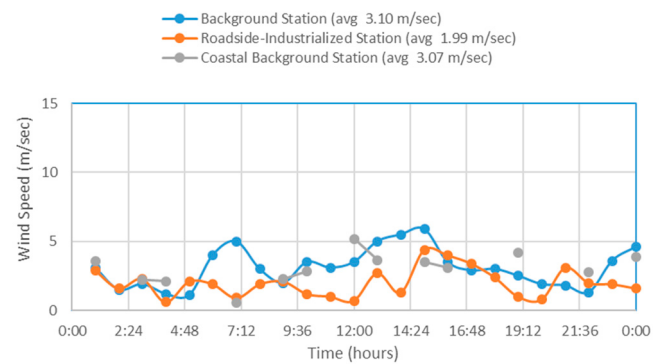
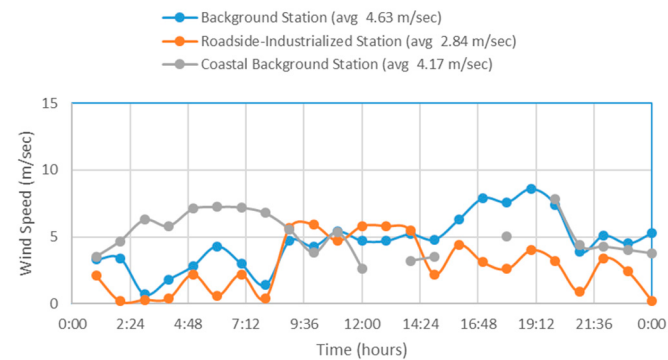


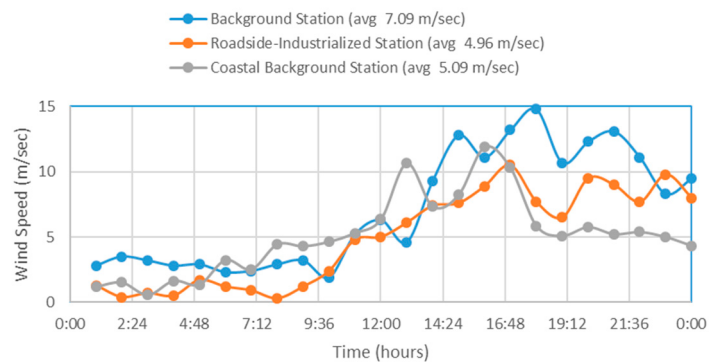
(a)



(b)



(c)



(d)

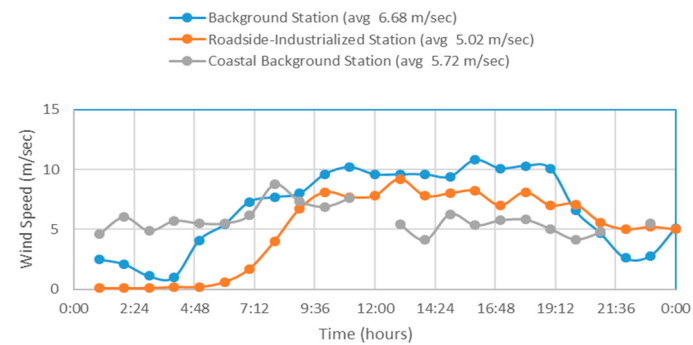
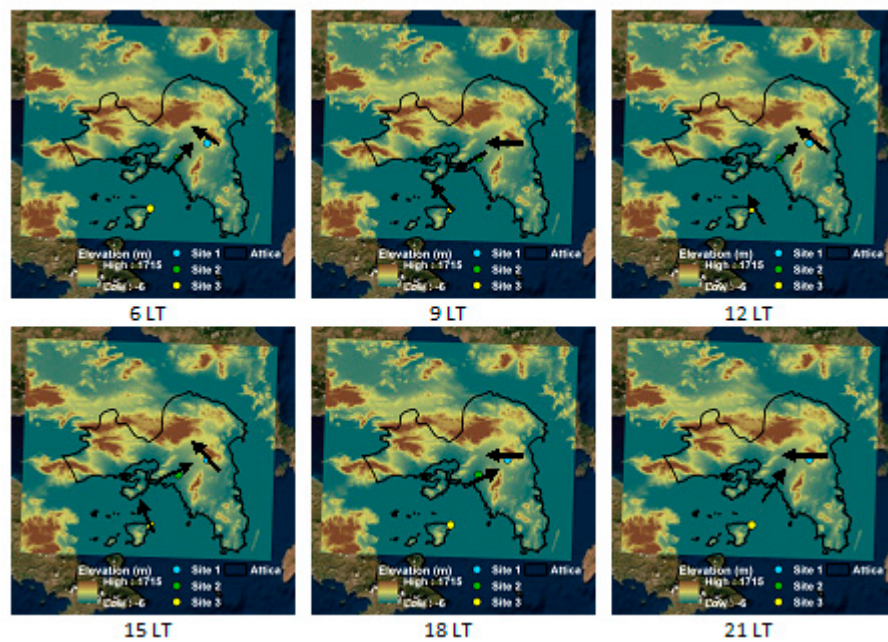


