OSPAR COMMISSION

Comprehensive Atmospheric Monitoring Programme

Deposition of air pollutants around the North Sea and the North-East Atlantic in 2008

Monitoring and Assessment Series

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OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Community and Spain.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, la Finlande, la France, l’Irlande, l’Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d’Irlande du Nord, la Suède et la Suisse et approuvée par la Communauté européenne et l’Espagne.

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Contents

Executive summary

This report presents the results of monitoring undertaken by OSPAR Contracting Parties for the Comprehensive Atmospheric Monitoring Programme (CAMP) during 2008. Under the CAMP, OSPAR Contracting Parties are committed to monitoring, 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 also encourages OSPAR Contracting Parties to monitor, on a voluntary basis, additional compounds (such as certain persistent organic pollutants). The report gives detailed information on observed atmospheric inputs of selected contaminants to the OSPAR maritime area and its regions during 2008.

No changes in the CAMP network were reported for 2008, meaning that 33% of the stations do not strictly meet the requirements of the CAMP Principles (e.g. distance from the coast) and that with 60% of all CAMP stations the North Sea remains the most intensely observed sub-region. Sub-regional coasts which appear most underrepresented would appear to be the Irish Sea, the Bay of Biscay, and the far north-east.

Reporting has marginally improved once again in 2008, such that the trend towards more complete and more timely reporting remains positive. However, changes in reporting are very small and it may be more realistic to suggest that a plateau has been reached, with certain elements regularly going unreported. As before, the programme for observation of airborne concentrations of pollutants is least observed, whilst of the programme for pollutants in precipitation, lindane and mercury receive least attention.

An overview of temporal changes in concentrations of lead, cadmium, mercury and PCBs in precipitation show all downward tendencies. The pattern is most clear in lead, followed by cadmium. Lack of reporting stations hinders such clear statements with respect to mercury, although a decline in concentrations in precipitation does seem to occur. Monitoring results show especially for the Nordic countries high concentrations of mercury and underline the importance of continued monitoring in that sub-region. Data on PCBs is very limited, and as in previous years has been somewhat variable. The PCB data which is collected by OSPAR does suggest that around the North Sea deposited concentrations are now approaching similar levels.

Récapitulatif

Ce rapport présente les résultats de la surveillance continue mise en œuvre par les parties contractantes à OSPAR dans le cadre du Programme exhaustif de surveillance continue de l'atmosphère (CAMP) en 2008. Aux termes du programme CAMP, les parties contractantes à OSPAR s'engagent à mettre en œuvre une surveillance continue obligatoire des concentrations d'un ensemble de métaux lourds, de composés organiques et de nutriments dans les précipitations et dans l'atmosphère, ainsi que de leurs dépôts. Le programme CAMP encourage aussi les parties contractantes à OSPAR à pratiquer une surveillance continue, sur la base du volontariat, de composés supplémentaires (tels que certains polluants organiques persistants). Le rapport présente des informations détaillées sur les apports atmosphériques observés de certains contaminants dans la zone maritime OSPAR et dans ses régions en 2008.

Aucun changement du réseau CAMP n'a été notifié pour 2008. Ceci signifie que 33% des stations ne satisfont pas exactement les exigences des Principes du CAMP (par exemple distance par rapport à la ligne côtière) et que, avec 60% des stations CAMP, la mer du Nord continue à être la sous-région la

plus intensément observée. Il semblerait que les côtes sous-régionales paraissant les plus sous-représentées sont celles de la mer d'Irlande, du golfe de Gascogne et de l'extrême Nord-Est.

La notification s'est légèrement améliorée à nouveau en 2008, la tendance dans le sens d'une notification plus complète et plus ponctuelle reste donc positive. Les modifications que présente la notification sont cependant très faibles et il serait plus réaliste de suggérer qu'on est parvenu à un plateau, certains éléments étant régulièrement omis de la notification. De même qu'auparavant, le programme d'observation des teneurs aéroportées en polluant est moins suivi alors que le programme portant sur les polluants dans les précipitations, le lindane et le mercure fait l'objet de très peu d'attention.

Une vue d'ensemble des modifications temporelles des teneurs en plomb, mercure et PCB dans les précipitations révèle toutes les tendances à la baisse. Cette tendance est la plus claire pour le plomb, suivi du cadmium. Le manque de stations de notification ne permet pas des déductions claires pour le mercure, bien qu'il semble que les teneurs dans les précipitations soient en déclin. Les résultats de la surveillance montre en particulier pour les pays nordiques des teneurs élevées en mercure et soulignent l'importante d'une surveillance continuelle dans cette sous-région. Les données sur les PCB sont très limitées et, de même que pour les années précédentes, quelque peu variables. Les données sur les PCB, recueillies par OSPAR, suggèrent que les teneurs en mer du Nord approchent maintenant des niveaux similaires.

Deposition of air pollutants around the North Sea and North-East Atlantic in 2008

1 Introduction

This report collates and describes the observations from coastal monitoring stations across the OSPAR region (see Figure 1.1) under the Comprehensive Atmospheric Monitoring Programme (CAMP), this forming one element within the wider Joint Assessment and Monitoring Programme of OSPAR. The CAMP aims 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 through monitoring the concentrations of selected contaminants in precipitation and air, and determining their deposition. The monitoring regime employed is set out in the CAMP Principles (OSPAR reference number: 2001-7), describing the relevant substances, sampling approach, locations and frequency, and assessment methodologies.

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

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 around the North Sea and the North-East Atlantic in 2008” gives in chapter 2 an overview of reported data and the implementation of the CAMP Principles in 2008. The overview includes the geographical coverage, the coverage by each Party of contaminants from the Mandatory and Voluntary lists, the timeliness of data submission, and the reporting of additional components. In chapter 3, the 2008 observed annual depositions of components subject to mandatory monitoring are mapped. Chapter 4 provides overviews of temporal patterns in the observations of lead, cadmium, mercury and PCBs in recent years. Chapter 5 summarises the main points on the reported CAMP data for 2008. The data submitted by Contracting Parties as monthly values are appended to this report (cf. Annex); reported individual values which are insufficient to calculate monthly averages are not taken into account.

2 The OSPAR CAMP Monitoring Programme in 2008

2.1 Geographical coverage

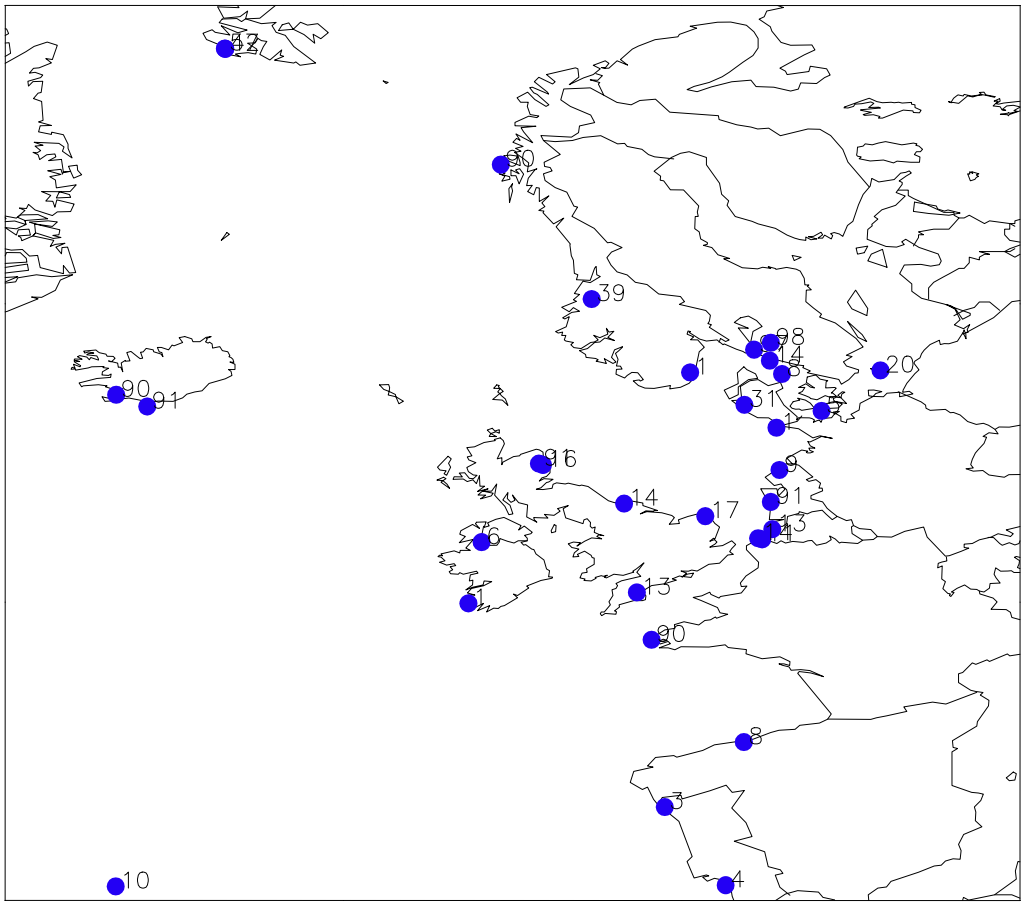

Figure 2.1: Monitoring sites reporting to OSPAR in 2008. Station numbers are the station numbers listed in table 2.1 without the country letters

The reporting network during 2008 did not change, although there were some changes in which components were observed at each station. Despite the mandatory label applied to the first column of components in table 1.1, not all stations did report data for all components, as commented in section 2.2. Table 2.1 details the locations of monitoring stations, and indicates the broad nature of monitoring undertaken: observation of the deposition of pollutants in precipitation (p), and/or monitoring of ambient air quality (a).

Table 2.1: Stations reporting to OSPAR in 2008

Country	Station number	Station name	OSPAR Region	Lat.	Long.	Elev. (m)	Distance to sea (km)	Precip.(p) airborne(a)
Iceland	IS0090R	Irafoss	I	64°08' N	21°54' W	52	1	p
	IS0091R	Storhofdi	I	63°24' N	20°17' W	118	0.5	pa
Norway	NO0057R	Ny-Ålesund	I	78°55' N	11°55' E	8	0.3	p
	NO0042R	Zepellinfjell	I	78°54' N	11°53' E	474	2	a
	NO0039R	Kårvatn	I	62°47' N	8°53' E	210	70	pa
	NO0001R	Birkenes	II	58°23' N	8°15' E	190	20	pa
Belgium	BE0011R	Moerkerke	II	51°15' N	3°21' E	10	12	a
	BE0013R	Houtem	II	51°01' N	2°35' E	0	9	a
	BE0014R	Koksijde	II	51°7' N	2°30' E	7	1.5	pa
Netherlands	NL0009R	Kollumerwaard	II	53°20' N	6°17' E	1	7.5	pa
	NL0091R	De Zilk	II	52°18' N	4°31' E	4	2.5	pa
Germany	DE0001R	Westerland	II	54°56' N	8°19' E	12	0.09	pa
Denmark	DK0005R	Keldsnor	II	54°44' N	10°44' E	10		p
	DK0008R	Anholt	II	56°43' N	11°31' E	40	~0.5	pa
	DK0020R	Pedersker	II	55°01' N	14°57' E	5		p
	DK0031R	Ulborg	II	56°17' N	8°26' E	40	20	pa
Sweden	SE0014R	Råö	II	57°24' N	11°55' E	10	0.1	pa
	SE0097R	Gårdsjön	II	58°03' N	12°01' E	113	12	p
United Kingdom	GB0013R	Yarner Wood	II	50°36' N	3°43 W	119	16.9	pa
	GB0014R	High Muffles	II	54°20' N	0°48' W	267	20.8	pa
	GB0016R	Glen Saugh	II					pa
	GB0091R	Banchory	II	57°05' N	2°32' W	120	23.6	pa
	GB0017R	Heigham Holmes	II	52°43' N	1°37' E	0	4.4	pa
	GB0006R	Lough Navar	III	54°26' N	7°54 W	130	18.8	pa
Ireland	IE0001R	Valentia Island	III	51°56' N	10°15' W	9	0	p
France	FR0090R	Porspoder	II/IV	48°30' N	4°46' W	30	0.5	p
Spain	ES0008R	Niembro	IV	43°26'N	4°51' W	115	~0.5	pa
Portugal	PT0003R	Viana do Castelo	IV	41°42' N	8°48' W	16	4	p
	PT0004R	Monte Velho	IV	38°05' N	8°48' W	43	1.5	p
	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) can provide ground truth data on atmospheric pollution of OSPAR waters in a coordinated and geographically appropriate manner. The Mandatory Programme for observation of pollutants in precipitation was fully achieved by Belgium, Germany, Norway and Sweden in 2008 (none had 100% implementation in 2007, and five in 2006). Although the Netherlands undertook monitoring of all components, sample loss in sampling and/or analysis reduced data delivery below 100%. The least reported mandatory contaminants in precipitation are mercury (8 reporting Parties, one more (Spain) than 2007) and lindane (6 reporting).

Implementation of the Mandatory Programme for airborne pollutants is varied. Seven Parties undertake the full programme, with Norway, Sweden, Denmark and UK achieving 100% data delivery. Conversely, France, Ireland and Portugal do not participate in the Mandatory Programme at all. As

has become customary, Norway delivered data for almost 80 components which CAMP have not listed for observation.

From the combined numbers of Contracting Parties and of pollutants, the percentage data delivery for the mandatory contaminant monitoring can be determined, based on the assumption that full completion of the programme would be represented by delivery of 12 monthly averages which pass quality control criteria for each of the listed components. The Mandatory Programme for components in precipitation, for example, contains 11 substances and that for airborne concentrations contains at least 3 substances, so that 14 x 12 month averages successfully meeting quality control criteria would be needed to achieve 100% delivery. Reported values which are insufficient to calculate monthly averages are not taken into account.

Table 2.2: Mandatory monitoring of contaminants in precipitation, 2008. Dots show observations

	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, 2008. Dots indicate observations

	NO2	NO3/HNO3	NHx
Belgium	•		
Denmark	•	•	•
France			
Germany	•	•	•
Iceland		•	
Ireland			
Netherlands	•	•	•
Norway	•	•	•
Portugal			
Spain	•	•	•
Sweden	•	•	•
United Kingdom	•	•	•

Fulfilment of the CAMP Programme expressed as a percentage is shown in table 2.4. Fulfilment of the combined precipitation plus airborne Mandatory Programmes was 82.5%, the highest in recent years (2007 75%; 2006 76.9%; 2005 79.0%). Fulfilment of the Voluntary Programme was 33.5%, which is lower than the 36.4% achieved in 2007, although still above previous levels (26.5% in 2006 and 27.8% in 2005).

Table 2.4:Percentage completion of the CAMP programme 2008

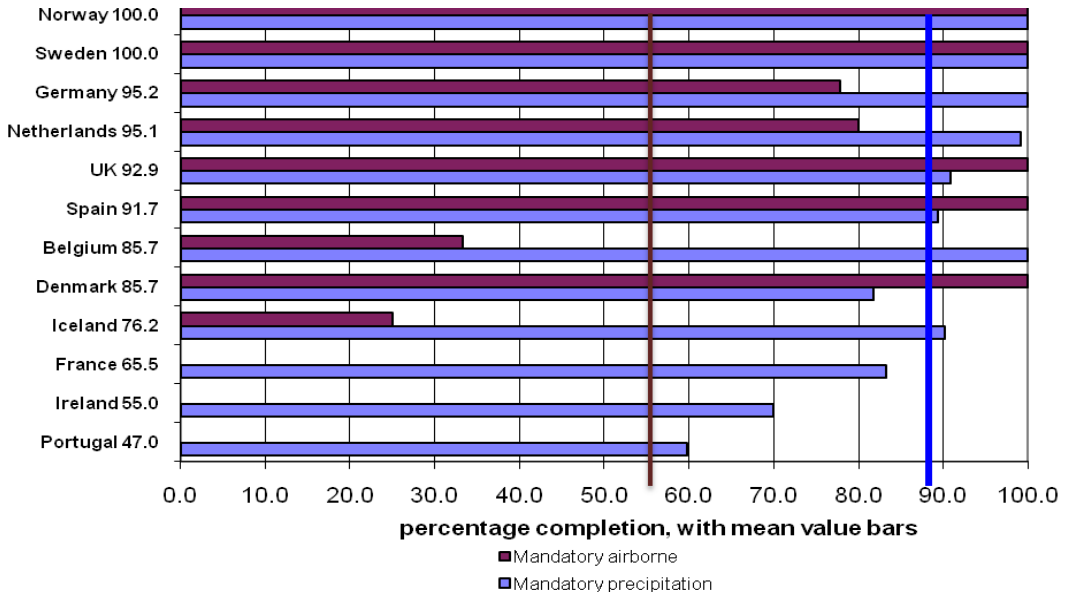

Figure 2.2: Completion of the Mandatory Programmes, 2008 (100% = 12 months x 14 values).

	Precipitation		Airborne		
	Mandatory	*Voluntary*	*Mandatory*	*Voluntary*	*no. Extra*
Belgium	100.0	0.0	33.3	34.6	*8*
Denmark	81.8	0.0	100.0	29.2	*11*
France	83.3	0.0	0.0	0.0	*0*
Germany	100.0	92.7	77.8	61.5	*27*
Iceland	90.2	43.8	25.0	61.5	*45*
Ireland	70.0	0.0	0.0	0.0	*3*
Netherlands	99.2	0.0	80.0	23.1	*0*
Norway	100.0	43.8	100.0	81.5	*78*
Portugal	59.8	0.0	0.0	0.0	*0*
Spain	89.4	0.0	100.0	56.4	*9*
Sweden	100.0	100.0	100.0	68.0	*8*
United Kingdom	90.9	0.0	100.0	60.6	0
mean	*88.7*	*23.4*	*59.7*	*39.7*	*16*

2.3 Timeliness of reporting

Initially, reporting of observation data for 2008 was slightly delayed, the process beginning with a delayed data request by NILU. However, for the first time in some years, all Parties reported data before the issuing of Quality Control data checks by NILU, and thus the process has been largely successful. The data check round has been slower, although for many Parties this is usually dictated by external factors.

Table 2.5: 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 2.6: Timeline of reporting of 2008 observations

30 June: Deadline for data request by NILU
Data requested issued 13 July
Belgium
France
Iceland
Ireland
Netherlands
Norway
Portugal
Spain
Sweden
September 30 - Deadline for receipt of data
Denmark
Germany
United Kingdom
January 22, 2008 - Reporting to INPUT by NILU
Febuary 2008 – INPUT, London

2.4 Reporting of additional components

Parties report a wider range of components than is covered by CAMP. Table 2.7 lists all components reported by Contracting Parties during 2008 excluding major ion data submitted for quality control. Components are grouped according to their Mandatory list, Voluntary list, or additional status.

Components in Precipitation		
Mandatory		
	ammonium	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	nitrate	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	arsenic	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO, ,SE
	cadmium	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	chomium	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO, ,SE
	copper	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	lead	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	mercury	BE,DE, ,ES, ,GB,IE, ,NL,NO, ,SE
	nickel	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	zinc	BE,DE,DK,ES,FR,GB,IE,IS,NL,NO,PT,SE
	g-HCH	BE,DE, , , , , ,IS,NL,NO, ,SE
Voluntary		
	anthracene	,DE, , , , , , , , , ,SE
	benzo(a)anthracene	,DE, , , , , , , , , ,SE
	benzo(a)pyrene	,DE, , , , , , , , , ,SE
	benzo(ghi)perylene	,DE, , , , , , , , , ,SE
	chrysene+triphenalyne	,DE, , , , , , , , , ,SE
	flouranthene	,DE, , , , , , , , , ,SE
	indeno(123cd)pyrene	,DE, , , , , , , , , ,SE
	phenanthrene	,DE, , , , , , , , , ,SE
	pyrene	,DE, , , , , , , , , ,SE
	PCB_28	,DE, , , , , ,IS, ,NO, ,SE
	PCB_52	,DE, , , , , ,IS, ,NO, ,SE
	PCB_101	,DE, , , , , ,IS, ,NO, ,SE
	PCB_118	,DE, , , , , ,IS, ,NO, ,SE
	PCB_138	,DE, , , , , ,IS, ,NO, ,SE
	PCB_153	,DE, , , , , ,IS, ,NO, ,SE
	PCB_180	,DE, , , , , ,IS, ,NO, ,SE
Additional		
	a-HCH	BE,DE, , , , , ,IS, ,NO, ,
	b-HCH	, , , , , , ,IS, , , ,
	aldrin	BE,DE, , , , , , , , , ,
	dieldrin	BE,DE, , , , , ,IS, , , ,
	endrin	BE,DE, , , , , , , , , ,
	HCB	,DE, , , , , ,IS, ,NO, ,
	heptachlor	BE,DE, , , , , , , , , ,
	op_DDD	,DE, , , , , , , , , ,
	op_DDE	,DE, , , , , , , , , ,
	op_DDT	,DE, , , , , ,IS, , , ,
	pp_DDD	BE,DE, , , , , ,IS, , , ,
	pp_DDE	BE,DE, , , , , ,IS, , , ,
	pp_DDT	BE,DE, , , , , ,IS, , , ,
	cis_CD	, , , , , , , ,IS, , , ,
	trans_CD	, , , , , , , ,IS, , , ,
	trans_NO	, , , , , , , ,IS, , , ,
	txph-26	, , , , , , , ,IS, , , ,
	txph-50	, , , , , , , ,IS, , , ,
	txph-62	, , , , , , , ,IS, , , ,
	PCB_31	, , , , , , , ,IS, , , ,
	PCB_105	, , , , , , , ,IS, , , ,
	PCB_156	, , , , , , , ,IS, , , ,
	benzo(b,j,k)flouranthene	,DE, , , , , , , , , ,
	benzo(b)fluoranthene	, , , , , , , , , , ,SE
	benzo(k)fluoranthene	, , , , , , , , , , ,SE
	dibenzo(ah)anthracene	,DE, , , , , , , , , ,
	aluminium	, , , , , , ,IE,IS, , , ,
	antimony	,DE, , , , , , , , , ,
	cobalt	,DE, , , , , , , , ,NO, ,
	iron	,DE, , , , , ,IS, , , ,
	manganese	,DE, , , , ,IE,IS, , , ,
	vanadium	,DE, , , , ,IE,IS, ,NO, ,

Mandatory		
	NO2	BE,DE,DK, ES, ,GB, , ,NL,NO, ,SE
	HNO3	,DE, , , ,GB, , , ,NO, ,
	HNO3+NO3	,DE,DK, ES, , , , , ,NO, ,SE
	NO3	,DE, , ES, ,GB, ,IS,NL,NO, ,
	NH3	,DE,DK, ES, ,GB, , ,NL,NO, ,
	NH3+NH4	,DE,DK, ES , , , , , ,NO, ,SE
	NH4	,DE,DK, , ,GB, , ,NL,NO, ,
Voluntary		
	NO	BE, ,DK,ES , ,GB, , ,NL, , ,
	arsenic	BE,DE,DK , ES, ,GB, ,IS,NL,NO, ,
	cadmium	BE,DE, , ES, ,GB, ,IS,NL,NO, ,
	chromium	BE, ,DK, ES , ,GB, ,IS, ,NO, ,
	copper	BE,DE,DK , ES , ,GB, ,IS, ,NO, ,
	lead	BE,DE,DK , ES , ,GB, ,IS,NL,NO, ,
	mercury	BE, , , , ,GB, ,IS, ,NO, ,SE
	nickel	BE,DE, DK , ES , ,GB, ,IS, ,NO, ,
	zinc	BE,DE, DK , ES, ,GB, ,IS,NL,NO, ,
	anthracene	,DE, ,ES, , , , , ,NO, ,SE
	benzo(a)anthracene	,DE, ,ES, ,GB, , , ,NO, ,SE
	benzo(a)pyrene	,DE, ,ES, ,GB, , , ,NO, ,SE
	benzo(ghi)perylene	,DE, ,ES, ,GB, , , ,NO, ,SE
	chrysene	, , ,ES, ,GB, , , , , ,
	flouranthene	,DE, ,ES, , , , , ,NO, ,SE
	g-HCH	,DE, , , , , ,IS, ,NO, ,SE
	indeno(123cd)pyrene	,DE, ,ES, ,GB, , , ,NO, ,SE
	phenanthrene	,DE, ,ES , , , , , ,NO, ,SE
	pyrene	,DE, ,ES , , , , , ,NO, ,SE
	PCB_101	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_118	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_138	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_153	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_180	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_28	,DE, , , ,GB, ,IS, ,NO, ,SE
	PCB_52	,DE, , , ,GB, ,IS, ,NO, ,SE
Additional		
	acenaphthene	, , ,ES, , , , , ,NO, ,
	acenaphthylene	, , ,ES, , , , , ,NO, ,
	anthanthrene	, , , , , , , , , ,NO, ,
	BDE_28	, , , , , , , , , ,NO, ,
	BDE_47	, , , , , , , , , ,NO, ,
	BDE_49+71	, , , , , , , , , ,NO, ,
	BDE_66	, , , , , , , , , ,NO, ,
	BDE_77	, , , , , , , , , ,NO, ,
	BDE_85	, , , , , , , , , ,NO, ,
	BDE_99	, , , , , , , , , ,NO, ,
	BDE_100	, , , , , , , , , ,NO, ,
	BDE_119	, , , , , , , , , ,NO, ,
	BDE_138	, , , , , , , , , ,NO, ,
	BDE_153	, , , , , , , , , ,NO, ,
	BDE_154	, , , , , , , , , ,NO, ,
	BDE_183	, , , , , , , , , ,NO, ,
	BDE_196	, , , , , , , , , ,NO, ,
	BDE_206	, , , , , , , , , ,NO, ,
	BDE_209	, , , , , , , , , ,NO, ,
	benzo(b)fluoranthene	, , ,ES, , , , , , , ,SE
	benzo(a)fluoranthene	, , , , , , , , , ,NO, ,
	benzo(j)fluoranthene	, , ,ES, , , , , , , ,
	benzo(k)fluoranthene	, , ,ES, , , , , , , ,
	benzo(a)fluorene	, , , , , , , , , ,NO, ,
	benzo(b)fluorene	, , , , , , , , , ,NO, ,
	benzo(bjk)fluoranthen	,DE, , , , , , , ,NO, ,
	benzo(e)pyrene	, , , , , , , , , ,NO, ,
	benzo(ghi)fluoranthen	, , , , , , , , , ,NO, ,
	biphenyl	, , , , , , , , , ,NO, ,

