We thank the Reviewer for their positive assessment of the revised manuscript, and for their new comments. We address them point by point below. The review is in black, our answers in blue, and modified text in the manuscript in italic red.

I thank the authors for their work and detailed replies to my comments. All of my previous comments were sufficiently addressed. I especially appreciate the detailed response to the dependence of the results on the background emissions scenario. This is interesting work which in my opinion could warrant a description in the supplement, but I leave that decision to the authors.

Overall, I commend the authors on their interesting work and recommend publication of this article subject to one further minor revision, which I have outlined below.

Minor revision

In Section 5.4 (previous Section 5.3), the authors vary the contrail efficacy. In the preprint, a best estimate of 0.35 was used, which was now modified to 0.37. The authors used this best estimate for normalisation in Figure 6. However, it seems that there may have been a mistake in the normalisation or visualisation of the results, since in the new Figure 6 unity is shown for an efficacy of 0.31. Could the authors please check their (visualisation) code to ensure that the correct best estimate is used for all results?
This is indeed an error, thank you for spotting it. It is corrected.

Technical comments/suggestions

ln. 82: "time horizon" rather than just "horizon"
Added as suggested.

ln. 116-7: "AGWP is a time-integrated metric, and because it is based on radiative forcing, it is not an explicit measure of the climate response." Does this final clause refer to the temporal integration or to the radiative forcing? What is meant by an "explicit measure"?
This final clause relates to the radiative forcing. This is not an explicit measure of climate response, because radiative forcing is only an intermediate quantity between the perturbation and the climate response. We added a reference to Fuglestvedt et al. (2010) to support this statement, as suggested by Reviewer 2.

ln. 120: In line with the other definitions, I would suggest $\Delta T(t_0 + H)$ here as well
Added as suggested.

ln. 390: I thank the authors for including an extra sentence here describing the rerouting efficiency factor. Since a rerouting efficiency factor of 100% corresponds to the case that all contrails are avoided, I suggest the following modification: "For each rerouting, contrail energy forcing is *inversely* scaled by this rerouting efficiency factor" (or words to this effect). I believe this makes the definition of the factor more clear.
Modified as suggested.

2nd review of the manuscript “The importance of an informed choice of CO2-equivalence metrics for contrail avoidance” by A. Borella et al. (egusphere-2024-347)

We thank Michael Ponater for his positive assessment of the revised manuscript, and for his new comments. We address them point by point below. The review is in black, our answers in blue, and modified text in the manuscript in italic red.

Recommendation

The authors have addressed my comments in a careful and very satisfactory way, and consequently I now recommend their paper for publication in Atmospheric Chemistry and Physics.

I still give some further suggestions below for consideration by the authors, partly on text I left uncommented in the first review (sorry for this!). However, my recommendation “accept” in no way depends on whether or not these additional suggestions will be accounted for.

Optional suggestions

l. 91: As the term “efficacy” is itself somewhat un-specific but has a dedicated meaning in the framework of this paper, it might be sensible to introduce it as “the efficacy of contrail radiative forcing to induce surface temperature changes” (replacing “the contrail efficacy“).

Modified as suggested.

l. 117: “… it is not an explicit measure of the climate response.” I now feel that this statement calls for another reference, which could be Fuglestvedt et al. (2010) in view of their respective considerations at lines 4655, 4656.

Reference added as suggested.

l. 174: “adjusted radiative forcing”: since the term is not clearly defined within the paper, I suggest to write “stratospheric-adjusted radiative forcing”, and to add references to Hansen et al., 2005, and to Forster et al., 2007 (AR4, chapter 2).

Modified as suggested.

l. 177: Suggestion (after “… considerations”): “Note that use of instantaneous contrail RF (corresponding to EF) for contrails and use of stratospheric-adjusted RF for CO2 is not inconsistent, as instantaneous and stratospheric-adjusted RF do not differ significantly for contrails (Dietmüller et al., 2016)”.

Added as suggested, with small modifications with no impact on the meaning: *The use of instantaneous RF (corresponding to EF) for contrails and the use of stratospheric-adjusted RF for CO_2 is not inconsistent, as instantaneous and stratospheric-adjusted RF do not differ significantly for contrails (Dietmüller et al., 2016).*

l. 201: After “AGWP” you might consider to add another explicit reference: “Fuglestvedt et al. (2003, their Eq. 7)”.

Reference added as suggested.

l. 243: “The distribution”, it might be specified which distribution is addressed.

We added “The distribution of contrail energy forcing per flown distance” as suggested.

l. 349: “The number of …”, The meaning of this sentence is still somewhat cryptical to me, especially with respect to the “condition of maximum additional fuel”. By the way “5 times larger” or “5.5 times larges” (as you write in your reply)?
This is indeed 5 times larger (our reply was erroneous). We also modified the sentence to increase its clarity; hopefully it is now no more cryptic: *The number of “lower risk” rerouting is 5 times larger when no additional fuel is emitted compared to the +1% fuel scenario. This is because our definition of “lower risk” rerouting relies on a maximum amount of additional fuel, and this condition is always met when no additional fuel is emitted*.

l. 362: “low energy contrails”, perhaps improve to “low EF contrails”?
As we make clear in the second part of the sentence that this relates to EF (“with EF per flown kilometre from …”), we prefer keeping the sentence as is.

l. 475: Is there a reference to back the statement made in preceding sentence?
We added the following reference: Dalmau Codina, R.; Melgosa Farrés, M.; Vilardaga Garcia-Cascón, S.; Prats Menéndez, X. A fast and flexible aircraft trajectory predictor and optimiser for ATM research applications. In Proceedings of the International Conference on Research in Air Transportation, Catalonia, Spain, 25–29 June 2018.