

Figures and Tables

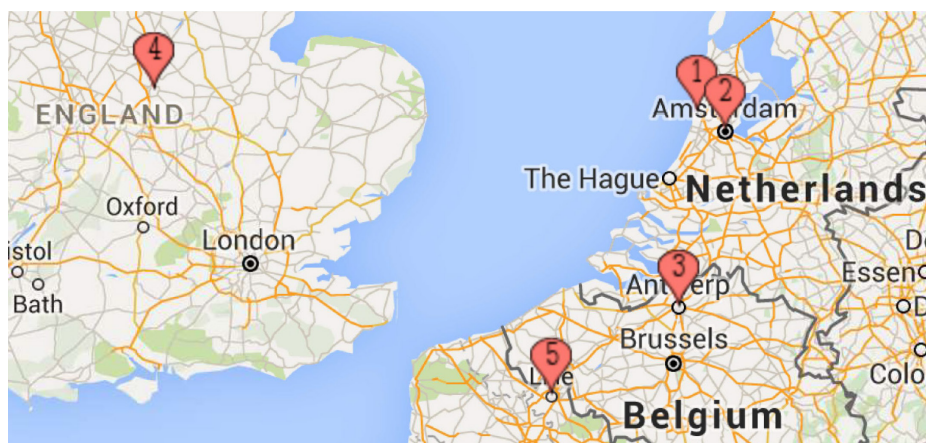


Figure 1 – Location of monitoring sites: 1 = Wijk aan Zee, 2 = Amsterdam, 3 = Antwerp, 4 = Leicester and 5 = Lille. Map data ©2015 Google.

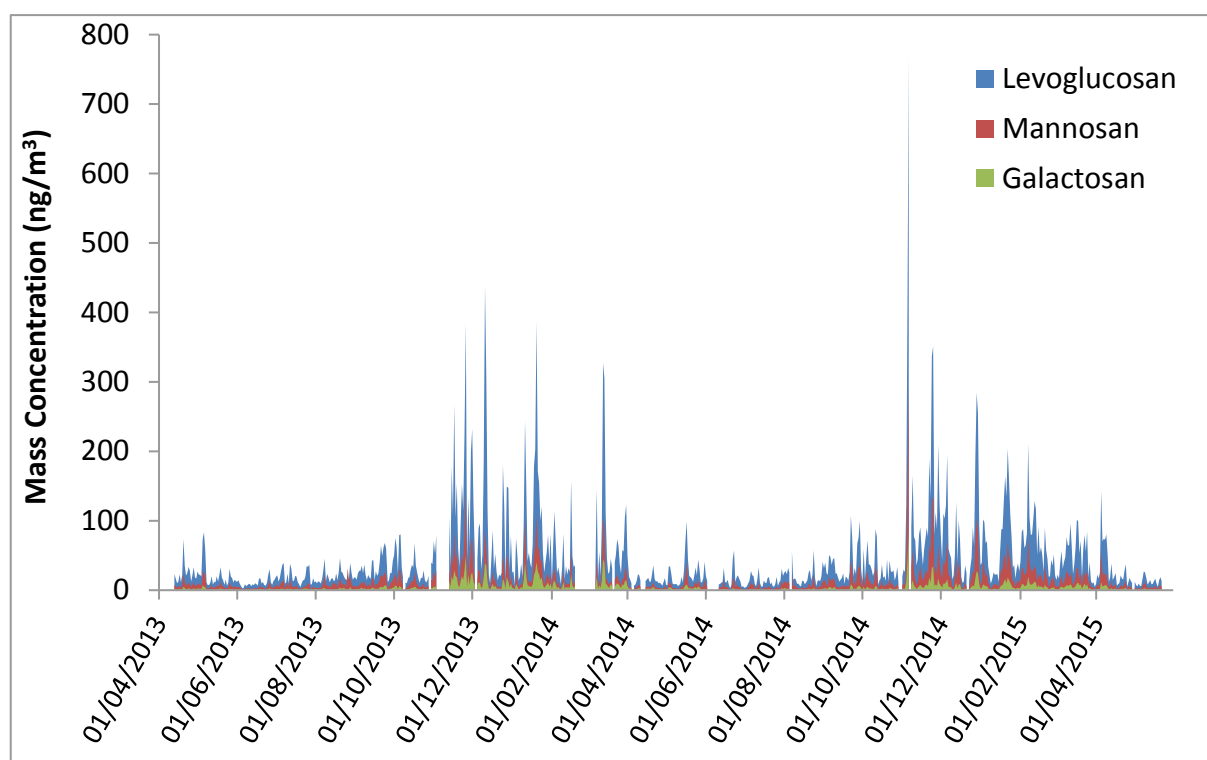


Figure 2 – Daily concentrations of monosaccharide anhydrides measured at the Leicester fixed site between April 2013 and May 2015.