Airborne Components		
Additional		
	chrysene+triphenalye	,DE, , , , , , , , , ,NO, ,SE
	cis_CD	, , , , , , , , , , ,NO, ,
	cis_NO	, , , , , , , , , , ,NO, ,
	coronene	, , , , , , , , , , ,NO, ,
	cyclopenta(cd)pyrene	, , , , , , , , , , ,NO, ,
	dibenzo(ah)anthracen	, , ,ES, , , , , , , ,
	dibenzo(ac,ah)anthrac	, , , , , , , , , , ,NO, ,
	dibenzo(ae)pyrene	, , , , , , , , , , ,NO, ,
	dibenzo(ah)anthracen	,DE, , , , , , , , , ,
	dibenzo(ah)pyrene	, , , , , ,GB, ,IS, , , ,
	dibenzo(ah)pyrene	, , , , , , , , , , ,NO, ,
	dibenzo(ai)pyrene	, , , , , , , , , , ,NO, ,
	dibenzofuran	, , , , , , , , , , ,NO, ,
	dibenzothiophene	, , , , , , , , , , ,NO, ,
	flourene	, , ,ES, , , , , , , ,NO, ,
	FTS_6-2	, , , , , , , , , , ,NO, ,
	a-HBCD	, , , , , , , , , , ,NO, ,
	b-HBCD	, , , , , , , , , , ,NO, ,
	g-HBCD	, , , , , , , , , , ,NO, ,
	HCB	, , , , , , , , , , ,NO, ,
	a-HCH	, , , , , , , , , , ,NO, ,SE
	N1methylnaphtalene	, , , , , , , , , , ,NO, ,
	N1methylphenanthren	, , , , , , , , , , ,NO, ,
	N2methylanthracene	, , , , , , , , , , ,NO, ,
	N2methylnaphtalene	, , , , , , , , , , ,NO, ,
	N2methylphenanthren	, , , , , , , , , , ,NO, ,
	N3methylphenanthren	, , , , , , , , , , ,NO, ,
	N9methylphenanthren	, , , , , , , , , , ,NO, ,
	naphtalene	, , ,ES, , , , , , , ,NO, ,
	perylene	, , , , , , , , , , ,NO, ,
	PFBA	, , , , , , , , , , ,NO, ,
	PFBS	, , , , , , , , , , ,NO, ,
	PFDcA	, , , , , , , , , , ,NO, ,
	PFDcS	, , , , , , , , , , ,NO, ,
	PFHpA	, , , , , , , , , , ,NO, ,
	PFHxA	, , , , , , , , , , ,NO, ,
	PFHxS	, , , , , , , , , , ,NO, ,
	PFNA	, , , , , , , , , , ,NO, ,
	PFOA	, , , , , , , , , , ,NO, ,
	PFOS	, , , , , , , , , , ,NO, ,
	PFOSA	, , , , , , , , , , ,NO, ,
	PFUnA	, , , , , , , , , , ,NO, ,
	op_DDD	, , , , , , , , , , ,NO, ,
	op_DDE	, , , , , , , , , , ,NO, ,
	op_DDT	, , , , , , , , , , ,NO, ,
	pp_DDD	, , , , , , , , , , ,NO, ,SE
	pp_DDD	, , , , , , , , , , ,NO, ,SE
	pp_DDE	, , , , , , , , , , ,NO, ,SE
	pp_DDE	, , , , , , , , , , ,NO, ,SE
	pp_DDT	, , , , , , , , , , ,NO, ,SE
	pp_DDT	, , , , , , , , , , ,NO, ,SE
	sum_DDT	, , , , , , , , , , ,NO, ,
	retene	, , , , , , , , , , ,NO, ,
	PCB_99	, , , , , , , , , , ,NO, ,
	sum_PCB	, , , , , , , , , , ,NO, ,
	TBA	, , , , , , , , , , ,NO, ,
	trans_CD	, , , , , , , , , , ,NO, ,
	trans_NO	, , , , , , , , , , ,NO, ,
	aluminium	, ,DK, , , , , , ,NO, ,
	antimony	,DE, , , , , , , , , ,
	cobalt	,DE, , , , , , , , , ,
	iron	,DE,DK, , , , , , , , ,
	manganese	,DE,DK, , , , , , , , ,
	selenium	, ,DK, , , , , , , , ,
	thallium	,DE, , , , , , , , , ,
	vanadium	,DE, , , , , , , , , ,

Table 2.7: All components reported by Contracting Parties in 2008

The main body of this report is a description of observations of the mandatory components alone. These are both tabulated and shown as maps. In the Appendices all observations from each country are listed, covering the mandatory components, the voluntary components, and additional components. Excluded are only the major ions which are reported solely to provide the potential for quality control, and compounds which are a part of other international programmes, but which may be expected to lie outside the core interest of OSPAR, e.g. sulphates, ozone, PM measurements.

3 Observed pollutant depositions at monitoring stations in 2008

This section describes air pollutant status at coastal stations around the North-East Atlantic in 2008. The annual average concentrations of contaminants subject to mandatory monitoring are listed and mapped, and deposition rates tabulated. Full sea deposition estimates from observations are supplied in section 4. Heavy metal concentrations and depositions in precipitation are presented in Tables 3.1-3.2, illustrated in Figures 3.1-3.7. Data for mercury is in Table 3.3 and Figure 3.8, and lindane in Table 3.4 and Figure 3.9. Nitrogen concentrations and depositions in precipitation are in Table 3.5, and are mapped in Figures 3.10-11. In all figures, Portuguese data from the Azores is located below the colour scale. Colour coding in the tabulated results highlights the two highest, and the lowest concentration/depositions.

3.1 Heavy metals (except mercury)

Although not universal, there is some tendency once again for Parties on the Atlantic coast to report higher concentrations of pollutants in precipitation than Parties on the North Sea. As in previous years, whilst there may be natural environmental explanations for some observations, such as natural biogenic or geothermal emissions, issues with monitoring may also contribute. Some are of such magnitude as to shed uncertainty, and in a similar vein, rather high detection limits characterise other observations. Reported values for such cases are tabulated in italic script to allow cross-comparison, but have not been mapped.

2008		arsenic µg/l	cadmium µg/l	chromium µg/l	copper µg/l	lead µg/l	nickel µg/l	zinc µg/l	*precipitation mm*
Belgium	*BE0014R*	0.30	0.05	1.17	8.14	1.99	0.55	21.40	*512*
Denmark	*DK0008R*	0.19	0.02	0.18	1.15	0.70	0.27	8.89	*635*
	DK0020R	0.07	0.04	0.10	1.04	0.66	0.33	9.87	*607*
	DK0031R	0.07	0.01	0.07	0.44	0.49	0.16	4.22	*984*
France	*FR0090R*	0.24	0.04	0.18	0.43	0.37	0.31	1.81	*1262*
Germany	*DE0001R*	0.08	0.02	0.10	1.36	0.53	0.24	4.45	*850*
Iceland	*IS0090R*	0.19	0.01	0.33	2.15	0.31	0.52	4.62	*800*
	IS0091R	0.06	0.01	0.24	1.04	0.30	0.45	10.25	*1521*
Ireland	*IE0001R*	0.50	0.09	0.50	0.98	0.50	0.50	6.21	*1310iv*
Netherlands	*NL0009R*	0.10	0.02	0.31	0.68	0.63	0.22	3.21	*867*
	NL0091R	0.09	0.03	0.26	0.80	0.86	0.25	3.46	*833*
Norway	*NO0001R*	0.16	0.03	0.12	0.39	0.78	0.13	2.86	*1797*
	NO039R		0.005			0.10		1.16	*1418*
Portugal	*PT0003R*	*not reported*	0.43	*not reported*	0.42	1.86	0.78	38.00	*795ii*
	PT0004R		0.43		0.52	0.65	0.78	13.11	*421iii*
	PT0010R		0.43		0.60	0.65	0.78	10.15	*914*
Spain	*ES0008R*	0.18	0.13	*102.60*	*28.46*	*2.69*	*52.15*	*99.27*	*1453*
Sweden	*SE0097R*	0.15	0.03	0.37	0.48	0.54	0.20	3.23	*944*
United Kingdom	*GB0006R*	0.25	0.01	0.07	0.28	0.14	0.08	1.30	*1297*
	GB0013R	0.06	0.01	0.04	0.96	0.29	0.18	2.27	*1262*
	GB0017R	0.06	0.01	0.09	0.56	0.54	0.13	3.13	*537*
	GB0091R	0.08	0.01	0.07	0.26	0.36	0.18	2.26	*687*

highest concentrations | second highest concentrations | lowest concentrations

ii) 7 months data | iii) 8 months data | iv)10 months data

Table 3.1: Reported mean concentrations of heavy metals in precipitation (µg/l) in 2008. Uncertain data given in italics

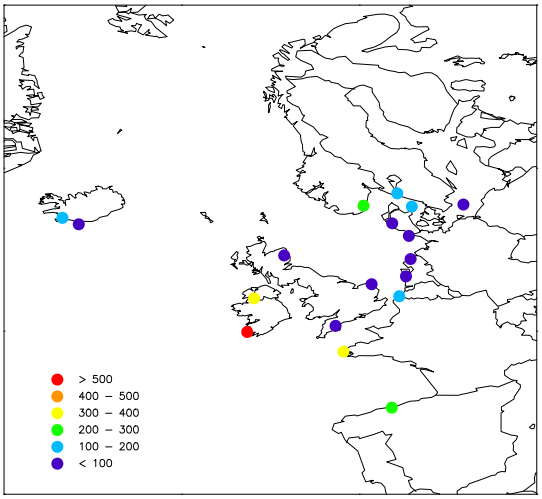

Figure 3.1: As depositions 2008, µg/m2 p.a.

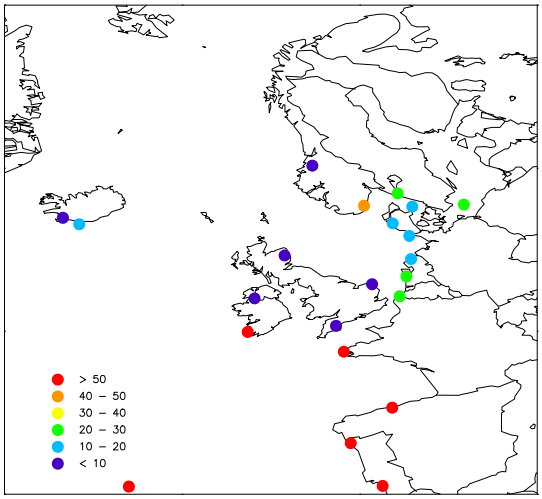

Figure 3.2: Cd depositions 2008, µg/m2 p.a.

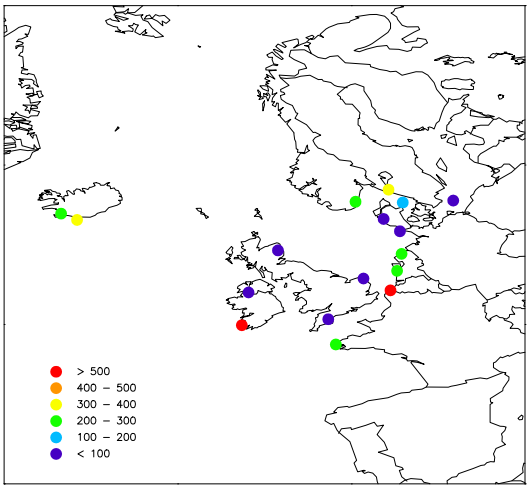

Figure 3.3: Cr depositions 2008, µg/m2 p.a.

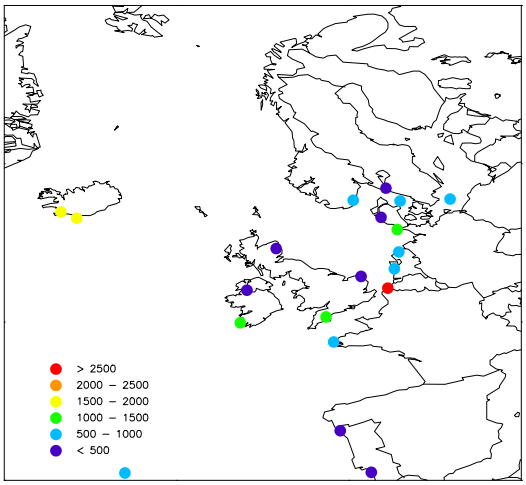

Figure 3.4: Cu depositions 2008, µg/m2 p.a.

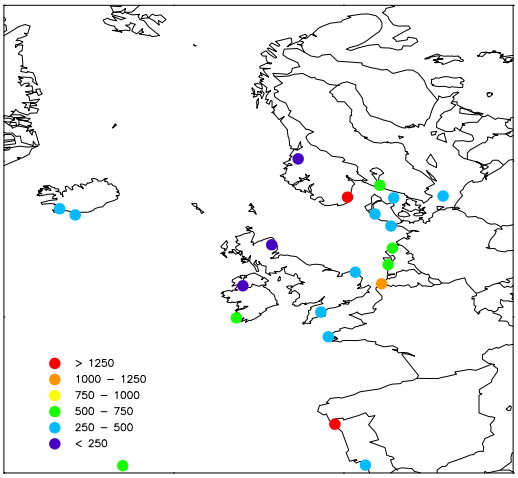

Figure 3.5: Pb depositions 2008, µg/m2 p.a.

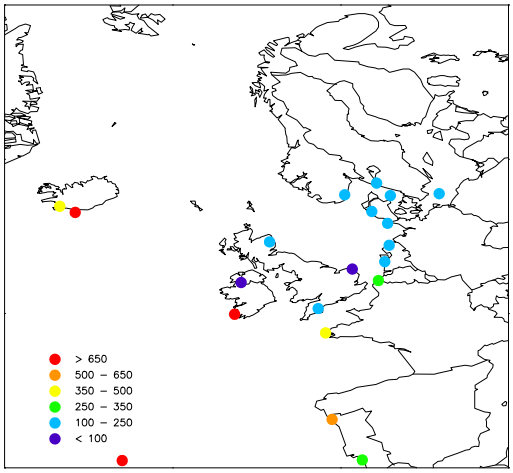

Figure 3.6: Ni depositions 2008, µg/m2 p.a.

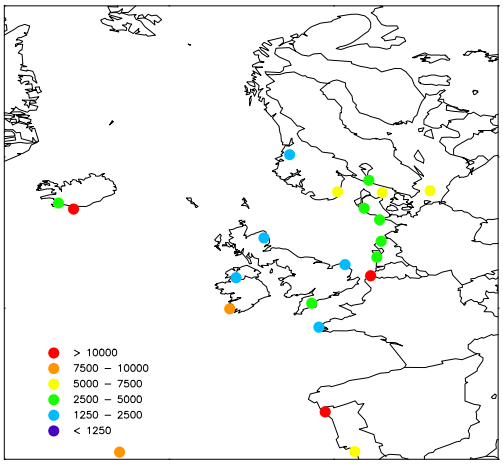

Figure 3.7: Zn depositions 2008, µg/m2 p.a.

2008		arsenic	cadmium	chromium	copper	lead	nickel	zinc	*precipitation*
		µg/m²	µg/m²	µg/m²	µg/m²	µg/m²	µg/m²	µg/m²	*mm*
Belgium	*BE0014R*	153	28	602	4169	1018	284	10966	*512*
Denmark	*DK0008R*	118	15	116	733	443	173	5647	*635*
	DK0020R	44	26	60	630	404	200	5992	*607*
	DK0031R	64	15	73	437	486	162	4151	*984*
France	*FR0090R*	305	52	226	546	467	394	2289	*1262*
Germany	*DE0001R*	69	16	84	1160	449	206	3787	*850*
Iceland	*IS0090R*	149	6	262	1719	251	416	3700	*800*
	IS0091R	86	16	372	1589	451	682	15595	*1521*
Ireland	*IE0001R*	655	116	655	1278	655	655	8136	*1675i*
Netherlands	*NL0009R*	91	19	269	588	544	189	2788	*867*
	NL0091R	75	24	220	663	718	205	2879	*833*
Norway	*NO0001R*	288	46	214	702	1408	239	5143	*1797*
	NO0039R		7			146		1648	*1418*
Portugal	*PT0003R*	*not reported*	338	*not reported*	333	1478	616	30212	*1161i*
	PT0004R		179		220	271	326	5513	*420.7i*
	PT0010R		388		545	589	708	9274	*914*
Spain	*ES0008R*	257	193	*149066*	*41349*	*3908*	*75761*	*144221*	*1453*
Sweden	*SE0097R*	142	27	349	451	508	190	3046	*944*
United	*GB0006R*	318	7	90	369	177	99	1685	*1297*
Kingdom	*GB0013R*	81	9	51	1215	369	226	2867	*1262*
	GB0017R	33	7	48	299	293	68	1682	*537*
	GB0091R	53	6	50	179	245	125	1554	*687*

highest depositions | second highest depositions | low est depositions

i) total monitored precipitation | *italics* : uncertain data

Table 3.2: Reported mean annual depositions of heavy metals in precipitation(µg/m2/a), 2008. Precipitation amounts are given in mm. No. months represented according to the key.

3.2 Mercury

The good comparison in observed concentrations and depositions around the southern North Sea, from Norway around the coast to the United Kingdom, is repeated again in 2008, providing reassurance as to the quality of these measurements. Slightly higher total depositions in Norway in 2008 appear to be caused by rainfall amounts. It should be restated once again, that whilst natural oceanic emissions could influence Atlantic seaboard concentrations, in the case of western Ireland the high values appear to reflect high detection limits. Indeed, the estimated average concentration has been exactly the same for many years at this site, and is approaching values ten times greater than at any other reporting site.

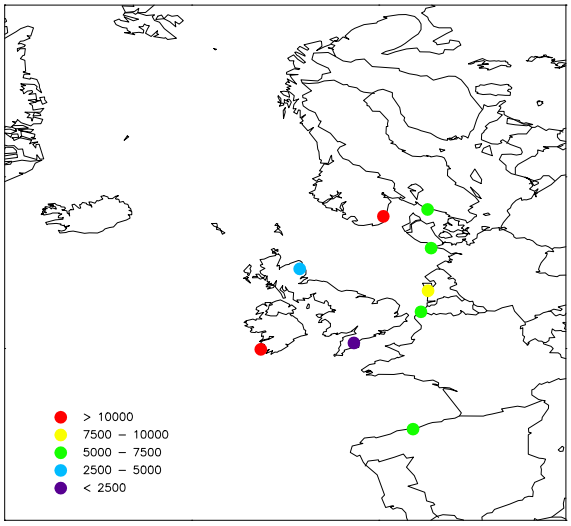

Figure 3.8: Mercury depositions 2008, ng/m2 p.a

2008		conc	prec	dep
		ng/l	*mm*	*ng/m²*
Ireland	*IE0001R*	50.00	1675	65500
Norway	*NO0001R*	6.400569	1970	12612
Netherlands	*NL0091R*	10.70641	769	8231
Belgium	*BE0014R*	10.91028	595	6496
Sweden	*SE0014R*	6.670643	718	6297
Spain	*ES0008R*	5.236329	1163	6089
Germany	*DE0001R*	6.552584	850	5571
United	*GB0091R*	7.383424	902	3078
Kingdom	*GB0013R*	2.033685	1079	2194
Denmark				
France				
Iceland				
Portugal				
	no data reported			
	detection limit likely insufficient to measure concentrations in the environment			

Table 3.3: Reported depositions of mercury in precipitation (ng/m2), 2008, together with associated concentrations (ng/l). Ranked by deposition quantity.

3.3 Lindane

Consistency across results affords confidence in much of the lindane data delivered. As in 2007, the observations reported by the Netherlands appear higher than other observations, being three times greater in concentrations than reported by neighbouring Parties on both sides. The benefits gained from methodological revision in Belgium in 2007, when previously high values were adjusted downwards was repeated in 2008. Table 3.4 below shows the year-on-year values reported.

A difference of over one third depositions between 2004 and 2008 is seen reasonably consistently across the region (the lesser decline in Norway likely resulting from greater precipitation in 2008), and hence supports the reality of the decline. In Germany, Belgium, and Sweden declines have been steady, despite three different techniques being used. Only Iceland does not show such decline, although depositions are perhaps 20x lower already.

Table 3.4: Reported annual concentrations of γ-HCH in precipitation (ng/l) and deposition (ng/m^2), plus percentage change in the period 2004-2008.

				2008	2007	2006	2005	2004	%
		concentration	precipitation	deposition	deposition	deposition	deposition	deposition	change
		ng/l	mm	ng/m ^{2}	ng/m ^{2}	ng/m ^{2}	ng/m ^{2}	ng/m ^{2}	2004-7
Netherlands	NL0091R-2006	2.65	83100	**2541**	2777	3240	5008	4861	**-47.7**
Norway	NO0001R	0.41	1423.00	**706**	565	850	833	845	**-16.4**
Belgium	BE0014R	0.65	1223.00	**622**	476	2462	4369	3083	**-79.8**
Germany	DE0001R	0.62	723.00	**498**	567	685	798	943	**-47.2**
Sweden	SE0014R wet+dry			**90**	103	157	197	299	**-69.9**
Iceland	IS0091R	0.03	850.00	**20**	29	31	23	39	**-48.7**
Denmark									
France									
Ireland									
Portugal									
Spain									
United Kingdom									
	no data reported								
	effect of change in methodology								
	detection limits may be greater than environmental concentrations								

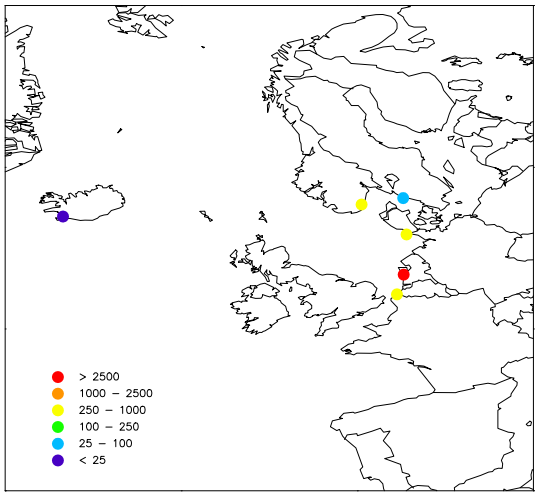

Figure 3.9: *Lindane depositions 2008 ng/m^2*

3.4 Overview of coastal depositions of toxic substances

Of the mandatory substances, the metals excluding mercury have been reported by all countries. The depositions of these components in precipitation around the coasts of the OSPAR area can be summarised in terms of their highest and lowest values. In figure 3.10 this has been done. The red indicates in which countries the highest depositions have been observed, the yellow indicates the second highest depositions, and the blue indicates the lowest depositions in precipitation. The numbers indicate the number of pollutants for which the category applies; there being seven metal components in the Mandatory list, each colour is shown on seven occasions.

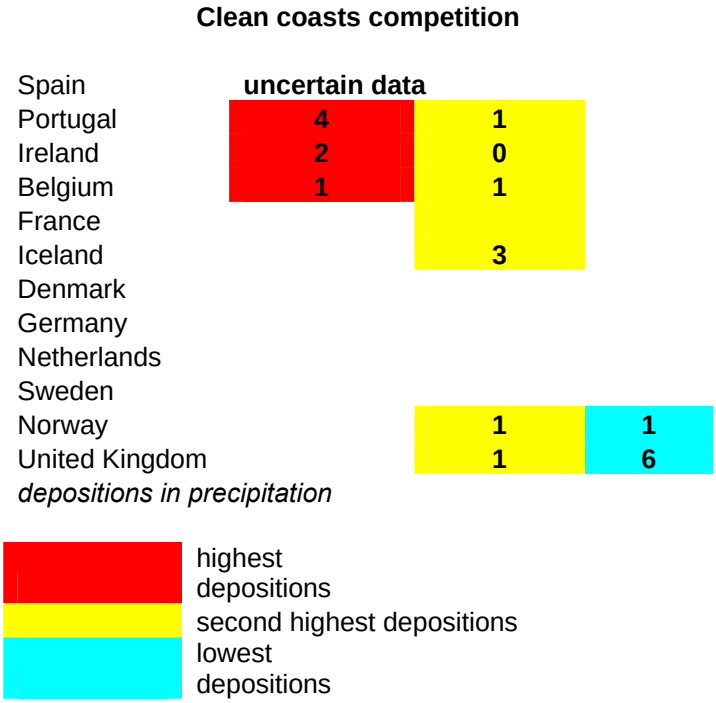

Figure 3.10: Country ranking of the quantities of metals reported as deposited in 2008 in precipitation. Numbers refer to the number of components to which the category applies.

