

Ann. Geophys. Discuss., referee comment RC2
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Comment on **angeo-2021-67**

Anonymous Referee #2

Referee comment on "Determination of tropical belt widening using multiple GNSS radio occultation measurements" by Mohamed Darrag et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-67-RC2>, 2022

Major comments

- The data of the atmospheric profiles came from very different GNSS-RO sources (Fig 1) and different time of missions. It means that accuracy, data time-rate, region of the atmosphere under RO-sounding very differ from one source (mission) to another. In turn, it may bring uncertainties and mistakes in the long lasting data interpreting. I would recommend to the authors to add correspondent explanation in Section 2 and in Conclusion section.
- In my opinion, there is lack of discussion of Fig 2-10. There is only list of facts with no even minimal comments. I suppose that minimal discussion for each figure is necessary, something like this: the results on Fig correspond (or contradict) to the physical model of the process (or the known results [Reference 1, Reference 2 et al.]). It can be explained by..... et al.
- In my opinion Conclusion section should consist of more detailed explanation of the unfolded trends in the tropopause height increasing. This is the main results of the manuscript which is important in the global weather forecast.

Minor comments

- Abstract: In my opinion Abstract is very long and difficult to catch the main idea of the research. All the numerical evaluations and its short discussion should be in the main text, but not in abstract. Abstract should be short and clear for readers. It should

consists of following points: motivation; general list of means of data treatment (or theoretical analysis), experiment environment et al; main results and its novelty declaration comparing to the known results.

- Line 72 and Line 74: What do these "...reanalyses trends..." and "...different reanalyses..." mean?
- Line 236: Please check and correct it: "...is no significant correlation 0.21...".
- Line 241: "global increasing trend of LRT height 241 of 36 m/decade". Looking at the Fig 2 I see this trend for CPT but not for LPT. Please check it.
- Line 483: What do you mean here: "there is no significant signal in the...".

Please also note the supplement to this comment:

<https://angeo.copernicus.org/preprints/angeo-2021-67/angeo-2021-67-RC2-supplement.zip>