

Supplementary Material of “Three years of aerosol mass, black carbon and particle number concentrations at Montsec (Southern Pyrenees, 1570 m.a.s.l.)”

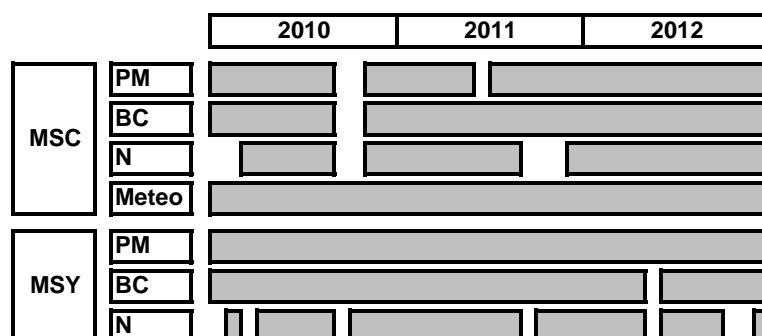


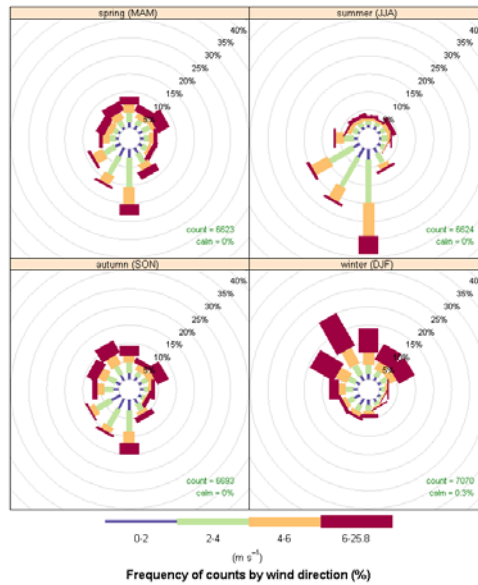
Fig. S1. Data schedule at Montsec (MSC) and Montseny (MSY).

Table S1. Annual average of meteorological parameters at Montsec

Montsec d'Ares	T (°C)	Tmax (°C)	Tmin (°C)	RH (%)	TotalPP (mm)	WS (m s <sup>-1</sup> )	WD (degrees)	P (hPa)	SR (W m <sup>-2</sup> )
2007	8.6	28.3	-8.9	62	506	4.7	-	-	-
2008	7.9	27.2	-10.1	70	1186	4.3	-	-	-
2009	9	27.6	-9.8	66	639	5.8	297	843	-
2010	7.4	28.5	-12.4	69	755	4.4	293	846	189
2011	9.4	29.7	-9.9	65	597	4.3	247	852	198
2012	8.9	30.4	-13.5	59	640	4.9	312	851	203

Table S2. Seasonal average of meteorological parameters at Montsec during the study

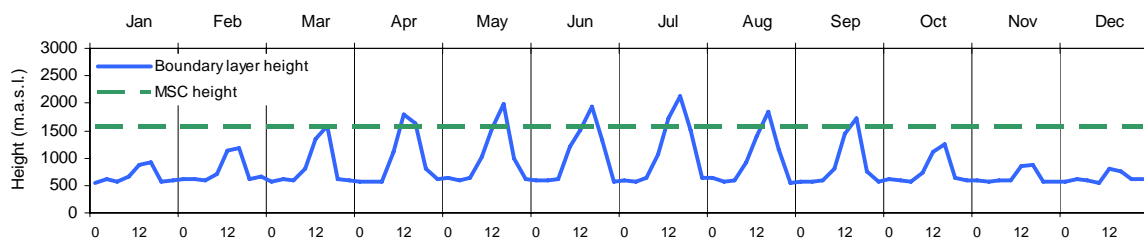
Montsec d'Ares	T (°C)	Tmax (°C)	Tmin (°C)	RH (%)	TotalPP (mm)	WS (m s <sup>-1</sup> )	WD (degrees)	P (hPa)	SR (W m <sup>-2</sup> )
Spring	9.0	24.2	-3.7	69	215	4.4	218	850	242
Summer	17.2	30.4	3.5	57	57	3.8	203	854	288
Autumn	6.1	22.9	-8.6	72	119	4.9	319	848	121
Winter	1.7	15.4	-13.5	61	108	5.3	359	848	129



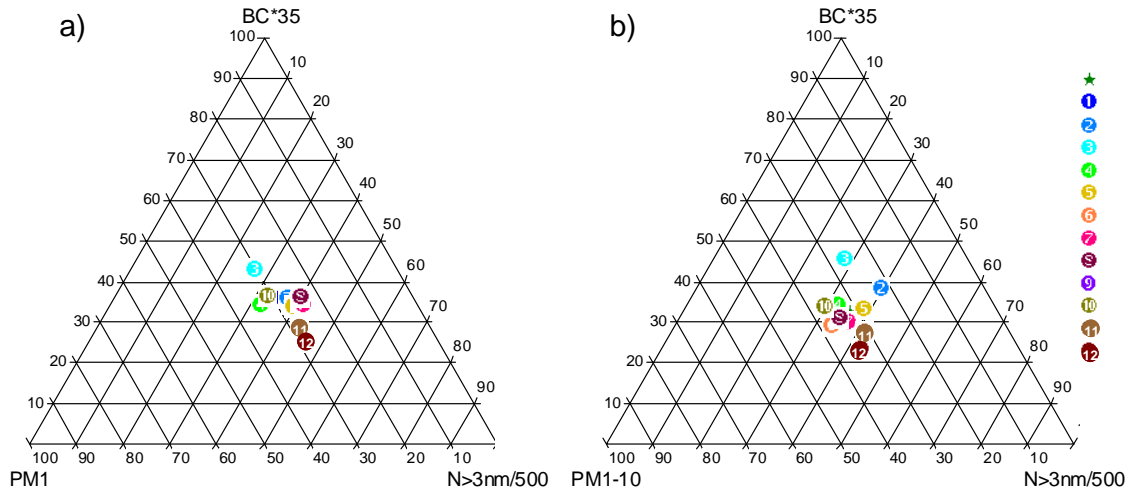
**Fig. S2. Seasonal wind rose frequency for the study period at Montsec.**

