

## ***Interactive comment on “Quantifying residual ionospheric errors in GNSS radio occultation bending angles based on ensembles of profiles from end-to-end simulations” by C. L. Liu et al.***

**Anonymous Referee #1**

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The authors provide a careful study of the residual ionospheric error (RIE) in radio occultation (RO) data. They use ensemble simulations of RO events of one day in order to quantify and characterize the bending angle RIE's. They study their variation with solar activity, latitude, with or without the assumption of spherical symmetry, and with or without observing system errors.

In their manuscript the authors give a thorough and detailed description of their scientific approach and structure of their analysis. Although the manuscript is presented in a clear and thorough way, it is rather long and things could have been described more compact, increasing readability of the manuscript. Nevertheless, the paper provides

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clear results and conclusions. My recommendation is to publish the paper with minor revision.

Scientific questions:

p. 765, line 3: Can you shortly describe the difference between Liu et al. 2013 and Liu et al. 2014? Maybe summarize core results of Liu et al. 2013?

Why are the bending angle RIE maximum values (-0.03 to -0.05  $\mu$  rad) so much smaller than values by Danzer et al. 2013 (from min to max: -0.05 to -0.4  $\mu$  rad), or Rocken and Schreiner (0.1  $\mu$  rad at 60 km, solar max; presentation at WCRP workshop 2011)?

Technical corrections:

p. 760, line 16: please introduce SD as standard deviation

As far as I have seen, Fig. 10 has not been explicitly discussed or referred to.

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