

Response to Anonymous Referee #3 for the second round of reviewing of ‘Satellite-based estimation of contrail cirrus cloud radiative forcing derived through a Rapid Contrail-RF Estimation Approach’ by Dimitropoulou et al. (<https://doi.org/10.5194/egusphere-2025-697>)

Referee:

The authors have improved the manuscript substantially, and it looks better now. I understand that the current manuscript is to show the performance of the analysis system for the contrail-induced radiative forcing estimation (i.e., the Rapid Contrail-RF Estimation Approach), and the authors specified that an independent validation of the contrail-detection method is beyond the scope of the present work and is future work. However, there are still a significant number of descriptions stating that the authors are investigating the radiative forcing of contrails (e.g., L102, L131, L303, and many more). The authors should first define what the detected cloud cases are through the CTP filter (perhaps “high-altitude ice clouds” or “potential contrails”), and they should consistently use this terminology in the following sections. The topic in the present paper is suitable for Atmospheric Measurement Techniques (AMT). As long as the above-mentioned inconsistency is resolved, it can be published. Please find the minor comments below for potential improvement of the manuscript.

Response:

We would like to thank Referee #3 for the valuable comments provided after reviewing the revised manuscript. We fully agree that referring to the selected clouds as “contrails” can be misleading and erroneous. To ensure consistency, we have revised the terminology throughout the manuscript. In all relevant sections, the previous references to “contrails” have been replaced with “high-altitude ice clouds” or “potential contrails”, depending on the context. All corresponding changes are indicated in the marked-up PDF.

Minor comments

Referee:

1. Title: “**Satellite-based estimation of contrail cirrus cloud radiative forcing** derived through a Rapid Contrail-RF Estimation Approach.” The red-highlighted part is no longer relevant to the work. My impression is that the manuscript is focused on the validation of the Rapid Contrail-RF Estimation Approach. Please revise the title to be more relevant to the work.

Response:

We agree with the Referee and that the original title no longer accurately reflects the content of the revised manuscript. We have updated the title of our manuscript as follows:

“**Satellite-based estimation of high-altitude ice cloud radiative forcing** derived through a Rapid Contrail-RF Estimation Approach.”

Referee:

2. Abstract, Page 1, L12 “seasons”: The authors only analyze 6 days of data, which is insufficient to resolve the seasonal variability of the cloud variables due to substantial daily variation. Please delete this word.

Response:

We agree that the use of the word “seasons” is not justified by the presented results. We have therefore removed this word.

Referee:

3. Page 3, Lines 61 “between”: Are there only two relevant studies? If there are more than two studies, suggest the authors rephrase it with “among”.

Response:

More than two relevant studies are referenced in this sentence. We have replaced the word “between” with “among” to improve accuracy.

Referee:

4. Page 3, Line 76 “In (Driver et al., 2025)": This is a format error. Please correct it.

Response:

We have corrected the citation format error accordingly.

Referee:

5. Page 13, Line 297 “Distinguishing between ice and cirrus clouds": Cirrus clouds are part of ice clouds. Please rephrase it to make it unambiguous.

Response:

We agree with the Referee that a rephrasing of the section title is essential, since cirrus clouds are a subset of ice clouds. To improve clarity, we have updated the section title to “Selection of high-altitude ice clouds”.