



Supplement of

**International airport emissions and their impact on local air quality:
chemical speciation of ambient aerosols at Madrid–Barajas Airport
during the AVIATOR campaign**

Saleh Alzahrani et al.

Correspondence to: Saleh Alzahrani (saleh.alzahrani@manchester.ac.uk)

The copyright of individual parts of the supplement might differ from the article licence.

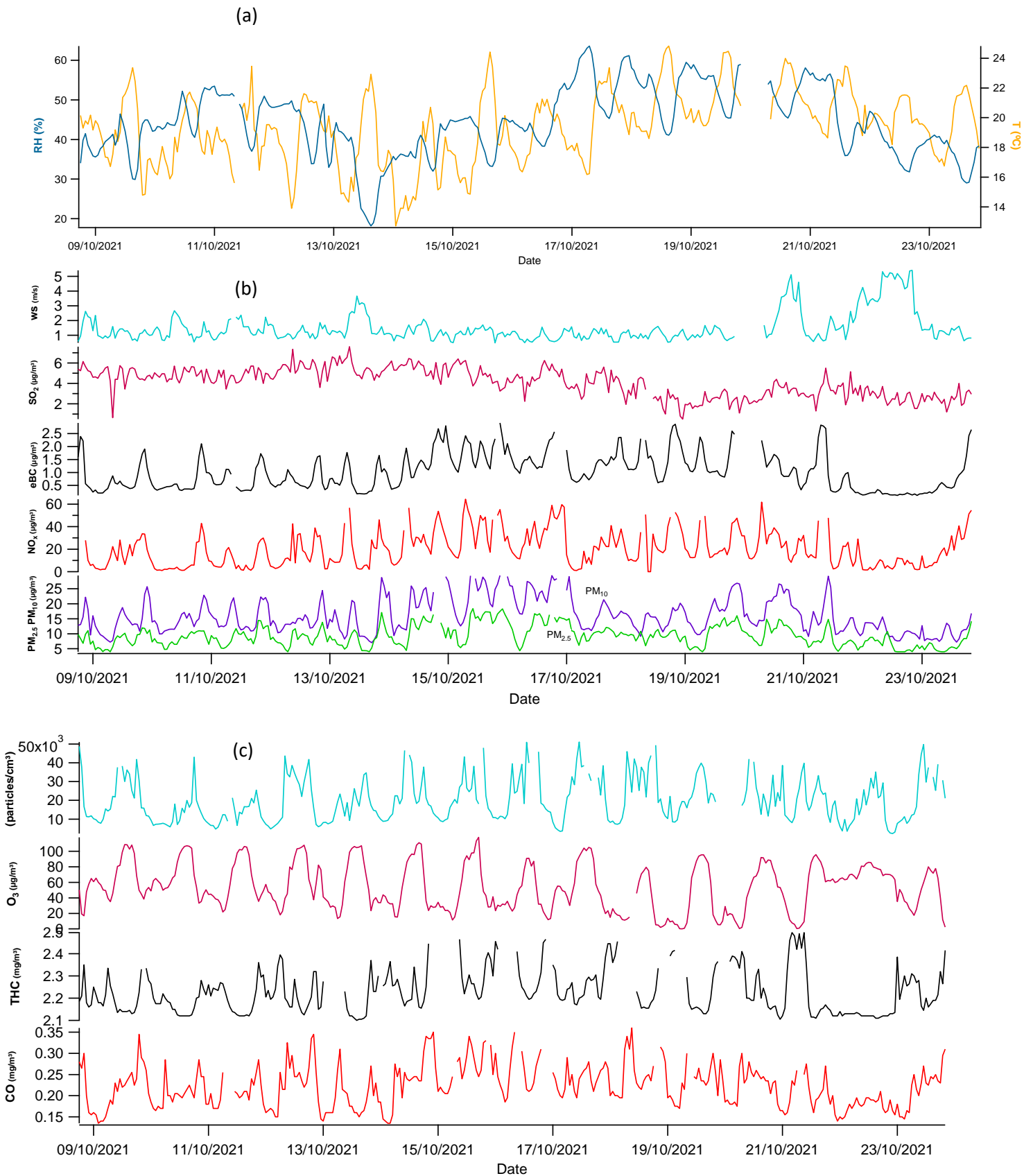


Figure S1. Meteorology (a), Time series of gases and particles measured at Madrid–Barajas airport during autumn campaign (WP4) of AVIATOR (b) & (c)