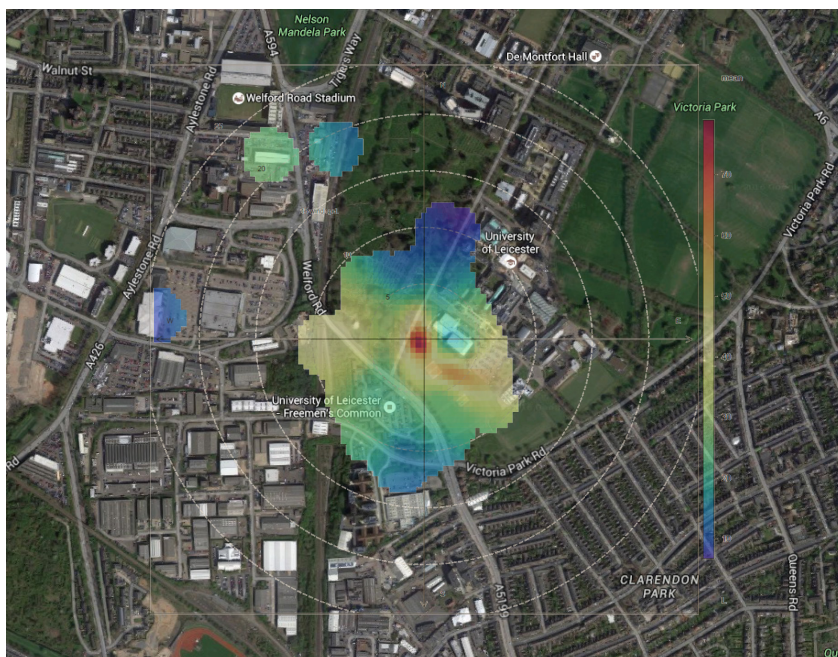


Figure 3 – Relationship between concentrations of levoglucosan concentration and wind measured at the Leicester urban background site between April 2013 and May 2015. Map data ©2015 Google.

