

Concerning the comment made by Anonymous Reviewer #2 with respect to lines 223ff. of Teoh et al.'s study, I would like to underpin that in my opinion the reviewer is fully hitting the mark here. Converting a local radiative forcing into anything like a local or regional surface temperature response by means of an equilibrium climate sensitivity parameter is at odds with the radiative forcing concept. Rather, the climate sensitivity parameter is sensibly be used to estimate contributions of global forcing components to global mean surface temperature change (see, e.g., Ramaswamy et al., 2019). The latter develops slowly in response to the radiative forcing (or a change of radiative forcing as is meant here); see, e.g., Figure 8 in Ponater et al. (2006). This "global warming" time scale is much longer than, e.g., one "COVID year".

Any local surface temperature response that might be induced, on shorter time scales, close to the location of the regional forcing cannot be derived from such global considerations. As also stated by Teoh et al., such a temperature signal is very unlikely to be observable for forcings in the order of magnitude considered here, in view of the much higher background variability of local/regional temperature. The controversial discussion of an impact of contrails on regional diurnal temperature range forms an example for the related attribution problems (Travis et al., 2002; Hong et al., 2008; Dietmüller et al., 2008; Sandhu and Baldini, 2013).

In the context of the authors' general results and discussions the surface temperature change aspect is rather circumstantial and could easily be omitted from the paper without in any way declining its merits. However, as this tendency of interpreting local radiative forcings as the direct origin of local surface temperature impact has not been uncommon in aviation climate impact studies, the authors might feel encouraged to use the opportunity for clarifying the respective issue.

References:

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- Ponater, M., et al., 2006: Potential of the cryoplane technology to reduce aircraft climate impact: a state-of-the-art assessment, *Atmos. Environ.* 40, 6928-6944.
- Ramaswamy, V., et al., 2019: Radiative forcing of climate: the historical evolution of the radiative forcing concept, the forcing agents and the quantification, and applications, *Meteor. Monogr.* 14.1-14.101.
- Sandhu, A.S., Baldini, J.U.L., 2018: Evaluating the significance of the contrail effect on diurnal temperature range using the Eyjafjallajökull eruption-related flight disruption, *Geophys. Res. Lett.* 45, 13090-13098.
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