

Reply to Anonymous Reviewer #1:

The papers referenced by Reviewer #1 are primarily dealing with retrieval of size distribution from spectral AOD measurements. In these cases there is just one set of observations to constrain aerosol particles size, volume concentration and the complex index of refraction. To retrieve size distribution, the index of refraction must be fixed *a priori*. Ambiguity in the choice of the index of refraction results in uncertainties which affect both aerosol particles size and volume concentration.

In the case of AERONET however, the spectral measurements of sky radiances provide additional constraints for the aerosol particle size inversion. Thus while variability in the real part of refractive index results in additional variability in volume concentration this does not affect AERONET retrievals of volume median radius.