

1 Supplementary data

2 **Endosulfan, pentachlorobenzene and short-chain chlorinated**
3 **paraffins in background soils from Western Europe**

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56 **1. Tables**57 Table A1: Information related to sample site, sample characteristics, geographical coordinates and sample amount (dry weight and amount of
58 soil organic matter (SOM)).

Country	Site	Land use	Latitude [°]	Longitude [°]	Sample amount g dw	SOM g/g dw
United Kingdom	Bodwin	WL	50.58	-4.52	0.85	0.97
United Kingdom	Bodwin	GL	50.58	-4.52	2.04	0.29
United Kingdom	Okehamptons	WL	50.76	-4.00	0.73	0.87
United Kingdom	Okehamptons	GL	50.78	-3.91	3.04	0.20
United Kingdom	Tiverton	GL	51.03	-3.52	2.47	0.14
United Kingdom	Tiverton	WL	51.03	-3.51	2.01	0.36
United Kingdom	Aberystwyth	GL	52.20	-3.79	1.86	0.86
United Kingdom	Aberystwyth	WL	52.43	-4.03	2.56	0.18
United Kingdom	Corris	WL	52.64	-3.84	1.89	0.32
United Kingdom	Betsw-y-coed	WL	53.05	-3.80	2.61	¹⁾ 0.68
United Kingdom	Betsw-y-coed	GL	53.11	-3.78	2.41	¹⁾ 0.15
United Kingdom	Hazelrigg	GL	54.01	-2.78	2.35	0.17
United Kingdom	Hawkshead	WL	54.33	-3.00	1.74	0.52
United Kingdom	Hawkshead	GL	54.33	-3.00	1.97	0.25
United Kingdom	Ae, Dumfries	GL	55.20	-3.60	2.39	0.27
United Kingdom	Ae, Dumfries	WL	55.20	-3.61	3.20	0.24
United Kingdom	Clachan	GL	55.76	-5.54	0.75	0.77
United Kingdom	Clachan	WL	55.77	-5.53	1.80	0.66
United Kingdom	Colonsay	GL	56.08	-6.20	1.34	0.48
United Kingdom	Colonsay	WL	56.10	-6.18	2.75	0.13
United Kingdom	Tyndrum	WL	56.45	-4.71	1.18	0.92
United Kingdom	Glencoe	GL	56.66	-5.07	1.34	0.90
United Kingdom	Broadford	GL	57.28	-6.01	1.06	0.66
United Kingdom	Little Garv	GL	57.63	-4.70	1.79	0.26
United Kingdom	Little Garv	WL	57.63	-4.69	1.28	0.77
United Kingdom	Ullapool	GL	57.93	-5.19	0.93	0.93
United Kingdom	Ullapool	WL	57.99	-5.11	0.70	0.96
Norway	Birkenes	WL	58.48	8.29	0.74	0.94
Norway	Ualand	WL	58.56	6.46	0.79	0.97

Country	Site	Land use	Latitude [°]	Longitude [°]	Sample amount g dw	SOM g/g dw
Norway	Ualand	GL	58.56	6.46	1.23	0.89
Norway	Treungen	GL	59.10	8.63	3.20	0.15
Norway	Treungen	WL	59.10	8.63	0.75	0.97
Norway	Onsøy	GL	59.31	11.00	2.96	0.11
Norway	Onsøy	WL	59.31	11.00	0.77	0.96
Norway	Utbjoa	WL	59.76	5.80	0.99	0.96
Norway	Nordmoen	WL	60.30	11.18	2.51	0.24
Norway	Ulvik	WL	60.67	6.94	1.27	0.72
Norway	Osen	WL	61.25	11.75	0.77	0.97
Norway	Fureneset	peat/GL	61.29	5.04	1.44	0.82
Norway	Hovlandsdal	GL	61.51	5.51	2.46	0.22
Norway	Hovlandsdal	WL	61.51	5.51	2.49	0.34
Norway	Sollia/Enden	WL	61.79	10.30	1.26	0.65
Norway	Sollia/Enden	GL	61.79	10.30	2.83	0.23
Norway	Utvikfjellet	WL	61.80	6.50	0.92	0.98
Norway	Venabu	GL (heath)	61.88	10.35	2.10	0.49
Norway	Venabu	GL	61.88	10.35	1.51	0.64
Norway	Lom	WL	61.91	8.70	2.86	0.22
Norway	Gaulstad	WL	63.95	12.13	0.86	0.95
Norway	Gaulstad	GL	64.01	12.10	2.35	0.21
Norway	Momyra	WL	64.10	10.50	1.00	0.54
Norway	Namsvatn	WL	65.04	13.64	1.29	0.64
Norway	Balvatnet	GL	67.13	16.02	2.26	0.17
Norway	Balvatnet	WL	67.13	16.02	1.23	0.57
Norway	Innhavet	WL	68.11	15.99	0.70	0.96
Norway	Tamokdalen	WL	69.17	19.81	2.56	0.22
Norway	Tamokdalen	GL	69.17	19.81	1.18	0.67
Norway	Grøtffjord	WL	69.85	18.73	1.78	0.52
Norway	Skoganvarre	WL	69.95	25.20	1.06	0.81
Norway	Vestertana	WL	70.47	27.95	1.29	0.90

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Table A2: Instrumental parameters for analysis of the compounds

Compound	Type of instrument	Type of column	Column size	Carrier gas	Temperature interval	Target ion
Endosulfan	GC/HRMS in ECNI mode, (Agilent 6890N GC coupled to VG Autospec)	Fused silica capillary column from J&W Scientific	Ultra 2, 25 m length, 0.2 mm I.D, 0.11 μ m film thickness	Helium	Start°C: 70 (2 min.) Interval 1: 170°C/min by 20°C/min (3min.) Interval 2: 230°C/min by 5°C/min (3 min.) Injector temp. (°C): 260	[M] ⁻
PeCB	GC/HRMS in EI mode, (Agilent 6890N GC coupled to Autospec-Ultima)	Fused silica capillary column from J&W Scientific	Ultra 2, 25 m length, 0.11 mm I.D, 0.11 μ m film thickness	Helium	Start°C: 45 (2 min.) Interval 1: 200°C/min by 15°C/min (3min.) Interval 2: 300°C/min by 15°C/min (5 min.) Injector temp. (°C): 260	[M] ⁺
SCCPs	GC/HRMS in ECNI mode,(Agilent 6890N GC coupled to VG Autospec)	Fused silica capillary column from Restek	Rxi [®] -5ms, 15 m length, 0.25 mm I.D, 0.25 μ m film thickness	Helium	Start°C: 90 (2 min.) Interval 1: 245°C/min by 20°C/min Interval 2: 300°C/min by 20°C/min (5 min.) Injector temp. (°C): 260	[M-Cl] ⁻

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Table A3: Results for the recovery, i.e. range, average and standard deviation (SD) for soil and blanks samples, respectively (in %).

Internal standard	Soil samples		Blanks	
	Range	Average \pm SD	Range	Average \pm SD
¹³ C α -endosulfan	10-109	60 \pm 25	18-70	52 \pm 20
¹³ C β -endosulfan	11-96	53 \pm 15	11-65	39 \pm 28
¹³ C-endosulfan sulfate	6-73	30 \pm 15	13-35	22 \pm 8
¹³ C-PeCB	11-107	34 \pm 14	9-48	34 \pm 15
¹³ C- <i>cis</i> -chlordane (SCCPs)	37-68	53 \pm 13	n.a.	n.a.

