

We would like to thank the reviewer for the time spent on the review, prior and during the discussion phase.

Our answers appear in blue below.

Anonymous Referee #2

The article is nice. However I would add a conclusion section. Please also consider the comments in my past quick review.

Indeed, the manuscript was lacking a conclusion and we added one.

The previous comments were:

line 42: I wondered about the selection criteria of the satellite MW sounders. Maybe you could add for clarity that you mainly consider the sounders for tropospheric humidity (e.g., not limb sounders like Aura/MLS)

We modified the text accordingly.

line 200: why "polar" atmospheric constituents ?

Because of the apparent confusion between the “molecular dipole moment” that was meant here by “polar atmospheric constituents” and “atmospheric constituents from polar region” (we believe this is where the reviewer got confused), we remove this term and now only mention “atmospheric constituents”.

Figure 3: this figure needs more explanations, e.g., what is C in the ylabel and which unit does it has?

We clarified the legend.

line 323: groundbased microwave radiometers are usually at 22 GHz and not at 183 GHz
Not a lot of groundbased radiometers observing the 183GHz line exist, but there are some, such as HAMSTRAD, based at Dome C (Antarctica) or the ATOMMS mentioned in the paper.