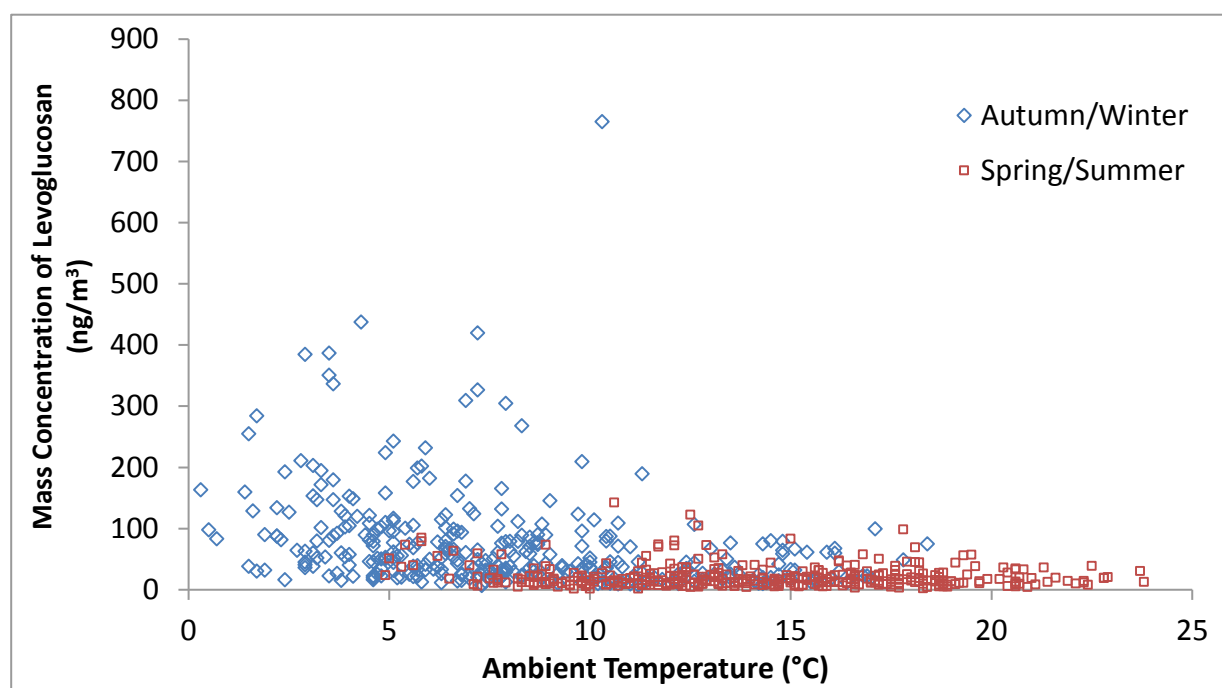


Figure 4 – Relationship between levoglucosan concentration and average daily temperature, measured at the Leicester site.

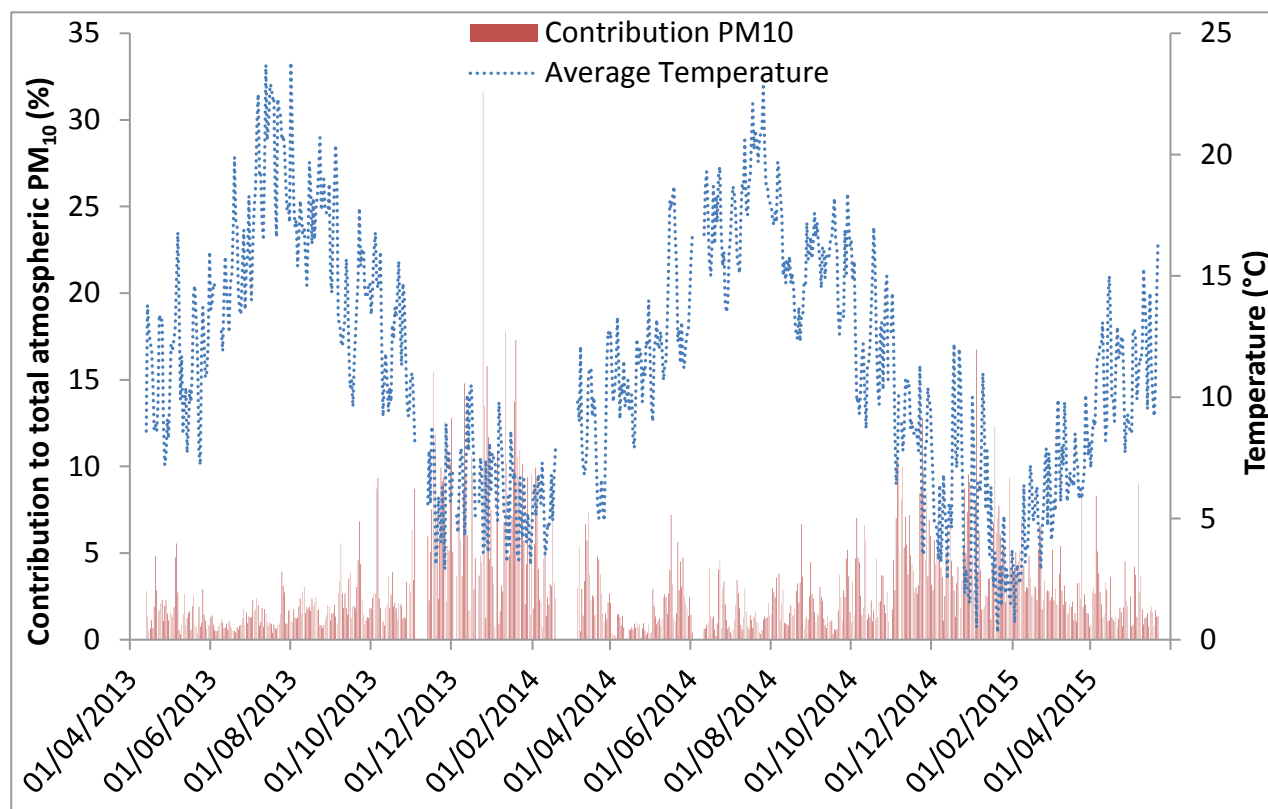


Figure 7 – Contribution of wood burning to total PM₁₀ in Leicester calculated using a conversion factor of 10.7 as determined by Schmidl et al [22].