64 Table A4: Average \pm standard deviation and ranges for the concentration of Σ endosulfans, pentachlorobenzene (PeCB) and short chain
 65 chlorinated paraffins (SCCPs), in addition to blank values. All results are expressed as ng/g dry weight (dw).

	Average \pm standard deviation (SD)					
	Range (min-max)					
	Σ endosulfans	endosulfan sulfate	α -endosulfan	β -endosulfan	PeCB	SCCPs
All 2008	2 \pm 4	2 \pm 4	0.01 \pm 0.01	0.03 \pm 0.1	0.4 \pm 0.3	14 \pm 45
n = 57/53/58 ¹⁾	<0.01-25	<0.002-24	<0.005-0.06	<0.002-0.7	<0.007-1	<0.8-281
Norway	3 \pm 5	3 \pm 5	0.01 \pm 0.02	0.05 \pm 0.1	0.3 \pm 0.3	12 \pm 50
n= 32/32/32 ¹⁾	0.02-25	0.01-24	<0.005-0.06	<0.002-0.7	<0.007-1	<0.8-281
UK	1 \pm 2	1 \pm 2	0.007 \pm 0.005	0.009 \pm 0.03	0.4 \pm 0.3	16 \pm 38
n= 25/21/26 ¹⁾	<0.01-9	<0.002-9	<0.005-0.02	<0.002-0.1	0.09-1	<0.8-179
GL	0.4 \pm 0.8	0.4 \pm 0.8	0.006 \pm 0.004	0.005 \pm 0.01	0.3 \pm 0.3	18 \pm 58
n= 23/20/24 ¹⁾	<0.01-4	<0.002-4	<0.005-0.02	<0.002-0.06	<0.007-1	<0.8-281
WL	3 \pm 5	3 \pm 5	0.01 \pm 0.02	0.05 \pm 0.1	0.4 \pm 0.3	11 \pm 32
n= 34/33/34 ¹⁾	0.05-25	0.04-24	<0.005-0.06	<0.002-0.7	0.07-1	<0.8-179
Blanks (ng/g d.w)		0.002 \pm 0.0004	0.002 \pm 0.002	0.001 \pm 0.001	0.004 \pm 0.003	0.4 \pm 0.4
n=5		<0.002 ²⁾	<0.005 ²⁾	<0.002 ²⁾	0.007 ²⁾ -0.008	0.8 ²⁾ -1
MDL		0.003	0.01	0.005	0.01	1.6
Canada and UK ³⁾	0.08-0.97	-	-	-	-	-
Tajikistan ⁴⁾	-	0.29-22.88	**nd-1.58	**nd-18.12	-	-
Antarctic ⁵⁾	-	-	-	-	0.38-1.3	-
Estonia ⁶⁾	-	-	-	-	<LOQ*-0.1	-
China ⁷⁾	-	-	-	-	-	0.42-210

66 ¹⁾ Number (n) of sites for which Σ endosulfans, PeCB and SCCPs were analysed, respectively.

67 ²⁾ One or more samples were below MDL ($\frac{1}{2}$ MDL used for statistical treatment) value used for statistical treatment.

68 * Limit of quantification, ** not detected

69 ³⁾ Wong et al., (2009)

70 ⁴⁾ Zhao et al., (2013)

71 ⁵⁾ Borghini et al., (2005)

72 ⁶⁾ Roots et al., (2010)

73 ⁷⁾ Wang et al., (2013)

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Table A5: Individual concentrations for each UK and Norwegian sites, expressed as ng/g dry weight (dw) and ng/g soil organic matter (SOM).

Country	Site	Landuse	Σendosulfans		endosulfan sulfate		α-endosulfan		β-endosulfan		PeCB		SCCPs	
			ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM
United Kingdom	Bodwin	WL	4.978	4.345	4.971	4.338	<0.005	<0.004	<0.002	<0.002	0.225	0.196	9.800	8.600
United Kingdom	Bodwin	GL	0.028	0.200	0.021	0.149	<0.005	<0.034	<0.002	<0.017	N.D.*	N.D.*	<0.800	<5.600
United Kingdom	Okehamptons	WL	9.071	7.543	8.938	7.433	<0.005	<0.004	0.128	0.106	0.408	0.340	180.000	150.000
United Kingdom	Okehamptons	GL	0.025	0.377	0.018	0.268	<0.005	<0.072	<0.002	<0.037	N.D.**	N.D.**	N.D.**	N.D.**
United Kingdom	Tiverton	GL	0.010	0.179	0.003	0.056	<0.005	<0.081	<0.002	<0.042	0.092	1.570	<0.800	<14.000
United Kingdom	Tiverton	WL	0.922	5.158	0.908	5.080	<0.005	<0.027	0.009	0.051	0.288	1.610	1.800	9.900
United Kingdom	Abergwesyn	GL	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	1.313	2.836	<0.800	<1.700
United Kingdom	Abergwesyn	WL	0.123	1.702	0.115	1.602	<0.005	<0.066	<0.002	<0.034	0.147	2.040	<0.800	<11.000
United Kingdom	Corris	WL	0.305	1.820	0.295	1.764	0.007	0.042	<0.002	<0.015	0.280	1.672	<0.800	<4.700
United Kingdom	Betsw-y-coed	WL	0.116	0.443	0.108	0.416	<0.005	<0.018	<0.002	<0.009	N.D.*	N.D.*	46.000	175.000
United Kingdom	Betsw-y-coed	GL	0.020	0.315	0.012	0.199	<0.005	<0.076	<0.002	<0.039	0.103	1.654	6.600	106.000
United Kingdom	Hewelrigg	GL	0.034	0.478	0.026	0.376	<0.005	<0.068	<0.002	<0.035	0.168	2.382	4.200	60.000
United Kingdom	Hawkshead	WL	0.892	2.961	0.880	2.922	0.009	0.031	<0.002	<0.008	0.608	2.019	10.300	34.000
United Kingdom	Hawkshead	GL	0.036	0.281	0.014	0.108	0.019	0.153	<0.002	<0.019	0.772	6.064	4.500	35.000
United Kingdom	Ae, Dumfries	GL	0.052	0.468	0.045	0.403	<0.005	<0.043	<0.002	<0.022	N.D.*	N.D.*	<0.800	<7.000
United Kingdom	Ae, Dumfries	WL	0.111	1.504	0.104	1.406	<0.005	<0.065	<0.002	<0.033	0.180	2.440	<0.800	<10.700
United Kingdom	Clachan	GL	0.339	0.332	0.332	0.325	<0.005	<0.005	<0.002	<0.002	N.D.*	N.D.*	<0.800	<0.770
United Kingdom	Clachan	WL	0.411	1.115	0.409	1.108	N.D.**	N.D.**!	<0.002	<0.007	0.163	0.441	<0.800	<2.100
United Kingdom	Colonsay	GL	<0.009	<0.025	<0.002	<0.005	<0.005	<0.013	<0.002	<0.007	N.D.*	N.D.*	<0.800	<2.200
United Kingdom	Colonsay	WL	0.046	1.014	0.039	0.856	<0.005	<0.104	<0.002	<0.053	0.101	2.216	<0.800	<17.000
United Kingdom	Tyndrum	WL	3.749	4.833	3.699	4.769	0.024	0.031	0.026	0.033	1.182	1.524	25.000	32.000
United Kingdom	Glencoe	GL	0.322	0.482	0.304	0.456	0.015	0.022	<0.002	<0.004	0.377	0.564	4.900	7.300
United Kingdom	Broadford	GL	0.125	0.201	0.118	0.190	<0.005	<0.008	<0.002	<0.004	0.457	0.736	7.400	12.000
United Kingdom	Little Garv	GL	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	N.D.**	0.207	1.455	81.000	570.000
United Kingdom	Little Garv	WL	0.082	0.136	0.075	0.124	<0.005	<0.008	<0.002	<0.004	0.208	0.346	<0.800	<1.300
United Kingdom	Ullapool	GL	0.332	0.333	0.325	0.326	<0.005	<0.005	<0.002	<0.002	0.295	0.297	16.000	16.000
United Kingdom	Ullapool	WL	2.525	1.847	2.505	1.832	<0.005	<0.003	0.016	0.011	0.415	0.303	7.900	5.800
Norway	Birkenes	WL	10.922	8.567	10.755	8.436	<0.005	<0.004	0.162	0.127	1.359	1.066	8.000	6.200
Norway	Ualand	WL	5.584	4.581	5.346	4.385	0.047	0.039	0.191	0.157	0.229	0.188	4.000	3.300
Norway	Ualand	GL	3.579	4.942	3.518	4.858	<0.005	<0.007	0.056	0.077	0.579	0.800	<0.800	<1.100

