Supplemental Information

1 Data selection calibration experiment

Figure S1 shows the time series of the fragment signals at m/z 23, m/z 58 and m/z 60 collected during the laboratory calibration experiment. After each change in NaCl aerosol concentration, the signal was allowed to stabilize before data acquisition. Aerosol concentrations ranged from 4.6 µg m^{-3} and 26.3 µg m^{-3}, with three concentrations applied for each particle diameter (150, 200, and 250 nm) in a random sequence to minimize potential memory effects.

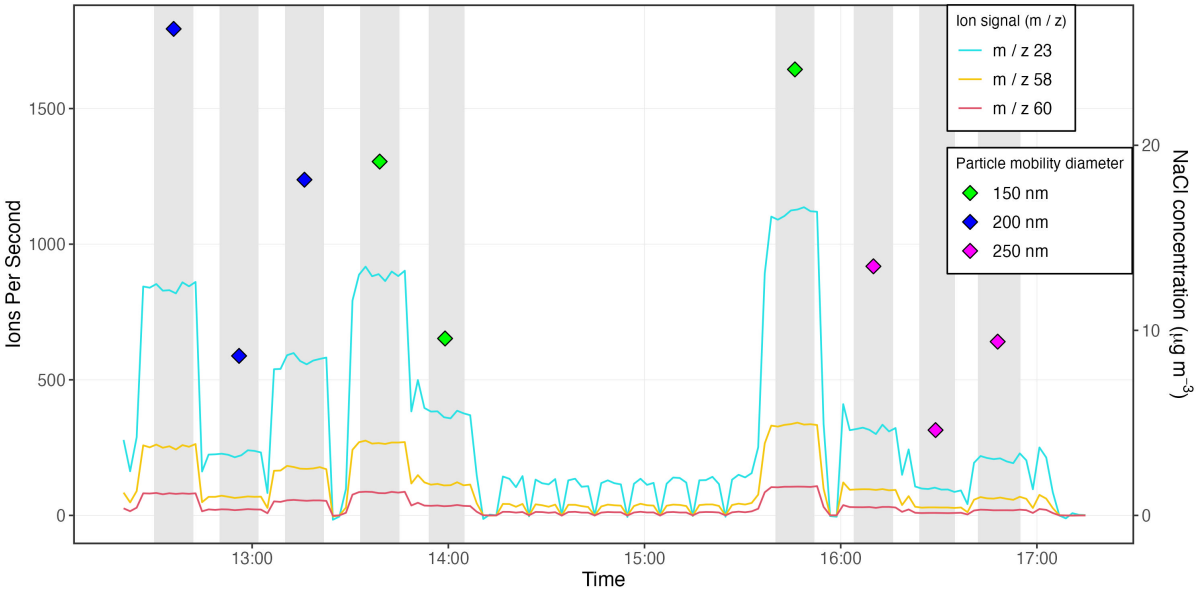

Figure S1: Time series of the fragment signals at m/z 23, 58 and 60 recorded during the laboratory experiment. The grey rectangles indicate the time period during which data was collected. The diamonds indicate the NaCl aerosol mass concentration and particle mobility diameter for each measurement.

2 AIDA chamber experiment 19 January 2024

Figure S2 depicts the time series of the fragments at m/z 23, m/z 58 and m/z 60, and the OA signal calculated using the default fragmentation table for the ToF-ACSM during the AIDA chamber experiment conducted on 19 January 2024. The RH in the AIDA chamber was remained between 90 and 95% during this experiment. Under these high relative humidity conditions complex chemical and physical processes take place in the gas phase as well as in the aqueous phase, however, as can be observed from figure S2 the three NaCl fragment signals remain stable under these conditions.

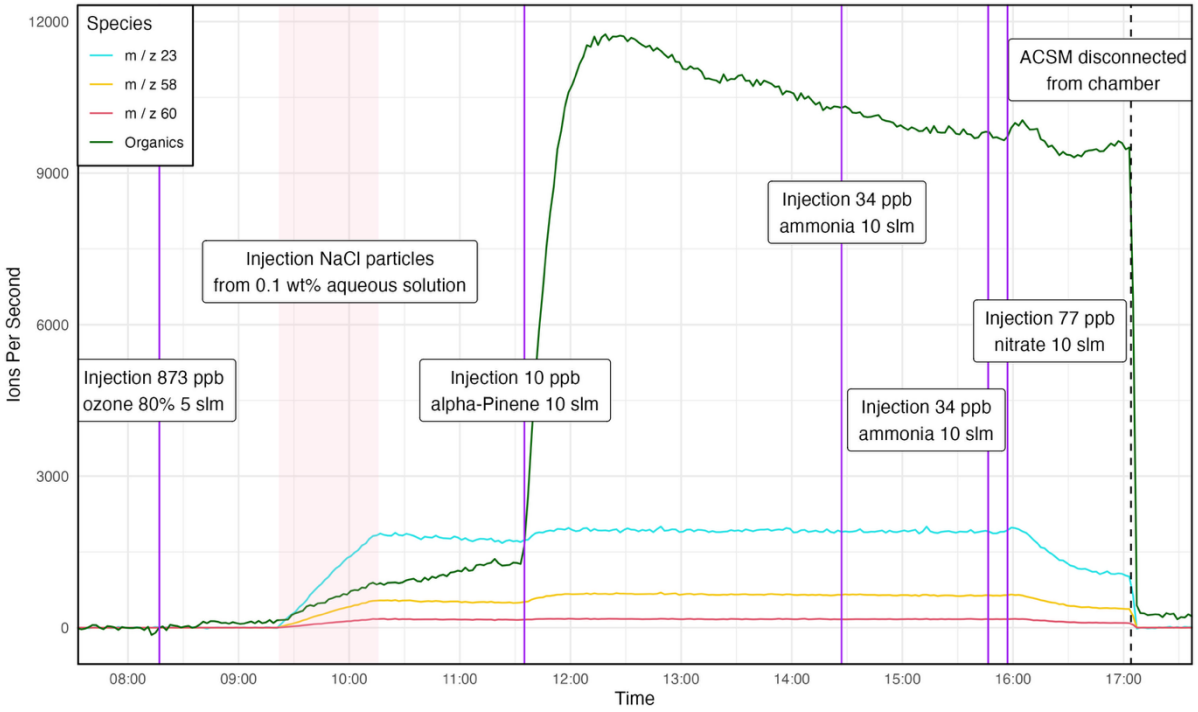

Figure S2: Time series of the fragment signals at m/z 23, 58 and 60 (light blue, yellow, and red, respectively), and the organics signal as assigned by default in the fragmentation table of the TOF-ACSM, during the AIDA chamber experiment on 19 January 2024. The pink shaded area represents the injection of NaCl particles from a 0.1 wt% aqueous solution. The polydisperse aerosol had an average number mode diameter of ±223 nm as derived from the measurements with the two SMPS instruments. The purple shaded area and purple lines represent the injection of 783 ppb ozone, the injection of 10 ppb alpha-Pinene, the injection of 34 ppb ammonia, a second injection of 34 ppb ammonia, and the injection of 77 ppb nitrate, respectively.