

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-112

Anonymous Referee #2

Referee comment on "Analysis of improvements in MOPITT observational coverage over Canada" by Heba S. Marey et al., Atmos. Meas. Tech. Discuss.,
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The authors present an overview of the MOPITT standard data product (clear-sky observations or over low clouds for ocean scenes). The authors present a quantitative study of including low cloud areas in the retrievals. The authors quantitatively show that MOPITT data were improved when low cloud areas were included in the retrievals. Given that MOPITT has measured CO since 2000 updating the current L2 data product is essential. Therefore, the authors need to address improving the current MOPITT data product to include low cloud areas in the retrievals. A section about validation and comparison between MOPITT, IASI, TROPOMI, and ground-based measurements is needed.

Based on the major issues highlighted below, I can't recommend the manuscript for publication in its current form. However, the authors can resubmit the manuscript if they address the major issues.

Major Issues:

- A quantitative study without any detailed analysis. Plots of the daily mean of total CO columns with and without low cloud areas included.
- Description of error sources and analysis.
- A clear plan to adopt and improve on the current MOPITT L2 data product is missing. The authors did not state or propose to modify the current version of MOPITT data.
- Addition of validation and comparison between MOPITT, IASI, TROPOMI, and ground-based measurements section.

Minor Issues:

- Low-quality images.
- Some discussion of the physics of the retrievals can be beneficial.
- Lack of references (ex. L51).

Specific Comments:

- Clarify L99.
- L114 implies other products are available. If this is true, please elaborate.