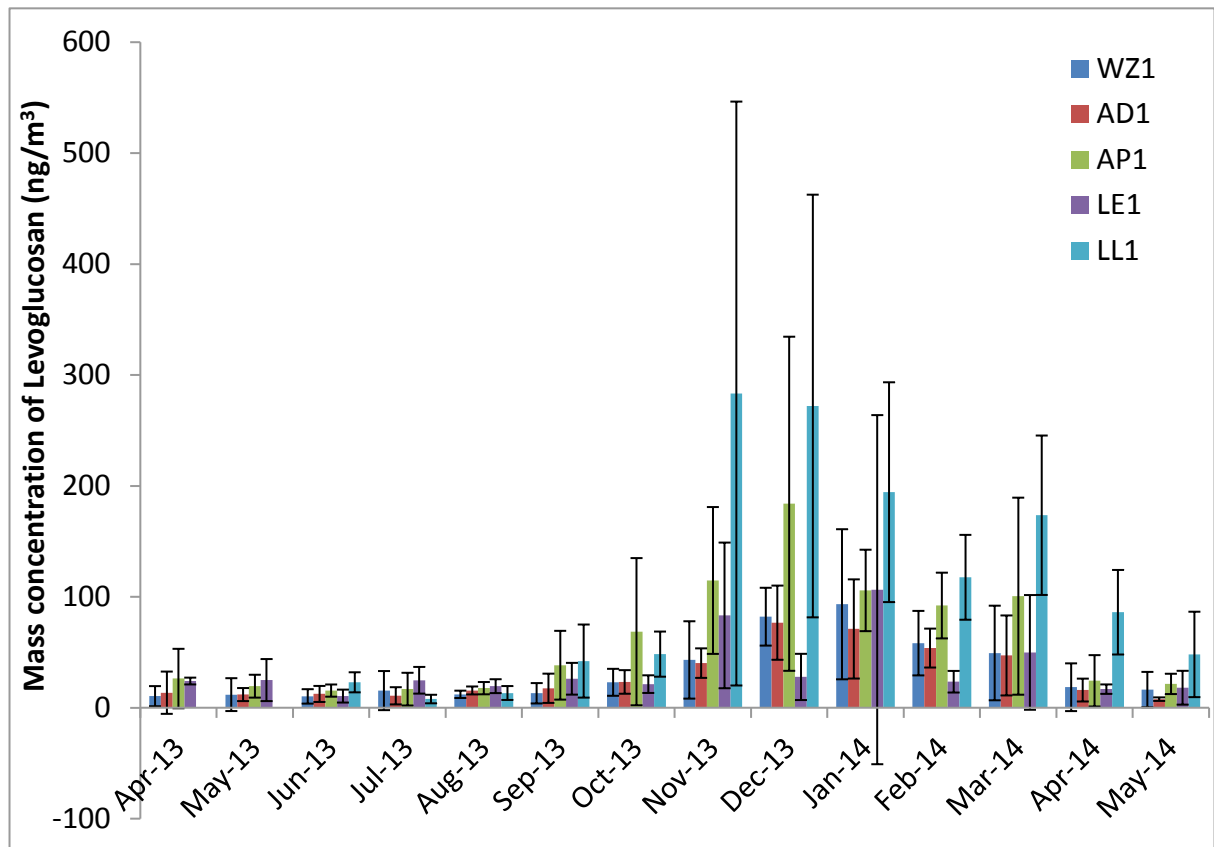


Figure 8 – Mean (\pm standard deviation) levoglucosan concentrations across all five NW European sites measured from every sixth day PM_{10} filters. WZ1 = Wijk aan Zee, AD1 = Amsterdam, AP1 = Antwerp, LE1 = Leicester, LL1 = Lille. N.B. Easter data excluded from averages.

