

Interactive comment on “The scale problem in quantifying aerosol indirect effects” by A. McComiskey and G. Feingold

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Dear Authors,

I find your manuscript very interesting and thought-provoking, but I have still a small technical question:

You mention on page 26753, line 24, that you use for Na PDF a normal distribution with similar mean as the modelled Na. Is there a specific reason for using a normal distribution?

The aerosol number concentrations are typically log-normally distributed in the concentration space, or in other words the histograms are log-normal in relation to aerosol concentration. This can be seen in histograms on e.g. Asmi et al, 2011.

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This will probably have very minor effect on your results, but I would like to know if there is some actual reason to assume normality?

Refs:

Asmi, A., Wiedensohler, A., Laj, P., Fjaeraa, A.-M., Sellegri, K., Birmili, W., Weingartner, E., Baltensperger, U., Zdimal, V., Zikova, N., Putaud, J.-P., Marinoni, A., Tunved, P., Hansson, H.-C., Fiebig, M., Kivekäs, N., Lihavainen, H., Asmi, E., Ulevicius, V., Aalto, P. P., Swietlicki, E., Kristensson, A., Mihalopoulos, N., Kalivitis, N., Kalapov, I., Kiss, G., de Leeuw, G., Henzing, B., Harrison, R. M., Beddows, D., O'Dowd, C., Jennings, S. G., Flentje, H., Weinhold, K., Meinhardt, F., Ries, L., and Kulmala, M.: Number size distributions and seasonality of submicron particles in Europe 2008–2009, *Atmos. Chem. Phys.*, 11, 5505–5538, doi:10.5194/acp-11-5505-2011, 2011.

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