Unit	Species	Mean	SD	Min	Max
$\mu\text{gm-3}$	eBC	1.07	0.7	0.11	2.9
	NO _x	22.7	15.3	<DL	64.3
	SO ₂	4.1	1.3	0.5	7.5
	O ₃	53.9	30.3	0.15	118
	PM _{2.5}	9.35	3.4	4	18.4
	PM ₁₀	16.43	5.6	7	29.4
	LO-OOA	1.6	1.02	0.03	4.3
	AlkOA	0.64	0.27	0.009	1.19
	MO-OOA	2.35	1.09	0.22	4.5
mgm-3	CO	0.23	0.04	0.13	0.36
	THC	2.3	0.09	2.1	2.5
$^{\circ}\text{C}$	Temperature	19.4	2.4	12	24.8
m/s	WS	1.5	1	0.48	5.4

Table S1. statistical details of meteorology, gases, particles and obtained factors concentrations for the entire campaign.

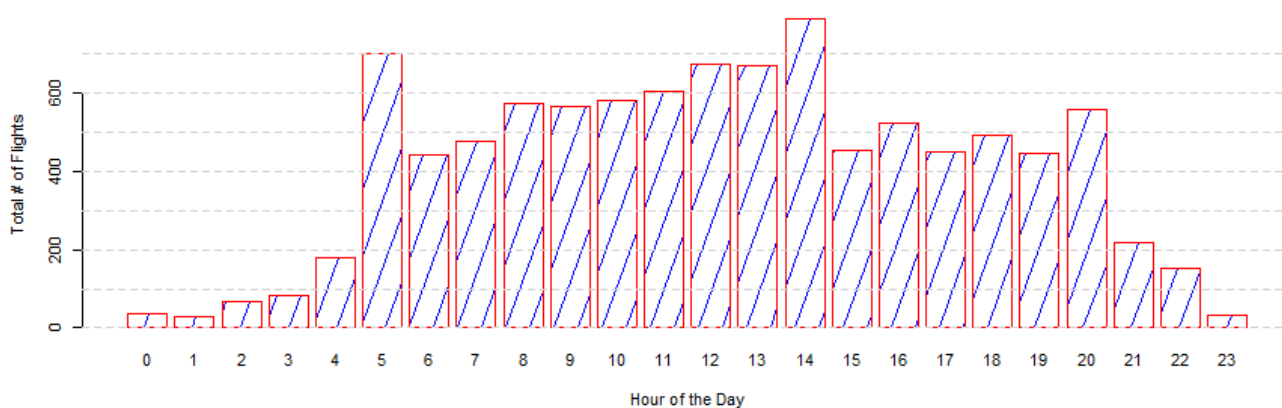


Figure S2. Total number of flights per hour counted at Madrid-Barajas airport during autumn campaign (WP4) of AVIATOR

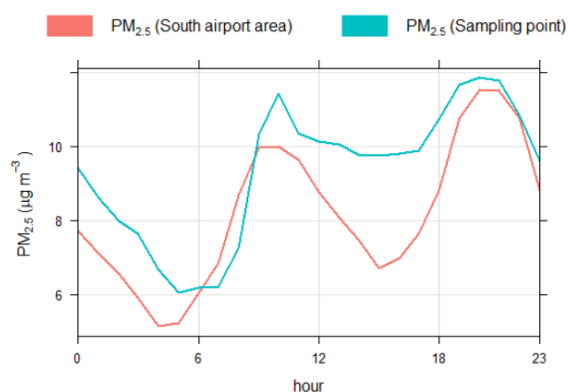


Figure S3. The diurnal pattern of PM_{2.5} concentrations, measured in micrograms per cubic meter, shows variations between a sampling point and the southern area of the airport, which are approximately 6km apart during autumn campaign (WP4) of AVIATOR.

