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COMPREHENSIVE ATMOSPHERIC MONITORING PROGRAMME

Pollutant deposits and air quality around the North Sea and N.E. Atlantic in 2004

OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic

Norwegian Institute for Air Research
P.O. Box 100, N-2027 Kjeller, Norway

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Kevin Barrett
Centre for Ecological Economics

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Executive Summary

This report presents the results of monitoring undertaken by OSPAR Contracting Parties for the Comprehensive Atmospheric Monitoring Programme (CAMP) during 2004. Under the CAMP, OSPAR Contracting Parties are committed to monitor on a mandatory basis the concentrations of a range of heavy metals, organic compounds and nutrients in precipitation and air, and their depositions. The CAMP encourages OSPAR Contracting Parties to monitor on a voluntary basis additional compounds (such as certain persistant organic pollutants). The report gives detailed information on atmospheric inputs of selected contaminants to the OSPAR maritime area and its regions.

Overall there has been an improvement in reporting the Mandatory programme by Contracting Parties in 2004, despite a decline in the numbers of Parties completing the programme. Some Parties extensively report components not requested by OSPAR's Mandatory or voluntary programmes, despite in some cases reporting a minority of those programmes.

Preliminary estimates of deposition to the North Sea derived from the observations in 2004 suggest a decline in deposition of metals and nitrogen since 2000. The seasonal pattern of nitrogen deposition, with a clear spring maximum for ammonium but much weaker seasonal patterns for nitrate, reflects the relative proximity of the emission sources for these pollutants, and the expected distance of transport through the atmosphere.

The CAMP databases reveal declining and low inputs of pesticides to OSPAR waters. Data quality is imperfect, however, such that external factors such as changing methodologies may obscure the full picture. Nevertheless, the value of the programme is demonstrated in evidencing continued supply of prohibited substances, such as lindane, and in indicating its declining input. There is evidence to suggest that continued deposition of lindane to OSPAR waters may arise from emission sources beyond the region.

1 Introduction

This report describes the reports from coastal monitoring stations across the OSPAR region (see Figure 1.1) under the Comprehensive Atmospheric Monitoring Programme (CAMP).

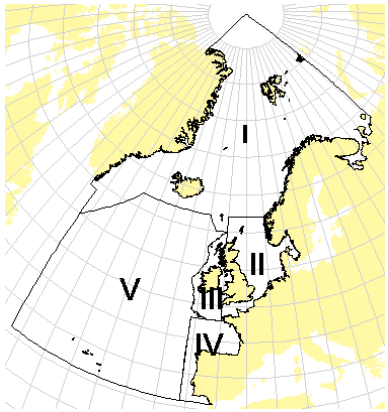


Figure 1.1: OSPAR maritime area and regions
I: Arctic waters, II: Greater North Sea, III: Celtic Seas,
IV: Bay of Biscay, V: Wider Atlantic

The Comprehensive Atmospheric Monitoring Programme forms one element within the wider Joint Assessment and Monitoring Programme of OSPAR. One objective of the CAMP is to monitor the concentrations of selected contaminants in precipitation and air, and their depositions, in order to assess, as accurately as appropriate, the atmospheric input of the selected contaminants to the maritime area and regions thereof (Figure 1.1) on an annual basis. This is to be achieved through a monitoring regime with relevant substances, sampling methods, locations and frequency and analysis and assessment methodologies. This regime is set out in the CAMP Principles (OSPAR reference number: 2001-7).

The components of interest to the CAMP are divided into two groups, for measurement on a mandatory basis and for measurement on a voluntary basis. These are listed in table 1.1.

Table 1.1: Components to be measured under the CAMP

	Mandatory	**Voluntary**
Precipitation	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, γ-HCH, NH_4^+, NO_3^-	PCB 28,52,101,118,138,153,180 PAHs: Phenanthrene, anthracene, flouranthene, pyrene, benzo(*a*)anthracene, chrysene, benzo(*a*)pyrene, benzo(*ghi*)perylene, indeno(*1,2,3-cd*)pyrene
Airborne	NO_2, HNO_3, NH_3, NH_4^{+a}, NO_3^{-a}	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, γ-HCH, PCB 28,52,101,118,138,153,180, PAHs: Phenanthrene, anthracene, flouranthene, pyrene, benzo(*a*)anthracene, chrysene, benzo(*a*)pyrene, benzo(*ghi*)perylene, indeno(*1,2,3-cd*)pyrene, NO

[a]) total ammonium (NH_3 + NH_4^+) and total nitrate (HNO_3 +NO_3^-) is an alternative.

The CAMP Principles call for each Contracting Party bordering the OSPAR maritime area (excluding the EU) to operate at least one monitoring station on the coast and/or offshore as part of the CAMP. Where Parties border more than one region (see Figure 1.1) at least one station should be operating in each. These stations should be so-called background stations, i.e. not directly influenced by local emission sources. The stations should be located not more than 10 km from the coastline.

The data assembled by monitoring stations are reported by Contracting Parties to the Norwegian Institute for Air Research (NILU) on a yearly basis, using a reporting format and according to the time schedule set out in the CAMP Principles. Based on the data received, NILU prepares a CAMP data report on an annual basis for OSPAR to examine.

The present CAMP data report "Pollutant depositions and air quality at N.E. Atlantic Coastal Stations in 2004" gives in chapter 2 an overview of reported data and the implementation of the CAMP Principles in 2004. To this end, the geographical coverage, the contaminants covered which are subject to mandatory monitoring, and the timeliness of data submission are presented. In chapter 3, an overview is given of the 2004 annual average values of the components subject to mandatory monitoring for the North-East Atlantic. In chapter 4, temporal trends for the deposition of nitrogen to the Atlantic coastline and the North Sea in 2004 are shown, questions of detection limits are discussed, with lindane as an instance, and issues relating to data quality assurance are addressed. Chapter 5 summarises the report's observations on the reported CAMP data for 2004. The detailed data submitted by Contracting Parties are appended to this report (Appendix 1).

2 The OSPAR CAMP Monitoring Programme in 2004

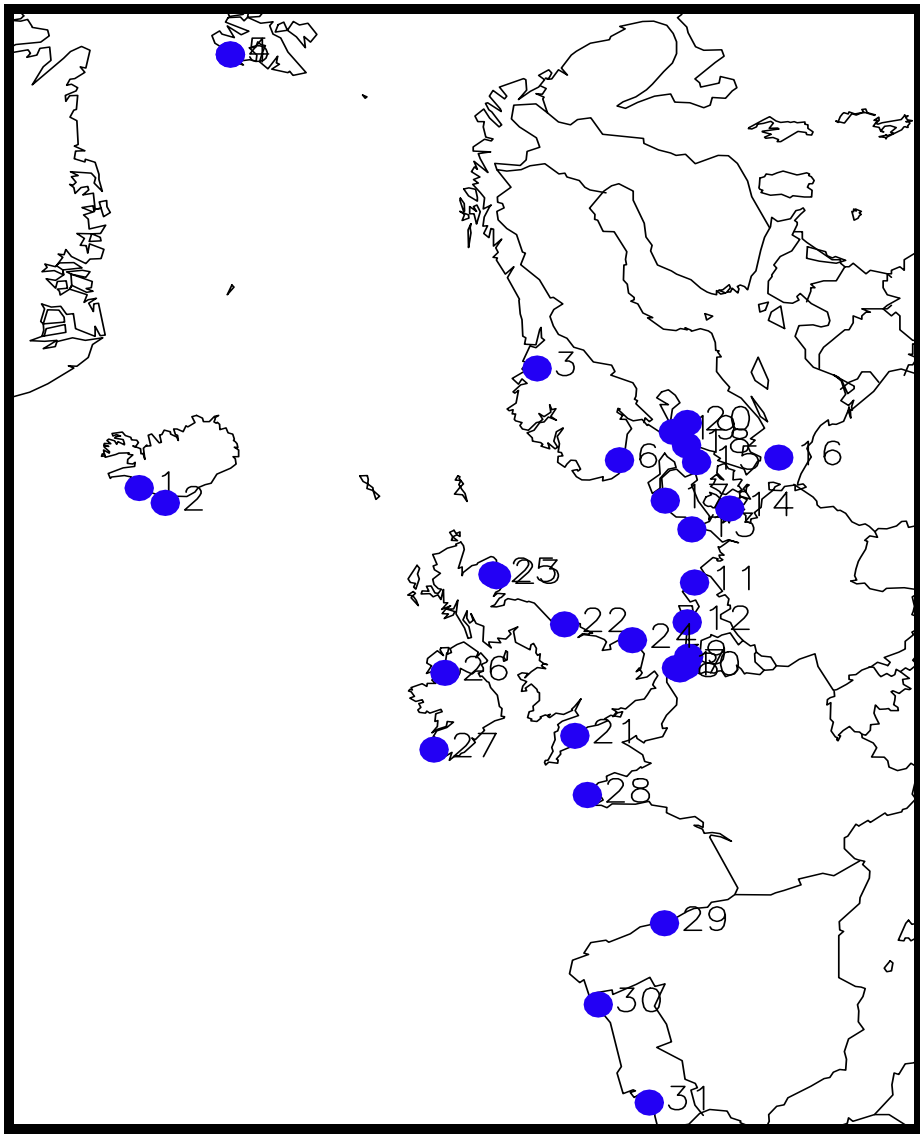


Figure 2.1: Monitoring sites reporting to OSPAR. Station numbers in table 2.1

2.1 Geographical coverage

Changes to the reporting network during 2004 were small but noteworthy. The end to reports from Turlough Hill in Ireland means no further observations around the Irish Sea. Resumption of reporting from Porspoder in France and Yarner Wood in the UK gives coverage of the western approaches. The Atlantic seabord is better represented through observations from Lough Navar and Glen Dye. Halting reports from Lista is of no consequence given the proximity of Birkenes. In general, the geographical coverage of the reporting monitoring stations was improved in 2004. Monitoring in the northern regions remains more dispersed. Table 2.1 details monitoring stations, and indicates the monitoring undertaken: observation of the deposition of pollutants in precipitation (p), and/or monitoring of ambient air quality (a). Not all stations reported data for all components.

Table 2.1: Stations reporting precipitation and air quality to OSPAR in 2004

	Country	Station number	Station name	OSPAR Region	Lat.	Long.	Elev. (m)	Distance to sea (km)	Precip.(p) airborne(a)
1	**Iceland**	IS0090R	Irafoss	I	64°08' N	21°54' W	52	1	p
2		IS0091R	Storhofdi	I	63°24' N	20°17' W	118	0.5	pa
3	**Norway**	NO0039R	Kaarvatn	I	62°47' N	8°53' E	210	70	pa
4		NO0042R	Zepellinfjell	I	78°54' N	11°53' E	474	2	a
5		NO0057R	Ny Aalesund	I	78°55' N	11°55' E	8	0.3	p
6		NO0001R	Birkenes	II	58°23' N	8°15' E	190	20	pa
7	**Belgium**	BE0004R	Knokke	II	51°21' N	3°20' E	0	1	p
8		BE0011R	Moerkerke	II	51°01' N	2°35' E	0	9	a
9		BE0013R	Houtem	II	51°15' N	3°21' E	10	12	a
10		BE0014R	Koksijde	II	51°7' N	2°30' E	7	1.5	p
11	**Netherlands**	NL0009R	Kollumerwaard	II	53°20' N	6°17' E	1	7.5	pa
12		NL0091R	De Zilk	II	52°18' N	4°31' E	4	2.5	pa
13	**Germany**	DE0001R	Westerland	II	54°56' N	8°19' E	12	0.09	pa
14	**Denmark**	DK0005R	Keldsnor	II	54°44' N	10°44' E	10		p
15		DK0008R	Anholt	II	56°43' N	11°31' E	40	~0.5	pa
16		DK0020R	Pedersker	II	50°01' N	14°57' E	5		p
17		DK0031R	Ulborg	II	56°17' N	8°26' E	40	20	pa
18	**Sweden**	SE0014R	Rao	II	57°24' N	11°55' E	10	100	pa
19		SE0097R	Gaardsjoen	II	58°03' N	12°01' E	113	12	p
20		SE0098R	Svartedalen	II	57°59' N	12°06' E	120	16	p
21	**United**	GB0013R	Yarner Wood	II	50°36' N	3°43 W	119	16.9	pa
22	**Kingdom**	GB0014R	High Muffles	II	54°20' N	0°48' W	267	20.8	pa
23		GB0016R	Glen Dye	II	56°58' N	2°35' W	185	23.4	pa
24		GB0091R	Banchory	II	57°05' N	2°32' W	120	23.6	pa
25		GB0017R	Heigham Holmes	II	52°43' N	1°37' E	0	4.4	pa
26		GB0006R	Lough Navar	III	54°26' N	7°54 W	130	18.8	pa
27	**Ireland**	IE0001R	Valentia Island	III	51°56' N	10°15' W	9	0	p
28	**France**	FR0090R	Porspoder	II/IV	48°30' N	4°46' W	30	0.5	p
29	**Spain**	ES0008R	Niembro	IV	43°27'N	4°51' W	134		p
30	**Portugal**	PT0003R	Viana do Castelo	IV	41°42' N	8°48' W	16	4	p
31		PT0004R	Monte Velho	IV	38°05' N	8°48' W	43	1.5	p
32		PT0010R	Angra do Heroismo	V	38°40' N	27°13' W	74	1	p

2.2 Completion of the observation programmes

The comprehensive atmospheric monitoring programme (CAMP) seeks to provide coordinated geographical ground truth data on atmospheric pollution of OSPAR waters. Full compliance with all Mandatory requirements under the CAMP in 2004 was achieved by Germany, the Netherlands, Norway and Sweden, i.e. 1/3 of the Contracting Parties. These four were the only completing the Mandatory programme for components in precipitation (down from 6 in 2003). One Party, Belgium, reported less than half of the Mandatory programme for precipitation (table 1.2) due to station closure after technical problems. The least reported contaminants are mercury (6 reporting, unchanged from 2003) and lindane (6 reporting, unchanged from 2003). For air concentrations, the mandatory programme was completed by seven Parties, - Denmark, Spain and the United Kingdom in addition to the four completing the full programme. One quarter (3) chose not to report any mandatory air components, namely France, Ireland and Portugal (as 2003). From combined numbers of Parties and pollutants, monitoring rose from 78% in 2003 to >83% in 2004.

Table 2.2: Mandatory monitoring of contaminants in precipitation for 2004[*]

	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	γ-HCH	NH_4	NO_3
Belgium						•			•	•	•
Denmark	•	•	•	•	•		•	•		•	•
France	•	•	•	•	•		•	•		•	•
Germany	•	•	•	•	•	•	•	•	•	•	•
Iceland	•	•	•	•	•		•	•	•	•	•
Ireland	•	•	•	•	•	•	•	•		•	•
Netherlands	•	•	•	•	•	•	•	•	•	•	•
Norway	•	•	•	•	•	•	•	•	•	•	•
Portugal		•		•	•		•	•		•	•
Spain	•	•	•	•	•		•	•		•	•
Sweden	•	•	•	•	•	•	•	•	•	•	•
United Kingdom	•	•	•	•	•		•	•		•	•

Table 2.3:Mandatory monitoring of contaminants in air for 2004[*]

	NO_2	NO_3	NH_x
Belgium	•		
Denmark	•	•	•
France			
Germany	•	•	•
Iceland		•	
Ireland			
Netherlands	•	•	•
Norway	•	•	•
Portugal			
Spain	•	•	•
Sweden	•	•	•
United Kingdom	•	•	•

The concentrations of pollutants in air reported by Contracting Parties are given in Appendix 1. With the exception of anthracene (section 5) they are not otherwise further employed in this report.

[*] *Grey boxes in tables 2.2 and 2.3 indicate contaminants for which no data were reported.*

2.3 Timeliness of reporting

The reporting of data for the 2004 observation year was almost entirely in accordance with the time schedule of the CAMP Principles (see table 2.4). Ten of twelve Parties reported according to schedule, with two doing so in time for the data validation round. As such, data reporting functioned notably better than it had the previous year. Table 2.5 gives an overview of the actual receipt of national observation reports.

Table 2.4: Timetable for data reporting according to the CAMP Principles

30th June	Call for metadata and data issued from NILU (regarding new data and metadata), with instructions and reference to supporting software (e.g. where to find tools on the NILU website).
30th September	Participants submit data and metadata via email or on diskette, in specified formats.
31st October	NILU returns data and metadata via email or on diskette in the form of a 'validation report' to data originators for verification and signing off by the data originators within **two weeks** of reception.

Table 2.5: History of reporting of 2004 observations

country	**data delivered***
June 30 -Deadline for data request issue by NILU	
Denmark	√
France	√
Iceland	√
Ireland	√
France	√
Netherlands	√
Norway	√
Portugal	√
Spain	√
Sweden	√
United Kingdom	√
September 30 - Deadline for receipt of data	
Belgium	√
Germany	√
October 31 - Deadline for Validation Report issue by NILU	
December 3 - Reporting to INPUT by NILU	
January 2006 – INPUT, London	
April 2006 – Final Report delivery	

Not all data was provided at time of the first delivery shown above. Some Parties delivered all their intended observation data at the time indicated, whilst others supplemented their first delivery at later dates. Observation data or corrections were delivered by Netherlands, Spain, Sweden, United Kingdom and Belgium after INPUT, the latest data from this group being supplied on 16 March.

2.4 Reporting of additional components

Contracting parties report a wider range of components of interest to themselves than is covered by the Mandatory or Voluntary programmes. This data is managed and stored by the Data Manager in the same way as for the regular data. In order to give an overview of what this body of information includes, table 2.6 lists all components reported by Parties during 2004 (excluding major ions submitted for quality control only). These are colour coded to indicate their status as Mandatory Components (green), Voluntary Components (blue) or Additional Components (red). Information as to which Party submits which components, and as to whether it is monitored in precipitation or as an airborne component is contained in the country-wise listing of data in the Appendix.

Table 2.6: All components reported by Contracting parties in 2004

acenaphthene		cyclopenta_cd_pyrene		nitrogen_monoxide		PCB_183	
acenaphthylene		dibenzo_ac_ah_anthracenes		op_DDD		PCB_187	
aldrin		dibenzo_ae_pyrene		op_DDE		PCB_189	
alpha_HCH		dibenzo_ah_anthracene		op_DDT		PCB_194	
aluminium		dibenzo_ah_pyrene		organic_carbon		PCB_206	
ammonia		dibenzo_ai_pyrene		ozone		PCB_209	
ammonium		dibenzofuran		PCB_18		perylene	
anthanthrene		dibenzothiophene		PCB_28		phenanthrene	
anthracene		dieldrin		PCB_31		pm10_mass	
arsenic		elementary_carbon		PCB_33		pm25_mass	
benz_a_anthracene		endrin		PCB_37		pp_DDD	
benzo_a_fluoranthene		fluoranthene		PCB_47		pp_DDE	
benzo_a_fluorene		fluorene		PCB_52		pp_DDT	
benzo_a_pyrene		gamma_HCH		PCB_66		pyrene	
benzo_b_flouranthene		HCB		PCB_74		retene	
benzo_b_fluorene		heptachlor		PCB_99		sulphur_dioxide	
benzo_bjk_fluoranthenes		inden_123cd_pyrene		PCB_101		sum_ammonia_and_ammonium	
benzo_e_pyrene		iron		PCB_105		sum_DDT	
benzo_ghi_fluoranthene		lead		PCB_114		sum_nitric_acid_and_nitrate	
benzo_ghi_perylene		manganese		PCB_118		sum_PCB	
benzo_k_fluoranthene		mercury		PCB_122		susp_part_matter	
beta_HCH		N1methylnaphtalene		PCB_123		total_carbon	
biphenyl		N1methylphenanthrene		PCB_128		trans_CD	
cadmium		N2methylanthracene		PCB_138		trans_NO	
chromium		N2methylphenanthrene		PCB_141		txph_26	
chrysene		N3methylphenanthrene		PCB_149		txph_50	
chrysene_thriphenylene		N9methylphenanthrene		PCB_153		txph_62	
cis_CD		naphtalene		PCB_156		txph-26	
cis_NO		nickel		PCB_157		txph-50	
cobalt		nitrate		PCB_167		txph-62	
copper		nitric_acid		PCB_170		vanadium	
coronene		nitrogen_dioxide		PCB_180		zinc	

CAMP status: Mandatory Voluntary Additional

3 Observed pollutant depositions at monitoring stations, 2004

This section gives an overview of atmospheric conditions at coastal stations around the North-East Atlantic in 2004. It lists and displays the annual average values of the concentrations of contaminants subject to mandatory monitoring, and their deposition at those stations. Estimates of sea surface deposition itself derived from these station observations are supplied in section 4.

For heavy metals, the concentrations in precipitation measured in 2004 are presented in table 3.1; the corresponding estimated depositions and their distribution are listed in table 3.2 and illustrated in figures 3.1-3.7. Reported concentrations of mercury in precipitation and their estimated depositions are given separately in table 3.3, the distribution of deposition illustrated in figure 3.8 . Concentrations and deposition distribution patterns for lindane are given in table 3.4 and figure 3.9 respectively. Similarly, for nitrogen the concentrations in precipitation and the estimated depositions are set out in table 3.5, with the distribution of the depositions presented in figures 3.10 and 3.11. The deposition rates were calculated in accordance with the CAMP Principles and their interpretion of detection limits. This means that for data flagged as '780' (observation below detection limit, value is best estimate) the reported value was employed; for data flagged as '781' (observation below detection limit, value is detection limit), a value of half the detection limit was used.

3.1 Heavy metals (except mercury)

Table 3.1: Reported mean annual concentrations of heavy metals in precipitation (mg/l). Precipitation-weighted values; precipitation amounts in mm.

