

Interactive comment on “A microphysics guide to cirrus clouds – Part 1: Cirrus types” by M. Krämer et al.

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Correction of equation to calculate IWC from PSDs

On page 31542 (lines 17-20) of our manuscript we introduced the mass-dimension (m-D) relation we use to calculate cirrus Ice Water Content (IWC) from Particle Size Distributions (PSDs), which is a modified version of a relation derived by Mitchell et al. (2010).

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However, the shown equation is the original from Mitchell et al. (2010):

$$m = a \cdot D^b \quad (1)$$

with

$$\begin{array}{ll} a = 0.082740, & b = 2.814 \quad \text{for } D < 240 \mu\text{m} \\ a = 0.001902, & b = 1.802 \quad \text{for } D > 240 \mu\text{m} \end{array}$$

The relation, modified for ice crystals with $D < 240 \mu\text{m}$ reads as follows:

$$\begin{array}{ll} \text{for } D < 10 \mu\text{m} & \text{crystals are spheres} \\ \text{for } D = 10\text{--}240 \mu\text{m} & a = 0.058, \quad b = 2.7 \\ \text{for } D > 240 \mu\text{m} & a = 0.001902, \quad b = 1.802 \end{array}$$

For more detail see Luebke et al. (2015).

References

- Luebke, A., Afchine, A., Costa, A., Meyer, J., Rolf, C., Spelten, N., Avallone, L., Baumgardner, D., and Krämer, M.: The origin of midlatitude ice clouds and the resulting influence on their microphysical properties, *Atmos. Chem. Phys.*, in preparation, 2015.
- Mitchell, D. L., D'Entremont, R. P., and Lawson, R. P.: Inferring cirrus size distributions through satellite remote sensing and microphysical databases, *J. Atmos. Sci.*, 67, 1106–1125, doi:10.1175/2009JAS3150.1, 2010.

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