The very high values in Spain and Ireland are once again an issue to consider. At least a part of this picture is dictated by data quality, with some very high detection limits, and maybe other sampling and analysis problems. That the UK coasts once again shows lowest levels of pollutant depositions for all metals is also curious. To be certain of such quality a review by the UK might confirm that samples are not unintentionally stripped during analysis. However, for all observations there is insufficient information to be categorical.

3.5 Nitrogen depositions in 2008

2008		nitrate	ammonium	precip	nitrate	ammonium
		concentrations			depositions	
		mg/l	mg/l	mm	mg/m ^{2}	mg/m ^{2}
Belgium	BE0014R	0.46	0.63	598	276	377
Germany	DE0001R	0.37	0.37	861	316	320
Denmark	DK0005R	0.44	0.50	611	269	306
	DK0008R	0.37	0.25	599	224	151
	DK0020R	0.59	1.25	600	352	751
	DK0031R	0.21	0.19	875	186	164
France	FR0090R	0.38	0.13	1262	478	161
Iceland	IS0090R	0.13	0.23	800	106	186
	IS0091R	0.34	0.38	1521	519	577
Ireland	IE0001R	0.10	0.29	1675	160	486
Netherlands	NL0009R	0.36	0.62	894	318	558
	NL0091R	0.37	0.46	839	309	389
Norway	NO0001R	0.35	0.29	1990	692	569
	NO0039R	0.07	0.08	1426	106	115
	NO0057R	0.09	0.22	344	31	77
Portugal	PT0003R	0.05[b]	0.14[b]	1161	insufficient	data
	PT0004R	0.10	0.18	421 [a]	insufficient	data
	PT0010R	0.01	0.11	914	12	97
Spain	ES0008R	0.36	0.28	1523	550	421
Sweden	SE0014R	0.38	0.62	686	262	427
United Kingdom	GB0006R	0.08	0.18	1471	113	260
	GB0013R	0.22	0.22	1164	257	251
	GB0014R	0.29	0.38	863	251	329
	GB0016R	0.09	1.16	863	73	1001
		highest	second highest		lowest	
	a: eight months					
	b: seven good monthly samples					
	uncertain quality					

Table 3.5: Mean annual nitrogen concentrations (mg/l) and depositions (mg/m2) nitrogen, 2008

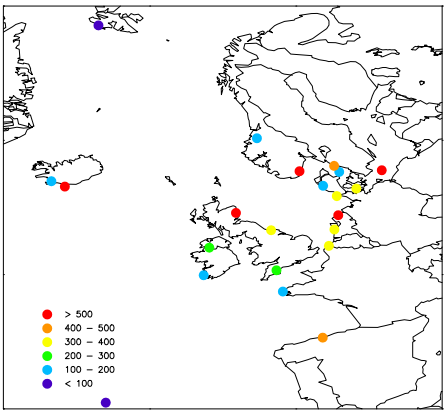

Figure 3.11: NH_4 depositions, mg N/m2 p.a.

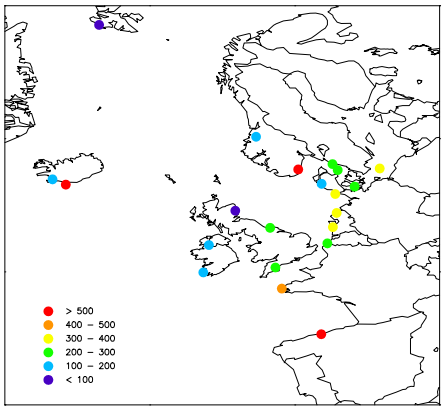

Figure 3.12: NO_3 depositions, mg N/m2 p.a.

4 Temporal patterns – Lead, cadmium, mercury and PCBs

During 2009 the recent temporal patterns seen in depositions of lindane and of mercury in precipitation were examined. The lindane review was subsequently taken up into the Quality Status Report 2010. Under the direction of the OSPAR Working Group on inputs (INPUT), this current section takes a further look at temporal changes that have occurred, focusing on deposition of some priority substances, namely lead, cadmium, mercury and PCBs.

The annual average rates of deposition in precipitation are given for each substance at stations with reasonable long term observations. Stations have been divided into two broad groups – North Sea and around, and the western margins of the OSPAR region. The intention is to indicate the broad patterns that are observed in the main areas of human influence, and to compare with patterns seen on the margins, being the least influenced observation stations of the OSPAR CAMP network, and hence the closest to background available.

Not all stations with records are displayed. Broadly, a single station having a long record has been selected from a country. Stations may not be displayed where records are short and recent and thus not indicating long temporal patterns. Also, where stations within a country may show a dissimilar or inconsistent pattern they may not be shown. In some cases, stations operating in different time periods but being spatially very close have had their temporal records displayed consecutively to indicate patterns over the combined period.

The records show that for lead there has been substantial progress towards achieving background conditions (noting, however, that true background will not be available from monitoring stations located in populated regions). Concentrations in precipitation have fallen manyfold during the past two decades. Cadmium also shows notable progress of similar proportional magnitude. Mercury does show decline, although perhaps by a lesser fraction, concentrations falling by around a half in Scandinavian regions, with larger declines in some other particular locations. PCBs are monitored by few sites, making generalisation of patterns less clear. However, it would appear that OSPAR background concentrations in precipitation are being approached in more central locations than has been the case in the past.

The records do highlight the difficulty in determining the low concentrations that occur in background locations, and increasingly in more central regions as pollutant levels decline. There are several examples of records unable to reflect concentrations which now appear to be below the technical detection limit for a station. This provides one argument for seeking to achieve a parity between countries in the methods they employ, such that we are then able to successfully compare the pollutant status observed across the OSPAR region.

4.1 Lead

Lead shows both a parallel pattern of decline in its concentration in precipitation across countries bordering the North Sea, and a good similarity in the annual concentrations experienced at different sites. Some OSPAR Parties have seen concentrations fall by more than a factor of five in the past two decades.

In remote areas, such as Iceland, concentrations have fallen by around a half in the last decade, with observations before this time being rather erratic. It is to be noted that stations across the CAMP network now observe concentrations which are fairly comparable.

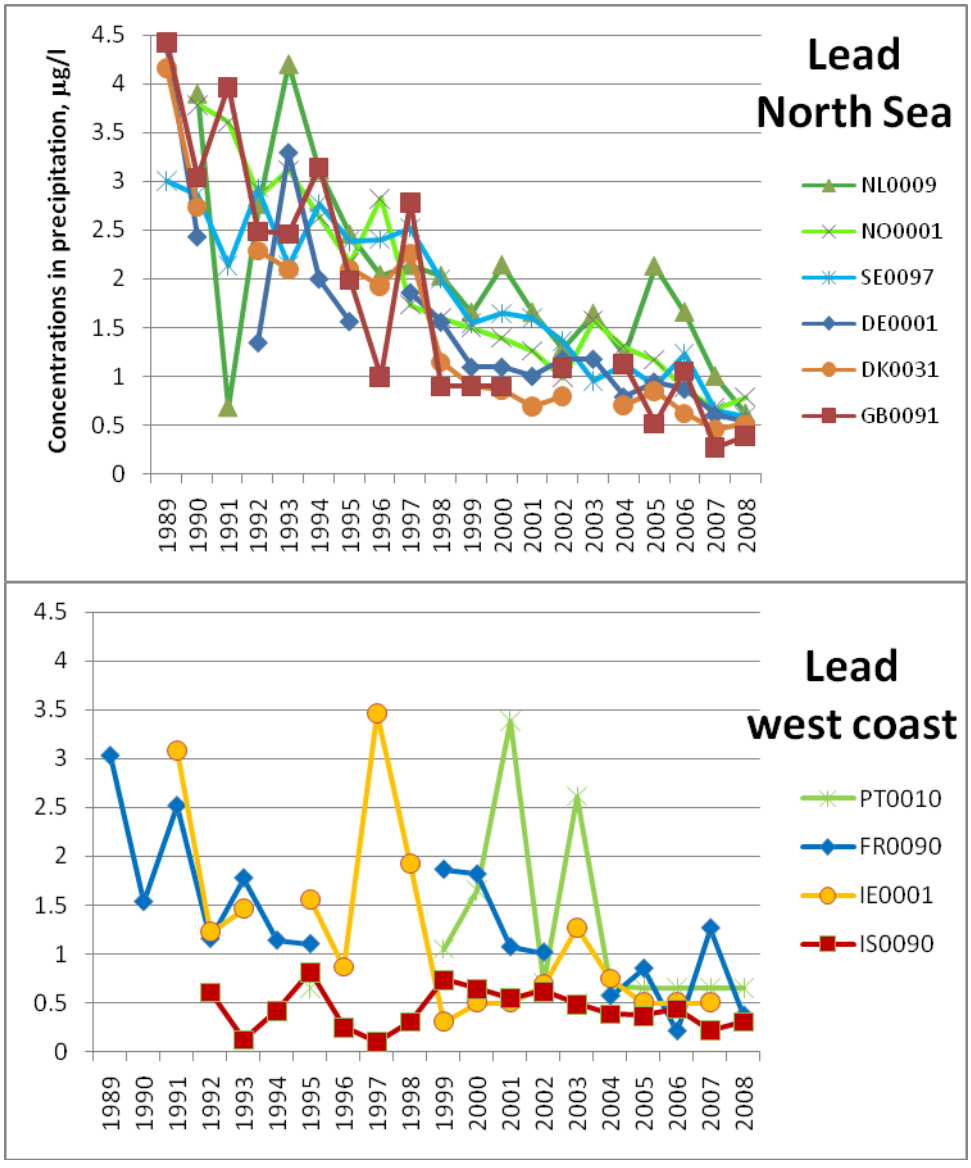

Figure 4.1: A clear decline has continued from the 1990s until the present. Even remote locations such as Iceland have seen a decline of around 50% in annual average concentrations in precipitation during the past decade. Greater declines in other locations now mean that concentrations are similar across the region.

4.2 Cadmium

CAMP's observation of cadmium concentrations in precipitation show a marked decline during the past twenty years. The comparison between stations is a little more 'noisy' than is the case for lead, and average declines appear to be proportionally slightly less, at approximately a factor of three. The larger part of the decline seems to have occurred prior to the year 2000. Since this date, some stations do continue to move closer to the levels observed in distant background locations, but for many there is little change.

Apparent consistency of some observations over several years can raise questions as to the quality of information, although in most cases information is insufficient to determine whether the data is unreliable. Where concentrations are absolutely the same year on year, and are several times higher than other locations, as with PT0010 in the Azores, such a conclusion, however, does seem likely.

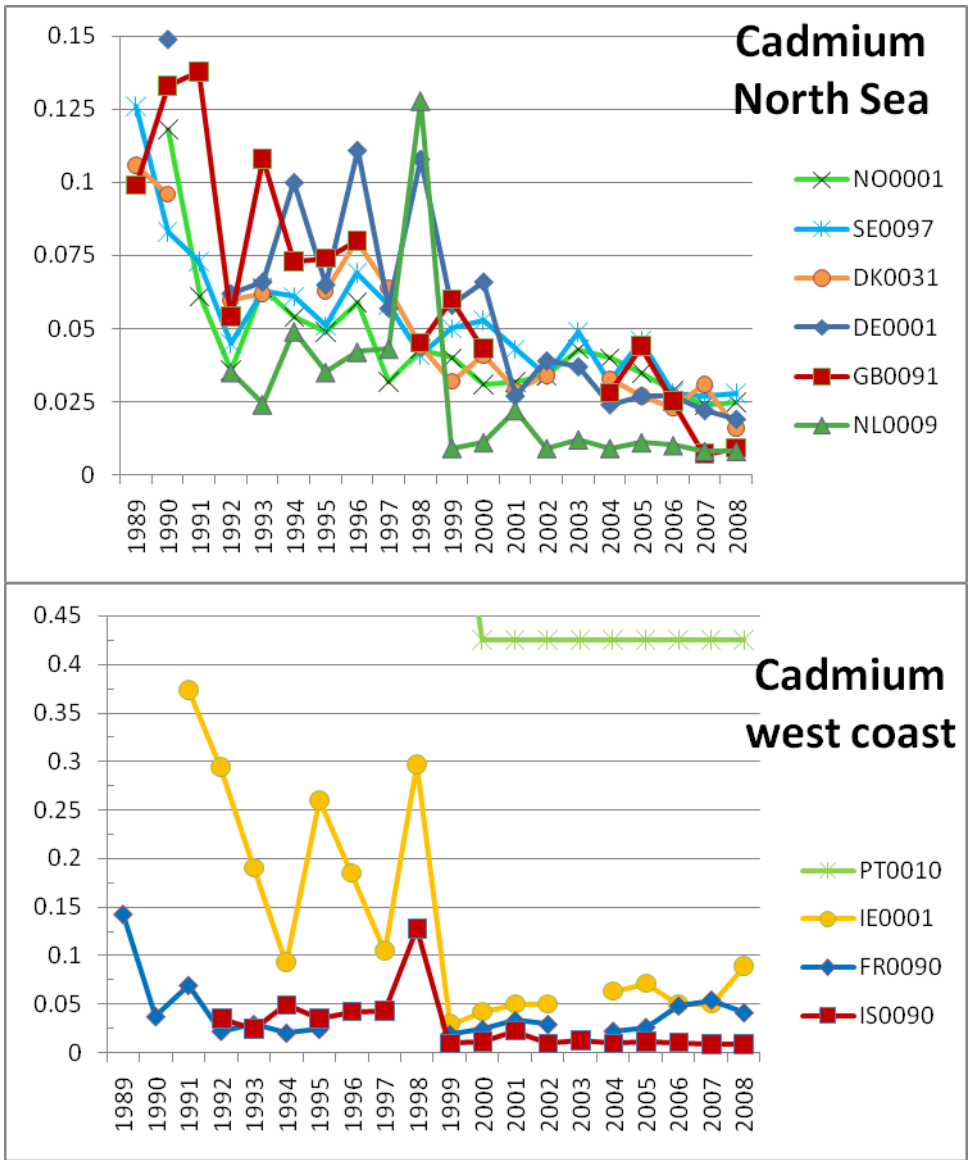

Figure 4.5: During the 1990s annual average concentrations of cadmium in precipitation were somewhat variable, but were declining up to around the year 2000. Decline since then has been slower, and there remains some distance between values of most sites and the most remote locations.

4.3 Mercury

Somewhat fewer stations have been monitoring mercury across the OSPAR region, although the recent UNEP and EU strategies for mercury have given fresh illumination to this pollutant. Observations do not show closely similar concentrations or tendencies between stations, highlighting possible difficulties with techniques. These disparities have been greater in the past than they have been in the last 4-5 years, such that whilst the temporal patterns might be difficult to characterise, the absolute concentrations now seen in precipitation may be judged to be more reliable. Five (Germany, Norway, Spain, Sweden and the UK) of the six currenty reporting stations have a maximum observed precipitation concentration within 50% of each other, with three being almost identical. The remaining site (BE14) now is also displaying concentrations in close proximity, although several prior years of more erratic observations encourage caution in interpretation.

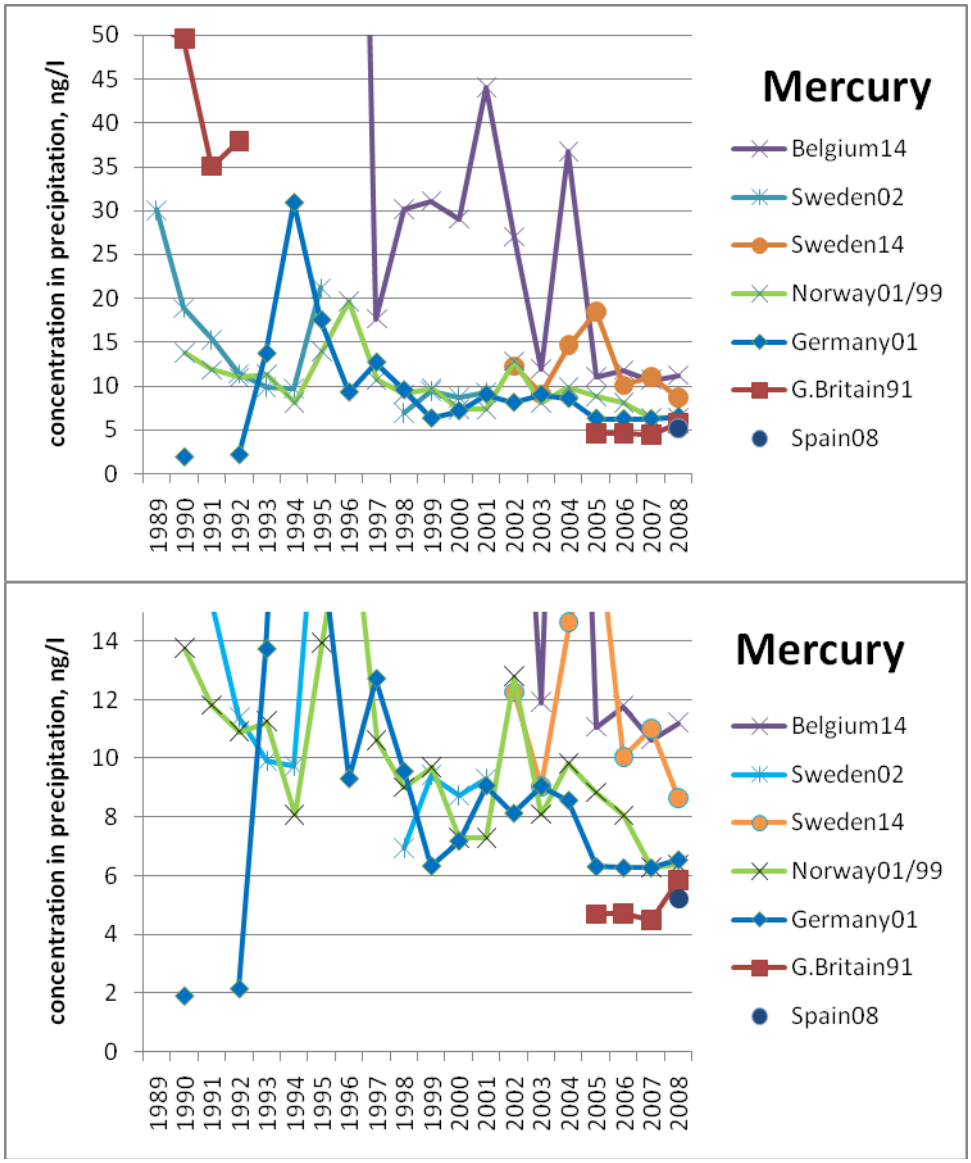

Figure 4.6: Focusing on stations with longest and least variable records suggests a decline between 1989 and 2000, but limited further decline thereafter. Detailed trend analysis, however, might reveal further information.

4.4 PCBs

Observations of PCBs in precipitation are very scarce within the OSPAR region. The available observations are however of comparable magnitude and this offers some reliance on those observations, although concentrations in Germany are still many times higher than seen slightly further north on the southern coast of Norway.

If the observations have reasonable reliability, then it would appear that a decline occurred through to the late 1990s, and that since then change has been slow or slight. Without further information, the higher concentrations and variability reported in earlier years for Germany cannot be explained. Data is also available from Ireland, although until the year 2001 reported concentrations were three times higher than those reported by Germany, and 30x greater than those reported by Iceland. In the period 2002–2003, reported concentrations stepped down to German levels, but still remained ten times above those in Iceland.

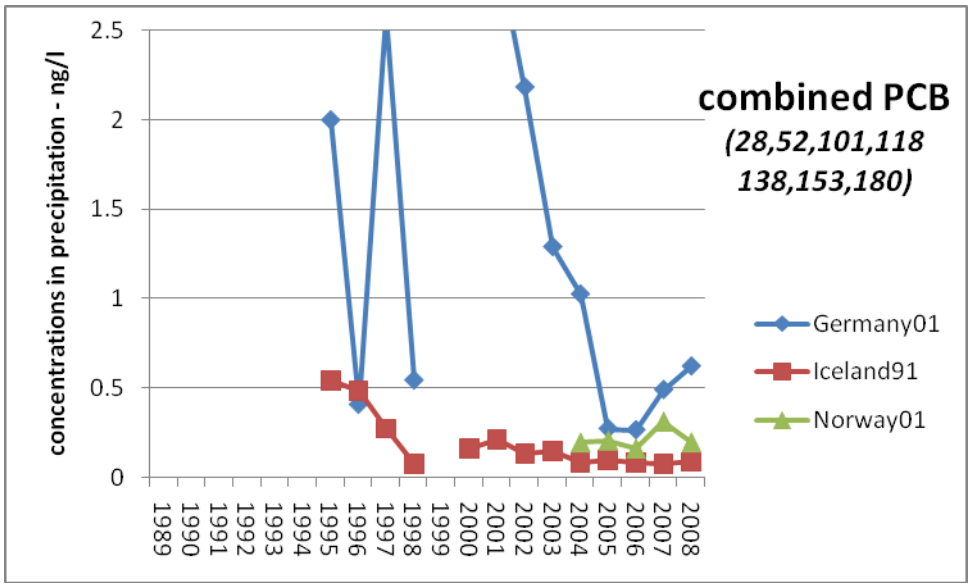

Figure 4.7: Reported concentrations of PCBs in precipitation in 1995–2008.

5 Main conclusions

No changes in the CAMP network were reported for 2008, meaning that 33% of CAMP stations do not strictly meet the requirements of the CAMP Principles (e.g. distance from coastline) and that, with 60% of all stations, the North Sea remains the most intensely observed sub-region. Important gaps in the network concern Region III (Irish Sea) and Region IV (Bay of Biscay) and the far north-east. It would also be useful to consider including existing reference stations in Greenland and Faroe Islands and consider cooperation with Russia on their stations on Kola Peninsula.

Reporting has marginally improved once again in 2008, such that the trend towards more complete and more timely reporting remains positive. However, changes in reporting are very small and it may be more realistic to suggest that a plateau has been reached, with certain elements regularly going unreported. As before, the programme for observation of airborne concentrations of pollutants is least observed. Reporting of mandatory components is patchy for mercury and lindane in precipitation and a quarter of countries do not report mandatory components in air. Monitoring results show especially for the Nordic countries high concentrations of mercury and importance of continued monitoring in that sub-region.

32 non-CAMP components were reported in precipitation and 95 non-CAMP components in air. While this is no problem for data handling, the question is how OSPAR wants to promote the data which are currently archived in the CAMP database but not used.

It is important that countries quality checked their data prior to reporting. Such quality assurance can be achieved through simple means such as comparing with the data of previous years and with neighbouring stations in order to identify obvious mistakes in data. Yet, there are inconsistencies which – despite repeated consultations over the years with the countries concerned – have not been able to be resolved.

An overview of temporal changes in concentrations of lead, cadmium, mercury and PCBs in precipitation show all downward tendencies. The pattern is most clear in lead, followed by cadmium. Lack of reporting stations hinders such clear statements with respect to mercury, although a decline in concentrations in precipitation does seem to occur. Data on PCBs is very limited, and in previous years has been somewhat variable. The PCB data which is collected by OSPAR does suggest that around the North Sea deposited concentrations are now approaching similar levels.