Country	Site	Landuse	Σendosulfans		endosulfan sulfate		α-endosulfan		β-endosulfan		PeCB		SCCPs	
			ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM	ng/g dw	ng/g SOM
Norway	Treungen	GL	0.077	1.699	0.070	1.540	<0.005	<0.105	<0.002	<0.054	0.076	1.670	<0.800	<17.000
Norway	Treungen	WL	5.065	3.883	4.909	3.763	0.033	0.025	0.123	0.094	0.613	0.470	2.400	1.900
Norway	Onsøy	GL	0.145	3.811	0.138	3.622	<0.005	<0.125	<0.002	<0.064	0.027	0.695	<0.800	<20.600
Norway	Onsøy	WL	24.671	19.661	23.902	19.049	0.063	0.050	0.706	0.562	0.495	0.394	8.000	6.500
Norway	Utboja	WL	2.746	2.840	2.713	2.807	<0.005	<0.005	0.028	0.029	0.945	0.978	53.000	55.000
Norway	Nordmoen	WL	0.815	8.480	0.799	8.319	0.005	0.050	0.011	0.111	0.372	3.876	<0.800	<8.200
Norway	Ulvik	WL	1.645	2.920	1.606	2.849	0.015	0.027	0.024	0.043	0.554	0.983	<0.800	<1.400
Norway	Osen	WL	3.723	2.956	3.656	2.903	<0.005	<0.004	0.062	0.049	0.844	0.670	9.900	7.900
Norway	Furunes	peat/GL	0.986	1.737	0.971	1.711	<0.005	<0.008	0.010	0.018	0.256	0.451	4.600	8.000
Norway	Hovelandsdal	GL	0.132	1.463	0.125	1.383	<0.005	<0.053	<0.002	<0.027	0.058	0.641	<0.800	<8.700
Norway	Hovelandsdal	WL	0.363	2.693	0.356	2.640	<0.005	<0.035	<0.002	<0.018	0.238	1.762	<0.800	<5.800
Norway	Sollia/Enden	WL	3.857	7.491	3.813	7.406	<0.005	<0.009	0.039	0.076	0.289	0.562	<0.800	<1.500
Norway	Sollia/Enden	GL	0.076	0.938	0.069	0.850	<0.005	<0.059	<0.002	<0.030	0.051	0.626	<0.800	<9.700
Norway	Utvikfjellet	WL	5.514	5.208	5.376	5.078	0.061	0.058	0.076	0.072	0.332	0.313	2.800	2.700
Norway	Venabu	GL (heat)	0.513	2.183	0.506	2.153	<0.005	<0.020	<0.002	<0.010	0.085	0.361	<0.800	<3.400
Norway	Venabu	GL	1.490	3.513	1.481	3.492	0.007	0.016	<0.002	<0.006	0.140	0.330	<0.800	<1.900
Norway	Lom	WL	0.212	2.725	0.205	2.633	<0.005	<0.061	<0.002	<0.031	0.121	1.557	<0.800	<10.000
Norway	Gaulstad	WL	1.064	0.964	1.057	0.957	<0.005	<0.004	<0.002	<0.002	1.092	0.989	<0.800	<0.700
Norway	Gaulstad	GL	0.016	0.176	0.009	0.096	<0.005	<0.053	<0.002	<0.027	<0.007	<0.079	<0.800	<8.800
Norway	Momyr	WL	0.449	0.836	0.442	0.822	<0.005	<0.009	<0.002	<0.005	0.217	0.403	<0.800	<1.500
Norway	Namsvatn	WL	1.409	2.827	1.402	2.813	<0.005	<0.010	<0.002	<0.005	0.304	0.609	<0.800	<1.600
Norway	Balvatnet	GL	0.128	1.714	0.121	1.618	<0.005	<0.064	<0.002	<0.032	0.052	0.696	<0.800	<10.500
Norway	Balvatnet	WL	0.482	1.043	0.475	1.028	<0.005	<0.010	<0.002	<0.005	0.095	0.205	<0.800	<1.700
Norway	Innhavet	WL	2.758	2.031	2.751	2.026	<0.005	<0.004	<0.002	<0.002	0.399	0.294	<0.800	<0.580
Norway	Tamokdalen	WL	0.099	1.167	0.092	1.083	<0.005	<0.056	<0.002	<0.029	0.067	0.788	<0.800	<9.300
Norway	Tamokdalen	GL	0.335	0.588	0.328	0.576	<0.005	<0.008	<0.002	<0.004	0.378	0.663	280.000	490.000
Norway	Grøt fjord	WL	0.506	1.732	0.498	1.707	<0.005	<0.016	<0.002	<0.008	0.279	0.955	<0.800	<2.700
Norway	Skoganvarre	WL	2.207	2.893	2.180	2.857	0.025	0.032	<0.002	<0.003	0.472	0.619	<0.800	<1.000
Norway	Vestertana	WL	1.254	1.802	1.228	1.764	<0.005	<0.007	0.022	0.031	0.149	0.213	<0.800	<1.100

76 <: refers to ½ MDL (method detection limit) used for statistical summaries. N.D.: not detected (Σendosulfans (n=2), and SCCPs (n=1) due to matrix effects **, PeCB (n=6):5
77 samples due to low % recovery * and 1 sample due to matrix effects**
78

