# PUBLICATIONS

**(Selected for past 15 years, last updated 4/2021)**

**MICHAEL KAHNERT**

https://orcid.org/0000-0001-5695-1356

Swedish Meteorological and Hydrological Institute, Research Department
and
Chalmers University of Technology, Department of Earth and Space Science

## PEER-REVIEWED ARTICLES IN INTERNATIONAL JOURNALS

1. **M. Kahnert** and F. Kanngießer, "Aerosol optics model for black carbon applicable to remote sensing, chemical data assimilation, and climate modelling", *Opt. Express* **29**, 10639-10658, 2021.
2. F. Kanngießer and **M. Kahnert**, "Modeling Optical Properties of Non-Cubical Sea-Salt Particles", *J. Geophys. Res.* **126**, e2020JD033674, 2021.
3. **M. Kahnert**, F. Kanngießer, E. Järvinen, and M. Schnaiter, "Aerosol-optics model for the backscatter depolarisation ratio of mineral dust particles", *J. Quant. Spectrosc. Radiat. Transfer* **254**, 107177, 2020.
4. **M. Kahnert** and F. Kanngießer, "Modelling optical properties of atmospheric black carbon aerosols'', *J. Quant. Spectrosc. Radiat. Transfer* **244**, 106849, 2020.
5. **M. Kahnert** an T. Rother, "Convergence of the iterative T-matrix method", *Opt. Express* **28**, 28269-28282, 2020.
6. F. Kanngießer and **M. Kahnert**, "Coating material-dependent differences in modelled lidar-measurable quantities for heavily coated soot particles", *Opt. Express* **27**, 36368-36387, 2019.
7. **M. Kahnert** and R. Scheirer, "Multiple scattering by aerosols as seen from CALIPSO - a Monte-Carlo modelling study", *Opt. Express* **27**, 33684-33700, 2019.
8. **M. Kahnert**, "Information constraints in variational data assimilation", *Q. J. Roy. Meteorol. Soc.* **144**, 2230-2244, 2018.
9. F. Kanngießer and **M. Kahnert**, "Calculation of optical properties of light-absorbing carbon with weakly absorbing coating: A model with tunable transition from film-coating to spherical-shell coating", *J. Quant. Spectrosc. Radiat. Transfer* **216**, 17-36, 2018.
10. P. Haapanala, P. Räisänen, P. McFarquhar, J. Tiira, A. Macke, **M. Kahnert**, J. DeVore, and T. Nousiainen, "Disk and circumsolar radiances in the presence of ice clouds", *Atmos. Chem. Phys.* **17**, 6865-6882, 2017.
11. **M. Kahnert** and E. Andersson, "How much information do extinction and backscattering measurements contain about the chemical composition of atmospheric aerosol?", *Atmos.*

*Chem. Phys.* **17**, 3423-3444, 2017.

12. **M. Kahnert**, "Optical properties of black carbon aerosols encapsulated in a shell of sulfate: comparison of the closed cell model with a coated aggregate model", *Opt. Express* **25**, 24579-24593, 2017.

13. **M. Kahnert**, T. Nousiainen, and J. Markkanen, "Morphological models for inhomogeneous particles: light scattering by aerosols, cometary dust, and living cells", *Light Scatt. Rev.* **11**, 299-337 2016.

14. J. D. Silver, J. H. Christensen, **M. Kahnert**, L. Robertson, P. J. Reyner, and J. Brandt, "Multi-species chemical data assimilation with the Danish Eulerian hemispheric model: system description and verification", *J. Atmos. Chem.* ***73***, 261-302, 2016.

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16. E. Andersson and **M. Kahnert**, "Coupling aerosol optics to the MATCH (v5.5.0) chemical transport model and the SALSA (v1) aerosol microphysics module", *Geosci. Model Dev.* **9**, 1803-1826, 2016.

17. **M. Kahnert**. "Modelling radiometric properties of inhomogeneous mineral dust particles: Applicability and limitations of effective medium theories." *J. Quant. Spectrosc. Radiat. Transfer* **152**, 16-27, 2015.

18. M. A. Thomas, **M. Kahnert**, C. Andersson, H. Kokkola, U. Hansson, C. Jones, J. Langner, and A. Devasthale. "Integration of prognostic aerosol-cloud interactions in a chemistry transport model coupled offline to a regional climate model", *Geosci. Model Dev.* **8**, 1885-1898, 2015.

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22. **M. Kahnert**, T. Nousiainen, and H. Lindqvist, "Review: Model particles in atmospheric optics", *J. Quant. Spectrosc. Radiat. Transfer* **146**, 41-58, 2014.

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32. M. A. Yurkin and **M. Kahnert**, “Light scattering by a cube: Accuracy limits of the discrete dipole approximation and the T-matrix method”, *J. Quant. Spectrosc. Radiat. Transfer* **123**, 176-183, 2013.

33. **M. Kahnert**, T. Nousiainen, M. A. Thomas, and J. Tyynelä, “Light scattering by particles with small-scale surface roughness: Comparison of four classes of model geometries”, *J. Quant. Spectrosc. Radiat. Transfer* **113**, 2356-3267, 2012.

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39. **M. Kahnert** and T. Rother, “Modeling optical properties of particles with small-scale surface roughness: combination of group theory with a perturbation approach”, O*pt. Express* **19**, 11138-11151, 2011.

40. T. Nousiainen, **M. Kahnert**, and H. Lindqvist, “Can particle shape information be retrieved from light-scattering observations using spheroidal model particles?”, *J. Quant. Spectrosc. Radiat. Transfer* **112**, 2213-2225, 2011.

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52. **M. Kahnert**, “Variational data analysis of aerosol species in a regional CTM: Background error covariance constraint and aerosol optical observation operators”, *Tellus* **60B**, 753-770, 2008.

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56. **M. Kahnert**, “Boundary symmetries in linear differential and integral equation problems, with specific applications to Helmholtz' equation”, *Opt. Commun.* **265**, 83-393, 2006.

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## PEER-REVIEWED CONFERENCE CONTRIBUTIONS

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64. **M. Kahnert** and T. Rother, “A T-matrix approach for particles with small-scale surface roughness”, *Atti Acad. Pelorit. Pericol.* **89**, C1V89S1P045, 2011.

65. T. Nousiainen, **M. Kahnert**, and H. Lindqvist “On retrieving shape information from scattering phase matrices using a distribution of spheroids”, *Atti Acad. Pelorit. Pericol.* **89**, C1V89S1P070, 2011.

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## MONOGRAPHS

1. B. Sun, L. Bi, P. Yang, **M. Kahnert**, and G. Kattawar, "Invariant Imbedding T-matrix Method for Light Scattering by Nonspherical and Inhomogeneous Particles'', Elsevier, Amsterdam, 2020.
2. T. Rother and **M. Kahnert**, "Electromagnetic Wave Scattering on Nonspherical Particles", 2nd edition, Springer, Berlin, 2014.