Supplemental Information for

No particle mass enhancement from induced atmospheric ageing at a rural site in northern Europe

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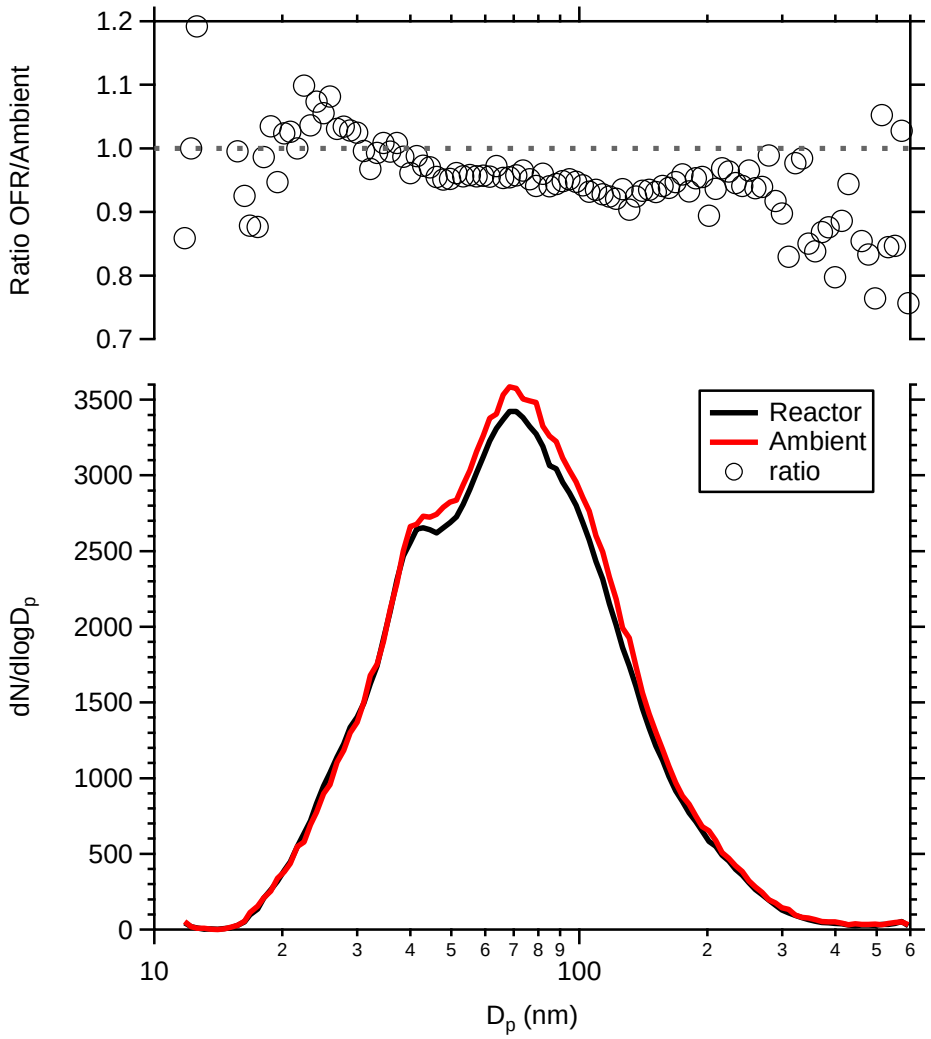

Figure S1. Average size spectrum and size resolved losses in the reactor from a period when the UV lamps were off. The ratio between OFR and ambient data shows significant noise at sizes where the number concentration is low.

