

Review of Arosio et al. (egusphere-2026-5113)

General: This article provides a viable solution to improving the retrievals of ozone from measurements of limb scattered radiance in the UV-Visible spectral range under conditions of large-scale spatial gradients in surface albedo and cloud distributions. Specific examples of retrieval errors were presented in previous work by these researchers. The article is worthy of publication after successfully addressing specific comments noted below.

Specific Comments:

Line 43: Define how anomalies are calculated.

Line 154-158: Does SCIATRAN 4.8 additionally perform pseudo-spherical multiple scattering with the solar zenith angle appropriate at each geophysical grid point? Said another way, does v4.8 allow both solar zenith angle and reflectance variations for the multiple scattering computations.

Figure 4: The 3 albedo plots should be combined into a single plot.

Figure 4: What albedo is plotted? Is it the 1-D retrieval or that from VIIRS?

Figure 6: What reflectivity is this? It would be instructive to see both the 1-D retrieved equivalent reflectance for each grid retrieval and the VIIRS.

Figure 6: To model the underlying albedo in SCIATRAN v4.8, can the 1-D retrieved reflectance be used instead of the VIIRS averaging?

Figure 6: What is the nominal bias between MLS and OMPS-LP?

Figure 7: Please add plots like these, but for the 1-D retrieval.

Line 252: Do you have a reference for this? I would classify it as errors in the assumptions about aerosol, more specifically the aerosol size distribution. Why is the impact strongest in the Northern Hemisphere? Perhaps a smaller single scattering angle from the Sun leading to scenario of aerosol scattering is a larger component of the measured limb scatter signal. Either cite a reference about why the aerosol impact is larger in the NH, or explain it in the text here.

Figure 11: Why are OMPS LNM results for Hohenpeissenberg showing significantly different results from other datasets for dates prior to mid-2019?

Figure 11: What is the gray shaded region - standard deviation for ozone sondes only? What about the other time series?