

Interactive comment on “Uncertainty of atmospheric microwave absorption model: impact on ground-based radiometer simulations and retrievals” by Domenico Cimini et al.

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This is an important piece of work that quantifies the total effect of spectroscopic uncertainties on ground based radiances, and vitally includes their covariance. As most spectroscopic parameters are not derived in isolation from each other this is very important to include, and to my knowledge is not, and has not been published by any other authors prior. The review of the absorption model equations with up-to-date material is particularly useful to have documented. As it is a general approach it would be really good to see how this looks for top of atmosphere geometry, though I am not suggesting the authors do this for this publication. I think it would look quite different,

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probably have a lot more impact, and the 55-60 GHz impacts would not be negligible in this case. Also, it would be good to see how this looks for the whole 0-200 GHz range where I suspect in some bands the order of parameters that dominate would change. This might be limited computationally, again I don't suggest the authors do this.

One minor point is the use of the MWR to describe ground-based MW radiometers is a bit confusing, as some have already adopted the acronym for their own space-based instruments.

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