Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC1
https://doi.org/10.5194/amt-2021-344-RC1, 2021

Comment on amt-2021-344

Anonymous Referee #1

Referee comment on "Continuous temperature soundings at the stratosphere and lower mesosphere with a ground-based radiometer considering the Zeeman effect" by Witali Krochin et al., Atmos. Meas. Tech. Discuss.,
https://doi.org/10.5194/amt-2021-344-RC1, 2021

The paper presents a new analysis of the TEMPERA dataset resulting in an increase of maximum altitude from ~48 to ~53 km. Measurement errors are carefully evaluated. The dataset is compared against MERRA2 and NAVGEM-HA, in terms of monthly averages and at a 3-h scale. The TEMPERA dataset shall enable the study of tides, and remaining systematic biases are not considered to be of relevance for that purpose. The authors stress the suitability of the measurements regarding the sensitivity to atmospheric dynamics. While detailed comparisons to the reanalysis models support the successful capture of e.g. planetary wave events, the differences of measured temperatures to the models can be as high as 20 K between single 3-hourly profiles, and the monthly correlations are lower. To me, it has not become fully clear if TEMPERA is in those cases "better" than the models, or if this remains unknown.

I think the paper would benefit from copy editing, mostly regarding grammar, punctuation, or the use of hyphens, and some mis-spellings. I do not provide a list for all that, as I am not a native speaker myself.