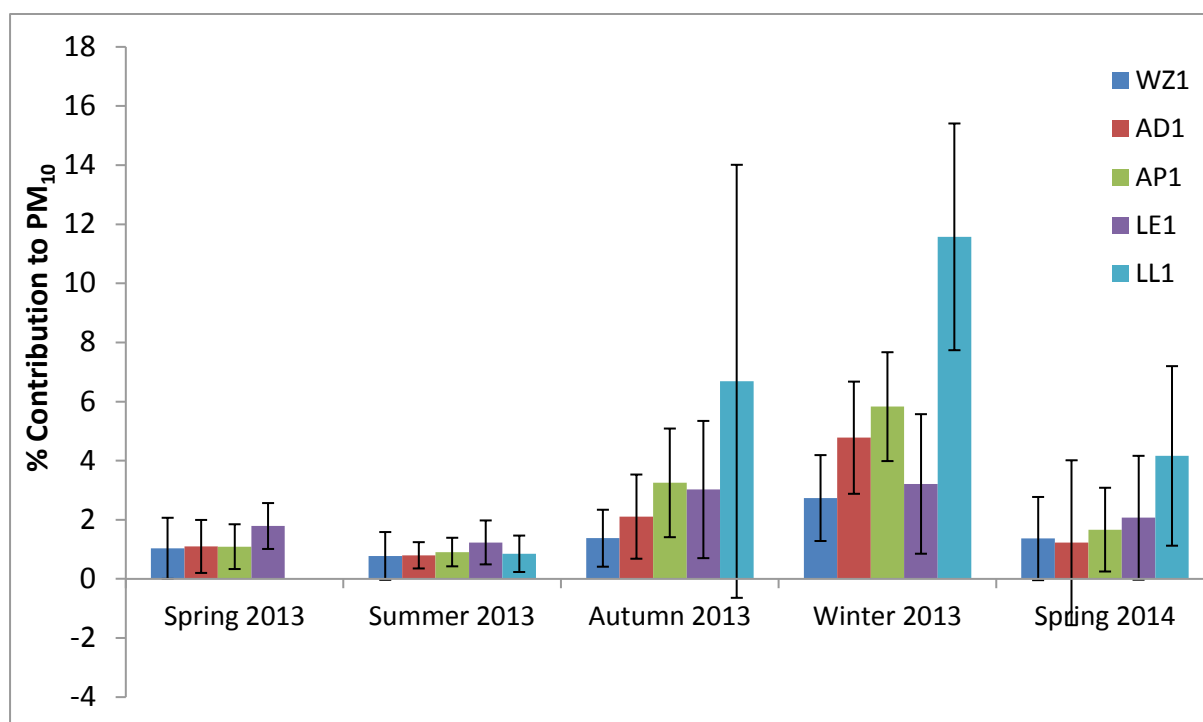


Figure 9 – Mean (\pm standard deviation) seasonal contribution of wood burning to PM_{10} across NW European sites measured from every sixth day PM_{10} filters. WZ1 = Wijk aan Zee, AD1 = Amsterdam, AP1 = Antwerp, LE1 = Leicester, LL1 = Lille.