Concentrations		**As** µg/l	**Cd** µg/l	**Cr** µg/l	**Cu** µg/l	**Pb** µg/l	**Ni** µg/l	**Zn** µg/l	***prec*** *mm*
Belgium	*BE0004R*	●	●	●	●	●	●	●	
Germany	*DE0001R*	0,10	0,02	0,12	0,52	0,78	0,30	5,29	*722,5*
Denmark	*DK0008R*	0,32	0,18	0,28	1,54	1,24	0,55	12,60	*597,2*
	DK0020R	0,20	0,26	0,23	2,59	1,29	0,52	15,07	*422,2*
	DK0031R	0,17	0,12	0,18	3,75	0,75	0,50	7,13	*1016,1*
France	*FR0005R*	0,28	0,02	0,17	0,79	0,57	0,55	7,20	*1059,0*
Ireland	*IE0001R*	0,50	0,06	0,55	8,74	1,27	2,45	31,77	*1367,0*
Iceland	*IS0090R*	0,18	0,01	0,24	1,61	0,38	0,55	7,13	*970,8*
	IS0091R		0,01	0,34	1,37	0,38	0,33	11,86	*1607,1*
Netherlands	*NL0009R*	0,11	0,05	0,26	1,04	1,24	0,24	4,99	*662,3*
	NL0091R	0,08	0,03	0,26	1,76	2,33	0,31	5,54	*747,7*
Norway	*NO0001R*	0,12	0,04	0,11	0,35	1,30	0,21	4,12	*1712,0*
Portugal	*PT0003R*	●	0,43	●	7,49	1,85	1,28	9,79	*2228,9*
	PT0004R		0,43		0,58	3,44	1,32	8,73	*317,3*
	PT0010R		0,43		0,33	0,68	6,97	24,51	*379,2*
Spain	*ES0008R*	0,74	0,16	30,05	21,81	3,54	50,71	136,03	*1105,10*
Sweden	*SE0097R*	0,08	0,03	0,14	0,57	0,91	0,32	4,33	*1091,0*
UK	*GB0006R*	0,24	0,01	0,11	0,43	0,29	0,06	2,43	*1641,3*
	GB0013R	0,09	0,08	0,07	0,50	0,66	0,24	5,11	*1268,2*
	GB0017R	0,14	0,04	0,08	1,12	1,59	0,27	5,99	*751,7*
	GB0091R		0,03	0,10	1,20	1,11	0,38	5,68	*780,8*

● *no data reported*

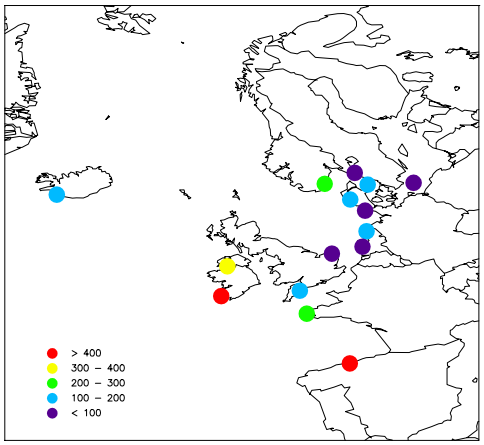


Figure 3.1: Arsenic depositions 2004, µg/m^2

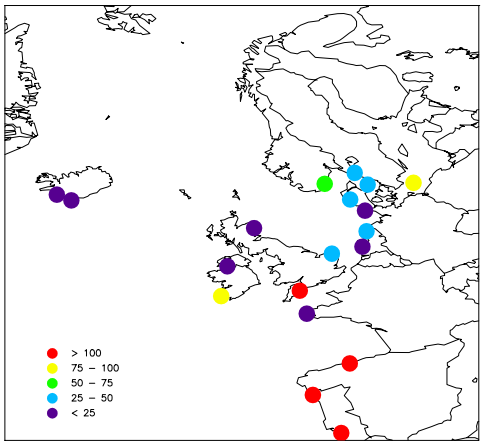


Figure 3.2: Cadmium depositions 2004, µg/m^2

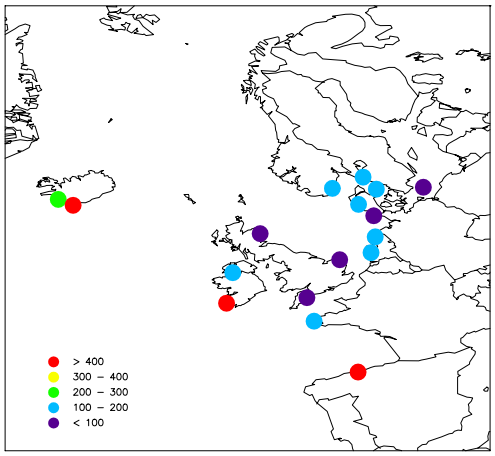


Figure 3.3:Chromium depositions 2004, µg/m^2

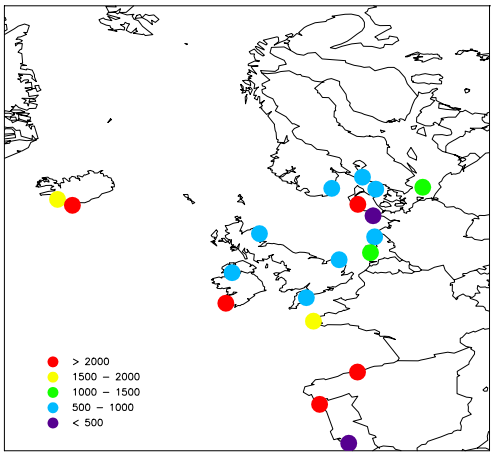


Figure 3.4: Copper depositions 2004, µg/m^2

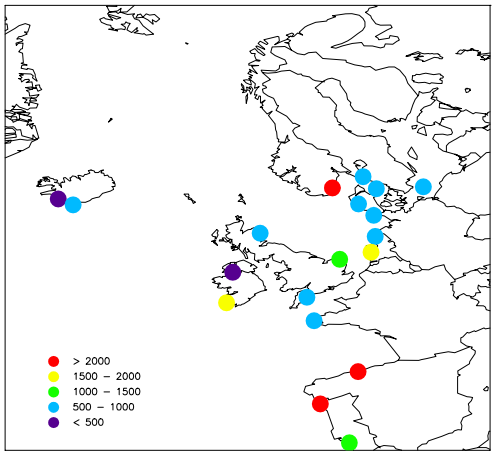


Figure 3.5: Lead depositions 2004, µg/m^2

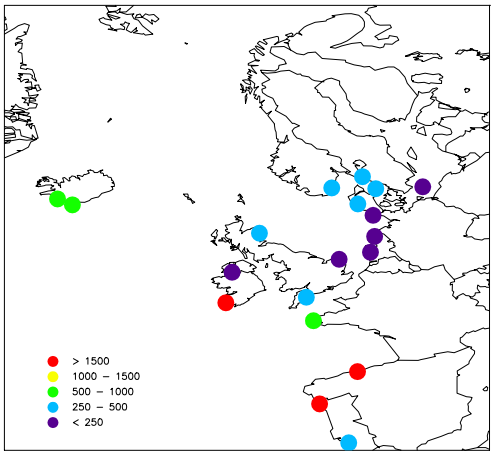


Figure 3.6: Nickel depositions 2004, µg/m^2

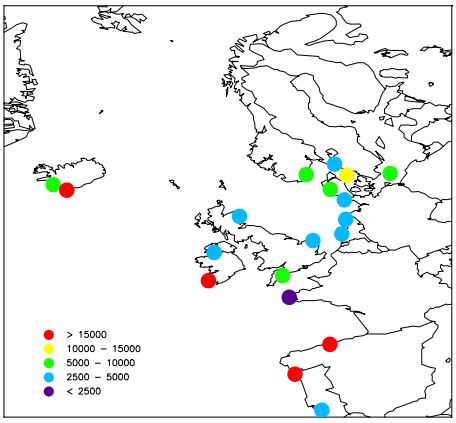


Figure 3.7: Zinc depositions 2004, µg/m^2

Table 3.2: Reported mean annual depositions of heavy metals in precipitation (mg/m^2/a). These are precipitation-weighted values; precipitation amounts are given in mm

Depositions		**As** µg/m^2 p.a.	**Cd** µg/m^2 p.a.	**Cr** µg/m^2 p.a.	**Cu** µg/m^2 p.a.	**Pb** µg/m^2 p.a.	**Ni** µg/m^2 p.a.	**Zn** µg/m^2 p.a.	***prec*** *mm*
Belgium	*BE0004R*	●	●	●	●	●	●	●	
Germany	*DE0001R*	73	17	89	379	565	218	3820	*722,5*
Denmark	*DK0008R*	190	105	166	917	741	331	7524	*597,2*
	DK0020R	86	108	95	1092	545	220	6364	*422,2*
	DK0031R	176	120	181	3810	757	508	7249	*1016,1*
France	*FR0005R*	294	23	182	838	603	580	7623	*1059,0*
Ireland	*IE0001R*	684	86	758	11949	1732	3352	43434	*1367,0*
Iceland	*IS0090R*	176	9	236	1564	372	532	6922	*970,8*
	IS0091R		17	540	2208	603	537	19053	*1607,1*
Netherlands	*NL0009R*	74	32	172	687	824	160	3303	*662,3*
	NL0091R	61	22	194	1319	1740	228	4145	*747,7*
Norway	*NO0001R*	212	68	188	596	2231	358	7050	*1712,0*
Portugal	*PT0003R*	●	950	●	16694	4123	2853	21821	*1861,9*
	PT0004R		135		184	1092	419	2770	*179,0*
	PT0010R		161		125	258	2643	9294	*179,0*
Spain	*ES0008R*	817	175	33214	24105	3910	56040	150324	*1132,4*
Sweden	*SE0097R*	84	35	151	627	988	344	4727	*1091,0*
UK	*GB0006R*	396	20	185	702	483	97	3991	*1641,3*
	GB0013R	117	103	94	634	832	302	6478	*1268,2*
	GB0017R	102	31	62	843	1197	203	4504	*751,7*
	GB0091R		21	75	936	869	295	4434	*780,8*

● *no data reported*

3.2 Mercury

Table 3.3: Ranked reported depositions of mercury in precipitation (ng/m2) together with associated concentrations (ng/l), 2004

		concentration	precipitation	deposition
		ng/l	mm	ng/m^2 p.a.
Ireland	*IE0001R*	50,00	*1367,0*	68350
Norway	*NO0001R*	9,85	*1432,1*	14103
Netherlands	*NL0009R*	15,17	*683,1*	10362
Sweden	*SE0014R*	14,65	*553,9*	8114
Germany	*DE0001R*	8,21	*677,9*	5563
Belgium	*BE0014R*	0,04	*767,0*	28
Denmark		●		
France		●		
Iceland		●		
Portugal		●		
Spain		●		
UK		●		

● no data reported

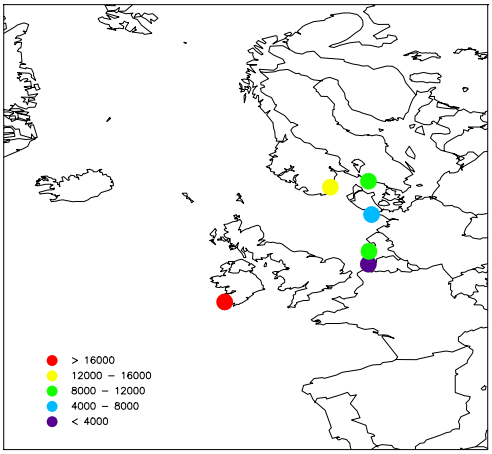


Figure 3.8: Mercury depositions 2004, ng/m^2

With so few observations, conclusions must be limited. The broad comparison in observed concentrations and depositions between Norway, Netherlands, Sweden and Germany provides some reassurance as to the quality of these measurements. Reported concentrations for western Ireland would appear to reflect analytical limitations, whilst the very low reports from Belgium would benefit from further clarification.

3.3 Lindane

Table 3.4: Reported annual concentrations of g-HCH in precipitation (prec. wtd) and its deposition (ng/m2) - in decreasing order of deposition quantity

		concentration	precipitation	deposition
		ng/l	mm	ng/m^2 p.a.
Netherlands	*NL0009R*	5,37	*905,6*	4861
Belgium	*BE0014R*	4,02	*767,0*	3083
Germany	*DE0001R*	1,70	*554,4*	943
Norway	*NO0001R*	0,87	*971,8*	845
Sweden*	*SE0014R*			299
Iceland	*IS0091R*	0,06	*705,0*	39
Denmark		●		
France		●		
Ireland		●		
Portugal		●		
Spain		●		
UK		●		

● *no data reported*

* *Sweden measures combined wet + dry deposition total*

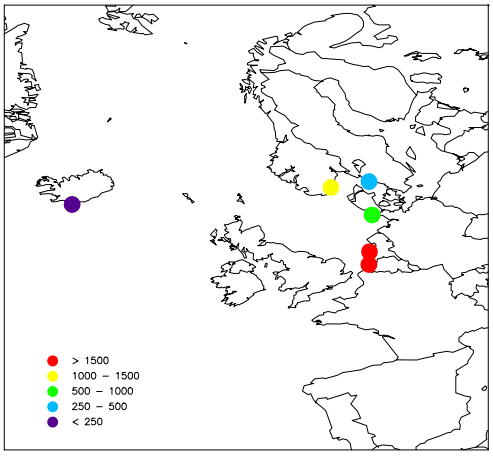


Figure 3.9: Lindane depositions 2004 ng/m^2

There is a broad coherence in values from Iceland, Norway, Sweden and Germany. An evaluation of lindane observations, including the apparent high values reported by the Netherlands and Belgium is given in section 5.2.

3.4 Nitrogen

Table 3.5: Reported mean annual concentrations (mg/l) and precipitation.weighted depositions (mg/m2) of nitrogen in precipitation

		ammonium	nitrate	precipitation	ammonium	nitrate
		mg/l	mg/l	mm	mg/m^2 p.a.	mg/m^2 p.a.
Belgium	*BE0014R*	0,62	0,45	*627,8*	387	283
Germany	*DE0001R*	0,41	0,45	*698,6*	289	313
Denmark	*DK0005R*	0,56	0,48	*615,6*	344	293
	DK0008R	0,42	0,47	*598,6*	248	280
	DK0020R	0,95	0,61	*422,2*	426	244
Iceland	*IS0090R*	0,30	0,13	*970,8*	287	127
	IS0091R	0,08	0,27	*1607,1*	136	429
Ireland	*IE0001R*	0,17	0,11	*1367,0*	234	145
Netherlands	*NL0009R*	0,60	0,38	*734,3*	476	280
	NL0091R	0,50	0,43	*747,7*	362	322
Norway	*NO0001R*	0,33	0,36	*1700,5*	567	617
	NO0039R	0,07	0,04	*2001,1*	130	75
	NO0057R	0,10	0,12	*254,8*	25	30
Portugal	*PT0003R*	0,05	0,09	*2233,0*	120	193
	PT0004R	0,21	0,18	*357,0*	77	66
	PT0010R	0,03	0,16	*643,7*	17	105
Spain	*ES0008R*	0,54	1,54	*662,4*	352	1019
Sweden	*SE0014R*	0,46	0,44	*726,6*	331	319
	SE0098R	0,36	0,42	*1094,0*	394	463
UK	*GB0006R*	0,17	0,10	*1300,6*	234	124
	GB0013R	1,75	0,26	*954,0*	278	252
	GB0014R	0,51	0,44	*719,5*	410	318
	GB0016R	0,45	0,59	*816,4*	312	480

● *no data reported*

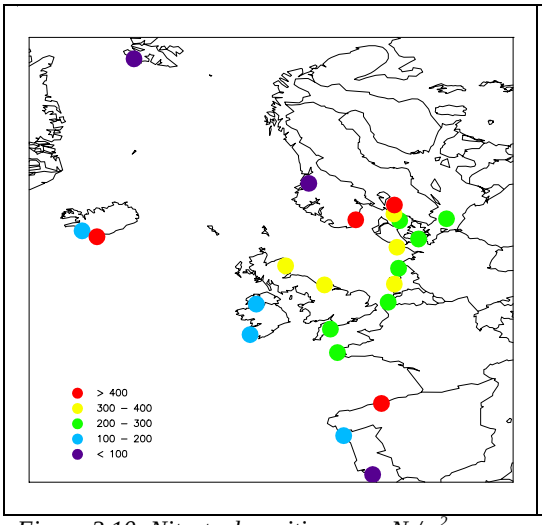


Figure 3.10: Nitrate depositions, mg N /m^2

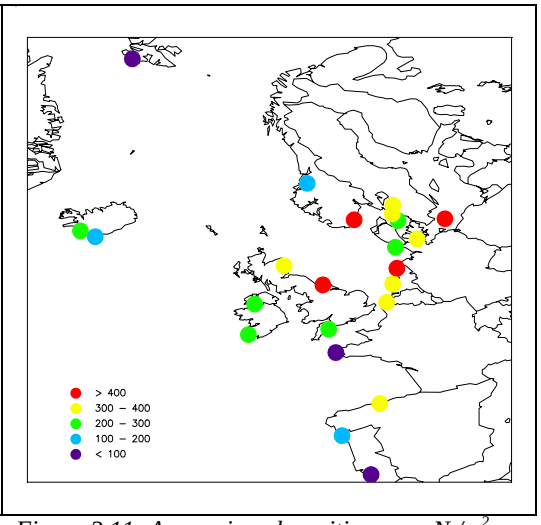


Figure 3.11: Ammonium depositions, mg N /m^2

4 Estimated total North Sea depositions and temporal patterns

4.1 Total North Sea depositions

OSPAR has previously accepted to estimate pollutant loadings to the North Sea on the basis of its known relationships with observed pollutant concentrations at the monitoring stations of the CAMP. This approach, known as 'Method 3a', developed by the Netherlands, applies transfer coefficients to the pollutant measurements themselves made by Contracting Parties as the central basis to estimating total wet plus dry basin deposition*, rather than utilising measurements as a point of comparison with calculations. The physical and chemical factors behind atmospheric transfer are inherent in the estimated transfer functions calculated from reported data rather than being explicitly described. Combining estimates derived from several stations around the sea provides balance against overweighting from any single unusual measurement. The approach is described in *Calculation of atmospheric inputs of contaminants to the North Sea 1987-92*, Oslo and Paris Commission (1994), Assessment and Monitoring series report 1994/25.

The approach is well suited to estimating change. In this section both the absolute estimates of deposition in 2004 of nitrogen and metal components on the Mandatory list for precipitation, and the proportional change since 2000 are presented. Observations suggest a clear decrease in depositions over the period. Caution should be exercised, however, with these first estimates. Any two years may show distinct variations which can mislead. Application of the approach over an extended time series would provide a clearer picture.

Table 4.1: Estimated annual depositions, 2004, derived from measurements (method 3a)

	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	NO_3	NH_4	total N
2004	28	9	34	312	85	357	1373	121	119	240
as % of 2000	*49*	*56*	*49*	*87*	*70*	*64*	*41*	*81*	*67*	*74*

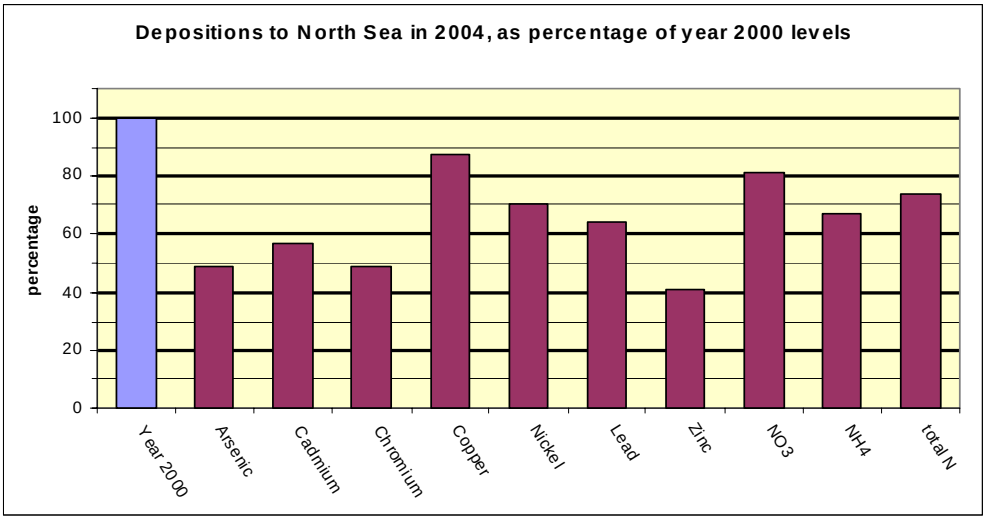


Figure 4.1: Estimated deposition change 2000-4, derived from measurements (method 3a)

* Method 3a combines dry and wet deposition for metals. Wet deposition alone is expressed for nitrogen.

4.2 Seasonality in nitrogen deposition

Nitrogen has been selected here for displaying temporal trends. To provide information at the regional scale observations have been averaged across all stations found in the North Sea (OSPAR region II), and across all stations in all remaining regions, described broadly as the Atlantic.

Both nitrate and ammonium showed a spring peak in depositions in the North Sea, the peak being weaker for nitrate. For the Atlantic regions, the temporal pattern for ammonium concentrations was similar, albeit at lower absolute levels than seen in the North Sea. Nitrate showed a much less marked seasonal pattern. The lower peak/weaker seasonal pattern for nitrate nitrogen likely reflects a typically greater distance of transport between points of emission and deposition at the coast than is the case for ammonium. Sources are frequently from industry and transport, and are widely spread The shorter typical distance of transport for ammonium with consequent lesser dispersion will produce a clearer gradient in depositions away from emission sources. Ammonium sources are mostly agricultural and are often in proximity to the coast.

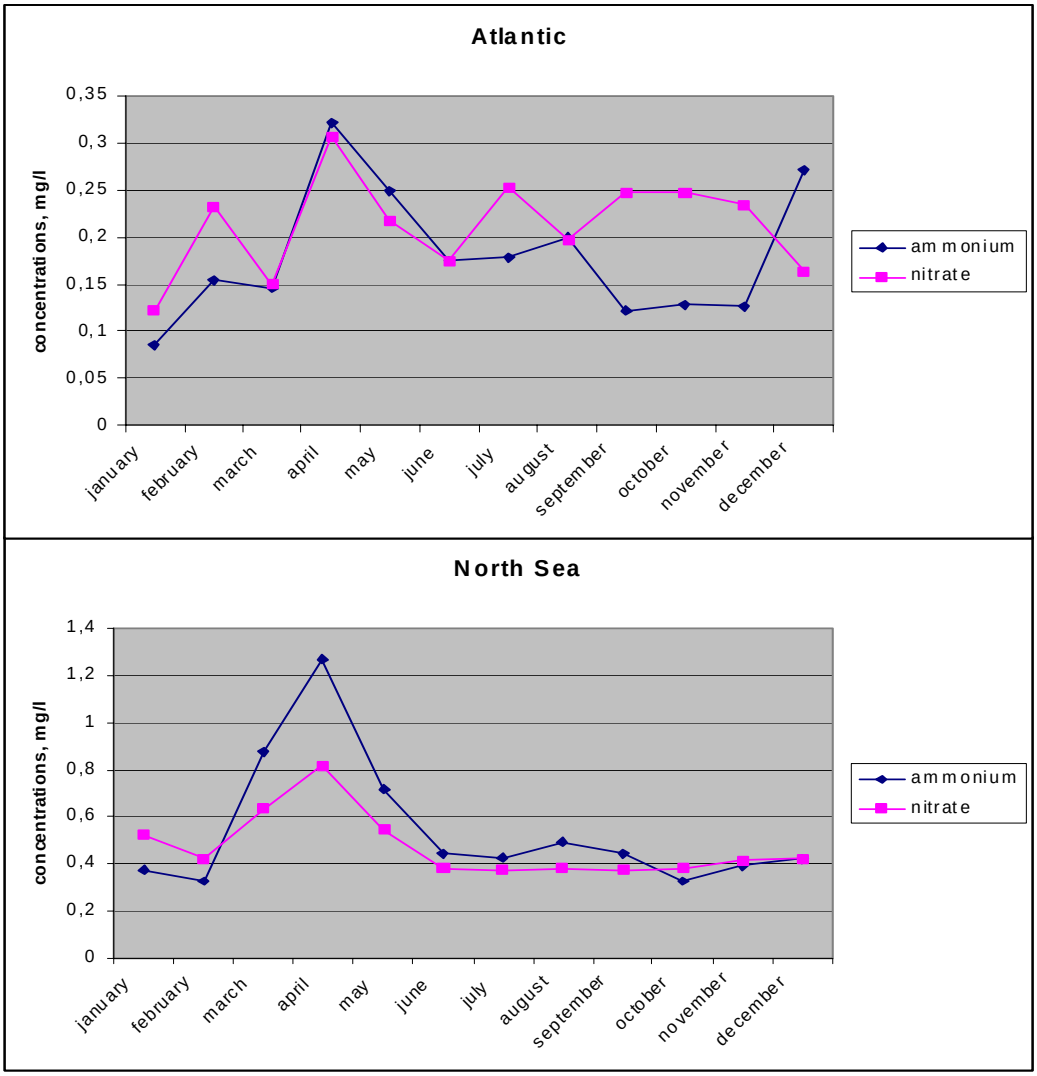


Figure 4.2: Seasonal pattern in precipitation nitrogen to the North Sea coast, 2004

4.3 Temporal patterns in pesticides and persistent organic pollutants

INPUT2006 requested the presentation of temporal tendencies in lindane and additionally reported organic components such as PCB's and pesticides.

Lindane (g-HCH) is the most widely monitored organochlorine pesticide in the CAMP, although not reported by all Parties despite its Mandatory status. Since 1999 no European country has formally permitted its use. Observations, however, suggest that use has continued but has declined consistent with gradual exhaustion of stockpiles. Figure 4.3 shows the decline between 2000 and 2004. The suggestion of greater deposition in the southern North Sea/closer to mainland Europe, is revisited in section 4.3.