**Table S3. Average of meteorological parameters at Montsec as a function of air mass origin.**

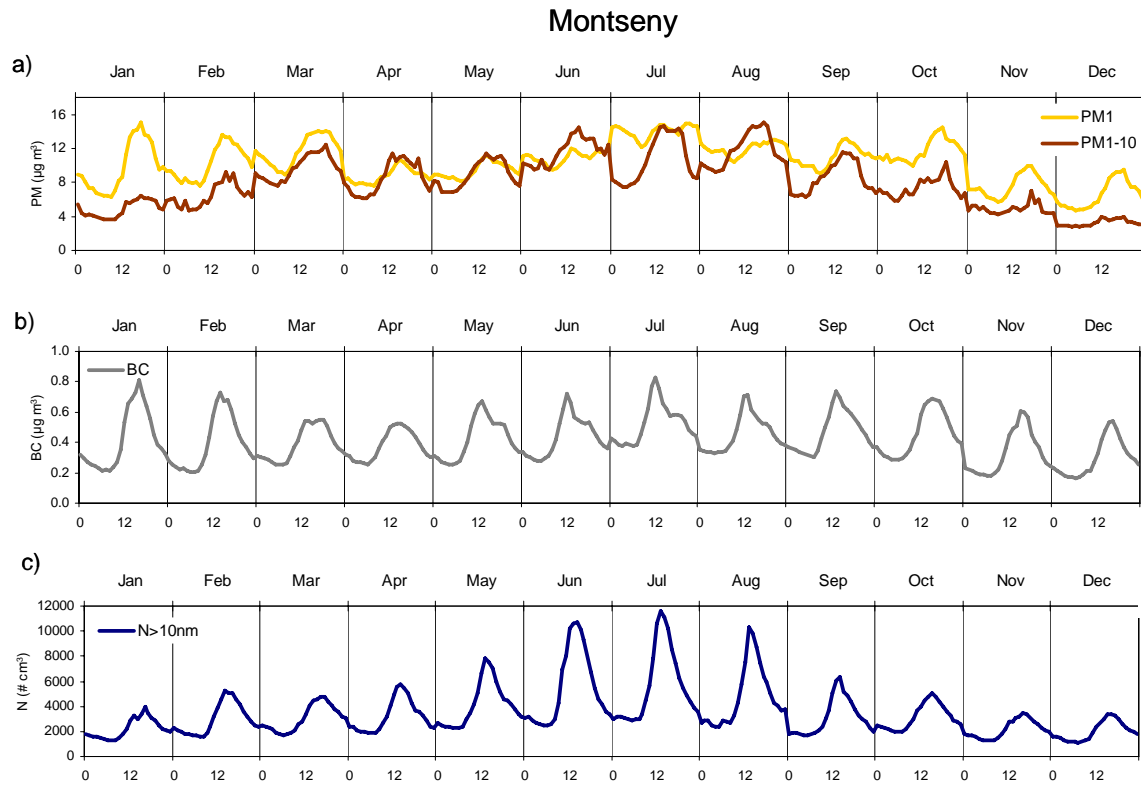
Montsec d'Ares	T (°C)	Tmax (°C)	Tmin (°C)	RH (%)	TotalPP (mm)	WS (m s <sup>-1</sup> )	WD (degrees)	P (hPa)	SR (W m <sup>-2</sup> )
AN	5.4	25.5	-11.1	57	31	4.7	16	850	190
ANW	9.1	28.1	-8.4	66	68	4.7	291	850	208
ASW	8.0	24.3	-5.0	77	90	4.6	233	847	133
NAF	14.4	30.4	-1.9	63	92	4.6	178	852	232
MED	7.4	20.3	-3.4	71	35	4.0	134	851	161
EU	3.7	22.1	-13.5	58	9	4.7	30	849	194
WREG	4.3	20.2	-5.8	78	24	4.3	295	848	111
SREG	14.9	27.4	0.4	66	66	4.0	189	852	249



**Fig. S3. Diurnal variation of the boundary layer height (computed with HYSPLIT model) averaged for each month during the study period at Montsec.**



**Fig. S4. Ternary Plot of (a) PM<sub>1</sub>, BC\*35 and N/500, and (b) PM<sub>1-10</sub>, BC\*35 and N/500 mean and monthly mean concentrations during the study period at Montsec.**



**Fig. S5. Daily patterns of hourly (a) PM<sub>1</sub>, PM<sub>1-10</sub>, (b) BC, and (c) N measurements averaged for each month during the study period at Montseny.**