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Atmospheric Measurement Techniques Discussions

Interactive comment on "Optimised degradation correction for SCIAMACHY satellite solar measurements from 330 to 1600 nm by using its internal white light source" *by* Tina Hilbig et al.

Anonymous Referee #2

Received and published: 13 January 2020

General comments:

This paper deals with new progress about the instrumental corrections of the SCIAMACHY data. The special interest is to improve the solar spectral data. The paper is well written and contains interesting and important results for users of SCIAMACHY data. I would like to recommend the publication of this paper in AMT. I have the following minor comments and questions.

Specific comments:

1. p2, line 27: "Shortly after SCIAMACHY,. . .". Add "launch" after SCIAMACHY.

2. p3, line15: Please add some comments about the contamination problem: Is SCIAMACHY's contamination problem worse or better when compared with similar instruments? If worse, what went wrong?

3. p3, line 15: Please, tell briefly about water and the other contaminants: Are they always on separated surfaces (mirrors, diffusers, detectors)?

4. p3: Perhaps you could say something about occultation instruments, which are to some extent more resilient to contamination problems due to the self-calibrating property.

5. p7, line 10: Another kind of. . . . Is this story part of the story on line 13 where you tell that "there are basically two types. . ."? I am confused.

6. p7, line 25: You have detected spectral features by the ESM diffuser. On line 26 you say that's why the ASM diffuser was added but without pre-launch calibration. Are you sure that ASM does not have similar spectral features than ESM?

7. p12, line 5: I get the impression that the ASM diffuser contamination increases along the mission, but the ESM contamination remains constant. Is this right and what is the reason?

8. p14, line 5: Could you tell something more about the change of the thermal environment?

9. p15, line 22: outlier ->outliers

10. p16, line 5: At 330nm in Fig. 10 the SIM curve seems to deviate clearly from the other curves, but your comment is more positive. Could you explain?

11. p18, Conclusions: Your conclusions are quite upbeat which is understandable after very tedious and extensive work. But if I consider the results shown in Fig.10 to be the most important outcome, the situation is not looking very promising. Is it possible that something important is still waiting to be found?