Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2017-225-RC2, 2017

Atmospheric Measurement Techniques Discussions

Interactive comment on "Quality Aspects of the Wegener Center Multi-Satellite GPS Radio Occultation Record OPSv5.6" *by* Barbara Angerer et al.

Anonymous Referee #2

Received and published: 29 September 2017

General comment: This is a carefully drafted manuscript, giving plenty of details regarding the processing of GPS RO data. Only minor revisions are recommended.

MInor comments:

page 4 line 30: It is left unclear to the reader why a combined wave optics/geometric optics retrieval is used. It should be briefely mentioned why a "pure" wave optics approach, while more general, is suboptimal.

page 8 line 14: It is mentioned that only setting events from GRACE are available from UCAR. Are rising events from GRACE available elswhere? page 10 line 31-33: This sentence about future developments does not really fit in this section that describes

Printer-friendly version

Discussion paper

already taken measurements. It would fit better in the introduction where the future missions are described, or in the conclusions.

section 5.1,5.2: It is described in some detail how the ECMWF background influences the bending angle profiles and that there is clear influence on the raw profiles at high altitudes, probably less so in the optimized profiles. Jumps in the background as seen in Figs 8,10 have an imprint on the raw bending angle profiles and are not guaranteed to be eliminated in the optimized profiles. In this respect it is somewhat puzzling why operational ECMWF background information is used although likely much more homogeneous background information from reanalyses, (ERA-Interim or JRA55) is available as well. This way one could reduce the potential for inhomogeneities in the RO retrievals at very high altitudes. It should either be explained why operational ECMWF background data have been preferred over reanalyses or, even better, sensitivity experiments should be performed using background data from reanalyses.

Fig.7: Why is the zRAER so constant for CHAMP, and why isn't it lower for CHAMP than for other platforms, given its significantly higher noise level?

Fig. 8 and following figures: Axis labels are very small

Fig. 9, 10 top: Strictly speaking a deviation from the multi satellite mean is not defined if only one data source is present and even with 2 platforms (SAC-C and CHAMP in 2001/2) it cannot be reliably estimated. I would start this plot in 2006. In its present form it is misleading since it suggests better quality before 2006 compared to after 2006, which is not the case.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-225, 2017.