Figure S1. Daily variation of the wind speed (m/sec) at the sampling stations on (a) 20/3/2008, (b) 24/3/2008, (c) 20/7/2008 and (d) 21/7/2008.

(a)



(b)

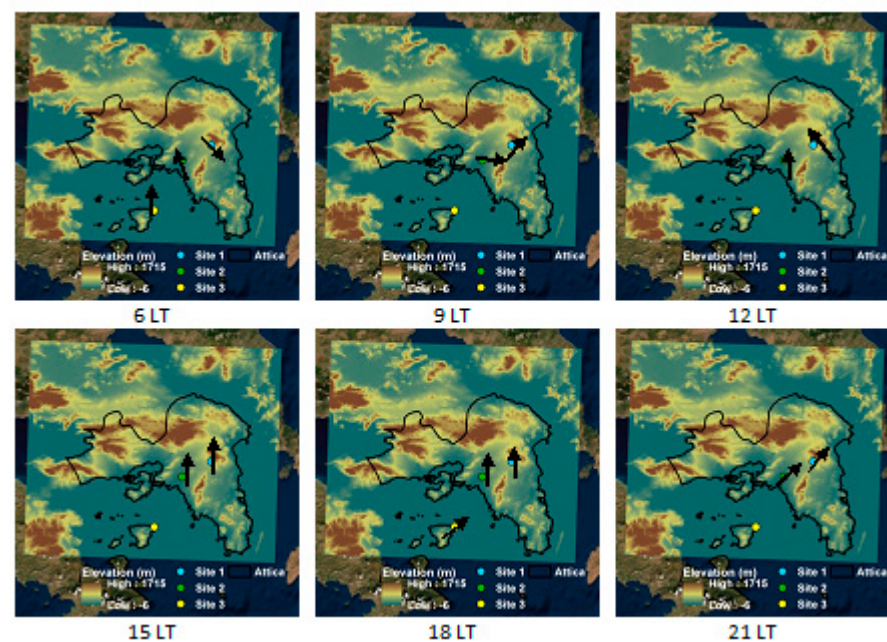
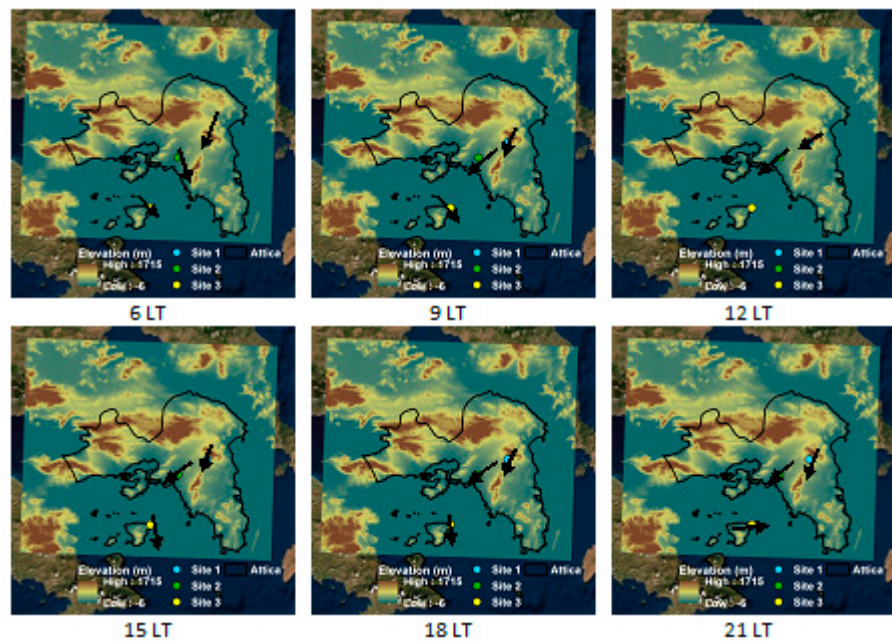


Figure S2. Hourly differentiation of the wind direction on a) 20/3/2008 and b) 24/3/2008 at the three sampling stations.

