

## Anonymous Referee #1

The paper on improving attenuation estimates by microwave radiometry is clearly written, of scientific significance, and will be a useful addition to the radio propagation literature. I do have a few comments that should be considered by the authors before publication.

Thanks for the positive feedback.

### COMMENTS

1. Although the authors clearly state that the importance of accurate  $T_{mr}$  depends on lower elevation angles, it is not clear to this reviewer if the analysis only uses  $T_{mr}$  at zenith. If so, please state explicitly what range of angles was used. It could be an interesting study of the dependence of the accuracy on elevation.

Thanks for pointing this out. The whole analysis is performed at  $\sim 35^\circ$  elevation, as the instruments are deployed within a radiopropagation experiment and thus constantly point towards the geostationary satellite Alphasat. We have added this information in Section 3.

2. It was also not clear, what range of cloud liquid was encountered during both the preparation and validation portion of the paper. Since the attenuation at V/W will be much more sensitive to cloud liquid than K band, perhaps some comments could be made on this point. Again, the dependence of  $T_{mr}$  errors on attenuation during cloudy conditions might be another useful study. The two channels at 51.26 and 52.26 GHz could prove useful in this situation.

Thanks for pointing this out. Considering the pointing angle ( $35^\circ$  elevation), cloud liquid water path reaches 2.8 (2.7) mm in the training (test) dataset. From the validation dataset, the estimated liquid water path reached 4.6 mm. We have added this information in Section 4. Thanks also for providing thoughts for further studies; we will keep into consideration as we go along the project.

### GRAMMATICAL COMMENTS

1. P2,L51. Suggest replace “band” by “bands”.
2. Many pages, after defining PTU as pressure, temperature, and humidity, don’t need to repeat.  
Also, for the first time, make it clear that relative humidity is used as the humidity variable.
3. P5,L 55. Please insert “a half data set”.
4. P10, L19. Suggest “bring significant improvements” by deleting “to”.

Agreed. All the above suggestions are accepted and imported in the revised manuscript. Thanks much!