

Table 1        Locations of sites selected for soil gas sampling in London, Birmingham and Bristol, plus the control site at Wallingford. NGR – National Grid Reference.

Site	Site code	Details	NGR		Soil geology
			E	N	
LONDON					
Chislehurst	LN-PW	Adjacent Petts Wood NT area	545380	169285	Palaeogene sands
Epping Forest	LN-EF	Connaught Water	540515	195050	Palaeogene clay
Harrow-on-the-Hill	LN-HH	Sports ground E side of Hill	515385	187145	Palaeogene clay
Hyde Park	LN-HP	The Serpentine	527120	180250	Quaternary sands
Richmond Park	LN-RP	Pen Ponds	520535	172740	Quaternary sands
BIRMINGHAM					
Edgbaston	BM-ER	Edgbaston Reservoir	404005	286955	Quaternary sands
Kingshurst	BM-KL	Lake, Cole Valley	416550	287755	Quaternary alluvium
Sandwell	BM-SP	Swan Pool	402510	292110	Carboniferous mudstone
Shirley	BM-NR	S of Northbrook Road	412330	280080	Quaternary till
BRISTOL					
Clifton Down	BL-CD	W of Clifton Down Road	356500	173775	Carboniferous Limestone
Fishponds	BL-OP	Oldbury Park	363605	176640	Carboniferous sandstone
Hanham Common	BL-HC	Football field	363835	171275	Carboniferous sandstone
Southmead	BL-TP	Trymside Park	358185	177920	Carboniferous Limestone
WALLINGFORD					
CEH Met Site	W	Grounds of Maclean Building	461715	189800	Quaternary alluvium

Table 2 Results of soil gas sampling at the studied sites, including analyses of CFC-12, CFC-11, SF<sub>6</sub>, CO<sub>2</sub> and  $\delta^{13}\text{C}_{\text{CO}_2}$ . Also included are values for the CFCs and SF<sub>6</sub> from atmospheric samples collected at the same site, and the values from the NH-AMR (northern hemisphere atmospheric mixing ratio) curves for end-2005 (from [http://water.usgs.gov/lab/software/air\\_curve/](http://water.usgs.gov/lab/software/air_curve/)).

Site	Site code	Date	Atmosphere			Soil sample					
			CFC-12	CFC-11	SF <sub>6</sub>	Depth	CFC-12	CFC-11	SF <sub>6</sub>	CO <sub>2</sub>	δ <sup>13</sup> C <sub>CO2</sub>
			pptv	pptv	pptv	mbgl	pptv	pptv	pptv	% vol	‰ PDB
LONDON											
Chislehurst	LN-PW	15-Mar-06	550	253	6.58	0.60 0.65	539 532	251 242	6.25 6.13	0.39 0.71	-26.5 -27.2
Epping Forest	LN-EF	15-Mar-06	550	253	6.87	0.25 0.30	570 547	342 335	6.36 7.14	0.62 0.07	-27.8 -
Harrow-on-the-Hill	LN-HH	10-Mar-06	-	-	-	0.70 0.70	577 584	350 309	6.21 6.16	0.82 0.70	-27.5 -27.1
Hyde Park	LN-HP	10-Mar-06	539	254	6.40	0.70 0.70 0.70	546 555 571	269 261 271	6.07 6.21 6.08	0.62 0.78 0.83	-27.8 -25.3 -25.0
Richmond Park	LN-RP	15-Mar-06	544	267	8.34	0.80 0.75	548 552	232 254	6.93 6.37	1.94 2.03	-27.1 -26.5
BIRMINGHAM											
Edgbaston	BM-ER	28-Mar-06	557	269	6.35	0.65 0.50	574 577	279 287	6.02 6.63	2.50 2.49	-25.9 -26.5
Kingshurst	BM-KL	28-Mar-06	594	548	15.72	0.65 0.35	577 584	304 301	6.17 5.96	4.15 3.98	-29.2 -29.1
Sandwell	BM-SP	28-Mar-06	562	297	6.09	0.30 0.35	561 566	349 330	6.68 6.24	3.28 0.47	-30.2 -29.1
Shirley	BM-NR	28-Mar-06	581	477	6.61	0.65 0.50 0.75	562 567 553	276 252 254	6.39 6.45 6.46	0.89 0.51 0.41	-28.1 -28.9 -27.6
BRISTOL											
Clifton Down	BL-CD	23-Mar-06	611	281	5.89	0.35 0.45	598 587	275 257	6.07 6.03	0.45 0.51	-25.2 -25.2
Fishponds	BL-OP	23-Mar-06	602	253	6.04	0.35 0.50	585 578	220 235	6.03 5.97	3.16 1.14	-28.5 -28.2
Hanham Common	BL-HC	23-Mar-06	614	289	6.28	0.55 0.70	570 587	285 292	5.73 5.80	1.92 0.38	-26.4 -24.6
Southmead	BL-TP	23-Mar-06	596	252	6.11	0.55 0.65	735 692	2251 458	6.43 6.20	5.28 2.67	-29.3 -29.3
WALLINGFORD											
CEH Met Site	W	06-Feb-06	547	262	6.41	0.70 0.70	538.5 548.2	249.5 259.6	6.76 6.29	0.60 0.68	-26.7 -26.6
NH-AMR end-2005		31-Dec-05	539	250	6.11						

Table 3 Concentrations of the CFCs and SF<sub>6</sub> dissolved in lake waters adjacent to the soil sampling sites in London and Birmingham. Also shown is the calculated composition of air-equilibrated water (AEW) at 10°C based on the NH-AMR values for end-2005.

Site	Site code	Surface area ha	Temp °C	CFC-12 pmol/l	CFC-11 pmol/l	SF <sub>6</sub> fmol/l
LONDON						
Epping Forest	LN-EF	5	6.2	3.82	5.81	3.03
Harrow-on-the-Hill	LN-HH	2	6.2	3.14	5.40	2.33
Hyde Park	LN-HP	16	6.0	4.11	7.56	1.48
Richmond Park	LN-RP	5	6.0	3.79	6.32	1.75
BIRMINGHAM						
Edgbaston	BM-ER	25	7.7	3.66	14.70	2.36
Kingshurst	BM-KL	5	10.0	4.08	7.30	6.74
Sandwell	BM-SP	5	8.5	3.79	6.27	2.14
Shirley (Olton Res.)	BM-NR	10	9.2	4.47	8.90	2.19
WATER IN EQUILIBRIUM WITH THE ATMOSPHERE						
NH-AMR end-2005	AEW		10	2.97	5.27	2.57