

Interactive comment on “An introduction to FY3 GNOS instrument and its performance tested on ground” by W. Bai et al.

Anonymous Referee #1

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General comments:

The authors present a basic introduction of the GNOS configuration and instrument specifications. They present some basic preliminary simulation results about GNOS occultation events using the Beidou and GPS constellations. The authors show instrument performance as derived from analysis of measurement data in laboratory and a mountain-based occultation validation experiment.

This paper introduces a new instrument which is informative and of interest to the wider scientific community. It is good to see this preliminary investigation based on the new RO capable system (GNOS) using the Chinese satellite navigation system –Beidou. However, the results presented are of only limited interest for the wider scientific com-

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munity. It is unclear whether the full constellation of Beidou (which is to be achieved by 2020) or the current regional constellation was used in the analysis. It seemed that the current regional Beidou constellation was used (line 26, page 1), however, the quite harmonised distribution of radio occultation events shown on Figs 2 and 3 does not seem supporting this. The presentation in many places is awkward which needs significant revision.

Some suggested changes to strengthen the document are listed below. Page and line numbers refer to the pdf document amt-2013-331-manuscript-version1.pdf

Specific comments:

1. Title: AN INTRODUCTION TO THE FY3 GNOS INSTRUMENT AND ITS GROUND-BASED LABORATORY AND MOUNTAIN-BASED OCCULTATION PERFORMANCE TESTED ON GROUND
2. Title: PERFORMACE to PERFORMANCE
3. Abstract : Define the acronyms before using them in the text.
4. Abstract: Line 15 (begin with) The Chinese FengYun-3 GNSS Occultation Sounder (FY3 GNSS) mission uses GNSS radio occultation for remote sensing both the Earth's atmosphere and ionosphere and merges both the GPS and Beidou navigation satellite systems. (Make the appropriate changes to the document)
5. Abstract: Line 17 “. GNSS” to “. The GNSS”
6. Abstract: Line 20 “ Center” to “the Center”
7. Abstract: Line 20 “object” to “objective”
8. Line 23, change “studying field” to “studying fields”
9. Line 25 “about” to “of” and “events number” to “events, number” and “under the situation of Regional” to “when using the regional”

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10. Abstract: Line 1 p2 remove “in China and gained the Beidou mountain-based occultation data firstly”
11. Abstract: Line 2 p2 remove “Moreover,”
12. Abstract: Line 2 p2 “shows” to “showed”
13. Abstract: Line 3 p2 “lower” to “low”
14. Introduction: Line 11 p2 “orbiters” to “orbits”
15. Introduction: Line 12 p2 “A GNSS” to “a GNSS”
16. Introduction: Line 17 p2 “first used to” to “first used for ”
17. Introduction: Line 28 p2 “fully” to “full”
18. Introduction: Line 30 p2 “even” to “evenly”
19. Introduction: Line 1 p3 “surface” to “Earth’s surface”
20. Introduction: Line 12 -14 p3 the sentence needs to be rewritten.
21. Line 5 p4 “ , “ to “ , ”
22. Line 5 p4 “ , “ to “ , ”
23. Line 7 p4 “ , one” to “ and one “
24. Line 22 p5 “COSMCI” to “COSMIC”
25. Line 13 p5 the sentence needs to be rewritten or removed.
26. Line 7 p7 what do you mean by “Beidou constellation ins invalid”
27. Line 14 p7 what do you mean by “valid occultations”
28. Conclusion Line 27 p8 sentence needs to be rewritten.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 703, 2014.