



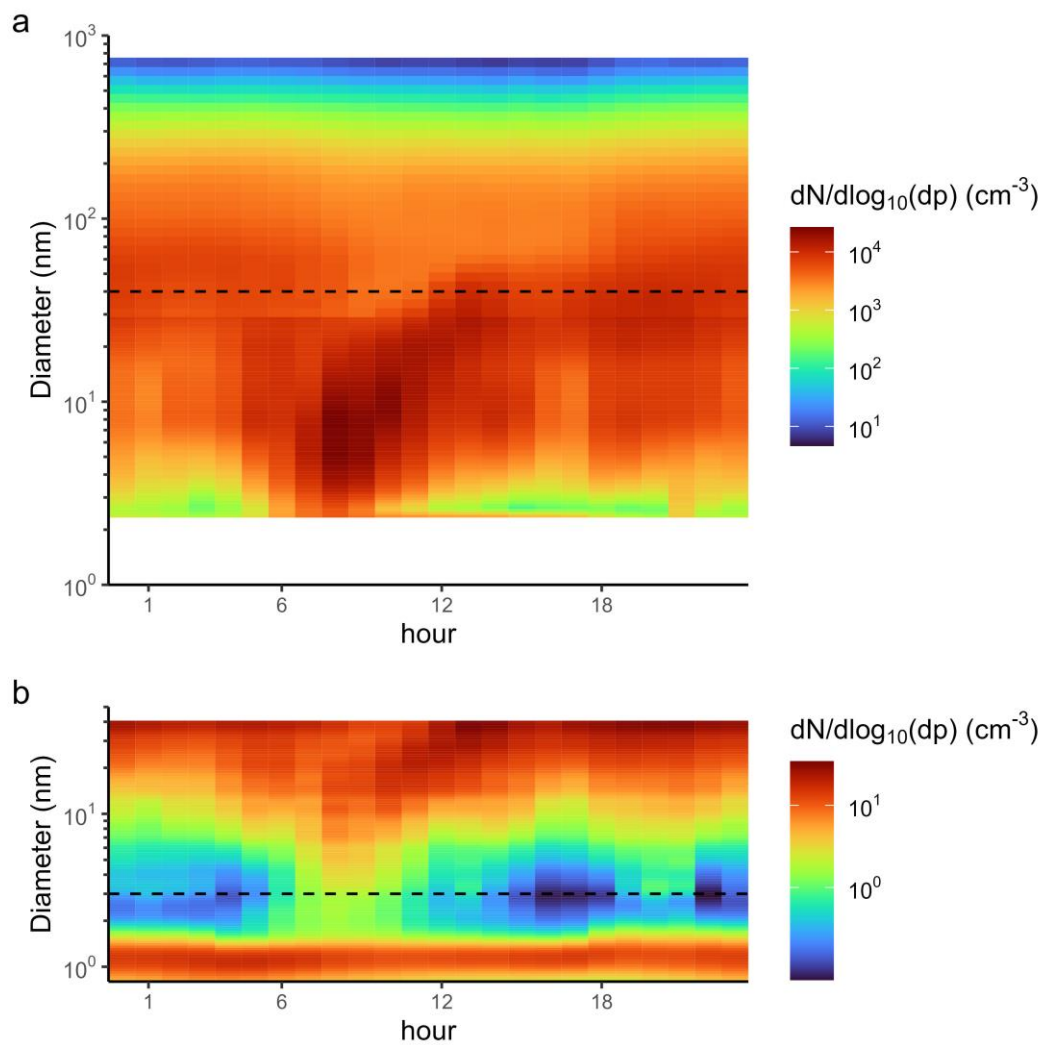
Supplement of

The behaviour of charged particles (ions) during new particle formation events in urban Leipzig, Germany

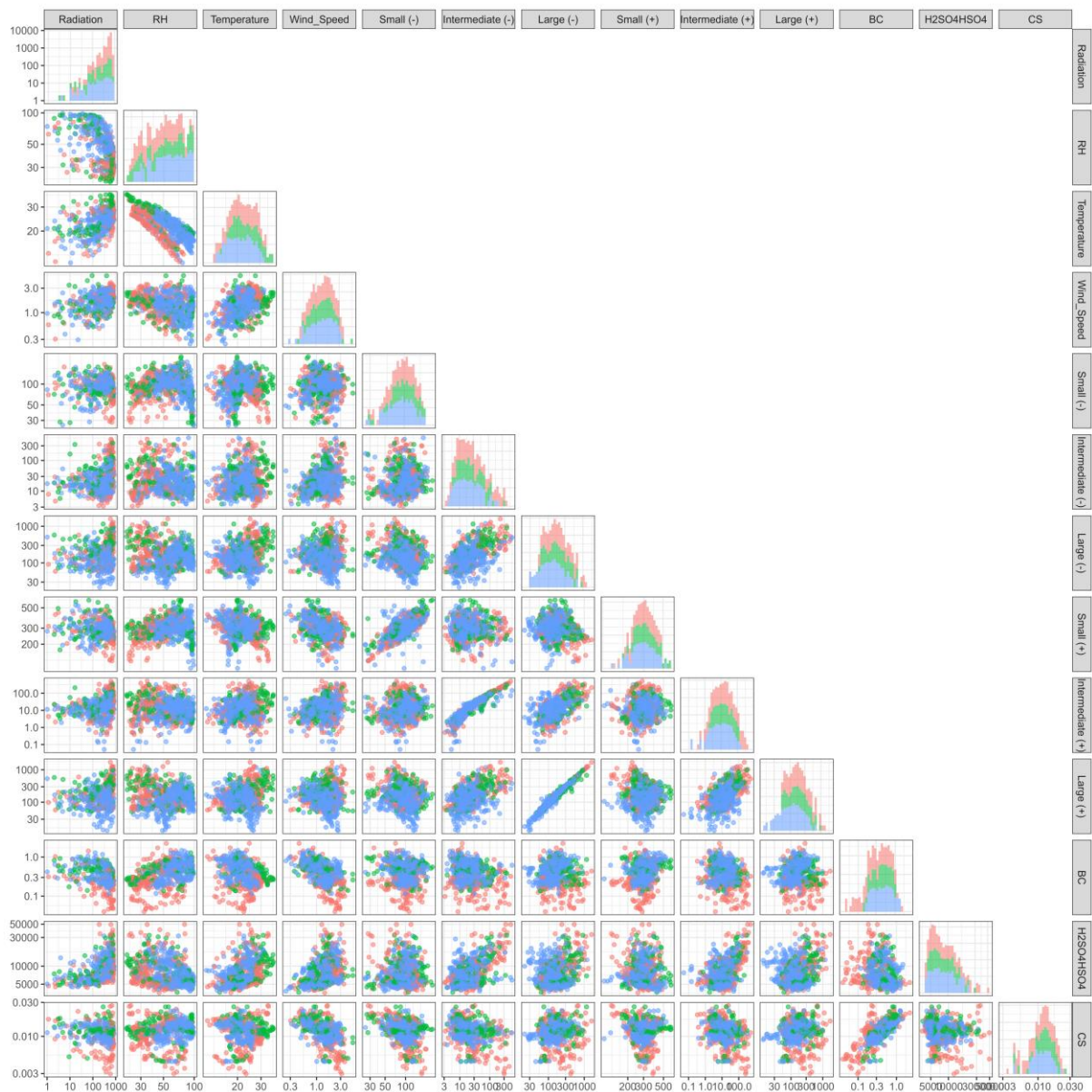
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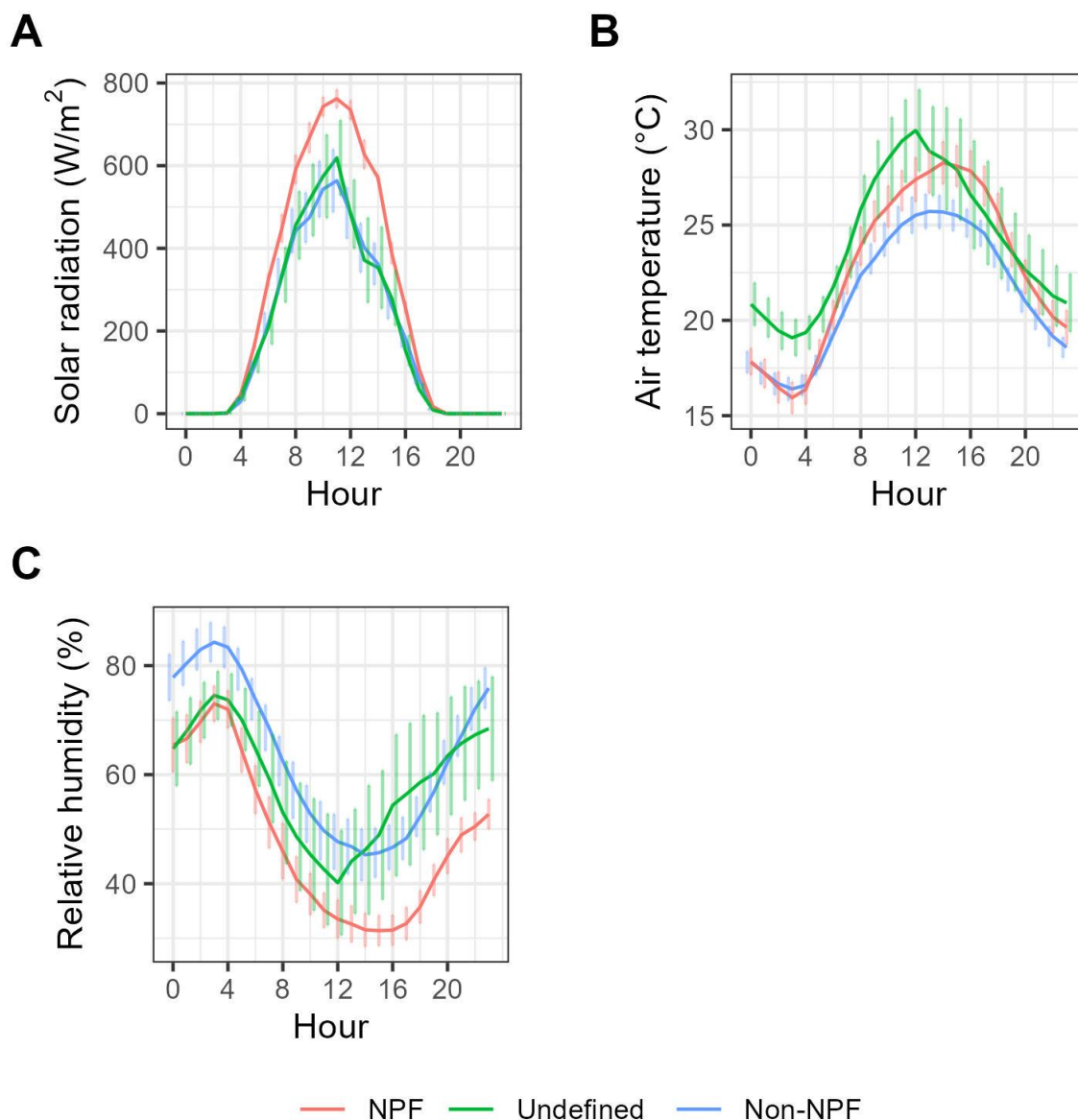
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5 **Figure S1: Example contour plot. This is the hourly average mean contour plot for the entire campaign. Panel (a) shows the neutral (and