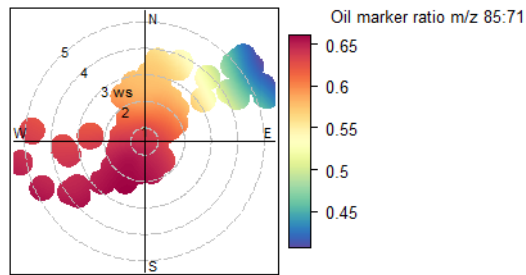


Figure S4. Bivariate polar plots of oil marker measured by AMS at the Madrid-Barajas International Airport during autumn campaign (WP4) of AVIATOR.

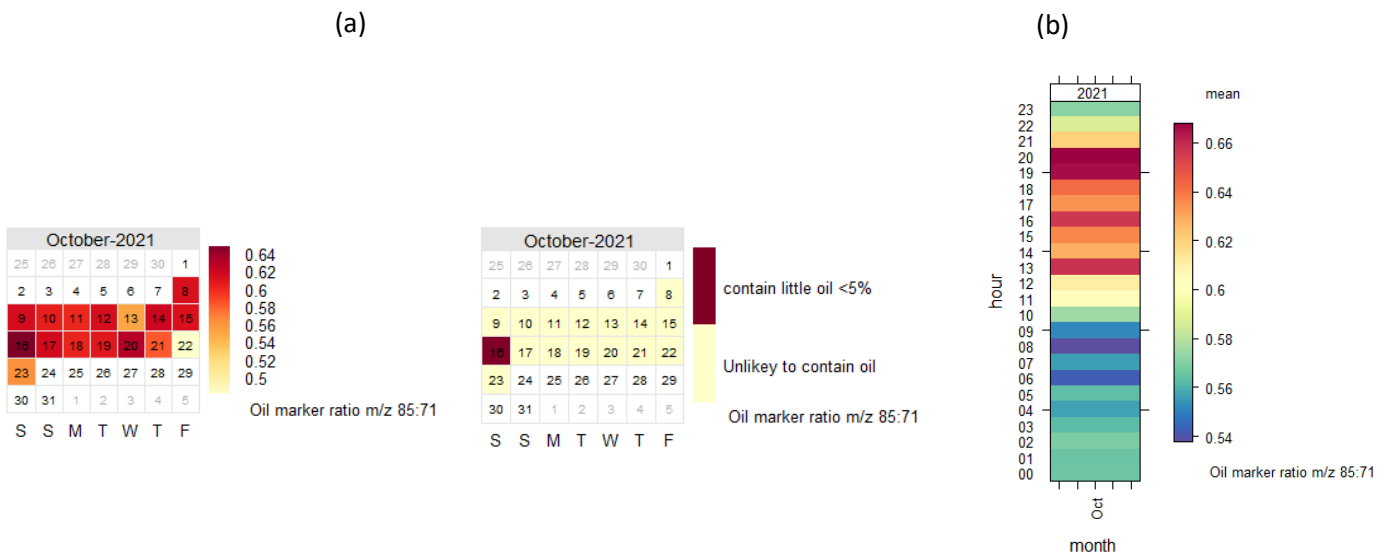


Figure S5. Calendar plots for lubrication oil with annotations highlighting those days where the lubrication oil > 0.66 (a), Hour of the day analysis for the lubrication oil during autumn campaign (WP4) of AVIATOR (b)