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CCN estimations at a high-altitude remote site: role of organic aerosol variability and hygroscopicity

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Species	NH_4NO_3	$(NH_4)_2SO_4$	$(NH_4)HSO_4$	H_2SO_4	eBC
ρ	1.72	1.77	1.78	1.83	1.70
κ	0.58	0.56	0.48	0.9	0

Table S1. Densities (ρ) and hygroscopicity parameters (κ) used in this study for inorganic species and eBC. These values are taken from Wu et al. (2016). The density and hygroscopicity for sulfuric acid are taken from Gysel et al. (2007) and Petters and Kreidenweis (2007), respectively.

Parameter		Mean	Median	STD	P 25	P 75
N_{tot} (cm^{-3})		2409	1488	2370	636	3358
N_{nucl} (cm^{-3})		768	282	1192	113	831
N_{Ait} (cm^{-3})		1215	767	1139	326	1801
N_{acc} (cm^{-3})		454	359	368	163	670
N_{CCN} (cm^{-3})	0.20%	321	276	216	145	465
	0.40%	638	563	423	282	913
	0.60%	813	713	531	359	1160
D_{crit} (nm)	0.20%	111	109	21	95	126
	0.40%	72	74	18	60	82
	0.60%	58	60	16	46	66
κ (-)	0.20%	0.22	0.18	0.12	0.13	0.25
	0.40%	0.22	0.15	0.17	0.11	0.25
	0.60%	0.20	0.13	0.19	0.09	0.24

Table S2. Statistical overview (mean, median, standard deviation, and percentiles 25 and 75) of physical parameters and activation properties at SS=0.2, 0.4 and 0.6 %.

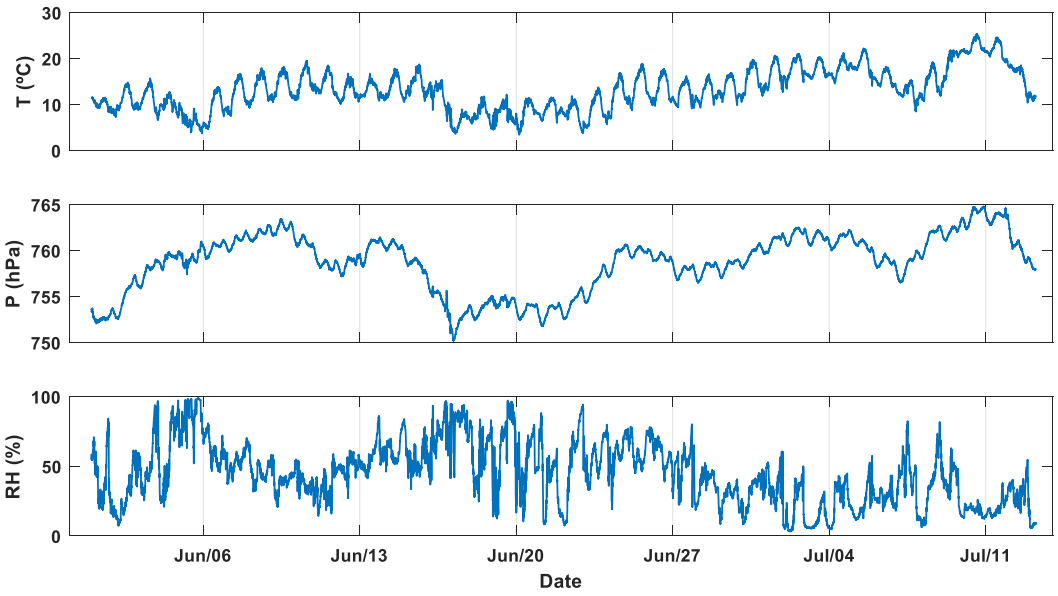

Figure S1. Time-series of temperature (T), pressure (P) and relative humidity (RH) along the campaign.

