Supplement of

Field evaluation of a novel charge transfer ionization TOF MS for ambient VOC measurements

Olga Zografou et al.

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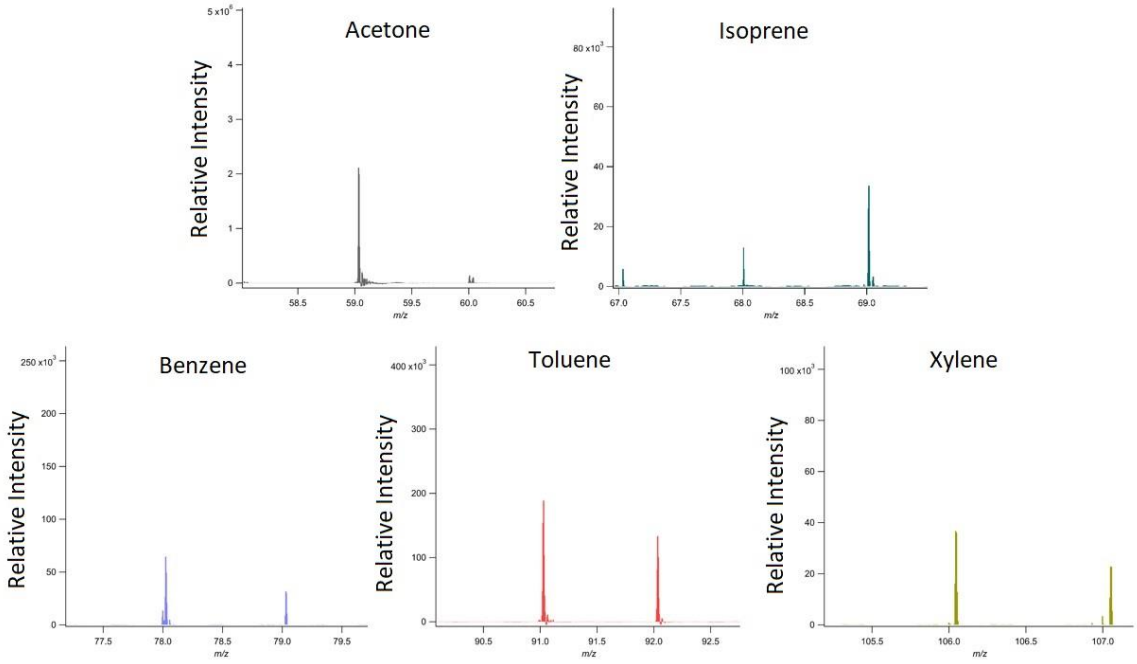

Figure S1. Mass spectra of the VOCs measured in the field campaign at DEM station with the new PTR-oToF-MS (acetone, isoprene, benzene, toluene and xylene).

Table S1. VOCs concentrations recorded during field deployment in ppb (mean, median, 25th percentile and 75th percentile).

Compound	*m/z*	Mean conc. (ppb)	Median	25th percentile	75th percentile
Acetone	**59.0493**	2.39	2.42	1.86	2.96
Isoprene	**69.0697**	0.77	0.70	0.48	0.89
Benzene	**78.0467**	0.33	0.26	0.18	0.43
Toluene	**92.0621**	0.70	0.55	0.33	0.89
o-xylene	**106.0784**	0.34	0.29	0.17	0.49

Table S2. VOCs uncertainties and mean errors.

Compound	*m/z*	Mean conc. (ppb)	Stdev (ppb)	Mean error (%)
Acetone	**59**	2.39	0.86	36
Isoprene	**69**	0.77	0.57	74
Benzene	**78**	0.33	0.25	76
Toluene	**92**	0.70	0.55	78
o-xylene	**106**	0.34	0.24	69