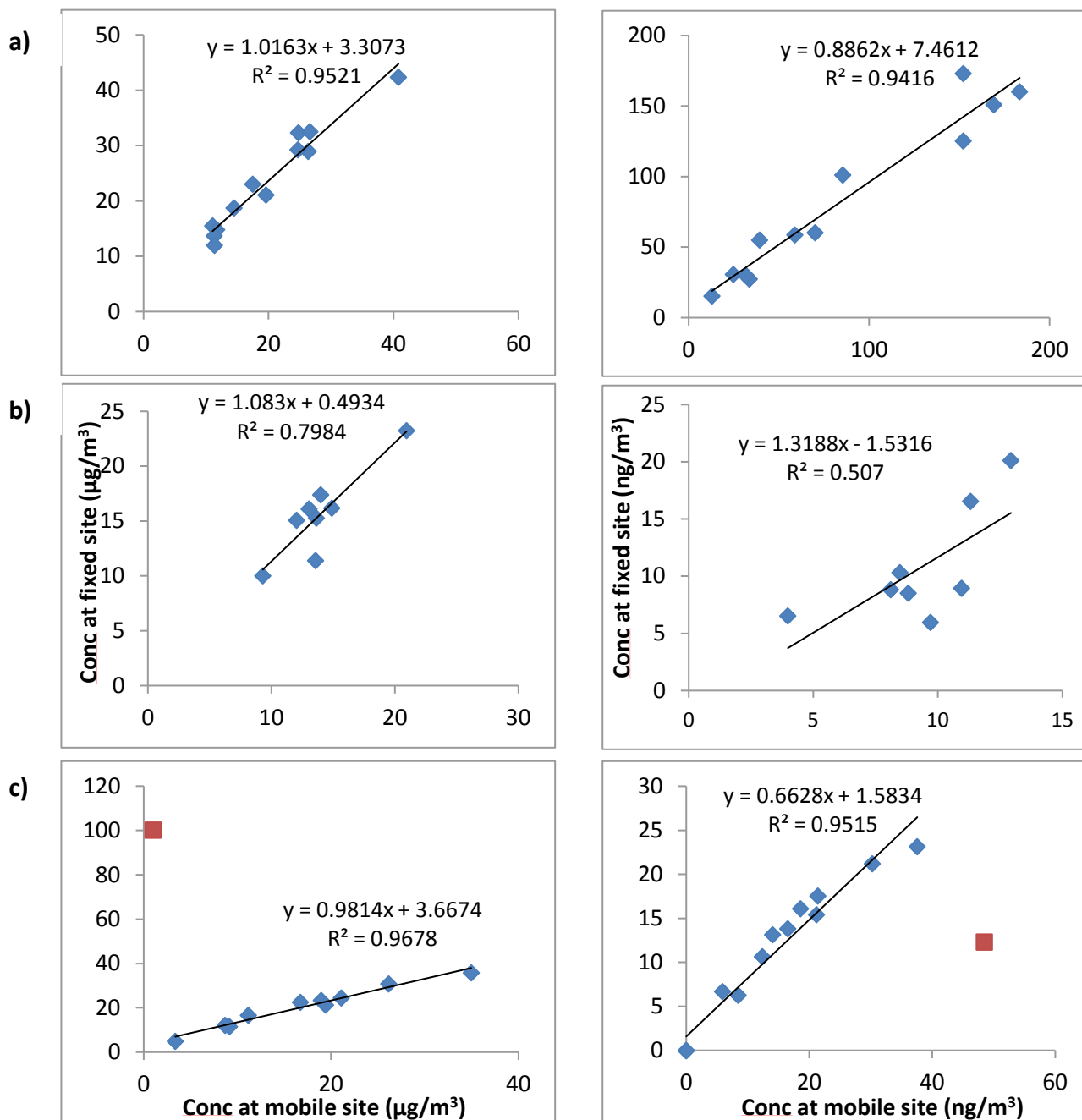


Figure 10 – Correlation of PM₁₀ (left-hand column) and levoglucosan measurements (right hand column) between those taken at the a) Amsterdam b) Antwerp c) Leicester fixed site and the mobile station measurements taken 1.2-6.2 km away (see Table 1). 24/4/14 removed from PM₁₀ correlation, and 18/4/14 from levoglucosan correlation for Leicester data (points shown in red).

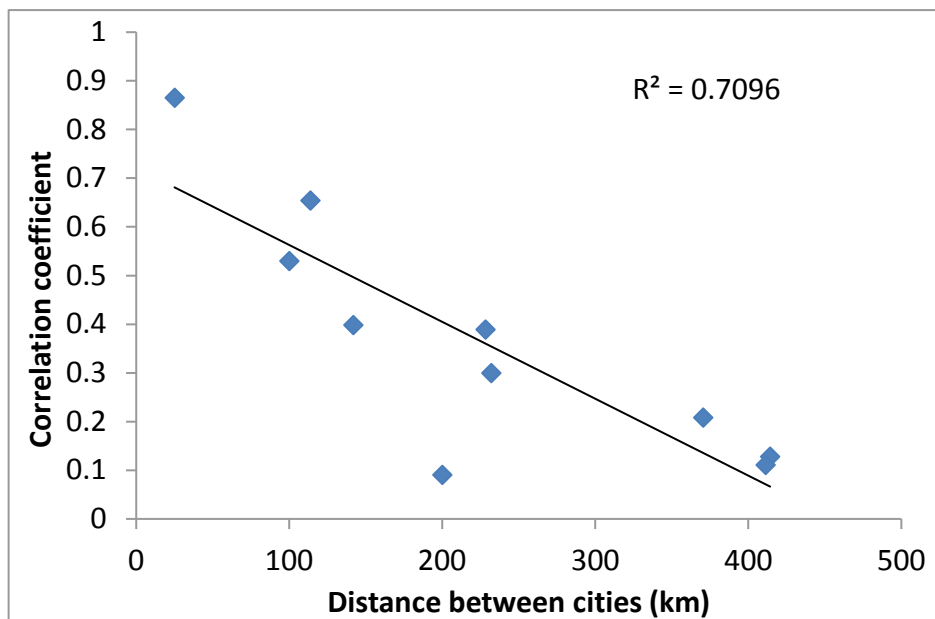


Figure 11 – Correlation between the correlation coefficient of levoglucosan concentration between cities and the distance between them.