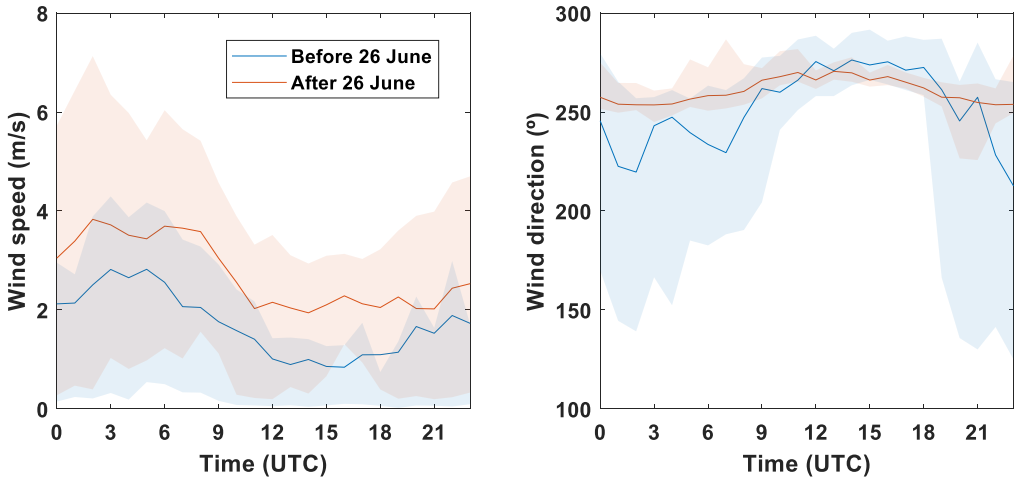

Figure S2. Mean diurnal pattern of the wind speed (left panel) and direction (right panel) during the whole campaign, before and after 26th June. The shaded area represents the interquartile range for each variable.

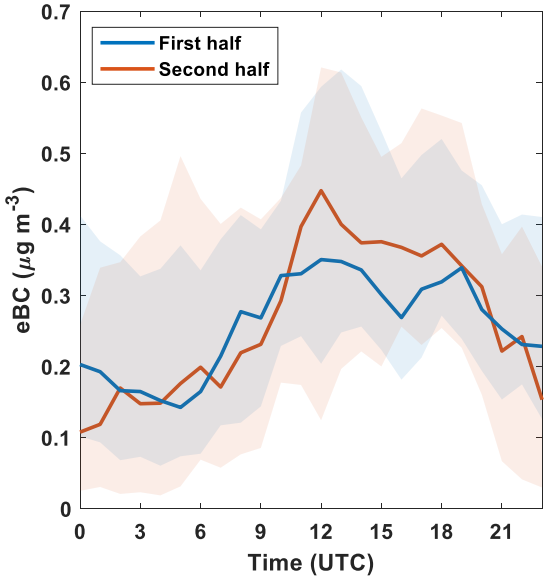

Figure S3. Mean diurnal evolution of of eBC mass concentration during the first and second half of the campaign. The black dash line represents the sampling station height. The shaded area is limited by the percentile 25th and 75 of the corresponding data.