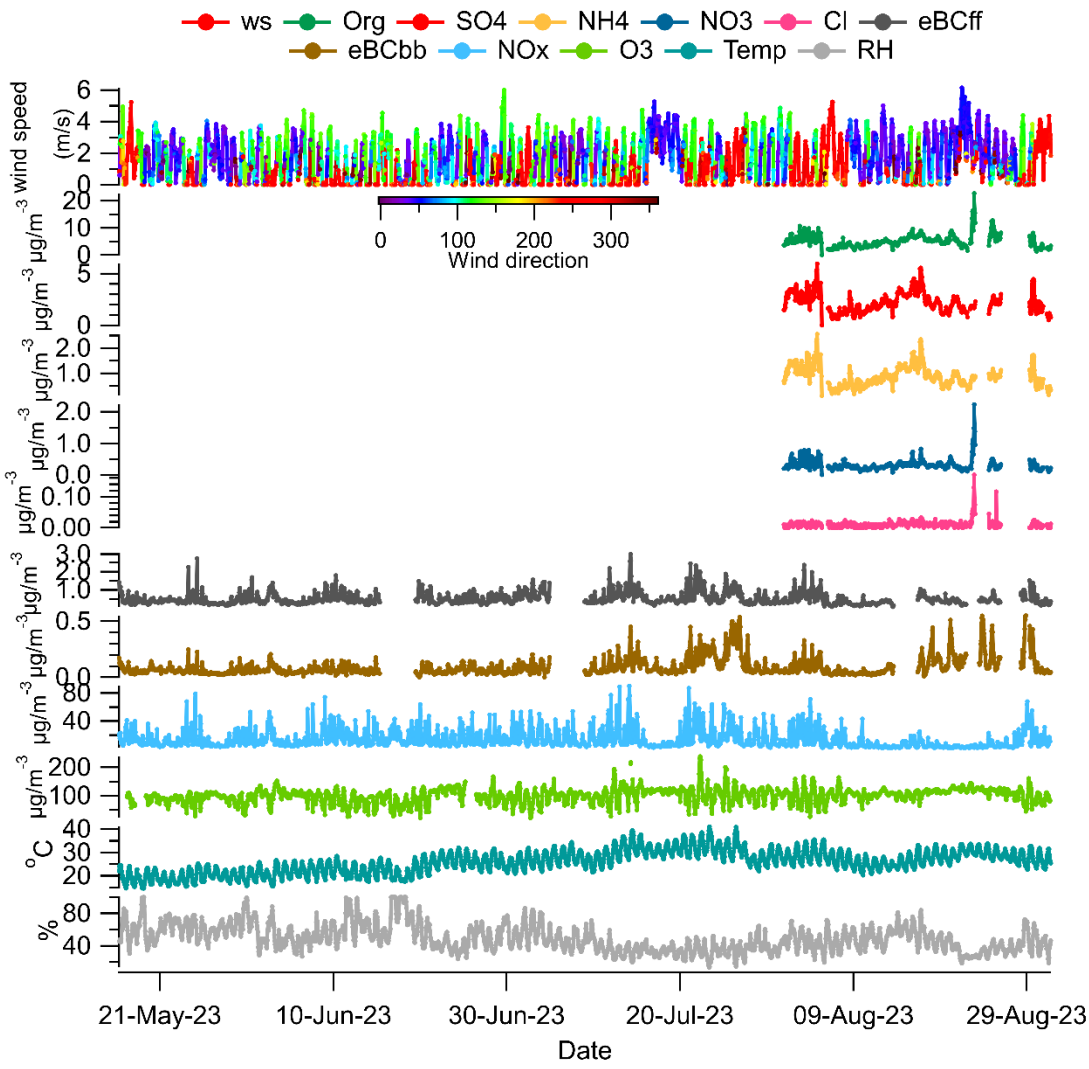

Figure S2. Temporal variability of the complementary data (wind speed, wind direction, ToF-ACSM species (Org, SO4, NH4, NO3 and Cl), eBCff, eBCbb, NOx, and O3). Wind speed is color-coded by the wind direction.

