TS1 Due to the requested changes, we have to forward your requests to the handling editor for approval. To explain the corrections needed to the editor, please send me the reason why these corrections are necessary. Please note that the status of your paper will be changed to "Post-review adjustments" until the editor has made their decision. We will keep you informed via email.

The request to check the typesetting of Equation 1 made us realize that it wasn't clear and precise enough. We propose some slight changes allowing for a better description of the way we take into account the MOPITT averaging kernels. These changes do not impact the results and the conclusions of the study.

We would like to slightly change the description of the equation (1) from line 6 to 15 page 4.

New text :

Following the recommandations of Deeter (2018), the formula for total columns is : 𝑐𝑚=c𝑎+𝒂𝒌(𝒄𝒎°−𝒙𝒂)

where cm is the modelled column, ca is the a priori total column value corresponding to the a priori profile **xa** derived from a model climatology and vary seasonally and geographically (Deeter et al., 2019), **ak** contains the averaging kernels which are an indication of the vertical resolution of the measurements, and **cm°** is the vertical distribution of the original model partial columns interpolated to the pressure grid of the AKs. In practice, we have adapted this formula to the MOPITT surface level.