(a)



(b)

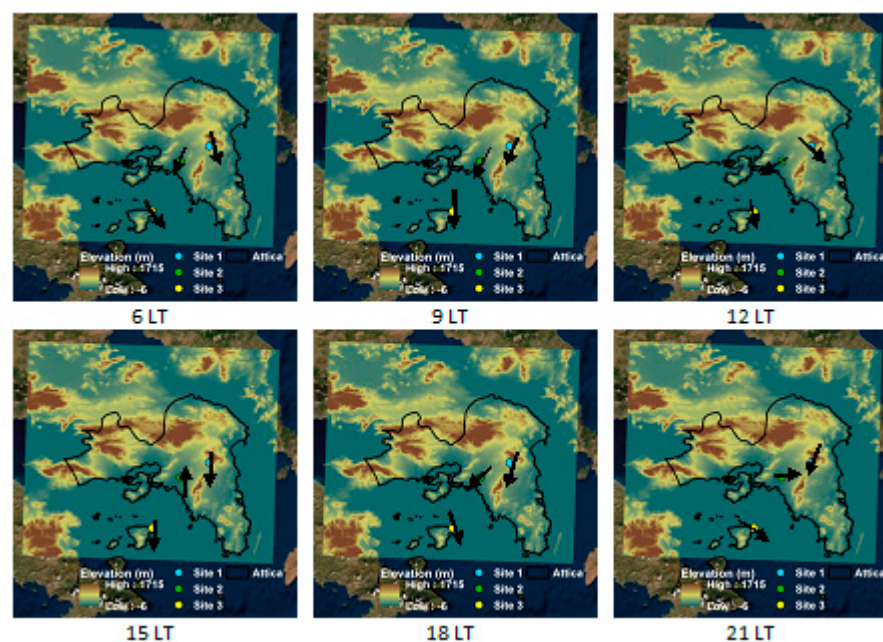
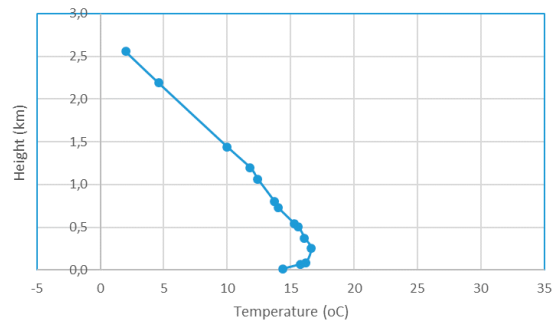
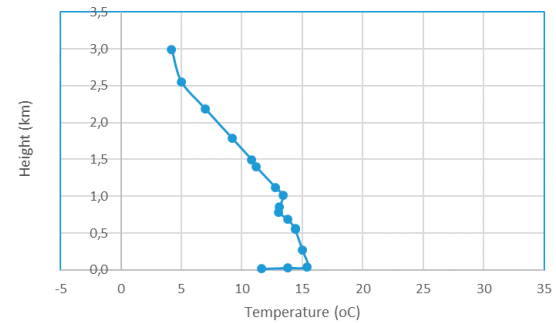


Figure S3. Hourly differentiation of the wind direction on (a) 20/7/2008 and (b) 21/7/2008 at the three sampling stations.

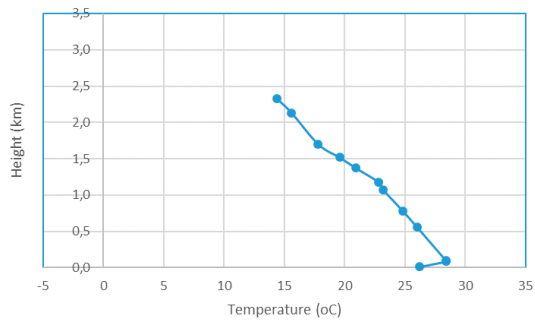
(a)



(b)



(c)



(d)

