

P4, L5: Change to “binary homogeneous nucleation” instead of “homogeneous binary nucleation”

P8, L5-17: 1° , 2° , 3° and 4° should be replaced with e.g. 1), 2), 3) and 4)

P9, L6-9: “Since AEROFOR assumes that 6 the particles are in balance with the ambient water vapour concentration it might overestimate the wet diameters of the particles.” Do you mean that the water equilibrium is not reached within the 2.7 s simulation time scale, e.g. due to gas and particle phase mass transfer limited water uptake?

You write that the results in Fig 3 is from simulations with BHN. But in the legend to Fig 3 a you write that the nucleation rate is from KIN.

I guess that the dashed lines in Fig 3a are the results from the simulation without COV_s but you need to explain this with a legend or in the figure text.

Sect 3.2: You do not mention what the initial concentration of COV_s and COV_l was in the MARFOR model simulation but the particle composition is dominated by OM_l in contrast to the AEROFOR model simulations where the organic particle mass fraction are entirely OM_s . You need to write what the initial concentrations of COV_s and COV_l was in the MARFOR and motivate the choice of these values. I would like to know how different concentrations of COV_s and COV_l influences the particle number size distribution evolution in MARFOR? Is the modeled number size distribution evolution (with respect to condensation growth) sensitive to the relative concentration of COV_s and COV_l or is the COV_s concentration always much higher than the saturation concentration so that the Kelvin effect is not important for the COV_s either? I am surprised that the particle composition does not seem to differ substantially between the volatile nucleation mode, core mode and soot mode. I would have expected that the OM_l would dominate in the volatile nucleation mode and OM_s more in the core and soot mode if the COV_l uptake onto the nucleation mode was limited by the Kelvin effect. Please explain in the paper why this is not the case.