Annex

Reported monthly observations of mandatory, voluntary, and additionally reported components

(Major ions used solely for quality assurance are not listed)

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

BELGIUM

Components in Precipitation															
Mandatory		**station**	**units**						**month**						
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		BE0014R	mg/l	0.587	1.354	0.603	1.226	1.090	0.976	0.630	0.550	0.463	0.366	0.323	0.388
nitrate		BE0014R	mg/l	0.409	0.615	0.335	0.886	0.370	0.873	0.510	0.259	0.290	0.181	0.235	0.658
precipitation	*nitrogen*	BE0014R	mm	28.9	13.7	71.1	14.5	65.3	50.5	50.2	64.5	60.1	66.7	70.6	41.5
arsenic		BE0014R	µg/l	0.263	0.265	0.265	0.263	0.264	0.261	0.261	0.258	0.250	0.259	0.265	0.265
cadmium		BE0014R	µg/l	0.064	0.077	0.075	0.074	0.026	0.045	0.047	0.059	0.040	0.050	0.034	0.029
chromium		BE0014R	µg/l	0.262	0.339	0.451	0.625	0.676	0.260	0.558	1.933	4.083	0.259	0.265	0.456
copper		BE0014R	µg/l	2.159	5.102	5.337	5.237	3.091	3.209	5.249	3.477	5.790	9.675	15.913	19.911
lead		BE0014R	µg/l	3.548	6.188	3.374	2.658	0.629	6.605	1.867	0.326	0.478	0.313	1.155	2.797
mercury		BE0014R	ng/l	6.169	8.104	30.598	9.911	6.822	11.097	12.766	17.840	4.867	4.311	4.833	4.437
nickel		BE0014R	µg/l	0.418	0.265	0.265	0.260	0.917	0.643	0.913	0.259	0.250	0.591	0.265	0.519
zinc		BE0014R	µg/l	28.739	23.307	13.735	24.556	27.681	28.313	42.489	17.381	15.361	10.198	8.620	6.263
precipitation	*metals ex. Hg*	BE0014R	mm	18.2	12.5	69.1	12.8	76.9	44.5	47.7	74.0	66.1	60.8	64.8	39.2
precipitation	*mercury*	BE0014R	mm	27.2	18.5	65.7	14.0	73.1	46.9	42.3	78.8	63.2	55.7	71.7	38.3
g-HCH		BE0014R	ng/l	0.200	0.403	0.433	1.688	1.504	0.358	0.795	0.654	0.268	0.577	0.510	0.200
precipitation	*g-HCH*	BE0014R	mm	36.4	38.4	73.7	38.2	118.0	69.4	73.8	131.4	93.0	104.1	116.8	57.4
										Percentage completion of mandatory programme					**100.0**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**
additional non-CAMP components															
2008															
aldrin		BE0014R	ng/l	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
alpha_HCH		BE0014R	ng/l	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350
dieldrin		BE0014R	ng/l	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
endrin		BE0014R	ng/l	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550
heptachlor		BE0014R	ng/l	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
pp_DDD		BE0014R	ng/l	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
pp_DDE		BE0014R	ng/l	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
pp_DDT		BE0014R	ng/l	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
precipitation		BE0014R	mm	26.7	43.4	77.6	22.8	122.6	60.6	60.3	126.1	87.5	85.0	110.6	107.1
										number of additional components reported					**8**

BELGIUM														
Airborne components														
2008														
Mandatory	**station**	**units**						**month**						
			january	february	march	april	may	june	july	august	september	october	november	december
NO2	BE0011R	µg/m^3	21.000	30.000	13.000	18.000	22.000	13.000	14.000	10.000	16.000	20.000	20.000	26.000
	BE0013R	µg/m^3	13.000	27.000	11.000	16.000	21.000	13.000	11.000	9.000	17.000	15.000	18.000	21.000
HNO3			*not reported*											
NO3			*not reported*											
HNO3+NO3			*not reported*											
NH3			*not reported*											
NH4			*not reported*											
NH3+NH4			*not reported*											
									Percentage completion of mandatory programme					**33.3**
Voluntary														
2008														
NO	BE0011R	µg/m^3	2.000	15.000	2.000	3.000	2.000	1.000	1.000	2.000	2.000	4.000	6.000	10.000
	BE0013R	µg/m^3	1.000	14.000	1.000	2.000	2.000	1.000	1.000	1.000	2.000	3.000	5.000	6.000
arsenic	BE0014R	ng/m^3	2.158	2.674	1.049	1.231	1.013	0.726	0.987	0.566	1.118	1.343	1.643	2.220
cadmium	BE0014R	ng/m^3	0.515	0.880	0.284	0.398	0.462	0.173	0.275	0.184	0.428	0.274	0.275	0.358
chromium	BE0014R	ng/m^3	3.960	5.362	5.123	4.106	4.955	3.587	4.948	4.418	6.111	6.136	3.894	9.941
copper	BE0014R	ng/m^3	7.710	13.851	6.510	8.828	10.640	6.937	8.722	9.949	10.627	18.996	9.276	8.803
lead	BE0014R	ng/m^3	8.761	26.988	13.173	10.008	11.351	5.122	7.598	6.536	10.386	9.510	11.141	14.034
mercury	BE0014R	ng/m^3	2.521	3.949	2.092	2.048	2.078	2.663	1.811	1.956	1.957	2.266	1.959	1.997
nickel	BE0014R	ng/m^3	3.974	6.339	4.139	5.259	6.973	6.492	6.602	4.739	5.635	7.376	5.650	9.926
zinc	BE0014R	ng/m^3	29.474	76.220	25.171	32.389	47.317	28.485	35.129	27.412	39.874	31.461	31.954	42.783
PCB_28			*not reported*											
PCB_52			*not reported*											
PCB_101			*not reported*											
PCB_118			*not reported*											
PCB_138			*not reported*											
PCB_153			*not reported*											
PCB_180			*not reported*											
anthracene			*not reported*											
benzo(a)anthracene			*not reported*											
benzo(a)pyrene			*not reported*											
benzo(ghi)perylene			*not reported*											
chrysene			*not reported*											
flouranthene			*not reported*											
g-HCH			*not reported*											
indeno(123cd)pyrene			*not reported*											
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**34.6**

DENMARK

Components in Precipitation															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		DK0005R	mg/l	0.471	1.091	0.424	0.411	0.379	0.699	0.706	0.603	0.925	0.304	0.623	0.430
		DK0008R		0.360	0.422	0.296	0.615	-9999.990	0.027	0.113	0.210	0.389	0.271	0.262	0.274
		DK0020R		0.364	1.120	0.562	1.894	1.642	4.052	6.561	0.656	1.269	0.394	0.474	0.545
		DK0031R		0.378	0.230	0.345	0.652	0.356	0.246	0.198	0.236	0.229	0.112	0.154	0.461
nitrate		DK0005R	mg/l	0.572	0.502	0.380	0.537	0.323	0.539	0.616	0.368	0.479	0.239	0.637	0.749
		DK0008R		0.659	0.726	0.475	0.711	-9999.990	0.201	0.230	0.231	0.466	0.357	0.375	0.594
		DK0020R		0.715	1.131	0.695	0.971	0.625	0.783	0.493	0.295	0.264	0.479	0.558	1.064
		DK0031R		0.403	0.287	0.167	0.489	0.357	0.265	0.211	0.288	0.244	0.199	0.254	0.791
precipitation	*nitrogen*	DK0005R	mm	30.9	12.2	49.9	61.7	135.0	21.9	41.8	95.9	21.3	65.0	42.0	33.5
		DK0008R		45.3	18.8	52.6	9.8	0.2	23.6	72.6	153.8	32.8	82.1	75.0	32.3
		DK0020R		37.3	23.0	61.6	36.8	17.7	33.7	32.9	111.5	62.9	106.7	25.4	50.8
		DK0031R		110.7	36.8	7.9	25.4	3.2	68.0	111.8	123.1	98.1	187.1	84.9	17.8
arsenic		DK0008R	µg/l	0.177	0.189	0.088	0.233	0.512	0.459	0.248	0.184	0.150	0.182	0.191	0.210
		DK0020R		0.041	0.048	0.083	0.187	0.302	0.107	0.094		0.044	0.107	0.107	0.204
		DK0031R		0.074	0.075	0.075	0.103	0.407	0.142	0.050	0.068	0.053	0.039	0.054	0.140
cadmium		DK0008R	µg/l	0.036	0.040	0.017	0.029	0.124	0.049	0.016	0.014	0.019	0.024	0.032	0.028
		DK0020R		0.020	0.055	0.027	0.071	0.096	0.148	0.047		0.087		0.042	0.056
		DK0031R		0.027		0.019	0.028	0.091	0.020	0.009	0.012	0.010	0.009	0.016	0.045
chromium		DK0008R	µg/l	0.222	0.191	0.067	0.292	0.570	0.468	0.243	0.176	0.174	0.172	0.152	0.082
		DK0020R		0.096	0.239	0.059	0.148	0.387	0.202	0.300		0.076		0.107	0.089
		DK0031R		0.074		0.075	0.145	1.515	0.192	0.049	0.076	0.059	0.042	0.062	0.210
copper		DK0008R	µg/l	3.367	1.775	0.581	1.814	4.640	1.976	1.987	0.690	0.899	0.646	0.491	0.466
		DK0020R		0.519	4.892	0.547	0.936	1.947	3.749	1.449		0.757		1.297	0.926
		DK0031R		0.362		0.604	2.777	6.591	0.776	0.328	0.294	0.318	0.174	0.301	0.764
lead		DK0008R	µg/l	0.048	0.771	0.381	1.032	3.110	1.514	0.845	0.798	0.660	0.648	0.927	1.119
		DK0020R		0.767	1.174	0.707	1.781	2.300	1.227	1.084		0.551		0.654	2.249
		DK0031R		0.649		0.584	0.909	5.833	0.761	0.333	0.638	0.382	0.276	0.400	1.169
mercury				*not reported*											
nickel		DK0008R	µg/l	0.375	0.424	0.226	0.427	1.737	0.485	0.295	0.211	0.305	0.275	0.178	0.192
		DK0020R		0.202	0.972	0.237	0.320	0.490	0.636	0.542		0.181		0.625	0.348
		DK0031R		0.204		0.223	0.296	2.045	0.286	0.057	0.169	0.139	0.117	0.147	0.320
zinc		DK0008R	µg/l	15.276	14.708	6.894	17.410	43.546	18.415	5.437	6.291	6.377	5.687	12.484	12.008
		DK0020R		4.682	44.428	6.110	10.423	16.853	14.288	32.328		14.103		9.994	11.086
		DK0031R		3.237		5.254	7.857	78.788	6.702	2.695	2.747	2.889	3.382	7.158	18.631
precipitation	*metals ex. Hg*	DK0008R	mm	61.0	23.7	60.4	15.0	6.8	28.2	61.4	167.9	30.6	74.2	72.0	33.7
		DK0020R		35.4	22.6	63.8	37.9	14.7	35.2	29.7	110.8	68.7	112.6	25.9	49.8
		DK0031R		114.0	54.5	85.1	28.7	4.2	66.3	120.0	121.5	100.2	182.4	87.5	19.8
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**81.8**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

DENMARK

Airborne components

Mandatory	**station**	**units**	**month**											
2008			january	february	march	april	may	june	july	august	september	october	november	december
NO2	DK0005R	µg/m^3	3.09	3.498	2.184	3.041	2.787	1.878	1.482	2.089	1.997	2.524	2.768	3.271
	DK0008R	µg/m^3	2.282	2.138	1.724	2.268	1.496	1.036	1.579	1.067	1.307	1.572	1.758	2.144
HNO3			*not reported*											
NO3			*not reported*											
HNO3+NO3	DK0005R	µg/m^3	0.966	1.296	0.813	1.323	0.952	0.601	0.581	0.762	0.816	0.934	0.725	1.029
	DK0008R	µg/m^3	0.78	0.89	2.573	1.249	0.715	0.436	0.451	0.485	0.491	0.549	0.474	0.585
	DK0031R	µg/m^3	0.614	0.813	0.517	1.207	0.762	0.413	0.421	0.431	0.48	0.455	0.605	0.964
NH3	DK0005R	µg/m^3	0.117	0.512	0.304	0.532	0.688	0.668	0.6	0.678	0.529	0.487	0.258	0.048
	DK0008R	µg/m^3	0.041	0.117	0.2	0.257	0.268	0.307	0.248	0.209	0.162	0.133	0.051	0.024
	DK0031R	µg/m^3	0.108	0.207	0.276	1.202	1.488	0.744	0.819	0.432	0.719	0.208	0.325	0.249
NH4	DK0005R	µg/m^3	1.341	1.588	0.929	1.753	1.149	0.709	0.911	1.032	0.889	1.155	1.077	1.537
	DK0008R	µg/m^3	0.894	1.002	2.752	1.465	0.83	0.458	0.419	0.48	0.697	0.604	0.589	0.808
	DK0031R	µg/m^3	0.748	0.911	0.581	1.509	1.095	0.478	0.496	0.501	0.736	0.493	0.827	1.516
NH3+NH4	DK0005R	µg/m^3	1.457	2.098	1.233	2.284	1.836	1.377	1.502	1.716	1.409	1.617	1.335	1.585
	DK0008R	µg/m^3	0.935	1.118	2.951	1.722	1.097	0.765	0.667	0.689	0.859	0.737	0.64	0.832
									Percentage completion of mandatory programme					**100.0**
Voluntary														
2008														
NO	DK0005R	µg/m^3	0.188	0.326	0.303	0.589	0.408	0.307	0.294	0.313	0.280	0.278	0.317	0.307
	DK0008R	µg/m^3	0.134	0.226	0.231	0.262	0.181	0.127	0.235	0.176	0.143	0.113	0.180	0.228
arsenic	DK0005R	ng/m^3	0.329	0.259	0.237	0.257	0.291	0.164	0.097	0.165	0.425	0.320	0.288	0.468
	DK0008R	ng/m^3	0.237	0.311	0.360	0.300	0.196	0.144	0.090	0.150	0.253	0.244	0.211	0.330
	DK0031R	ng/m^3	0.189	0.267	0.160	0.409	0.335	0.144	0.164	0.193	0.399	0.160	0.314	0.429
cadmium			*not reported*											
chromium	DK0005R	ng/m^3	1.053	0.768	0.302	0.332	0.604	0.335	0.496	0.384	0.712	0.310	0.124	0.378
	DK0008R	ng/m^3	1.017	0.439	0.010	0.747	0.617	0.273	0.189	0.179	0.363	-0.145	-0.401	0.221
	DK0031R	ng/m^3	0.687	0.374	0.194	0.794	0.824	0.555	0.369	0.140	0.509	-0.273	-0.433	0.096
copper	DK0005R	ng/m^3	2.223	2.173	1.388	1.394	1.308	1.039	1.080	1.497	1.803	2.096	1.369	2.335
	DK0008R	ng/m^3	1.551	1.193	1.035	1.429	1.059	0.813	0.643	0.690	0.859	0.843	0.619	0.721
	DK0031R	ng/m^3	1.108	1.367	0.713	1.498	1.412	0.895	1.028	0.643	1.168	0.829	0.831	1.256
lead	DK0005R	ng/m^3	5.971	5.050	3.231	3.348	2.760	2.142	2.550	3.121	4.761	4.260	3.030	5.690
	DK0008R	ng/m^3	6.147	3.463	3.046	3.073	1.794	1.240	0.748	1.419	2.278	2.006	1.622	3.150
	DK0031R	ng/m^3	3.849	4.207	1.952	3.386	2.544	1.622	1.684	1.563	3.431	1.957	1.929	3.962
mercury			*not reported*											
nickel	DK0005R	ng/m^3	2.098	2.369	1.830	3.876	4.057	2.261	2.367	2.368	1.948	1.762	1.537	1.866
	DK0008R	ng/m^3	1.963	1.514	1.302	2.648	2.455	1.415	2.064	1.231	1.062	0.954	1.005	1.329
	DK0031R	ng/m^3	1.227	1.674	0.926	1.673	1.525	1.030	1.143	0.801	0.944	0.819	0.932	1.269
zinc	DK0005R	ng/m^3	21.627	13.787	11.630	11.138	12.014	8.525	9.452	10.188	13.374	12.227	10.264	13.189
	DK0008R	ng/m^3	19.236	7.997	7.522	9.903	7.096	4.674	2.874	4.305	6.164	5.048	6.110	9.005
	DK0031R	ng/m^3	13.656	10.571	7.214	13.476	11.980	6.884	6.821	4.725	11.067	5.286	8.510	13.450
PCB_28			*not reported*											
PCB_52			*not reported*											
PCB_101			*not reported*											
PCB_118			*not reported*											
PCB_138			*not reported*											
PCB_153			*not reported*											
PCB_180			*not reported*											
anthracene			*not reported*											
benzo(a)anthracene			*not reported*											
benzo(a)pyrene			*not reported*											
benzo(ghi)perylene			*not reported*											
chrysene			*not reported*											
flouranthene			*not reported*											
g-HCH			*not reported*											
indeno(123cd)pyrene			*not reported*											
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**29.2**
additional non-CAMP components														
2008														
aluminium	DK0005R	ng/m^3												
	DK0008R	ng/m^3	253.283	123.613	107.713	142.811	182.991	141.65	106.028	78.05	71.1	99.302	92.991	57.987
	DK0031R	ng/m3	286.495	162.251	117.086	205.694	327.906	211.818	142.914	79.426	77.664	108.515	90.289	64.107
iron	DK0005R	ng/m3	113.839	92.03	47.841	81.431	160.57	96.14	64.536	64.663	95.307	70.097	50.362	41.909
	DK0008R	ng/m^3	54.371	54.969	34.638	91.733	114.983	64.067	49.918	28.89	40.473	27.501	22.465	23.926
	DK0031R	ng/m^3	65.886	66.071	29.425	133.736	217.871	112.084	107.419	32.816	69.686	25.099	27.323	31.975
manganese	DK0005R	ng/m3	3.52	2.531	1.702	2.532	4.87	3.227	2.368	2.349	3.315	2.043	1.491	1.243
	DK0008R	ng/m^3	2.429	1.643	1.336	2.846	4.108	2.295	1.764	1.441	1.406	1.011	0.819	0.819
	DK0031R	ng/m^3	2.308	2.178	1.352	3.741	6.157	3.404	3.724	1.442	2.29	0.98	1.112	1.137
selenium	DK0005R	ng/m^3	0.559	0.697	0.41	0.419	0.402	0.417	0.473	0.604	0.517	0.705	0.381	0.462
	DK0008R	ng/m^3	0.392	0.478	0.339	0.346	0.252	0.289	0.274	0.393	0.321	0.359	0.223	0.276
	DK0031R	ng/m3	0.396	0.606	0.323	0.473	0.381	0.38	0.368	0.42	0.372	0.365	0.227	0.374
									number of additional components reported					**11**

FRANCE

Components in Precipitation															
2008															
Mandatory		**station**	**units**							**month**					
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		FR0090R	mg/l	0.100	0.050	0.100	0.200	0.200	0.300	0.100	0.100	0.150	0.100	0.100	0.150
nitrate		FR0090R	mg/l	0.320	0.213	0.319	0.629	0.624	0.986	0.383	0.260	0.284	0.396	0.297	0.060
precipitation	*nitrogen*	FR0090R	mm	157.0	95.3	102.6	90.7	141.6	40.5	88.0	147.7	105.3	118.5	126.3	48.4
arsenic		FR0090R	µg/l	0.150	0.177	0.357	0.244	0.140	0.175	0.248	0.224	0.383	0.194	0.293	0.490
cadmium		FR0090R	µg/l	0.025	0.033	0.038	0.052	0.084	0.035	0.022	0.023	0.066	0.038	0.033	0.045
chomium		FR0090R	µg/l	0.150	0.103	0.197	0.105	0.200	0.253	0.295	0.200	0.198	0.152	0.199	0.100
copper		FR0090R	µg/l	0.240	0.386	0.544	0.366	0.848	0.636	0.439	0.259	0.642	0.414	0.250	0.230
lead		FR0090R	µg/l	0.220	0.293	0.651	0.650	0.280	0.323	0.488	0.279	0.257	0.446	0.341	0.400
mercury				*not reported*											
nickel		FR0090R	µg/l	0.210	0.303	0.643	0.411	0.249	0.180	0.302	0.164	0.314	0.417	0.329	0.240
zinc		FR0090R	µg/l	0.840	2.624	1.382	2.485	2.759	1.530	1.664	1.748	2.049	1.754	1.585	1.210
precipitation	*all metals*	FR0090R	mm	157.0	95.3	102.6	90.7	141.6	40.5	88.0	147.7	105.3	118.5	126.3	48.4
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**83.3**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

FRANCE															
Airborne components															
2008															
Mandatory	**station**	**units**						**month**							
			january	february	march	april	may	june	july	august	september	october	november	december	
NO2			*not reported*												
HNO3			*not reported*												
NO3			*not reported*												
HNO3+NO3			*not reported*												
NH3			*not reported*												
NH4			*not reported*												
NH3+NH4			*not reported*												
									Percentage completion of mandatory programme						**0.00**
2008															
Voluntary															
NO			*not reported*												
arsenic			*not reported*												
cadmium			*not reported*												
chomium			*not reported*												
copper			*not reported*												
lead			*not reported*												
mercury			*not reported*												
nickel			*not reported*												
zinc			*not reported*												
PCB_28			*not reported*												
PCB_52			*not reported*												
PCB_101			*not reported*												
PCB_118			*not reported*												
PCB_138			*not reported*												
PCB_153			*not reported*												
PCB_180			*not reported*												
anthracene			*not reported*												
benzo(a)anthracene			*not reported*												
benzo(a)pyrene			*not reported*												
benzo(ghi)perylene			*not reported*												
chrysene			*not reported*												
flouranthene			*not reported*												
g-HCH			*not reported*												
indeno(123cd)pyrene			*not reported*												
phenanthrene			*not reported*												
pyrene			*not reported*												
									Percentage completion of voluntary programme						**0.00**