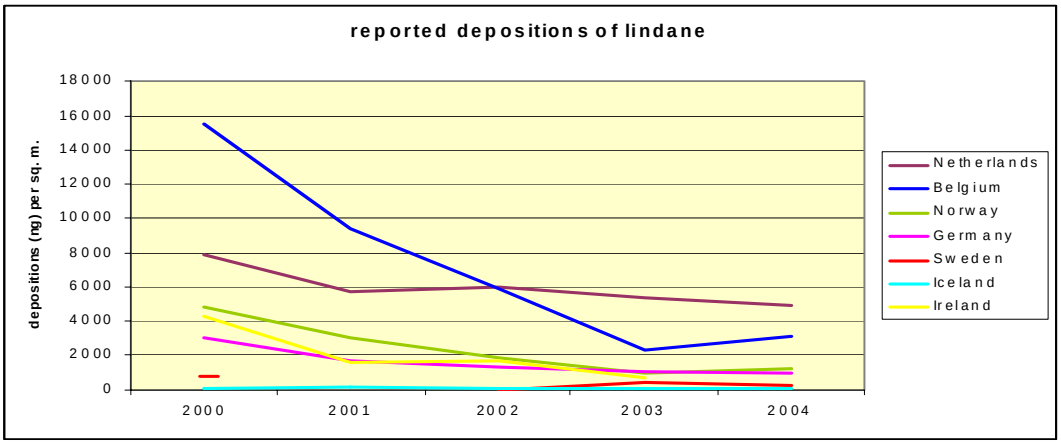


Figure 4.3: Depositions of organochlorine pesticide lindane (ng/m2/month), 2000-2004. Deposition in precipitation, except Sweden, which is combined wet and dry deposition.

Dieldrin is a pesticide which has been the focus of past attention, although has not been placed on either the Mandatory or Voluntary CAMP lists. Germany, Iceland, Ireland, Belgium have nevertheless reported observations across the OSPAR region over a period of time. Figure 4.4 displays these results. The decline in reported concentrations from Ireland suggest now uniformly low levels across the region. Such a rapid change may have been related to methodological changes. The outlying high Belgian concentrations can be treated as uncertain. All are reported as being below limits of detection. The Icelandic observations are the lowest reported, but approx. 95% are above their limits of detection.

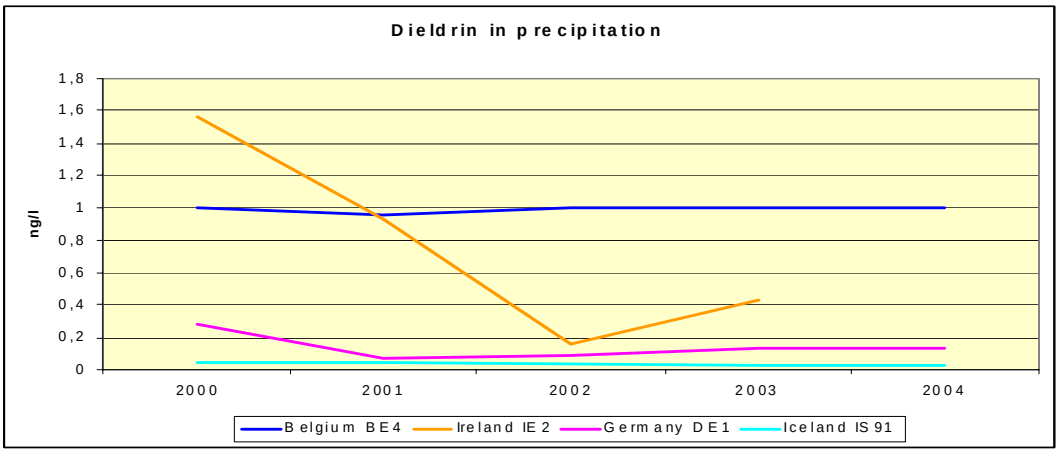
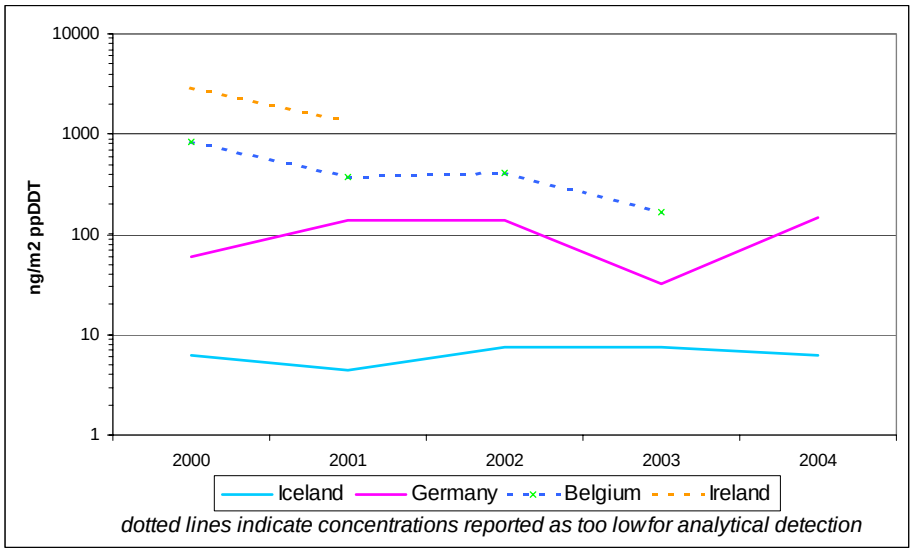


Figure 4.4: Concentrations of dieldrin in precipitation (ng/l) reported to the CAMP

Another pesticide which has received considerable attention in the past, and which a number of Contracting Parties have chose to monitor and report over several years in DDT. This substance has been prohibited in Europe for an extended period, such that it would be expected that observations now indicate the background level to which the North Sea is subject. Indeed, as seen in figure 4.5, the background level does appear to be fairly constant. However, the data also indicates the difficulties which the CAMP is contending with in terms of data quality. The scale for deposition rates is logarithmic, such that the highest values reported are approximately 1000x greater than the lowest. Such a gradient would only be expected where the high reporting site is in the vicinity of current use. Without use, the long life time of DDT in the atmosphere would create low to non-existent gradients. Suspicion over the higher reported values is heightened when it is understood that all higher values are reported as being below detection limits, whilst the lower values reported are not.

Figure 4.5: Deposition of DDT in precipitation (ng/ m^2/a) reported to the CAMP



Of the persistent organic pollutants, i.e. those not rapidly degrading, PCB's are amongst the most well known. Their observation is a voluntary activity under the CAMP, and is undertaken by Germany, Sweden, United Kingdom, Iceland and Norway. In the following figures the observed concentrations in precipitation and in air are presented for three example congeners.

A degree of variability in the observations makes conclusions as to the state of the environment with regard to PCB's difficult to draw. The time series' suggest a degree of uncertainty in data from the beginning of the period. Stations reported sharp changes in concentrations in consecutive years, either from low to high concentrations (e.g. Germany) or from high to low (e.g. Ireland). The reasons for this may include such factors as method changes, especially when step-changes are seen in measured concentrations across congeners, s occurs with Germany. Such matters are not something which can readily be evaluated without specific investigation in collaboration with respective Contracting Parties. The natural hope is that improvement with time brings heightens the reliability of data. The degree of coincidence in observed concentrations across countries for 2004 would indeed point in this direction.

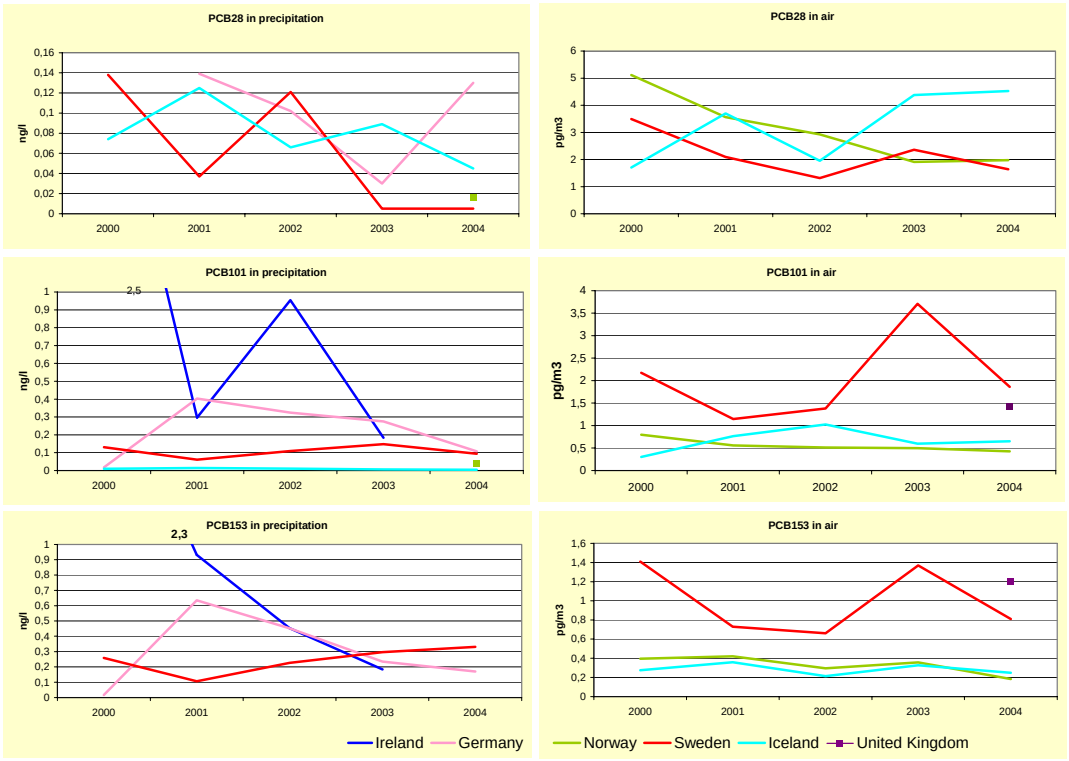


Figure 4.6: Observed concentrations of PCB28, PCB101 and PCB153

The CAMP also lists a number of polycyclic aromatic hydrocarbons (PAH's) on the Voluntary lists. These are sparsely monitored, such that the opportunity for intercomparison is restricted. One which offers some scope is airborne anthracene, a persistent pollutant, i.e. one which does not readily degrade. Airborne concentrations, appear to be relatively unchanging during the five years to 2004. There is good comparison between observations from the north and south of the region, suggesting the broad scale regional nature to this pollutant. Values for the Baltic are given for the sake of comparison.

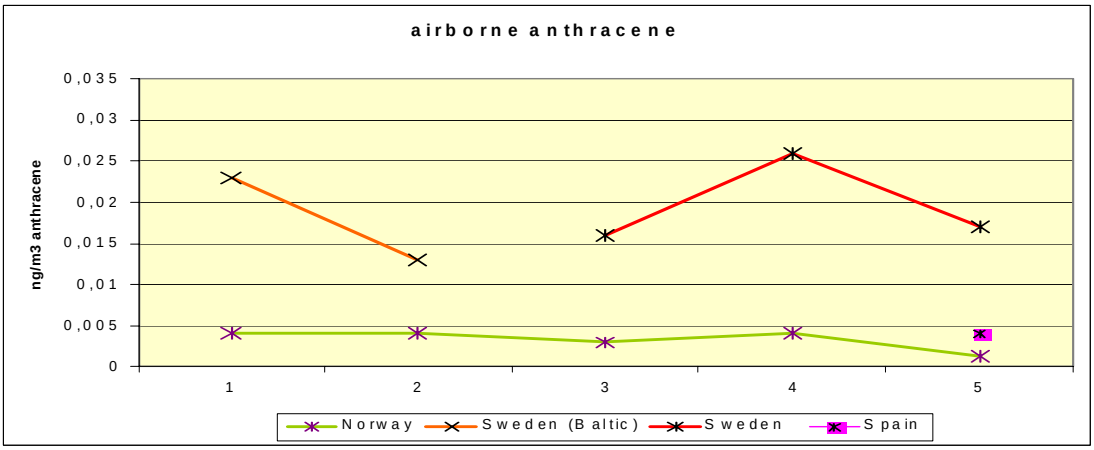


Figure 4.7: Airborne concentrations (ng/m3) of the PAH anthracene

5 Data uncertainty

5.1 Limts of Detection for Mandatory precipitation components

INPUT 2006 has requested NILU to include the reported Limits of Detection or limits of Quantification in the CAMP 2005 data report to INPUT 2007, and to provide an overview table of ranges of reported LoDs/LoQs per component and Contracting Party. At present, such information is not uniformly received by the CAMP. To encourage the process and discussion within Contracting parties prior to the data call for the CAMP2005 data report, a first overview of the current state of play is provided here.

At present, Contracting parties do not formally report detection limits or limits of quantification under the CAMP. The information available is indirect: all submitted observations should be flagged, so that wherever samples are highlighted for which analysed concentrations proved to be below the limit of detection. The comparison of this information may give some indication of the actual performance of countries when conducting the CAMP. However, as pollutant levels vary across the region, the playing field is not level, and interpretation of such information is not straightforward.

Table 5.1 provides a summary of this data for the Mandatory Componets in precipitation in 2004. The table indicates the proportion of submitted data which was flagged as 'below detection limit' by the submitting Party, i.e. the sampling and analysis methods were unable to reliably detect the presence of the pollutant, and states the lowest concentration of that pollutant which was reported as reliably observed by each Party. This is no more than a first-view at the comparative performance of each Party in sampling and analysis.

		Arsenic		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Zinc	
		min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*	min adl	*%bdl*
Belgium	*BE0004R*	●		●		●		●		●		0,03	*33*	●		●	
Germany	*DE0001R*	0,03	*0*	0,00	*0*	0,05	*0*	0,03	*0*	0,12	*0*	3,20	*0*	0,09	*0*	1,50	*0*
Denmark	*DK0008R*	0,16	*0*	0,02	*0*	0,09	*0*	0,53	*0*	0,81	*0*	●		0,17	*0*	6,81	*0*
	DK0020R	0,06	*0*	0,03	*0*	0,06	*0*	0,61	*0*	0,52	*0*			0,22	*0*	7,55	*0*
	DK0031R	0,03	*0*	0,02	*0*	0,03	*0*	0,24	*0*	0,22	*0*			0,13	*0*	3,41	*0*
France	*FR0090R*	0,15	*0*	0,01	*0*	0,08	*0*	0,75	*0*	0,02	*0*	●		0,34	*0*	1,00	*0*
Ireland	*IE0001R*	-	*100*	0,27	*91*	2,40	*92*	2,00	*0*	2,10	*58*	-	*100*	2,40	*83*	3,70	*0*
Iceland	*IS0090R*	0,05	*16*	0,01	*65*	0,10	*31*	0,52	*0*	0,12	*0*	●		0,12	*2*	0,32	*0*
	IS0091R			0,01	*52*	0,14	*24*	0,28	*0*	0,11	*0*			0,14	*17*	1,81	*0*
Netherlands	*NL0009R*	0,25	*55*	0,04	*20*	-	*100*	0,41	*0*	0,46	*0*			0,45	*70*	4,30	*20*
	NL0091R	0,30	*91*	0,03	*50*	-	*100*	0,84	*0*	1,47	*0*	4,00	*0*	0,41	*50*	4,00	*0*
Norway	*NO0001R*	0,11	*50*	0,11	*90*	0,70	*98*	0,51	*60*	0,11	*0*	1,90	*0*	0,54	*91*	0,39	*0*
Portugal	*PT0003R*	●		0,85	*98*	●		0,65	*32*	2,97	*68*	●		1,59	*94*	1,00	*0*
	PT0004R			-	*100*			0,97	*71*	1,60	*67*			2,10	*90*	1,00	*0*
	PT0010R			-	*100*			-	*100*	2,04	*90*			1,55	*40*	4,00	*0*
Spain	*ES0008R*	0,19	*98*	0,07	*59*	2,50	*0*	2,51	*0*	0,61	*25*	●		5,73	*0*	18,00	*0*
Sweden	*SE0097R*	0,13	*50*	0,01	*0*	0,14	*33*	0,32	*0*	0,34	*0*	5,40*	*0*	0,20	*0*	3,09	*0*
UK	*GB0006R*			0,00	*8*	0,06	*16*	0,15	*0*	0,08	*8*	●		0,02	*0*	1,04	*8*
	GB0013R			0,00	*8*	0,00	*13*	0,00	*0*	0,00	*2*			0,00	*0*	0,00	*4*
	GB0017R	0,12	*0*	0,02	*0*	0,06	*20*	0,90	*0*	1,30	*0*			0,22	*0*	5,62	*0*
	GB0091R			0,00	*8*	0,00	*9*	0,00	*0*	0,00	*2*			0,00	*0*	0,00	*2*

● *no national data reported*
_ *highest value per component*
* SE0014

Table 5.1: The percentage of observations reported as falling below the limits of detection (%bdl) for each Mandatory list pollutant in 2004, and the minimum concentrations successfully resolved above detection limits (min adl) by each Party for each of these.

High minimum concentrations successfully observed, or high proportions of samples below the limits of detection may attract attention in themselves, and should be investigated. However, it is the combination of both together which raises questions as to the quality of the data. The comparative performance of Contracting Parties is an aid to indicating the levels of performance which can be achieved, and the actual level of performance.

It is known that some countries are not using the analytical limits of detection when flagging data as 'below limits of detection', but rather are using a 'limit of quantification'. A full overview of which Parties are doing this does not exist. However, with current potential sampling and laboratory capabilities, it would seem unlikely that 100% of observations should be reported as being below limits of detection.

5.2 The quality of lindane data

In section 4, time series observations of lindane in precipitation was presented which appeared to indicate regular patterns in time and space – a decline over the years, and a decline from the southern North Sea northwards. Closer examination of the data, however, Indicates a degree of uncertainty. This section provides a case study of lindane, which may well be applicable to other components reported under the CAMP.

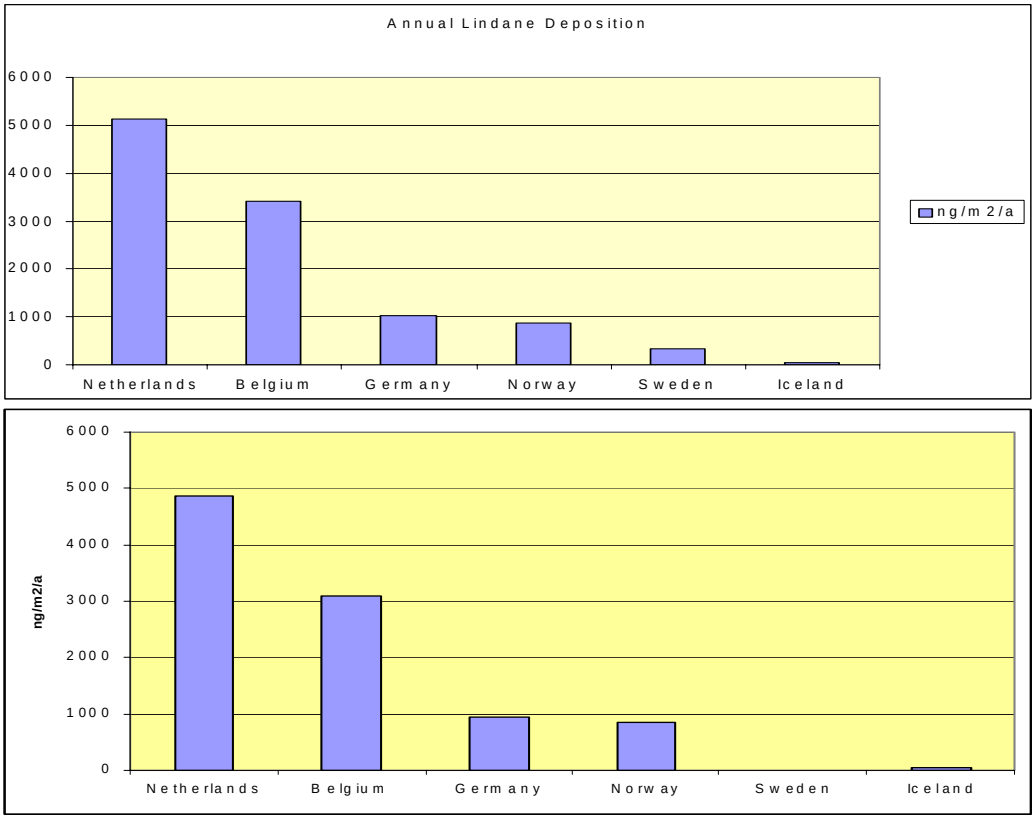


Figure 5.1: Summary annual data on the deposition of lindane, ng/m2/a, during 2003 and 2004. Calculated in accordance with the CAMP Principles.

The first point of note is the limited change over time. With the formal cessation of use in 1999 in Europe an annual decline would be expected in depositions, particularly at the most severely affected locations. After five years stockpile use would be expected to be very low. However, comparison of the 2003 and 2004 observations (figure 5.1) reveal that this is not being observed. The marginal changes at Belgian and Dutch sites seems very unlikely unless use in Europe is unchanged. Interannual meteorological variability would

not be expected to maintain very high observations. The physical proximity of German and Dutch monitoring with such a large difference in reported values would tend to shed doubt on the higher observations. German observations are in accord with Norwegian reports for the same area. At locations distant from any residual European source an observable trace contribution from intercontinental transport may be expected. This would be a reasonable explanation for the Icelandic, and Norwegian observations.

Table 5.2: Reported monthly concentrations in precipitation of lindane, ng/l.

			january	february	march	april	may	june	july	august	september	october	november	december
Belgium	BE0004R	ng/l	2,00	2,00	2,00	15,00	9,00	6,00	6,00	2,00	2,00	6,00	6,00	
Netherlands	NL0091R	ng/l	10,00	10,00	10,00	10,00	10,00	11,00	10,00	10,00	10,00	10,00	10,00	10,00
Germany	DE0001R	ng/l	1,41	1,25	5,49	4,29	4,57	5,29	1,67	1,38	0,94	1,46	0,83	1,03
Norway	NO0001R	ng/l	0,34	0,30	1,15	1,94	2,19	1,32	0,76	0,41	0,64	0,41	0,78	0,24
Iceland	IS0091R	ng/l	0,03	0,04	0,11	0,08	0,07	0,05	0,05	0,09	0,03	0,05	0,04	0,05

Observation below detection limit. Number given is the reported detection limit

The very regular values for Belgium and the Netherlands, most being under the limits of detection, and elevated by orders of magnitude when compared to other sites, gives rise to uncertainty.

Upon closer examination it becomes apparent that the quality of data being submitted under the CAMP is in this instance hindering true assessment. The monthly reported concentrations at the various sites gives rise to uncertainty. It is evident that the values reported for Dutch and Belgian sites are regular, are orders of magnitude different from other sites, and are also most often reported as below limits of detection.

This situation appears to have existed over a number of years, suggesting that the current system of quality control has proved less effective than desired to date. In figures 5.2 and 5.3 the minimum reported concentrations above limits of detection, and the proportions of samples below limits of detection are displayed by country over a period of five years. The arguments for expected decline over time given above once again apply here, such that the regular high concentrations successfully observed in the Southern North Sea seems unlikely to reflect such high actual concentrations in the environment.

