

## ***Interactive comment on “A simulated observation database to assess the impact of IASI-NG hyperspectral infrared sounder” by Javier Andrey-Andrés et al.***

### **Anonymous Referee #2**

Received and published: 31 October 2017

#### Review:

This paper provides a relatively straightforward analysis of the differences in performance between IASI and IASI-NG. This is of interest to the Earth Observation community. However, I think the paper as it stands is not suitable for publication in AMT. This is because I think the authors need to address the representativeness of their results, so that the scientific community can assess how, in general, IASI-NG is an improvement on IASI. I provide details in the specific comments below. The authors should also address the other specific comments.

#### Specific comments:

C1

P. 1

L. 21: Please provide more details than “experimental purposes”.

P. 2

L. 1: Check grammar, here and elsewhere: “. . .much of the information is. . .”.

L. 6: Perhaps provide more details of the “conservative” approach.

L. 8: Usefulness of the channels for what?

L. 10: What is the operational mission?

L. 14-15: “. . .Medium-range Weather Forecasts”.

L. 17: Impact on what parameter? What other data did the Met Office assimilate?

L. 19: What large-scale variables?

L. 28: What other instruments?

L. 33: I suggest you replace “race” with “effort”.

P.3

L. 1: I would suggest you use a word different from “figures”.

L. 3 (and elsewhere in this paragraph): OSSEs.

L. 8: Perhaps write: “. . .typically mimic. . .”.

L. 11-13: Explain the advantages of using two different radiative transfer models.

L. 17: last -> latter.

L. 34: Larger noise than what?

P. 4

L. 6: If you use British spelling, it should be “programme”.

C2

L. 17: What is an adequate refractive index?

L. 17-18: I suggest you rephrase "The noise requirements. . . two."

P. 5

Table 1: There seems to be a missing entry (NedT for IASI).

Sect. 3: The database uses one day per season. Could you discuss if this is enough to be representative of seasonal conditions?

P. 6

L. 5: Provide more details of how you apply the noise. There are four NedT curves in Fig. 1.

L. 11: You use the MACC data for each of the four dates you mention previously in the paper?

P. 7

L. 29: Provide examples of this use of RTTOV.

P.8

L. 22-23: I do not understand this phrase.

P. 9

L.7: Perhaps the authors could provide a reference for the statement about uncertainties of cloud radiative properties.

L. 15: "...five latitude belts. . .".

P. 10

L. 7: What is the point of Fig. 3?

P. 12

C3

L. 9: Introduce acronyms like ppmv. Grown up -> increased.

L. 10: Clumsy use of "outdating". Reword.

P.14

L. 5-6: Clumsy construction; please rephrase.

P. 19

Fig. 8: Indicate the meaning of the colours in the plots.

P. 20

L. 5: Avoid subjective words like "striking".

L. 17: This explanation is not very clear to me. Please clarify.

P. 21

L. 13+: As I see it, this paper shows that IASI-NG performs better than IASI. Is this to be expected? I presume that the value of the paper is that you quantify this improvement. How representative is this improvement? I would suggest that you discuss these points in the conclusions section.

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C4