GERMANY

Components in Precipitation															
Mandatory		**station**	**units**						**month**						
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		DE0001R	mg/l	0.470	0.584	0.292	0.755	1.172	0.369	0.306	0.429	0.544	0.158	0.248	0.307
nitrate		DE0001R	mg/l	0.547	0.484	0.347	0.436	0.579	0.327	0.478	0.352	0.316	0.218	0.364	0.523
precipitation	*nitrogen*	DE0001R	mm	60.2	48.1	78.6	22.9	5.5	36.5	67.7	190.9	83.5	146.8	83.8	36.6
arsenic		DE0001R	µg/l	0.103	0.137	0.091	0.106	0.111	0.059	0.060	0.053	0.072	0.077	0.107	0.109
cadmium		DE0001R	µg/l	0.039	0.028	0.019	0.026	0.094	0.019	0.019	0.014	0.020	0.010	0.021	0.028
chromium		DE0001R	µg/l	0.111	0.131	0.088	0.095	0.131	0.031	0.114	0.074	0.105	0.097	0.129	0.167
copper		DE0001R	µg/l	1.164	0.909	0.795	6.809	8.449	0.977	5.114	0.942	1.229	0.437	0.905	2.185
lead		DE0001R	µg/l	0.999	0.612	0.665	0.607	1.102	0.411	0.508	0.480	0.661	0.262	0.438	0.795
mercury		DE0001R	ng/l	7.608	4.642	4.074	7.174	27.449	8.280	16.237	6.293	5.459	3.258	4.719	10.991
nickel		DE0001R	µg/l	0.291	0.260	0.169	0.279	0.699	0.301	0.253	0.249	0.240	0.168	0.232	0.427
zinc		DE0001R	µg/l	4.650	4.200	2.985	12.957	20.313	4.829	8.132	3.332	4.760	2.734	4.044	8.582
precipitation	*metals ex. Hg*	DE0001R	mm	61.8	47.9	74.1	23.0	5.6	35.4	71.0	187.8	85.3	145.5	76.5	36.4
precipitation	*Hg*	DE0001R	mm	64.5	50.7	81.6	23.2	5.1	34.5	65.3	187.2	71.3	142.8	85.2	38.7
g-HCH		DE0001R	ng/l	0.659	0.825	0.731	0.844	1.092	0.833	0.710	0.767	0.426	0.411	0.306	0.261
precipitation	*g-HCH*	DE0001R	mm	58.3	45.5	81.2	24.2	5.5	36.2	66.2	198.8	74.9	89.4	97.7	31.0
										Percentage completion of mandatory programme					**100.0**
Voluntary															
2008															
PCB_28		DE0001R	ng/l	0.134	0.192	0.068	0.104	1.049	0.179	0.090	0.051		0.055	0.044	0.118
PCB_52		DE0001R	ng/l	0.047	0.067	0.073	0.051	0.371	0.063	0.046	0.010		0.020	0.016	0.043
PCB_101		DE0001R	ng/l	0.126	0.180	0.158	0.106	0.881	0.150	0.085	0.041		0.080	0.064	0.172
PCB_118		DE0001R	ng/l	0.049	0.071	0.062	0.042	0.692	0.118	0.040	0.020		0.020	0.016	0.043
PCB_138		DE0001R	ng/l	0.234	0.336	0.094	0.160	1.791	0.306	0.242	0.081		0.108	0.086	0.232
PCB_153		DE0001R	ng/l	0.220	0.315	0.136	0.122	1.572	0.268	0.270	0.069		0.112	0.089	0.242
PCB_180		DE0001R	ng/l	0.058	0.083	0.030	0.063	0.550	0.094	0.041	0.025		0.031	0.025	0.067
anthracene		DE0001R	ng/l	0.134	0.193	0.754	0.438	0.655	0.112	0.123	0.110		0.311	0.367	0.921
benzo(a)anthracene		DE0001R	ng/l	0.777	0.741	1.282	0.915	3.127	1.198	0.689	0.737		2.102	1.762	7.958
benzo(a)pyrene		DE0001R	ng/l	0.572	0.630	0.872	1.153	4.641	1.318	0.661	0.758		1.551	1.880	5.705
benzo(ghi)perylene		DE0001R	ng/l	1.736	1.099	1.242	1.304	5.270	1.248	0.828	0.944		2.147	3.471	11.690
chrysene+triphenalyne		DE0001R	ng/l	3.789	4.353	2.686	3.400	12.406	3.421	2.799	1.632		6.086	7.641	27.348
flouranthene		DE0001R	ng/l	10.191	10.984	8.772	7.031	25.509	8.333	4.858	4.550		9.889	12.960	40.552
indeno(123cd)pyrene		DE0001R	ng/l	1.783	0.938	1.218	1.344	6.940	1.413	0.686	1.000		2.232	2.793	15.134
phenanthrene		DE0001R	ng/l	7.785	6.659	8.782	3.056	31.239	6.628	4.662	6.263		6.613	10.478	25.284
pyrene		DE0001R	ng/l	4.736	4.884	6.501	3.663	16.497	5.119	2.675	2.899		6.281	7.656	25.448
precipitation	*organics*	DE0001R	mm	58.3	45.5	81.2	24.2	5.5	36.2	66.2	198.8	74.9	89.4	97.7	31.0
										Percentage completion of voluntary programme					**92.7**
additional non-CAMP components															
2008															
antimony		DE0001R	µg/l	0.084	0.08	0.056	0.072	0.121	0.053	0.047	0.043	0.075	0.035	0.052	0.078
cobalt		DE0001R	µg/l	0.019	0.019	0.013	0.02	0.036	0.025	0.014	0.009	0.013	0.012	0.014	0.021
iron		DE0001R	µg/l	8.906	9.235	9.726	11.458	26.644	14.737	8.043	4.358	7.919	3.251	6.141	7.221
manganese		DE0001R	µg/l	0.907	0.912	0.73	1.344	37.259	1.94	0.935	0.592	16.524	0.771	0.932	0.484
vanadium		DE0001R	µg/l	0.482	0.697	0.41	0.451	0.673	0.409	0.382	0.399	0.393	0.336	0.451	0.691
precipitation	*metals*	DE0001R	mm	61.8	47.9	74.1	23.0	5.6	35.4	71.0	187.8	85.3	145.5	76.5	36.4
aldrin		DE0001R	ng/l	0.017	0.033	0.012	0.052	0.158	0.027	0.038	0.007		0.022	0.018	0.050
alpha_HCH		DE0001R	ng/l	0.135	0.159	0.107	0.178	0.529	0.090	0.171	0.130		0.191	0.187	0.076
benzo(b,j,k)flouranthene		DE0001R	ng/l	5.100	3.656	2.973	4.633	18.899	3.987	2.863	2.655		6.183	9.721	39.682
dibenzo_ah_anthracene		DE0001R	ng/l	0.315	0.183	0.267	0.183	0.565	0.233	0.165	0.161		0.459	0.456	2.373
dieldrin		DE0001R	ng/l	0.026	0.084	0.118	0.111	0.283	0.048	0.093	0.107		0.041	0.032	0.092
endrin		DE0001R	ng/l	0.043	0.085	0.032	0.116	0.356	0.061	0.119	0.023		0.071	0.057	0.162
HCB		DE0001R	ng/l	0.032	0.046	0.018	0.038	0.140	0.024	0.077	0.025		0.048	0.039	0.074
heptachlor		DE0001R	ng/l	0.016	0.032	0.012	0.052	0.160	0.027	0.038	0.007		0.023	0.018	0.052
op_DDD		DE0001R	ng/l	0.021	0.038	0.011	0.067	0.186	0.032	0.030	0.004		0.025	0.020	0.055
op_DDE		DE0001R	ng/l	0.210	0.039	0.011	0.054	0.152	0.026	0.029	0.006		0.020	0.016	0.044
op_DDT		DE0001R	ng/l	0.035	0.061	0.012	0.120	0.331	0.056	0.043	0.005		0.028	0.022	0.060
pp_DDD		DE0001R	ng/l	0.021	0.028	0.014	0.065	0.183	0.031	0.037	0.007		0.024	0.019	0.051
pp_DDE		DE0001R	ng/l	0.028	0.049	0.014	0.069	0.206	0.035	0.035	0.017		0.025	0.020	0.053
pp_DDT		DE0001R	ng/l	0.039	0.051	0.013	0.126	0.347	0.059	0.260	0.028		0.034	0.027	0.073
precipitation	*organics*	DE0001R	mm	58.3	45.5	81.2	24.2	5.5	36.2	66.2	198.8	74.9	89.4	97.7	31.0
										number of additional components reported					**19**

GERMANY														
Airborne components														
2008														
Mandatory	**station**	**units**						**month**						
			january	february	march	april	may	june	july	august	september	october	november	december
NO2	DE0001R	µg/m^3	2.881	5.262	1.478	1.451	1.341	0.979	2.400	1.277	1.883	1.860	3.078	3.600
HNO3	DE0001R	µg/m^3	0.200	0.112	0.148	0.222	0.296	0.227	0.197	0.145				
NO3	DE0001R	µg/m^3	0.679	1.008	0.570	0.950	0.371	0.411	0.381	0.506				
HNO3+NO3	DE0001R	µg/m^3	0.881	1.126	0.742	1.188	0.666	0.644	0.578	0.657				
NH3	DE0001R	µg/m^3	0.624	0.630	0.721	1.582	2.360	1.557	2.311	1.773				
NH4	DE0001R	µg/m^3	0.910	1.073	0.432	1.089	0.436	0.286	0.251	0.176				
NH3+NH4	DE0001R	µg/m^3	1.534	1.724	1.165	2.672	2.796	1.843	2.561	1.949				
									Percentage completion of mandatory programme					**77.8**
Voluntary														
2008														
NO			*not reported*											
arsenic	DE0001R	ng/m^3	0.373	0.555	0.273	0.426	0.266	0.115	0.171	0.217	0.458	0.218	0.297	0.511
cadmium	DE0001R	ng/m^3	0.112	0.145	0.055	0.103	0.094	0.040	0.041	0.038	0.070	0.061	0.070	0.156
chromium			*not reported*											
copper	DE0001R	ng/m^3	2.277	2.399	0.993	2.079	2.186	0.933	1.226	1.546	3.033	1.527	2.647	2.354
lead	DE0001R	ng/m^3	4.261	5.197	1.825	3.289	2.171	1.504	1.677	1.926	3.026	2.185	2.834	4.567
mercury			*not reported*											
nickel	DE0001R	ng/m^3	1.503	2.227	1.185	2.013	1.521	1.267	1.586	1.486	1.592	1.331	1.128	1.523
zinc	DE0001R	ng/m^3	10.427	14.313	9.752	23.806	12.038	4.462	4.903	3.206	9.865	5.319	7.225	12.285
PCB_28	DE0001R	pg/m^3	*not reported*											
PCB_52	DE0001R	pg/m^3	*not reported*											
PCB_101	DE0001R	pg/m^3	*not reported*											
PCB_118	DE0001R	pg/m^3	*not reported*											
PCB_138	DE0001R	pg/m^3	*not reported*											
PCB_153	DE0001R	pg/m^3	*not reported*											
PCB_180	DE0001R	pg/m^3	*not reported*											
anthracene	DE0001R	pg/m^3	0.081	0.024	0.081	0.083	0.038	0.093	0.176	0.114	0.064	0.025	0.072	0.064
benzo(a)anthracene	DE0001R	pg/m^3	0.529	0.031	0.028	0.023	0.013	0.129	0.013	0.011	0.027	0.014	0.084	0.456
benzo(a)pyrene	DE0001R	pg/m^3	0.494	0.024	0.030	0.025	0.022	0.143	0.034	0.008	0.032	0.005	0.090	0.448
benzo(ghi)perylene	DE0001R	pg/m^3	0.605	0.106	0.080	0.062	0.039	0.191	0.023	0.017	0.061	0.019	0.178	0.577
chrysene+triphenalyn	DE0001R	pg/m^3	0.948	0.187	0.126	0.103	0.051	0.219	0.043	0.031	0.078	0.044	0.209	0.855
flouranthene	DE0001R	pg/m^3	1.826	0.440	0.512	0.432	0.826	1.479	1.396	0.476	0.681	0.292	0.887	2.208
g-HCH	DE0001R	pg/m^3	4.000	5.900	6.500	9.100	22.800	14.700	25.600	7.300	13.700	8.900	7.500	5.500
indeno(123cd)pyrene	DE0001R	pg/m^3	0.704	0.114	0.090	0.059	0.042	0.174	0.020	0.018	0.067	0.018	0.194	0.657
phenanthrene	DE0001R	pg/m^3	3.316	1.260	1.609	1.549	3.753	4.147	4.061	2.845	2.735	0.913	3.641	6.459
pyrene	DE0001R	pg/m^3	1.081	0.224	0.324	0.251	0.311	0.951	0.378	0.222	0.365	0.194	0.475	1.334
									Percentage completion of voluntary programme					**61.5**
additional non-CAMP components														
2008														
antimony	DE0001R	ng/m^3	0.415	0.560	0.192	0.395	0.364	0.233	0.243	0.286	0.420	0.310	0.390	0.482
cobalt	DE0001R	ng/m^3	0.055	0.048	0.022	0.072	0.092	0.060	0.062	0.064	0.087	0.061	0.060	0.079
iron	DE0001R	ng/m^3	69.500	72.220	31.875	96.525	164.580	81.300	66.025	58.740	94.300	38.480	54.225	56.125
manganese	DE0001R	ng/m^3	2.620	2.934	1.177	2.938	4.738	3.017	2.317	1.872	2.495	1.082	1.523	1.488
thallium	DE0001R	ng/m^3	0.042	0.033	0.010	0.005	0.014	0.008	0.004	0.005	0.011	0.016	0.013	0.037
vanadium	DE0001R	ng/m^3	2.537	3.864	2.077	3.667	2.930	2.210	2.580	2.368	2.120	1.592	1.367	1.912
benzo_bjk_fluoranther	DE0001R	pg/m^3	1.809	0.325	0.206	0.146	0.084	0.411	0.044	0.039	0.142	0.045	0.406	1.747
dibenzo_ah_anthracer	DE0001R	pg/m^3	0.105	0.016	0.013	0.010	0.005	0.026	0.002	0.003	0.008	0.002	0.031	0.109
									number of additional components reported					**8**

ICELAND

Components in Precipitation															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		IS0090R	mg/l	0.449	0.289	0.454		1.015	0.172	0.162	0.150	0.090	0.213	0.169	0.197
		IS0091R	mg/l	2.582	0.104	0.005		0.750	0.094	0.169	0.098	0.012	0.005	0.031	0.016
nitrate		IS0090R	mg/l	0.120	0.100	0.146	0.118	0.659	0.001	0.047	0.415	0.049	0.208	0.049	0.025
		IS0091R	mg/l	0.097	0.205	0.055		0.373	0.031	0.030	4.032	0.010	0.005	0.038	0.005
precipitation	*nitrogen*	IS0090R	mm	45.8	94.1	39.3	15.7	25.4	9.0	80.1	76.4	155.3	77.4	73.1	108.6
		IS0091R	mm	158.3	111.9	100.7	144.1	72.8	49.9	100.5	94.7	241.3	62.6	202.8	181.6
arsenic		IS0090R	µg/l	0.130	0.223	0.136	0.095	0.185	0.149	0.119	0.100	0.175	0.212	0.220	0.296
		IS0091R	µg/l	0.033	0.099	0.084	0.089	0.151	0.112	0.045	0.051	0.024	0.031	0.032	0.048
cadmium		IS0090R	µg/l	0.005	0.007	0.005	0.012	0.045	0.014	0.010	0.007	0.005	0.005	0.006	0.006
		IS0091R	µg/l	0.015	0.025	0.006	0.012	0.023	0.025	0.012	0.014	0.001	0.005	0.007	0.005
chomium		IS0090R	µg/l	0.366	0.280	0.354	1.209	0.746	1.512	0.480	0.217	0.126	0.310	0.318	0.300
		IS0091R	µg/l	0.055	0.320	0.193	0.459	0.841	1.294	0.183	0.199	0.063	0.169	0.119	0.168
copper		IS0090R	µg/l	3.883	1.260	1.898	4.348	6.159	6.668	2.761	1.980	0.919	2.098	2.301	2.112
		IS0091R	µg/l	1.276	1.713	0.714	1.030	2.204	2.304	2.047	1.102	0.335	0.593	0.716	0.690
lead		IS0090R	µg/l	0.534	0.189	0.137	0.452	1.246	0.724	0.793	0.224	0.090	0.428	0.155	0.171
		IS0091R	µg/l	0.243	0.389	0.161	0.332	1.309	0.782	0.272	0.347	0.067	0.187	0.235	0.194
mercury				*not reported*											
nickel		IS0090R	µg/l	0.971	0.315	0.341	2.312	1.823	2.066	1.077	0.608	0.116	0.487	0.331	0.128
		IS0091R	µg/l	0.583	0.289	0.280	0.702	1.548	1.427	0.770	0.178	0.076	0.164	0.369	0.253
zinc		IS0090R	µg/l	9.180	2.130	2.590	14.897	14.987	10.872	7.137	4.199	1.517	5.725	4.833	3.080
		IS0091R	µg/l	7.781	13.636	5.198	6.682	15.841	9.574	20.442	31.301	5.719	7.461	6.202	8.593
precipitation	*metals*	IS0090R	mm	45.8	94.1	39.3	15.7	25.4	9.0	80.1	76.4	155.3	77.4	73.1	108.6
precipitation	*metals*	IS0091R	mm	158.3	111.9	100.7	144.1	72.8	49.9	100.5	94.7	241.3	62.6	202.8	181.6
g-HCH		IS0091R	ng/l	0.040	0.037	0.029	0.067	0.105	0.046	0.042	0.011	0.013	0.019	0.019	0.008
precipitation	*g-HCH*	IS0091R	mm	76.6	68.1	52.2	35.8	17.0	16.9	39.2	58.6	130.7	66.4	85.0	89.0
										Percentage completion of mandatory programme					**90.2**
Voluntary															
2008															
PCB_28		IS0091R	ng/l	0.010	0.012	0.015	0.022	0.047	0.047	0.021	0.014	0.006	0.012	0.009	0.009
PCB_52		IS0091R	ng/l	0.006	0.015	0.006	0.008	0.018	0.018	0.008	0.005	0.002	0.005	0.004	0.003
PCB_101		IS0091R	ng/l	0.029	0.052	0.006	0.015	0.018	0.027	0.005	0.003	0.002	0.007	0.008	0.004
PCB_118		IS0091R	ng/l	0.033	0.060	0.007	0.010	0.012	0.012	0.005	0.003	0.002	0.007	0.006	0.002
PCB_138		IS0091R	ng/l	0.050	0.088	0.015	0.022	0.021	0.020	0.008	0.007	0.005	0.012	0.010	0.005
PCB_153		IS0091R	ng/l	0.040	0.061	0.012	0.029	0.019	0.035	0.008	0.003	0.003	0.008	0.010	0.005
PCB_180		IS0091R	ng/l	0.016	0.027	0.006	0.018	0.012	0.012	0.005	0.003	0.002	0.003	0.005	0.002
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
precipitation	*voluntary organics*	IS0091R	mm	76.6	68.1	52.2	35.8	17.0	16.9	39.2	58.6	130.7	66.4	85.0	89.0
										Percentage completion of voluntary programme					**43.8**
additional non-CAMP components															
2008															
aluminium		IS0091R	µg/l	55.611	296.938	171.647	242.308	187.492	490.825	183.099	95.951	55.573	149.710	58.800	159.444
iron		IS0090R	µg/l	167.812	54.317	86.783	485.052	317.228	1763.134	279.254	152.792	74.073	218.026	225.115	143.036
		IS0091R	µg/l	75.431	305.724	189.449	267.332	192.199	760.263	258.376	171.737	79.776	200.340	79.076	191.081
manganese		IS0090R	µg/l	2.615	1.568	1.952	9.131	7.778	30.251	5.320	2.245	1.089	3.195	2.901	1.753
		IS0091R	µg/l	1.206	5.759	3.917	6.084	6.087	13.675	4.491	4.754	1.352	3.521	1.615	3.143
vanadium		IS0090R	µg/l	0.888	1.605	0.928	1.383	1.300	4.537	0.964	0.756	1.332	1.843	1.836	2.453
		IS0091R	µg/l	0.269	1.229	0.741	1.238	1.103	2.735	0.932	0.584	0.253	0.657	0.331	0.822
precipitation	*metals*	IS0090R	mm	45.8	94.1	39.3	15.7	25.4	9.0	80.1	76.4	155.3	77.4	73.1	108.6
precipitation	*metals*	IS0091R	mm	158.3	111.9	100.7	144.1	72.8	49.9	100.5	94.7	241.3	62.6	202.8	181.6
PCB_31		IS0091R	ng/l	0.008	0.009	0.012	0.017	0.035	0.035	0.015	0.010	0.005	0.009	0.007	0.007
PCB_105		IS0091R	ng/l	0.023	0.040	0.004	0.011	0.012	0.012	0.005	0.003	0.002	0.005	0.002	0.002
PCB_156		IS0091R	ng/l	0.010	0.018	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
HCB		IS0091R	ng/l	0.015	0.016	0.016	0.022	0.018	0.018	0.008	0.007	0.006	0.010	0.009	0.011
alpha_HCH		IS0091R	ng/l	0.116	0.084	0.087	0.106	0.123	0.147	0.090	0.058	0.047	0.094	0.049	0.036
beta_HCH		IS0091R	ng/l	0.007	0.004	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
cis_CD		IS0091R	ng/l	0.005	0.003	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
dieldrin		IS0091R	ng/l	0.032	0.019	0.020	0.020	0.036	0.012	0.024	0.018	0.015	0.026	0.017	0.028
op_DDT		IS0091R	ng/l	0.003	0.003	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
pp_DDD		IS0091R	ng/l	0.003	0.003	0.004	0.006	0.012	0.012	0.005	0.003	0.003	0.005	0.002	0.002
pp_DDE		IS0091R	ng/l	0.004	0.003	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
pp_DDT		IS0091R	ng/l	0.003	0.003	0.004	0.006	0.012	0.012	0.008	0.003	0.004	0.005	0.002	0.002
trans_CD		IS0091R	ng/l	0.003	0.003	0.004	0.006	0.012	0.012	0.005	0.003	0.002	0.003	0.002	0.002
trans_NO		IS0091R	ng/l	0.005	0.005	0.004	0.006	0.012	0.023	0.005	0.003	0.002	0.003	0.002	0.002
txph-26		IS0091R	ng/l	0.005	0.001	0.002	0.003	0.011	0.006	0.003	0.002	0.001	0.002	0.001	0.003
txph-50		IS0091R	ng/l	0.007	0.005	0.006	0.006	0.012	0.012	0.005	0.007	0.004	0.006	0.005	0.007
txph-62		IS0091R	ng/l	0.005	0.006	0.008	0.011	0.024	0.024	0.008	0.005	0.002	0.005	0.004	0.003
precipitation	*voluntary organics*	IS0091R	mm	76.6	68.1	52.2	35.8	17.0	16.9	39.2	58.6	130.7	66.4	85.0	89.0
precipitation_amount_off		IS0090R	mm	78.3	145.3	50.7	21.5	30.9	13.5	50.9	82.8	172.5	91.9	80.0	132.3
precipitation_amount_off		IS0091R	mm	238.0	157.4	145.6	80.7	53.5	47.8	119.7	116.5	279.5	170.5	164.6	228.3
precipitation_amount_off		IS0091R	mm	232.7	152.1	145.9	80.7	54.1	46.8	120.7	110.2	278.2	172.6	165.1	223.2
										number of additional components reported					**24**

ICELAND

Airborne components

Mandatory	**station**	**units**							**month**					
2008			january	february	march	april	may	june	july	august	september	october	november	december
NO2			*not reported*											
HNO3			*not reported*											
NO3	IS0091R	µg/m^3	0.030	0.084	0.030	0.122	0.105	0.055	0.102	0.090	0.029	0.011	0.021	0.039
HNO3+NO3			*not reported*											
NH3			*not reported*											
NH4			*not reported*											
NH3+NH4			*not reported*											
									Percentage completion of mandatory programme					**25.0**
Voluntary														
2008														
NO			*not reported*											
arsenic	IS0091R	ng/m^3	0.020	0.041	0.132	0.190	0.045	0.055	0.056	0.040	0.020	0.059	0.030	0.024
cadmium	IS0091R	ng/m^3	0.114	0.297	0.106	0.032	0.010	0.016	0.161	0.012	0.007	0.048	0.019	0.171
chomium	IS0091R	ng/m^3	6.209	3.998	52.909	11.688	11.541	15.790	15.727	9.406	19.585	7.304	11.660	10.678
copper	IS0091R	ng/m^3	0.804	1.596	6.271	2.249	0.463	0.877	1.043	1.186	1.055	1.999	0.963	1.284
lead	IS0091R	ng/m^3	1.110	1.829	1.070	1.074	0.384	0.394	3.840	0.250	0.465	4.279	0.827	6.625
mercury	IS0091R	ng/m^3	1.992	2.218	2.872	3.959	1.744	3.686	2.659	2.339	1.760	1.655	1.088	0.980
nickel	IS0091R	ng/m^3	7.366	4.121	81.836	7.468	7.079	9.680	10.635	6.408	12.171	4.767	7.740	6.566
zinc	IS0091R	ng/m^3	26.992	6.410	22.175	15.482	3.013	3.425	30.807	3.362	2.357	12.724	2.980	20.687
PCB_28	IS0091R	pg/m^3	1.539	1.614	2.633	2.979	3.639	4.399	6.757	5.256	4.309	2.044	2.100	1.771
PCB_52	IS0091R	pg/m^3	1.207	1.130	3.080	3.339	4.087	5.218	5.255	4.710	3.950	2.044	2.100	1.821
PCB_101	IS0091R	pg/m^3	0.472	0.526	1.541	2.003	2.941	3.683	4.354	3.768	2.873	1.346	1.281	1.107
PCB_118	IS0091R	pg/m^3	0.149	0.182	0.372	0.467	0.608	0.680	0.666	0.565	0.400	0.155	0.164	0.168
PCB_138	IS0091R	pg/m^3	0.099	0.104	0.183	0.103	0.214	0.292	0.395	0.312	0.169	0.100	0.102	0.098
PCB_153	IS0091R	pg/m^3	0.244	0.396	0.367	0.416	0.583	0.726	0.646	0.526	0.385	0.155	0.154	0.158
PCB_180	IS0091R	pg/m^3	0.099	0.104	0.277	0.103	0.100	0.102	0.100	0.099	0.103	0.100	0.102	0.098
anthracene			*not reported*											
benzo(a)anthracene			*not reported*											
benzo(a)pyrene			*not reported*											
benzo(ghi)perylene			*not reported*											
chrysene			*not reported*											
flouranthene			*not reported*											
g-HCH	IS0091R	pg/m^3	1.583	1.667	8.646	7.509	9.622	8.595	6.907	5.651	4.477	2.100	2.053	1.862
indeno(123cd)pyrene			*not reported*											
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**61.5**
additional non-CAMP components														
2008														
aluminium	IS0091R	ng/m^3	83.122	123.000	450.374	1087.216	102.476	424.276	286.056	224.917	37.326	278.639	198.169	110.394
iron	IS0091R	ng/m^3	168.554	258.664	951.261	2264.964	313.130	922.878	656.345	536.229	204.575	584.482	462.434	299.361
manganese	IS0091R	ng/m^3	2.886	4.297	16.659	34.744	3.999	12.777	8.970	7.281	2.420	7.954	5.873	4.018
vanadium	IS0091R	ng/m^3	0.534	0.827	4.201	7.771	0.891	2.814	2.390	1.817	0.440	1.714	1.915	0.974
PCB_31	IS0091R	pg/m^3	1.241	1.353	1.987	2.312	3.090	3.836	4.605	3.024	2.206	1.296	1.486	1.329
PCB_105	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.100	0.099	0.103	0.100	0.102	0.098
PCB_156	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.100	0.099	0.103	0.100	0.102	0.098
HCB	IS0091R	pg/m^3	10.290	7.756	7.510	6.883	4.636	4.553	3.904	3.917	4.873	7.278	10.911	6.884
alpha_HCH	IS0091R	pg/m^3	5.211	5.674	6.166	6.062	5.483	5.065	3.304	3.818	4.515	7.128	5.737	5.211
beta_HCH	IS0091R	pg/m^3	0.365	0.390	0.099	0.318	0.683	0.926	1.096	1.041	0.600	0.354	0.200	0.098
cis_CD	IS0091R	pg/m^3	0.367	0.359	0.397	0.416	0.434	0.425	0.440	0.407	0.426	0.339	0.379	0.389
dieldrin	IS0091R	pg/m^3	0.764	0.781	0.700	0.735	1.156	0.946	1.051	1.076	1.011	0.728	0.779	0.733
op_DDT	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.100	0.099	0.103	0.100	0.102	0.098
pp_DDD	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.100	0.099	0.103	0.100	0.102	0.098
pp_DDE	IS0091R	pg/m^3	0.224	0.104	0.099	0.170	0.209	0.235	0.526	0.357	0.267	0.100	0.102	0.177
pp_DDT	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.100	0.099	0.195	0.155	0.102	0.098
trans_CD	IS0091R	pg/m^3	0.198	0.219	0.258	0.252	0.209	0.251	0.150	0.099	0.103	0.100	0.102	0.173
trans_NO	IS0091R	pg/m^3	0.297	0.318	0.373	0.442	0.464	0.430	0.375	0.322	0.292	0.224	0.272	0.295
txph_26	IS0091R	pg/m^3	0.114	0.094	0.109	0.154	0.199	0.210	0.105	0.074	0.051	0.050	0.051	0.049
txph_50	IS0091R	pg/m^3	0.099	0.104	0.099	0.103	0.100	0.102	0.075	0.050	0.051	0.050	0.051	0.049
txph_62	IS0091R	pg/m^3	0.198	0.208	0.199	0.205	0.199	0.205	0.150	0.149	0.154	0.150	0.154	0.148
									number of additional components reported					**21**