79 Table A6: Results from correlation analysis with statistical significance for latitude, land use parameters and individual compounds for UK soils
 80 in 2008. Samples which either (i) failed to meet the QA/QC criteria (low recovery etc.), (ii) were below method detection limit (MDL), or
 81 (iii) qualified as outliers were not considered (see text for details)

Variables	Latitude	BD(g/cm ³)	BC	SOM	Σendosulfans	endosulfan sulfate	α-endosulfan	β-endosulfan	PeCB	SCCPs	HCB	Σ ₅ PBDEs	Σ ₃₁ PCBs
BD (g/cm ³)	-0.12	1											
BC	-0.02	-0.56**	1										
SOM	0.13	-0.83***	0.64***	1									
Σendosulfans	0.21	-0.75***	0.47*	0.80***	1								
Endosulfan sulfate	0.23	-0.75***	0.46*	0.79***	1.00***	1							
α-endosulfan	0.24	-0.37	0.25	0.70	0.48	0.41	1						
β-endosulfan	-0.01	-0.28	0.16	0.60	0.92	0.92	0.86	1					
PeCB	-0.17	-0.59**	0.59**	0.71***	0.58**	0.55**	0.22	0.05	1				
SCCPs	-0.19	-0.14	0.13	0.10	0.17	0.18	-0.35	0.14	0.19	1			
HCB	0.22	-0.84***	0.50*	0.80***	0.81***	0.81***	0.75***	0.76***	0.65**	-0.01	1		
Σ ₅ PBDEs	-0.52**	-0.44*	0.30	0.41*	0.39*	0.38	0.46*	0.39*	0.49*	0.27	0.49*	1	
Σ ₃₁ PCBs	0.04	-0.76***	0.50**	0.70***	0.73***	0.73***	0.73***	0.76***	0.63***	0.06	0.87***	0.56**	1

82 *:p<0.05, **: p<0.01, ***: p<0.001
 83 n=27, except from: Σendosulfans and endosulfan sulfate (n=24), α-endosulfan (n=5), β-endosulfan (n=4), PeCB (n=21), SCCPs (n=14), HCB (n=22), Σ₅PBDE and Σ₃₁PCB (n=26)
 84 All data were log-transformed with exception of latitude and land use.

85

86 Table A7: Results from correlation analysis with statistical significance for latitude, land use and individual compounds for Norwegian soils in
 87 2008. Samples which either (i) failed to meet the QA/QC criteria (low recovery etc.), (ii) were below method detection limit (MDL), or (iii)
 88 qualified as outliers were not considered (see text for details)

Variables	Latitude	BD (g/cm ³)	BC	SOM	Σendosulfans	Endosulfan sulfate	α-endosulfan	β-endosulfan	PeCB	SCCPs	HCB	Σ ₅ PBDEs	Σ ₃₁ PCBs
Latitude	1												
BD (g/cm ³)	0.13	1											
BC	0.08	-0.56***	1										
SOM	0,01	-0.78***	0.71***	1									
Σendosulfans	-0.23	-0.75***	0.55**	0.86***	1								
Endosulfan sulfate	-0.22	-0.75***	0.54**	0.85***	1.00***	1							
α-endosulfan	-0.10	-0.68	0.51	0.85**	0.95***	0.95***	1						
β-endosulfan	-0.41	-0.21	0.20	0.58*	0.94***	0.94***	0.90***	1					
PeCB	-0.09	-0.68***	0.60***	0.80***	0.77***	0.78***	0.31	0.14	1				
SCCPs	-0.09	-0.52	0.12	0.05	-0.17	-0.16	0.62	-0.34	0.65	1			
HCB	-0.08	-0.89***	0.60**	0.88***	0.89***	0.89***	0.78***	0.68***	0.75***	0.03	1		
Σ ₅ PBDEs	-0.55**	-0.60***	0.31	0.57**	0.74***	0.74***	0.80***	0.69***	0.52**	0.25	0.72***	1	
Σ ₃₁ PCBs	-0.26	-0.79***	0.57**	0.73***	0.74***	0.72***	0.89***	0.75***	0.66***	-0.08	0.88***	0.77***	1

89 *.p<0.05, **: p<0.01,***: p<0.001

90 n=32, except from: Σendosulfans and endosulfan sulfate (n=31), α-endosulfan (n=8), β-endosulfan (n=12), PeCB (n=30), SCCPs (n=8), HCB (n=26), Σ₅PBDE and Σ₃₁PCB (n=30)

91 All data were log-transformed with exception of latitude and land use.

92 Table A8: Results from correlation analysis with statistical significance for latitude, land use and individual compounds for GL soils in 2008.
 93 Samples which either (i) failed to meet the QA/QC criteria (low recovery etc.), (ii) were below method detection limit (MDL), or (iii)
 94 qualified as outliers were not considered (see text for details)

Variables	Latitude	BD (g/cm ³)	BC	SOM	Σendosulfans	Endosulfan sulfate	α-endosulfan	β-endosulfan	PeCB	SCCPs	HCB	Σ ₅ PBDEs	Σ ₃₁ PCBs
Latitude	1												
BD (g/cm ³)	0.03	1											
BC	0.001	-0.64***	1										
SOM	0.13	-0.88***	0.79***	1									
Σendosulfans	0.47*	-0.71***	0.44*	0.77***	1								
endosulfan sulfate	0.50*	-0.69***	0.41	0.75***	0.99***	1							
α-endosulfan	-1.00*	0.35	-0.85	-0.50	-0.93	-0.90	1						
β-endosulfan	-	-	-	-	-	-	-	1					
PeCB	-0.31	-0.53*	0.66**	0.71***	0.30	0.23	0.98***	-	1				
SCCPs	0,23	-0.13	0.18	-0.05	0.21	0.25	-	-	-0.19	1			
HCB	0.14	-0.77***	0.52*	0.81***	0.81***	0.79***	-	-	0.67**	-0.24	1		
Σ ₅ PBDEs	-0.37	-0.45*	0.14	0.31	0.27	0.24	0.82***	-	0.52*	0.50*	0.51*	1	
Σ ₃₁ PCBs	-0.09	-0.64**	0.27	0.58**	0.55**	0.53*	-	-	0.65**	0.13	0.82***	0.68***	1

95 *.p<0.05, **: p<0.01,***: p<0.001

96 n=24, except from: Σendosulfans and endosulfan sulfate (n=22), α-endosulfan (n=3), β-endosulfan (n=2), PeCB (n=19), SCCPs (n=8), HCB (n=20), Σ₅PBDE and Σ₃₁PCB (n=22)

97 All data were log-transformed with exception of latitude and land use).

98 Table A9: Results from correlation analysis with statistical significance for latitude, land use and individual compounds for WL soils in 2008.
 99 Samples which either (i) failed to meet the QA/QC criteria (low recovery etc.), (ii) were below method detection limit (MDL), or (iii)
 100 qualified as outliers were not considered (see text for details)