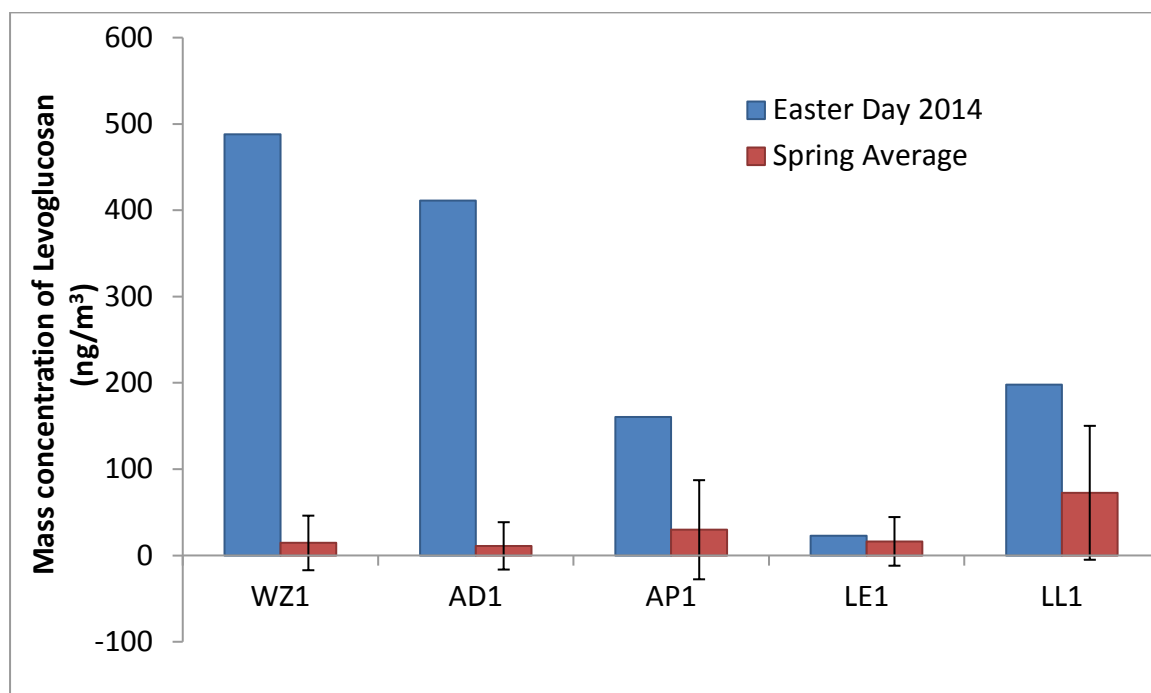


Figure 12 – Levoglucosan levels recorded on Easter day across the five fixed sites as compared to the seasonal average. WZ1 = Wijk aan Zee, AD1 = Amsterdam, AP1 = Antwerp, LE1 = Leicester, LL1 = Lille.

