



Supplement of

Isoprene and monoterpene emissions from alder, aspen and spruce short-rotation forest plantations in the United Kingdom

Gemma Purser et al.

Correspondence to: Gemma Purser (gemma.purser1@gmail.com)

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Figure S1 – Meteorological data measured during the chamber sampling campaign from May 2018 until July 2019 at the East Grange SRF trial site. (Occasional missing data due to power failure at the site.) Rainfall data was provided by SEPA for the Saline rainfall monitoring station (56.115°N 3.574°W), approximately 4 km north-east of East Grange.

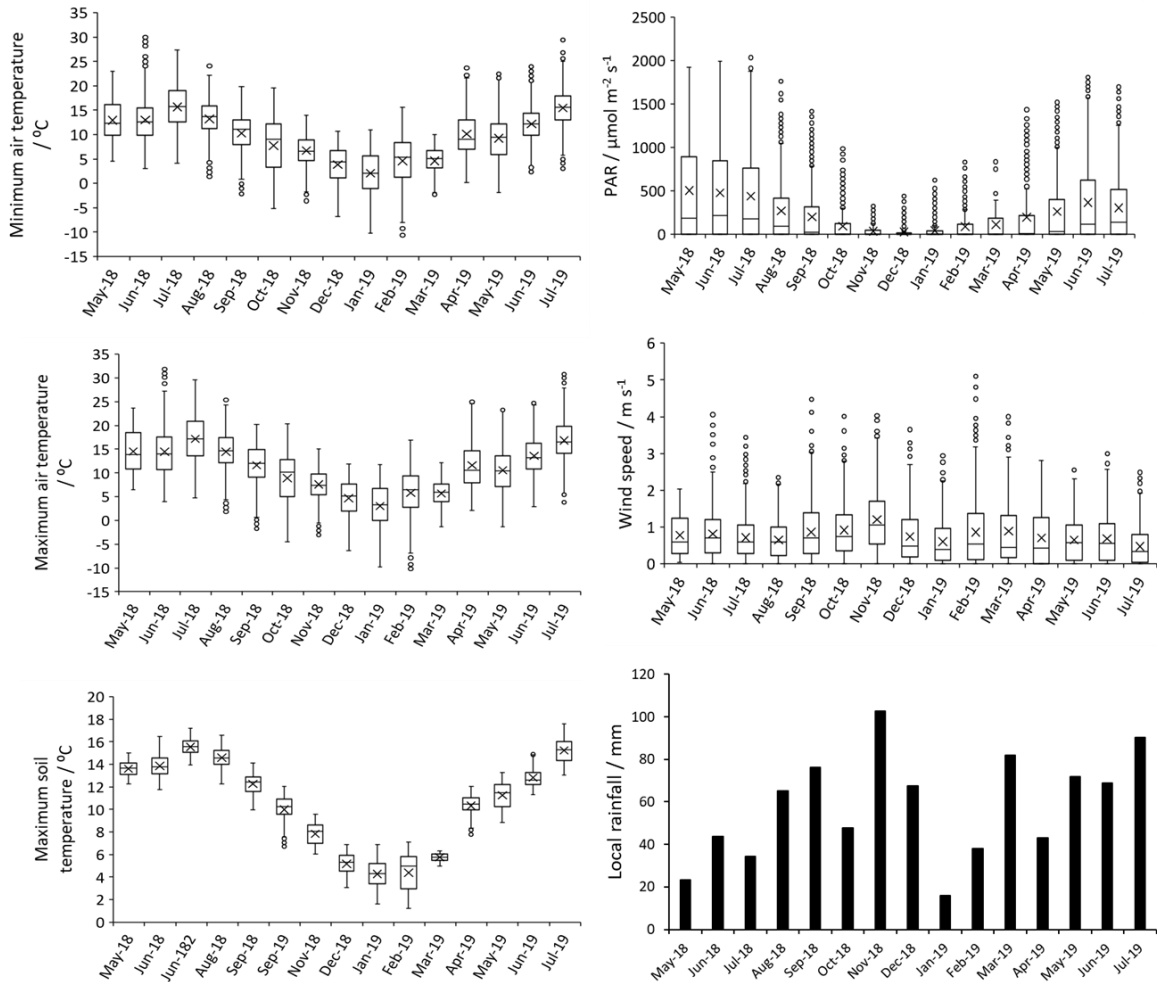


Figure S2 – Summary data for PAR and air temperature measured at the East Grange field site, Fife, Scotland. Missing data was gap filled with Easter Bush field data, Midlothian, Scotland and the summary data presented here reflects this. The data represented here was used for modelling annual BVOC emissions from Sitka spruce, hybrid aspen and Italian alder using the MEGAN 2.1 model.