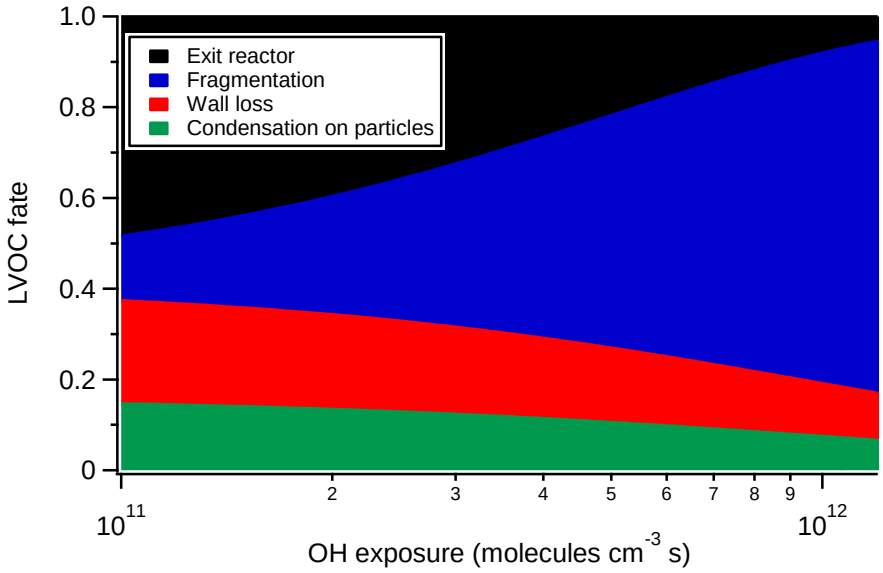

Figure S2. The modeled fractional fate of LVOCs in the reactor as a function of OH exposure. The model was constructed using the same principles as in Palm *et al.* [1]. The settings used were k_{OH}= 1 x 10^{-11} cm^3 $molecules^{-1}$ s^{-1}, a residence time of 160 s, a condensation sink of 1.29 x 10^{-3} s^{-1} (campaign average, corresponding to a surface area concentration of 42 μm^2 cm^{-3}), eddy diffusion coefficient of 0.0042 and wall loss rate of 0,0020 s^{-1}. Loss to fragmentation is assumed after reaction with OH five times.

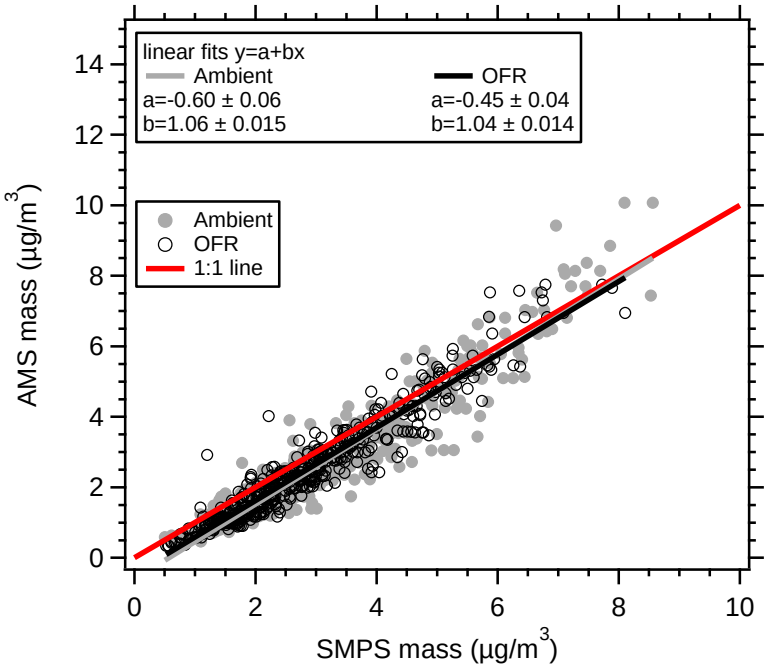

Figure S3. Total AMS and SMPS mass concentrations. The slopes of the data gives the collection efficiency of the AMS. The offset in SMPS mass (a-value) is likely from a constant error at the high end of the SMPS size spectra.

