Atmospheric
Measurement
Techniques

Discussions

Interactive comment on "In-flight performance of the Ozone Monitoring Instrument" *by* V M. Erik Schenkeveld et al.

Anonymous Referee #2

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This manuscript presents a comprehensive overview of the Ozone Monitoring Instrument, the calibration procedures, the instrumental performance and its evolution in time. With the notable exception of the row anomaly, OMI is a very stable instrument and this paper documents well the various components of the calibration chain and their respective performance. It is generally well written and illustrated by a large number of figures facilitating the reading. As the first referee said, the manuscript has already been consolidated before. I have a limited number of comments and I recommend the publication of this manuscript within AMT once they have been considered.

Comments

- In L2 retrieval algorithms using OMI observations, it is often recommended to use consolidated static solar spectra (taken at the beginning of the mission) as the refer-

ence. This is not addressed at all in the manuscript. Could you add this information in the manuscript where it fits the best, explain how these consolidated sun spectra have been constructed and what are the actual limitations with the daily recorded sun spectra and if there are some specific conditions where it would be profitable to use them anyway.

- For the in-flight stray light characterization based on the monitoring of the position and shapes of a few isolated absorption lines in the Earthshine spectra, can inelastic scattering (Ring effect) perturb the procedure? Inelastic scattering tends to reduce the line depth, similarly to presence of stray light.

- Appendix A: In eq. (A.12), what do the scaling parameters sf represent? Is it not somewhat redundant with the fit parameters a_n? Please clarify the physical meaning of these parameters. Also, you should specify that the reference spectra (O3 and Ring cross-sections, reference sun spectrum) need to be pre-convolved at the instrumental resolution before the wavelength calibration fit. Or is there some kind of fit of the slit function during the wavelength calibration itself? Have you monitored the possible time evolution of the instrumental slit functions (depending on the spectral range and row)?

- In table 1, for the UV1 channel, the spectral sampling appears to be not sufficient for the corresponding spectral resolution (only 1.9 pxl for the specified FWMH). Does it mean that the recorded spectra are undersampled? What are the implications for L2 products?

- In the original version of the manuscript submitted to ACPD, there was a section making the link with L2 retrievals. Unfortunately, this section has been removed. I would recommend to put it back as the motivation of having well characterized and calibrated OMI spectra is obviously to generate afterwards L2 geophysical products of very high quality (which is indeed the case with OMI).

Technical comments

- Page 1 - lines 25-26: Capitalize 'SCIAMACHY' and 'EUMETSAT'.

- Page 2 - line 19: replace "it's" by "its" (two occurences)

- Page 4 - line 5: "The QVD diffuser is used"

- Page 7 - line 21: add "(RTS)" after "random telegraph signal"

- Page 7 - line 30: Specify which gain is assigned to which part of the spectrum (spectral range).

- Page 10 - line 3: "This analysis has been done" and not "This analysis is been done"

- Page 11 - line 19: define "SORCE"

- Page 12 - Figure 19: in the figure legend, I think there is an inversion between green and red for UV2 and VIS.

- Page 19 - line 7: Sentence truncated?

- Page 19 - line 19: "lest uncertainties"?? - Sentence not clear

- Page 21 - line 17: "These variations are most ??" - add "likely" after "most".

- Page 26 - line 21: "data rate" instead of "datarate"

- Page 29 - line 2: "For irradiance measurements, the ozone and Ring absorption spectra are excluded..."

- Figure 25: add "is" after "while the NASA algorithm"