

Interactive comment on “Processing of GRAS/METOP radio occultation data recorded in closed-loop and raw-sampling modes” by M. E. Gorbunov et al.

Anonymous Referee #2

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The authors described the processing of GRAS CL and RS+CL data. They presented a few examples of spectrograms in bending angle space and showed statistical comparisons in bending angles and refractivity with ECMWF. Overall, the paper is well written and contains some new and interesting results. However, there are areas where more details should have been provided.

Specific comments:

(1) Please provide an example illustrating the merging of the CL and RS data. How were the data gaps in the GRAS data handled? What are the possible errors from filling the gaps?

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(2) Examples of spectrogram are from mid-to-high latitudes: why not include a tropical occultation?

(3) Sec 3, 1st para: "The bending angle profile below 2 km is not related to the atmosphere, because it is obtained from the phase model used to fill in the area where the receiver was unable to track the signal." I don't understand this. Please elaborate.

(4) Sec 3, 2nd para: "This behavior is explained by the sharp tropopauses unresolved by the filter window of 2 km used in our data processing." I read this to mean that the RO bending angles being smoothed over 2 km windows near the tropical tropopauses. Why is such a large window being used? What is the filter window for the lower troposphere?

(5) Comparing between bending angle and refractivity biases in the tropics: is the refractivity bias consistent with the bending angle bias? As is well known, there could exist additional bias going from bending angle to refractivity in the presence of super-refraction layers (e.g., Xie et al., Geophys. Res. Lett., 37., L11805, doi:10.1029/2010GL043299).

(6) Fig. 7: please describe how the lowest altitude of a retrieved profile is determined in your processing.

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