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Interactive comment on “Single scattering by realistic, inhomogeneous mineral dust particles with stereogrammetric shapes” by H. Lindqvist et al.

Anonymous Referee #1

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Synopsis: scanning-electron microscope images were used to construct the 3D geometries of dust particles whose compositions were inferred from energy-dispersive spectroscopy measurements. The obtained dust morphologies and compositions were applied to light scattering simulations performed with the discrete dipole approximation.

Overall, the manuscript is well written. No major technical errors were found. The study can be a useful contribution to the literature of the scattering of light by small particles. The manuscript can be accepted for publication after some minor revisions.

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- 1) The major weakness of this study is the upper limit of the size parameter range is only 16, a value that is small in the case of dust particles at a visible wavelength.
- 2) It is shown that the single-scattering properties, averaged over a size distribution, are not sensitive to the detailed size distribution features for given effective variance and effective particle size. If the cutoffs of the size parameters are 0.5 and 16 at the lower and higher ends, respectively, the single-scattering properties may be sensitive to the specific size distribution used.
- 3) Typo in the first paragraph of Section 3: “elecron microscopy” should be “electron microscopy”.
- 4) It suggested that the variation of the extinction efficiency versus the size parameter be presented for the various cases considered in this study.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 18451, 2013.

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