

Interactive
Comment

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

W. Bai et al.

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Dear Referee #1 and editor,

Thank you for your comments concerning our manuscript entitled “An Introduction to FY3 GNOS Instrument and Its Performance Tested on Ground” (Manuscript Number: amt-2013-331). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. The responds to the comments are as flowing:

General comments

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“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.”

Response: Yes, it's a good question. Because FY3 series satellites plan to launch 6 satellites, and there will be four satellites contain the GNOS radio occultation receiver payloads, including C, D, E, F satellite. The time period will include about 10 years, so it will experience the Beidou constellation developing period from regional to full. As far as FY3-C satellite is concerned, its designed life is five years, when the Beidou constellation is at regional service stage. Therefore, refer to FY3 GNOS mission, corresponding Beidou is described as “Beidou”, and refer to FY3-C satellite, corresponding Beidou is described as “regional Beidou constellation”.

The simulation results of Beidou aimed at FY3-C, So the Beidou is regional constellation. In order to express more clearly, I have modified the Fig.2's caption as “Global distribution of GNOS Beidou (regional Beidou constellation) occultation events in 24-h simulation”. Now, I would like to explain why it's harmonized: The regional Beidou constellation consists of 5 GEO, 5 IGSO and 4 MEO, because the exist of MEO (similar with GPS satellites) and IGSO (the trajectory on ground looks like a huge number 8), they result in the harmonized distribution. Refer to the Fig. 3, it's global distribution of GPS occultation (FY3-C is sun-synchronous polar orbits), I think it should present the feature of symmetrical distribution and global coverage.

Specific comments:

1. Title.

Response: I think it's a good advice, I would like to adopt it, but some of other co-authors think it's too long, so we would like to maintain the original one.

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2. PERFORMACE to PERFORMANCE

Response: Yes, I have corrected it in the new update version paper.

3. Abstract : Define the acronyms before using them in the text.

Response: Yes, I have corrected it in abstract in the new update version paper.

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 satellitesystems. (Make the appropriate changes to the document)

Response: This sentence has been revised in discussion version paper “amtd-7-703-2014.pdf”

5. Abstract: Line 17 “. GNSS” to “. The GNSS”

Response: This has been revised in discussion version paper.

6. Abstract: Line 20 “ Center” to “the Center”

Response: Because “Center for Space Science and Applied Research, Chinese Academy of Sciences” is a name of our institute, so we think it should not add “the”.

7. Abstract: Line 20 “object” to “objective”

Response: It has been revised in discussion version paper.

8. Line 23, change “studying field” to “studying fields”

Response: It has been revised in discussion version paper.

9. Line 25 “about” to “of” and “events number” to “events, number” and “under the situation of Regional” to “when using the regional”

Response: It has been revised in discussion version paper.

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10. Abstract: Line 1 p2 remove “in China and gained the Beidou mountain-based occultation data firstly”

Response: It has been removed in discussion version paper.

11. Abstract: Line 2 p2 remove “Moreover,”.

Response: It has been removed in discussion version paper

12. Abstract: Line 3 p2 “shows” to “showed”

Response: It has been revised in discussion version paper

13. Abstract: Line 3 p2 “lower” to “low”

Response: Yes, I have modified it in the new update version paper.

14. Introduction: Line 11 p2 “orbiters” to “orbits”

Response: Yes, I have modified it in new update version paper.

15. Introduction: Line 12 p2 “A GNSS” to “a GNSS”

Response: It has been revised in discussion version paper.

16. Introduction: Line 17 p2 “first used to” to “first used for ”

Response: Yes, I have corrected it in new update version paper.

17. Introduction: Line 28 p2 “fully” to “full”

Response: It has been revised in discussion version paper.

18. Introduction: Line 30 p2 “even” to “evenly”

Response: It has been revised in discussion version paper.

19. Introduction: Line 1 p3 “surface” to “Earth’s surface”

Response: Yes, I have corrected it in new update version paper.

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20. Introduction: Line 12 -14 p3 the sentence needs to be rewritten.

Response: It has been revised in discussion version paper.

21. Line 5 p4 “ , “ to “ , ”

Response: It has been revised in discussion version paper.

22. Line 5 p4 “ , “ to “ , ”

Response: It has been revised in discussion version paper.

23. Line 7 p4 “ , one” to “ and one “

Response: It has been revised in discussion version paper.

24. Line 22 p5 “COSMCI” to “COSMIC”

Response: It has been revised in discussion version paper.

25. Line 13 p5 the sentence needs to be rewritten or removed.

Response: Yes, I have corrected it as “the GPS L1 signal is tracked in open loop in parallel with the closed loop tracking.” in new update version paper.

26. Line 7 p7 what do you mean by “Beidou constellation ins invalid”

Response: It has been revised as ” in that period the Beidou constellation was not operating” in discussion version paper.

27. Line 14 p7 what do you mean by “valid occultations”

Response: It has been revised as ” Most of the valid occultations occurred viewing toward the south (180 degrees).” in discussion version paper. “valid occultations” means the occultation events could be received and used.

28. Conclusion Line 27 p8 sentence needs to be rewritten.

Response: It has been revised in discussion version paper.

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We have tried our best to revise and improve the manuscript and made great changes in the manuscript according to your invaluable comments. We appreciate for your warm work earnestly, and hope that the corrections will meet with approval. The new update version paper is enclosed in supplement. Thank you very much.

Yours sincerely, Bai Weihua

Please also note the supplement to this comment:

<http://www.atmos-meas-tech-discuss.net/7/C604/2014/amtd-7-C604-2014-supplement.pdf>

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

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