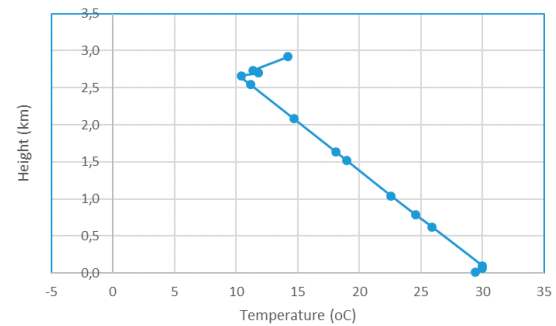
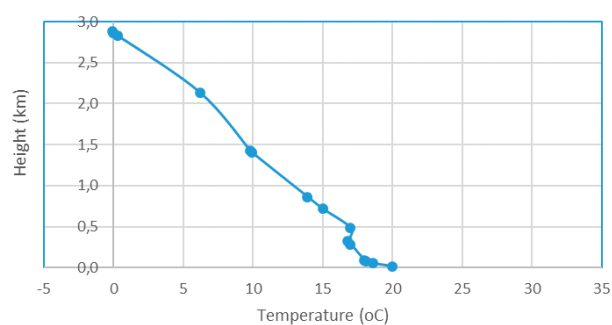
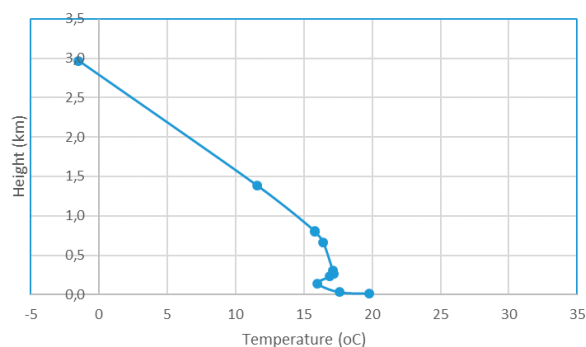


Figure S4. The vertical profile of temperature on 3 LT on (a) 20/3/2008, (b) 24/3/2008, (c) 20/7/2008 and (d) 21/7/2008.



(a)



(b)

Figure S5. The vertical profile of temperature on 15 LT on (a) 20/3/2008 and (b) 24/3/2008.

Table S1. Values of the limit of detection (LOD), the limit of quantitation (LOQ) and the expanded uncertainty at 95% confidence level and $k = 2$ that has been estimated experimentally (U_{exp}) for each detected polyaromatic hydrocarbon.

	LOD	LOQ	% U_{exp} ($k=2$)
Acenaphthene	0.39	1.29	13.0
Acenaphthylene	0.24	0.79	6.11
Anthracene	0.45	1.49	6.77
Benz(a)anthracene	0.19	0.63	23.1
Benzo(a)pyrene	0.72	2.38	11.6
Benzo(e)pyrene	1.12	3.7	14.1
Benzo(b)fluoranthene	1.00	3.3	13.9
Benzo(k)fluoranthene	0.78	2.57	26.0
Benzo(ghi)perylene	0.59	1.95	11.3
Chrysene	0.3	0.99	8.58
Dibenzo(a,h)anthracene	0.44	1.45	16.5
Fluoranthrene	0.48	1.58	10.4
Fluorene	0.41	1.35	9.19
Perylene	0.59	1.95	15.9
Indeno(1,2,3-c,d)pyrene	0.91	3.00	21.9
Phenanthrene	0.57	1.88	14.5
Pyrene	0.39	1.29	6.27
3,6 -dimethylphenanthrene	0.43	1.42	12.3
1-methylphenanthrene	0.53	1.75	7.71

Table S2. Diagnostic Ratios of the PAHs for the South Type Days.

DRs	Indicator Sources	Background	PM _{2.5}		PM ₁	
			Roadside-Industrialized	Coastal Background	Roadside-Industrialized	Coastal Background
Ant/Phe+Ant ⁽¹⁾	<0.1 petrogenic ⁽¹⁾	0.07	0.12	0.14	0.13	0.14
	>0.1 pyrogenic ⁽¹⁾					
B[a]P/B[ghi]Per ⁽¹⁾	<0.6 traffic ⁽¹⁾	0.29	0.27	0.30	0.32	0.13
	>0.6 non traffic ⁽¹⁾					
	<0.2 unburned petroleum (petrogenic) ⁽²⁾					
	>0.35 pyrogenic ⁽²⁾	0.55	0.25	0.25	0.26	0.68
B[a]A/B[a]A+Chry ⁽²⁾	0.2-0.35 mixture of both ⁽²⁾					
	<0.5 diesel vehicles ⁽³⁾	0.23	0.35	0.27	0.34	0.29
B[a]P/B[a]P+Chry ⁽³⁾	>0.5 gasoline vehicles ⁽³⁾					
		1.93	1.58	1.55	1.90	1.97
B[b]F/B[k]F ⁽⁴⁾	>0.5 diesel vehicles ⁽⁴⁾					
	0.40-0.50 petroleum (liquid fossil fuel) combustion ⁽⁵⁾	0.46	0.51	0.51	0.51	0.56
Fla/Fla+Pyr ^(5,6)	>0.50 grass/wood/coal combustion ⁽⁵⁾					
	0.42-0.53 road dust ⁽⁶⁾					
	<0.2 unburned petroleum (petrogenic) ^(1,5)					
	0.2-0.5 petroleum (liquid fossil fuel) combustion ^(1,5)	0.48	0.57	0.43	0.56	0.26
	>0.5 grass/wood/coal combustion ^(1,5)					
	0.2-0.5 petroleum source ⁽³⁾					
IndP/IndP+B[ghi]Per ^(1,3,5)	0.35-0.7 diesel vehicles ⁽³⁾					
	>0.5 diesel vehicles ⁽⁷⁾	0.30	0.14	0.28	0.14	0.40
Fl/Fl+Pyr ⁽⁷⁾	<0.5 gasoline vehicles ⁽⁷⁾					
	<10 & >1 pyrogenic ⁽⁸⁾	12.6 & 0.93	7.24 & 1.04	6.34 & 1.04	6.76 & 1.06	6.17 & 1.27
Phe/Ant & Fla/Pyr ⁽⁸⁾	>10 & <1 petrogenic ⁽⁸⁾					