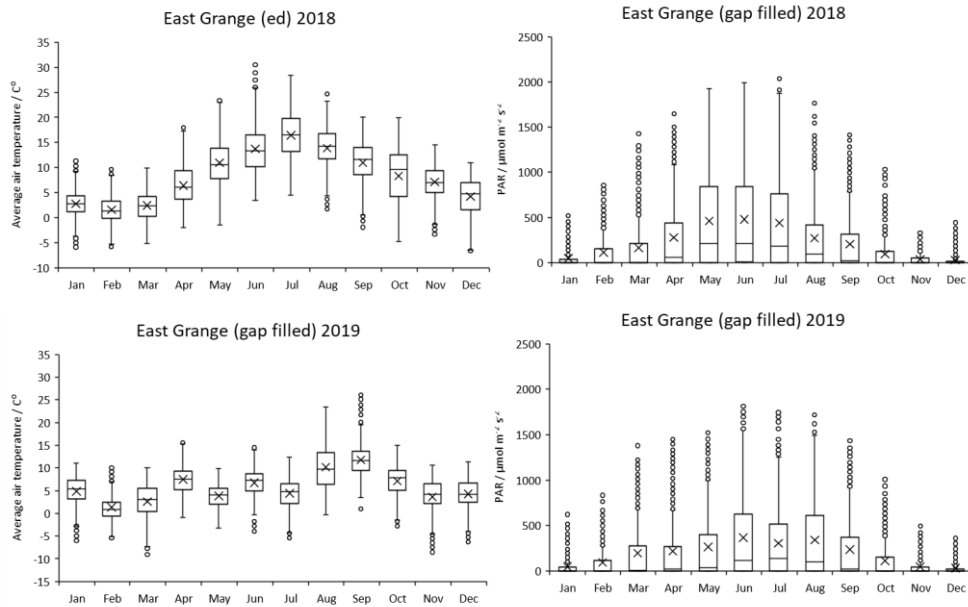


Figure S3 – Summary data for PAR and air temperature measured at the Alice Holt field site, south England. This data was used for modelling annual BVOC emissions from Sitka spruce, hybrid aspen and Italian alder using the MEGAN 2.1 model.

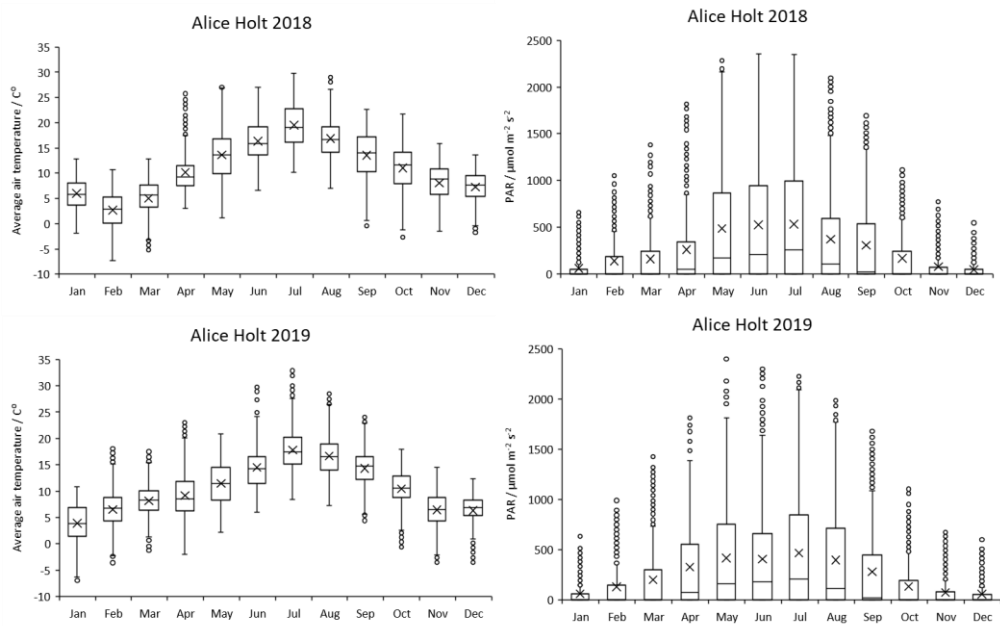


Table S1 – Median seasonal BVOC emissions ($\mu\text{g C g}^{-1} \text{h}^{-1}$) and corresponding interquartile range from branches of Sitka spruce, hybrid aspen and Italian alder in SRF plantations, East Grange, Fife, Scotland.

