

Interactive comment on “Sensitivity of warm clouds to large particles in measured marine aerosol size distributions – a theoretical study” by Tom Dror et al.

Tom Dror et al.

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Dear Steve Allen, Thank you very much for having read our work and for your important comment. We have added a phrase to the summary of the paper regarding the issue of microplastic particles. The last paragraph of the paper now reads: “This study demonstrates the importance of the aerosol size distribution in terms of both total number concentration and the aerosol distribution shape, which can impact cloud properties. Currently, most aerosol measurements restrict the upper limit of particle sizes to $D_p = 10 \mu\text{m}$ (i.e., PM10). Consequently, most of the cloud-resolving models, even those using bin-microphysics, do not allow for ultragiant or even giant particles. Many

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of these models use a “typical” ‘wide-marine’ or ‘narrow-continental’ size distribution that does not account for the natural variability in aerosol size distributions or reflect their complexity. Additionally, with the mounting evidence of microplastic particles, with sizes between 4 – 188 μm , present in the atmosphere and in rain (Allen et al., 2020; Brahney et al., 2020) it is of greater importance to include and further study the impact of particles with $D_p > 10 \mu\text{m}$ on clouds and precipitation.” Many thanks.

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