Variables	Latitude	BD (g/cm ³)	BC	SOM	Σendosulfans	endosulfan sulfate	α-endosulfan	β-endosulfan	PeCB	SCCPs	HCB	Σ ₅ PBDEs	Σ ₃₁ PCBs
Latitude	1												
BD (g/cm ³)	-0.15	1											
BC	-0.06	-0.41*	1										
SOM	0,13	-0.75***	0.42*	1									
Σendosulfans	0.04	-0.59***	0.35*	0.77***	1								
endosulfan sulfate	0.04	-0.60***	0.35*	0.77***	1.00***	1							
α-endosulfan	0.33	-0.69*	0.23	0.92***	0.92***	0.92***	1						
β-endosulfan	-0.07	-0.25	0.20	0.63*	0.90***	0.90***	0.86***	1					
PeCB	-0.11	-0.51**	0.41*	0.61***	0.65***	0.65***	0.001	0.01	1				
SCCPs	-0.32	-0.11	0.08	0.18	-0.10	-0.10	-0.48	0.07	0.40	1			
HCB	0.34	-0.80***	0.48*	0.83***	0.70	0.70***	0.72***	0.70***	0.49**	-0.04	1		
Σ ₅ PBDEs	-0.72***	-0.31	0.31	0.37*	0.70***	0.30	0.33	0.35*	0.43*	0.20	0.27	1	
Σ ₃₁ PCBs	-0.00009	-0.68***	0.60***	0.73***	0.64***	0.64***	0.67***	0.77***	0.43*	0.04	0.76***	0.40*	1

101 *.p<0.05, **: p<0.01,***: p<0.001

102 n=34, except from: Σendosulfans and endosulfan sulfate (n=33), α-endosulfan (n=10), β-endosulfan (n=14), PeCB (n=32), SCCPs (n=14), HCB (n=27), Σ₅PBDE and Σ₃₁PCB (n=33)

103 All data were log-transformed with exception of latitude and land use

104 **2. Text**

105 **2.1. Drying and sieving**

106 Wet soil samples from (18-89 gram) (see Table A1), were placed on alumina foil (WrapFilm
107 Systems Ltd, Telford, UK) and weighted prior to drying in an oven (Heraeus, UT 6120) WVR,
108 Hanau (Offenbach, Germany) at approximately 27 °C. In order to obtain completely dry
109 samples, the soil was regularly weighted until stable weight was reached, which were
110 obtained within approximately two weeks. To further assure complete dryness, the soil
111 samples were placed in a desiccator for minimum one hour, and the weighting was
112 repeated. Moreover, for evaluation of possible contamination during the drying process,
113 parallels of diatomaceous earth (DE) was “dried” with the soil samples, and analysed as
114 method blanks. There were no indications of contamination, hence the blank values were
115 low (Table A4 and A2.5). Completely dry soil samples were further sieved (mesh size 2 mm
116 diameter, Retsch GmbH, Haan, Germany). The sieve was cleaned with acetone and *n*-hexane
117 between each sample. Dried, sieved soil samples were stored in brown glass bottle covered
118 with alumina foil and a PP-lid (VWR, Rommen, Norway) in order to protect potential light
119 sensitive compounds, and stored in a fridge until further sample preparation.

120 **2.2. Sample preparation**

121 Solvents used for extraction and clean-up (acetone, *n*-hexane, and *iso*-octane) were of
122 Suprapur grade from SupraSolv, Merck (Darmstadt, Germany). Diethyl ether (glass distilled
123 grade), was obtained from Rathburn (Walkerburn, Scotland). Sulphuric acid and adsorbents
124 used for clean-up and extraction, i.e. Florisil PR (0.15-0.25 mm (60/100 mesh), silica gel
125 (0.063-0.20 mm) and anhydrous sodium sulfate was also obtained from Merck (Darmstadt,
126 Germany). DE was purchased from Dionex, ASE® Prep DE (SunnyVale, CA, USA).

127 **2.2.1. Accelerated solvent extraction (ASE)**

128 Extraction of the soil samples were performed by use of a Dionex Accelerated Solvent
129 Extractor unit (California, USA). The soil samples were placed in a 33 mL cells, and the cells
130 were packed as shown in Figure A2. By use of florisil, the ASE procedure provides clean-up in
131 addition to extraction of the samples. In order to achieve a porous sample for enhancement
132 of the extraction, the soil samples should contain ≥ 25 % of DE, which were mixed with the
133 individual soil samples, generating a soil/25% DE mixture. Furthermore, internal standards
134 (A2.3) were added on top of the soil/25% DE mixture in the cell, before filling the cell with

135 only DE (Figure A2). The samples were extracted by use of acetone/*n*-hexane: 1/1 (w/w) as a
136 solvent. The samples were extracted with four cycles, 80 % flush volume and with pressure
137 (N_2 gas) and temperature, 1500 Psi and 100 °C, respectively.

138 **2.2.2. Clean-up**

139 The samples were analysed for Σ endosulfans (α -endosulfan, β -endosulfan and endosulfan
140 sulfate), pentachlorobenzene (PeCB) and short-chain chlorinated paraffins (SCCPs), and a
141 comprehensive clean-up procedure were needed. As illustrated in Figure A3, the ASE
142 extracts were divided into two equal aliquots, with solely silica fractionation for compounds
143 degraded by concentrated sulphuric acid (Σ endosulfans), and acid treatment together with
144 silica fractionation for the acid stable fraction (PeCB and SCCPs). For endosulfan analysis
145 (see Figure A3) one aliquot was reduced to 0.5 mL followed by clean-up by fractionation
146 with a silica column. For more information concerning the silica method, see Halse et al.,
147 (2011). It was required to have two separate fractions to collect the various Σ endosulfans.
148 The first fraction was eluted with 30 ml *n*-hexane/10 % diethyl ether and was analysed for α -
149 endosulfan, while the second fraction was eluted with additionally 20 mL *n*-hexane/10 %
150 diethyl ether and was analysed for both β -endosulfan and endosulfan sulfate (see A2.4).

151 For analysis of PeCB and SCCPs, the respective aliquot (Fig. A3) was reduced to 0.5 mL by
152 evaporation. Hereafter, the extract was transferred to a centrifuge tube, adjusted to 2 mL,
153 and treated with 2 mL concentrated sulphuric acid (Halse et al., 2011). After final sulphuric
154 acid treatment, the extracts were reduced to 0.5 mL for further clean-up by fractionation
155 with a silica column (Halse et al., 2011). All final fractions were reduced to approximately 0.5
156 mL and solvent exchange to *iso*-octane and transferred to a small vial with a screw-cap.

157 Before analyses, the extracts were reduced to approximately 50 μ L by nitrogen (5.0 Ultra,
158 Yarapraxair, Haugenstua, Norway) and recovery standard (A2.3). Some extracts of the
159 second fraction were exposed to precipitation, hence it was necessary to centrifuge (Jouan
160 CR3, DJB Labcare Ltd, Buckinghamshire, UK) these samples at 1900 revolutions per minute
161 (rpm) for 10 minutes prior to transferring the sample to a new vial.

162 **2.3. Analysis**

163 For quantification and also for monitoring the recovery rates for the sample treatment, all
164 the samples were added a mixture containing 50 μ L of different internal standard prior to

165 extraction and clean-up. The internal standards consist of ^{13}C - α -endosulfan, ^{13}C - β -
166 endosulfan, ^{13}C -endosulfan sulfate, ^{13}C -pentachlorobenzene and ^{13}C -*cis*-chlordane, to
167 monitor the endosulfans, PeCB and SCCP, respectively. Several ^{13}C -labeled standards were
168 added for parallel analysis of other compounds. However since the method blanks prove
169 that the ^{13}C -labeled compounds did not interfere with the measurements, the completed
170 list is not given here. All standards were purchased from LGC, formerly Promochem AB
171 (Borås, Sweden). In order to quantify the recovery of the internal standards, the extracts
172 were added recovery standards. All extracts were added 20 μL of TCN (1,2,3,4-
173 tetrachloronaphtalene), as recovery standard.

