Supplementary material of "Detection of Saharan dust and biomass burning events using near real-time intensive aerosol optical properties in the northwestern Mediterranean"

Table S1. Statistics from the hourly averages of the considered aerosol parameters for the period under study at MSY (above) and MSA (below) sites.

MSY	λ	Counts	Mean	SD	Median	Min	Max	Skewness	Percentiles				
									5	25	50	75	95
σ_{sp}	635	28443	30.05	27.67	23.53	-0.50	596.55	3.12	3.01	11.64	23.53	40.06	79.46
	525	28522	38.41	34.03	30.26	-0.50	539.71	2.52	4.27	14.98	30.26	51.72	100.42
	450	28540	47.26	41.29	37.35	-0.49	513.67	2.36	5.14	18.29	37.35	64.34	122.67
σ_{bsp}	635	25894	4.21	3.38	3.63	-0.50	60.56	2.12	0.26	1.77	3.63	5.87	10.06
	525	25974	4.67	3.76	4.01	-0.50	107.08	2.82	0.40	1.99	4.01	6.47	11.14
	450	25951	5.46	4.23	4.70	-0.50	58.86	2.08	0.57	2.40	4.70	7.51	12.86
g	635	23963	0.54	0.10	0.54	-0.97	0.97	-3.34	0.40	0.50	0.54	0.59	0.67
	525	24503	0.59	0.06	0.59	-0.46	0.90	-1.39	0.49	0.56	0.59	0.62	0.68
	450	25038	0.60	0.07	0.61	-0.94	0.88	-2.30	0.49	0.58	0.61	0.64	0.68
σ_{ap}	470	21580	7.66	6.50	6.04	-0.25	94.05	2.48	1.06	3.12	6.04	10.35	19.37
	880	21567	3.51	2.99	2.73	-0.21	31.43	2.10	0.44	1.37	2.73	4.81	9.02
SAE	450-635	27959	1.38	0.79	1.42	-2.45	5.98	0.14	0.06	1.01	1.42	1.76	2.48
AAE	370-950	21390	1.30	0.30	1.27	-1.86	5.84	0.69	0.91	1.14	1.27	1.44	1.75
SSA	470	13585	0.83	0.07	0.84	0.12	0.98	-1.69	0.70	0.80	0.84	0.88	0.91
	880	13575	0.80	0.12	0.83	0.05	1.00	-1.71	0.57	0.75	0.83	0.89	0.95
PM_{10}	-	35354	16.23	11.08	14.15	0.15	236.51	2.24	3.49	8.14	14.15	22.01	35.22

MSA	λ	Counts	Mean	SD	Median	Min	Max	Skewness	Percentiles				
									5	25	50	75	95
σ_{sp}	635	21708	16.73	19.28	9.37	-0.50	307.33	2.05	0.22	2.77	9.37	25.19	54.79
	525	21790	22.12	25.09	12.44	-0.50	277.46	1.85	0.40	3.54	12.44	33.46	71.78
	450	21792	28.11	31.50	16.06	-0.50	376.38	1.80	0.59	4.53	16.06	42.70	91.38
σ_{bsp}	635	21728	2.29	2.51	1.38	-0.50	30.59	1.52	-0.13	0.35	1.38	3.68	7.14
	525	21757	2.69	2.91	1.60	-0.50	36.04	1.45	-0.09	0.41	1.60	4.30	8.36
	450	21542	3.19	3.43	1.94	-0.50	42.44	1.42	-0.10	0.46	1.94	5.16	9.82
g	635	18287	0.52	0.17	0.54	-1.00	0.94	-3.10	0.25	0.48	0.54	0.60	0.71
	525	18657	0.57	0.14	0.59	-1.00	0.94	-3.53	0.35	0.54	0.59	0.63	0.73
	450	18644	0.60	0.14	0.62	-1.00	0.94	-3.63	0.38	0.57	0.62	0.66	0.77
σ_{ap}	470	9913	3.57	3.95	2.03	-0.24	70.52	2.53	0.13	0.65	2.03	5.64	10.50
	880	9915	1.59	1.71	0.89	-0.16	23.03	1.79	0.06	0.29	0.89	2.57	4.81
SAE	450-635	20189	1.58	0.83	1.64	-1.95	6.00	-0.04	0.08	1.24	1.64	1.95	2.82
AAE	370-950	9625	1.36	0.27	1.32	-0.90	4.80	2.02	1.05	1.21	1.32	1.47	1.76
SSA	470	7146	0.85	0.08	0.87	0.21	1.00	-2.16	0.69	0.82	0.87	0.90	0.93
	880	7134	0.82	0.13	0.85	0.04	1.00	-2.29	0.57	0.79	0.85	0.89	0.95
PM_{10}	-	18782	11.32	9.93	8.46	0.10	153.62	2.60	1.36	4.84	8.46	15.54	29.51

