

Dear Prof. Dr Brunner,

Thank you for your review and assessments, we respond inline below.

Dear authors,

I am pleased to let you know that I accept your manuscript for publication subject to small technical corrections.

The reviewers had asked for minor revisions and I consider your responses to be both careful and appropriate.

Please correct the following small remaining points in the revised manuscript

- Page 2, line 32: What about changing to ".. of any PHYSICS-BASED retrieval algorithm .."?

Agreed, changed.

- Page 3, line 63: The second "TROPESS/CrIS" in this sentence needs to be deleted.

Removed.

- Page 3, line 65: I didn't really understand the meaning of the last part of this sentence ".. and the application of this product"

We have removed this last part as it added little.

- Page 3, line 81: "width" appears twice

Additional removed.

- Page 3, line 85: Change to "... (TROPESS)), offering an opportunity .."

Done.

- Page 4, line 101: add a space before "OMI"

Done.

- Page 10, line 212: Change to ".. probability that THE trace gas retrieval .."

Added.

- Page 33, line 457/458: Remove one of the two appearances of "at this time".

One instance removed.

- Page 33, line 460: "more improvements" instead of "more improvement"

Corrected.

- Page 34, line 488: Change "in the current for" to "in the current form"

Corrected.

In the discussion of the potential usage of the approach for direct trace gas retrievals it might be useful to refer to other existing machine learning/AI based retrieval algorithms such as Van Damme et al. (2017; <https://doi.org/10.5194/amt-10-4905-2017>).

We have added appropriate references here, to enhance the discussion.

Best regards

Dominik Brunner