174 Analysis of the Σ endosulfans was carried out by a high resolution gas chromatography on an
175 Agilent 6890N gas chromatograph coupled to an Autospec operating at accelerated voltage
176 of 6000 Volt in electron capture negative ion (ECNI) mode (80eV) (GC/HRMS(ECNI)). The
177 endosulfan isomers were separated using an Ultra 2 (25 m \times 0.2 mm inner diameter, 0,11 μm
178 film thickness (J&W Scientific)) fused silica capillary column (see Table A2). With helium as a
179 carrier gas (flow rate 0,9 mL/min), the GC operated in splitless mode (Halse et al., 2011). See
180 Table A2 for more detailed information concerning the temperature program. The
181 endosulfan isomers were monitored at mass/charge ratio (m/z) of the molecular ions $[\text{M}]^-$.
182 The m/z ratio for the selected ions were 405.8139/407.8110 (^{12}C α , β -endosulfan), and
183 385.8322/387.8292 (^{12}C endosulfan sulfate) and 414.8441/416.8412 (^{13}C α , β -endosulfan)
184 and 394.8624/396.8594 for ^{13}C labelled endosulfan sulfate. The sum of the area of the two
185 monitored ions was used in the quantification and the ratio between the two ions was used
186 for verification. The ion ratio between the isotope signals should be within 20 % of the
187 theoretical value.

188 The PeCB was analysed with an Agilent 6890N gas chromatograph coupled to a high
189 resolution mass spectrometer operating with accelerating voltage of 8000 Volt (Autospec-
190 Ultima) in electron impact (EI) mode (37eV) (GC/HRMS(EI)). The column used was an Ultra 2
191 (25 m \times 0.11 mm inner diameter, 0,11 μm film thickness (J&W Scientific)) fused silica capillary
192 column. Along with the endosulfans, PeCB was injected to the GC operating in a splitless
193 mode with helium as the carrier gas (1ml/min). See Halse et al., (2011) for more details
194 concerning the operating parameters. The temperature program is given in Table A2. The
195 PeCB component was monitored at m/z of the molecule ion $[\text{M}]^+$. m/z of the selected ions

196 were 249.8491/251.8462 and 255.8693/257.8663 for the ¹²C PeCB and ¹³C labelled PeCB,
197 respectively. As for the endosulfans, the sum of the area of the two monitored ions was
198 used in the quantification and the ratio between the two ions was used for verification.

199 SCCPs were analysed with an Agilent 6890 gas chromatograph coupled to a VG AutoSpec,
200 high resolution mass spectrometer, operating at 6000 V in ECNI mode (GC/HRMS-ECNI). To
201 achieve necessary separation a Restek Rxi[®]-5ms (15 m×0.25 mm inner diameter, 0,25 μm
202 film thickness), fused silica capillary column was used with a constant helium flow of 1
203 mL/min. The injector temperature was 260°C, see Table A2 for more detailed information
204 concerning the operating parameters. The MS operated in ECNI mode (80-120 eV) using
205 methane at a pressure of 2×10⁻⁵ mbar as moderating gas. The SCCPs were identified by use
206 of the following m/z values (monitoring the [M-Cl]⁻ ions), 277.0084 (C₁₀Cl₅), 291.0241
207 (C₁₁Cl₅), 314.9636 (C₁₀Cl₆), 360.9432 (C₁₁Cl₇), 374.9588 (C₁₂Cl₇), 380.8886 (C₁₀Cl₈), 394.9042
208 (C₁₁Cl₈), 408.9199 (C₁₂Cl₈), 422.9355 (C₁₃Cl₈), 430.8623 (C₁₁Cl₉) and 444.8779 (C₁₂Cl₉), with
209 273.9403 (¹³C-*cis*-chlordane) as the internal standard. The quantification of the SCCPs was
210 performed according to a method described by Tomy and co-workers (1997).

211 **2.4. Method validation of the ASE extraction procedure**

212 In order to evaluate the efficiency of the ASE extraction, e.g. the number of cycles, adequate
213 flush volume by monitoring the recovery rates, four ASE cells were filled with dried
214 background soil (W.L soil, Harestua, Norway) and spiked with internal standard (see section
215 A2.3). The ASE was furthermore programmed to run each individual sample twice, in order
216 to generate two ASE extracts of each sample (E1 and E2). All extracts were cleaned and
217 prepared according to the same procedure as the collected soil samples (section A2.2.2).
218 Furthermore, to evaluate the extraction pattern of the various endosulfans, three clean-up
219 sub fractions of E1 and E2 were executed by adding increasing amount of solvent volume (*n*-
220 hexane/10 % diethyl ether to the column. Hence, the first fraction contained 30 mL of
221 eluent, the second fraction contained 20 mL of eluent, while the last fraction was added a
222 final volume of 20 mL eluent (see Fig. A3). Clean-up of the PeCB and the SCCPs extracts was
223 carried out in accordance to section A2.2.2.

224 The average percentage recovery and standard deviation (SD) for sum of the individual
225 extracts for the endosulfans of the first ASE extracts (E1) were 46±5%, 70±8%, 80±7% and

226 for the second extract (E2) $1.5\pm 0.7\%$, $1.1\pm 0.6\%$ and $1\pm 0.4\%$ (E2), for α -, β -endosulfan and
227 endosulfan sulfate, respectively. Results from the recovery test for the individual
228 endosulfans revealed that the recovery for β -endosulfan and endosulfan sulfate was
229 improved by adding more eluent. Unfortunately, increasing the amount of eluent will also
230 increase the possibility to wash out matrix compounds, and hence require separation of
231 more interfering matrix compounds. It was therefore decided to limit the number of
232 fractions for which the recovery was within an optimum range i.e. 38-52%, 49-70%, 23-38%
233 for α -endosulfan, β -endosulfan and endosulfan sulfate, respectively. Consequently two
234 clean-up fractions (30 mL and 20 mL) was the final solution for the endosulfans.

235 The average percentage recovery and SD for E1 and E2 for PeCB was $25\pm 3\%$ and $0.5\pm 0.3\%$.
236 Samples which were recognized with recovery $< 10\%$, was removed from the data set. A low
237 recovery is attributed to the higher volatility of this compound.

238 As ^{13}C -labeled 1,5,5,6,6,10-hexachlorodecane was not available when these soil samples
239 were prepared, the recovery for the SCCPs was monitored by use of *cis*-chlordane as an
240 internal standard (Tomy et al., 1997). It should be kept in mind that SCCPs is a complex
241 mixture of chlorinated paraffins and is eluting over a wide range along the capillary column.
242 The uncertainty are caused by several factors e.g. i) impossible to achieve complete peak
243 separation and ii) the internal standard (i.e. *cis*-chlordane) used may not be adequate due to
244 lack of knowledge regarding the individual response factors. The uncertainty in the
245 measurement for the SCCPs may accumulate to $\pm 50\%$ (Sverko et al., 2012). The average
246 percentage of recovery and SD for E1 of ^{13}C *cis*-chlordane was $46 \pm 15\%$, while the average
247 recovery and SD for E2 was $0.6 \pm 0.1\%$.