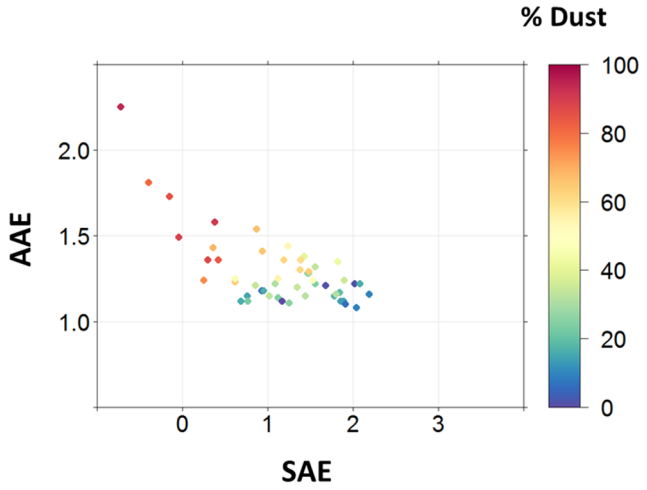

Figure S1. Ångström matrix (AAE vs. SAE weighted by % dust in PM10) during Saharan dust events at MSY (daily base).

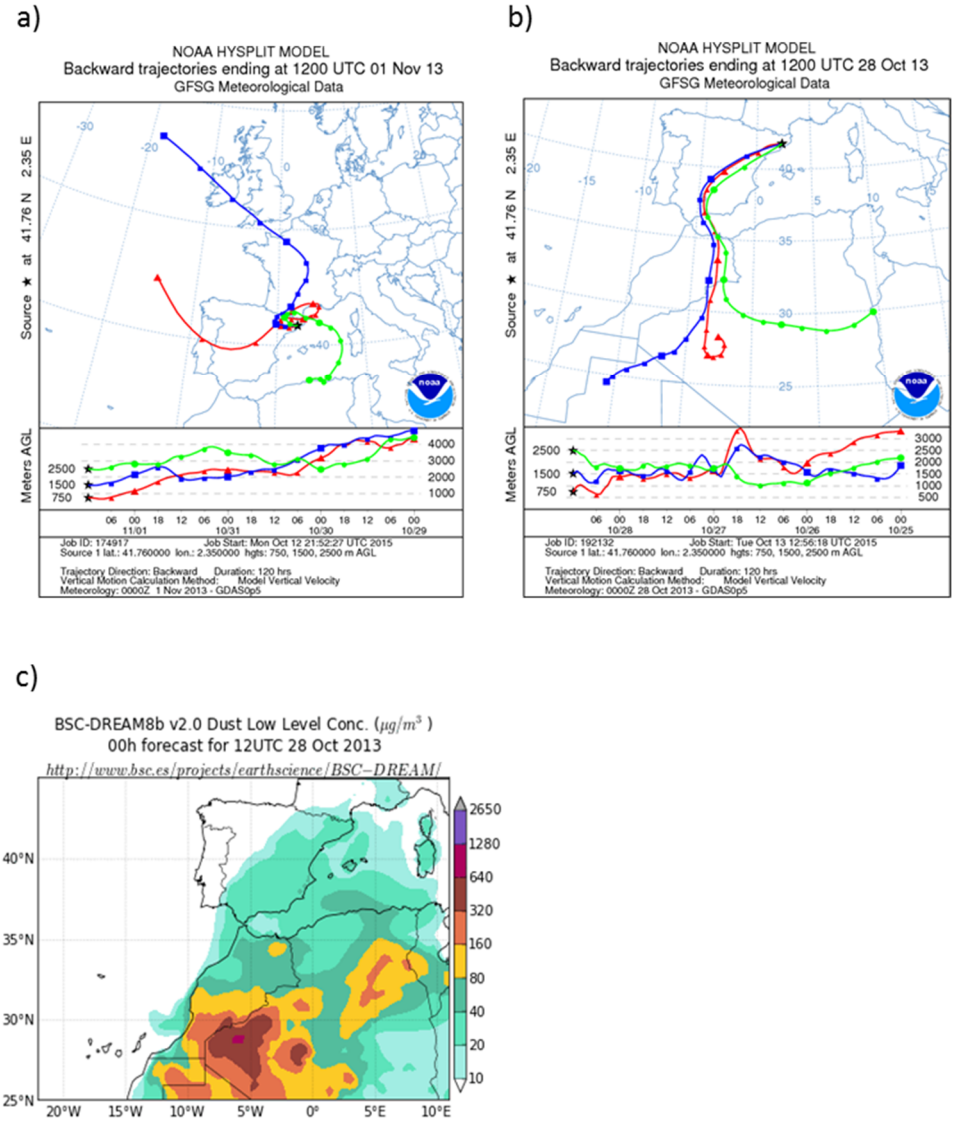

Figure S2. Backward trajectories corresponding to (a) regional episode (01/11/2013) and (b) Saharan dust event (28/10/2013) atmospheric scenarios at MSY. (c) Dust surface concentration at MSY from