

Interactive comment on “Global temperature estimates in the troposphere and stratosphere: a validation study of COSMIC/FORMOSAT-3 measurements” by P. Kishore et al.

Anonymous Referee #2

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Comments:

(i) The paper is well written and describes validation of temperature retrieved from COSMIC/FORMOSAT-3 GPS Radio Occultation measurements with the well established operational analyses viz., NCEP, JRA-25 and MetO.

(ii) In the text, in page 5, it is mentioned that the vertical resolution varies from about 50 m in the lower troposphere to about 100–200 m in the lower stratosphere. As I am aware, the vertical resolution of COSMIC GPSRO is about 100 meters in the lower troposphere and is about 1 km near the tropopause height and above. Ofcourse, the interpolated data is being provided with 50, 100, 200 meter resolutions. The authors

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could check on this point and suitably modify in the text.

(iii) In page 9 of the manuscript, it is stated that figure 3 demonstrates positive differences in troposphere and negative differences in stratosphere heights indicating warmer and colder temperatures by COSMIC. The authors could explain for these observed positive and negative differences.

(iv) The discrepancy of about 2.5 K observed in the height range of 10-13 km (Figure 3) is quite large. This needs a plausible explanation.

(v) In page no.12, of the manuscript, it is stated that the mean differences are relatively small between 30S-30N at about 1.0-1.25K. This is not consistent with the discrepancy observed in Figure 3. Ofcourse, one of the reasons could be figure 3 pertains to data collected for only one week, whereas Figure 7 presents the larger data set collected during 3 months. The authors may look at this point and suitably make a comment while describing figure 7.

(vi) In page 13 of the manuscript, it is stated that "the tables depict that the winter differences are consistently larger than the summer for both pressure levels". The authors check whether the statement is correct. If so, appropriate explanation needs to be provided.

(vii) The global zonal mean temperature differences presented in Figures 6 and 7 correspond to what pressure level? I presume that it is 100 hPa. However, the authors may mention this information in the text.

The results presented in the paper are comprehensive comparisons of temperature profiles retrieved from COSMIC/FORMOSAT-3 GPS Radio Occultation measurements and the operational model analyses globally. These results find potential applications and also are quite useful for the researchers carrying out studies making use of COSMIC GPSRO data. Thus I recommend that the paper could be accepted for publication after the authors take care of the above comments.

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[Ed. Note: Technical aspects of the comments above that were already addressed prior to publication in ACPD can be disregarded.]

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 8327, 2008.

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