¹ Jamhari et al. [40], ² Duan et al [41] ³ Feng et al. [42], ⁴ Ravindra et al. [37], ⁵ Ding et al. [43], ⁶ Manoli et al. [44], ⁷ Ravindra et al. [36], ⁸ Chen et al. [45].

Table S3. Diagnostic Ratios of the PAHs for the North Type Days.

DRs	Indicator Sources	PM _{2.5}			PM ₁	
		Background	Roadside-Industrialized	Coastal Background	Roadside-Industrialized	Coastal Background
Ant/Phe+Ant ⁽¹⁾	<0.1 petrogenic ⁽¹⁾		0.46	0.06	0.12	0.08
	>0.1 pyrogenic ⁽¹⁾					
	<0.6 traffic ⁽¹⁾	0.05	0.16	0.18	0.19	0.14
B[a]P/B[ghi]Per ⁽¹⁾	>0.6 non traffic ⁽¹⁾					
	<0.2 unburned petroleum (petrogenic) ⁽²⁾					
	>0.35 pyrogenic ⁽²⁾					
B[a]A/B[a]A+Chry ⁽²⁾	0.2-0.35 mixture of both ⁽²⁾	0.16	0.13	0.10	0.12	0.13
	<0.5 diesel vehicles ⁽³⁾	0.12	0.30	0.30	0.25	0.22
	>0.5 gasoline vehicles ⁽³⁾					
B[a]P/B[a]P+Chry ⁽³⁾		1.40	1.24	1.08	1.45	1.29
	B[b]F/B[k]F ⁽⁴⁾					
	>0.5 diesel vehicles ⁽⁴⁾					
Fla/Fla+Pyr ^(5,6)	0.40-0.50 petroleum (liquid fossil fuel) combustion ⁽⁵⁾					
	>0.50 grass/wood/coal combustion ⁽⁵⁾	0.54	0.47	0.54	0.50	0.53
	0.42-0.53 road dust ⁽⁶⁾					
IndP/IndP+B[ghi]Per ^(1,3,5)	<0.2 unburned petroleum (petrogenic) ^(1,5)					
	0.2-0.5 petroleum (liquid fossil fuel) combustion ^(1,5)					
	>0.5 grass/wood/coal combustion ^(1,5)					
Fl/Fl+Pyr ⁽⁷⁾	0.2-0.5 petroleum source ⁽³⁾					
	0.35-0.7 diesel vehicles ⁽³⁾		0.18	0.21	0.32	0.13
	>0.5 diesel vehicles ⁽⁷⁾	0.45	0.26	0.19	0.36	0.31
Phe/Ant & Fla/Pyr ⁽⁸⁾	<0.5 gasoline vehicles ⁽⁷⁾					
	<10 & >1 pyrogenic ⁽⁸⁾	&1.19	8.09 & 0.88	14.5 & 1.19	7.5 & 1.02	12.2 & 1.14
	>10 & <1 petrogenic ⁽⁸⁾					

¹ Jamhari et al. [40], ² Duan et al [41], ³ Feng et al. [42], ⁴ Ravindra et al. [37], ⁵ Ding et al.[43], ⁶ Manoli et al. [44], ⁷ Ravindra et al. [36], ⁸ Chen et al. [45].