

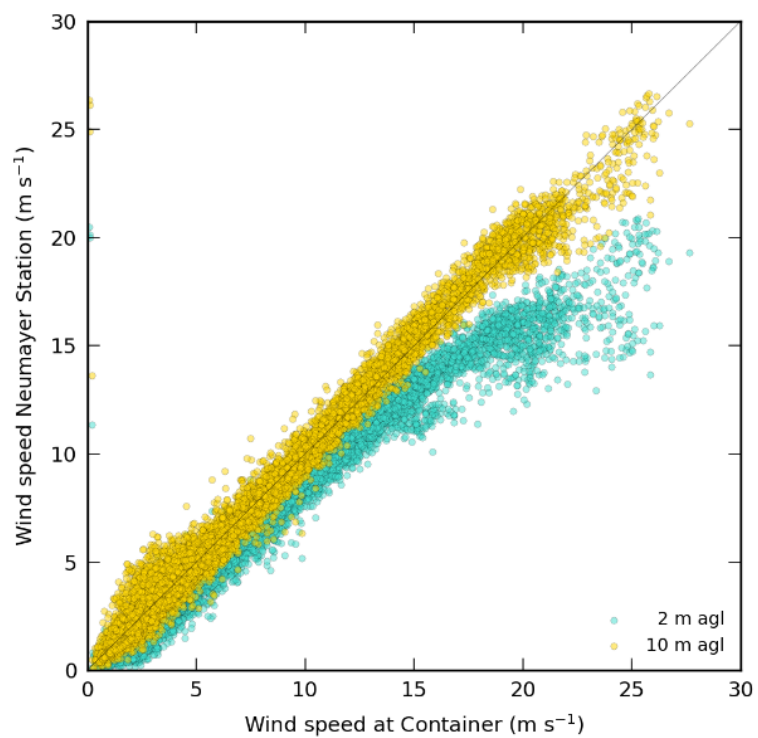


Figure S1: Wind speed comparison of Neumayer station at 2 and 10 m above ground level version measured wind speed at the measurement container which contained the NAIS and APi-TOF instruments.

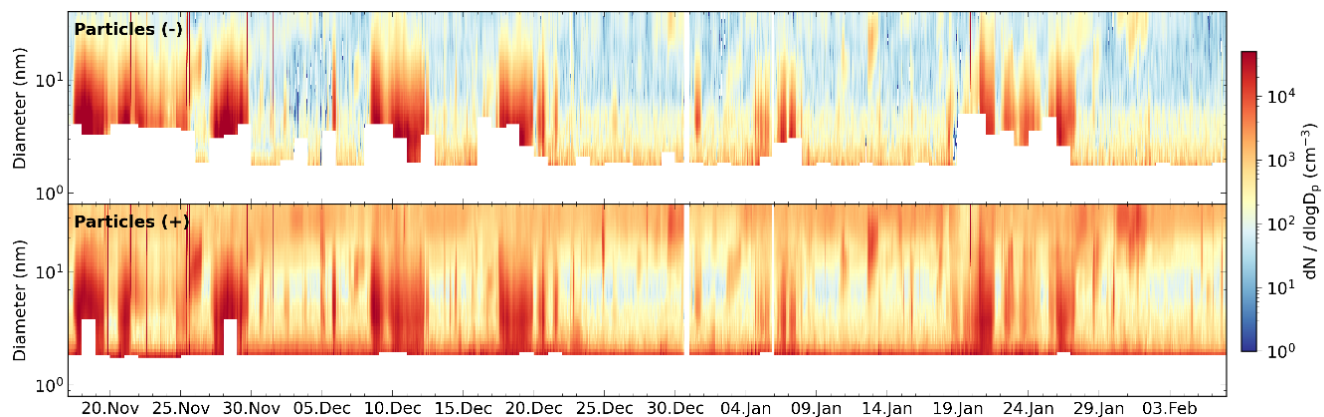


Figure S2: Total (neutral and charged) particle size distribution recorded between 17 November 2018 and 7 February 2019. **(A)** Particle size distribution (2 – 42 nm) measured with NAIS in negative measurement mode. **(B)** Same as in A but for positive measurement mode. The missing data in the small particle diameters are due to applied corrections for inlet loss correction (Gromley and Kennedy, 1948) and the ion mode correction (Wagner et al. 2016).

