EMEP/CCC-Report 7/99

Heavy metals and POPs within the ECE region 1997

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NILU : EMEP/CCC-Report 7/99
REFERENCE : O-95038/O-99050
DATE : AUGUST 1999

EMEP Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

Heavy metals and POPs within the ECE region 1997

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Heavy metals and POPs within the ECE region 1997

1. Introduction

Heavy metals and persistent organic pollutants (POPs) have not been a part of the EMEP's monitoring program before 1999. During the sixth phase of EMEP, co-operation concerning heavy metals and POPs between EMEP and other international programs was, however, extended. As a first step the Steering Body of EMEP requested EMEP/CCC to collect already available data on heavy metals and POPs among the participants.

During the seventh phase of EMEP (EB.AIR/ GE.1/1998/8) it is recommended that the future works under the Convention should concentrate on eighth priority elements: lead (Pb), mercury (Hg), cadmium (Cd), chromium (Cr), nickel (Ni), zinc (Zn), copper (Cu) and arsenic (As). Particular attention should be paid to the first three elements.

The strategic long-term plans on POPs (EB.AIR/GE.1/1997/8) recommend to take a stepwise approach, and the following compounds or groups of compounds should be included in the first step: polycyclic aromatic hydrocarbons (PAHs), polychlorobiphenyls (PCBs), HCB, chlordane, lindane, alpha-HCH, DDT/DDE.

A number of stations have been reporting heavy metals and POPs within the EMEP-area in connection with different national and international programmes (HELCOM, AMAP, OSPARCOM, MEDPOL).

So far there have been published three reports (EMEP/CCC-Reports 8/96, 9/97, 7/98) which present data on heavy metals and POPs from national and international measurement programmes for the period 1987 to 1996. The majority of the data are included in the priority lists for heavy metals and POPs. From this year CCC will publish annual data reports for heavy metals and POPs, starting with the present report including 1997 data. However, the CCC will still accept old data for inclusion in the database from the participants.

2. The measurement sites

The location of the measurement sites for which there have been data reported to the database during 1996-1999 are given in Table 1 and Figure 1. Only a few of the sites have reported data for both heavy metals and POPs, however.

Table 1: List of monitoring stations included in the heavy metal data base.

Country	Station codes	Old code	Station name	Location		Height above sea (m)
				Lat.	Long.	
Belgium	BE4		Knokke	51°21'N	3°20'E	0
	BE90		Bredenee	51°14'N	2°59'E	0
Czech Rep.	CS1		Svratouch	49°44'N	16°02'E	737
	CS3		Kosetice	49°35'N	15°05'E	633
Denmark	DK3		Tange	56°21'N	9°36'E	13
	DK5		Keldsnor	54°44'N	10°44'E	9
	DK8		Anholt	56°43'N	11°31'E	40
	DK31		Ulborg	56°17'N	8°26'E	10
Estonia	EE9		Lahemaa	59°3'N	25°54'E	32
	EE11		Vilsandi	58°23'N	21°49'E	6
Finland	FI9		Utö	59°47'N	21°23'E	7
	FI17		Virolahti II	60°31'N	27°41'E	4
	FI53	FI91	Hailuoto	65°00'N	24°41'E	4
	FI90		Haapasaari	60°17'N	27°12'E	15
	FI92		Hietajarvi	63°10'N	30°43'E	173
	FI93		Kotinen	61°14'N	25°04'E	158
	FI94		Pesosjarvi	66°18'N	29°30'E	257
	FI95		Vuoskojarvi	69°44'N	26°57'E	147
	FI96		Pallas	67°58'N	24°7'E	566
France	FR90		Porspoder	48°31'N	4°45'W	50
Germany	DE1		Westerland	54°55'N	8°18'E	12
	DE2		Langenbrügge	52°48'N	10°45'E	74
	DE3		Schauinsland	47°55'N	7°54'E	1205
	DE4		Deuselbach	49°46'N	7°03'E	480
	DE5		Brotjacklriegel	48°49'N	13°13'E	1016
	DE7		Neuglobsow	53°09'N	13°02'E	62
	DE8		Schmücke	50°39'N	10°46'E	937
	DE9		Zingst	54°26'N	12°44'E	1
Iceland	IS2		Irafoss	64°05'N	21°01'W	61
	IS90		Reykjavik	64°08'N	21°54'W	61
	IS91		Stórhöfdi	63°24'N	20°17'W	118
Ireland	IE1		Valentia Observatory	51°56'N	10°15'W	9
	IE2		Turlough Hill	53°02'N	6°24'W	420
	IE31		Mace Head	53°19'N	9°54'W	5
Italy	IT4		Ispra	45°48'N	8°38'E	209
Latvia	LV10		Rucava	56°13'N	21°13'E	18
	LV16		Zoseni	57°08'N	25°55'E	183
	LV25		Kemeri	56°55'N	23°28'E	
Lithuania	LT15		Preila	55°21'N	21°04'E	5
Netherlands	NL2		Witteveen	52°49'N	6°40'E	18
	NL9		Kollumerwaard	53°20'N	6°17'E	0
	NL10		Vreedepeel	51°32'N	5°51'E	-
Norway	NO1		Birkenes	58°23'N	8°15'E	190
	NO30		Jergul	69°24'N	24°36'E	255
	NO39		Kårvatn	62°47'N	8°53'E	210
	NO41		Osen	61°15'N	11°47'E	440
	NO42		Spitsbergen, Zeppelinfjell	78°54'N	11°53'E	474
	NO44		Nordmoen	60°16'N	11°06'E	440
	NO47		Svanvik	69°27'N	30°02'E	474
	NO92		Øverbygd	69°03'N	19°22'E	90

Table 1 cont.:

Country	Station codes		Station name	Location		Height above sea (m)
		Old code		Lat.	Long.	
Norway cont.	NO93		Valdalen	62º05'N	12º10'E	800
	NO94		Møsvatn	59º50'N	8º20'E	940
	NO95		Ualand	58º31'N	6º23'E	220
	NO96		Namsvatn	64º59'N	13º35'E	500
	NO97		Solhomfjell	58º56'N	8º48'E	260
	NO98		Karpdalen	69º39'N	30º26'E	70
	NO99		Lista	58º06'N	6º34'E	13
Poland	PL4		Leba	54º45'N	17º32'E	157
	PL5		Diabla Gora	54º09'N	22º04'E	157
Portugal	PT1		Braganca	41º49'N	6º46'W	691
	PT3		V. d. Castelo	40º25'N	7º33'W	16
Slovak Rep.	SK2		Chopok	48º56'N	19º35'E	2008
	SK4		Stará Lesná	49°09'N	20°17'E	808
	SK5		Liesek	49°22'N	19°41'E	892
	SK6		Starina	49°03'N	22°16'E	345
Sweden	SE2		Rörvik	57º25'N	11º56'E	10
	SE5		Bredkälen	63º51'N	15º20'E	404
	SE12		Aspvreten	58º48'N	17º23'E	20
	SE51	SE99	Arup	55º45'N	13º40'E	157
	SE97		Gårdsjön	58º03'N	12º01'E	113
	SE98		Svartedalen	57º59'N	12º04'E	100
Switzerland	CH1		Jungfraujoch	46º33'N	7º59'E	3573
	CH2		Payerne	46º48'N	6º57'E	510
	CH3		Tänikon	47°29'N	8°54'E	540
	CH4		Chaumont	47°03'N	6°59'E	1130
	CH5		Rigi	47°04'N	8°28'E	1030
Turkey	TR1		Cubuk II	40º30'N	33º00'E	1169
United Kingdom	GB14		High Muffles	54º20'N	0º48'W	260
	GB90		East Ruston	52º48'N	1º28'E	5
	GB91		Banchory	57º05'N	2º32'E	120
	GB92		Isle of Wight	50º42'N	1º18'W	35
	GB93		Staxton Wold	54º11'N	0º26'W	35
	GB94		Lough Erne	54º24'N	8º03'W	35
Yugoslavia	YU5		Kamenicki vis	43º24'N	21º57'E	813
	YU8		Zabljak	43º09'N	19º08'E	1450

The site codes used are the new EMEP codes introduced during 1992 or codes used in the OSPARCOM or HELCOM programmes. Stations without these types of codes have been coded with the country ISO code and numbers from 90 and higher.

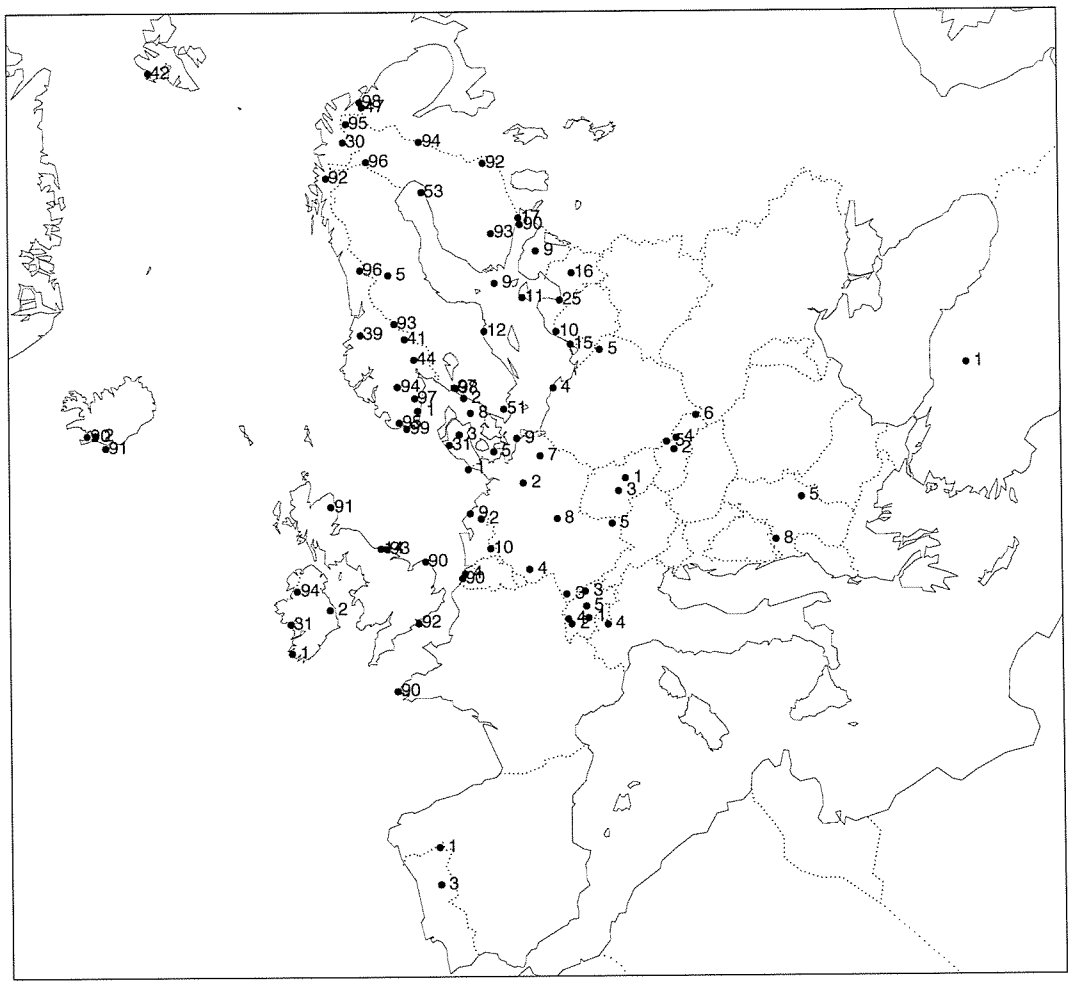

Figure 1: Location of monitoring stations which have reported data to the EMEP heavy metal and POP data base.

3. Data from the monitoring stations

A brief summary of the data received at CCC for 1997 together with information on sampling and analytical techniques are given in Tables 2-5. More details are given in Annex 9.

The data forwarded to the CCC have come in a large variety of formats, and large resources at the CCC are still used to transform these data into a format suitable for the new data base (NASA/AMES 1001 transfer files). The CCC has made available a computer programme which transforms data from simple matrix formats, e.g. spread sheet formats, into NASA/AMES format. It is very important that each EMEP participating country gain experience with, and makes use of, the new format in order to release CCC resources for other important tasks.