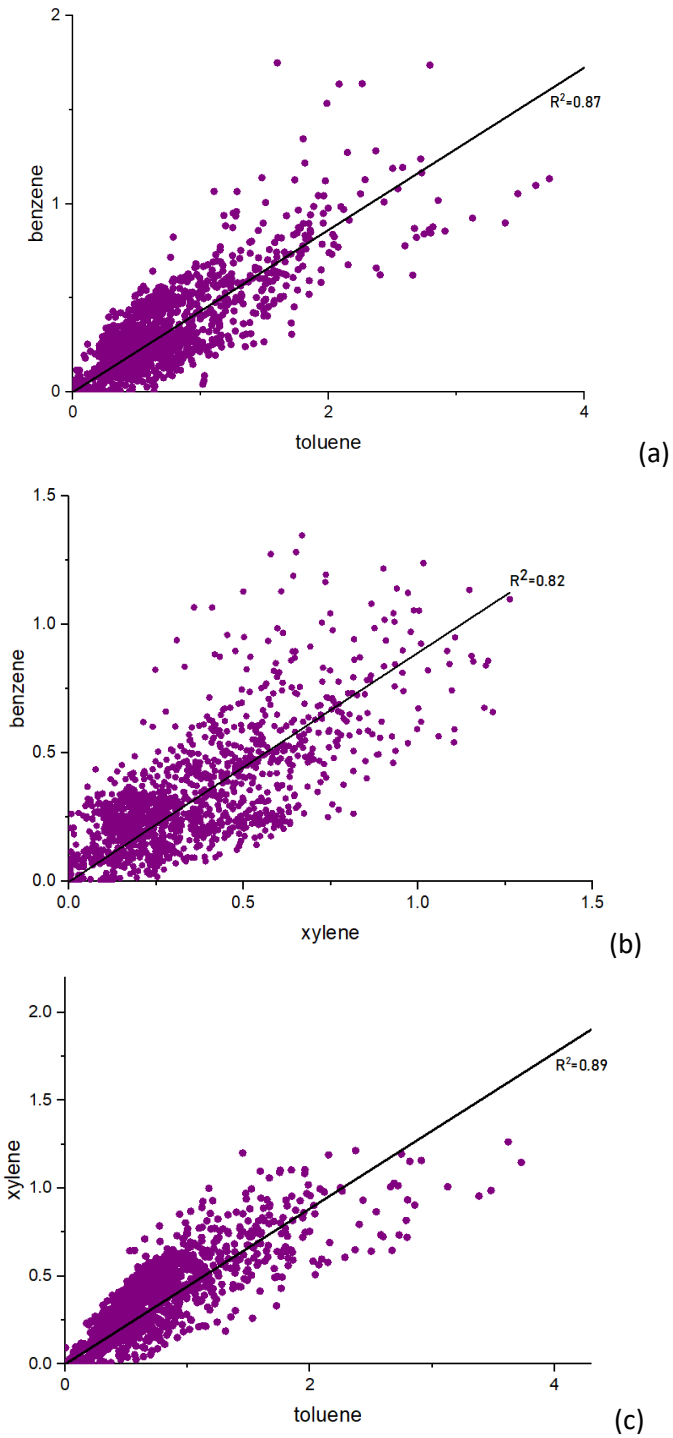

Figure S3. Scatter plots of the aromatics VOCs (a: benzene vs toluene, b: benzene vs xylene, c: xylene vs toluene).

