

Interactive comment on “Odin-OSIRIS detection of the Chelyabinsk meteor” by L. A. Rieger et al.

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We would like to thank the referees for their comments and suggestions.

We agree that more accurate extinction and particle size estimates would be useful if available. However, we don't believe applying the OSIRIS particle size and extinction retrieval to this meteoric aerosol is appropriate. Both the OSIRIS and OMPS algorithms rely on the stratospheric aerosol being composed primarily of spherical sulphate droplets with a lognormal size distribution. While in situ measurements have shown this is reasonable for both background and volcanic conditions, we have seen no evidence to suggest that particles from the Chelyabinsk meteorite would conform to these assumptions. Retrieving extinction and/or particle size is therefore qualitative, which the scattering ratio provides.

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Despite the limitations we believe measurements of the scattering ratio do add to the scientific discussion. This quantity is very similar to the backscatter ratios often reported by lidar instruments and, to the authors' knowledge, is the only confirmation of the long-term effects of the Chelyabinsk meteor observed by OMPS.

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