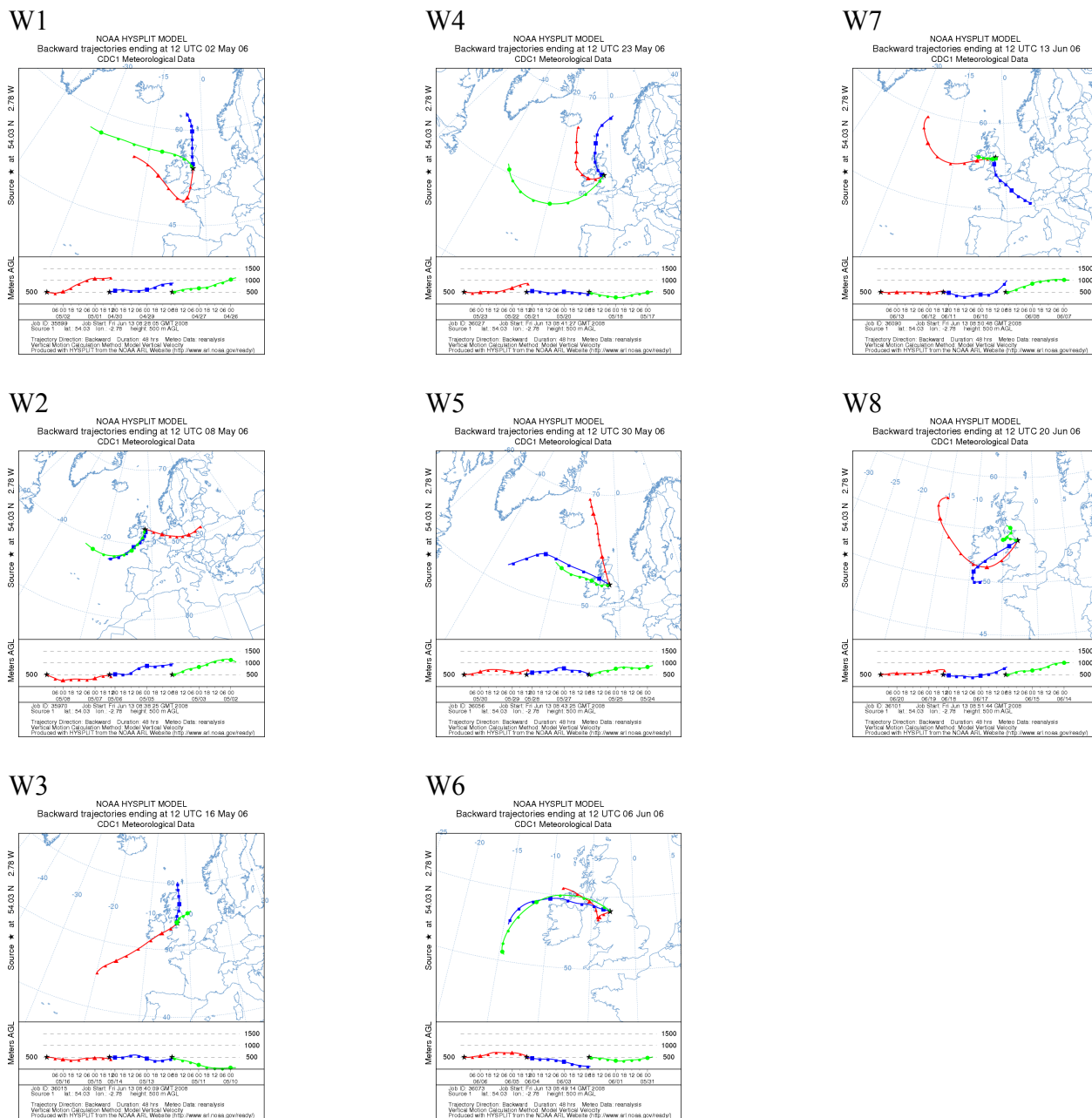


1 Supplementary Information

2 **Figure S1** Back trajectory of air mass sampled during the field sampling period at

3 Hazelrigg, Lancaster, United Kingdom



1 **Table S1** Recovery data and LOD (pg/m³) of BDEs in this study
 2

Compound	Min (%)	Max (%)	Arithmetic mean (%)	Stdv
13C PCB 138	55	110	87	10
13C PCB 153	60	110	89	10
13C PCB 180	61	119	89	10
13C PCB 209	49	105	83	10
BDE 51	51	91	70	9.1
BDE 128	50	111	78	16
BDE 190	20	127	70	20
Compound	LOD			
BDE-17	1.3			
BDE-28	0.40			
BDE-47	1.3			
BDE-49	0.15			
BDE-99	2.1			
BDE-100	0.56			
BDE-138	2.0			
BDE-153	0.70			
BDE-154	1.2			
BDE-183	2.8			

Table S2 Percentage of particle size distribution (in unit of μm) at sampling site (Hezelrigg) between 23 June and 14 July 2006