charged) PNSD, while (b) shows the negative PNSD. The dashed lines show the upper cut of the charged measurements (A) and the lower cut of the neutral measurements (B).**



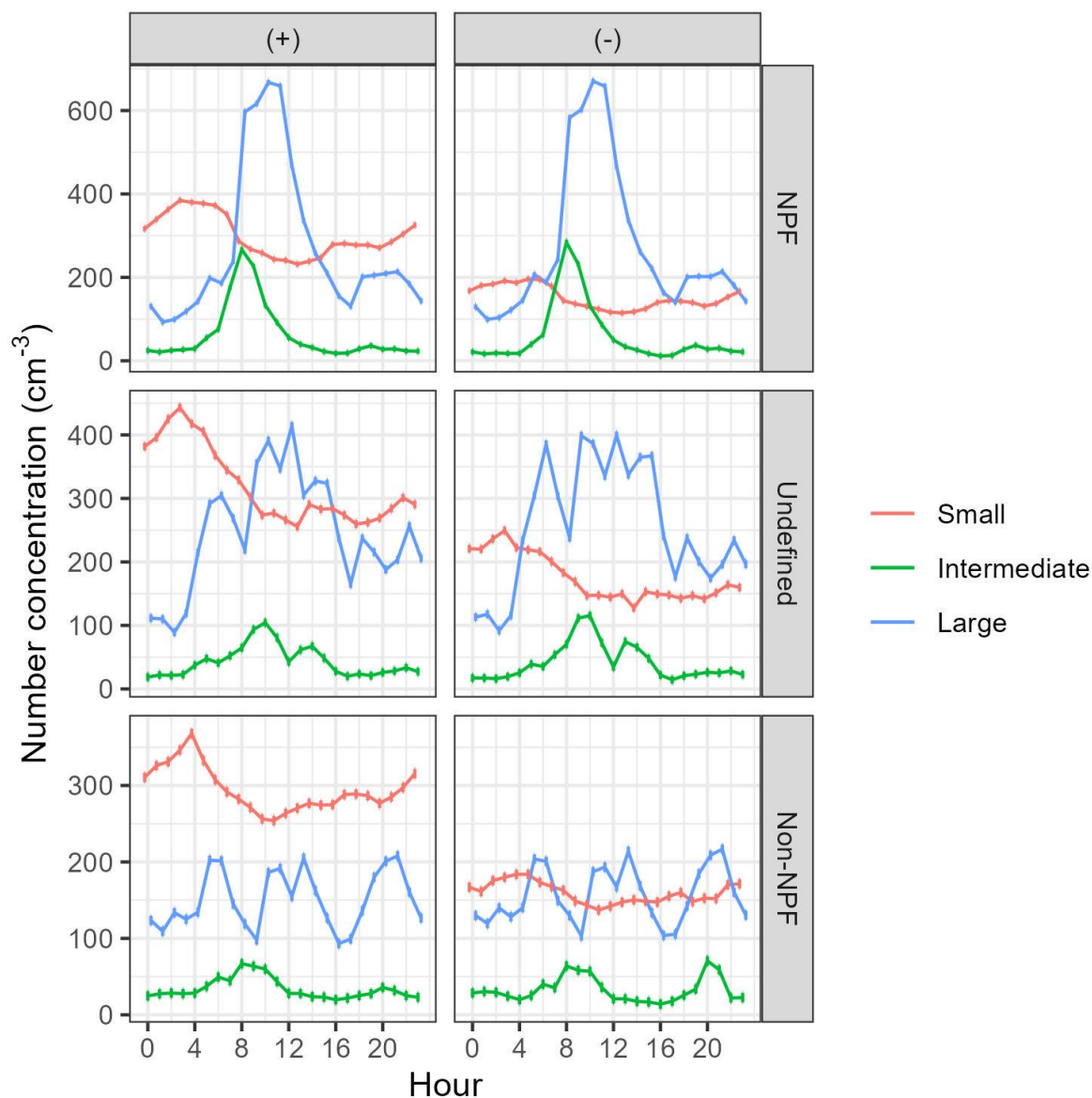
10 **Figure S2: Scatterplots (bottom panels), and histograms (upper diagonal) of meteorological variables (solar radiation, air temperature, relative humidity, and wind speed) and small, intermediate, large, and total charged particles (of both polarities). Also include are H₂SO₄ dimer and BC. Red points are NPF days, green points are undefined days, and blue points are non-NPF days.**



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Figure S3: Mean diurnal cycles of (A) solar radiation, (B) air temperature, and (C) relative humidity on new particle formation (NPF) event, undefined, and non-NPF event days. The vertical lines represent the standard error of the mean. Data coverage: 27th July 2022 14:00 to 25 August 2022 08:00 (UTC) using hourly means. Times are in UTC. Local time is UTC+2, and the daily solar maximum is 13:00 local time (11:00 UTC).

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25 **Figure S4: Diurnal cycles of small (0.8–1.6 nm), intermediate (1.6–7.5 nm), and large (7.5–22 nm) charged particles on new particle formation (NPF) event, undefined, and non-NPF event days. The vertical lines represent the standard error of the mean. Data coverage: 27th July 2022 14:00 to 25 August 2022 08:00 (UTC) using hourly means.**