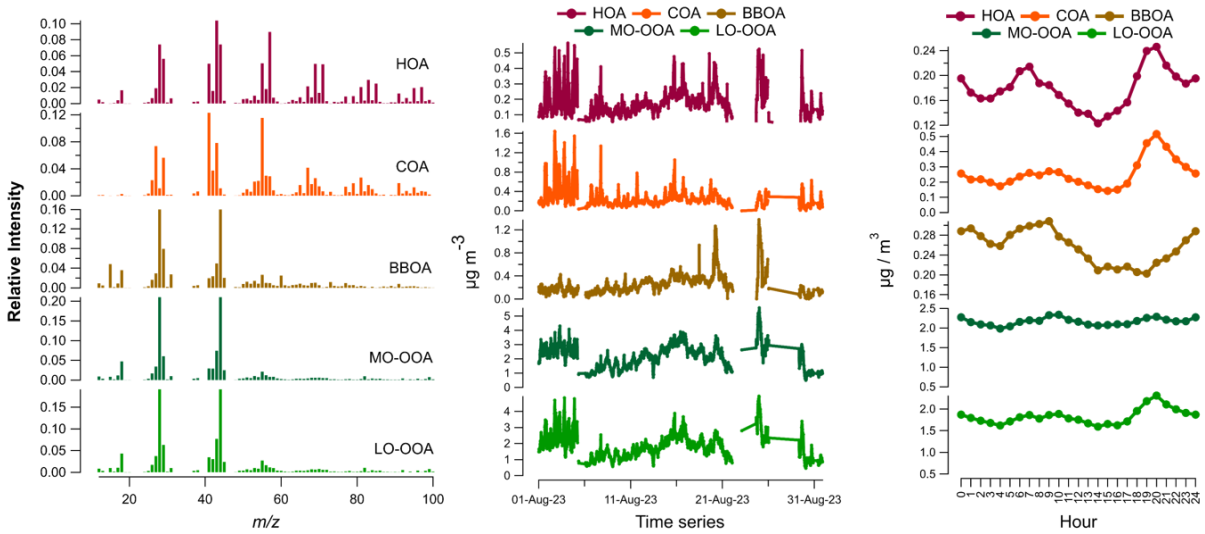

Figure S4. Sources of the organic fraction of PM1 from the ToF-ACSM as retrieved by the PMF model for the August.