	Species	RH %	Average PAR	Average temperature ($^{\circ}\text{C}$)	Isoprene	Standardised Isoprene	α -pinene	Standardised α -pinene	β -pinene	Standardised β -pinene	
Spring 2018	Sitka	Median	60	580	17.2	0.002	0.018	0.000	0.000	0.000	0.000
		IQR	31	981	10.9	0.031	0.484	0.025	0.071	0.004	0.013
	Aspen	Median	66	1032	30.4	3.193	3.171	-0.003	0.000	0.002	0.002
		IQR	3	262	2.1	0.812	0.388	0.002	0.000	0.001	0.001
	Alder	Median	82	428	19.7	0.010	0.049	0.040	0.088	-0.004	0.000
		IQR	5	334	4.3	0.012	0.034	0.023	0.059	0.001	0.000
Summer 2018	Sitka	Median	81	2030	43.3	7.812	20.383	0.201	0.435	0.034	0.059
		IQR	20	1157	16.0	5.930	14.928	0.216	0.300	0.034	0.048
	Aspen	Median	68	890	28.7	19.626	20.441	0.030	0.035	0.004	0.006
		IQR	28	595	8.6	26.574	12.201	0.021	0.053	0.004	0.007
	Alder	Median	33	1258	32.0	0.034	0.044	0.072	0.077	0.006	0.006
		IQR	15	810	4.3	0.096	0.091	0.076	0.064	0.008	0.005
Winter 2018	Sitka	Median	70	425	17.8	0.004	0.029	0.000	0.000	0.000	0.000
		IQR	26	118	7.6	0.055	0.252	0.028	0.050	0.006	0.016
	Aspen	Median	-	-	-	-	-	-	-	-	-
		IQR	-	-	-	-	-	-	-	-	-
	Alder	Median	73	408	17.0	0.000	0.000	0.007	0.027	0.002	0.017
		IQR	4	71	1.7	0.000	0.000	0.004	0.102	0.003	0.052
Spring 2019	Sitka	Median	47	1360	29.6	0.785	1.195	0.026	0.023	0.013	0.012
		IQR	13	838	11.7	1.772	1.628	0.035	0.033	0.017	0.016
	Aspen	Median	52	1178	18.7	0.050	0.178	0.004	0.014	0.000	0.001
		IQR	3	779	2.1	0.062	0.137	0.018	0.035	0.000	0.002
	Alder	Median	63	1294	22.3	0.010	0.019	0.010	0.018	0.001	0.001
		IQR	26	621	4.4	0.031	0.065	0.014	0.027	0.001	0.002
Summer 2019	Sitka	Median	72	1254	30.9	3.369	2.342	0.083	0.056	0.037	0.033
		IQR	23	1280	8.2	1.454	8.594	0.076	0.224	0.016	0.057
	Aspen	Median	78	1023	21.5	5.276	20.833	0.005	0.009	0.001	0.002
		IQR	8	469	6.7	16.714	15.921	0.009	0.012	0.001	0.001
	Alder	Median	60	857	22.8	-0.001	0.000	0.000	0.000	0.000	0.000
		IQR	24	471	15.5	0.027	0.053	0.019	0.006	0.002	0.001

Table S1 continued

	Species		camphene	Standardised camphene	β -myrcene	Standardised β -myrcene	α -phellandrene	Standardised α -phellandrene	β -phellandrene	Standardised β -phellandrene	d-limonene	Standardised d-limonene	
Spring 2018	Sitka	Median	0.000	0.000	0.000	0.000	0.000	0	0.000	0	0.000	0	
		IQR	0.022	0.064	0.044	0.130	0.000	0.000	0.000	0.000	0.000	0.033	0.098
	Aspen	Median	0.002	0.002	0.019	0.017	0.000	0.000	0.000	0.000	0.000	0.053	0.052
		IQR	0.001	0.002	0.020	0.016	0.000	0.000	0.000	0.000	0.000	0.017	0.029
	Alder	Median	0.001	0.003	0.022	0.052	0.000	0.001	0.000	0.000	0.000	0.132	0.334
		IQR	0.006	0.009	0.007	0.012	0.001	0.002	0.000	0.000	0.000	0.084	0.388
Summer 2018	Sitka	Median	0.205	0.450	8.000	13.314	0.033	0.073	0.028	0.061	0.530	1.089	
		IQR	0.190	0.234	0.972	1.502	0.016	0.025	0.022	0.035	0.555	0.843	
	Aspen	Median	0.003	0.005	0.007	0.015	0.000	0.000	0.004	0.009	0.045	0.045	
		IQR	0.008	0.012	0.010	0.016	0.000	0.000	0.009	0.010	0.064	0.035	
	Alder	Median	0.015	0.052	0.051	0.233	0.000	0.000	0.000	0.000	0.000	0.037	0.051
		IQR	0.071	0.061	0.278	0.240	0.000	0.000	0.000	0.000	0.000	0.146	0.105
Winter 2018	Sitka	Median	0.000	0.000	0.003	0.011	0.000	0.000	0.000	0.000	0.005	0.017	
		IQR	0.011	0.017	0.104	0.300	0.001	0.001	0.000	0.001	0.060	0.178	
	Aspen	Median	-	-	-	-	-	-	-	-	-	-	
		IQR	-	-	-	-	-	-	-	-	-	-	
	Alder	Median	0.000	0.000	0.001	0.010	0.000	0.002	0.000	0.000	0.000	0.025	0.196
		IQR	0.000	0.000	0.002	0.003	0.000	0.001	0.000	0.000	0.000	0.018	0.369
Spring 2019	Sitka	Median	0.010	0.009	0.916	0.834	0.002	0.003	0.006	0.006	0.430	0.392	
		IQR	0.012	0.010	1.188	1.340	0.006	0.006	0.009	0.008	0.524	0.476	
	Aspen	Median	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		IQR	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.004	0.009	
	Alder	Median	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.013	0.018	
		IQR	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.016	0.033	
Summer 2019	Sitka	Median	0.005	0.005	1.046	0.786	0.012	0.012	0.020	0.013	0.719	0.742	
		IQR	0.052	0.111	0.756	0.383	0.009	0.008	0.016	0.009	0.233	0.874	
	Aspen	Median	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.009	0.023	
		IQR	0.001	0.001	0.001	0.001	0.000	0.000	0.011	0.013	0.015	0.016	
	Alder	Median	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.005	
		IQR	0.001	0.000	0.000	0.001	0.000	0.000	0.006	0.000	0.004	0.012	