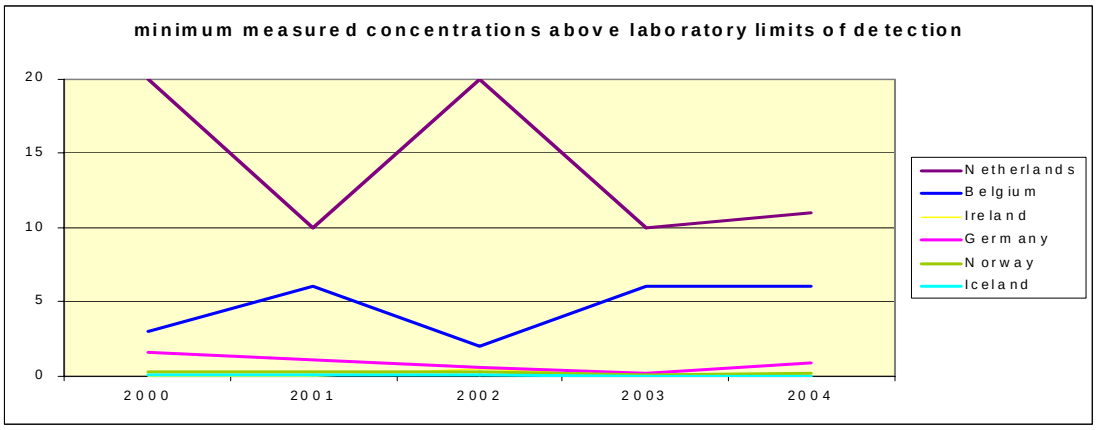


Figure 5.2: Minimum concentrations reported above limits of detection, 2000-4

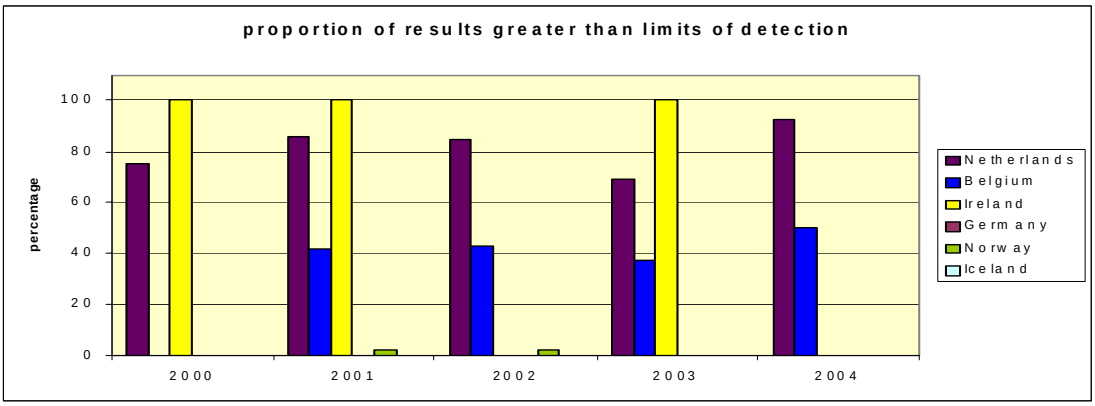


Figure 5.3: Proportion of observations reported with concentrations greater than limits of detection, 2000-4

The data available would suggest that concentrations (and depositions) of lindane in the OSPAR region have declined since its use ceased. The data is clearly valuable in indicating thatrelease to the environment continued, and still continues, several years after use was made illegal. However, the exact levels now found, and hence whether or not these concentrations continue to represent a hazard, cannot be clearly established. Whilst the indications are that the reports from Germany, Iceland and Norway may point in the right direction, the elevated reports from those countries which were closest to the last official use of lindane in Europe (France) leaves some uncertainty.

6 Final observations

Reporting of CAMP data for the 2004 observation year proceeded essentially according to the schedule. Reporting of Mandatory components improved overall compared to 2003, although the number of Parties completing the agreed Mandatory programme declined.
One Party reported less than half of the Mandatory programme, and three did not report any of the Mandatory programme for airborne components.

Some countries provided extensive reporting of components not required by the CAMP Mandatory or Voluntary programmes. Some countries reported more non-CAMP than CAMP components.

A preliminary translation of the observations made by Contracting Parties into estimated depositions suggests that depositions have declined since 2000 for all metal components (decline by 13-59%) and for nitrogen (decline by 26%).

Spring maximums in the deposition of components to coastal waters is a general observation. This is particularly true for reduced nitrogen (ammonium) in the North Sea itself. Spatial patterns are also largely as expected, e.g. with a decline in deposition away from the southern North Sea and proximity to the European continent.

There would appear to be declines in the atmospheric input of pesticides. Levels of dieldrin have been declining but also generally low since 2000 or before. Levels of lindane have dropped more clearly since use ceased in 1999. The monitoring results have proved valuable in demonstrating the continued environmental input of lindane years after its prohibition. Observations suggest that lindane demonstrates a very long range transport quality, possibly from sources outside Europe, although difficulties with data quality tends to obscure the full picture, thus limiting the interpretations that can be made.

Data for persistent (slow degrading) organic pollutants, such as PCBs and PAH's suggest some decline, although levels are low and variable.

Data quality remains an issue. Contracting Parties, not the CAMP data manager, retain responsibility under the CAMP. There is evidence of quite some variability in the quality of results being delivered over several years, suggesting that the existing data quality control round is not being implemented entirely thoroughly. Review of data quality by each separate Contracting Party before both INPUT 2006 and the delivery of data under the year 2005 reporting round would be very beneficial.

Appendix 1

Reported monthly observations of Mandatory, Voluntary, and additionally reported components

Belgium
Denmark
France
Germany
Iceland
Ireland
Netherlands
Norway
Portugal
Spain
Sweden
United Kingdom

(major ions used solely for QA not listed)

BELGIUM

BELGIUM precipitation — **Components in precipitation**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december
ammonium	BE0014R	mg/l	0,31	0,33	1,70	1,82	0,59	0,76	0,69	0,51	0,79	0,67	0,44	0,17
nitrate	BE0014R	mg/l	0,33	0,59	1,01	0,93	0,67	0,47	0,42	0,33	0,40	0,45	0,41	0,26
precipitation_amount	BE0014R	mm	117,8	26,4	27,5	36,8	27,7	49,3	78,9	87,6	15,2	43,3	51,8	65,5
mercury	BE0004R	ng/l	0,01	0,01	0,03	0,01	0,03	0,17	0,03	0,03	0,03	0,03	0,01	
precipitation_amount	BE0004R	mm	132,2	41,0	36,3	31,8	51,7	89,4	60,6	136,2	47,0	60,9	80,0	
gamma_HCH	BE0004R	ng/l	1,00	1,00	1,00	15,00	9,00	6,00	6,00	1,00	1,00	6,00	6,00	
precipitation_amount	BE0004R	mm	132,2	41,0	36,3	31,8	51,7	89,4	60,6	136,2	47,0	60,9	80,0	
arsenic		µg/l	*not reported*											
cadmium		µg/l	*not reported*											
chromium		µg/l	*not reported*											
copper		µg/l	*not reported*											
lead		µg/l	*not reported*											
nickel		µg/l	*not reported*											
zinc		µg/l	*not reported*											
voluntary														
PCB_101		ng/l	*not reported*											
PCB_118		ng/l	*not reported*											
PCB_138		ng/l	*not reported*											
PCB_153		ng/l	*not reported*											
PCB_180		ng/l	*not reported*											
PCB_28		ng/l	*not reported*											
PCB_52		ng/l	*not reported*											
anthracene		ng/l	*not reported*											
benzo(a)anthracene		ng/l	*not reported*											
benzo(a)pyrene		ng/l	*not reported*											
benzo(ghi)perylene		ng/l	*not reported*											
chrysene		ng/l	*not reported*											
flouranthene		ng/l	*not reported*											
indeno(1,2,3-cd)pyrene		ng/l	*not reported*											
phenanthrene		ng/l	*not reported*											
pyrene		ng/l	*not reported*											
Extra reported non-CAMP components														
aldrin		ng/l	0,50	0,50	0,50	0,50		0,50	0,50	0,50	0,50	0,50	0,50	
alpha_HCH		ng/l	0,50	0,50	0,50	0,50		0,50	0,50	0,50	0,50	0,50	0,50	
dieldrin		ng/l	1,00	1,00	1,00	1,00		1,00	1,00	1,00	1,00	1,00	1,00	
endrin		ng/l	1,50	1,50	1,50	1,50		1,50	1,50	1,50	1,50	1,50	1,50	
heptachlor		ng/l	3,25	1,00	1,00	15,00		6,00	6,00	1,00	1,00	6,00	6,00	
pp_DDD		ng/l	0,50	0,50	0,50	0,50		0,50	0,50	0,50	0,50	0,50	0,50	
pp_DDE		ng/l	1,00	1,00	1,00	1,00		1,00	1,00	1,00	1,00	1,00	1,00	
precipitation_amount		mm	183,81	40,96	36,26	31,84		89,38	60,61	136,22	47,04	60,86	80	

Belgium airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	BE0011R	µg/m^3	6,7	6,09	7,00	6,70	5,48	4,26	4,26	4,57	5,17	5,78	7,91	9,43	6,11
	BE0013R	µg/m^3	5,78	4,87	6,39	6,39	4,57	3,04	3,96	3,96	4,87	4,26	6,70	7,61	5,20
HNO_3		µg/m^3	*not reported*												
NO_3		µg/m^3	*not reported*												
$HNO_3 + NO_3$		µg/m^3	*not reported*												
NH_3		µg/m^3	*not reported*												
NH_4		µg/m^3	*not reported*												
NH_3 + NH4		µg/m^3	*not reported*												
voluntary															
NO	BE0011R	µg/m^3	1,4	1,87	1,40	1,40	0,93	0,93	0,93	0,47	0,93	1,87	5,60	10,27	2,33
	BE0013R	µg/m^3	0,93	1,40	0,93	2,33	0,93	0,93	0,47	0,47	0,93	1,40	3,73	5,13	1,63
arsenic		ng/m3	*not reported*												
cadmium		ng/m3	*not reported*												
chromium		ng/m3	*not reported*												
copper		ng/m3	*not reported*												
lead		ng/m3	*not reported*												
mercury		ng/m3	*not reported*												
nickel		ng/m3	*not reported*												
zinc		ng/m3	*not reported*												
PCB_118		pg/m3	*not reported*												
PCB_138		pg/m3	*not reported*												
PCB_153		pg/m3	*not reported*												
PCB_180		pg/m3	*not reported*												
PCB_28		pg/m3	*not reported*												
PCB_52		pg/m3	*not reported*												
anthracene		ng/m3	*not reported*												
benzo(a)anthracene		ng/m3	*not reported*												
benzo(a)pyrene		ng/m3	*not reported*												
benzo(ghi)perylene		ng/m3	*not reported*												
chrysene		ng/m3	*not reported*												
flouranthene		ng/m3	*not reported*												
γ-HCH		ng/m3	*not reported*												
indeno(1,2,3-cd)pyrene		ng/m3	*not reported*												
phenanthrene		ng/m3	*not reported*												
pyrene		ng/m3	*not reported*												

DENMARK

DENMARK precipitation — **Components in precipitation**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	DK0005R	mg/l	0,31	0,29	1,15	1,38	0,82	0,36	0,36	0,77	0,40	0,44	0,39	0,49	0,56
	DK0020R	mg/l	0,417	0,657	1,049	3,934	6,852	0,793	1,175	0,639	0,746	0,39	0,521		0,95
nitrate	DK0005R	mg/l	0,55	0,30	0,67	0,77	0,54	0,37	0,40	0,51	0,31	0,56	0,39	0,51	0,57
	DK0020R	mg/l	0,727	0,93	0,861	0,839	0,987	0,567	0,721	0,441	0,409	0,353	0,62		0,61
precipitation	DK0005R	mm	46,2	59,7	34,0	34,3	39,1	64,1	68,1	99,1	45,3	62,3	31,2	32,3	615,6
	DK0020R	mm	47,22	13,162	28,774	35,069	6,342	32,153	27,143	53,291	49,082	95,087	34,849	0,049	422,2
arsenic	DK0008R	µg/l	0,353		0,271	0,277	0,422	0,271	0,175	0,164	0,17	0,159	0,214	0,285	0,32
	DK0020R	µg/l	0,17	0,073	0,218		0,298	0,14	0,177	0,082		0,066	0,124		0,20
	DK0031R	µg/l	0,051		0,116	0,154	0,298	0,14	0,175	0,109	0,079	0,09	0,09	0,106	0,17
cadmium	DK0008R	µg/l	0,06		0,051	0,067	0,106	0,028	0,043	0,025	0,022	0,048	0,034	0,15	0,18
	DK0020R	µg/l	0,418	0,049	0,054		0,284	0,195	0,371	0,075		0,042	0,091		0,26
	DK0031R	µg/l	0,017		0,045	0,031	0,054	0,019	0,073	0,034	0,016	0,064	0,023	0,032	0,12
chromium	DK0008R	µg/l	0,211		0,386	0,317	0,39	0,202	0,15	0,144	0,166	0,089	0,115	0,159	0,28
	DK0020R	µg/l	0,138	0,388	0,318		0,355	0,109	0,187	0,114		0,062	0,101		0,23
	DK0031R	µg/l	0,044		0,098	0,118	0,352	0,065	0,303	0,143	0,059	0,094	0,09	0,133	0,18
copper	DK0008R	µg/l	0,918		1,88	9,347	3,544	0,964	2,204	1,088	1,604	0,526	0,736	1,192	1,54
	DK0020R	µg/l	5,924	2,886	1,602		5,165	4,27	4,813	0,99		0,611	1,19		2,59
	DK0031R	µg/l	0,276		0,499	0,625	1,585	0,409	0,807	1,222	0,39	17,503	7,69	1,57	3,75
lead	DK0008R	µg/l	1,998		1,885	1,015	3,525	0,809	0,975	1,018	0,816	1,307	1,113	1,599	1,24
	DK0020R	µg/l	1,051	2,194	2,072		2,128	1,268	1,282	0,87		1,125	1,898		1,29
	DK0031R	µg/l	0,519		0,99	0,215	1,612	0,361	0,643	0,641	0,39	1,397	0,671	0,869	0,75
nickel	DK0008R	µg/l	0,314		1,88	1,015	0,692	0,345	0,27	0,281	1,236	0,169	0,256	0,385	0,55
	DK0020R	µg/l	0,373	1,879	0,512		1,234	0,626	0,611	0,326		0,215	0,442		0,52
	DK0031R	µg/l	0,153		0,257	0,215	0,596	0,183	0,244	0,199	0,207	1,634	0,379	0,347	0,50
zinc	DK0008R	µg/l	10,035		19,423	28,618	28,89	50,39	9,296	10,885	9,977	6,805	32,444	21,288	12,60
	DK0020R	µg/l	19,323	22,837	10,382		27,667	17,805	30,605	14,001		7,815	19,018		15,07
	DK0031R	µg/l	3,838		6,709	6,254	20,991	7,109	8,468	5,798	3,865	13,252	11,834	11,814	7,13
precipitation	DK0008R	mm	55,8		33,4	27,6	25,3	53,5	63,7	110,8	39,4	94,9	49,7	43,0	597,2
	DK0020R	mm	104,024	28,294	33,571		11,217	30,748	47,685	58,539		110,784	42,512		467,4
	DK0031R	mm	201,5		61,9	57,8	11,8	76,3	48,3	106,5	124,8	143,2	95,6	88,5	1016,1
mercury		ng/l		*not reported*											
γ-HCH		ng/l		*not reported*											

voluntary

PCB_101	ng/l	*not reported*
PCB_118	ng/l	*not reported*
PCB_138	ng/l	*not reported*
PCB_153	ng/l	*not reported*
PCB_180	ng/l	*not reported*
PCB_28	ng/l	*not reported*
PCB_52	ng/l	*not reported*
anthracene	ng/l	*not reported*
benzo(a)anthracene	ng/l	*not reported*
benzo(a)pyrene	ng/l	*not reported*
benzo(ghi)perylene	ng/l	*not reported*
chrysene	ng/l	*not reported*
flouranthene	ng/l	*not reported*
indeno(1,2,3-cd)pyrene	ng/l	*not reported*
phenanthrene	ng/l	*not reported*
pyrene	ng/l	*not reported*

Denmark airborne **Airborne components**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	DK0008R	µg/m³	2,36	1,42	1,49	2,04	1,14	0,88	0,91	1,17	1,10	1,49	1,58	2,72	1,52
NH_3 + NH4	DK0008R	µg/m³	0,96	0,87	1,32	2,09	1,34	0,89	0,84	0,92	0,97	0,70	0,75	1,03	1,06
HNO_3 + NO_3	DK0008R	µg/m³	0,75	0,69	0,80	1,32	0,76	0,59	0,47	0,56	0,71	0,46	0,55	0,73	0,70
NO_3		µg/m³	*not reported*												
NH_3		µg/m³	*not reported*												
voluntary															
arsenic	DK0008R	ng/m3	0,53	0,27	0,32	0,46	0,30	0,34	0,25	0,32	0,31	0,26	0,28	0,29	0,33
	DK0031R	ng/m3	0,49	0,23	0,33	0,27	0,18	0,09	0,20	0,24	0,18	0,37	0,24	0,24	0,26
cadmium	DK0008R	ng/m3	0,21	0,05	0,07	0,31	0,06	0,06	0,10	0,10	0,00	0,24	0,09	0,16	0,12
	DK0031R	ng/m3	0,17	0,00	0,13	0,13	0,01	0,14	0,17	0,04	0,04	0,22	-0,02	0,07	0,09
chromium	DK0008R	ng/m3	0,30	0,19	0,35	0,83	0,39	0,16	0,18	0,27	0,21			0,16	0,30
	DK0031R	ng/m3	0,30	0,21	0,37	0,33	0,24	-0,02	0,02	0,24	0,12	-0,11	0,36	0,24	0,19
copper	DK0008R	ng/m3	1,12	0,56	0,92	2,04	0,25	0,70	0,68	1,03	1,19	1,06	1,33	1,65	1,04
	DK0031R	ng/m3	2,13	0,50	0,76	0,84	0,10	0,21	0,48	0,72	1,13	1,04	0,92	0,80	0,80
lead	DK0008R	ng/m3	7,22	2,48	4,06	7,26	3,52	1,97	2,00	3,38	2,86	5,11	3,10	3,93	3,91
	DK0031R	ng/m3	6,01	2,09	3,70	3,19	2,05	0,99	1,48	2,19	2,97	4,81	2,88	3,53	2,99
nickel	DK0008R	ng/m3	1,57	1,55	2,08	3,43	1,89	2,23	2,03	2,71	1,63	1,22	0,97	1,18	1,87
	DK0031R	ng/m3	0,82	2,05	1,12	1,02	0,77	0,59	0,86	0,99	1,05	0,69	0,95	0,91	0,98
zinc	DK0008R	ng/m3	15,17	7,48	9,91	15,60	8,02	5,29	5,80	9,50	8,15	10,90	8,10	9,39	9,44
	DK0031R	ng/m3	13,62	4,79	9,94	8,46	6,39	2,77	5,90	7,06	8,96	12,89	11,13	7,09	8,25
NO		µg/m³	*not reported*												
mercury		ng/m3	*not reported*												
PCB_118		pg/m3	*not reported*												
PCB_138		pg/m3	*not reported*												
PCB_153		pg/m3	*not reported*												
PCB_180		pg/m3	*not reported*												
PCB_28		pg/m3	*not reported*												
PCB_52		pg/m3	*not reported*												
anthracene		ng/m3	*not reported*												
benzo(a)anthracene		ng/m3	*not reported*												
benzo(a)pyrene		ng/m3	*not reported*												
benzo(ghi)perylene		ng/m3	*not reported*												
chrysene		ng/m3	*not reported*												
flouranthene		ng/m3	*not reported*												
γ-HCH		ng/m3	*not reported*												
indeno(1,2,3-cd)pyrene		ng/m3	*not reported*												
phenanthrene		ng/m3	*not reported*												
pyrene		pg/m3	*not reported*												
Extra reported non-CAMP components															
iron	DK0008R	ng/m3	30,24	33,57	50,48	102,18	110,50	43,41	34,85	75,56	61,30	36,46	22,86	30,86	52,69
	DK0031R	ng/m3	30,56	61,76	42,43	74,56	70,27	23,05	34,14	81,93	58,90	49,39	32,05	26,28	48,77
manganese	DK0008R	ng/m3	1,22	1,50	1,86	3,30	3,90	1,44	1,31	2,72	2,13	1,47	1,12	1,07	1,92
	DK0031R	ng/m3	1,19	1,55	1,81	2,62	2,16	0,85	1,14	3,21	2,23	1,82	1,54	0,96	1,76

FRANCE

FRANCE precipitation — **Components in precipitation**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	FR0005R	mg/l	0,02	0,1	0,08	0,1	0,05	0,04	0,08	0,03	0,03	0,04	0,1	0,08	0,06
nitrate	FR0005R	mg/l	0,1	0,49	0,45	0,7	0,18	0,07	0,39	0,1	0,37	0,16	0,58	0,12	0,27
precipitation	FR0005R	mm	99	62	67	80	39	80	127	141	53	173	39	99	1059
arsenic	FR0005R	µg/l	0,15	0,28	0,2	0,42	0,47	0,28	0,3	0,31	0,33	0,17	0,34	0,32	0,28
cadmium	FR0005R	µg/l	0,03	0,02	0,02	0,02	0,04	0,03	0,02	0,02	0,03	0,01	0,01	0,03	0,02
chromium	FR0005R	µg/l	0,18	0,36	0,1	0,31	0,41	0,18	0,1	0,08	0,16	0,17	0,14	0,13	0,17
copper	FR0005R	µg/l	1,17	1,95	0,91	2,6	3,1	1,5	0,94	1,08	1,62	0,75	3,79	1,47	0,79
lead	FR0005R	µg/l	0,11	0,94	0,02	1,38	1,5	0,63	0,92	0,15	0,56	0,61	0,77	0,1	0,57
nickel	FR0005R	µg/l	0,99	0,58	0,4	0,49	0,66	0,42	0,4	0,34	0,42	0,37	0,9	1,02	0,55
zinc	FR0005R	µg/l	1,51	4,02	4,58	3,02	3,37	2,43	1	1,26	3,19	1,07	2,89	1,27	7,20
precipitation	FR0005R	mm	99	62	67	80	39	80	127	141	53	173	39	99	1059
mercury		ng/l		*not reported*											
γ-HCH		ng/l		*not reported*											

voluntary		
PCB_101	ng/l	*not reported*
PCB_118	ng/l	*not reported*
PCB_138	ng/l	*not reported*
PCB_153	ng/l	*not reported*
PCB_180	ng/l	*not reported*
PCB_28	ng/l	*not reported*
PCB_52	ng/l	*not reported*
anthracene	ng/l	*not reported*
benzo(a)anthracene	ng/l	*not reported*
benzo(a)pyrene	ng/l	*not reported*
benzo(ghi)perylene	ng/l	*not reported*
chrysene	ng/l	*not reported*
flouranthene	ng/l	*not reported*
indeno(1,2,3-cd)pyrene	ng/l	*not reported*
phenanthrene	ng/l	*not reported*
pyrene	ng/l	*not reported*

France airborne

Airborne components

mandatory		january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	µg/m^3		*not reported*											
	µg/m^3		*not reported*											
$HNO_3 + NO_3$	µg/m^3		*not reported*											
NH_3	µg/m^3		*not reported*											
NH_4	µg/m^3		*not reported*											
$NH_3 + NH4$	µg/m^3		*not reported*											
voluntary														
NO	µg/m^3		*not reported*											
arsenic	ng/m3		*not reported*											
cadmium	ng/m3		*not reported*											
chromium	ng/m3		*not reported*											
copper	ng/m3		*not reported*											
lead	ng/m3		*not reported*											
mercury	ng/m3		*not reported*											
nickel	ng/m3		*not reported*											
zinc	ng/m3		*not reported*											
PCB_118	pg/m3		*not reported*											
PCB_138	pg/m3		*not reported*											
PCB_153	pg/m3		*not reported*											
PCB_180	pg/m3		*not reported*											
PCB_28	pg/m3		*not reported*											
PCB_52	pg/m3		*not reported*											
anthracene	ng/m3		*not reported*											
benzo(a)anthracene	ng/m3		*not reported*											
benzo(a)pyrene	ng/m3		*not reported*											
benzo(ghi)perylene	ng/m3		*not reported*											
chrysene	ng/m3		*not reported*											
flouranthene	ng/m3		*not reported*											
γ-HCH	ng/m3		*not reported*											
indeno(1,2,3-cd)pyrene	ng/m3		*not reported*											
phenanthrene	ng/m3		*not reported*											
pyrene	ng/m3		*not reported*											