the Dream model corresponding to a Saharan dust event (28/10/2013).

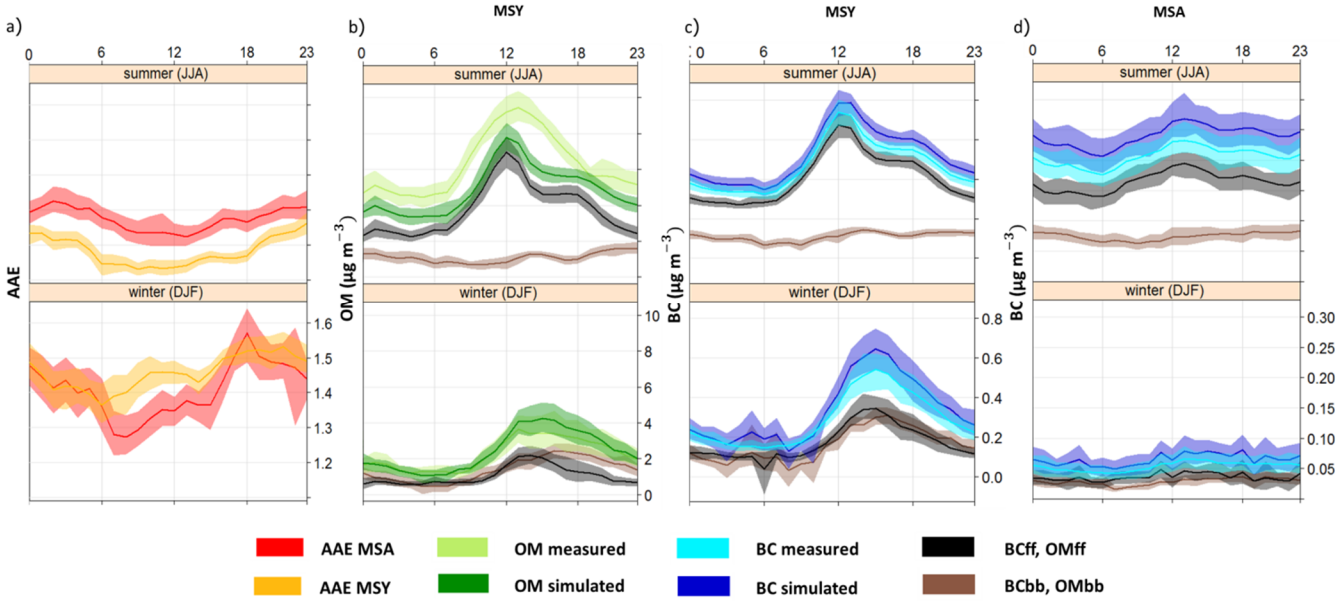

Figure S3. Summer and winter daily cycles of: (a) AAE at MSY and MSA, (b) measured OM and simulated OM as the sum of OMff and OMbb contributions at MSY, measured BC and simulated BC as the sum of BCff and BCbb contributions at (c) MSY and (d) MSA. Averages were calculated from hourly base.