IRELAND

Components in Precipitation															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		IE0001R	mg/l	0.180	0.090	0.340	0.180	0.390	0.200	0.210	0.090	0.170	0.090	0.400	1.670
nitrate		IE0001R	mg/l	0.100	0.070	0.120	0.110	0.310	0.080	0.150	0.060	0.070	0.060	0.040	0.050
precipitation	*nitrogen*	IE0001R	mm	277.0	108.0	164.0	51.0	103.0	148.0	93.0	182.0	88.0	245.0	112.0	104.0
arsenic		IE0001R	µg/l		0.500	0.500	0.500	0.500	0.500	0.500	0.500		0.500	0.500	0.500
cadmium		IE0001R	µg/l		0.050	0.050	0.050	0.050	0.050	0.050	0.050		0.050	0.500	0.050
chomium		IE0001R	µg/l		0.500	0.500	0.500	0.500	0.500	0.500	0.500		0.500	0.500	0.500
copper		IE0001R	µg/l		0.500	0.500	0.500	0.500		2.200	0.500		2.700	0.500	0.500
lead		IE0001R	µg/l		0.500	0.500	0.500	0.500	0.500	0.500	0.500		0.500	0.500	0.500
mercury		IE0001R	ng/l		50.000	50.000	50.000	50.000	50.000	50.000	50.000		50.000	50.000	50.000
nickel		IE0001R	µg/l		0.500	0.500	0.500	0.500	0.500	0.500	0.500		0.500	0.500	0.500
zinc		IE0001R	µg/l		0.500	0.500	0.500	3.100	10.200	10.100	2.700		8.480	6.000	18.900
precipitation	*all metals*	IE0001R	mm	277.0	108.0	164.0	51.0	103.0	148.0	93.0	182.0	88.0	245.0	112.0	104.0
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**78.0**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**
additional non-CAMP components															
2008															
aluminium		IE0001R	µg/l	25.000	19.100	17.400	38.700	25.000	72.900	25.000	23.600	21.500	16.900	22.900	15.900
manganese		IE0001R	µg/l	4.200	9.400	4.100	6.900	3.500	13.600	3.400	7.300	2.500	3.200	4.200	2.300
vanadium		IE0001R	µg/l	0.500	0.500	0.500	0.500	0.500	2.200	0.500	0.500	0.500	0.500	0.500	0.500
										number of additional components reported					**3**

IRELAND

Airborne components

Mandatory	**station**	**units**	**month**											
			january	february	march	april	may	june	july	august	september	october	november	december
NO2			*not reported*											
HNO3			*not reported*											
NO3			*not reported*											
HNO3+NO3			*not reported*											
NH3			*not reported*											
NH4			*not reported*											
NH3+NH4			*not reported*											
									Percentage completion of mandatory programme					**0,00**

Voluntary														
NO			*not reported*											
arsenic			*not reported*											
cadmium			*not reported*											
chomium			*not reported*											
copper			*not reported*											
lead			*not reported*											
mercury			*not reported*											
nickel			*not reported*											
zinc			*not reported*											
PCB_28			*not reported*											
PCB_52			*not reported*											
PCB_101			*not reported*											
PCB_118			*not reported*											
PCB_138			*not reported*											
PCB_153			*not reported*											
PCB_180			*not reported*											
anthracene			*not reported*											
benzo(a)anthracene			*not reported*											
benzo(a)pyrene			*not reported*											
benzo(ghi)perylene			*not reported*											
chrysene			*not reported*											
flouranthene			*not reported*											
g-HCH			*not reported*											
indeno(123cd)pyrene			*not reported*											
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**0,00**

NETHERLANDS

Components in Precipitation															
Mandatory		**station**	**units**						**month**						
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		NL0009R	mg/l	0.300	0.917		1.037	1.300	1.034	0.560	0.600	0.874	0.266	0.240	0.398
		NL0091R		0.277	1.049	0.456	0.801	1.417	0.893	0.396	0.400	0.680	0.303	0.245	0.251
nitrate		NL0009R	mg/l	0.250	0.388		0.643	0.543	0.597	0.324	0.395	0.395	0.162	0.149	0.374
		NL0091R		0.272	0.471	0.362	0.851	0.780	0.606	0.349	0.271	0.378	0.289	0.230	0.427
precipitation	*nitrogen*	NL0009R	mm	97.7	47.4	110.8	41.8	21.0	42.4	119.1	127.6	65.2	114.2	73.8	33.4
		NL0091R		79.3	24.3	99.3	19.8	49.3	29.9	109.7	103.5	52.4	97.5	113.7	60.1
arsenic		NL0009R	µg/l	0.079	0.123	0.155	0.151	0.246	0.252	0.076	0.076	0.083	0.083	0.084	0.075
		NL0091R		0.075	0.132	0.075	0.155	0.185	0.229	0.075	0.075	0.079	0.075	0.075	0.075
cadmium		NL0009R	µg/l	0.017	0.024	0.023	0.050	0.047	0.030	0.017	0.017	0.018	0.017	0.017	0.018
		NL0091R		0.030	0.020	0.037	0.083	0.053	0.022	0.019	0.017	0.030	0.017	0.019	0.048
chomium		NL0009R	µg/l	0.260	0.312	0.260	0.260	0.260	0.490	0.314	0.448	0.260	0.260	0.284	0.260
		NL0091R		0.260	0.260	0.260	0.260	0.260	0.260	0.298	0.260	0.260	0.260	0.260	0.260
copper		NL0009R	µg/l	0.320	0.711	0.631	1.134	1.347	0.973	0.552	0.550	0.729	0.984	0.392	0.626
		NL0091R		0.701	0.677	0.801	1.918	1.326	1.243	0.672	0.603	0.897	0.715	0.648	0.843
lead		NL0009R	µg/l	0.577	0.667	0.739	1.021	1.395	0.864	0.681	0.727	0.732	0.284	0.229	0.381
		NL0091R		0.673	0.615	0.953	2.696	1.694	0.837	0.720	0.742	0.906	0.686	0.667	0.646
mercury		NL0091R	ng/l	4.252	7.299	9.578	12.763	17.426	26.528	14.147	16.527	14.703	7.965	6.363	4.929
nickel		NL0009R	µg/l	0.205	0.205	0.205	0.271	0.370	0.304	0.205	0.205	0.217	0.205	0.205	0.209
		NL0091R		0.205	0.228	0.205	0.399	0.352	0.267	0.281	0.205	0.237	0.291	0.219	0.205
zinc		NL0009R	µg/l	4.038	3.223	4.277	5.034	6.659	3.491	2.595	2.007	4.322	2.320	2.555	2.534
		NL0091R		2.374	4.405	3.023	6.940	6.941	3.950	2.564	2.461	4.120	3.443	2.348	5.237
precipitation	*metals exc. Hg*	NL0009R	mm	99.4	39.6	103.7	41.7	20.0	34.4	123.8	124.8	70.9	105.2	76.7	27.1
		NL0091R		90.5	26.9	100.1	20.0	54.0	18.8	106.5	107.2	55.4	82.1	116.7	54.5
	Hg	NL0091R		85.7	26.0	97.0	22.6	45.1	17.5	101.1	92.4	45.6	94.9	91.3	49.5
g-HCH		NL0091R	ng/l	3.000	5.000	3.000	3.000	5.000	2.000	2.000	2.000	6.000	2.000	1.000	
precipitation	*g-HCH*	NL0091R	mm	84.4	42.7	123.5	32.0	43.6	53.2	132.0	115.8	73.6	120.8	112.7	28.2
										Percentage completion of mandatory programme					**99.2**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

NETHERLANDS														
Airborne components														
2008														
Mandatory	**station**	**units**						**month**						
			january	february	march	april	may	june	july	august	september	october	november	december
NO2	NL0009R	µg/m^3	4.237	5.657	2.515	-9999.99	-9999.99	-9999.99	-9999.99	-9999.99	-9999.99	3.88	3.624	5.325
	NL0091R	µg/m^3	6.119	9.331	3.87	5.092	4.293	2.989	3.498	3.237	4.625	5.646	6.079	7.645
HNO3			*not reported*											
NO3	NL0009R	µg/m^3	0.656	1.051	0.492	0.878	0.572	0.753	0.497	0.502	0.75	0.635	0.665	0.753
	NL0091R	µg/m^3	0.472	0.976	0.45	0.754	0.646	0.596	0.454	0.477	0.508	0.431	0.539	0.544
HNO3+NO3			*not reported*											
NH3	NL0091R	µg/m^3	0.624	3.209	1.013	2.109	4.948	1.68	1.439	1.729	1.856	0.829	0.959	0.45
NH4	NL0009R	µg/m^3	0.806	1.614	0.552	1.037	0.957	1.136	0.855	0.921	0.743	0.885	1.102	1.48
	NL0091R	µg/m^3	0.826	1.237	0.614	1.012	1.156	1.107	0.636	0.873	0.696	0.582	0.922	0.984
NH3+NH4			*not reported*											
									Percentage completion of mandatory programme					**80.0**
Voluntary														
2008														
NO	NL0009R	µg/m^3	0.223	1.308	0.152	0.464	0.531	0.443	0.44	0.447	0.637	0.818	1.133	1.553
	NL0091R	µg/m^3	0.889	4.032	0.268	0.861	0.462	0.365	0.475	0.322	1.056	2.475	3.827	4.235
arsenic	NL0009R	ng/m^3	0.493	0.454	0.211	0.343	0.326	0.251	0.266	0.281	0.661	0.301	0.402	0.814
cadmium	NL0009R	ng/m^3	0.155	0.143	0.091	0.091	0.091	0.091	0.116	0.091	0.091	0.111	0.128	0.207
chromium			*not reported*											
copper			*not reported*											
lead	NL0009R	ng/m^3	8.13	10.464	4.239	6.194	4.229	3.941	3.947	4.456	6.059	5.864	7.739	10.581
mercury			*not reported*											
nickel	NL0009R	ng/m^3	2.043	3.582	2.019	3.196	3.768	3.743	1.541	1.974	2.09	2.173	2.367	1.058
zinc	NL0009R	ng/m^3	22.318	28.828	29.13	31.988	17.64	14.389	26.388	11.435	20.772	35.507	25.361	31.654
PCB_28			*not reported*											
PCB_52			*not reported*											
PCB_101			*not reported*											
PCB_118			*not reported*											
PCB_138			*not reported*											
PCB_153			*not reported*											
PCB_180			*not reported*											
anthracene			*not reported*											
benzo(a)anthracene			*not reported*											
benzo(a)pyrene			*not reported*											
benzo(ghi)perylene			*not reported*											
chrysene			*not reported*											
flouranthene			*not reported*											
g-HCH			*not reported*											
indeno(123cd)pyrene			*not reported*											
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**23.1**

NORWAY

Components in Precipitation															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		NO0001R	mg/l	0.188	0.322	0.610	0.865	0.398	0.287	0.114	0.044	0.242	0.191	0.191	0.350
		NO0039R		0.060	0.070	0.099	0.200	0.144	0.093	0.122	0.068	0.046	0.059	0.056	0.080
		NO0057R		0.082	0.322	0.147	0.221	0.316	0.005	0.070	0.466	0.039	0.038	0.052	0.860
nitrate		NO0001R	mg/l	0.329	0.323	0.570	0.838	0.288	0.358	0.208	0.137	0.259	0.216	0.336	0.446
		NO0039R		0.052	0.053	0.028	0.253	0.107	0.058	0.117	0.106	0.169	0.163	0.013	0.036
		NO0057R		0.048	0.071	0.153	0.404	0.346	0.150	0.020	0.934	0.069	0.005	0.030	0.145
precipitation	*nitrogen*	NO0001R	mm	423.8	116.1	219.8	132.2	20.6	122.3	145.7	222.8	158.2	217.9	124.0	86.5
		NO0039R		100.2	234.1	135.0	27.9	99.8	129.6	79.0	145.1	105.3	67.1	222.7	80.6
		NO0057R		70.6	28.4	2.2	4.3	2.0	2.4	35.5	8.2	74.5	40.1	19.1	56.3
arsenic		NO0001R	µg/l	0.216	0.239	0.166	0.209	0.187	0.155	0.116	0.072	0.052	0.132	0.174	0.191
cadmium		NO0001R	µg/l	0.038	0.016	0.024	0.077	0.055	0.016	0.015	0.007	0.009	0.010	0.017	0.038
cadmium		NO0039R	µg/l	0.003	0.002	0.002	0.018	0.018	0.004	0.003	0.007	0.004	0.005	0.002	0.002
chromium		NO0001R	µg/l	0.110	0.237	0.157	0.100	0.100	0.131	0.100	0.100	0.100	0.105	0.100	0.100
copper		NO0001R	µg/l	0.421	0.388	0.486	0.919	0.501	0.548	0.239	0.162	0.284	0.319	0.221	0.268
lead		NO0001R	µg/l	1.100	0.684	0.948	1.904	1.076	0.670	0.285	0.228	0.383	0.460	0.521	1.000
lead		NO0039R	µg/l	0.048	0.069	0.093	0.153	0.350	0.135	0.159	0.080	0.087	0.098	0.035	0.048
mercury		NO0001R	ng/l	3.139	6.800	7.420	9.600	18.000	16.000	9.952	6.838	5.078	3.987	4.227	1.800
nickel		NO0001R	µg/l	0.141	0.100	0.100	0.152	0.138	0.147	0.126	0.113	0.175	0.166	0.100	0.100
zinc		NO0001R	µg/l	4.091	2.507	3.113	6.255	4.740	2.769	1.371	0.844	1.733	1.890	1.668	3.472
zinc		NO0039R	µg/l	1.244	0.474	0.389	2.624	3.698	0.682	0.888	1.978	2.791	1.175	0.073	0.287
precipitation	*metals ex. Hg*	NO0001R	mm	396.2	111.7	201.3	133.4	14.0	90.3	110.7	159.0	164.4	206.3	123.5	85.9
precipitation	*metals ex. Hg*	NO0039R	mm	101.2	223.5	117.0	26.8	118.8	127.3	77.5	141.9	106.5	74.6	220.8	82.4
precipitation	*mercury*	NO0001R	mm	404.3	116.1	219.8	132.2	20.6	122.3	145.7	222.8	158.2	217.9	124.0	86.5
g-HCH		NO0001R	ng/l	0.316	0.476	0.486	0.668	0.489	0.494	0.410	0.310	0.436	0.439	0.331	0.160
precipitation	*organics*	NO0001R	mm	195.2	113.5	199.9	130.2	25.0	120.1	159.1	206.4	165.3	171.2	127.7	85.8
										Percentage completion of mandatory programme					**100.0**
Voluntary															
2008															
PCB_28		NO0001R	ng/l	0.013	0.031	0.025	0.017	0.020	0.013	0.010	0.021	0.019	0.013	0.013	0.012
PCB_52		NO0001R	ng/l	0.015	0.040	0.032	0.015	0.019	0.013	0.029	0.029	0.022	0.011	0.019	0.013
PCB_101		NO0001R	ng/l	0.020	0.051	0.037	0.017	0.021	0.016	0.036	0.058	0.026	0.008	0.013	0.015
PCB_118		NO0001R	ng/l	0.017	0.026	0.015	0.015	0.012	0.012	0.032	0.073	0.022	0.004	0.005	0.010
PCB_138		NO0001R	ng/l	0.023	0.044	0.034	0.018	0.013	0.013	0.045	0.116	0.023	0.005	0.007	0.015
PCB_153		NO0001R	ng/l	0.039	0.053	0.056	0.025	0.016	0.021	0.085	0.199	0.043	0.007	0.011	0.016
PCB_180		NO0001R	ng/l	0.014	0.031	0.039	0.012	0.006	0.005	0.012	0.049	0.008	0.002	0.004	0.011
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
precipitation	*organics*	NO0001R	mm	195.2	113.5	199.9	130.2	25.0	120.1	159.1	206.4	165.3	171.2	127.7	85.8
										Percentage completion of voluntary programme					**43.8**
additional non-CAMP components															
2008															
cobalt		NO0001R	µg/l	0.013	0.018	0.014	0.031	0.017	0.022	0.008	0.007	0.006	0.009	0.005	0.005
vanadium		NO0001R	µg/l	1.161	1.240	0.827	0.701	0.303	0.820	0.375	0.328	0.390	0.644	0.885	0.821
HCB		NO0001R	ng/l	0.096	0.117	0.076	0.154	0.146	0.058	0.040	0.045	0.064	0.092	0.127	0.172
a-HCH		NO0001R	ng/l	0.179	0.295	0.228	0.277	0.362	0.188	0.192	0.172	0.218	0.279	0.216	0.175
precipitation	*metals*	NO0001R	mm	396.2	111.7	201.3	133.4	14.0	90.3	110.7	159.0	164.4	206.3	123.5	85.9
precipitation	*organics*	NO0001R	mm	195.2	113.5	199.9	130.2	25.0	120.1	159.1	206.4	165.3	171.2	127.7	85.8
										number of additional components reported					**4**

NORWAY

Airborne components

2008

Mandatory	**station**	**units**	**month**											
			january	february	march	april	may	june	july	august	september	october	november	december
NO2	NO0001R	µg/m^3	0.585	0.508	0.162	0.392	0.146	0.245	0.355	0.304	0.319	0.324	0.402	0.387
	NO0039R	µg/m^3	0.167	0.150	0.096	0.033	0.058	0.195	0.183	0.205	0.286	0.294	0.390	0.296
HNO3	NO0039R	µg/m^3	0.021	0.031	0.018	0.045	0.059	0.020	0.019	0.014	0.015	0.014	0.014	0.015
NO3	NO0001R	µg/m^3	0.131	0.159	0.319	0.332	0.093	0.127	0.192	0.144	0.080	0.096	0.071	0.062
	NO0039R	µg/m^3	0.041	0.088	0.052	0.180	0.050	0.024	0.013	0.026	0.012	0.007	0.013	0.028
	NO0042R	µg/m^3	0.034	0.031	0.156	0.132	0.149	0.028	0.076	0.064	0.042	0.066	0.112	0.010
HNO3+NO3	NO0001R	µg/m^3	0.154	0.199	0.350	0.414	0.158	0.170	0.262	0.172	0.104	0.120	0.088	0.098
	NO0039R	µg/m^3	0.064	0.120	0.072	0.228	0.109	0.045	0.033	0.040	0.026	0.022	0.027	0.045
	NO0042R	µg/m^3	0.047	0.047	0.177	0.153	0.169	0.043	0.091	0.094	0.080	0.099	0.157	0.030
NH3	NO0039R	µg/m^3	0.670	0.689	0.310	0.529	0.784	0.779	0.723	0.655	0.645	0.694	0.816	0.463
NH4	NO0001R	µg/m^3	0.092	0.078	0.184	0.396	0.217	0.087	0.172	0.062	0.124	0.035	0.055	0.118
	NO0039R	µg/m^3	0.044	0.008	0.050	0.148	0.215	0.039	0.031	0.046	0.044	0.006	0.020	0.019
	NO0042R	µg/m^3	0.008	0.040	0.116	0.151	0.114	0.033	0.007	0.064	0.044	0.031	0.086	0.028
NH3+NH4	NO0001R	µg/m^3	0.326	0.373	0.437	0.726	0.648	0.514	0.751	0.678	0.484	0.289	0.276	0.375
	NO0039R	µg/m^3	0.716	0.697	0.358	0.676	0.998	0.820	0.753	0.641	0.691	0.701	0.854	0.481
	NO0042R	µg/m^3	0.216	0.265	0.288	0.377	0.326	0.234	0.380	0.460	0.278	0.318	0.424	0.458
									Percentage completion of mandatory programme					**100.0**

Voluntary														
2008														
NO			*not reported*											
arsenic	NO0001R	ng/m^3	0.233	0.163	0.245	0.299	0.273	0.196	0.188	0.251	0.270	0.107	0.091	0.139
	NO0042R	ng/m^3	0.087	0.067	0.173	0.090	0.027	0.007	0.007	0.005	0.004	0.014	0.037	0.057
cadmium	NO0001R	ng/m^3	0.095	0.036	0.036	0.056	0.033	0.020	0.023	0.023	0.030	0.034	0.021	0.033
	NO0042R	ng/m^3	0.020	0.017	0.037	0.029	0.009	0.002	0.005	0.001	0.001	0.308	0.006	0.012
chomium	NO0001R	ng/m^3	0.817	0.102	0.354	0.541	0.408	2.621	8.566	9.382	12.181	5.940	5.860	6.993
	NO0042R	ng/m^3	0.207	0.037	0.125	0.051	0.021	0.022	0.059	0.022	0.019	0.434	0.034	0.165
copper	NO0001R	ng/m^3	2.065	0.425	0.582	2.289	0.826	0.599	0.757	0.716	0.891	0.202	0.384	0.674
	NO0042R	ng/m^3	0.294	0.345	0.390	0.344	0.135	0.215	0.234	0.237	0.164	4.080	0.295	1.684
lead	NO0001R	ng/m^3	3.252	1.257	1.114	1.729	1.019	0.642	0.635	0.549	0.517	0.880	0.597	0.682
	NO0042R	ng/m^3	0.674	0.488	1.235	0.720	0.203	0.047	0.074	0.046	0.027	2.902	0.233	0.444
mercury	NO0042R	ng/m^3	1.580	1.604	1.448	1.292	1.504	1.544	1.693	1.654	1.742	1.603	1.626	1.605
	NO0058R	ng/m^3	0.803	0.852	0.923	0.980	0.984	1.010	1.034	0.958	0.975	0.878	0.741	0.906
nickel	NO0001R	ng/m^3	1.009	0.424	0.499	0.928	0.607	0.454	0.569	0.645	0.410	0.188	0.253	0.467
	NO0042R	ng/m^3	0.073	0.071	0.135	0.114	0.021	0.021	0.048	0.021	0.018	0.593	0.064	0.240
zinc	NO0001R	ng/m^3	9.059	2.698	3.148	5.688	3.537	2.180	2.588	3.042	2.684	3.080	2.551	4.409
	NO0042R	ng/m^3	1.860	3.273	5.178	2.488	0.671	0.488	0.322	0.551	0.417	6.482	0.549	2.714
PCB_28	NO0001R	pg/m^3	3.162	2.894	2.364	4.999	1.832	1.262	1.452	0.888	1.381	1.075	1.003	1.061
PCB_52	NO0001R	pg/m^3	2.931	2.862	2.135	4.109	1.447	1.219	1.524	0.868	1.200	0.876	0.852	0.863
PCB_101	NO0001R	pg/m^3	1.288	1.959	0.970	2.277	0.822	0.843	1.080	0.533	0.709	0.433	0.414	0.396
PCB_118	NO0001R	pg/m^3	0.368	0.887	0.267	0.736	0.254	0.316	0.326	0.160	0.230	0.124	0.121	0.114
PCB_138	NO0001R	pg/m^3	0.402	1.058	0.304	0.844	0.308	0.628	0.554	0.239	0.274	0.150	0.135	0.138
PCB_153	NO0001R	pg/m^3	0.735	1.437	0.567	1.346	0.502	0.826	0.862	0.362	0.415	0.235	0.219	0.227
PCB_180	NO0001R	pg/m^3	0.145	0.427	0.111	0.336	0.126	0.309	0.291	0.103	0.093	0.058	0.052	0.057
anthracene	NO0001R	pg/m^3					0.338	0.028	0.017	0.014	0.019	0.021	0.027	0.050
benzo(a)anthracene	NO0001R	pg/m^3					0.010	0.015	0.013	0.014	0.015	0.022	0.020	0.142
benzo(a)pyrene	NO0001R	pg/m^3					0.010	0.012	0.011	0.016	0.013	0.018	0.021	0.170
benzo(ghi)perylene	NO0001R	pg/m^3					0.020	0.024	0.017	0.028	0.022	0.032	0.033	0.158
chrysene			*not reported*											
chrysene+triphenalyene	NO0001R	pg/m^3					0.037	0.066	0.035	0.042	0.034	0.046	0.029	0.173
flouranthene	NO0001R	pg/m^3					0.076	0.129	0.262	0.118	0.127	0.150	0.145	0.478
g-HCH	NO0001R	pg/m^3	5.293	4.803	3.054	7.711	6.462	6.827	7.672	4.922	5.050	3.049	2.315	2.217
	NO0042G	pg/m^3	1.320	1.595	2.108	1.917	1.460	1.136	1.179	1.403	1.567	1.478	1.379	1.489
indeno(123cd)pyrene	NO0001R	pg/m^3					0.020	0.024	0.014	0.023	0.022	0.034	0.036	0.207
	NO0042G	pg/m^3	0.008	0.010	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.010
phenanthrene	NO0001R	pg/m^3					0.537	0.945	0.819	0.658	0.586	0.672	0.558	1.347
pyrene	NO0001R	pg/m3					0.046	0.074	0.156	0.072	0.086	0.103	0.098	0.330
									Percentage completion of voluntary programme					**81.5**