4. Quality of the monitoring data

To provide sufficiently accurate data for EMEP's needs, data with expected lower accuracy have been flagged (QA) in the tables with annual summaries and monthly means. The definitions of the quality flags are as follows:

1. High detection limit
2. Site location not regionally representative
3. Sampling problems
4. Analytical problems
5. Sampling site at high altitude
6. Concentration level low compared to stations in the neighbourhood
7. Extremely long sampling time
8. Sum of wet deposition + deposited particles on the funnel. Unit: ng/m^2 day
9. Estimated values
10. Extremely high single sample concentrations

The data have been checked for outliers. Extremely high values, outside four times standard deviation in a lognormal distribution, have been flagged in the EMEP database and are excluded from this report. Time series plots have also been produced for the reported components.

4.1 Heavy metals

The geographical gradients for Pb, Cd and Hg in precipitation and air seem to be reasonable. However, it is difficult to understand why the Estonian sites have so much lower concentration values for Pb in precipitation than the adjacent sites in Southern Finland. The values for the German sites are also low in relation to what one should expect. Portuguese Pb concentrations are low - so they should be.

Information on the quality of the precipitation measurements is also available from the HELCOM-EMEP-PARCOM-AMAP intercomparison on heavy metals in precipitation. The exercise was divided in an analytical and a field inter-comparison part and included seven heavy metals: Pb, Cd, Cu, Zn, As, Cr, and Ni. The results from the analytical part of the intercomparison showed that a majority of the participating laboratories reported deviation values within 25% of the theoretical values (Berg and Semb, 1995). In general, the intercomparison results for Pb was best. The field intercomparison part of the exercise was carried out at the German EMEP station Deuselbach (DE04). The results were extensively discussed at a workshop in Germany, September 1996, and the major conclusion from this meeting was that the outcome of this intercomparison is much more positive than in the case of previous exercises. The agreement between the collectors regarding precipitation amount seems to be satisfactory. Furthermore, the results for Pb, Cd and eventually Zn seem to be acceptable, but problems still remain to be solved for the other heavy metals considered (WMO, 1997). Heavy metals in precipitation will also be included in the next laboratory performance, prepared by CCC. Intercomparisons on mercury remain still to be carried out in the framework of EMEP.

Table 2: General information about sampling and analysis of heavy metals in precipitation in 1997.

Country	Sites	Heavy metals	Sampling period	Sampler wet	Sampler bulk	Analytical Methods
Czech Republic	CS1,3	Mn, Ni, Cd, Pb	weekly		x	
Denmark	DK31	Cr, Ni, Cu, Zn, Cd, Pb	monthly		x	ICP-MS
Estonia	EE9, 11	Cr, Ni, Cu, Zn, As, Cd, Pb	24h		x	
Finland	FI9, 17, 53, 92-95	V, Cr, Mn, Fe, Ni, Cu, Zn, As, Cd, Pb	monthly		x	ICP-MS/CV-AFS
	FI96	V, Cr, Mn, Fe, Ni, Cu, Zn, As, Cd, Hg, Pb				
Germany	DE1, 9	Al, Cr, Ni, Cu, Zn, As, Cd, Hg, Pb	monthly	x		GF-AAS
	DE2	V, Cr, Mn, Ni, Cu, Zn, As, Cd, Pb	24 h		x	ICP-MS
	DE4	Cr, Mn, Ni, Cu, Zn, As, Cd, Pb	weekly		x	ICP-MS
Iceland	IS2	Cr, Ni, Cu, Zn, As, Cd, Pb	monthly	x		GF-AAS
	IS90	"	"		x	
Ireland	IE1, 2	Cr, Ni, Cu, Zn, As, Cd, Hg, Pb	monthly		x	AAS/CV-AFS
Lithuania	LT15	V, Mn, Cu, Zn, Cd, Pb	monthly		x	AAS
Latvia	LV10, 16	Cu, Zn, Cd, Pb	monthly		x	GF-AAS
Netherlands	NL9	Fe, Cu, Zn, Cd, Pb	4weeks	x		
Norway	NO1, 39, 41, 44	Zn, Cd, Pb	Weekly		x	ICP-MS
	NO47	Cr, Co, Ni, Cu, Zn, As, Cd, Pb	Weekly		x	ICP-MS
	NO93-95, 99	V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Cd, Pb	Weekly			
	NO99	Hg	Weekly		x	CV-AFS
Portugal	PT1, 3, 4	Mn, Ni, Cu, Zn, Cd, Pb	24h		x	GF-AAS
Sweden	SE2, 5, 11, 12	Hg	Monthly		x	CV-AFS
	SE5, 12, 51, 97	V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Cd, Pb	"		x	ICP-MS
United Kingdom	GB14, 90, 91	Cr, Ni, Cu, Zn, As, Cd, Ti. Pb	3 months		x	ICP-MS

AAS: Atomic absorption spectroscopyx
GF-AAS: Graphite furnace atomic absorption spectroscopy
ICP-MS: Inductively coupled plasma - mass spectrometry
CV-AFS: Cold vapour - atomic fluorescence spectroscopy

Table 3: General information about sampling and analysis of heavy metals in air in 1997.

Country	Sites	Heavy metals	Sampling period	Sampler	Analytical methods
Belgium	BE4	Ni, Cu, Zn, Pb			
Denmark	DK5, 8 DK31	Ni, Cu, Zn, Pb Cr, Ni, Cu, Zn, As, Cd, Pb		Filter-3pack "	Pixe
Finland	FI96	Hg	24h	Gold trap	CV-AFS
Germany	DE1, 3-5, 7-9	Mn, Fe, Ni, Cu, Cd, Pb	24h	High vol.	ICP-MS
Iceland	IS91	Cr, Ni, Cu, Zn, As, Se,Cd, Pb	15d	High. Vol.	GF-AAS/CV-AAS
Ireland	IE31	Hg	24h	Hg-monitor	Hg-monitor
Latvia	LV10, 16	Cu, Zn, Cd, Pb	Weekly	Filter_1pack	AAS/GF-AAS
Lithuania	LT15	Cu, Zn, Cd, Pb	24 h[2)]	Low vol.	AAS
Netherlands	NL9	Zn, As, Cd, Pb	24h	Filter_1pack	
Norway	NO42, 99 NO42,99	Mn, V, Cr, Co, Ni, Cu, Zn, As,Cd, Pb, Hg	48 h[2)] 12-24h	NO42: High vol, NO99: filter_2pack Gold traps	ICP-MS CV-AFS
United Kingdom	GB14, 90, 91	Cr, Ni, Cu, Zn, As Cd, Pb	Monthly	Filter_1pack	ICP-MS

AAS: Atomic absorption spectroscopy
GF-AAS: Graphite furnace atomic absorption spectroscopy
ICP-MS: Inductively coupled plasma - mass spectrometry
CV-AFS: Cold vapour atomic fluorescence spectroscopy
Hg-monitor: For measurements of gaseous mercury

Table 4: General information about sampling and analysis of POPs in precipitation in 1997.

