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Atmospheric Measurement Techniques Discussions

Interactive comment on "A Comparative Evaluation of Aura-OMI and SKYNET Near-UV Single-scattering Albedo Products" *by* Hiren Jethva and Omar Torres

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The referee is encouraged to refer our response to comments and concerns raised by the anonymous referee # 2, where we have incorporated additional analysis to the manuscript.

RC: The paper is very interesting because it is the first time a comparison study is performed using a large number of SKYNET sites and products from this network. In addition, the results are very important for the developers of Skyrad pack improvements, particularly for what concern the assumption of fixed value of Surface Albedo. AR: We appreciate the reviewer for the constructive comments. In the OMI-SKYNET compari-

son, we have considered all SKYNET stations whose data are freely accessible online from Chiba University SKYNET server. As the referee as stated here, the purpose of such comparison, particularly when both quantities are not directly measured but retrieved using respective algorithms, is to understand and diagnose the (dis)agreement between the two datasets to improve the accuracy of both retrievals.

RC: Lines: 65-66: specify if the change of estimated radiative forcing refers to the top, bottom or middle atmosphere. AR: The sentence is modified as "Together, both AOD and SSA determine the magnitude and sign of the aerosol radiative forcing at the top-of-atmosphere."

RC: Line 170: both the POMs models take also measurements at 315 and 940 nm for Ozone and water vapour retrieval. Add this information here and in line 178. AR: The header information given in both POM-01 and POM-02 datasets states that the former sensor carries a total of five wavelength filters covering visible to near-IR (400-1020 nm), whereas the latter has two additional filters in the UV region (340 and 380 nm) along with the other filters in the visible to shortwave-IR (including 1627 nm and 2200 nm) part of the spectrum. These data files do not mention the use of 315 and 940 nm for Ozone and water vapor retrievals.

RC: Line 186: remove and between University and Valencia AR: Corrected.

RC: Line 255: add "carbonaceous/smoke" AR: Corrected.

RC: Lines 255-257: it not clear to me according to which parameter has been considered the 5 listed sites better than the others. Moreover looking at Figure 2 the largest percentage of agreement is for Q_0.05 and not 0.03. AR: The sentence referred here is for the carbonaceous/smoke aerosol type (red dots in the scatterplots), for which the majority of matchups are confined within the difference of 0.03. For the overall compassion between the sites, we considered RMSD and % matchups falling within 0.03/0.05 as criteria. Lower RSMD and higher % matchups (Q_0.03 & Q_0.05) suggest a better comparison between OMI and SKYNET SSAs.

RC: Line 348, it is better specify that the assumption of fixed ground albedo in Skyrad pack can be changed in time and wavelengths, if necessary. For example in ESR/SKYNET, Antarctica sites are processed with different values. AR: The first two sentences are revised as “The standard SKYNET inversion algorithm assumes a wavelength-independent surface albedo of 0.1 at all wavelengths across the UV to visible part of the spectrum. However, the algorithm code allows flexibility to alter the value surface albedo in time and wavelength (Campanelli et al., 2015).”

RC: I still suggest using greater characters for Figure 2, 3, 4. It has been difficult reading the statistics values. AR: Figure 2, 3, and 4 are reproduced with bigger size characters and numbers.

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