248 Results for all soil samples revealed that some results had to be discarded due to
249 matrix related disturbances, i.e. the ion ratio was not satisfying. Hence, results for
250 endosulfan sulfate (n=2), α -endosulfan (n=3), β -endosulfan (n=2) within the Σ endosulfans in
251 addition to PeCBs (n=1) and SCCPs (n=1) was removed.

252 Recoveries for all samples, including soil samples (not the method development samples)
253 and blanks are presented in Table A3. For the various endosulfans, the range in the
254 percentage of recovery varied between soil and blank samples. The sometimes low recovery
255 for endosulfan sulfate for some soil sites ($\sim 6\%$), may be caused by reduced amount of

256 eluent added together with matrix related effects disturbing the fractionation potential in
257 the column. However, all three individual ¹²C endosulfans have been monitored by ¹³C
258 labelled internal standards. Consequently, the low recovery does not influence the
259 measured concentrations, but may increase the uncertainty in the measurements.
260 Concerning PeCB, the range of percentage recovery for the soil samples (11-107%) which
261 was somewhat wider compared to the recovery found for the blanks (9-48 %) (Table A3).
262 For PeCB, a few soil samples with recovery <10% (n=5) were removed from the data-set.
263 Recovery for the SCCPs was monitored by use of *cis*-chlordane, and it was assumed that loss
264 of SCCPs reflects loss of *cis*-chlordane. Selected soil samples were quantified for *cis*-clordane
265 and the average percentage recovery varied between 37-68% (see Table A3).

266 **2.5. Blanks and method detection limit (MDL)**

267 Method blanks (n=5) consisting of DE were “dried”, cleaned-up and analysed following the
268 same preparation and quantification method as used for the soil samples (section A2.1-
269 A2.3). Table A4 provides information regarding the levels found in the blank samples. The
270 concentrations found in the DE samples were all at the same level. The method detection
271 limit (MDL) was calculated as the average concentration found in the blank samples plus
272 three times the SD. When the target compounds were not detected in the blank samples, an
273 instrumental detection limit (IDL) was used (Halse et al., 2011). Furthermore, when the
274 target compounds were not detected in soil samples or fell below the calculated MDL, ½ of
275 the MDL value normalized on the site specific SOM values was used for statistical
276 summaries. See table A5 for the individual sites with concentrations below MDL.

277 **2.6. Determination of soil parameters**

278 The content of soil organic matter (SOM) was determined by loss on ignition (LOI) at 550 °C.
279 1-10 gram of the individual soil samples were weighed out and placed in a muffle furnace
280 for 4 hours. Further, after being cooled properly, the soil samples were placed in a
281 desiccator and re-weighed after 30 minutes. Percentage LOI was determined using the ratio
282 between the loss and the initial weight of the sample. Other parameters of the soil samples
283 have been characterized in a former study, and information concerning the bulk density and
284 black carbon (BC), together with temperature values was obtained from Schuster and co-
285 authors (2011).

2.7. Partitioning and fate in soil

286
287 Following Wong and Wania (2011), we have mapped the equilibrium distribution and
288 mobility potential in soils of selected POPs. Figure 1a) shows the equilibrium phase
289 distribution plot of $\log K_{OA}$ vs $\log K_{AW}$ (note: as $\log K_{OW} = \log K_{OA} + \log K_{AW}$, $\log K_{OW}$ appears as
290 diagonal bands). Data on physical-chemical properties for selected POPs (PCBs, PBDEs, HCB,
291 individual endosulfans, PeCB and SCCPs) used to create these plots were taken from the
292 literature (European Commission Joint Research centre, 1999; Li et al., 2003; Shen et al.,
293 2005; US EPA, 2011; Wania and Dugani, 2003). Concerning the phase distribution of the
294 SCCPs, two sets of data was used. One was the EU risk assessment approach (EU-RAR)
295 (European Commission Joint Research centre, 1999), which contains of an average set of
296 SCCP properties, shown as RAR in Figure 1., and the other approach includes a wide range of
297 physical-chemical properties going from the $C_{10}Cl_2$ to $C_{13}Cl_{12}$, using data from Gawor et al.
298 (2013). If found in soils, organic contaminants which are located in the upper left region in
299 Figure 1a) will favor the air-filled pores, while substances located in the lower left region will
300 have a preference to be solved in the water phase while chemicals located in the upper right
301 region will have a strong affinity for sorption to organic solids. Figure 1b, presents the
302 mobility potential of selected POPs in soils. In Figure 1b, we have instead plotted $\log K_{OC}$ vs
303 $\log K_{AW}$, (assuming $K_{OC} = 0.35 * K_{OW}$ (Seth et al., 1999)). In this plot, components located in the
304 upper left are more prone to vaporization, whereas components located in the lower left
305 region are more prone to leaching, while components in the lower right are most prone to
306 erosion. As demonstrated by Wong and Wania (2011) it is possible to use the equilibrium
307 phase distribution plot to estimate the percentages of chemical which resides in the air- and
308 water-filled pore space as well as the percentage sorbed to organic solids for a given soil
309 with certain characteristics (e.g. SOM content) at a specific temperature and water content
310 (Wong and Wania, 2011). This can also be done for the mobility plot (Fig. 1b), yet requires
311 various mass transfer coefficients to be specified. However, as our study deals with multiple
312 sites and soil conditions, such calculations have not been attempted as we are only
313 interested in how these POPs are positioned relative to each other in order to compare how
314 different POPs are expected to distribute and behave in soils. For a more detailed
315 discussion, we refer to Wong and Wania (2011).

316 **2.8. Statistical analysis**

317 In order to evaluate any linear relationship between two variables, Persons correlation (r)
318 was estimated in Excel. Along with this, an significance value (p) for each correlation was
319 also calculated, based in Student's t-distribution. Various sample groups were tested in
320 order to evaluate if the correlation was significant or not, by testing the null hypothesis. The
321 null hypothesis states that the difference in the mean of the datasets tested, was zero. A
322 two tailed t-test was implemented due to the datasets tested was both higher and lower
323 compared to each other. If the p-value was lower than 0.05 ($p < 0.05$), the datasets tested
324 was significantly different from each other, and the null-hypothesis could be rejected.
325 Similar, if the p-value was above 0.05 ($p > 0.05$), the dataset tested was not significantly
326 different from each other and the null hypothesis could not be rejected.