	0.30-0.40	0.40-0.50	0.50-0.65	0.65-0.80	0.80-1.0	1.0-1.6	1.6-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-7.5	7.5-10.0	10.0-15.0	15.0-20.0	>20.0
23-Jun-06	65%	14%	10%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
24-Jun-06	74%	13%	6%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
25-Jun-06	73%	22%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
26-Jun-06	76%	17%	4%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27-Jun-06	76%	20%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28-Jun-06	71%	24%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
29-Jun-06	76%	19%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
30-Jun-06	72%	22%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1-Jul-06	76%	20%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2-Jul-06	77%	19%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3-Jul-06	79%	18%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4-Jul-06	78%	18%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5-Jul-06	79%	18%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6-Jul-06	76%	20%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7-Jul-06	68%	18%	7%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8-Jul-06	66%	16%	9%	4%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9-Jul-06	64%	16%	10%	5%	3%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
10-Jul-06	73%	15%	6%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11-Jul-06	57%	17%	13%	6%	4%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
12-Jul-06	70%	18%	7%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
13-Jul-06	55%	18%	14%	6%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
14-Jul-06	52%	19%	15%	7%	4%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Arithmetic mean	71%	18%	6%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%

6 **Table S3** A summary of concentrations of all analysed PBDEs in passive air samplers
7 (unit: pg/m³)

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	<i>Week 1</i>	<i>Week 2</i>	<i>Week 3</i>	<i>Week 4</i>	<i>Week 6</i>	<i>Week 8</i>
BDE-17	0.85	0.84	0.82	1.26	1.03	1.03
BDE-28	0.47	0.51	0.86	0.52	0.89	1.17
BDE-47	3.52	3.91	3.96	5.19	8.00	8.28
BDE-49	0.56	0.60	0.58	1.00	1.04	1.03
BDE-99	2.50	3.08	3.47	6.11	6.12	6.26
BDE-100	0.46	0.67	0.58	1.07	1.41	0.65
BDE-138	0.99	0.99	0.99	0.99	0.99	0.99
BDE-153	0.76	0.78	0.75	1.20	1.34	1.64
BDE-154	0.58	0.58	0.58	0.58	0.58	0.58
BDE-183	2.14	2.34	3.97	4.13	4.75	4.79

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10 **Note:** BDE-138 and – 154 were detected in < 10% of the passive samplers, half of LODs

11 were used to represent the concentration in the table.

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Table S4 Meteorological information during sampling period

Date	Temperature (°C)	Wind Speed (m/s)	Rain (mm)
26/04/2006	18.5	4.6	0.0
27/04/2006	18.6	4.1	0.0
28/04/2006	18.2	3.5	0.0
29/04/2006	17.9	4.0	0.5
30/04/2006	16.8	3.4	7.3
01/05/2006	17.2	7.0	0.0
02/05/2006	18.4	10.5	0.4
03/05/2006	21.2	5.6	0.0
04/05/2006	19.8	9.4	1.2
05/05/2006	20.6	3.5	0.0
06/05/2006	20.8	6.1	2.0
07/05/2006	17.8	2.3	2.5
08/05/2006	18.9	8.2	0.4
09/05/2006	20.8	2.7	0.0
10/05/2006	23.4	3.5	0.0
11/05/2006	24.3	2.4	0.0
12/05/2006	24.1	2.5	6.7
13/05/2006	17.6	4.0	0.0
14/05/2006	16.3	5.6	4.4
15/05/2006	17.6	4.6	6.4
16/05/2006	20.4	3.4	0.3
17/05/2006	19.3	7.5	10.3
18/05/2006	20.3	10.3	11.0
19/05/2006	17.9	9.0	20.3
20/05/2006	16.9	4.2	1.2
21/05/2006	16.2	4.1	12.2
22/05/2006	15.7	6.9	1.7
23/05/2006	16.8	7.2	6.3
24/05/2006	17.5	8.0	0.0
25/05/2006	20.1	3.4	5.0
26/05/2006	17.8	6.3	0.9
27/05/2006	18.4	7.0	1.1
28/05/2006	18.4	7.0	1.1
29/05/2006	17.8	4.8	1.3
30/05/2006	19.5	4.5	0.0
31/05/2006	20.8	3.9	0.0
01/06/2006	20.6	6.0	0.0
02/06/2006	21.3	4.6	0.1
03/06/2006	23.0	3.6	0.0
04/06/2006	23.3	3.0	0.0
05/06/2006	23.2	2.4	0.0
06/06/2006	24.8	2.8	0.0
07/06/2006	25.6	2.8	0.0
08/06/2006	26.2	2.2	0.0
09/06/2006	26.6	7.0	0.0
10/06/2006	26.4	10.8	0.0
11/06/2006	27.3	3.8	8.1
12/06/2006	24.7	5.0	0.0
13/06/2006	23.0	3.7	0.0
14/06/2006	23.2	4.3	0.0
15/06/2006	24.2	2.7	0.0
16/06/2006	24.8	2.6	0.0
17/06/2006	26.4	2.1	0.0
18/06/2006	22.4	4.9	11.0
19/06/2006	21.6	6.1	0.3
20/06/2006	19.5	3.9	14.0

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16 **Table S5** Statistical test of Sampler's Design Anova Test
17

Oneway

[DataSet0]

ANOVA

concentration

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5634.611	2	2817.305	.796	.494
Within Groups	21241.923	6	3540.321		
Total	26876.534	8			

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