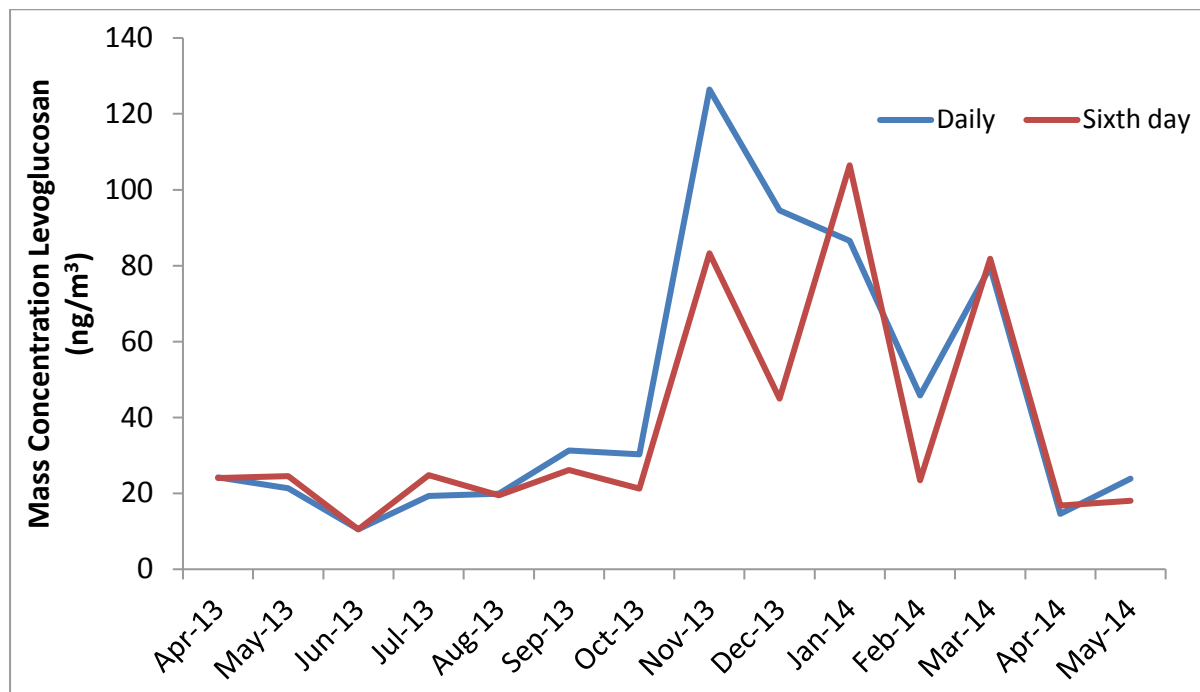


Figure 13 – Comparison of average levoglucosan levels calculated from daily data and every sixth day data at the Leicester site.

Table 1 - Details of location of fixed sites and temporary monitoring/validation sites.

City	Site Code	Site name	Distance to main street (m)	Traffic intensity ^a (vehicles/day)
Amsterdam	AD1	Vondelpark	64	17000
	AD2	Nieuwendammerdijk	20	<300
Antwerp	AP1	Borgerhout	30	29500
	AP2	Stadspark	45	7800
Leicester	LE1	Leicester University	140	22500
	LE2	Brookfield	150	20500
Lille	LL1	Lille-Fives	35	NA
Wijk aan Zee	WZ1	Wijk aan Zee	70	NA

1 - fixed site and 2 - temporary site for mobile monitoring station.

^a Mean traffic intensity at the nearest main street.

Table 2 - Number of exposed filters used for gravimetric analysis of the PM₁₀ mass concentration in the cross site comparison period. For the sampler at the fixed site, the data availability is given in brackets (fraction of 426 days of monitoring).

City	Fixed Site	Adjacent to site ^b	Alternative site ^c	Total
Wijk aan Zee (WZ)	397 (0.93)	-	-	397
Amsterdam (AD)	415 (0.97)	34	14	463
Antwerp (AP)	414 (0.97)	27	27	468
Leicester (LE)	388 (0.91)	28	35	451
Lille (LL)	328 (0.77 ^a)	-	-	328
Total	1942 (0.91)	89	76	2107

^a Data availability of 0.91 during the actual monitoring period in Lille (05/06/2013 to 31/05/2014).

^b AD: 10/04/2013 to 13/05/2013; AP: 10/09/2013 to 06/10/2013; LE: 06/03/2014 to 04/04/2013.

^c AD: 15/05/2013 to 28/05/2013; AP: 08/10/2013 to 03/11/2013; LE: 06/04/2014 to 15/05/2013.

Table 3 – Monthly levoglucosan to mannosan (L/M) and levoglucosan to mannosan + galactosan (L/(M+G)) ratios across all sites.

	Wijk aan Zee		Amsterdam		Antwerp		Leicester		Lille	
Month	L/M	L/(M+G)	L/M	L/(M+G)	L/M	L/(M+G)	L/M	L/(M+G)	L/M	L/(M+G)
Apr-13	3.3	2.6	3.7	2.7	3.8	2.8	3	2.4	NA	NA
May-13	3	2.4	3.4	2.7	3.6	2.7	2.7	2.2	NA	NA
Jun-13	2.9	2.4	2.8	2.2	3.5	2.7	3	2.4	2.8	2.3
Jul-13	2.1	1.8	2.4	1.9	3.5	2.5	3	2.3	3.3	2.2
Aug-13	2.4	1.9	2.8	2.2	3.6	2.7	2.6	2.1	2.9	2
Sep-13	2.6	2	2.9	2.3	3.1	2.5	3	2.4	3.2	2.5
Oct-13	3.2	2.3	4.1	3.2	3.9	2.9	3	2.4	3.1	2.3
Nov-13	4.1	2.8	4.2	2.9	4.4	3.2	3.4	2.5	5	3.5
Dec-13	5.2	3.5	4.7	3.2	6.1	4.1	4.2	2.8	6.7	4.3
Jan-14	4.5	3.1	4.6	3.1	6.1	4.1	3.7	2.6	5.7	3.8
Feb-14	4.1	2.9	5.5	3.6	5.6	3.8	3.2	2.2	5.4	3.7
Mar-14	3.7	2.5	4	2.7	4.6	3.1	4.6	3	4.7	3
Apr-14	4	2.6	4	2.6	3.9	2.7	3.7	2.5	4.4	2.8
May-14	6.1	3.2	4.8	2.8	4.4	2.7	3.1	2.2	5	3.2