327 **2.8.1. Outliers**

328 The z-score was calculated for individual compounds as the ratio between the observed
329 value and the average value, divided by the standard deviation. Four sites were identified
330 with outliers for one or more compounds or compound groups. For Okehampton (WL, UK),
331 the concentration of Σ_5 PBDEs was 1.817 ng/g dw ($z=3.2$). The concentration for PeCB at
332 Birkenes (WL, Norway) was 1.359 ng/g dw ($z=3.02$), and the concentration of SCCPs at
333 Tamokdalen (GL, Norway) was 280 ng/g dw ($z=3.7$). Onsøy (WL, Norway) was identified with
334 outliers for several compounds, i.e. Σ endosulfans, endosulfan sulfate, β -endosulfan, and
335 Σ_{31} PCB was 24.671 ng/g dw ($z=5.9$), 23.902 ($z=5.9$) ng/g dw, 0.706 ng/g dw ($z=3.6$) and
336 25.130 ng/g dw ($z=4.8$), respectively. Consequently these observations were excluded from
337 the correlation analysis and the figures.

338

3. Figures

Figure A1 Map showing sampling sites in UK and Norway.(Schuster et al., 2011)

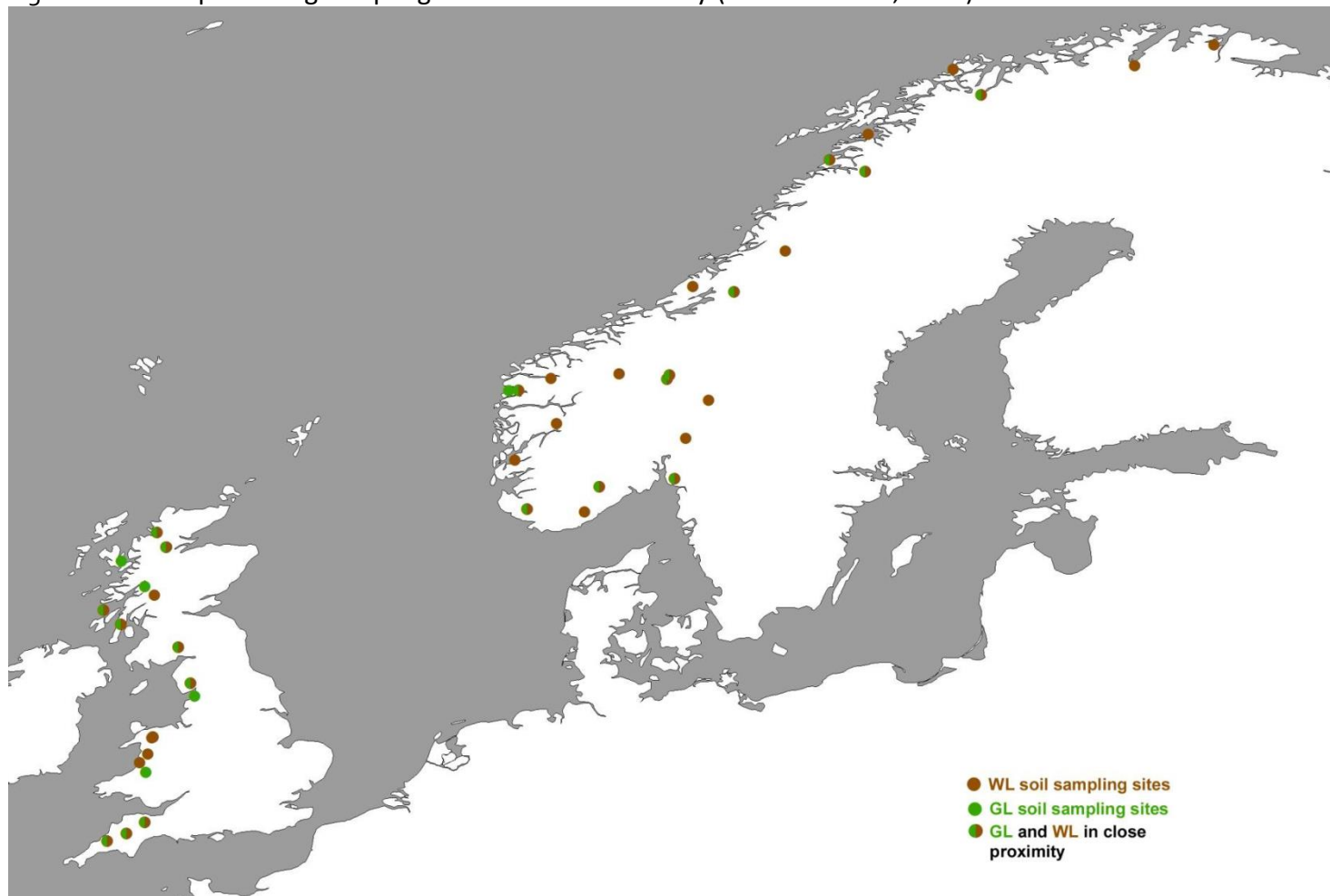


Figure A2 ASE cell with sample and packing material (DE and florisil)

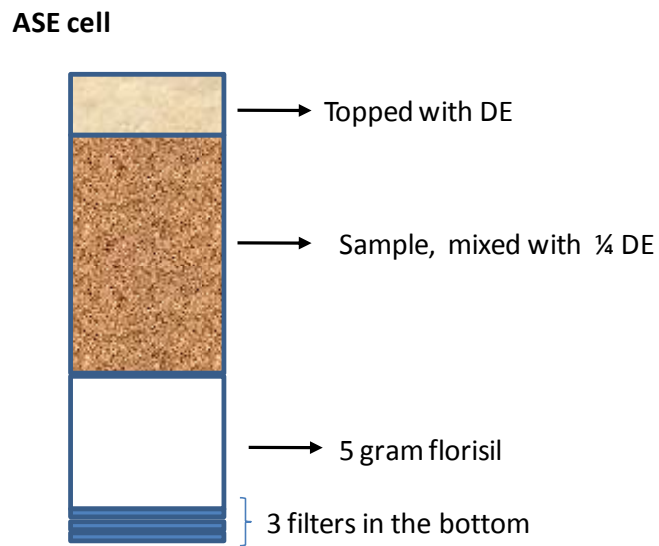
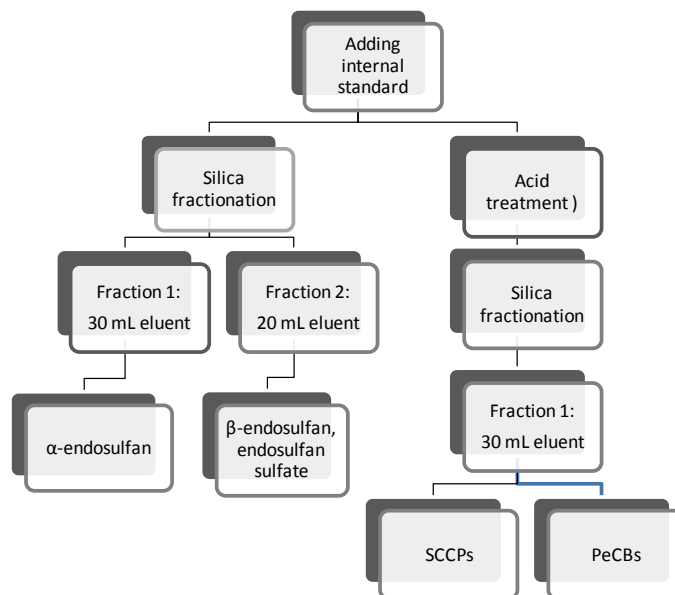


Figure A3 Flowchart for the clean-up and quantification.



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