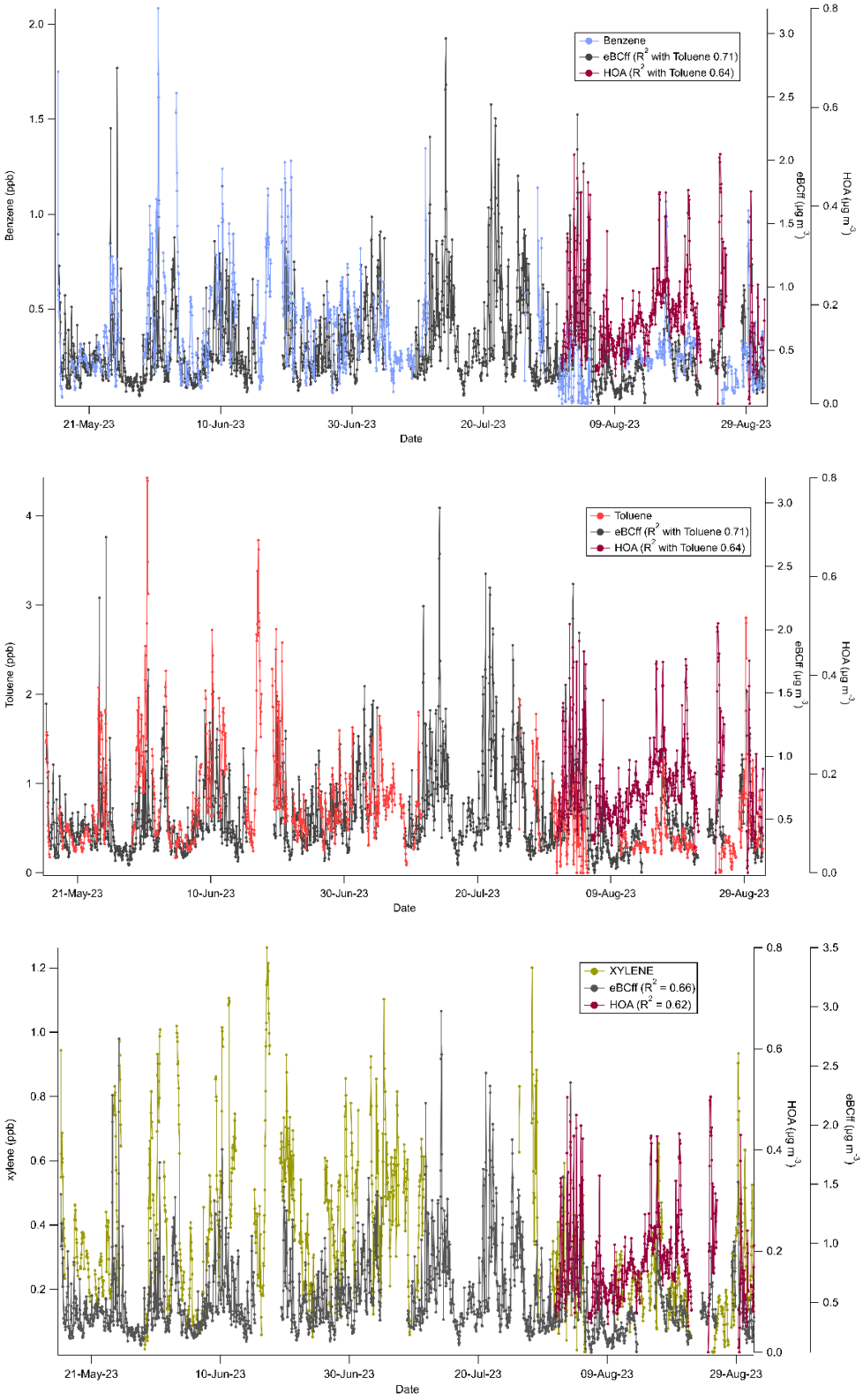

Figure S5. Time series and R2 of the aromatic VOCs with the traffic-related external data from the Aethalometer and the ACSM.

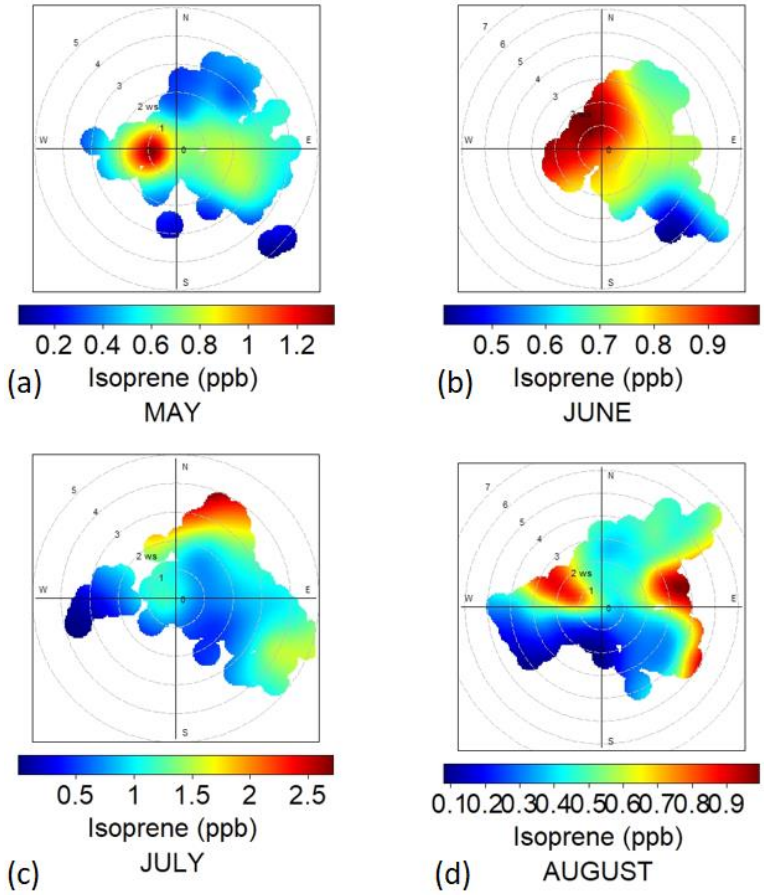

Figure S6. Isoprene polar plots for each month separately; May (a), June (b), July (c) and August (d).

Figure S7. Isoprene diurnal plot with O3 for July 2023.