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Geoscientific Model Development Discussions

Interactive comment on "MOPSMAP v0.9: A versatile tool for modeling of aerosol optical properties" *by* Josef Gasteiger and Matthias Wiegner

Anonymous Referee #2

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The manuscript presents a potentially very helpful tool for the aerosol remote sensing community, MOPSMAP v0.9, including some possible applications for the software. The description of the software characteristics is thorough, providing the future user with a clear picture of the software capabilities, along with its "limitations" (e.g. interpolation and sampling error). I strongly support the manuscript publication, after the following (minor corrections).

1. Make the fonts in the Figures/plots large enough for easy visualization.

2. Section 2.1: Provide the definition of the irregular-shape radius.

3. Page 4, lines 27-28, page 5, line 1: "The real part mr determines the speed of light

inside the particle and therefore the refraction of waves on the particle surface in the macroscopic sense": I think this is an over-simplification that may be misleading for a young scientist. It is better to omit it. Otherwise, please provide relevant reference.

4. Page 7, line 21: "The minimum size parameter was selected depending on the maximum size achieved with TMM.": An evaluation of the agreement between the 2 methods is missing here. Please provide an indicative plot, containing e.g. the scattering matrix elements α1 and -b1/a1 (two sub-plots) for indicative cases (e.g. see Fig.2 in Dubovik et al. (2006) -"Application of spheroid models to account for aerosol particle nonsphericity in remote sensing of desert dust")

5. Page 10, lines 8-9: "The transition size parameter between TMM and IGOM is in the range 5< x <125, strongly depending on m and particle shape.": Provide the corresponding ranges for different m and particle shapes in an Appendix.

6. Page 13, lines 5-17: "In case of fixed values of . . . for each mode.": Re-write this section in a more clear way, maybe using some examples. It is not clear what your methodology is here.

7. Page 20, lines 19-22: "For the continental . . . sea salt particles.": Provide relevant references.

8. Page 25, lines 12-13: "In other words. . . radius definitions": Provide a visualization of this discussion in a plot with size distributions corresponding to the different radius definitions.

9. Page 26, line 23-24: "But it also needs . . . partial derivatives": It is not clear what you mean here, it is better to omit this.

10. Page 27, lines 8-13: "A simple approach. . . together with MOPSMAP.": Provide relevant reference(s).

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