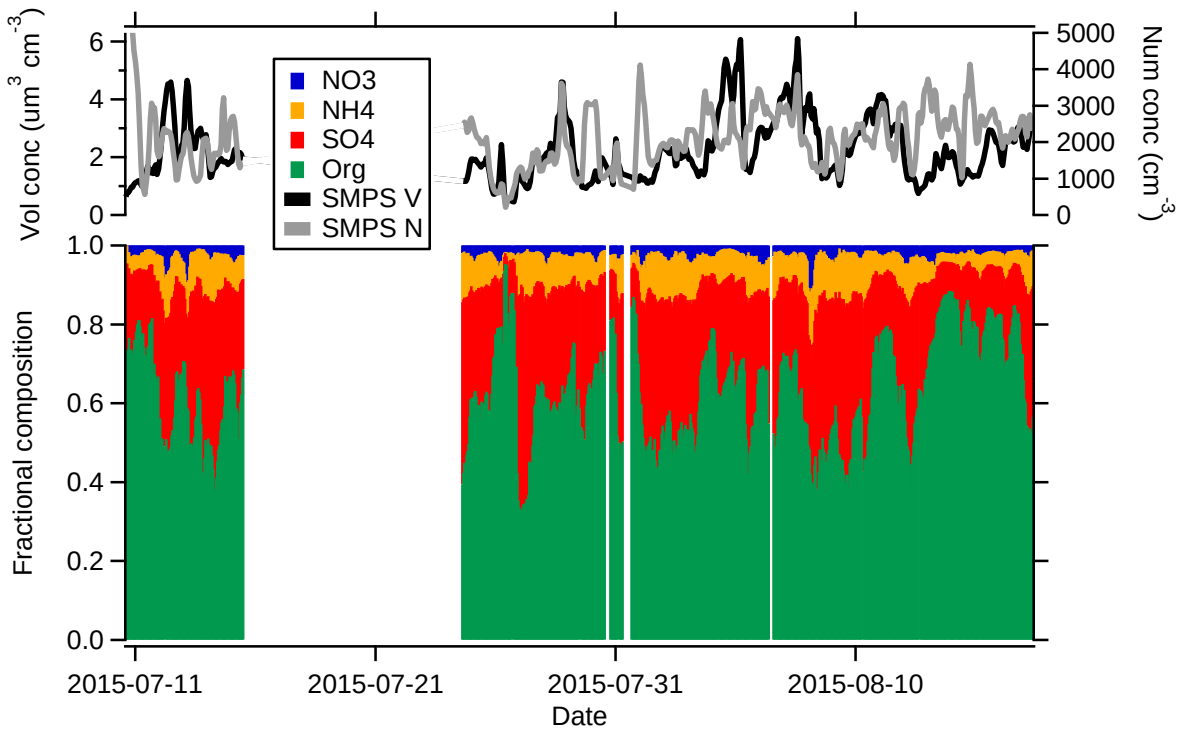

Figure S4. Overview of the campaign showing SMPS number and volume concentrations and AMS chemical composition.

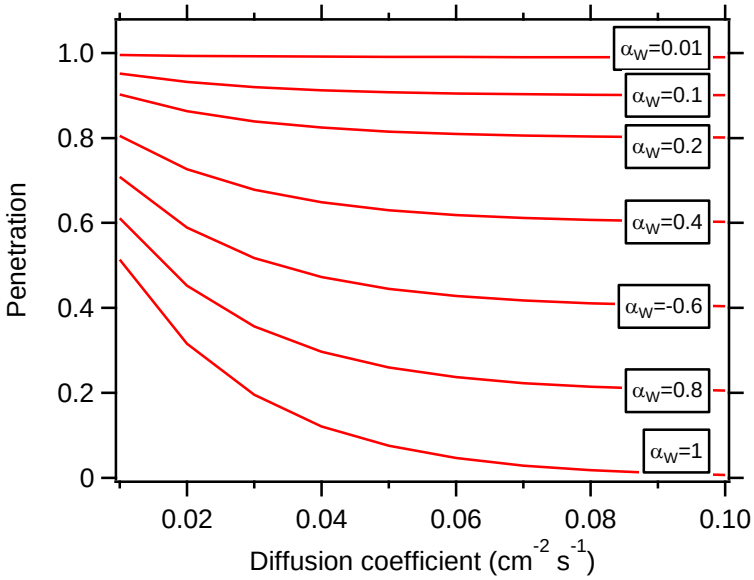

Figure S5. Calculated penetration through the inlet up to the reactor as a function of diffusion coefficients and wall mass accommodation coefficient.

1. Palm, B. B., Campuzano-Jost, P., Ortega, A. M., Day, D. A., Kaser, L., Jud, W., Karl, T., Hansel, A., Hunter, J. F., Cross, E. S., Kroll, J. H., Peng, Z., Brune, W. H. and Jimenez, J. L.: In situ secondary organic aerosol formation from ambient pine forest air using an oxidation flow reactor. Atmos. Chem. Phys., 16, 2943, 2016.