Country	Sites	POPs	Sampling period	Sampler	Analytical methods
Belgium	BE4	pecticides, HCHs	Monthly	Wet only	
Germany	DE1, DE9	PAH, pecticides, HCHs and HCB	Monthly	Wet only	GC/ECD
Iceland	IS91	PAH, pecticides	15d	Bulk_sampler	
Ireland	IE2	pecticides, HCHs	Monthly	Bulk_sampler	
Norway	NO99	α-HCH, γ-HCH, HCB	Monthly	Bulk sampler	GC-MS

HPLC: High performace liquid chromatography
GC/ECD: Gas Chromatography with electron capture detector
GC-MS: Gas chromatography with mass spectrometry

Table 5: General information about sampling and analysis of POPs in air in 1997.

Country	Sites	POPs	Sampling period	Sampler	Analytical methods
Czech. Rep	CZ3	PAH	1-5d	High vol.	
Iceland	IS91	PAH, pecticides	15d	High vol.	
Norway	NO42	PAH, pecticides, HCB and PCBs	48h	High vol.	GC-MS
	NO99	α-HCH, γ-HCH, HCB	48h		GC-MS

HPLC: High performace liquid chromatography
GC/ECD: Gas Chromatography with electron capture detector
GC-MS: Gas chromatography with mass spectrometry

4.2 POPs

It is generally difficult to give full credit to the information content in the POP data. German data for PCBs in precipitation are low, and most samples are below the detection limit. The concentrations are less than 20% of those reported from SE2 for 1996 (Berg and Hjellbrekke, 1998). It is recommended to disregard these data. Values from Iceland are generally low, which is also reasonable, considering the geographical location in relation to known source areas.

There has been a serious contamination problem for PCBs at NO42 for a while. The problem may persist in 1997, but these data are more consistent and may be used with caution. Iceland has low concentrations, which is dominated by the low-chlorinated PCBs. CZ03 shows a more balanced composition of individual PCB congeners. There is a marked seasonal trend, with higher concentrations in the summer months than in fall and winter.

PAHs are rapidly destroyed by UV. In the absence of local sources, therefore, a pronounced seasonal trend is to be expected. The time series of annual mean concentrations for CZ03, are quite variable. Data reported prior to 1995s, appear to be of mixed quality. The first sample in January 1997 is very high with respect to benzo(a)pyrene in air and also influences the annual mean value. This is related to the meteorological conditions in January 1997 (low temperature, weak winds).

Intercomparisons on POPs still remain to be carried out in the framework of EMEP. As a first step, an Expert Meeting on measurements of POPs in air and precipitation was hold at Lillehammer, Norway in November 1997. The Expert Meeting gave technical recommendations on measurements of POP in air and precipitation, and on the quality assurance of the POP measurements. A summary from this meeting is published in Lükewille (1998).

5. Annual summaries of the data

5.1 Maps of heavy metal concentrations over Europe

5.1.1 Data presentation

Annual averages of Pb and Cd from the 1997 precipitation and air data are presented in maps (Figures 2-5). The yearly precipitation mean concentrations have been calculated from daily, weekly or monthly reported values as precipitation-weighted averages. Average air concentrations are arithmetic averages of the reported values.

5.1.2 Kriging procedure

The element concentrations were interpolated from irregular to regular grids using ordinary kriging (Journel and Huijbregts, 1981). The method makes use of the spatial correlation between the measured data, and estimates data values where no measurements exist. The kriging weights are computed from a variogram, which measures the degree of correlation among sample values in the area as a function

of distance and direction of samples. The whole EMEP-area consisting of 99x99 grid elements were kriged. One element is 50×50 km.
It should be noted that the estimation error of concentrations in grid elements distant from the sites can be considerable and that a lack of sites in regions with characteristic high or low concentration will result in a corresponding lack of this feature in the presented maps.

5.1.3 Lead in precipitation

The stations have been located away from local sources and are as far as possible representative for a larger region. The lowest concentrations of Pb during 1997 are found in northern Scandinavia and Portugal, where the annual averages are below 1 µg Pb/l (Figure 2). Increasing gradients can be seen southwestward and south-eastward with peaks around 4 µg Pb/l at Czech and English stations. Usage of Pb in petrol (or as petrol additive) has decreased much more in the Western European countries relatively to the Eastern European countries over the last years (Pacyna, MSC/West, pers. comm.). It should be noticed that few countries in Southern- and Eastern Europe have reported data for heavy metals in precipitation.

5.1.4 Cadmium in precipitation

In Scandinavia the annual mean values of Cd are below 0.10 µg Cd/l (Figure 3). An increasing gradient can be seen southward. The highest concentrations of Cd, above 0.20 µg Cd/l, are reported from GB91, BE4 and DE2. It should be noticed that only 4 3-monthly samples are reported from the UK stations. There are no data reported from Southern Europe (except Portugal with too high detection limit for Cd) and only the Czech Republic and the Baltic States have reported data from Eastern Europe. The emissions of Cd have also decreased in Europe in recent years, but not so much as for Pb (Pacyna, pers. comm.; Bartnicki, 1998).