NORWAY															
additional non-CAMP components															
2008															
PCB_99		NO0001R	pg/m^3	0.508	0.842	0.351	0.788	0.280	0.246	0.307	0.161	0.236	0.139	0.142	0.133
PFBA		NO0001R	pg/m^3	0.227	0.158	0.167	0.198	0.213	0.193	0.198	0.212	0.136	0.136	0.263	0.223
PFBS		NO0001R	pg/m^3	0.102	0.064	0.056	0.086	0.115	0.134	0.082	0.212	0.091	0.117	0.339	0.215
PFDcA		NO0001R	pg/m^3	1.047	0.522	0.729	1.166	0.902	1.229	0.871	1.224	1.062	1.184	0.914	0.881
PFDcS		NO0001R	pg/m^3	0.040	0.025	0.030	0.047	0.043	0.055	0.042	0.053	0.051	0.062	0.076	0.062
PFHpA		NO0001R	pg/m^3	0.673	0.403	0.437	0.667	0.440	0.598	0.387	0.633	0.592	0.517	0.771	0.733
PFHxA		NO0001R	pg/m^3	1.033	0.367	0.430	0.437	0.885	0.578	0.407	0.859	0.593	0.425	1.057	0.987
PFHxS		NO0001R	pg/m^3	0.086	0.044	0.052	0.067	0.066	0.069	0.061	0.417	0.086	0.082	0.137	0.118
PFNA		NO0001R	pg/m^3	1.024	0.464	0.314	0.891	0.882	1.179	0.648	0.918	1.156	0.848	1.044	0.916
PFOA		NO0001R	pg/m^3	1.480	0.571	0.433	0.743	0.717	0.820	0.909	1.111	0.566	0.551	0.718	0.765
PFOS		NO0001R	pg/m^3	0.527	0.199	0.149	0.241	0.314	0.269	0.251	0.697	0.186	0.102	0.192	0.088
PFOSA		NO0001R	pg/m^3	0.069	0.044	0.047	0.089	0.095	0.103	0.169	0.155	0.090	0.074	0.100	0.096
PFUnA		NO0001R	pg/m^3	0.616	0.374	0.399	0.813	0.846	0.828	0.712	0.688	0.778	0.657	0.671	0.643
TBA		NO0001R	pg/m^3	3.701	3.412	2.215	2.940	2.879	2.391	2.090	4.426	2.741	3.935	4.522	4.441
a_HBCD		NO0001R	pg/m^3	0.186	0.200	0.218	0.170	0.162	0.220	0.378	0.230	0.142	0.210	0.172	0.130
sum_PCB		NO0042G	pg/m^3	9.030	11.524	6.718	14.647	5.290	5.404	6.089	3.154	4.303	2.951	2.797	2.857
acenaphthene		NO0001R	pg/m^3					0.179	0.270	0.252	0.212	0.170	0.310	0.194	0.443
acenaphthylene		NO0001R	pg/m^3					0.009	0.012	0.013	0.029	0.045	0.049	0.091	0.098
alpha_HCH		NO0001R	pg/m^3	11.176	9.341	7.258	11.803	8.917	8.582	11.808	10.276	9.613	7.782	5.606	4.635
		NO0042R	pg/m^3	6.595	8.588	8.914	9.281	8.483	7.331	8.011	11.174	11.090	11.031	9.140	8.308
anthanthrene		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.020	0.041
		NO0042R	pg/m^3	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
b_HBCD		NO0001R	pg/m^3	0.178	0.125	0.288	0.238	0.175	0.197	0.300	0.215	0.132	0.190	0.127	0.147
benzo_a_fluoranthene		NO0042G	pg/m^3					0.010	0.010	0.010	0.010	0.009	0.010	0.010	0.060
benzo_a_fluorene		NO0042G	pg/m^3					0.010	0.050	0.016	0.012	0.012	0.017	0.015	0.083
benzo_b_fluorene		NO0042G	pg/m^3					0.013	0.014	0.010	0.010	0.010	0.011	0.010	0.035
benzo_bjk_fluoranthenes		NO0042G	pg/m^3					0.023	0.058	0.039	0.060	0.049	0.082	0.073	0.467
benzo_e_pyrene		NO0042G	pg/m^3					0.020	0.029	0.023	0.042	0.025	0.035	0.030	0.174
benzo_ghi_fluoranthene		NO0042G	pg/m^3					0.010	0.012	0.010	0.010	0.011	0.015	0.011	0.053
BDE_100		NO0001R	pg/m^3	0.023	0.034	0.019	0.024	0.057	0.031	0.073	0.041	0.033	0.024	0.010	0.013
BDE_119		NO0001R	pg/m^3	0.020	0.010	0.021	0.033	0.010	0.011	0.010	0.036	0.010	0.022	0.010	0.016
BDE_138		NO0001R	pg/m^3	0.015	0.020	0.015	0.022	0.018	0.028	0.011	0.010	0.013	0.022	0.024	0.024
BDE_153		NO0001R	pg/m^3	0.012	0.015	0.012	0.029	0.022	0.021	0.014	0.014	0.016	0.017	0.018	0.018
BDE_154		NO0001R	pg/m^3	0.010	0.011	0.010	0.023	0.016	0.016	0.018	0.015	0.014	0.012	0.011	0.011
BDE_183		NO0001R	pg/m^3	0.011	0.012	0.010	0.011	0.012	0.016	0.014	0.012	0.017	0.013	0.013	0.014
BDE_196		NO0001R	pg/m^3	0.018	0.027	0.018	0.037	0.028	0.044	0.026	0.017	0.022	0.036	0.039	0.038
BDE_206		NO0001R	pg/m^3	0.018	0.029	0.023	0.029	0.033	0.049	0.044	0.025	0.033	0.040	0.038	0.035
BDE_209		NO0001R	pg/m^3	0.213	0.551	0.463	0.598	0.967	0.158	0.456	0.307	0.403	0.215	0.065	0.167
BDE_28		NO0001R	pg/m^3	0.018	0.015	0.026	0.018	0.079	0.057	0.087	0.075	0.033	0.014	0.018	0.026
BDE_47		NO0001R	pg/m^3	0.146	0.210	0.147	0.236	0.587	0.333	0.725	0.376	0.233	0.191	0.113	0.162
BDE_49+71		NO0001R	pg/m^3	0.011	0.010	0.010	0.178	0.035	0.020	0.071	0.044	0.026	0.102	0.010	0.079
BDE_66		NO0001R	pg/m^3	0.105	0.010	0.197	0.010	0.024	0.184	0.045	0.030	0.016	0.143	0.010	0.076
BDE_77		NO0001R	pg/m^3	0.010	0.010	0.010	0.010	0.010	0.011	0.010	0.010	0.010	0.010	0.010	0.010
BDE_85		NO0001R	pg/m^3	0.010	0.010	0.010	0.010	0.010	0.013	0.011	0.010	0.010	0.010	0.010	0.010
BDE_99		NO0001R	pg/m^3	0.113	0.182	0.092	0.145	0.259	0.177	0.269	0.194	0.155	0.140	0.079	0.086
biphenyl		NO0001R	pg/m^3					0.174	0.263	0.135	0.158	0.171	0.355	0.565	1.839
cis_CD		NO0042G	pg/m^3	0.532	0.643	0.501	0.552	0.345	0.107	0.314	0.319	0.352	0.238	0.403	0.473
trans_CD		NO0042G	pg/m^3	0.310	0.428	0.291	0.267	0.132	0.100	0.063	0.060	0.052	0.073	0.192	0.256
coronene		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.023	0.071
cyclopenta_cd_pyrene		NO0001R	pg/m^3					0.010	0.013	0.010	0.010	0.010	0.010	0.010	0.056
dibenzo_ac_ah_anthracenes		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.020	0.034
dibenzo_ae_pyrene		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.020	0.022
dibenzo_ah_pyrene		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.020	0.020
dibenzo_ai_pyrene		NO0001R	pg/m^3					0.020	0.019	0.014	0.020	0.020	0.020	0.020	0.021
dibenzofuran		NO0001R	pg/m^3					0.532	0.815	0.635	0.567	0.704	0.728	0.913	3.475
dibenzothiophene		NO0001R	pg/m^3					0.062	0.057	0.070	0.048	0.042	0.051	0.024	0.051
op_DDD		NO0042G	pg/m^3	0.035	0.033	0.026	0.028	0.010	0.007	0.005	0.017	0.022	0.022	0.017	0.023
op_DDE		NO0042G	pg/m^3	0.120	0.116	0.150	0.087	0.022	0.014	0.013	0.016	0.030	0.052	0.076	0.111
op_DDT		NO0042G	pg/m^3	0.253	0.291	0.322	0.182	0.070	0.051	0.041	0.111	0.058	0.107	0.156	0.244
pp_DDD		NO0042G	pg/m^3	0.032	0.027	0.030	0.022	0.019	0.021	0.016	0.041	0.028	0.028	0.030	0.016
pp_DDE		NO0042G	pg/m^3	0.852	0.743	0.687	0.289	0.085	0.076	0.061	0.087	0.124	0.231	0.586	1.090
pp_DDT		NO0042G	pg/m^3	0.117	0.133	0.106	0.077	0.015	0.048	0.020	0.143	0.049	0.079	0.100	0.138
sum_DDT		NO0042G	pg/m^3	1.414	1.376	1.328	0.691	0.227	0.221	0.161	0.418	0.465	0.659	0.969	1.625
fluorene		NO0001R	pg/m^3					0.481	0.758	0.585	0.531	0.493	0.572	0.581	2.287
FTS_6-2		NO0001R	pg/m^3	1.052	0.617	0.719	1.158	0.990	1.487	0.836	5.027	0.838	1.015	1.799	1.613
g-HBCD		NO0001R	pg/m^3	0.156	0.116	0.470	0.370	0.208	0.168	0.498	0.210	0.121	0.228	0.143	0.150
HCB		NO0001R	pg/m^3	111.017	113.252	88.125	138.654	69.881	64.749	68.202	74.502	78.653	81.948	76.613	69.738
N1methylnaphtalene		NO0001R	pg/m^3					0.100	0.093	0.090	0.103	0.074	0.224	0.259	0.770
N1methylphenanthrene		NO0001R	pg/m^3					0.028	0.222	0.036	0.030	0.038	0.045	0.037	0.071
N2methylanthracene		NO0001R	pg/m^3					0.060	0.014	0.010	0.016	0.010	0.010	0.010	0.020
N2methylnaphtalene		NO0001R	pg/m^3					0.183	0.184	0.172	0.170	0.119	0.399	0.407	1.010
N2methylphenanthrene		NO0001R	pg/m^3					0.065	0.120	0.063	0.051	0.055	0.060	0.054	0.122
N3methylphenanthrene		NO0001R	pg/m^3					0.053	0.071	0.052	0.044	0.045	0.048	0.050	0.108
N9methylphenanthrene		NO0001R	pg/m^3					0.036	0.084	0.036	0.039	0.031	0.032	0.035	0.070
naphtalene		NO0001R	pg/m^3					1.947	0.773	0.390	0.428	0.307	0.559	0.834	2.763
		NO0042G	pg/m^3	1.956	0.830	0.413	0.191	0.169	0.255	0.257	0.115	0.292	1.518	0.642	7.686
cis_NO		NO0042G	pg/m^3	0.070	0.112	0.083	0.036	0.051	0.055	0.068	0.079	0.070	0.077	0.025	0.021
trans_NO		NO0042G	pg/m^3	0.430	0.543	0.414	0.490	0.392	0.296	0.324	0.344	0.379	0.453	0.433	0.393
perylene		NO0001R	pg/m^3					0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.027
retene		NO0001R	pg/m^3					0.015	0.081	0.055	0.045	0.074	0.102	0.152	0.108
										number of additional components reported					**76**

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PORTUGAL

Components in Precipitation														
Mandatory		**station**	**units**						**month**					
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		PT0003R	mg/l	0.058		0.284	0.160				0.132	0.253	0.120	0.024	
		PT0004R		0.246	0.132	0.015	0.036	0.270				1.743	0.090	0.040	
		PT0010R		0.130	0.033	0.018	0.343	0.094	0.022	0.160	0.021	0.015	0.015	0.015	0.015
nitrate		PT0003R	mg/l	0.026		0.037	0.010				0.121	0.160	0.055	0.029	
		PT0004R		0.042	0.171	0.010	0.010	0.137				0.972	0.180	0.010	
		PT0010R		0.031	0.013	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
precipitation	*nitrogen*	PT0003R	mm	157.2	40.9	89.8	199.0	137.7	37.4	22.8	95.9	65.6	99.6	87.9	127.2
		PT0004R		80.3	62.5	52.8	63.9	63.9				13.4	26.3	57.6	
		PT0010R		98.8	124.7	57.8	182.8	36.3	55.7	43.0	22.7	48.2	43.9	109.7	90.2
arsenic				*not reported*											
cadmium		PT0003R	µg/l	0.425		0.425	0.425				0.425	0.425	0.425	0.425	
		PT0004R		0.425	0.425	0.425	0.425	0.425				0.425	0.425	0.425	
		PT0010R		0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425
chromium				*not reported*											
copper		PT0003R	µg/l	0.660		0.573	0.325				0.325	0.325	0.325	0.325	
		PT0004R		0.533	1.304	0.325	0.325	0.325				0.736	0.325	0.325	
		PT0010R		1.632	0.325	0.325	0.325	0.325	0.325	1.420	3.525	0.325	0.325	0.325	0.325
lead		PT0003R	µg/l	0.645		10.088	0.645				0.645	0.645	1.741	0.734	
		PT0004R		0.645	0.645	0.645	0.645	0.645				0.645	0.645	0.645	
		PT0010R		0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645
mercury				*not reported*											
nickel		PT0003R	µg/l	0.775	-9999.990	0.775	0.775				0.775	0.775	0.775	0.775	
		PT0004R		0.775	0.775	0.775	0.775	0.775				0.775	0.775	0.775	
		PT0010R		0.775	0.775	0.775	0.775	0.775	0.775	0.775	0.775	0.775	0.775	0.775	0.775
zinc		PT0003R	µg/l								1.000	1.000	70.796	261.652	
		PT0004R										1.000	1.000	95.028	
		PT0010R							1.000	1.000	1.000	1.000	54.176	44.832	20.000
precipitation	*all metals*	PT0003R	mm	157.2	40.9	89.8	199.0	137.7	37.4	22.8	95.9	65.6	99.6	87.9	127.2
		PT0004R		80.3	62.5	52.8	63.9	63.9				13.4	26.3	57.6	
		PT0010R		98.8	124.7	57.8	182.8	36.3	55.7	43.0	22.7	48.2	43.9	109.7	90.2
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**59.8**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

PORTUGAL															
Airborne components															
2008															
Mandatory	**station**	**units**							**month**						
			january	february	march	april	may	june	july	august	september	october	november	december	
NO2			*not reported*												
HNO3			*not reported*												
NO3			*not reported*												
HNO3+NO3			*not reported*												
NH3			*not reported*												
NH4			*not reported*												
NH3+NH4			*not reported*												
									Percentage completion of mandatory programme						**0.00**
Voluntary															
2008															
NO			*not reported*												
arsenic			*not reported*												
cadmium			*not reported*												
chomium			*not reported*												
copper			*not reported*												
lead			*not reported*												
mercury			*not reported*												
nickel			*not reported*												
zinc			*not reported*												
PCB_28			*not reported*												
PCB_52			*not reported*												
PCB_101			*not reported*												
PCB_118			*not reported*												
PCB_138			*not reported*												
PCB_153			*not reported*												
PCB_180			*not reported*												
anthracene			*not reported*												
benzo(a)anthracene			*not reported*												
benzo(a)pyrene			*not reported*												
benzo(ghi)perylene			*not reported*												
chrysene			*not reported*												
flouranthene			*not reported*												
g-HCH			*not reported*												
indeno(123cd)pyrene			*not reported*												
phenanthrene			*not reported*												
pyrene			*not reported*												
									Percentage completion of voluntary programme						**0.00**

SPAIN

Components in Precipitation															
Mandatory		**station**	**units**						**month**						
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		ES0008R	mg/l	1.063	0.541	0.268	0.609	0.328	0.469	0.622	0.390	0.190	0.077	0.105	0.077
nitrate		ES0008R	mg/l	0.543	0.465	0.256	0.529	0.488	0.526	1.595	0.517	0.369	0.119	0.382	0.210
precipitation	*nitrogen*	ES0008R	mm	61.2	26.0	149.0	115.4	155.6	141.0	26.4	63.8	54.4	382.0	240.0	108.4
arsenic		ES0008R	µg/l	0.111	0.130	0.082	0.196	0.076	0.148	0.111	0.135	0.169	0.098	0.081	0.061
cadmium		ES0008R	µg/l	0.042	0.072	0.043	0.119	0.048	0.201	0.063	0.123	0.059	0.097	0.027	0.025
chromium		ES0008R	µg/l	6.204	35.378	5.597	68.468	208.836	169.765	235.640	21.938	3.352	5.156	2.157	1.081
copper		ES0008R	µg/l	6.768	8.143	4.807	24.370	8.421	17.379	24.042	46.620	30.354	12.006	9.715	27.646
lead		ES0008R	µg/l	0.900	0.564	0.581	1.611	1.376	4.019	2.331	2.227	6.152	0.941	0.806	0.857
mercury		ES0008R	ng/l	7.040		7.344	4.233	2.863	9.729	9.191	12.434	3.840		3.059	2.782
nickel		ES0008R	µg/l	55.861	99.908	148.119	83.693	58.397	33.902	59.039	5.321	1.244	0.690	1.355	0.759
zinc		ES0008R	µg/l	25.250	39.014	20.374	245.786	26.815	103.291	267.734	99.874	37.780	37.228	29.516	23.168
precipitation	*metals*	ES0008R	mm	58.1	3.3	171.8	138.4	197.4	101.5	31.3	61.9	50.2	344.0	139.9	155.4
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**89.4**
Voluntary															
2008															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

Airborne components															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
NO2		ES0008R	µg/m^3	2.184	3.187	1.271	1.481	1.042	0.765	0.932	1.073	1.204	1.379	1.150	1.472
HNO3				*not reported*											
NO3		ES0008R	µg/m^3	0.478	0.833	0.332	0.406	0.201	0.202	0.279	0.282	0.267	0.367	0.2	0.3
HNO3+NO3		ES0008R	µg/m^3	0.529	0.922	0.415	0.551	0.444	0.453	0.454	0.433	0.59	0.545	0.307	0.355
NH3		ES0008R	µg/m^3	0.320	0.847	0.529	0.897	0.739	0.918	1.146	1.213	0.810	0.842	0.005	0.380
NH4				*not reported*											
NH3+NH4		ES0008R	µg/m^3	1.526	2.424	1.079	1.448	1.659	1.719	1.759	1.793	1.744	1.293	0.756	1.071
										Percentage completion of mandatory programme					**100.0**
Voluntary															
2008															
NO		ES0008R	µg/m^3	0.265	0.430	0.127	0.189	0.158	0.162	0.207	0.203	0.162	0.199	0.098	0.186
arsenic		ES0008R	ng/m^3	0.272	0.42	0.13	0.258	0.177	0.156	0.197	0.165	0.31	0.267	0.132	0.145
cadmium		ES0008R	ng/m^3	0.122	0.197	0.045	0.118	0.073	0.042	0.095	0.062	0.155	0.203	0.027	0.08
chomium		ES0008R	ng/m^3	1.233	1.729	0.775	0.924	0.775	0.703	0.568	0.65	1.147	0.907	0.775	0.701
copper		ES0008R	ng/m^3	45.786	35.425	18.757	37.438	47.287	48.362	130.687	95.01	40.31	32.593	62.383	45.392
lead		ES0008R	ng/m^3	5.87	14.36	2.742	7.13	3.697	2.86	5.82	6.513	10.52	12.743	1.255	0.758
mercury				*not reported*											
nickel		ES0008R	ng/m^3	1.14	1.909	0.649	1.192	1.33	1.289	1.463	0.897	1.63	1.423	0.789	1.345
zinc		ES0008R	ng/m^3	16.356	32.4	6.102	32.948	10.707	5.162	18.9	23.247	51.433	15.627	4.608	9.327
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene		ES0008R	ng/m^3		0.005	0.001	0.001	0.001	0.001		0.002	0.001	0.001	0.001	0.001
benzo(a)anthracene		ES0008R	ng/m^3		0.037	0.011	0.008	0.011	0.027		0.159	0.058	0.027	0.002	0.002
benzo(a)pyrene		ES0008R	ng/m^3		0.066	0.015	0.011	0.020	0.054		0.891	0.305	0.074	0.003	0.003
benzo(ghi)perylene		ES0008R	ng/m^3		0.069	0.018	0.013	0.020	0.047		0.354	0.135	0.037	0.004	0.004
chrysene				*not reported*											
flouranthene		ES0008R	ng/m^3		0.044	0.012	0.009	0.313	0.039		0.212	0.057	0.031	0.002	0.002
g-HCH				*not reported*											
indeno(123cd)pyrene		ES0008R	ng/m^3		0.069	0.019	0.012	0.018	0.042		0.260	0.069	0.030	0.004	0.004
phenanthrene		ES0008R	ng/m^3		0.015	0.001	0.001	0.001	0.008		0.030	0.010	0.012	0.001	0.001
pyrene		ES0008R	ng/m^3		0.033	0.006	0.004	0.008	0.027		0.173	0.048	0.025	0.002	0.003
										Percentage completion of voluntary programme					**56.4**
* insufficient for calculation of monthly average															
additional non-CAMP components															
2008															
acenaphthene		ES0008R	ng/m^3		0.029	0.029	0.017	0.017	0.018		0.005	0.005	0.005	0.005	0.005
acenaphtylene		ES0008R	ng/m^3		0.012	0.012	0.008	0.008	0.009		0.004	0.004	0.004	0.004	0.004
benzo(b)fluoranthene		ES0008R	ng/m^3		0.059	0.018	0.012	0.017	0.047		0.040	0.094	0.053	0.005	0.005
benzo(ghi)perylene		ES0008R	ng/m^3		0.069	0.018	0.013	0.020	0.047		0.354	0.135	0.037	0.004	0.004
benzo(j)fluoranthene		ES0008R	ng/m^3		0.016	0.009	0.006	0.006	0.013		0.015	0.007	0.002	0.002	0.002
benzo(k)fluoranthene		ES0008R	ng/m^3		0.056	0.012	0.008	0.017	0.048		0.337	0.131	0.055	0.005	0.007
dibenzo(ah)anthracene		ES0008R	ng/m^3		0.019	0.016	0.009	0.010	0.012		0.079	0.037	0.014	0.004	0.004
flourene		ES0008R	ng/m^3		0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001
napthalene		ES0008R	ng/m^3		0.001	0.001	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001
										number of additional components reported					**9**

