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Discussions

Interactive comment on "A study of the approaches used to retrieve aerosol extinction, as applied to limb observations made by OSIRIS and SCIAMACHY" *by* Landon A. Rieger et al.

Anonymous Referee #2

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General comments: The paper investigates sources and magnitude of various systematic differences between OSIRIS and SCIAMACHY aerosol retrievals as compared to SAGE II aerosol extinction coefficient measurements, using coincident measurements and simulations. ÂăIn an interesting approach, it also applies both algorithms to both datasets datasets in order to investigate the effect of assumptions made by each algorithm. The paper is well written and includes some interesting findings. I would like to recommend for publication subject to minor changes.

Specific comments:

1- Equation 1 and the description don't match, need to explain m and N. Are you using

C1

a single or range of altitudes for normalization? If so, what is the range of altitudes used?

2- Section 2.2, can you briefly comment on the aerosol retrieval improvements of the updated V1.4 over the previous version?

3- Figure 7 and discussions are difficult to follow. Is the extinction error at different altitudes similar to 20km? I'd suggest plotting the comparison as profiles, for selected scattering angle and Angstrom coefficient range, or something similar and modify the text accordingly. The error due to particle size assumptions is very important and should be presented better.

4- Page 11, I find the discussion of this section and Fig 9 in particular lacking. Can you comment on IUP improvement of OSIRIS measurements (panels A B, G, H) compared to USask retrieval? Is it a result of using constant and higher normalization altitude used by the IUP retrieval?

5- Figure 2, the legend box needs to be moved to another position that doesn't interfere with the plot.

6- Page 12, last paragraph "Future retrievals would benefit from …." I'd like to see specific recommendations for each algorithm, rather than a general statement that all algorithms can benefit from.