5.1.5 Lead in aerosols

Figure 4 presents the annual averages of Pb in air in 1997. The lowest concentrations (below 1 ng Pb/m^3) can be seen at Svalbard (NO42) and at Iceland. A region with concentrations between 8 and 12 ng Pb/m^3 can be seen in central parts of Europe. Concentration maximum is seen at BE4 for which there is reported an annual mean around 40 ng Pb/m^3. It should be noticed that, with the exception of the Baltic States, there are no data reported from Southern- and Eastern Europe.

5.1.6 Cadmium in aerosols

Cadmium in aerosols is presented in Figure 5. As for Pb the lowest concentrations (below 0.05 ng Cd/m^3) are reported from Svalbard and Iceland. An increasing gradient can be seen southeastward, with the highest concentration maxima in the Baltic States. No data are reported for the rest of East Europe and South Europe.

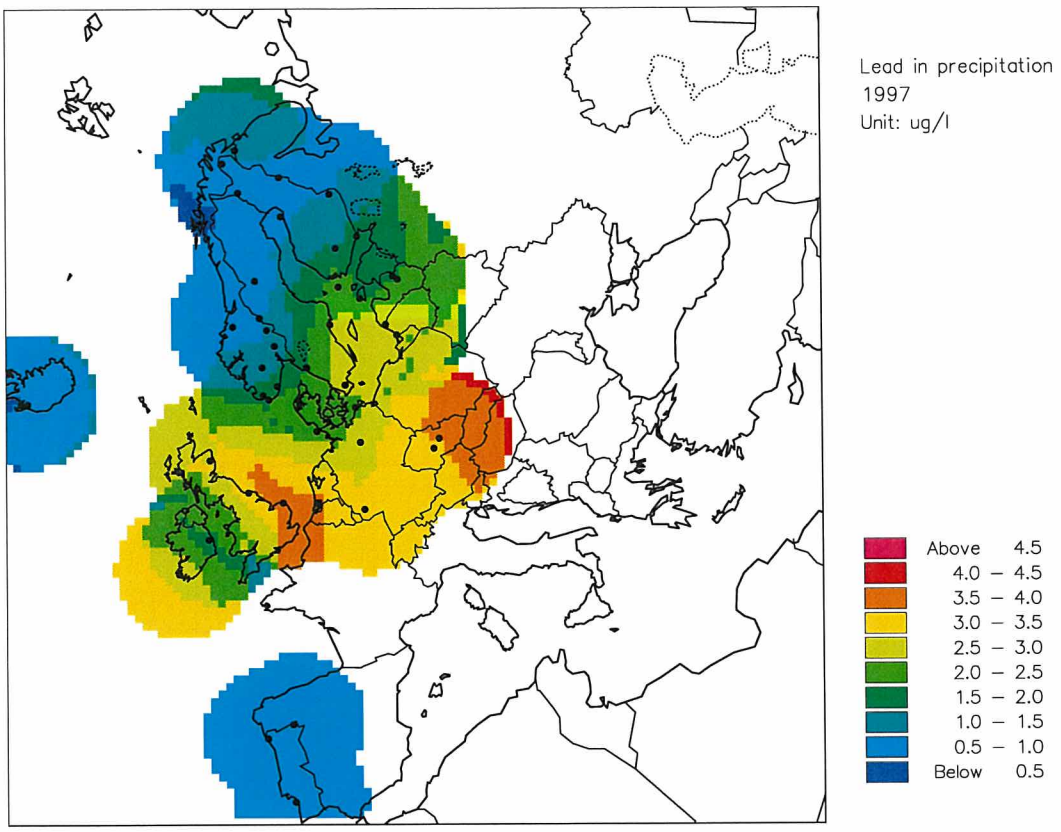

Figure 2: Kriged map of lead in precipitation, 1997 (µg/l).

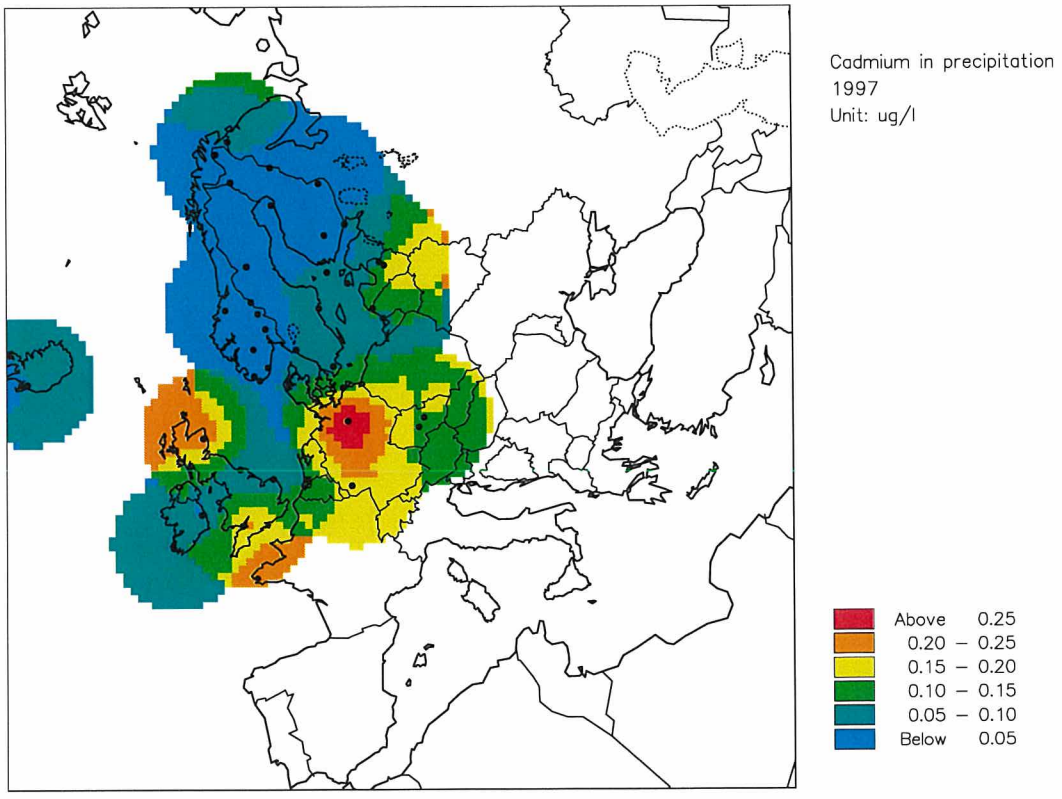

Figure 3: Kriged map of cadmium in precipitation, 1997 (µg/l).