GERMANY

GERMANY precipitation — **Components in precipitation**

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	DE0001R	mg/l	0,23	0,23	1,26	1,13	0,89	0,3	0,41	0,35	0,26	0,33	0,55	0,49	0,41
nitrate	DE0001R	mg/l	0,43	0,38	0,78	0,99	0,78	0,45	0,49	0,41	0,31	0,41	0,37	0,46	0,45
precipitation *N*	DE0001R	mm	90,7	32,9	25,1	22,7	10,5	72,5	51,3	83,6	88,6	80,9	61,3	78,5	698,6
arsenic	DE0001R	µg/l	0,06	0,08	0,23	0,23	0,19	0,08	0,07	0,05	0,11	0,08	0,12	0,13	0,10
cadmium	DE0001R	µg/l	0,03	0,01	0,07	0,06	0,05	0,02	0,02	0,02	0,01	0,02	0,02	0,03	0,02
chromium	DE0001R	µg/l	0,16	0,14	0,31	0,15	0,21	0,12	0,10	0,09	0,10	0,08	0,10	0,13	0,12
copper	DE0001R	µg/l	0,36	0,38	0,74	1,87	1,15	0,80	0,91	0,48	0,45	0,24	0,23	0,37	0,52
lead	DE0001R	µg/l	1,08	0,56	1,46	1,65	1,71	0,64	0,63	0,61	0,51	0,52	0,56	1,01	0,78
mercury	DE0001R	ng/l	4,30	4,30	10,00	11,30	10,10	13,90	12,80	13,00	6,10	6,40	4,80	5,50	8,07
nickel	DE0001R	µg/l	0,25	0,33	0,56	0,51	0,97	0,23	0,29	0,30	0,23	0,24	0,27	0,34	0,30
zinc	DE0001R	µg/l	5,10	5,70	7,00	13,80	9,40	5,70	6,60	4,00	3,20	4,10	4,80	5,50	5,29
precipitation *metals ex. Hg*	DE0001R	mm	99,3	37,1	29,1	26,9	11,4	67,8	48,8	85	92,1	82,8	63,6	78,6	722,5
precipitation *Hg*	DE0001R	mm	88	35,7	28,1	28,1	13	67,8	49,7	77,2	95,7	78,6	61,5	76	699,4
γ-HCH	DE0001R	ng/l	1,41	1,25	5,49	4,29	4,57	5,29	1,67	1,38	0,94	1,46	0,83	1,03	1,70
precipitation *γ-HCH*	DE0001R	mm	69,2	53,8	16,3	12,2	8,2	32,3	23,1	76,8	85,7	74	55,4	47,4	554,4
voluntary															
PCB_101	DE0001R	ng/l	0,15	0,03	0,12	0,16	0,26		0,15	0,08	0,06	0,04	0,18	0,21	0,10
PCB_118	DE0001R	ng/l	0,07	0,04	0,20	0,27	0,21	0,53	0,07	0,02	0,03	0,02	0,19	0,23	0,11
PCB_138	DE0001R	ng/l	0,17	0,05	0,15	0,21	0,36	2,74	1,18	0,08	0,07	0,04	0,20	0,24	0,32
PCB_153	DE0001R	ng/l	0,10	0,04	0,16	0,22	0,18	1,27	0,33	0,03	0,02	0,02	0,22	0,26	0,17
PCB_180	DE0001R	ng/l	0,05	0,03	0,09	0,13	0,22	0,81	0,56	0,02	0,04	0,02	0,16	0,19	0,13
PCB_28	DE0001R	ng/l	0,31	0,05	0,18	0,24	0,15		0,16	0,05	0,09	0,02	0,18	0,21	0,12
PCB_52	DE0001R	ng/l	0,15	0,01	0,11	0,14	0,11		0,08	0,02	0,04	0,02	0,11	0,13	0,06
anthracene	DE0001R	ng/l	0,43	0,56	1,84	2,46	3,66	1,95	1,30	0,39	1,08	0,41	0,54	1,45	0,89
benzo(a)anthracene	DE0001R	ng/l	2,63	0,19	1,92	0,82	5,83	1,23	0,43	0,81	0,92	1,51	1,09	3,65	1,47
benzo(a)pyrene	DE0001R	ng/l	2,04	0,24	0,80	1,07	6,12	0,86	0,56	1,04	0,98	1,75	1,30	3,57	1,45
benzo(ghi)perylene	DE0001R	ng/l	4,59	0,97	3,41	1,23	7,98	0,93	0,65	0,96	1,02	2,17	2,15	5,32	2,24
chrysene	DE0001R	ng/l	8,60	3,60	5,00	0,80	13,70	3,00	2,40	2,90	2,50	5,30	4,10	13,00	5,08
flouranthene	DE0001R	ng/l	16,90	7,70	11,20	5,10	23,80	11,40	4,90	5,80	6,30	9,90	9,40	19,30	10,21
indeno(123cd)pyrene	DE0001R	ng/l	3,58	0,56	1,84	2,46	3,66	0,93	1,30	0,90	0,96	2,01	2,04	4,73	1,92
phenanthrene	DE0001R	ng/l	52,10	10,60	70,00	8,70	17,20	144,00	12,00	4,30	11,20	7,10	8,40	16,10	24,42
pyrene	DE0001R	ng/l	10,70	1,70	6,90	2,70	17,50	9,90	3,50	4,00	4,40	6,90	4,80	13,20	6,51
precipitation *vol. organics*	DE0001R	mm	69,2	53,8	16,3	12,2	8,2	32,3	23,1	76,8	85,7	74	55,4	47,4	554,4
Extra reported non-CAMP components															
benzo(b)fluoranthene		ng/L	13,40	3,60	9,50	2,20	24,70	4,90	4,70	3,80	3,30	7,80	6,90	19,50	7,63
dibenzo(ah)anthracene		ng/L	0,77	0,24	0,80	1,07	1,59	0,40	0,56	0,17	0,15	0,18	0,23	1,09	0,42
α–HCH		ng/L	0,35	0,30	0,19	0,25	0,34	0,46	0,11	0,26	0,34	0,45	0,46	0,44	0,35
HCB		ng/L	0,45	0,01	1,65	0,06	0,11	1,34	0,14	0,01	0,13	0,02	0,11	0,13	0,24
aldrin		ng/L	0,03	0,01	0,06	0,09	0,13	0,03	0,03	0,01	0,01	0,01	0,02	0,03	0,02
dieldrin		ng/L	0,19	0,17	0,13	0,19	0,26	0,20	0,07	0,07	0,12	0,14	0,08	0,10	0,13
endrin		ng/L	0,06	0,05	0,25	0,35	0,48	0,12	0,13	0,04	0,04	0,04	0,05	0,05	0,07
heptachlor		ng/L	0,02	0,02	0,09	0,13	0,18	0,04	0,05	0,02	0,01	0,02	0,02	0,02	0,03
o,p'-DDT		ng/L	0,03	0,03	0,26	0,31	0,45	0,22	0,17	0,05		0,15	0,11	0,13	0,11
p,p'-DDT		ng/L	0,08	0,04	0,34	0,41	0,60	0,60	0,23	0,07	0,17	0,19	0,14	0,17	0,18
o,p'-DDE		ng/L	0,01	0,01	0,06	0,08	0,11	0,03	0,03	0,01	0,01	0,01	0,14	0,16	0,04
p,p'-DDE		ng/L	0,12	0,02	0,08	0,11	0,15	0,67	0,12	0,01	0,04	0,02	0,16	0,19	0,11
o,p'-DDD		ng/L	0,01	0,01	0,05	0,06	0,09	0,06	0,03	0,01	0,01	0,01	0,06	0,07	0,03
p,p'-DDD		ng/L	0,03	0,01	0,05	0,06	0,09	0,25	0,13	0,02	0,05	0,01	0,02	0,02	0,04
preciptation *non-CAMP org.*		mm	69,2	53,8	16,3	12,2	8,2	32,3	23,1	76,8	85,7	74	55,4	47,4	554,4
iron		µg/l	5,6	17,1	79,3	58,1	72,7	27,5	14,9	9,5	13,3	12,1	10,5	11,3	18,09
manganese		µg/l	0,47	0,85	4	5,29	5,61	1,84	1,56	1,11	1,16	1,01	0,9	0,79	1,39
vanadium		µg/l	0,36	0,54	0,94	1,01	0,85	0,46	0,4	0,44	0,59	0,44	0,59	0,73	0,55
precipitation *non-CAMP met.*		mm	99,3	37,1	29,1	26,9	11,4	67,8	48,8	85	92,1	82,8	63,6	78,6	722,5

Germany airborne **Airborne components**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	DE0001R	µg/m^3	4,60	2,05	2,41	2,27		1,20		1,39	1,46	2,79	2,95	3,82	2,49
NH_3 + NH4	DE0001R	µg/m^3	1,64										1,28	1,04	1,32
HNO_3 + NO_3	DE0001R	µg/m^3	0,99	0,89	1,13	1,40	0,84	0,83	0,60	0,66	0,79	0,78	0,69	0,81	0,87
NO_3		µg/m^3	*not reported*												
NH_3		µg/m^3	*not reported*												
voluntary															
arsenic	DE0001R	ng/m3							0,74	0,8	0,59	0,49	1,22	1,53	0,90
cadmium	DE0001R	ng/m3	0,11	0,11	0,09	0,07	0,02	0,06	0,05	0,07	0,07	0,10	0,08	0,11	0,08
copper	DE0001R	ng/m3	2,10	1,36	0,85	0,96	1,54	2,01	1,21	2,46	2,32	1,96	1,73	1,46	1,66
lead	DE0001R	ng/m3	6,14	5,92	5,68	3,63	2,00	2,46	1,78	2,75	3,77	3,75	2,90	4,87	3,80
nickel	DE0001R	ng/m3	1,21	1,03	1,07	1,08	0,88	1,35	1,89	2,02	1,59	1,14	1,28	1,80	1,36
NO		µg/m^3	*not reported*												
chromium		ng/m3	*not reported*												
mercury		ng/m3	*not reported*												
zinc		ng/m3	*not reported*												
PCB_118		pg/m3	*not reported*												
PCB_138		pg/m3	*not reported*												
PCB_153		pg/m3	*not reported*												
PCB_180		pg/m3	*not reported*												
PCB_28		pg/m3	*not reported*												
PCB_52		pg/m3	*not reported*												
anthracene		ng/m3	*not reported*												
benzo(a)anthracene		ng/m3	*not reported*												
benzo(a)pyrene		ng/m3	*not reported*												
benzo(ghi)perylene		ng/m3	*not reported*												
chrysene		ng/m3	*not reported*												
flouranthene		ng/m3	*not reported*												
γ-HCH		ng/m3	*not reported*												
indeno(1,2,3-cd)pyrene		ng/m3	*not reported*												
phenanthrene		ng/m3	*not reported*												
pyrene		ng/m3	*not reported*												
Extra reported non-CAMP components															
iron	DE0001R	ng/m3	37,7	61,4	42,7	39,5	57,9	39,7	50,1	135,4	92,5	64,7	56,5	52,4	60,88
manganese	DE0001R	ng/m3	1,4	1,62	1,49	1,35	1,58	1,31	1,55	3,63	2,7	1,81	1,28	1,62	1,78

ICELAND

ICELAND precipitation — **Components in precipitation**

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	IS0090R	mg/l	0,37	0,49	0,35	0,88	0,30	0,17	0,29	0,35	0,08	0,25	0,19	0,23	0,30
	IS0091R	mg/l	0,01	0,02	0,06	0,29	0,16	0,03	0,29	0,26	0,03	0,08	0,01	0,02	0,08
nitrate	IS0090R	mg/l	0,11	0,15	0,16	0,48	0,13	0,11	0,14	0,20	0,05	0,10	0,04	0,04	0,13
	IS0091R	mg/l	2,42	0,10	0,24	0,28	0,15	0,05	0,07	0,11	0,05	0,05	0,02	0,02	0,27
precipitation	IS0090R	mm	36,5	42,6	98,9	77,8	79,7	49,5	65,8	65,9	174,5	80,4	105,7	93,5	970,8
	IS0091R	mm	118,0	74,4	195,4	110,5	65,8	103,0	103,4	114,7	265,8	75,8	225,3	155,0	1607,1
arsenic	IS0090R	µg/l	0,26	0,63	0,31	0,16	0,04	0,05	0,10	0,07	0,22	0,24	0,07	0,16	0,18
cadmium	IS0090R	µg/l	0,01	0,01	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
	IS0091R	µg/l	0,01	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
chromium	IS0090R	µg/l	0,14	0,41	0,39	0,30	0,12	0,31	0,27	0,14	0,10	0,40	0,34	0,15	0,24
	IS0091R	µg/l	0,35	0,12	0,33	0,30	0,37	0,41	0,09	0,30	0,64	0,21	0,29	0,20	0,34
copper	IS0090R	µg/l	1,40	2,49	1,75	1,71	1,57	2,42	1,93	1,53	1,47	1,74	1,05	1,27	1,61
	IS0091R	µg/l	1,34	1,46	2,76	0,70	0,94	3,68	1,18	1,13	0,98	1,05	0,68	0,90	1,37
lead	IS0090R	µg/l	0,34	0,40	0,41	0,81	0,55	0,53	0,42	0,51	0,24	0,37	0,16	0,21	0,38
	IS0091R	µg/l	0,33	0,49	0,73	0,56	0,46	0,32	0,37	0,41	0,17	0,35	0,29	0,24	0,38
nickel	IS0090R	µg/l	0,46	1,04	0,60	0,54	0,40	0,52	0,51	0,47	0,23	1,19	0,76	0,35	0,55
	IS0091R	µg/l	0,44	0,30	0,33	0,32	0,35	0,34	0,17	0,33	0,37	0,35	0,41	0,21	0,33
zinc	IS0090R	µg/l	3,51	6,09	7,66	30,86	4,00	6,63	8,47	4,64	4,14	7,35	2,47	3,13	7,13
	IS0091R	µg/l	10,05	15,82	17,33	29,80	8,41	4,85	8,86	12,24	6,92	7,68	10,51	11,93	11,86
precipitation	IS0090R	mm	36,5	42,6	98,9	77,8	79,7	49,5	65,8	65,9	174,5	80,4	105,7	93,5	970,8
	IS0091R	mm	118,0	74,4	195,4	110,5	65,8	103,0	103,4	114,7	265,8	75,8	225,3	155,0	1607,1
γ_HCH	IS0091R	ng/l	0,03	0,04	0,11	0,08	0,07	0,05	0,05	0,09	0,03	0,05	0,04	0,05	0,06
precipitation	IS0091R	mm	49,0	27,0	81,0	53,0	36,0	45,0	56,0	44,0	110,0	48,0	88,0	68,0	705,0
mercury	IS0091R	ng/l		*not reported*											
Voluntary															
PCB_101	IS0091R	ng/l	0,009	0,007	0,004	0,004	0,006	0,013	0,002	0,002	0,002	0,006	0,001	0,002	0,004
PCB_118	IS0091R	ng/l	0,008	0,007	0,003	0,004	0,006	0,007	0,003	0,005	0,002	0,009	0,002	0,003	0,004
PCB_138	IS0091R	ng/l	0,007	0,007	0,003	0,004	0,006	0,023	0,003	0,005	0,006	0,008	0,002	0,005	0,006
PCB_153	IS0091R	ng/l	0,014	0,007	0,005	0,008	0,008	0,034	0,007	0,005	0,009	0,012	0,005	0,009	0,010
PCB_180	IS0091R	ng/l	0,004	0,007	0,003	0,004	0,006	0,017	0,006	0,005	0,004	0,007	0,002	0,005	0,005
PCB_28	IS0091R	ng/l	0,094	0,171	0,057	0,087	0,128	0,102	0,011	0,028	0,005	0,013	0,007	0,009	0,045
PCB_52	IS0091R	ng/l	0,026	0,048	0,016	0,024	0,036	0,029	0,002	0,004	0,001	0,006	0,003	0,002	0,013
precipitation	IS0091R	mm	49,0	27,0	81,0	53,0	36,0	45,0	56,0	44,0	110,0	48,0	88,0	68,0	705,0
anthracene	IS0091R	ng/l		*not reported*											
benzo(a)anthracene	IS0091R	ng/l		*not reported*											
benzo(a)pyrene	IS0091R	ng/l		*not reported*											
benzo(ghi)perylene	IS0091R	ng/l		*not reported*											
chrysene	IS0091R	ng/l		*not reported*											
flouranthene	IS0091R	ng/l		*not reported*											
indeno(1,2,3-cd)pyrene	IS0091R	ng/l		*not reported*											
phenanthrene	IS0091R	ng/l		*not reported*											
pyrene	IS0091R	ng/l		*not reported*											
Extra reported non-CAMP components															
aluminium	IS0090R	µg/l	59,89	269,90	238,12	148,00	168,06	329,18	318,01	111,37	69,55	145,09	49,21	128,62	152,17
	IS0091R	µg/l	245,60	232,07	123,18	213,49	397,00	442,21	87,27	123,44	81,85	248,20	129,83	52,03	165,91
iron	IS0090R	µg/l	19,57	206,18	190,89	141,99	104,19	290,38	268,27	63,38	57,48	111,78	38,81	79,71	117,95
	IS0091R	µg/l	487,07	291,83	193,89	238,48	531,70	640,69	100,45	167,47	271,03	288,85	162,74	79,50	259,42
manganese	IS0090R	µg/l	0,93	4,36	4,03	3,77	2,32	5,42	6,23	2,12	1,65	2,52	1,00	1,50	2,73
	IS0091R	µg/l	6,60	5,75	2,73	4,66	9,23	10,55	2,59	2,62	2,13	5,35	2,57	1,13	3,88
vanadium	IS0090R	µg/l	1,33	3,41	1,91	1,15	0,52	0,99	1,11	0,56	1,43	1,66	0,65	1,47	1,30
precipitation	IS0090R	mm	36,5	42,6	98,9	77,8	79,7	49,5	65,8	65,9	174,5	80,4	105,7	93,5	970,8
	IS0091R	mm	118,0	74,4	195,4	110,5	65,8	103,0	103,4	114,7	265,8	75,8	225,3	155,0	1607,1
α_HCH	IS0091R	ng/l	0,118	0,122	0,078	0,106	0,122	0,124	0,104	0,105	0,067	0,069	0,084	0,101	0,094
β_HCH	IS0091R	ng/l	0,008	0,015	0,005	0,007	0,011	0,009	0,005	0,007	0,003	0,007	0,004	0,004	0,006
cis_CD	IS0091R	ng/l	0,005	0,004	0,005	0,002	0,003	0,004	0,005	0,006	0,005	0,005	0,005	0,008	0,005
dieldrin	IS0091R	ng/l	0,040	0,022	0,031	0,030	0,029	0,021	0,016	0,016	0,027	0,031	0,031	0,044	0,029
HCB	IS0091R	ng/l	0,037	0,078	0,017	0,029	0,031	0,023	0,006	0,008	0,006	0,014	0,007	0,008	0,017
op_DDT	IS0091R	ng/l	0,013	0,010	0,008	0,014	0,006	0,008	0,007	0,008	0,003	0,008	0,004	0,006	0,007

Iceland - airborne

Airborne components

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_3	IS0091R	µg/m^3	0,02	0,04	0,09	0,20	0,10	0,06	0,06	0,14	0,04	0,08	0,02	0,02	0,07
NO_2		µg/m^3	*not reported*												
HNO_3		µg/m^3	*not reported*												
NO_3		µg/m^3	*not reported*												
$HNO_3 + NO_3$		µg/m^3	*not reported*												
NH_3		µg/m^3	*not reported*												
NH_4		µg/m^3	*not reported*												
$NH_3 + NH4$		µg/m^3	*not reported*												
voluntary															
arsenic	IS0091R	ng/m3	0,23	0,22	0,29	0,21	0,21	0,14	0,10	0,21	0,25	0,49	0,12	0,14	0,22
cadmium	IS0091R	ng/m3	0,02	0,03	0,02	1,33	0,18	0,14	0,08	0,35	0,24	1,29	0,03	0,08	0,32
chromium	IS0091R	ng/m3	3,62	14,17	21,29	7,75	12,57	9,25	11,58	25,75	11,62	5,84	3,11	3,05	10,80
copper	IS0091R	ng/m3	1,44	1,10	0,86	1,45	2,00	0,84	0,40	1,17	1,48	12,13	0,76	0,43	2,00
lead	IS0091R	ng/m3	0,48	0,36	0,50	5,17	1,53	1,37	0,45	1,88	1,29	4,91	0,62	0,54	1,59
mercury (*aerosol*)	IS0091R	pg/m3	3,81	4,05	3,16	5,05	2,48	3,55	1,45	4,52	3,00	5,35	8,04	2,10	3,88
nickel	IS0091R	ng/m3	3,17	8,55	12,36	5,07	7,74	5,56	6,37	13,44	8,86	11,26	2,86	1,60	7,24
zinc	IS0091R	ng/m3	7,28	3,98	2,33	38,02	29,46	18,97	6,51	22,50	55,05	296,00	10,83	5,98	41,41
γ-HCH	IS0091R	pg/m3	5,94	8,05	8,15	8,79	7,91	8,17	5,90	7,58	5,68	7,39	8,92	8,72	7,60
PCB_28	IS0091R	pg/m3	4,08	4,14	3,68	3,80	3,89	3,65	7,16	5,99	3,87	5,04	4,46	4,57	4,53
PCB_52	IS0091R	pg/m3	3,35	1,17	1,73	1,88	1,10	2,02	2,58	2,35	2,21	2,90	2,85	2,91	2,25
PCB_101	IS0091R	pg/m3	0,81	0,57	0,54	0,66	0,41	0,41	0,80	0,70	0,66	0,60	0,82	0,86	0,65
PCB_118	IS0091R	pg/m3	0,27	0,28	0,16	0,17	0,17	0,16	0,17	0,17	0,16	0,22	0,18	0,18	0,19
PCB_138	IS0091R	pg/m3	0,18	0,28	0,16	0,17	0,17	0,16	0,08	0,09	0,08	0,11	0,09	0,09	0,14
PCB_153	IS0091R	pg/m3	0,18	0,32	0,16	0,17	0,17	0,16	0,33	0,44	0,25	0,28	0,28	0,25	0,25
PCB_180	IS0091R	pg/m3	0,18	0,18	0,16	0,17	0,17	0,16	0,18	0,14	0,14	0,17	0,20	0,14	0,17
NO		µg/m^3	*not reported*												
anthracene		ng/m3	*not reported*												
benzo(a)anthracene		ng/m3	*not reported*												
benzo(a)pyrene		ng/m3	*not reported*												
benzo(ghi)perylene		ng/m3	*not reported*												
chrysene		ng/m3	*not reported*												
flouranthene		ng/m3	*not reported*												
indeno(1,2,3-cd)pyrene		ng/m3	*not reported*												
phenanthrene		ng/m3	*not reported*												
pyrene		ng/m3	*not reported*												
Extra reported non-CAMP components															
aluminium		ng/m3	954,09	600,99	210,65	451,72	908,95	360,53	37,64	152,87	595,95	4354,37	629,81	79,19	778,06
iron		ng/m3	1347,92	898,19	293,26	606,67	1193,81	525,46	89,74	322,91	813,86	5894,45	114,54	102,42	1016,94
manganese		ng/m3	19,79	15,10	5,04	10,84	21,48	9,73	1,60	6,20	14,27	101,24	6,13	1,92	17,78
vanadium		ng/m3	4,63	3,78	2,19	2,90	4,87	2,63	0,81	1,57	3,49	19,76	1,00	0,99	4,05
PCB_31		pg/m3	3,91	3,97	3,52	3,64	3,73	3,49	4,17	2,79	2,29	3,75	3,39	3,43	3,50
PCB_105		pg/m3	0,09	0,09	0,08	0,08	0,08	0,08	0,08	0,09	0,08	0,11	0,09	0,09	0,09
PCB_156		pg/m3	0,18	0,18	0,16	0,17	0,17	0,16	0,08	0,09	0,08	0,11	0,09	0,09	0,13
α_HCH		pg/m3	5,68	6,29	5,76	5,21	6,32	7,07	3,83	5,66	3,79	4,18	3,39	2,72	4,99
β_HCH		pg/m3	0,18	0,18	0,16	0,17	0,17	0,16	0,76	0,71	0,43	0,32	0,42	0,27	0,33
cis_CD		pg/m3	0,53	0,67	0,61	0,70	0,56	0,60	0,54	0,48	0,42	0,51	0,44	0,41	0,54
dieldrin		pg/m3	0,69	0,71	0,79	0,83	0,67	0,54	0,50	0,52	0,36	0,49	0,39	0,35	0,57
HCB		pg/m3	4,715	3,243	3,121	2,475	2,686	3,493	2,051	2,875	2,044	2,353	1,72	1,446	2,69
op_DDT		pg/m3	0,09	0,09	0,08	0,08	0,08	0,08	0,17	0,17	0,16	0,22	0,18	0,18	0,13
pp_DDD		pg/m3	0,18	0,18	0,16	0,17	0,34	0,16	0,17	0,17	0,16	0,22	0,18	0,18	0,19
pp_DDE		pg/m3	0,27	0,18	0,16	0,17	0,17	0,16	0,17	0,17	0,16	0,22	0,18	0,18	0,18
pp_DDT		pg/m3	0,18	0,18	0,16	0,17	0,94	0,16	0,17	0,17	0,16	0,22	0,18	0,18	0,24
toxaphene 26		pg/m3	0,58	0,50	0,44	0,32	0,21	0,24	0,34	0,30	0,28	0,36	0,38	0,51	0,37
toxaphene 50		pg/m3	0,09	0,09	0,08	0,08	0,08	0,44	0,08	0,09	0,08	0,11	0,09	0,09	0,12
toxaphene 62		pg/m3	0,09	0,09	0,08	0,08	0,08	0,08	0,08	0,09	0,08	0,11	0,09	0,09	0,09
trans_CD		pg/m3	0,23	0,28	0,23	0,26	0,16	0,14	0,18	0,09	0,18	0,17	0,20	0,20	0,19