Table S1 continued

	Species		eucalyptol	Standardised eucalyptol	Carene	Standardised carene	linalool	Standardised linalool	γ -terpinene	Standardised γ -terpinene	Total MT	Standardised Total MT
Spring 2018	Sitka	Median	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0.000
		IQR	0.001	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.127	0.436
	Aspen	Median	0.008	0.008	-0.003	0.000	0.000	0.000	0.000	0.000	0.065	0.074
		IQR	0.004	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.014	0.016
	Alder	Median	0.005	0.010	0.036	0.089	0.000	0.000	0.000	0.000	0.232	0.584
		IQR	0.001	0.005	0.006	0.044	0.000	0.000	0.000	0.000	0.085	0.531
Summer 2018	Sitka	Median	0.072	0.158	0.011	0.019	0.000	0.000	0.000	0.000	9.025	15.021
		IQR	0.193	0.097	0.016	0.014	0.000	0.000	0.000	0.000	2.270	3.136
	Aspen	Median	0.008	0.012	0.013	0.020	0.000	0.000	0.000	0.000	0.107	0.157
		IQR	0.013	0.025	0.018	0.011	0.000	0.000	0.000	0.000	0.131	0.101
	Alder	Median	0.016	0.021	0.025	0.031	0.000	0.000	0.000	0.000	0.387	0.435
		IQR	0.015	0.009	0.059	0.058	0.000	0.000	0.000	0.000	0.563	0.483
Winter 2018	Sitka	Median	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.008	0.025
		IQR	0.022	0.038	0.003	0.009	0.001	0.001	0.000	0.000	0.258	0.741
	Aspen	Median	-	-	-	-	-	-	-	-	-	-
		IQR	-	-	-	-	-	-	-	-	-	-
	Alder	Median	0.001	0.007	0.006	0.037	0.000	0.002	0.000	0.001	0.037	0.342
		IQR	0.001	0.012	0.004	0.098	0.000	0.003	0.000	0.002	0.021	0.658
Spring 2019	Sitka	Median	0.000	0.000	0.006	0.007	0.000	0.000	0.000	0.000	1.412	1.286
		IQR	0.022	0.044	0.011	0.011	0.000	0.000	0.000	0.000	2.391	2.602
	Aspen	Median	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.005	0.020
		IQR	0.000	0.000	0.001	0.002	0.007	0.018	0.000	0.000	0.071	0.137
	Alder	Median	0.000	0.000	0.005	0.010	0.001	0.001	0.000	0.000	0.035	0.051
		IQR	0.000	0.000	0.008	0.009	0.002	0.004	0.000	0.000	0.038	0.085
Summer 2019	Sitka	Median	0.073	0.072	0.008	0.011	0.005	0.005	0.003	0.003	2.302	2.057
		IQR	0.136	0.048	0.023	0.009	0.010	0.004	0.005	0.002	1.160	1.460
	Aspen	Median	0.000	0.000	0.003	0.007	0.004	0.011	0.000	0.000	0.023	0.049
		IQR	0.006	0.007	0.006	0.008	0.037	0.042	0.000	0.000	0.081	0.094
	Alder	Median	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.014
		IQR	0.000	0.000	0.009	0.004	0.000	0.000	0.000	0.000	0.024	0.017