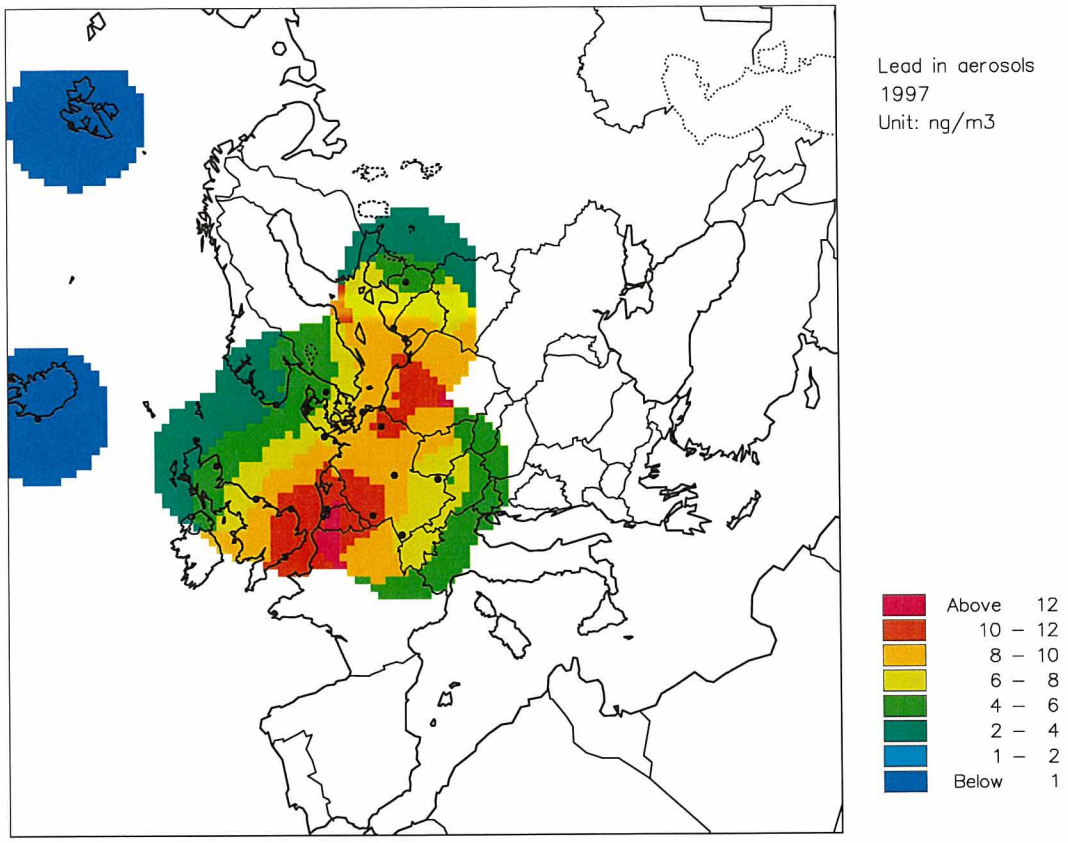

Figure 4: Kriged map of lead in aerosols, 1997 (ng/m³).

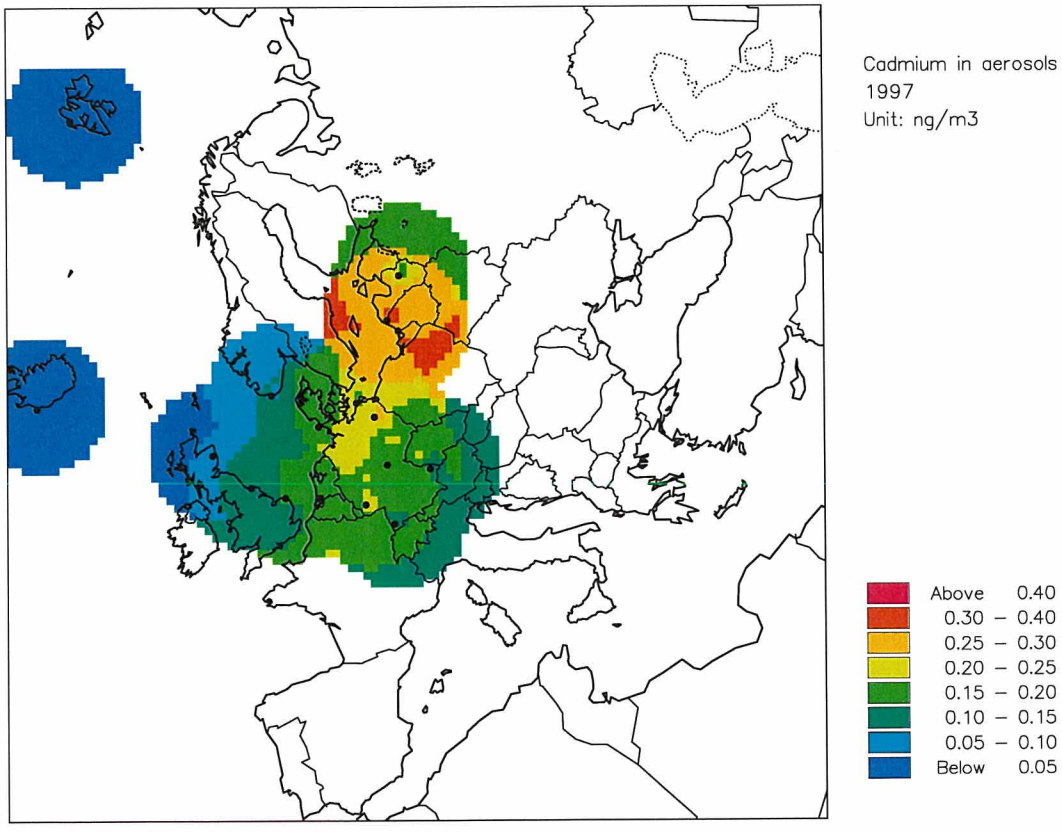

Figure 5: Kriged map of cadmium in aerosols, 1997 (ng/m³).