IRELAND

IRELAND precipitation **Components in precipitation**

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	IE0001R	mg/l	0,13	0,15	0,21	0,17	0,48	0,26	0,09	0,21	0,15	0,07	0,18	0,25	0,17
nitrate	IE0001R	mg/l	0,03	0,11	0,2	0,05	0,1	0,07	0,12	0,14	0,09	0,05	0,11	0,25	0,11
precipitation	IE0001R	mm	174	79	161	86	39	99	80	101	153	213	68	114	1367,00
arsenic	IE0001R	µg/l	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,50
cadmium	IE0001R	µg/l	0,05	0,27	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,06
chromium	IE0001R	µg/l	0,5	0,5	0,5	0,5	2,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,55
copper	IE0001R	µg/l	2	76,6	4,8	8	21,6	2,3	2,8	3,1	4,6	4,3	5,8	4,1	8,74
lead	IE0001R	µg/l	0,5	3,6	0,5	3,2	3,1	2,1	4,4	0,5	0,5	0,5	0,5	0,5	1,27
mercury	IE0001R	ng/l	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00
nickel	IE0001R	µg/l	0,5	30,4	2,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	2,45
zinc	IE0001R	µg/l	115	157,5	17,2	12,1	22,6	5,8	3,7	7,8	16,6	5,7	5,2	4,6	31,77
precipitation	IE0001R	mm	174	79	161	86	39	99	80	101	153	213	68	114	1367,00
precipitation Hg	IE0001R	mm	174	79	161	86	39	99	80	101	153	213	68	114	1367,00
γ-HCH		ng/l		*not reported*											
voluntary															
PCB_52		ng/l		*not reported*											
PCB_101		ng/l		*not reported*											
PCB_118		ng/l		*not reported*											
PCB_138		ng/l		*not reported*											
PCB_153		ng/l		*not reported*											
PCB_180		ng/l		*not reported*											
PCB_28		ng/l		*not reported*											
anthracene		ng/l		*not reported*											
benzo(a)anthracene		ng/l		*not reported*											
benzo(a)pyrene		ng/l		*not reported*											
benzo(ghi)perylene		ng/l		*not reported*											
chrysene		ng/l		*not reported*											
flouranthene		ng/l		*not reported*											
indeno(1,2,3-cd)pyrene		ng/l		*not reported*											
phenanthrene		ng/l		*not reported*											
pyrene		ng/l		*not reported*											
Extra reported non-CAMP components															
aluminium		µg/l	5,00	24,70	24,20	14,60	59,10	11,60	15,70	5,00	5,00	5,00	5,00	13,90	12,39
manganese		µg/l	16,60	36,50	2,40	0,50	8,70	2,40	6,50	7,90	16,60	2,30	7,30	2,10	8,68
vanadium		µg/l	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
precipitation		mm	174,0	79,0	161,0	86,0	39,0	99,0	80,0	101,0	153,0	213,0	68,0	114,0	1367,0

Ireland airborne

Airborne components

mandatory		january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	µg/m^3		*not reported*											
NO_3	µg/m^3		*not reported*											
$HNO_3 + NO_3$	µg/m^3		*not reported*											
NH_3	µg/m^3		*not reported*											
NH_4	µg/m^3		*not reported*											
NH_3 + NH4	µg/m^3		*not reported*											
voluntary														
NO	µg/m^3		*not reported*											
arsenic	ng/m3		*not reported*											
cadmium	ng/m3		*not reported*											
chromium	ng/m3		*not reported*											
copper	ng/m3		*not reported*											
lead	ng/m3		*not reported*											
mercury	ng/m3		*not reported*											
nickel	ng/m3		*not reported*											
zinc	ng/m3		*not reported*											
PCB_118	pg/m3		*not reported*											
PCB_138	pg/m3		*not reported*											
PCB_153	pg/m3		*not reported*											
PCB_180	pg/m3		*not reported*											
PCB_28	pg/m3		*not reported*											
PCB_52	pg/m3		*not reported*											
anthracene	ng/m3		*not reported*											
benzo(a)anthracene	ng/m3		*not reported*											
benzo(a)pyrene	ng/m3		*not reported*											
benzo(ghi)perylene	ng/m3		*not reported*											
chrysene	ng/m3		*not reported*											
flouranthene	ng/m3		*not reported*											
γ-HCH	ng/m3		*not reported*											
indeno(1,2,3-cd)pyrene	ng/m3		*not reported*											
phenanthrene	ng/m3		*not reported*											
pyrene	ng/m3		*not reported*											

NETHERLANDS

NETHERLANDS precipitation

Components in precipitation

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	NL0009R	mg/l		1,06		1,51	1,72	0,67	0,62	0,57	0,69	0,5	0,57	0,45	0,60
	NL0091R	mg/l	0,28	0,55	1,12	1,76	0,53	0,62	0,42		0,43	0,42	0,52	0,306	0,50
nitrate	NL0009R	mg/l		0,59	0,43	0,96	0,80	0,37	0,43	0,27	0,35	0,33	0,39	0,36	0,38
	NL0091R	mg/l	0,37	0,42	0,49	0,92	0,67	0,49	0,38	0,33	0,38	0,42	0,36	0,36	0,47
precipitation	NL0009R	mm		9,6	59,7	12,9	17,6	85,0	120,9	140,3	95,5	73,7	75,3	43,8	734,3
	NL0091R	mm	85,2	67,8	48,5	31,2	24,9	55,8	109,7	14,3	72,6	87,6	56,7	65,7	720,0
arsenic	NL0009R	µg/l	0,08	0,08		0,36	0,42	0,08		0,08			0,28	0,17	0,11
	NL0091R	µg/l	0,08	0,08	0,08	0,30	0,08	0,08	0,08		0,08	0,08	0,08	0,08	0,08
cadmium	NL0009R	µg/l	0,02	0,04		0,14	0,12	0,05	0,02	0,04			0,07	0,09	0,05
	NL0091R	µg/l	0,02	0,06	0,06	0,09	0,08	0,05	0,02		0,03	0,02	0,02	0,02	0,03
chromium	NL0009R	µg/l	0,26	0,26		0,26	0,26	0,26	0,26	0,26			0,26	0,26	0,26
	NL0091R	µg/l	0,26	0,26	0,26	0,26	0,26	0,26	0,26		0,26	0,26	0,26	0,26	0,26
copper	NL0009R	µg/l	0,41			6,66	2,02	0,98	0,92	0,70			1,07	1,09	1,04
	NL0091R	µg/l	0,84	4,42	2,69	5,54	4,36	3,02	1,58		1,65	1,07	1,32	0,92	1,76
lead	NL0009R	µg/l	0,86	1,19		2,15	1,79	0,93	1,91	0,46			1,69	1,69	1,24
	NL0091R	µg/l	2,34	2,99	2,17	3,61	2,31	2,20	1,47		2,45	2,05	2,64	2,84	2,33
mercury	NL0091R	ng/l	6,92	9,17	10,73	33,41	15,76		19,40	14,73	14,83	19,48	158,17	132,23	39,53
nickel	NL0009R	µg/l	0,21	0,55		0,49	0,21	0,21	0,21	0,21			0,45	0,21	0,24
	NL0091R	µg/l	0,21	0,21	0,53	0,67	0,51	0,41	0,21		0,54	0,21	0,21	0,30	0,31
zinc	NL0009R	µg/l	1,95	6,50		12,70	9,60	4,30	5,60	1,95			6,80	9,51	4,99
	NL0091R	µg/l	4,70	5,70	6,20	17,70	6,70	7,90	4,70		4,40	4,00	5,50	5,06	5,54
precipitation	NL0009R	mm	125,1	9,5		12,6	18,3	78,5	120,3	131,6			69,9	96,5	662,3
	NL0091R	mm	132,5	30,2	49,4	24	22,3	50,9	113,8		57,3	92,2	58,4	116,7	747,7
precipitation Hg	NL0091R	mm	110,2	45,7	33,6	19,9	29,7		97	109,5	54,6	84,7	52,5	45,7	683,1
γ-HCH	NL0091R	ng/l	5,00	5,00	5,00	5,00	5,00	11,00	5,00	5,00	5,00	5,00	5,00	5,00	5,37
precipitation	NL0091R	mm	150,3	37	58,6	25,9	26,9	55,5	86,5	102,3	65,4	97,2	66	134	905,6

voluntary		
PCB_101	ng/l	*not reported*
PCB_118	ng/l	*not reported*
PCB_138	ng/l	*not reported*
PCB_153	ng/l	*not reported*
PCB_180	ng/l	*not reported*
PCB_28	ng/l	*not reported*
PCB_52	ng/l	*not reported*
anthracene	ng/l	*not reported*
benzo(a)anthracene	ng/l	*not reported*
benzo(a)pyrene	ng/l	*not reported*
benzo(ghi)perylene	ng/l	*not reported*
chrysene	ng/l	*not reported*
flouranthene	ng/l	*not reported*
indeno(1,2,3-cd)pyrene	ng/l	*not reported*
phenanthrene	ng/l	*not reported*
pyrene	ng/l	*not reported*

Netherlands airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	NL0009R	µg/m^3	5,11	3,21	3,72	3,51	1,68	1,92	1,38	1,88	2,58	4,81	5,03	8,29	3,59
	NL0091R	µg/m^3	7,26	5,56	6,94	6,85	4,04	4,32	4,00	4,26	4,75	6,90	7,44	9,89	6,02
NO_3	NL0009R	µg/m^3	0,70	0,75	1,32	1,00	0,60	0,71	0,40	0,62	0,58	0,60	0,71	0,85	0,74
	NL0091R	µg/m^3	0,46	0,48	1,04	0,62	0,41	0,41	0,54	0,61	0,65	0,46	0,71	1,02	0,62
NH_4	NL0009R	µg/m^3	0,95	1,14	1,88	1,54	1,13	1,20	0,88	1,63	0,83	0,97	1,07	1,76	1,25
	NL0091R	µg/m^3	0,75	0,85	1,47	0,97	0,86	0,83	1,12	1,33	1,07	0,83	1,28	2,12	1,12
NH_3	NL0091R	µg/m^3	0,50	0,56	1,53	1,78	0,40	0,60	0,39	0,37	1,22	1,52	0,58	0,50	0,83
HNO_3		µg/m^3		*not reported*				0,83							
voluntary															
NO	NL0009R	µg/m^3	0,82	0,23	0,50	0,49	0,35	0,25	0,29	0,17	0,37	1,19	2,40	5,75	1,07
	NL0091R	µg/m^3	3,25	1,33	2,09	1,41	0,73	1,05	0,96	0,49	1,37	2,48	7,19	13,82	3,01
arsenic	NL0009R	ng/m3	0,40	0,47	0,77	0,43	0,38	0,42	0,32	0,54	0,47	0,46	0,44	0,63	0,48
cadmium	NL0009R	ng/m3	0,16	0,14	0,23	0,16	0,10	0,07	0,06	0,13	0,16	0,16	0,13	0,24	0,15
lead	NL0009R	ng/m3	7,75	6,15	7,99	6,51	4,77	3,38	3,58	4,73	5,71	7,40	5,64	11,42	6,25
nickel	NL0009R	ng/m3	1,31	1,51	2,15	2,07	2,31	2,35	1,03	1,55	1,61	1,11	1,30	1,80	1,67
zinc	NL0009R	ng/m3	21,30	16,64	22,67	17,71	14,02	12,97	12,08	17,33	17,81	20,20	19,20	29,94	18,49
chromium		ng/m3		*not reported*											
copper		ng/m3		*not reported*											
mercury		ng/m3		*not reported*											
PCB_118		pg/m3		*not reported*											
PCB_138		pg/m3		*not reported*											
PCB_153		pg/m3		*not reported*											
PCB_180		pg/m3		*not reported*											
PCB_28		pg/m3		*not reported*											
PCB_52		pg/m3		*not reported*											
anthracene		ng/m3		*not reported*											
benzo(a)anthracene		ng/m3		*not reported*											
benzo(a)pyrene		ng/m3		*not reported*											
benzo(ghi)perylene		ng/m3		*not reported*											
chrysene		ng/m3		*not reported*											
flouranthene		ng/m3		*not reported*											
γ-HCH		ng/m3		*not reported*											
indeno(1,2,3-cd)pyrene		ng/m3		*not reported*											
phenanthrene		ng/m3		*not reported*											
pyrene		ng/m3		*not reported*											

NORWAY

NORWAY precipitation — **Components in precipitation**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	NO0001R	mg/l	0,39	0,10	0,48	1,86	0,54	0,18	0,25	0,13	0,13	0,18	0,19	0,31	0,33
	NO0039R	mg/l	0,05	0,08	0,12	0,18	0,10	0,06	0,19	0,04	0,03	0,03	0,03	0,04	0,07
	NO0057R	mg/l	0,02	0,05	0,12	0,14	0,01	0,33	0,14	0,21	0,07	0,06	0,02	0,02	0,10
nitrate	NO0001R	mg/l	0,56	0,21	0,44	1,13	0,36	0,24	0,30	0,21	0,21	0,26	0,38	0,35	0,48
	NO0039R	mg/l	0,10	0,03	0,11	0,10	0,06	0,04	0,10	0,02	0,02	0,01	0,02	0,03	0,05
	NO0057R	mg/l	0,06	0,05	0,10	0,20	0,07	1,06	0,25	0,16	0,11	0,07	0,03	0,07	0,12
precipitation	NO0001R	mm	228,2	40,2	121,2	88,3	70,4	151,4	99,1	215,2	128,7	361,2	70,6	126,0	1,0
	NO0039R	mm	35,0	262,8	29,0	82,6	238,0	205,7	81,6	85,9	371,0	65,3	318,5	225,7	2,2
	NO0057R	mm	17,9	6,9	95,4	36,1	4,1	1,2	19,9	11,8	14,9	14,5	19,5	12,6	254,8
arsenic	NO0001R	µg/l	0,24	0,10	0,19	0,29	0,16	0,06	0,06	0,05	0,06	0,07	0,13	0,15	0,19
cadmium	NO0001R	µg/l	0,05	0,01	0,08	0,12	0,07	0,01	0,02	0,02	0,01	0,05	0,03	0,03	0,07
chromium	NO0001R	µg/l	0,10	0,10	0,10	0,19	0,12	0,10	0,10	0,11	0,10	0,10	0,16	0,10	0,14
copper	NO0001R	µg/l	0,40	0,36	0,50	1,20	0,63	0,13	0,20	0,07	0,11	0,12	0,69	0,65	0,69
lead	NO0001R	µg/l	1,70	0,47	2,68	3,67	2,22	0,47	0,65	0,54	0,31	1,06	1,22	1,53	2,14
mercury	NO0001R	ng/l			7,19	11,70	13,30	5,13	24,32	13,01	10,30	8,34	9,90	1,90	9,85
nickel	NO0001R	µg/l	0,24	0,10	0,21	0,39	0,28	0,16	0,17	0,11	0,13	0,15	0,32	0,39	0,29
zinc	NO0001R	µg/l	4,74	2,85	4,62	18,19	5,02	1,98	2,95	1,91	0,99	2,31	6,44	4,29	8,71
precipitation	NO0001R	mm	223,8	37,6	115,5	104,1	71,1	146,7	101,5	213,1	123,8	334,9	83,0	156,8	56,3
precipitation Hg	NO0001R	mm			121,2	88,3	70,4	151,4	99,1	215,2	128,7	361,2	70,6	126,0	1432,1
γ-HCH	NO0001R	ng/l	0,34	0,30	1,15	1,94	2,19	1,32	0,76	0,41	0,64	0,41	0,78	0,24	0,91
precipitation	NO0001R	mm	98,5	34,8	131,1	35,4	93,0	77,7	73,9	50,8	147,2	80,7	133,1	15,7	971,8

voluntary														
PCB_101	NO0001R	ng/l	0,03	0,05	0,02	0,01	0,04	0,03	0,08	0,04	0,09	0,01	0,04
PCB_118	NO0001R	ng/l	0,03	0,04	0,02	0,01	0,02	0,02	0,04	0,02	0,05	0,01	0,02
PCB_138	NO0001R	ng/l	0,03	0,06	0,03	0,01	0,03	0,03	0,05	0,02	0,03	0,01	0,03
PCB_153	NO0001R	ng/l	0,05	0,08	0,04	0,02	0,05	0,05	0,10	0,03	0,07	0,02	0,05
PCB_180	NO0001R	ng/l	0,02	0,05	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_28	NO0001R	ng/l	0,01	0,02	0,02	0,01	0,02	0,01	0,02	0,01	0,05	0,01	0,02
PCB_52	NO0001R	ng/l	0,02	0,03	0,01	0,01	0,03	0,02	0,05	0,03	0,07	0,01	0,03
precipitation	NO0001R	mm	124,5	85,7	72,8	143,3	107,0	194,7	148,0	332,5	69,7	142,1	1420,3

anthracene	ng/l	*not reported*
benzo(a)anthracene	ng/l	*not reported*
benzo(a)pyrene	ng/l	*not reported*
benzo(ghi)perylene	ng/l	*not reported*
chrysene	ng/l	*not reported*
flouranthene	ng/l	*not reported*
indeno(1,2,3-cd)pyrene	ng/l	*not reported*
phenanthrene	ng/l	*not reported*
pyrene	ng/l	*not reported*

Extra reported non-CAMP components

α_HCH	ng/l	286,55	456,76	899,96	272,93	359,65	325,25	284,18	487,89	382,25	256,87	347,63
HCB	ng/l	76,85	82,30	213,72	46,95	408,91	117,18	66,84	57,36	293,56	64,72	130,91
precipitation_amount	ng/l	124,5	85,7	72,8	143,3	107,0	194,7	148,0	332,5	69,7	142,1	971,8

Norway - airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	NO0001R	µg/m³	1,31	0,37	0,50	0,44	0,24	0,32	0,26	0,26	0,33	0,46	0,37	0,66	0,46
	NO0039R	µg/m³	0,34	0,23	0,07	0,15	0,09	0,15	0,26	0,17	0,27	0,32	0,21	0,28	0,21
NO_3	NO0001R	µg/m³	0,03	0,06	0,16	0,34	0,17	0,23	0,26	0,17	0,25	0,14	0,36	0,10	0,19
	NO0008R	µg/m³	0,09	0,07	0,11	0,35	0,19	0,35	0,14	0,08	0,42	0,16	0,18	0,18	0,19
	NO0039R	µg/m³	0,03	0,04	0,06	0,08	0,06		0,06	0,03	0,01	0,02	0,03	0,07	0,04
	NO0042G	µg/m³	0,12	0,04	0,02	0,03	0,04	0,04	0,05	0,02	0,04	0,08	0,07	0,06	0,05
HNO_3	NO0001R	µg/m³	0,09	0,02	0,04	0,09	0,07	0,10	0,10	0,10	0,16	0,03	0,12	0,04	0,08
	NO0042G	µg/m³	0,01	0,01	0,02	0,02	0,03	0,03	0,02	0,02	0,03	0,05	0,04	0,03	0,03
$HNO_3 + NO_3$	NO0001R	µg/m³	0,13	0,08	0,20	0,43	0,25	0,33	0,36	0,28	0,42	0,17	0,43	0,14	0,27
	NO0039R	µg/m³	0,06	0,05	0,08	0,17	0,10		0,09	0,06	0,03	0,03	0,04	0,12	0,07
	NO0042G	µg/m³	0,13	0,05	0,04	0,05	0,07	0,08	0,06	0,03	0,06	0,12	0,11	0,09	0,07
NH_3	NO0001R	µg/m³	0,09	0,08	0,12	0,23	0,20	0,36	0,37	0,40	0,46	0,18	0,28	0,16	0,24
	NO0039R	µg/m³	0,21	0,25	0,25	0,40	0,52		0,47	0,63	0,64	0,33	0,19	0,42	0,39
	NO0042G	µg/m³	0,13	0,12	0,17	0,13	0,18	0,27	0,60	0,34	0,22	0,21	0,28	0,17	0,23
NH_3 + NH4	NO0001R	µg/m³	0,39	0,11	0,36	1,12	0,59	0,63	0,75	0,67	0,75	0,31	0,53	0,27	0,54
	NO0039R	µg/m³	0,28	0,27	0,32	0,73	0,76		0,55	0,72	0,57	0,37	0,19	0,45	0,47
	NO0042G	µg/m³	0,17	0,18	0,20	0,16	0,24	0,31	0,61	0,35	0,25	0,23	0,32	0,23	0,27
NH_4	NO0001R	µg/m³	0,29	0,04	0,24	0,88	0,38	0,27	0,38	0,27	0,29	0,14	0,32	0,12	0,30
	NO0039R	µg/m³	0,06	0,01	0,08	0,33	0,25		0,09	0,12	0,04	0,05	0,02	0,03	0,10
	NO0042G	µg/m³	0,05	0,06	0,04	0,03	0,07	0,04	0,01	0,01	0,03	0,02	0,05	0,05	0,04
voluntary															
arsenic	NO0001R	ng/m3	0,37	0,12	0,26	0,38	0,16	0,13	0,17	0,25	0,14	0,18	0,11	0,12	0,20
	NO0042R	ng/m3	0,25	0,12	0,13	0,12	0,04	0,02	0,01	0,01	0,01	0,01	0,11	0,05	0,07
cadmium	NO0001R	ng/m3	0,06	0,02	0,04	0,11	0,07	0,02	0,02	0,05	0,02	0,08	0,02	0,03	0,04
chromium	NO0001R	ng/m3	0,76	0,08	0,11	0,05	-0,27	-0,28	-0,25	0,12	-0,15	-0,24	-0,28	-0,13	-0,04
copper	NO0001R	ng/m3	2,33	1,38	0,70	0,92	0,39	0,66	0,26	0,72	0,31	0,54	1,11	0,78	0,84
lead	NO0001R	ng/m3	4,18	0,67	1,40	3,09	2,18	0,67	0,79	1,64	1,08	1,83	0,78	1,12	1,62
mercury	NO0042R	ng/m3	1,67	1,61	1,69	1,51	1,31	1,55	1,54	1,46	1,43	1,39	1,42	1,47	1,50
nickel	NO0001R	ng/m3	0,70	0,37	0,98	1,08	0,37	0,43	0,47	0,63	0,44	0,53	0,36	0,44	0,57
zinc	NO0001R	ng/m3	6,74	2,55	4,76	6,88	4,03	2,05	2,05	3,85	2,66	5,22	2,21	3,16	3,85
	NO0042R	ng/m3	2,11	2,06	25,10	1,76	0,79	0,34	0,39	0,45	1,69	0,48	1,93	13,75	4,24
PCB_101	NO0001R	pg/m3	0,67	0,60	0,75	0,90		0,97	0,78	1,66	0,53	0,79	0,72	0,80	0,83
	NO0042R	pg/m3	0,43	0,47	0,47	0,45	0,34	0,34	0,75	0,32	0,25	0,34	0,39	0,55	0,43
PCB_118	NO0001R	pg/m3	0,19	0,19	0,38	0,57		0,47	0,29	0,49	0,16	0,24	0,18	0,35	0,32
	NO0042R	pg/m3	0,17	0,20	0,15	0,14	0,11	0,10	0,20	0,09	0,06	0,10	0,12	0,26	0,14
PCB_138	NO0001R	pg/m3	0,26	0,24	0,41	0,57		0,49	0,33	0,75	0,20	0,33	0,23	0,27	0,37
	NO0042R	pg/m3	0,16	0,19	0,15	0,13	0,10	0,09	0,17	0,08	0,05	0,09	0,10	0,14	0,12
PCB_153	NO0001R	pg/m3	0,43	0,39	0,82	1,24		1,00	0,55	1,20	0,32	0,51	0,38	0,44	0,66
	NO0042R	pg/m3	0,25	0,31	0,25	0,20	0,14	0,13	0,24	0,12	0,08	0,14	0,15	0,22	0,18
PCB_180	NO0001R	pg/m3	0,14	0,11	0,30	0,38		0,23	0,15	0,30	0,08	0,17	0,10	0,22	0,20
	NO0042R	pg/m3	0,04	0,05	0,05	0,04	0,03	0,03	0,06	0,02	0,01	0,02	0,03	0,09	0,04
PCB_28	NO0001R	pg/m3	1,36	1,08	1,66	1,83		2,07	1,53	2,46	0,98	2,04	1,53	1,69	1,66
	NO0042R	pg/m3	1,47	1,38	1,44	1,54	1,49	2,52	6,36	2,10	1,51	1,45	1,34	1,39	2,00
PCB_52	NO0001R	pg/m3	1,26	0,99	1,34	1,50		1,70	1,22	2,30	0,89	1,42	1,26	1,63	1,41
	NO0042R	pg/m3	0,97	0,98	1,07	0,98	0,81	0,99	2,19	0,83	0,64	0,79	0,85	1,03	1,01
γ-HCH	NO0001R	pg/m3	4,91	3,82	5,40	16,84		17,69	11,22	21,16	6,04		9,51	5,49	10,21
	NO0042R	pg/m3	2,30	2,46	2,73	3,20	2,98	2,05	3,54	2,28	2,42	3,06	3,77	2,19	2,75
anthracene	NO0042R	ng/m3	3,50	2,50	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,38	1,36
benzo(a)anthracene	NO0042R	ng/m3	18,25	12,75	1,50	1,00	1,00	1,00	1,00	1,00	1,00	1,00	3,00	3,63	3,84
benzo(a)pyrene	NO0042R	ng/m3	14,00	12,75	1,25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,20	1,00	3,10
benzo(ghi)perylene	NO0042R	ng/m3	22,00	20,25	3,25	1,40	1,00	1,25	1,00	0,67	1,00	1,00	5,80	4,63	5,27
flouranthene	NO0042R	ng/m3	125,25	108,25	38,25	9,20	6,00	10,75	8,00	5,00	4,00	3,00	28,60	58,00	33,69
indeno(1,2,3-cd)pyrene	NO0042R	ng/m3	22,50	19,00	3,00	1,40	1,00	1,00	1,00	1,00	1,00	1,00	3,20	2,50	4,80
phenanthrene	NO0042R	ng/m3	159,75	179,00	67,50	22,60	21,25	36,00	29,80	22,00	19,40	13,75	49,20	179,88	66,68
pyrene	NO0042R	ng/m3	81,50	61,50	17,50	5,00	4,00	6,75	4,80	2,78	1,60	1,25	15,20	20,13	18,50