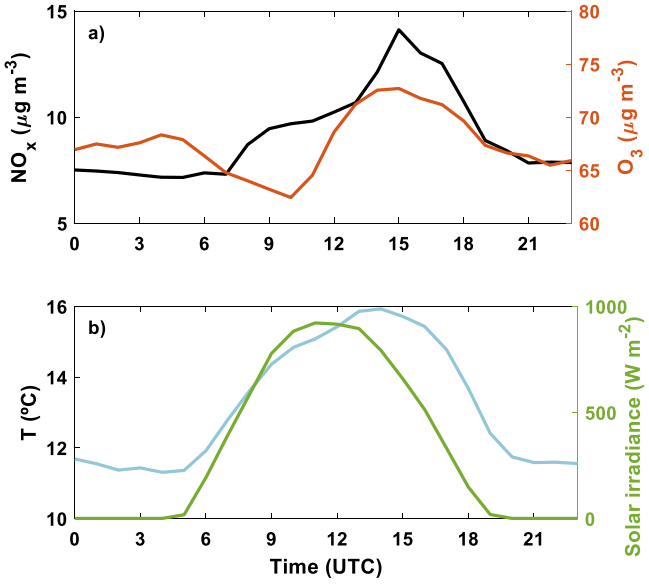

Figure S4. Mean diurnal evolution of a) NOx (left Y axis) and O3 concentration (right Y axis) and b) temperature (left Y axis) and solar global irradiance (right Y axis) along the campaign.

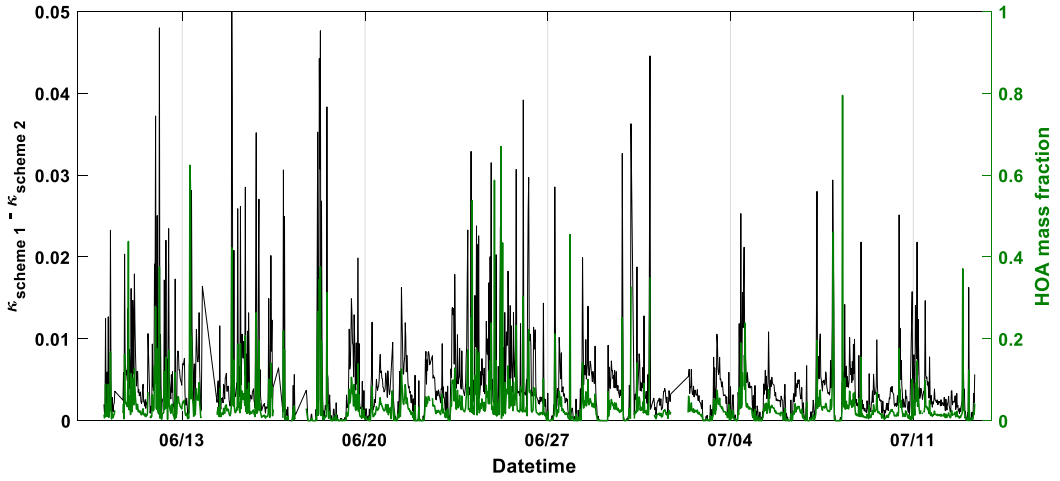

Figure S5. Time series along the field campaign of hygroscopicity parameter difference between both schemes (left Y-axis) and HOA mass fraction (right Y-axis).

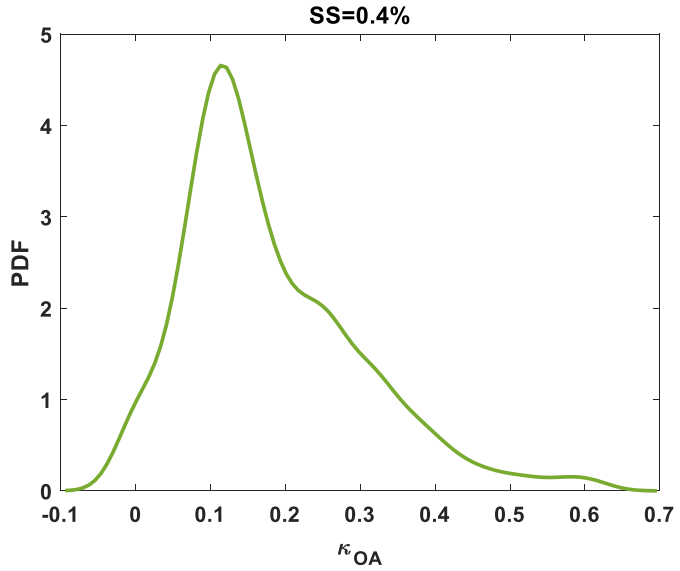

Figure S6. Probability density function (PDF) plot of κOA at SS=0.4%.