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Atmospheric Measurement Techniques Discussions

Interactive comment on "Empirical analysis and modeling of errors of atmospheric profiles from GPS radio occultation" *by* B. Scherllin-Pirscher et al.

Anonymous Referee #1

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General Comments:

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Well written manuscript, with relevant information for publication. I would however like to see an additional discussion (e.g. one paragraph) on correlations and vertical resolution. These are not covered in the manuscript, and will be largest for temperature profiles. Also, I suggest to at least discuss the range above 34 km, RO data is now used in assimilation models up to about 50km, thus error models would be very useful higher up.

Minor Comments:

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Interactive Discussion

Discussion Paper

- Page 3: The GRAS SAF actually provides the refractivity data in near real time, EUMETSAT the bending angle. Please clarify this.

- Page 4: "For noise reduction ..." This initialization applies only for refractivity calculation, the bending angles are generally raw when assimilated. Please clarify.

- Page 4: "The RO retrieval ..." Temperature, and several other profiles can also be derived from RO without using auxiliary information. Please clarify this statement, mention 1DVar.

- Page 6: "The UCAR data processing ..." I would argue that a LEO orbit is not at level 0, and in the next sentence this IS stated correctly.

- Page 6: "Level 1 processing ..." Should be the other way round, first orbit, than excess phase processing.

- Page 7: "In this study ..." What data from CHAMP, GRACE is used in your study, all of 2007 to 2009? Is there a reason why this COSMIC data is of higher quality?

- Figure 3: Are you actually using exactly the same occultations from both processing centres, at least at higher altitudes, for COSMIC comparisons?

Interactive comment on Atmos. Meas. Tech. Discuss., 4, 2599, 2011.