NO	µg/m³	*not reported*
chrysene	ng/m3	*not reported*

Norway - airborne *(continued)*

Extra reported non-CAMP components

cobalt	NO0001R	ng/m3	0,01	0,03	0,02	0,03	0,02	0,02	0,01	0,02	0,01	0,01	0,00	0,01	0,02
vanadium	NO0001R	ng/m3	0,82	0,33	0,69	1,44	0,68	0,73	0,81	0,90	0,77	0,41	0,36	0,50	0,70
PCB_18	NO0042R	pg/m3	2,12	2,07	2,00	2,01	1,59	1,95	4,86	1,66	1,32	1,58	1,83	1,77	2,06
PCB_31	NO0042R	pg/m3	1,40	1,29	1,36	1,44	1,43	2,39	6,06	2,03	1,42	1,37	1,24	1,31	1,89
PCB_33	NO0042R	pg/m3	0,99	0,89	0,95	1,07	1,12	1,97	5,07	1,70	1,15	1,02	0,89	0,87	1,47
PCB_37	NO0042R	pg/m3	0,15	0,14	0,13	0,15	0,17	0,33	0,90	0,29	0,20	0,16	0,15	0,17	0,25
PCB_47	NO0042R	pg/m3	0,40	0,40	0,46	0,40	0,36	0,57	1,38	0,51	0,32	0,38	0,45	0,51	0,51
PCB_66	NO0042R	pg/m3	0,25	0,27	0,25	0,24	0,20	0,28	0,68	0,25	0,19	0,21	0,23	0,74	0,31
PCB_74	NO0042R	pg/m3	0,17	0,18	0,17	0,17	0,14	0,18	0,42	0,15	0,11	0,14	0,15	0,37	0,19
PCB_99	NO0042R	pg/m3	0,18	0,21	0,19	0,19	0,14	0,12	0,24	0,10	0,08	0,13	0,16	0,25	0,16
PCB_105	NO0042R	pg/m3	0,05	0,06	0,04	0,04	0,03	0,03	0,06	0,03	0,02	0,03	0,04	0,10	0,04
PCB_114	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_122	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_123	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_128	NO0042R	pg/m3	0,03	0,03	0,02	0,02	0,02	0,02	0,03	0,01	0,01	0,01	0,02	0,02	0,02
PCB_141	NO0042R	pg/m3	0,04	0,04	0,04	0,03	0,02	0,02	0,04	0,02	0,01	0,02	0,03	0,03	0,03
PCB_149	NO0042R	pg/m3	0,23	0,25	0,28	0,22	0,17	0,16	0,32	0,16	0,12	0,18	0,18	0,22	0,21
PCB_156	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01
PCB_157	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_167	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_170	NO0042R	pg/m3	0,01	0,01	0,02	0,01	0,01	0,01	0,03	0,01	0,01	0,01	0,01	0,02	0,02
PCB_183	NO0042R	pg/m3	0,02	0,02	0,02	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,03	0,02
PCB_187	NO0042R	pg/m3	0,05	0,06	0,05	0,04	0,03	0,02	0,04	0,03	0,02	0,03	0,03	0,08	0,04
PCB_189	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_194	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,03	0,01
PCB_206	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,01
PCB_209	NO0042R	pg/m3	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
sum_PCB	NO0042R	pg/m3	16,27	16,49	16,06	15,86	14,00	19,87	48,38	16,76	12,13	13,33	13,71	17,07	18,33
α_HCH	NO0001R	pg/m3	8,18	7,13	9,40	15,46	-9999,99	22,09	22,51	38,98	16,78	-9999,99	15,39	11,67	-1652,70
	NO0042R	pg/m3	12,39	11,38	10,24	10,62	12,02	14,87	21,09	25,37	25,24	24,25	20,87	16,69	17,09
acenaphthene	NO0042R	pg/m3	11,00	19,00	4,00	2,80	2,00	2,50	2,20	1,67	1,60	2,00	6,20	16,38	5,95
acenaphthylene	NO0042R	pg/m3	5,25	4,00	1,00	1,00	1,25	1,25	1,00	1,00	1,00	1,00	1,20	1,00	1,66
anthanthrene	NO0042R	pg/m3	1,75	1,75	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,25	1,15
benzo_a_fluoranthene	NO0042R	pg/m3	3,25	2,75	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,33
benzo_a_fluorene	NO0042R	pg/m3	10,00	7,25	1,75	1,20	3,00	1,00	1,00	1,00	1,00	1,75	1,80	2,13	2,74
benzo_b_fluorene	NO0042R	pg/m3	6,75	4,50	1,25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,20	1,38	1,84
benzo_bjk_fluoranthenes	NO0042R	pg/m3	73,00	60,50	11,00	3,40	1,00	1,50	1,60	1,00	1,00	1,00	18,60	12,88	15,54
benzo_e_pyrene	NO0042R	pg/m3	24,25	21,25	3,75	1,40	1,00	1,00	1,00	1,00	1,00	1,00	6,20	5,00	5,65
benzo_ghi_fluoranthene	NO0042R	pg/m3	16,75	13,00	3,25	1,00	1,00	1,25	1,00	1,00	1,00	1,00	3,80	5,38	4,12
biphenyl	NO0042R	pg/m3	1410,50	1639,75	463,00	123,40	29,25	18,00	16,80	17,56	132,20	100,50	652,80	471,00	422,90
chrysene_triphenylene	NO0042R	pg/m3	54,00	42,25	10,00	2,60	1,25	2,00	1,40	1,00	1,00	1,00	15,40	19,00	12,58
cis_CD	NO0042R	pg/m3	0,69	0,64	0,74	0,67	0,61	0,52	0,69	0,66	0,58	0,81	0,74	0,59	0,66
cis_NO	NO0042R	pg/m3	0,04	0,05	0,05	0,06	0,08	0,09	0,11	0,11	0,09	0,10	0,07	0,04	0,07
coronene	NO0042R	pg/m3	21,75	20,25	3,50	1,40	1,00	1,00	1,00	1,00	1,00	1,00	1,20	1,38	4,62
cyclopenta_cd_pyrene	NO0042R	pg/m3	4,50	4,25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,56
dibenzo_ac_ah_anthracenes	NO0042R	pg/m3	3,25	2,25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,29
dibenzo_ae_pyrene	NO0042R	pg/m3	2,75	3,75	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,38
dibenzo_ah_pyrene	NO0042R	pg/m3	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
dibenzo_ai_pyrene	NO0042R	pg/m3	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
dibenzofuran	NO0042R	pg/m3	1424,00	1781,25	694,68	388,40	78,00	38,50	59,80	39,56	202,40	151,75	681,00	824,13	530,29
dibenzothiophene	NO0042R	pg/m3	22,25	30,50	11,75	4,20	2,25	2,25	3,40	2,11	2,80	2,25	12,40	21,38	9,79
fluorene	NO0042R	pg/m3	675,25	706,50	242,75	68,00	20,50	19,75	25,00	18,22	44,20	34,75	263,60	406,88	210,45
HCB	NO0001R	pg/m3	76,23	53,94	66,54	67,85	-9999,99	65,89	62,77	60,91	58,48	69,25	62,88	57,53	-774,81
	NO0042R		63,12	60,62	66,75	66,36	68,73	73,38	61,28	71,01	66,44	62,48	61,50	59,38	65,09
N1methylnaphtalene	NO0042R	pg/m3	597,75	412,25	41,25	17,20	14,25	11,75	12,20	10,56	11,20	16,25	192,00	159,13	124,65
N1methylphenanthrene	NO0042R	pg/m3	11,00	9,00	3,75	2,20	2,50	4,75	4,80	3,89	2,20	1,75	4,20	6,50	4,71
N2methylanthracene	NO0042R	pg/m3	1,00	1,25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,02
N2methylnaphtalene	NO0042R	pg/m3	522,00	449,00	46,75	25,80	25,75	19,75	18,60	18,22	15,20	21,75	192,00	202,13	129,75
N2methylphenanthrene	NO0042R	pg/m3	15,50	13,75	7,25	4,00	5,00	7,75	9,20	6,89	4,00	3,00	6,40	12,63	7,95
N3methylphenanthrene	NO0042R	pg/m3	10,00	8,50	4,50	3,00	3,50	4,75	6,00	4,44	2,40	2,00	4,00	7,25	5,03
N9methylphenanthrene	NO0042R	pg/m3	7,25	5,50	3,50	2,60	3,00	4,50	5,80	4,67	2,40	1,75	3,60	4,25	4,07
naphtalene	NO0042R	pg/m3	2358,78	1430,00	241,75	73,60	83,00	64,50	47,80	52,78	49,00	61,00	752,40	550,75	480,45
op_DDD	NO0042R	pg/m3	0,04	0,04	0,03	0,02	0,01	0,01	0,02	0,01	0,01	0,02	0,02	0,02	0,02
op_DDE	NO0042R	pg/m3	0,20	0,24	0,18	0,10	0,03	0,02	0,03	0,02	0,02	0,06	0,12	0,16	0,10
op_DDT	NO0042R	pg/m3	0,38	0,47	0,36	0,20	0,09	0,06	0,18	0,10	0,08	0,22	0,27	0,25	0,22
perylene	NO0042R	pg/m3	2,25	1,75	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,17
pp_DDD	NO0042R	pg/m3	0,07	0,08	0,02	0,01	0,02	0,02	0,03	0,01	0,01	0,02	0,06	0,03	0,03
pp_DDE	NO0042R	pg/m3	1,31	1,45	0,90	0,43	0,17	0,15	0,17	0,16	0,08	0,36	0,66	0,77	0,55
pp_DDT	NO0042R	pg/m3	0,20	0,21	0,12	0,08	0,04	0,03	0,09	0,05	0,03	0,10	0,13	0,12	0,10

PORTUGAL

Portugal - precipitation **Components in precipitation**

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	PT0003R	mg/l	0,12	0,30	0,02	0,09	0,11	0,20	0,43	0,18	1,22	0,061	0,015	0,047	0,06
ammonium	PT0004R	mg/l	0,015	0,017	0,578	0,273	0,2				0,2	0,413	0,03		0,25
ammonium	PT0010R	mg/l	0,04	0,015	0,022										0,03
nitrate	PT0003R	mg/l	0,25	0,43	0,07	0,08	0,12	0,21	0,24	0,07	0,22	0,064	0,052	0,052	0,09
nitrate	PT0004R	mg/l	0,07	0,161	0,272	0,125	0,059				0,247	0,192	0,5	0,15	0,19
nitrate	PT0010R	mg/l	0,176	0,117	0,203										0,16
precipitation	PT0003R	mm	158,2	38,7	1354,7	104,8	53,8	22	16,3	113,4	16,9	222,5	24,3	103,3	2228,90
precipitation	PT0004R	mm	31,7	56,1	42,1	30,6	18,5				43,8	82,2	12,3		317,30
precipitation	PT0010R	mm	152	131,7	95,5										379,20
cadmium	PT0003R	µg/l	0,44	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,425	0,425	0,425	0,425	0,43
cadmium	PT0004R	µg/l	0,425	0,425	0,425	0,425	0,425				0,425	0,425	0,425	0,425	0,43
cadmium	PT0010R	µg/l	0,425	0,425	0,425										0,43
copper	PT0003R	µg/l	1,18	2,50	11,23	0,58	0,60	4,49	5,00	2,56	6,8	1,192	2,171	2,046	7,49
copper	PT0004R	µg/l	0,325	0,498	1,015	0,764	0,325				0,325	0,689	0,325	0,325	0,58
copper	PT0010R	µg/l	0,325	0,325	0,325										0,33
lead	PT0003R	µg/l	0,65	0,65	0,65	0,65	0,65	9,38	6,71	9,24	7,06	6,136	4,77	0,645	1,85
lead	PT0004R	µg/l	0,645	0,645	0,645	0,645	0,645				5,227	9,01	0,645	0,645	3,44
lead	PT0010R	µg/l	0,645	0,645	0,766										0,68
nickel	PT0003R	µg/l	0,88	0,78	1,59	0,78	0,78	0,78	0,78	0,78	0,775	0,775	0,775	0,775	1,28
nickel	PT0004R	µg/l	0,775	0,893	4,709	0,775	0,775				0,775	0,775	0,775	0,775	1,32
nickel	PT0010R	µg/l	2,925	0,775	21,955										6,97
zinc	PT0003R	µg/l	14,21	27,75	5,22	9,05	11,39	38,98	40,00	15,64	72	15,544	8,382	16,524	9,79
zinc	PT0004R	µg/l	13	4,116	6,313	7,567	5,349				3,985	16,066	3	1	8,73
zinc	PT0010R	µg/l	11,73	5,445	71,129										24,51
precipitation	PT0003R	mm	158,2	38,7	1354,7	104,8	53,8	22	16,3	113,4	16,9	222,5	24,3	103,3	2228,90
precipitation	PT0004R	mm	31,7	56,1	42,1	30,6	18,5				43,8	82,2	12,3		317,30
precipitation	PT0010R	mm	152	131,7	95,5										379,20
chromium		µg/l		*not reported*											
mercury		ng/l		*not reported*											
γ-HCH		pg/l		*not reported*											

Portugal airborne

Airborne components

mandatory		january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	µg/m^{-}		*not reported*											
NO_3	µg/m^{-}		*not reported*											
$HNO_3 + NO_3$	µg/m^{-}		*not reported*											
NH_3	µg/m^{-}		*not reported*											
NH_4	µg/m^{-}		*not reported*											
NH_3 + NH4	µg/m^{-}		*not reported*											

voluntary														
NO	µg/m^{3}		*not reported*											
arsenic	ng/m3		*not reported*											
cadmium	ng/m3		*not reported*											
chromium	ng/m3		*not reported*											
copper	ng/m3		*not reported*											
lead	ng/m3		*not reported*											
mercury	ng/m3		*not reported*											
nickel	ng/m3		*not reported*											
zinc	ng/m3		*not reported*											
PCB_118	pg/m3		*not reported*											
PCB_138	pg/m3		*not reported*											
PCB_153	pg/m3		*not reported*											
PCB_180	pg/m3		*not reported*											
PCB_28	pg/m3		*not reported*											
PCB_52	pg/m3		*not reported*											
anthracene	ng/m3		*not reported*											
benzo(a)anthracene	ng/m3		*not reported*											
benzo(a)pyrene	ng/m3		*not reported*											
benzo(ghi)perylene	ng/m3		*not reported*											
chrysene	ng/m3		*not reported*											
flouranthene	ng/m3		*not reported*											
γ-HCH	ng/m3		*not reported*											
indeno(1,2,3-cd)pyrene	ng/m3		*not reported*											
phenanthrene	ng/m3		*not reported*											
pyrene	ng/m3		*not reported*											

SPAIN

Spain - precipitation

Components in precipitation

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ES0008R	ammonium	mg/l	0,14	0,32	0,34	0,66	0,29	1,77	0,41	1,09	0,98	0,31	0,57	0,39	0,54
ES0008R	nitrate	mg/l	0,41	0,40	0,63	0,64	0,39	10,13	1,10	1,60	2,67	2,81	1,98	1,10	1,55
ES0008R	precipitation	mm	83,6	73,6	58,6	77,2	66,4	34,6	41,2	35	61	30,2	45,4	55,6	662,4
ES0008R	arsenic	µg/l	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,64	0,74
ES0008R	cadmium	µg/l	0,08	0,08	0,13	0,48	0,09	0,14	0,13	0,29	0,21	0,08	0,14	0,08	0,16
ES0008R	chromium	µg/l	14,62	15,16	9,02	17,25	12,83	145,65	113,15	52,97	23,32	14,02	10,83	29,61	30,05
ES0008R	copper	µg/l	10,59	11,07	16,86	29,90	23,43	33,56	41,44	40,55	19,91	10,84	35,68	13,62	21,81
ES0008R	lead	µg/l	3,31	2,06	1,54	4,33	7,70	6,25	5,26	8,80	4,22	1,04	1,46	1,57	3,54
ES0008R	nickel	µg/l	16,05	40,63	15,92	33,44	33,31	213,92	180,39	61,52	37,59	19,91	15,89	67,42	50,71
ES0008R	zinc	µg/l	31,03	75,44	79,33	90,54	89,67	240,48	219,55	1161,46	190,86	42,40	65,17	42,44	136,03
ES0008R	precipitation	mm	121,2	114,4	127,8	125,7	92,1	51,6	72,5	42,7	88,7	79,6	82,4	106,4	1105,1
	mercury	pg/l		*not reported*											
	γ-HCH	ng/l		*not reported*											

voluntary		
	PCB_101	ng/l *not reported*
	PCB_118	ng/l *not reported*
	PCB_138	ng/l *not reported*
	PCB_153	ng/l *not reported*
	PCB_180	ng/l *not reported*
	PCB_28	ng/l *not reported*
	PCB_52	ng/l *not reported*
	anthracene	ng/l *not reported*
	benzo(a)anthracene	ng/l *not reported*
	benzo(a)pyrene	ng/l *not reported*
	benzo(ghi)perylene	ng/l *not reported*
	chrysene	ng/l *not reported*
	flouranthene	ng/l *not reported*
	indeno(1,2,3-cd)pyrene	ng/l *not reported*
	phenanthrene	ng/l *not reported*
	pyrene	ng/l *not reported*

Spain airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	ES0008R	µg/m^3	1,68	3,51	3,44	1,90	1,82	1,63	1,16	1,54	1,50	1,61	2,17	2,42	2,03
$HNO_3 + NO_3$	ES0008R	µg/m^3	0,32	0,57	0,62	0,40	0,54	0,53	0,55	0,43	0,51	0,38	0,43	0,37	0,47
NH_3	ES0008R	µg/m^3							0,20	3,60	3,05	1,26	1,11	0,72	1,66
NH_3 + NH4	ES0008R	µg/m^3	0,206	0,345	0,221	0,231	0,835	0,504	0,367	0,254	0,361	0,286	0,175	0,134	0,33
NO_3		µg/m^3		*not reported*											
NH_4		µg/m^3		*not reported*											
voluntary															
NO	ES0008R	µg/m^3	0,15	0,30	0,39	0,20	0,25	0,37	0,36	0,39	0,33	0,29	0,46	0,28	0,31
arsenic	ES0008R	ng/m3							0,09					0,23	0,16
cadmium	ES0008R	ng/m3							0,03					0,06	0,04
only PM10 fraction	ES0008R	ng/m3	0,04	0,14	0,33	0,08	0,26	0,10	0,07	0,03	0,04	0,05	0,11	0,04	0,11
chromium	ES0008R	ng/m3							0,92					0,78	0,85
copper	ES0008R	ng/m3							26,62					18,01	22,32
only PM10 fraction	ES0008R	ng/m3	13,88	7,43	39,53	3,70	21,80	26,95	38,43	21,30	13,40	18,33	26,40	18,53	20,81
lead	ES0008R	ng/m3							2,06					6,04	4,05
only PM10 fraction	ES0008R	ng/m3	1,10	6,47	11,14	4,72	18,52	9,18	3,36	2,56	3,55	1,39	26,03	3,90	7,66
mercury	ES0008R	ng/m3	*insufficient reported for calculation of any single monthly average*												
nickel	ES0008R	ng/m3							1,05					1,54	1,30
zinc	ES0008R	ng/m3							47,02					13,36	30,19
anthracene	ES0008R	ng/m3												0,00	0,00
benzo(a)anthracene	ES0008R	ng/m3												0,08	0,08
benzo(a)pyrene	ES0008R	ng/m3												0,05	0,05
benzo(ghi)perylene	ES0008R	ng/m3												0,04	0,04
chrysene	ES0008R	ng/m3												0,06	0,06
flouranthene	ES0008R	ng/m3												0,08	0,08
indeno(1,2,3-cd)pyrene	ES0008R	ng/m3												0,04	0,04
phenanthrene	ES0008R	ng/m3												0,05	0,05
pyrene	ES0008R	ng/m3												0,10	0,10
PCB_118		pg/m3		*not reported*											
PCB_138		pg/m3		*not reported*											
PCB_153		pg/m3		*not reported*											
PCB_180		pg/m3		*not reported*											
PCB_28		pg/m3		*not reported*											
PCB_52		pg/m3		*not reported*											
γ-HCH		ng/m3		*not reported*											