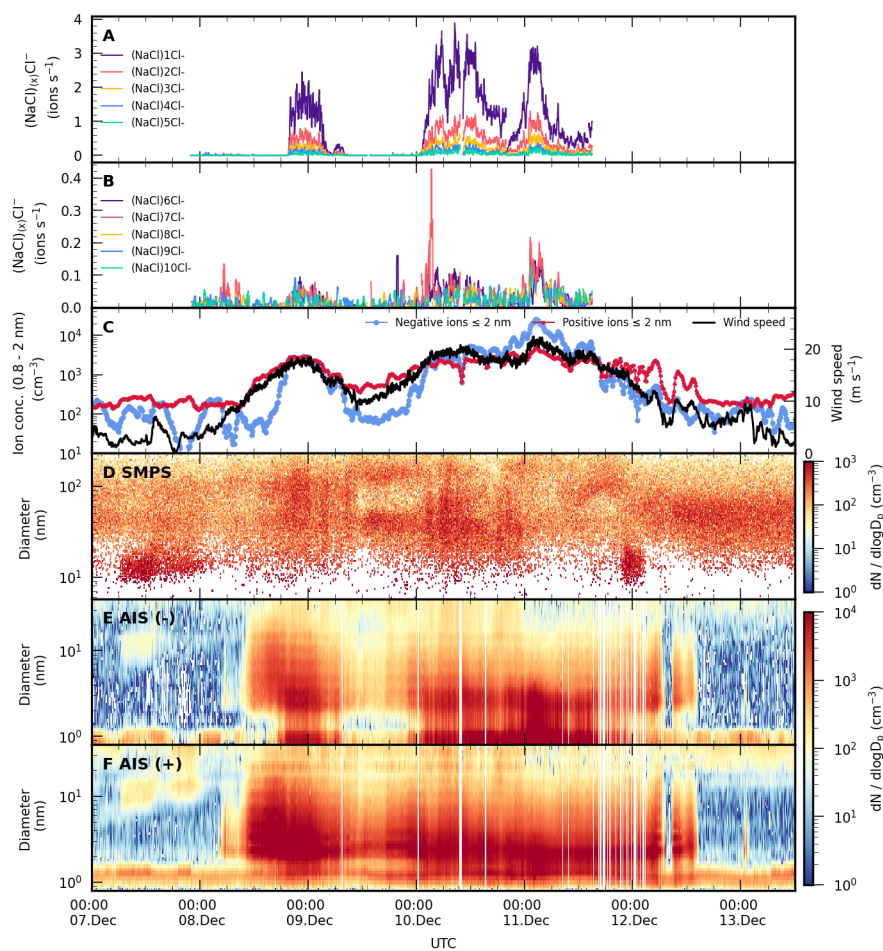


Figure S3: The depicted data was recorded from 07 December to 13 December 12 UTC. (A and B) Time series of sodium chloride cluster ion signals recorded with API-TOF mass spectrometer with two different y-axis scales. On 11 December at 15:05 the instrument was switched to positive ion mode. **(C)** Sum of negative and positive ions in the size range of 0.8 to 2 nm, recorded by air ion spectrometer (NAIS) together with the wind speed. **(D)** Particle size distribution (6-220 nm) measured with SMPS. **(E)** Negative ion size distribution (0.8 – 40 nm). **(F)** Same as in E but for positive ions.

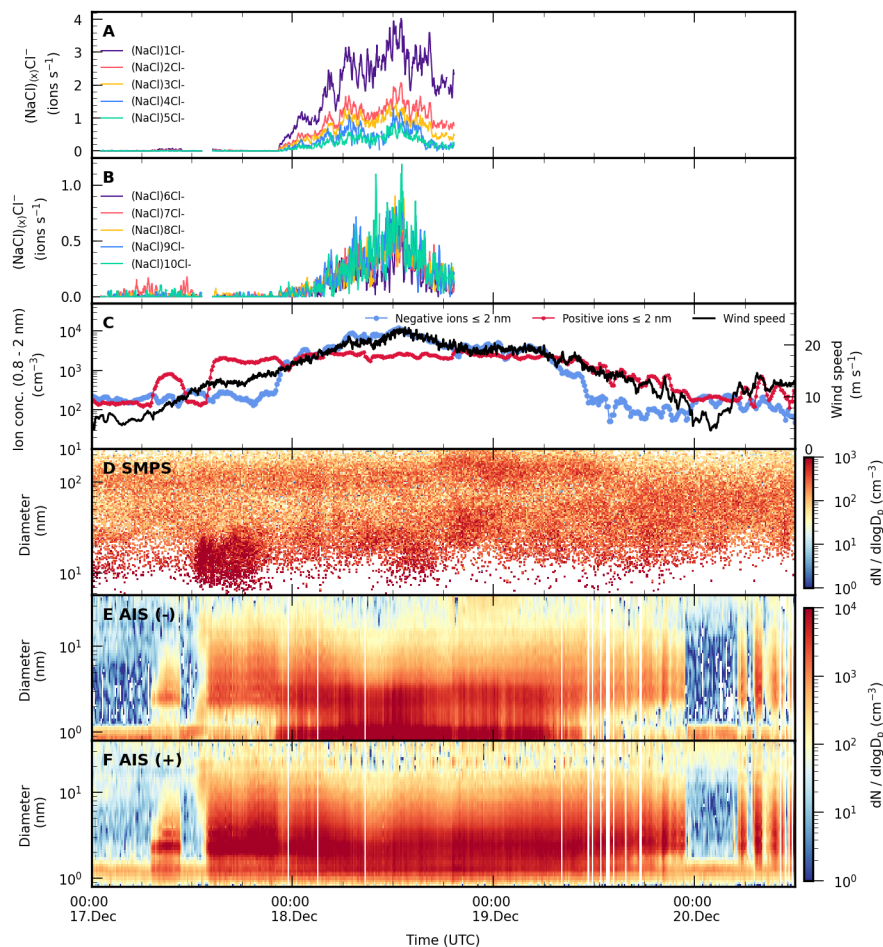


Figure S4: The depicted data was recorded from 17 December to 20 December 12 UTC. **(A and B)** Time series of sodium chloride cluster ion signals recorded with Api-TOF mass spectrometer with two different y-axis scales. On 18 December at 19:20 the instrument was switched to positive ion mode. **(C)** Sum of negative and positive ions in the size range of 0.8 to 2 nm, recorded by air ion spectrometer (NAIS) together with the wind speed. **(D)** Particle size distribution (6-220 nm) measured with SMPS. **(E)** Negative ion size distribution (0.8 – 40 nm). **(F)** Same as in E but for positive ions.