

## ***Interactive comment on “Technical Note: Optical properties of desert dust with non-spherical particles: data incorporated to OPAC” by P. Koepke et al.***

**Anonymous Referee #2**

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I do not have major complaints regarding this nice, timely, and useful note. Several minor comments and suggestions are listed below.

Page 3997, line 10. In this context, it would be appropriate to cite more representative publications, e.g.,

Mishchenko, M. I., Hovenier, J. W., and Travis, L. D., eds. (2000). *Light Scattering by Nonspherical Particles: Theory, Measurements, and Applications* (Academic Press, San Diego).

Kahnert, F. M. (2003). *Numerical methods in electromagnetic scattering theory*. J.

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*Quant. Spectrosc. Radiat. Transfer* 79–80, 775–824.

Page 4000, line 1. In addition to the original paper by Waterman, the authors may want to reference updated modern accounts of the T-matrix method, e.g.,

Doicu, A., Wriedt, T., and Eremin, Y. A. (2006). *Light Scattering by Systems of Particles: Null-Field Method with Discrete Sources – Theory and Programs* (Springer, Berlin).

Mishchenko, M. I., Travis, L. D., and Lacis, A. A. (2002). *Scattering, Absorption, and Emission of Light by Small Particles* (Cambridge University Press, Cambridge, UK)

Page 4000, lines 4 and 13. The authors should make a distinction between the aspect ratio and the axial ratio. The aspect ratio is the ratio of the largest to the smallest particle dimensions. The axial ratio is the ratio of one axis (e.g., rotational) to the other. The axial ratio can be smaller or larger than unity, whereas the aspect ratio is always greater than or equal to unity.

General comment. The effects of nonsphericity are well known to strongly depend on the imaginary part of the refractive index (see, e.g., Fig. 10.15 in the above book by Mishchenko et al. (2002)). Therefore, it would be instructive to include a table or a figure showing the refractive indices used. Furthermore, I believe there are indications that different types of dust (e.g., Saharan, Sahelian, Asian, Australian, etc.) have different absorption properties. If so, how representative are the conclusions of this study?

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 3995, 2015.