cloud water and the precipitation mass content, with the latter being equal to zero for liquid clouds and light drizzle."**

2. In response to Reviewer #2's point 1, you claimed to have added a substantial amount of text, but I can't find it in your revised version - please add it.

**We overlooked the fact that this discussion was not included in the article. Thank you for pointing this out and allowing us to correct it. To integrate this discussion, we reorganized some paragraphs and rephrased some sentences to improve the flow of the text.**

3. In response to Reviewer #2's points 3 and 4, please briefly put your responses about PIA somewhere in your revised version.

**At the end of the section named "Vector of measurements we added: "The C-CLD algorithm takes in radar reflectivity, sedimentation velocity, and PIA measurements as inputs. The measurement vector is composed of  $2N + 1$  entries, and it is given by:**

$$\mathbf{y} = [Z^1_m, Z^2_m, \dots, Z^N_m, U^1_D, U^2_D, \dots, U^N_D, \text{PIA}]^T, \quad (14)$$

**where  $N$  is the number of retrieval layers. However, because the normalized radar cross-section of the surface over land varies widely depending on factors such as vegetation, surface slope, soil moisture, and snow cover, estimates of PIA are only provided over the ocean. The retrieval is still**

**performed without PIA estimates, but results are significantly more uncertain and should be used with caution."**

4. Acronyms should be rendered in upright roman, both in the text and the equations, otherwise Latex doesn't render them well as it treats the letters as if they are separate variables. This applies to LWC, MC, PIA, CLWP, RWP, ML, PR, SRT, DSD, SO87, B00, and "eff". This can be done in an equation with  $\mathrm{LWC}$ . In the unit "dBZ", "dB" at least should be upright roman. The function "log" should be upright roman (use  $\log$  in Latex).

**To preserve consistency between the text and mathematical formulas we used " $\mathrm{\text{}}$ " environment for the acronyms inside the equations. For the units of dB and dBZ we used " $\mathrm{\text{}}$ " across the manuscript. All occurrences of "log" without a backslash were also corrected.**

5. The first line of the abstract implies that JAXA is a junior partner in EarthCARE development. Please rephrase to state that this is a joint mission without implying seniority of one partner.

**The first sentence reads now:**

**"The Earth Clouds, Aerosols and Radiation Explorer (EarthCARE) satellite mission is a joint endeavour developed by the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA) and features a 94-GHz Doppler Cloud Profiling Radar."**

6. Abstract: define CPR when first used (or just say "radar" since the acronym is not reused in the abstract).

**"CPR" was replaced by "radar", as suggested.**

7. Most of the papers marked "to be submitted" have now been submitted and have a DOI - please update these.

**3 out of 6 references has been updated. The remaining 3 are still not submitted.**