

The paper gives a comprehensive overview on the RO processing method in its first introductory part. It further provides a good insight into the quality of the method and the comparability of the retrieval results between collocated measurements of receivers of the same kind (COSMIC receivers during the first mission period) but also of measurements of receivers of different design, i. e., between COSMIC and METOP/GRAS. On the other hand it also illustrates the differences between the results in processing the measurements of different receivers and provides statements on the significance of these differences and the reasons for these differences where they are known. The paper is well written and I recommend publication in AMTD with only minor revisions.

General Comments:

I recommend to harmonize the reference to the figures in the text with the figures themselves. In the figure captions the figures are denoted by “Fig.”. In the text, most of the time “Figure” is used, but sometimes “Fig.”.

We will work with the editor to make the references to the figures consistent.

In addition, the different panels of the figures are denoted by capital letters but they are referenced by lower case letters in the text.

We will work with the editor to make the references to the figure panels consistent.

Please show units on the relative bending angle comparison plots although it would be (1), i. e., fraction: Figure 4 (B and C), Figure 20, Figure 22, (Figure 23?), and Figure 25.

We did not make these changes because it would have been difficult to fit ‘fraction’ in the space provided.

Special comments:

p. 2438 line 19: typo: “Section 3 presents a overview ...” has to be “... an overview ...”
Corrected.

p2442 line 22 and Figure 2: What is L4 filtering? (Or should it be the L3 filtering described above?)

It is the L1 and L2 phase filtering that uses the larger window for computation of α_4 .

Sentence is changed to below:

“Figure 2c shows zoomed α_3 profiles calculated with different filtering windows for computation of α_4 : 0.5 s (black), 2 s (blue), and optimal window 0.75 s (red) which minimizes the residual noise on α_3 for this occultation.”

p2452 line 4: "...van Engeln ..." → "... von Engeln ..."
Corrected.

p 2452: Did you perform an outlier correction also on METOP/GRAS data? (not really clear from text.)

Yes, we do perform the same outlier removal on both F3C and Metop/GRAS data. We modified the text to make it more clear when discussing both STDV (p.2451) and SMEAN (p.2452):

"For this six-month period, F3C and Metop/GRAS receivers tracked approximately 455,000 and 102,000 occultations. Figures 13 and 14 show histograms of STDV for F3C and Metop/GRAS. The F3C histogram has an interesting bimodal structure with two local maxima at ~ 0.9 and ~ 1.6 μrad while Metop/GRAS histogram is unimodal with one clear maximum at ~ 0.8 μrad . Since the mean STDV is significantly affected by the "tails" of distributions (this effect is stronger for Metop/GRAS), we remove the profiles with $\text{STDV} > 10$ μrad by considering them outliers. This results in the mean STDV of 1.78 μrad for F3C (68% processed occultations) and substantially lower mean STDV of 1.13 μrad for Metop/GRAS (77% processed occultations)."

and

"Figures 17 and 18 show histograms of SMEAN for $\sim 308,000$ F3C and $\sim 79,000$ Metop/GRAS profiles. For calculation of the mean and standard deviation we remove the occultations with $|\text{SMEAN}| < 3.5$ μrad by considering them outliers. For F3C, the mean and standard deviation are -0.05 and 0.46 μrad , and for Metop/GRAS -0.02 and 0.46 μrad respectively."

p 2456.line 15: "CL" probably should be replaced by "closed loop (CL)".

Changed "CL" to "PLL".

Figure 23 does not suite to its caption (in fact its the same as Figure 22.)

Yes, thank you. Figure 23 has been replaced with the correct figure, shown below,

