

## ***Interactive comment on “Comparison of RO tropopause height based on different tropopause determination methods” by Ziyang Liu et al.***

### **Anonymous Referee #1**

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### **General comment**

I would like to point the authors to the fact that, to my knowledge, the ROPP Fortran package contains forward modelling routines from model pressure, temperature, and humidity data to both refractivity and bending angle. I don't know whether such model bending angles would be suitable for application of the covariance transform, but I suggest that the authors consider that as a possibility. I'm not requiring that you do that for this present study, but it should be considered in future studies.

### **Minor remarks**

Abstract, line 11: Replace “The Tropopause is a significant . . .” with “The tropopause

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is an important . . .” (lower case ‘t’ in ‘tropopause’)

Abstract, line 15: From your comments I understood that you do not use reanalysis data.

Abstract, lines 16-19: A suggestion: “We compute biases of the RO lapse rate tropopause height (LRTH) and the RO bending angle tropopause height (BATH) relative to the ECMWF LRTH. The dependences of the tropopause height biases on TPH retrieval method, latitude, season and RO mission are investigated.”

Abstract, line 19: Start sentence with “the”: “The results indicate . . .”

It should be acknowledged that the main text has undergone a significant improvement since the first version.

On page 3, lines 65-66, I suggest to remove the whole sentence “The bending angle profile is level-1 data . . .”. The definition of processing levels is not a scientific issue and is not interesting or important for the reader. Related to this change you should also remove “Moreover” from the beginning of the sentence on line 66.

In several places in the main text you use the phrase “bias regulation”. That is not a correct use of the word “regulation”. It seems that you just mean “biases”?

On page 7, line 148, I suggest that you remove “(true value)” from the sentence. ECMWF is a reference, and nothing more.

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-379, 2019.

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