SWEDEN

SWEDEN precipitation — **Components in precipitation**

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	SE0014R	mg/l	0,40	0,24	0,61	0,68	0,62	0,57	0,35	0,78	0,46	0,23	0,22	0,45	0,46
	SE0098R	mg/l	0,40	0,32	0,63			0,30	0,18	0,35	0,39	0,18	0,27	0,53	0,36
nitrate	SE0014R	mg/l	0,82	0,54	0,58	0,55	0,43	0,32	0,30	0,36	0,39	0,34	0,37	0,56	0,44
	SE0098R	mg/l	0,52	0,51	0,60			0,38	0,25	0,31	0,42	0,23	0,44	0,61	0,42
precipitation	SE0014R	mm	71,3	22,9	43	20,7	68,5	52,8	90,1	82,9	67,4	77,1	80,6	49,3	726,6
	SE0098R	mm	128,0	46,0	106,0			92,0	98,0	121,0	150,0	126,0	106,0	121,0	1094,0
arsenic	SE0097R	µg/l	0,11	0,18	0,18	0,13		0,03	0,03	0,03	0,03		0,03	0,14	0,08
cadmium	SE0097R	µg/l	0,06	0,02	0,04	0,05		0,01	0,02	0,02	0,01		0,03	0,04	0,03
chromium	SE0097R	µg/l	0,05	0,15	0,03	0,14		0,14	0,48	0,15	0,03		0,16	0,18	0,14
copper	SE0097R	µg/l	0,76	0,32	0,36	0,90		0,85	0,48	0,35	0,42		0,45	0,71	0,57
lead	SE0097R	µg/l	1,10	0,74	1,45	1,03		0,53	0,54	0,34	0,89		0,82	1,48	0,91
mercury	SE0014R	ng/l	9,10	21,40	9,10	46,00	37,00	19,30	11,30		9,00	5,40	7,50	11,10	14,65
nickel	SE0097R	µg/l	0,32	0,49	0,21	0,27		0,39	0,37	0,22	0,20		0,31	0,46	0,32
zinc	SE0097R	µg/l	5,69	3,64	3,58	6,61		4,20	3,09	3,43	3,24		3,24	5,75	4,33
precipitation	SE0097R	mm	264,0	47,0	69,0	38,0		79,0	111,0	127,0	144,0		96,0	116,0	1091,0
precipitation Hg	SE0014R	mm	48,4	3,4	28,1	13,9	58,8	100,6	71		72,3	72,2	55,6	29,6	553,9
γ-HCH	SE0014R	ng/m^2/day			0,73	0,80	1,50	0,55	0,96	0,74	0,95	1,00	0,77	0,23	0,82
	wet plus dry deposition														
voluntary															
PCB_101	SE0014R	ng/m^2/day		0,05	0,11	0,10	0,17	0,11	0,07	0,10	0,09	0,07	0,11	0,06	0,09
PCB_118	SE0014R	ng/m^2/day		0,03	0,08	0,10	0,24	0,10	0,05	0,07	0,07	0,08	0,09	0,05	0,09
PCB_138	SE0014R	ng/m^2/day		0,09	0,27	0,35	0,77	0,40	0,24	0,36	0,28	0,31	0,48	0,31	0,35
PCB_153	SE0014R	ng/m^2/day		0,12	0,24	0,30	0,67	0,40	0,24	0,34	0,32	0,28	0,51	0,22	0,33
PCB_180	SE0014R	ng/m^2/day		0,05	0,18	0,27	0,39	0,30	0,17	0,26	0,19	0,22	0,28	0,13	0,22
PCB_28	SE0014R	ng/m^2/day		0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
PCB_52	SE0014R	ng/m^2/day		0,08	0,16	0,11	0,12	0,17	0,08	0,09	0,03	0,18	0,41	0,23	0,15
anthracene	SE0014R	ng/m^2/day		0,00	1,00	1,00	1,00	0,00	0,00	0,07	1,00	1,00	1,00	1,00	0,65
benzo(a)anthracene	SE0014R	ng/m^2/day		1,00	3,00	3,33	5,00	1,20	2,61	1,07	2,00		7,93	7,00	3,42
benzo(a)pyrene	SE0014R	ng/m^2/day		2,00	5,00	5,50	8,00	2,30	4,42	2,07	3,40	6,00	8,67	7,00	4,97
benzo(ghi)perylene	SE0014R	ng/m^2/day		3,00	7,19	9,00	9,00	3,20	4,61	3,00	3,53	7,00	10,73	11,00	6,51
flouranthene	SE0014R	ng/m^2/day		13,00	23,52	19,50	22,00	6,60	11,23	8,13	12,27	27,00	37,93	35,00	19,72
indeno(1,2,3-cd)pyrene	SE0014R	ng/m^2/day		2,00	5,00	5,17	6,00	2,20	3,61	2,00	2,67	7,00	12,53	12,00	5,50
phenanthrene	SE0014R	ng/m^2/day		15,00	20,23	13,33	15,00	5,30	8,39	10,19	14,07	21,00	29,87	24,00	16,05
pyrene	SE0014R	ng/m^2/day		7,00	13,90	13,50	16,00	4,50	8,23	5,07	7,73	19,00	27,07	23,00	13,24
chrysene*		ng/l		*not reported*											
Extra reported non-CAMP components															
cobalt	SE0097R	µg/l	0,01	0,02	0,02	0,03	0,07	0,02	0,02	0,02	0,00		0,01	0,01	0,01
manganese	SE0097R	µg/l	0,70	1,06	0,91	1,99		1,40	1,00	1,38	1,05	1,00	2,38	1,20	1,18
vanadium	SE0097R	µg/l	0,83	1,16	0,77	0,45	0,40	0,47	0,22	0,22	0,62	0,39	0,86	1,50	0,71
precipitation	SE0097R	mm	264,00	47,00	69,00	38,00		79,00	111,00	127,00	144,00		96,00	116,00	1091,00
α-HCH	SE0014R	ng/m^2/day			0,23	0,29	0,53	0,28	0,42	0,27	0,46	0,34	0,42	0,17	0,34
chrysene + triphenalyene	SE0014R	ng/m^2/day		5,00	9,81	8,83	13,00	3,30	5,42	3,13	7,13	21,00	21,07	22,00	10,94

** chrysene is not reported seperately, but in combination with triphenalyene*

Sweden airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	SE0014R	µg/m³	2,00	2,01	1,58	1,46	1,04	1,08	0,85	0,95	1,20	1,08	1,85	2,30	1,45
$HNO_3 + NO_3$	SE0014R	µg/m³	0,56	0,51	0,64	0,59	0,51	0,55	0,30	0,37	0,58	0,23	0,39		0,48
NH_3 + NH4	SE0014R	µg/m³	0,77	0,56	0,99	1,11	0,91	0,61	0,50	0,63	0,53	0,39	0,43	0,53	0,66
NO_3		µg/m³		*not reported*											
NH_3		µg/m³		*not reported*											
voluntary															
mercury *(aerosol)*	SE0014R	pg/m3	13,90	15,86	19,45	17,46	14,23	13,12	8,71	8,55	9,32	11,20	13,33	9,44	12,88
mercury *(air+aerosol)*	SE0014R	ng/m3	1,73	1,77	1,64	1,53	1,84	1,68	1,64	1,68	1,40	1,44	1,49	1,56	1,62
γ-HCH	SE0014R	ng/m3	3,00	3,00	2,00	10,00	5,00	7,00	10,00	9,00	9,00	8,00	3,00	4,00	6,08
NO		µg/m³		*not reported*											
arsenic		ng/m3		*not reported*											
cadmium		ng/m3		*not reported*											
chromium		ng/m3		*not reported*											
copper		ng/m3		*not reported*											
lead		ng/m3		*not reported*											
nickel		ng/m3		*not reported*											
zinc		ng/m3		*not reported*											
PCB_101		pg/m3	1,13	1,04	1,12	1,95	2,56	2,11	3,72	5,27	3,40	1,90	1,33	1,19	2,23
PCB_118		pg/m3	0,37	0,38	0,39	0,61	0,84	0,75	1,25	1,77	1,10	0,66	0,41	0,36	0,74
PCB_138		pg/m3	0,85	0,78	0,74	1,39	1,96	1,48	3,01	4,43	2,08	1,45	0,90	0,73	1,65
PCB_153		pg/m3	0,93	0,90	0,84	1,53	2,15	1,64	3,36	4,75	2,36	1,60	1,00	0,86	1,83
PCB_180		pg/m3	0,41	0,35	0,29	0,57	0,73	0,46	1,07	1,67	0,67	0,53	0,39	0,24	0,62
PCB_28		pg/m3	1,27	1,03	1,18	1,97	1,85	1,33	1,72	1,95	2,16	1,75	1,29	1,34	1,57
PCB_52		pg/m3	1,26	1,11	1,28	1,95	2,23	1,86	2,34	3,49	3,36	1,70	1,00	1,50	1,92
anthracene		ng/m3	0,06	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,03	0,04	0,03	0,02
benzo(a)anthracene		ng/m3	0,22	0,10	0,05	0,04	0,07	0,02	0,03	0,01	0,01	0,07	0,07	0,05	0,06
benzo(a)pyrene		ng/m3	0,28	0,13	0,07	0,06	0,05	0,03	0,02	0,01	0,01	0,10	0,07	0,05	0,07
benzo(ghi)perylene		ng/m3	0,27	0,14	0,08	0,06	0,02	0,01	0,01	0,01	0,01	0,14	0,11	0,08	0,08
flouranthene		ng/m3	1,35	0,79	0,45	0,37	0,15	0,09	0,11	0,10	0,10	0,60	0,59	0,61	0,44
indeno(1,2,3-cd)pyrene		ng/m3	0,25	0,14	0,07	0,06	0,03	0,01	0,01	0,01	0,01	0,13	0,08	0,07	0,07
phenanthrene		ng/m3	2,66	1,69	0,99	0,89	0,51	0,34	0,47	0,46	0,36	1,40	1,75	1,81	1,11
pyrene		ng/m3	0,95	0,51	0,30	0,24	0,08	0,05	0,05	0,05	0,05	0,37	0,48	0,47	0,30
chrysene*		ng/m3		*not reported*											
Extra reported non-CAMP components															
chrysene + triphenylene		ng/m3	0,46	0,24	0,14	0,11	0,11	0,07	0,06	0,02	0,02	0,17	0,18	0,16	0,14
α-HCH		ng/m3	4,30	5,24	5,13	6,87	12,90	9,03	9,07	10,26	9,79	10,00	7,47	6,39	8,04
benzo(b)fluoranthene		ng/m3	0,35	0,20	0,12	0,10	0,03	0,01	0,01	0,01	0,02	0,17	0,14	0,11	0,11
benzo(k)fluoranthene		ng/m3	0,35	0,20	0,12	0,10	0,03	0,01	0,01	0,01	0,02	0,17	0,14	0,11	0,11
pp DDD		ng/m3	0,45	0,34	0,27	0,42	0,23	0,15	0,17	0,11	0,13	0,60	0,17	0,07	0,26
pp DDE		ng/m3	2,16	1,55	1,95	3,03	2,72	1,26	1,48	2,36	2,64	3,85	2,83	1,77	2,30
pp DDT		ng/m3	0,68	0,56	0,59	1,30	1,03	0,75	1,04	1,35	1,20	1,20	0,68	0,35	0,89

** chrysene is not reported seperately, but in combination with triphenalyene*

UNITED KINGDOM

UK - Precipitation

Components in precipitation

Mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
ammonium	GB0006R	mg/l	0,03	0,08	0,29	0,12	0,08	0,22	0,08	0,19	0,05	0,04	0,08	0,64	0,17
	GB0013R	mg/l	0,09	0,08	0,43	0,59	0,52	0,29	0,24	9,56		0,23	0,40	0,50	1,75
	GB0014R	mg/l	0,25	0,26	0,60	0,76	1,48	0,30	0,35	0,65	0,77	0,32	0,48	0,65	0,51
	GB0016R	mg/l	2,04	0,12	0,96	0,30	0,12	0,42	0,11	0,43	0,24	0,31	0,12	0,16	0,45
nitrate	GB0006R	mg/l	0,06	0,06	0,23	0,09	0,12	0,14	0,08	0,20	0,04	0,36	0,06	0,04	0,10
	GB0013R	mg/l	0,04	0,20	0,39	0,44	0,54	0,31	0,39	0,16	0,13	0,27	0,29	0,10	0,26
	GB0014R	mg/l	0,30	0,26	0,45	0,64	1,32	0,35	0,35	0,51	0,54	0,40	0,38	0,36	0,44
	GB0016R	mg/l	4,96	0,16	0,87	0,33	0,43	0,28	0,16	0,43	0,32	0,56	0,22	0,19	0,59
precipitation	GB0006R	mm	171,5	32,9	133,9	110,4	70	127,5	128,7	70,8	178,2	24,2	96	156,5	108,38
	GB0013R	mm	47,4	106,5	105,1	44,8	65,5	58,1	60,1	150,3	41,7	185,4	14,8	74,3	79,50
	GB0014R	mm	80	53	103,6	85,8	10,3	45,3	54,2	150,8	39,5	114,5	37,9	24,6	66,63
	GB0016R	mm	29,2	12,1	116,4	108,9	33,5	66,7	60,4	178,2	68,9	71,6	49,8	20,7	68,03
arsenic	GB0006R	µg/l	0,18	0,20		0,29	0,20	0,72		0,19		0,20		0,11	0,24
	GB0013R	µg/l	0,05	0,17	0,20	0,12	0,15	0,08	0,13	0,07	0,07	0,08	0,15	0,03	0,09
	GB0017R	µg/l	0,13								0,18	0,12	0,18		0,14
cadmium	GB0006R	µg/l	0,01	0,00		0,01	0,01	0,01		0,04		0,01		0,00	0,01
	GB0013R	µg/l	0,01	0,02	0,58	0,19	0,03	0,01	0,03	0,00	0,01	0,01	0,02	0,00	0,08
	GB0017R	µg/l	0,05								0,02	0,03	0,03		0,04
	GB0091R	µg/l	0,02	0,01	0,07	0,03	0,03	0,01	0,01	0,03	0,02	0,03	0,01	0,00	0,03
chromium	GB0006R	µg/l	0,12	0,16		0,02	0,19	0,16		0,07		0,07		0,08	0,11
	GB0013R	µg/l	0,12	0,21	0,09	0,05	0,11	0,08	0,09	0,05	0,05	0,04	0,10	0,02	0,07
	GB0017R	µg/l	0,08								0,15	0,06	0,09		0,08
	GB0091R	µg/l	0,81	0,22	0,12	0,05	0,14	0,06	0,11	0,10	0,25	0,06	0,13	0,24	0,10
copper	GB0006R	µg/l	0,46	0,15		0,39	0,29	0,53		0,81		0,49		0,15	0,43
	GB0013R	µg/l	0,20	0,74	0,47	2,24	0,69	0,37	1,39	0,34	0,32	0,30	0,56	0,10	0,50
	GB0017R	µg/l	1,15								1,31	1,00	0,90		1,12
	GB0091R	µg/l	1,62	0,42	0,92	0,40	0,76	0,26	0,44	0,57	22,01	0,43	0,21	0,40	1,20
lead	GB0006R	µg/l	0,16	0,03		0,23	0,32	1,20		0,39		0,26		0,08	0,29
	GB0013R	µg/l	0,31	1,45	1,49	0,81	1,71	0,66	1,60	0,21	0,29	0,49	0,52	0,10	0,66
	GB0017R	µg/l	1,63								1,40	1,30	1,70		1,59
	GB0091R	µg/l	0,99	0,28	2,27	1,01	1,02	1,16	0,61	1,24	2,97	0,99	0,31	0,11	1,11
nickel	GB0006R	µg/l	0,06	0,06		0,05	0,06	0,09		0,12		0,06		0,02	0,06
	GB0013R	µg/l	0,18	0,73	0,24	0,23	0,27	0,30	0,58	0,21	0,22	0,23	0,31	0,06	0,24
	GB0017R	µg/l	0,27								0,34	0,22	0,31		0,27
	GB0091R	µg/l	0,29	0,50	0,30	0,18	1,50	0,12	0,77	0,35	2,00	0,16	0,12	0,06	0,38
zinc	GB0006R	µg/l	2,60	2,33		1,62	2,07	1,04		6,48		2,50		1,50	2,43
	GB0013R	µg/l	3,48	5,80	7,42	11,00	5,92	3,40	7,72	2,38	1,29	2,38	11,18	12,01	5,11
	GB0017R	µg/l	5,84								8,34	6,00	6,30		5,99
	GB0091R	µg/l	17,05	4,45	9,33	4,31	5,57	4,88	3,76	4,72	8,71	4,85	10,59	5,31	5,68
precipitation	GB0006R	mm	803,7	68,6		90,4	89,7	179,6		96,6		129,3		183,4	1641,3
	GB0013R	mm	259,2	41,3	128,5	84,7	82,2	25,0	41,2	162,2	41,6	278,5	33,7	90,1	1268,2
	GB0017R	mm	597,4								31,2	71,8	51,5		751,7
	GB0091R	mm	3,2	5,1	50,5	121,1	50,9	94,5	36,5	145,8	26,4	166,1	62,7	18	780,8
mercury		ng/l	*not reported*												
γ-HCH		ng/l	*not reported*												

voluntary		
PCB_101	ng/l	*not reported*
PCB_118	ng/l	*not reported*
PCB_138	ng/l	*not reported*
PCB_153	ng/l	*not reported*
PCB_180	ng/l	*not reported*
PCB_28	ng/l	*not reported*
PCB_52	ng/l	*not reported*
anthracene	ng/l	*not reported*
benzo(a)anthracene	ng/l	*not reported*
benzo(a)pyrene	ng/l	*not reported*
benzo(ghi)perylene	ng/l	*not reported*
chrysene	ng/l	*not reported*
flouranthene	ng/l	*not reported*
indeno(1,2,3-cd)pyrene	ng/l	*not reported*
phenanthrene	ng/l	*not reported*

UK airborne

Airborne components

mandatory			january	february	march	april	may	june	july	august	september	october	november	december	mean
NO_2	GB0006R	µg/m³	0,72	0,83	1,05	0,94	0,29	0,23	0,02	0,18	0,57	0,89	0,47	0,78	0,58
	GB0013R	µg/m³	5,31	9,73	10,29	6,48	7,84	6,14	4,20	4,77	8,19	8,18	8,59	11,71	7,62
	GB0014R	µg/m³	10,34	9,91	7,89	8,02	0,00	0,00	7,22	1,63	1,56	7,70	11,18	14,92	6,70
	GB0016R	µg/m³	0,48	0,43	0,96	0,37	0,50	0,14	0,32	0,02	0,54	0,87	0,62	1,73	0,58
NO_3	GB0006R	µg/m³	0,02	0,04	0,12	0,01	0,05	0,03	0,02	0,09	0,04	0,04	0,03	0,04	0,04
	GB0013R	µg/m³	0,05	0,18	0,14	0,11	0,13	0,08	0,04	0,07	0,09	0,07	0,08	0,14	0,10
	GB0014R	µg/m³	0,05	0,10	0,17	0,20	0,10	0,08	0,06	0,15	0,09	0,11	0,09	0,15	0,11
	GB0016R	µg/m³	0,11	0,12	0,27	0,37	0,18	0,22	0,20	0,43	0,08	0,29	0,09	0,19	0,21
HNO_3	GB0006R	µg/m³	0,00	0,03	0,07	0,02	0,05	0,03	0,02	0,07	0,04	0,04	0,02	0,04	0,04
	GB0013R	µg/m³	0,07	0,18	0,13	0,08	0,24	0,17	0,09	0,00	0,16	0,09	0,10	0,22	0,13
	GB0014R	µg/m³	0,17	0,12	0,18	0,20	0,11	0,10	0,11	0,29	0,14	0,20	0,17	0,31	0,18
NH_3	GB0006R	µg/m³	0,12	0,24	0,46	0,17	0,49	0,57	0,34	0,65	0,40	0,24	0,17	0,20	0,34
	GB0013R	µg/m³	0,18	0,52	0,42	0,50	0,60	0,56	0,36	0,45	0,45	0,23	0,28	0,18	0,39
	GB0014R	µg/m³	0,28	0,35	0,51	0,82	0,50	0,71	0,50	0,77	0,72	0,39	0,41	0,43	0,53
	GB0016R	µg/m³	0,12	0,20	0,21	0,32	0,25	0,08	0,28	0,36	0,12	0,19	0,14	0,29	0,21
NH_4	GB0006R	µg/m³	0,13	0,31	0,92	0,16	0,49	0,25	0,18	0,35	0,27	0,28	0,21	0,35	0,33
	GB0013R	µg/m³	0,26	1,20	1,00	0,94	1,34	0,48	0,43	0,55	0,49	0,40	0,55	0,99	0,72
	GB0014R	µg/m³	0,64	0,73	1,19	1,61	0,82	0,47	0,58	1,21	0,50	0,67	0,68	1,02	0,84
	GB0016R	µg/m³	0,19	0,21	0,45	0,68	0,42	0,31	0,39	0,87	0,11	0,23	0,15	0,22	0,35
voluntary															
NO	GB0014R	ng/m3	1,26	1,61	1,70	1,12	0,00	0,00	1,16	0,30	0,27	1,02	3,00	4,86	1,36
arsenic	GB0013R	ng/m3	0,38	1,02	0,82	0,58	0,69	0,28	0,36	0,35	0,56	0,50	0,49	0,74	0,56
	GB0017R	ng/m3				0,91	0,53				0,51	0,62	1,69		0,85
	GB0091R	ng/m3	0,07	0,37	0,38	0,20	0,25	0,12	0,17	0,28				0,34	0,24
cadmium	GB0013R	ng/m3	0,03	0,06	0,14	0,08	0,09	0,03	0,17	0,03	0,03	0,07	0,05	0,12	0,07
	GB0017R	ng/m3				0,36	0,11				0,09	0,16	0,41		0,22
	GB0091R	ng/m3	0,01	0,03	0,06	0,04	0,03	0,08	0,04	0,07				0,07	0,05
chromium	GB0013R	ng/m3	0,76	1,26	0,80	1,16	1,21	1,25	1,55	1,25	0,91	1,39	1,25	1,72	1,21
	GB0017R	ng/m3				1,66	1,45				1,39	1,58	2,34		1,68
	GB0091R	ng/m3	0,17	1,11	1,00	0,95	1,23	0,98	0,96	0,71				1,35	0,94
copper	GB0013R	ng/m3	0,48	2,39	1,33	1,54	3,00	5,13	1,22	1,16	1,69	1,81	1,36	2,55	1,97
	GB0017R	ng/m3				6,84	1,83				2,77	2,81	6,65		4,18
	GB0091R	ng/m3	0,07	0,55	1,10	1,02	2,07	0,47	0,72	2,52				2,58	1,23
lead	GB0013R	ng/m3	2,30	8,56	5,10	4,70	8,27	2,37	3,17	2,17	1,87	3,95	4,47	5,75	4,39
	GB0017R	ng/m3				13,86	7,02				5,82	7,72	26,74		12,23
	GB0091R	ng/m3	0,34	3,26	2,99	2,08	2,42	2,64	1,38	2,46				3,09	2,30
mercury	GB0017R	ng/m3					1,67	1,41	1,63	1,56		1,96			1,65
	GB0091R	ng/m3								1,32	1,35	0,41	0,00	1,49	0,91
nickel	GB0013R	ng/m3	1,23	1,46	0,93	1,59	1,56	2,08	1,47	2,66	0,57	1,78	0,66	2,36	1,53
	GB0017R	ng/m3				5,53	1,94				2,02	1,49	2,21		2,64
	GB0091R	ng/m3	0,05	0,80	0,50	0,96	0,62	0,32	0,99	0,83				1,70	0,75
zinc	GB0013R	ng/m3	16,33	24,62	16,40	13,16	30,58	6,67	8,27	5,70	9,80	13,13	9,68	14,78	14,09
	GB0017R	ng/m3				42,55	11,05				23,87	16,97	38,55		26,60
	GB0091R	ng/m3	2,87	16,48	25,10	9,20	22,94	8,68	4,73	7,79				7,90	11,74
PCB_28	GB0014R	pg/m3	12,64												12,64
PCB_52	GB0014R	pg/m3	7,45												7,45
PCB_101	GB0014R	pg/m3	1,42												1,42
PCB_118	GB0014R	pg/m3	0,95												0,95
PCB_138	GB0014R	pg/m3	1,13												1,13
PCB_153	GB0014R	pg/m3	1,20												1,20
PCB_180	GB0014R	pg/m3	0,25												0,25
anthracene	GB0014R	ng/m3	0,13												0,13
benzo(a)anthracene	GB0014R	ng/m3	0,03												0,03
benzo(a)pyrene	GB0014R	ng/m3	0,02												0,02
benzo(ghi)perylene	GB0014R	ng/m3	0,03												0,03
chrysene	GB0014R	ng/m3	0,05												0,05
fluoranthene	GB0014R	ng/m3	0,54												0,54
indeno(1,2,3-cd)pyrene	GB0014R	ng/m3	0,02												0,02
phenanthrene	GB0014R	ng/m3	3,15												3,15

Norwegian Institute for Air Research (NILU)
P.O. Box 100, N-2027 Kjeller, Norway

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Pollutant deposits and
air quality around the North Sea and
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PROJECT LEADER

Kevin Barrett

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AUTHOR(S)

Kevin Barrett
Centre for Ecological Economics

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Alan Simcock, Chairman

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ABSTRACT
Report of the observations of airborne pollutants around the OSPAR coastlines, 2004. Displays theestimated deposition of nutrient, heavy metal and organic pollutants around the coast, together with estimates of the total load to the North Sea of pollutants from the atmosphere. There is indication of decline in pollutant loads.

NORWEGIAN TITLE

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