SWEDEN

Components in Precipitation															
2008															
Mandatory		**station**	**units**						**month**						
				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		SE0014R	mg/l	0.369	0.481	0.468	12.021	3.800	0.587	0.308	0.175	0.296	0.276	0.242	0.311
nitrate		SE0014R	mg/l	0.649	0.608	0.449	0.436	0.170	0.277	0.254	0.192	0.323	0.361	0.360	0.520
precipitation	*nitrogen*	SE0014R	mm	92.8	54.8	65.3	13.4	10.6	57	86.3	103	63.2	80.1	40.3	19.6
arsenic		SE0097R	µg/l	0.160	0.251	0.190	0.146	0.200	0.138	0.125	0.072	0.102	0.159	0.140	0.180
cadmium		SE0097R	µg/l	0.030	0.050	0.050	0.040	0.050	0.020	0.020	0.010	0.010	0.020	0.020	0.060
chomium		SE0097R	µg/l	0.200	0.410	0.490	0.240	0.740	0.170	1.420	0.050	0.250	0.330	0.420	0.530
copper		SE0097R	µg/l	0.530	1.040	0.400	0.360	0.490	0.500	0.390	0.030	0.310	0.200	1.200	0.430
lead		SE0097R	µg/l	0.790	0.740	0.760	0.800	0.930	0.450	0.250	0.110	0.280	0.410	0.520	0.910
mercury		SE0014R	ng/l	7.800	9.800	7.900	14.800	41.000	18.000	8.300	4.900	9.400	5.800	6.500	7.400
nickel		SE0097R	µg/l	0.220	0.380	0.160	0.200	0.560	0.260	0.470	0.040	0.070	0.160	0.230	0.320
zinc		SE0097R	µg/l	3.800	6.800	3.700	4.000	6.500	4.800	2.400	0.800	2.600	1.800	3.000	5.000
precipitation	*all metals*	SE0097R	mm	164.0	66.5	131.3	21.2	17.5	44.1	46.3	114.8	96.1	112.7	95.6	34.0
precipitation	*Hg*	SE0014R	mm	81.8	24.1	61.5	12.6	10.2	62.0	102.0	104.6	72.0	85.1	80.5	21.8
g-HCH*		SE0014R	ng/m^2/day	0.169	0.306	0.567	0.270	0.078	0.235	0.430	0.268	0.262	0.185	0.152	0.050
										Percentage completion of mandatory programme					**100.0**
** measuement is of combined wet plus dry deposition*															
Voluntary															
2008															
PCB_28		SE0014R	ng/m^2/day	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
PCB_52		SE0014R	ng/m^2/day	0.005	0.009	0.033	0.040	0.223	0.156	0.148	0.137	0.149	0.160	0.151	0.165
PCB_101		SE0014R	ng/m^2/day	0.171	0.124	0.185	0.170	0.187	0.150	0.141	0.145	0.149	0.160	0.146	0.138
PCB_118		SE0014R	ng/m^2/day	0.126	0.138	0.281	0.170	0.266	0.211	0.197	0.204	0.197	0.225	0.197	0.209
PCB_138		SE0014R	ng/m^2/day	0.284	0.344	0.502	0.480	0.515	0.453	0.380	0.409	0.424	0.470	0.409	0.335
PCB_153		SE0014R	ng/m^2/day	0.183	0.226	0.355	0.370	0.466	0.385	0.329	0.327	0.348	0.380	0.333	0.300
PCB_180		SE0014R	ng/m^2/day	0.181	0.221	0.365	0.350	0.263	0.238	0.192	0.206	0.227	0.265	0.218	0.165
anthracene		SE0014R	ng/m^2/day	1.000	1.000	0.742	0.000	0.000	0.475	0.000	0.000	0.000	0.000	2.333	0.475
benzo(a)anthracene		SE0014R	ng/m^2/day	5.600	2.828	2.000	2.000	1.129	1.932	0.565	1.000	1.000	1.000	15.467	1.949
benzo(a)pyrene		SE0014R	ng/m^2/day	6.600	4.000	3.742	3.000	3.871	3.949	2.500	2.500	2.650	3.000	19.800	4.000
benzo(ghi)perylene		SE0014R	ng/m^2/day	7.600	5.000	4.484	3.000	1.258	2.898	1.000	1.000	1.000	1.000	19.667	3.847
chrysene+triphenalyne		SE0014R	ng/m^2/day	21.533	11.828	9.452	5.000	7.613	9.797	5.000	5.113	5.800	6.500	33.567	9.898
flouranthene		SE0014R	ng/m^2/day	46.667	25.172	22.129	11.000	4.032	13.458	3.565	4.113	4.950	6.000	44.733	10.593
indeno(123cd)pyrene		SE0014R	ng/m^2/day	12.200	6.828	5.226	3.000	1.258	3.373	1.000	1.000	1.150	1.500	31.833	4.797
phenanthrene		SE0014R	ng/m^2/day	31.733	18.552	21.613	9.000	3.774	11.576	4.065	4.500	4.650	5.000	27.400	8.695
pyrene		SE0014R	ng/m^2/day	26.267	15.000	12.935	7.000	2.645	8.186	2.500	2.613	3.300	4.000	36.667	7.220
										Percentage completion of voluntary programme					**100.0**
additional non-CAMP components															
2008															
benzo_b_fluoranthene		SE0014R	ng/m^2/day	16.067	9.655	6.968	4.000	1.387	4.797	1.065	1.500	1.800	2.500	32.833	5.746
benzo_k_fluoranthene		SE0014R	ng/m^2/day	6.600	3.828	2.742	2.000	1.129	1.949	1.000	1.000	1.000	1.000	14.067	2.424
										number of additional components reported					**2**

SWEDEN

Airborne components

2008

Mandatory		**station**	**units**							**month**					
				january	february	march	april	may	june	july	august	september	october	november	december
NO2		SE0014R	µg/m^3	1.923	2.163	1.391	1.307	1.464	0.923	0.970	0.836	0.931	1.097	1.391	1.738
HNO3				*not reported*											
NO3				*not reported*											
HNO3+NO3		SE0014R	µg/m^3	0.734	0.861	0.535	1.000	0.707	0.486	0.402	0.431	0.347	0.494	0.392	0.398
NH3				*not reported*											
NH4				*not reported*											
NH3+NH4		SE0014R	µg/m^3	0.705	0.886	0.615	1.492	1.141	0.694	0.586	0.564	0.708	0.538	0.514	0.642
										Percentage completion of mandatory programme					**100.0**
Voluntary															
2008															
NO				*not reported*											
arsenic				*not reported*											
cadmium				*not reported*											
chromium				*not reported*											
copper				*not reported*											
lead				*not reported*											
mercury	*aerosol*	SE0014R	ng/m^3	9.733	8.357	6.167	7.644	7.456	5.037	5.900	7.356	10.775	5.500	9.400	7.767
	air+aerosol	SE0014R	ng/m^3	1.656	1.675	1.600	1.544	1.567	1.575	1.511	1.522	1.475	1.500	1.589	1.567
nickel				*not reported*											
zinc				*not reported*											
PCB_28		SE0014R	pg/m^3	1.467	1.103	1.123	1.420	1.787	1.250	1.642	1.774	1.417	1.094	1.233	0.904
PCB_52		SE0014R	pg/m^3	1.440	1.221	1.181	1.747	2.674	2.620	2.835	2.826	2.373	1.890	1.460	1.586
PCB_101		SE0014R	pg/m^3	1.153	1.050	1.041	1.500	2.284	2.027	3.577	2.919	2.043	1.181	0.946	1.037
PCB_118		SE0014R	pg/m^3	0.385	0.380	0.325	0.520	0.887	0.776	1.374	1.132	0.818	0.472	0.344	0.399
PCB_138		SE0014R	pg/m^3	0.588	0.532	0.574	0.939	1.800	1.602	3.323	2.265	1.803	0.839	0.652	0.631
PCB_153		SE0014R	pg/m^3	0.723	0.664	0.669	1.077	2.087	1.748	3.539	2.506	1.950	0.952	0.753	0.671
PCB_180		SE0014R	pg/m^3	0.181	0.156	0.228	0.355	0.655	0.546	1.226	0.757	0.646	0.286	0.239	0.278
anthracene		SE0014R	pg/m^3	0.029	0.010	0.012	0.006	0.003	0.002	0.002	0.003	0.006	0.016	0.033	0.046
benzo(a)anthracene		SE0014R	pg/m^3	0.155	0.098	0.084	0.051	0.071	0.009	0.004	0.007	0.013	0.034	0.065	0.094
benzo(a)pyrene		SE0014R	pg/m^3	0.111	0.038	0.038	0.017	0.006	0.003	0.001	0.004	0.014	0.045	0.072	0.160
benzo(ghi)perylene		SE0014R	pg/m^3	0.140	0.058	0.049	0.028	0.010	0.004	0.003	0.006	0.018	0.047	0.088	0.166
chrysene+triphenylen		SE0014R	pg/m^3	0.218	0.100	0.092	0.058	0.045	0.027	0.009	0.013	0.031	0.078	0.135	0.234
flouranthene		SE0014R	pg/m^3	0.766	0.335	0.297	0.170	0.075	0.050	0.055	0.075	0.123	0.235	0.485	0.711
g-HCH		SE0014R	pg/m^3	2.462	2.000	2.333	3.500	4.000	3.500	4.929	5.000	4.000	3.000	2.500	1.536
indeno(123cd)pyrene		SE0014R	pg/m^3	0.140	0.058	0.050	0.026	0.010	0.004	0.003	0.006	0.023	0.069	0.119	0.165
phenanthrene		SE0014R	pg/m^3	1.654	0.765	0.703	0.505	0.335	0.210	0.269	0.300	0.437	0.655	1.250	1.868
pyrene		SE0014R	pg/m^3	0.465	0.215	0.187	0.110	0.045	0.030	0.030	0.040	0.083	0.165	0.325	0.470
										Percentage completion of voluntary programme					**68.0**
additional non-CAMP components															
2008															
a-HCH		SE0014R	pg/m3	3.462	2.500	3.000	4.500	4.500	5.000	4.464	4.000	5.333	4.000	3.500	2.536
benzo_b_fluoranthene		SE0014R	pg/m3	0.187	0.088	0.069	0.035	0.017	0.008	0.006	0.009	0.029	0.066	0.120	0.223
benzo_k_fluoranthene		SE0014R	pg/m3	0.083	0.033	0.029	0.014	0.005	0.003	0.002	0.004	0.012	0.030	0.054	0.097
pp_DDD		SE0014R	pg/m3	0.137	0.105	0.147	0.220	0.065	0.060	0.340	0.150	0.142	0.185	0.390	0.460
pp_DDE		SE0014R	pg/m3	3.085	1.950	2.000	1.900	0.885	0.940	1.046	1.450	1.833	2.150	2.500	2.261
pp_DDT		SE0014R	pg/m3	0.558	0.330	0.450	0.605	0.410	0.430	0.475	0.555	0.500	0.415	0.415	0.440
										number of additional components reported					**6**

UNITED KINGDOM

Components in Precipitation															
Mandatory		**station**	**units**							**month**					
2008				january	february	march	april	may	june	july	august	september	october	november	december
ammonium		GB0006R	mg/l	0.100	0.271	0.148	0.348	1.000	0.205	0.172	0.236	0.089	0.256	0.065	0.066
		GB0013R	mg/l	0.131	0.256	0.243	0.272	0.694	0.118	0.194	0.126	0.191	0.124	0.132	0.053
		GB0014R	mg/l	0.252	0.695	0.502	0.608	0.733	0.445	0.389	0.328	0.272	0.402	0.209	0.510
		GB0016R	mg/l	0.225	0.361	0.369	0.520	1.502	0.305	0.064	-9999.990	0.543	11.958	0.129	0.241
nitrate		GB0006R	mg/l	0.030	0.075	0.081	0.184	0.927	0.096	0.137	0.094	0.034	0.023	0.032	0.028
		GB0013R	mg/l	0.094	0.250	0.158	0.589	0.700	0.169	0.188	0.139	0.120	0.120	0.138	0.038
		GB0014R	mg/l	0.254	0.238	0.239	0.367	0.541	0.307	0.316	0.279	0.290	0.202	0.237	0.363
		GB0016R	mg/l	0.054	0.052	0.066	0.135	0.272	0.074	0.030		0.116	0.046	0.049	0.081
precipitation	*nitrogen*	GB0006R	mm	117.3	81.9	171.6	65.7	15.7	78.9	154.1	166.4	175.9	184.3	144.1	115.7
		GB0013R	mm	152.2	32.1	132.9	65.6	118.8	118.5	119.4	144.5	66.8	101.5	51.6	60.6
		GB0014R	mm	126.5	13.6	74.5	85.6	23.4	91.7	70.8	112.1	71.4	55.7	78.3	59.0
		GB0016R	mm	103.6	23.8	62.3	43.8	20.6	89.6	80.6	132.7	79.8	67.2	74.8	83.7
arsenic		GB0006R	µg/l	0.200	0.200	0.354	0.323	0.179	0.147	0.198	0.106	0.421	0.456	0.456	
		GB0013R	µg/l	0.044	0.103	0.064	0.101	0.112	0.056	0.057	0.049	0.069	0.063	0.035	0.017
		GB0017R	µg/l					0.076	0.076	0.082	0.095	0.096	0.096		
		GB0091R	µg/l	0.089			0.115	0.195	0.060	0.077	0.110	0.094	0.166	0.065	
cadmium		GB0006R	µg/l	0.012	0.012	0.050	0.001	0.004	0.002	0.005	0.003	0.005	0.005	0.005	
		GB0013R	µg/l	0.002	0.003	0.021	0.011	0.023	0.003	0.004	0.003	0.006	0.006	0.002	0.001
		GB0017R	µg/l					0.018	0.018	0.017	0.016	0.021	0.023		
		GB0091R	µg/l	0.005			0.016	0.036	0.010	0.005	0.012	0.009	0.019	0.004	
chromium		GB0006R	µg/l		0.055	0.396	0.010	0.010	0.042	0.135	0.010		0.131		
		GB0013R	µg/l	0.020	0.020	0.020	0.031	0.065	0.030	0.020	0.075	0.072	0.020	0.085	0.020
		GB0017R	µg/l						0.185		0.086		0.089		
		GB0091R	µg/l	0.132			0.125	0.183	0.033	0.030	0.054	0.117	0.075	0.122	
copper		GB0006R	µg/l		0.295	2.960	0.155	0.163	0.378	0.227	0.092		0.421		
		GB0013R	µg/l	0.141	0.144	0.402	0.428	0.753	0.266	0.126	0.447	0.241	1.617	13.844	0.114
		GB0017R	µg/l						1.020		0.462		0.826		
		GB0091R	µg/l	0.203			0.742	1.072	0.354	0.159	0.315	0.200	0.657	0.104	
lead		GB0006R	µg/l		0.392	2.490	0.100	0.157	0.125	0.090	0.015		0.015		
		GB0013R	µg/l	0.102	0.144	0.690	0.337	0.912	0.234	0.114	0.093	0.159	0.271	0.357	0.030
		GB0017R	µg/l						0.996		0.355		0.918		
		GB0091R	µg/l	0.196			0.343	1.769	0.439	0.118	0.553	0.222	0.660	0.224	
mercury		GB0013R	µg/l	10.250	8.396	17.988	23.340	5.007	8.812	3.022	3.407	4.754	4.421	3.034	2.028
		GB0017R	µg/l	8.150	12.500							2.500	2.580	3.350	3.350
		GB0091R	µg/l	6.644	15.171	15.545	11.541	9.990	9.800	3.090	2.568	2.971	3.823	4.379	4.343
nickel		GB0006R	µg/l		0.111	0.680	0.036	0.070	0.115	0.056	0.016		0.087		
		GB0013R	µg/l	0.111	0.208	0.275	0.212	0.277	0.265	0.145	0.134	0.214	0.170	0.088	0.048
		GB0017R	µg/l						0.215		0.131		0.182		
		GB0091R	µg/l	0.078			0.227	1.571	0.271	0.085	0.133	0.102	0.144	0.050	
zinc		GB0006R	µg/l		3.240	16.100	1.940	1.970	1.380	0.250	0.250		0.250		
		GB0013R	µg/l	0.832	1.710	3.050	5.806	4.272	2.033	0.886	1.210	1.975	2.989	2.789	2.830
		GB0017R	µg/l						5.700		3.400		3.860		
		GB0091R	µg/l	1.792			18.000	7.649	3.231	0.881	2.438	2.411	3.599	1.051	
precipitation	*metals ex. Hg*	GB0006R	mm	110.6	67.4	14.1	124.7	153.3	153.5	185.0	192.9	132.5	132.8	30.0	0.0
		GB0013R	mm	172.2	54.7	91.8	66.7	153.8	100.6	128.8	213.4	78.6	97.0	66.1	38.7
		GB0017R	mm	15.8	43.0	32.6	31.5	41.4	61.0	66.0	73.2	72.9	65.5	34.1	0.0
		GB0091R	mm	42.2	8.4	108.2	12.4	36.1	90.7	76.0	73.4	50.3	47.4	141.9	0.0
precipitation	*metals Hg*	GB0013R	mm	37.9	70.7	83.6	66.6	142.3	46.3	138.2	148.6	103.8	83.5	97.4	59.9
		GB0017R	mm	16.7	42.9	33.4	32.3	33.4	32.3	33.4	33.4	55.0	62.7	29.4	11.8
		GB0091R	mm	95.4	142.8	142.9	97.0	69.2	7.2	26.1	35.0	37.3	61.8	74.0	113.4
g-HCH				*not reported*											
										Percentage completion of mandatory programme					**90.9**
Voluntary															
PCB_28				*not reported*											
PCB_52				*not reported*											
PCB_101				*not reported*											
PCB_118				*not reported*											
PCB_138				*not reported*											
PCB_153				*not reported*											
PCB_180				*not reported*											
anthracene				*not reported*											
benzo(a)anthracene				*not reported*											
benzo(a)pyrene				*not reported*											
benzo(ghi)perylene				*not reported*											
chrysene+triphenalyne				*not reported*											
flouranthene				*not reported*											
indeno(123cd)pyrene				*not reported*											
phenanthrene				*not reported*											
pyrene				*not reported*											
										Percentage completion of voluntary programme					**0.0**

UNITED KINGDOM

Airborne components

2008

Mandatory	**station**	**units**	**month**											
			january	february	march	april	may	june	july	august	september	october	november	december
NO2	GB0014R	µg/m^3	2.851	4.409	1.340	1.381	1.139	1.153	1.219	1.346	1.730	1.968	2.337	3.664
HNO3	GB0006R	µg/m^3	0.041	0.079	0.043	0.049	0.215	0.031	0.064	0.028	0.040	0.020	0.027	0.058
	GB0013R	µg/m^3	0.082	0.252	0.064	0.099	0.379	0.146	0.113	0.052	0.402	0.072	0.104	0.124
	GB0014R	µg/m^3	0.148	0.332	0.145	0.119	0.327	0.129	0.173	0.042	0.151	0.096	0.138	0.157
	GB0016R	µg/m^3	0.061	0.118	0.350				0.122	0.122	0.125	0.035	0.035	0.046
NO3	GB0006R	µg/m^3	0.110	0.520	0.065	0.233	0.606	0.073	0.155	0.055	0.106	0.043	0.118	0.403
	GB0013R	µg/m^3	0.281	0.639	0.224	0.495	0.767	0.207	0.222	0.153	0.807	0.204	0.224	0.133
	GB0014R	µg/m^3	0.303	0.862	0.213	0.495	0.682	0.313	0.342	0.485	0.476	0.215	0.226	0.376
	GB0016R	µg/m^3	0.100	0.258	0.038				0.244	0.245	0.261	0.069	0.070	0.098
HNO3+NO3			*not reported*											
NH3	GB0006R	µg/m^3	0.340	0.555	0.304	0.843	1.459	0.536	0.521	0.446	0.243	0.133	0.181	0.334
	GB0013R	µg/m^3	0.147	0.376	0.276	0.491	0.828	0.426	0.362	0.198	0.536	0.207	0.193	0.698
	GB0014R	µg/m^3	0.190	0.664	0.505	0.669	1.187	0.511	0.612	2.405	0.442	0.482	0.240	0.230
	GB0016R	µg/m^3	0.076	0.274	0.126				0.210	0.213	0.291	0.163	0.084	0.172
NH4	GB0006R	µg/m^3	0.106	0.924	0.122	0.539	0.934	0.135	0.295	0.118	0.206	0.083	0.221	0.209
	GB0013R	µg/m^3	0.240	1.368	0.304	0.737	1.185	0.319	0.270	0.195	1.238	0.258	0.386	0.246
	GB0014R	µg/m^3	0.282	1.289	0.303	0.614	1.027	0.527	0.456	0.207	0.744	0.328	0.346	0.444
	GB0016R	µg/m^3	0.052	0.380	0.070				0.297	0.303	0.451	0.086	0.122	0.119
NH3+NH4			*not reported*											
									Percentage completion of mandatory programme					**100.0**

Voluntary

2008

NO	GB0014R	µg/m^3	0.362	1.695	0.324	0.288	0.303	0.382	0.390	0.401	0.556	0.546	0.450	0.976
arsenic	GB0013R	ng/m^3	1.693	0.812	0.184	0.298	0.564	0.381	0.170	0.334	0.168	0.511	0.428	0.390
	GB0017R	ng/m^3	0.419	0.538	0.644		0.343	0.599	0.639	1.117	0.815	0.902	0.570	
	GB0091R	ng/m^3	0.239	0.378	0.083	0.185	0.349	0.195	0.116	0.207	0.228	0.226	0.424	
cadmium	GB0013R	ng/m^3	1.598	0.152	0.019	0.060	0.110	0.045	0.019	0.050	0.013	0.089	0.090	0.027
	GB0017R	ng/m^3	0.064	0.106	0.185		0.092	0.123	0.139	0.205	0.157	0.092	0.018	
	GB0091R	ng/m^3	4.652	0.070	0.009	0.030	0.061	0.027	0.026	0.035	0.043	0.027	0.039	
chomium	GB0013R	ng/m^3	1.576	0.932	0.657	0.487	0.775	1.305	0.611	0.195	0.397	1.791	1.510	1.084
	GB0017R	ng/m^3	0.457	0.830	1.042		0.470	0.468	1.517	2.472	2.525	2.357	1.146	
	GB0091R	ng/m^3	0.840	0.478	0.681	0.189	0.901	1.177	0.332	0.708	0.943	0.579	0.918	
copper	GB0013R	ng/m^3	4.772	2.309	0.454	0.805	2.419	1.250	0.282	0.719	2.064	2.102	24.962	0.518
	GB0017R	ng/m^3	1.620	2.167	3.415		2.159	2.146	3.996	2.496	2.497	21.154	2.879	
	GB0091R	ng/m^3	0.511	0.843	0.121	1.919	1.098	0.802	0.537	0.752	0.530	0.325	7.313	
lead	GB0013R	ng/m^3	10.236	5.575	1.236	2.228	4.157	2.615	0.574	2.539	0.215	3.894	4.009	1.293
	GB0017R	ng/m^3	3.528	4.946	7.365		5.135	4.654	5.402	8.076	8.162	9.347	6.635	
	GB0091R	ng/m^3	4.880	2.512	0.375	1.090	2.151	1.208	0.829	1.062	1.253	1.616	2.048	
mercury	GB0013R	ng/m^3	0.599	0.283	0.049	0.733	1.622	0.820	0.410	0.668	0.674	1.111	0.270	1.320
	GB0017R	ng/m^3	1.708									1.471		
	GB0091R	ng/m^3	0.502	0.314	0.784		0.594	0.886	1.244	1.100	0.972	0.825	1.096	1.033
nickel	GB0013R	ng/m^3	2.832	1.619	0.700	0.375	2.231	1.333	0.328	0.577	0.272	1.105	0.403	0.332
	GB0017R	ng/m^3	0.517	1.511	5.411		1.030	7.403	1.692	2.360	1.342	3.366	0.088	
	GB0091R	ng/m^3	0.069	0.187	0.143	0.084	0.730	0.474	0.285	0.636	0.234	0.071	0.118	
zinc	GB0013R	ng/m^3	32.995	12.744	3.345	5.041	17.449	6.759	5.660	2.974	3.589	8.829	5.612	3.410
	GB0017R	ng/m^3	3.297	13.545	25.319		8.846	12.905	13.299	7.757	7.732	18.020	8.834	
	GB0091R	ng/m^3	6.166	3.090	2.881	5.009	5.511	9.824	8.380	3.345	5.096	5.734	4.802	
PCB_28	GB0014R	pg/m^3			0.020					4.300				2.630
PCB_52	GB0014R	pg/m^3			2.180					2.580				0.870
PCB_101	GB0014R	pg/m^3			0.020					0.660				0.070
PCB_118	GB0014R	pg/m^3			0.410					1.760				0.230
PCB_138	GB0014R	pg/m^3			0.580					1.410				0.250
PCB_153	GB0014R	pg/m^3			1.220					0.720				0.080
PCB_180	GB0014R	pg/m^3			0.120					0.040				0.020
anthracene														
benzo(a)anthracene	GB0014R	pg/m^3	0.097	0.190	0.100	0.097	0.054	0.064	0.014	0.012	0.015	0.030	0.079	0.240
benzo(a)pyrene	GB0014R	pg/m^3	0.290	0.540	0.140	0.130	0.072	0.092	0.026	0.021	0.026	0.049	0.130	0.270
benzo(ghi)perylene	GB0014R	pg/m^3	0.220	0.320	0.110	0.093	0.050	0.069	0.044	0.043	0.044	0.079	0.200	0.310
chrysene	GB0014R	pg/m^3	0.170	0.410	0.200	0.190	0.110	0.130	0.042	0.032	0.041	0.064	0.180	0.450
flouranthene			*not reported*											
g-HCH			*not reported*											
indeno(123cd)pyrene	GB0014R	pg/m^3	0.220	0.340	0.110	0.097	0.050	0.073	0.053	0.054	0.055	0.093	0.190	0.370
phenanthrene			*not reported*											
pyrene			*not reported*											
									Percentage completion of voluntary programme					**60.6**

additional non-CAMP components

2008

dibenzo_ah_pyrene	GB0014R	pg/m^3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
									number of additional components reported					**1**

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REPORT PREPARED FOR
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ABSTRACT
This reports summarises the observations of the deposition of pollutants from the atmosphere to the North Sea area during 2008. Priority is given to the metals arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc, the organic pollutant lindane, and to oxidised and reduced forms of nitrogen. A number of voluntarily monitored pollutants are also reported by North Sea countries. As well as providing rates of deposition observed in 2008, the report summarises the temporal trends in deposition of lead, cadmium, mercury and PCB's.

NORWEGIAN TITLE

KEYWORDS		
North Sea, marine pollution, metals, nitrogen, OSPAR.		

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OSPAR's vision is of a clean, healthy and biologically diverse North-East Atlantic used sustainably.

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