Response to the Referee's Comments

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I would like to thank the referee for his second review. We hope that the newer version has improved the paper

1 General comment

> There are still several syntactical, linguistic and editorial errors in the manuscript, especially in the abstract and paragraph 4.2.4. Thus, I suggest that the authors should try harder to improve it.In the following there are indicative recommendations for a number of corrections, but there are more that have to be done and additional work is necessary.
> In the present study a standard SSA of 0.95 was used. Though, there are studies suggesting that the SSA in the UV may range between much lower values (e.g. 0.6) and values close to unity. Although for very low values of AOT (such as those that are usual at Reunion Island) changing the SSA would not induce important changes in the models output, I believe that it would be useful to quantify the possible errors/uncertainties due to the use of a standard SSA.
> The differences between the simulated UVI for different ETS are surprisingly large. I believe that the dependence from ozone and SZA denotes very large differences betweenthe UV-B wavelengths of the spectra from Dobber and Chance & Kurucz. Are there any other differences between these two spectra (e.g. different spectral resolution/analysis) which could induce such large differences in the simulated UVI?

Regarding the general comment, we tried to correct the remaining syntactical, linguistic and editorial errors. We greatly appreciate the effort the referee did to point them out in the specific comments.

We agree with the reviewer's comment about SSA. It would be useful to quantify errors due to a constant SSA but we feel like it would be more suited for a future study dedicated on UVI modelling sensitivity to aerosols.

The referee is right, most of the difference between Dobber and Chance & Kurucz spectra are in the UV-B range. Nonetheless, as input for TUV model both spectra have a 0.01 nm resolution.

2 Specific comments

The following errors have been corrected.

2.1 Abstract

> The text of the abstract should be rearranged so that its meaning is clearer. For example: The first two paragraphs of the introduction could be rearranged so that it is easier for the reader to follow them. The first paragraph should answer to the question: why studying SUR is important? while the second paragraph should answer to the question: why studying SUR over the tropics - and in particular in the Reunion Island is important? After the first two paragraphs, there should be a general description of what has been done in this study, i.e. move the text of P2, L1-3 there. The discussion for the cloud filtering is also divided in two paragraphs (5 and 6). I suggest making this discussion in a single paragraph (i.e. move the relative information from the last paragraph since it is not one of the main findings of the study).

Following the reviewer suggestions the structure of the abstract has been reworked. It should be now easier to read.

> 1. P1,L4: Define SUR here instead of P2, L20

Corrected. P1, L1

> 2. P1, L18: Delete radiation

Corrected. P1, L15

> 3. P2, L4: SUR was instead of ultraviolet radiations were

Corrected. P2, L1

> 4. P2, L5: was based instead of based and while the second was based on applying instead of the second applying

Corrected. P2, L2

> 5. P2,L10: "were derived" instead of "came"

Corrected. P2, L9

> 6. P2,L11: "using" instead of "with respect to"

Corrected.

2.2 Introduction

> 7. P2, L20: However, large instead of Large

Corrected. P2, L15

> 8. P2, L21: Delete As

Corrected. P2, L16

> 9. P2, L28: depends instead of depending

Corrected. P2, L24

> 10. P3, L8: Do you mean by absorbing and scattering processes in the atmosphere instead of by the atmosphere and scattering processes?

Corrected. P3, L3

11. P3, L23: and instead of they.

Corrected. P3, L18

12. P3, L23: What caused the reduction of 15.2%?

Corrected. P3, L18

13. P3, L24: usually reduce instead of can reduce

Corrected. P3, L19

14. P3, L27: role instead of part

Corrected. P3, L22

15. P3, L34: integral instead of integration

Corrected. P3, L29

16. P4, L11: projections instead of projection

Corrected. P4, L6

17. P4, L32: parameters instead of parameter

Corrected. P4, L27

2.3 Dataset

18. P5, L20: rephrase

Corrected. P5, L18

19. P5, L27-28: which one is the first paper and which one is the second paper?

Clarification has been added. P5, L25

20. P6, L1-8: I think that this information is not related with the present work and I suggest removing it.

We removed the information about the ASCO activity but kept Orphal et al. (2016) result in a more concise form. P5, L27

21. P6, L12: The cloud observations are performed at a distance of 10 km from the location of the measurements, but where (i.e. east, west, ...)?

Corrected in the manuscript, the cloud observations are performed 10 km north of the measurements. P6, L4

2.4 Clear-sky filtering

22. For consistency I suggest using either clear-sky or clear sky throughout the entire manuscript.

Corrected. "Clear-sky" is now used throughout the entire manuscript.

23. P6, L19: observations instead of observation

Corrected. P6, L11

24. P7, L6: relative to instead of higher than

Corrected. P6, L27

25. P7, L8: At around instead of Around

Corrected. P6, L30

26. P7, L13: Delete with

Corrected. P7, L3

2.5 UV modeling

27. P7, L28: I suggest explaining in short why the used approximation is more accurate.

Corrected. P7, L19

28. P8, L11: performed instead of taken

Corrected. P8, L9

29. P10, L20-P11, L13: This paragraph is very badly written and confusing. I suggest rewriting it more carefully.

Corrected. P10, L21 - P5, L14

2.6 Model Validation

30. P11, L15: Declare that you compare the observations with the model output.

Corrected. P11, L14

31. P11, L17: I suppose that you mean the sensitivity of the model output on TO3. You should make it clear here.

Corrected. P11, L16

32. P12, L6: what means very clear sky?

Following on the first referee's comment, the entire statement here was deleted.

33. Figure 8: In my opinion, the equations are not necessary in the legends of figures 8(a) 8(d) since there is an explanation of what is RAF P and RAF L . In the legend of figures 8(a) and 8(b), the value of RAF would be enough.

Corrected.

34. P12, L18: This range of SZAs is instead of These ranges of SZA are, measurements instead of measurement, the annual instead of annual, lower instead of low

Corrected. P12, L20

35. P12, L20: in figure instead of on figure. This is applicable to the entire manuscript.

Corrected.

36. P13, L14: Writing that the agreement between the measured and modeled UVIs is the best when the SBUV dataset is used as input would be more accurate than writing that the results RTUV03 is the best. The fact that the agreement is optimal does not necessarily mean that RTUV03 is the best.

Corrected. P13, L20

37. Figure 9: The title of the x-axis is below each sub-figure of fig. 9a, while at fig 9b it is only below the last sub-figure. For consistency I suggest removing the x-axis title from the five upper panels of fig 9a.

Corrected. P25