5.2 Temporal trends for lead in aerosols

Figure 6 shows temporal trends for lead in aerosols at 9 stations for which there have been reported data from for at least three years. Several countries in Europe have reduced their emissions of Pb which can be seen in the decreasing level in the Pb concentrations at DE4, DK3 and SK4. For BE90, GB91, LT15, LV10, NO42 and TR1 no clear trends can be noticed for the relatively short period of monitoring. A marked seasonal variation in the level of Pb can be seen at NO42 with highest concentrations during the high Arctic winter.

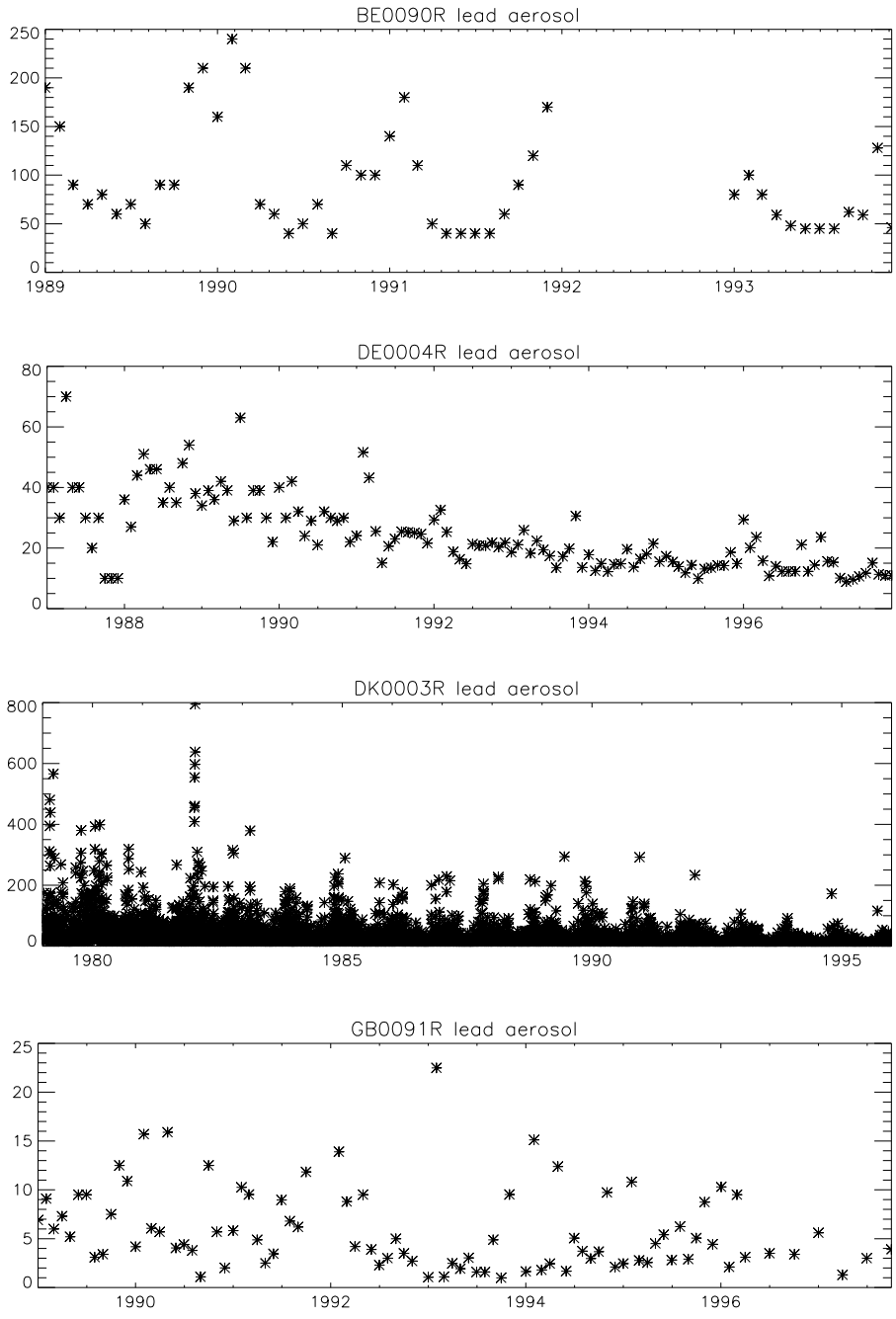

Figure 6:

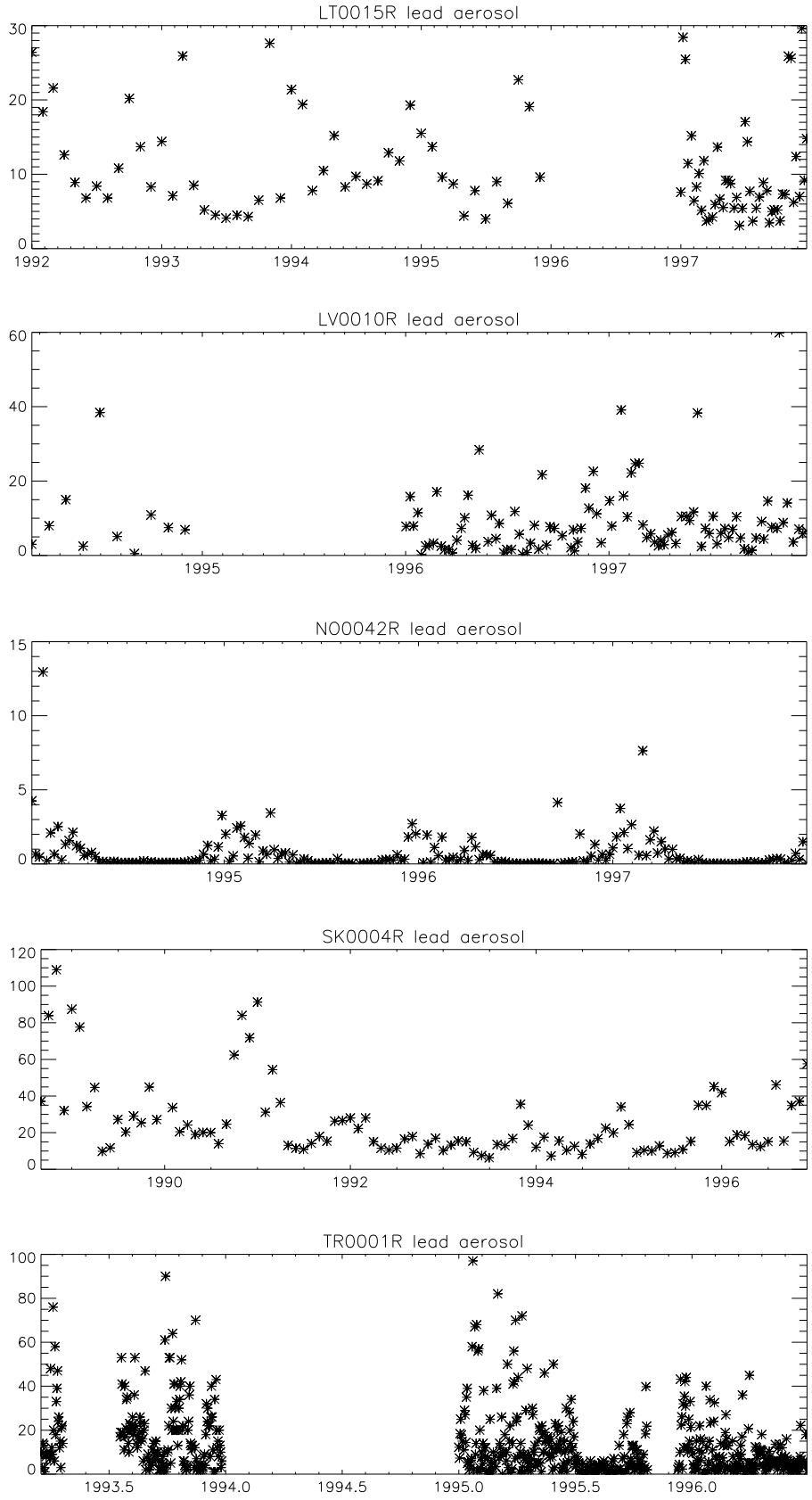

Figure 6, contd.

5.3 Concentrations of HCHs in Europe

Annual weighted means for the α-HCH and γ-HCH in air for 1997 can be seen in Figure 7. The relative high concentrations of α-HCH measured in air at NO99 and NO42 may be due to higher input of technical HCH at high latitudes. However uncertain, almost 80% of the remaining use of α-HCH in Europe in 1996 were assigned to the new states of the former Soviet Union (422 t of technical HCH) (Breivik et al., 1999). The other 20% were attributed as usage in some former Eastern European countries (Breivik et al., 1999). Iceland is influenced by westerly airmasses which explain the lower concentrations seen at IS91. The level of α-HCH may also reflect a photochemical conversion of γ-HCH to α-HCH.

NO99 shows the highest concentrations of γ-HCH in air, which may be due to long range transport from southern parts of Europe. According to Centre International d'Etudes du Lindane (CIEL, 1998), the average annual lindane consumption in Europe was 2130t during the period from 1992 to 1997. France was the major user of lindane in Europe during this period, with an annual average consumption of 1600 t (CIEL, 1998).

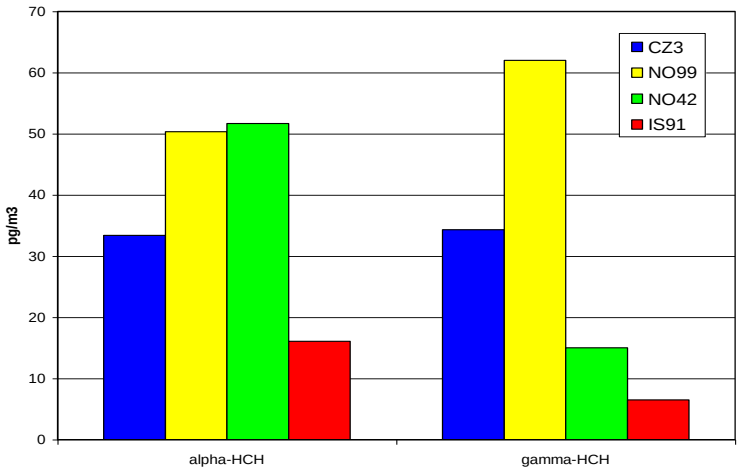

Figure 7: Annual weighted means for alpha-HCH and gamma-HCH for 1997.

5.4 Annual summaries in tables

Annual summaries of heavy metals in precipitation and air are given in Annex 1 and 2, respectively. Annual summaries for POP data are seen in Annex 3 and 4. The precipitation component summaries contain:

- the precipitation weighted arithmetic mean value,
- the minimum and maximum daily concentrations,
- the wet deposition,
- the number of data below the detection limit,
- the number of samples for a specified component
- a sampling flag which gives information about the sampling procedures,
- and a flag which gives information about the quality of the data.

The wet depositions have been obtained by multiplying the weighted mean concentration by the total amount of precipitation in the period. The concentrations for days with missing precipitation data have consequently been assumed to be equal to the weighted average of the period.

For air components the arithmetic mean and the geometric mean have been computed together with their standard deviations. The definitions are given on the next three pages. The geometric standard deviation is a dimensionless factor. As a measure of the completeness of the dataset, the number of samples analysed in the period has been printed.

In the computations of mean values and other statistics, the concentrations below the detection limit have been set equal to one half of the actual limit. An overview of the statistics and definitions is given below.

W.mean $\hat{c}$ is the precipitation weighted arithmetic mean concentration used for precipitation components:

$$\hat{c} = \frac{1}{\sum_i p_i} \cdot \sum_i c_i \cdot p_i$$

where p_i is precipitation amount day i with the measured concentration c_i of a specific component.

Arit mean $\overline{c_a}$ is the arithmetic mean value used for air components only, and N is number of days with data:

$$\overline{c_a} = \frac{1}{N} \sum_i c_i$$

Arit sd sd_a is the arithmetic standard deviation from the arithmetic mean value. It is computed for air components only:

$$sd_a = \left(\frac{\sum_i (c_i - \overline{c_a})^2}{N - 1} \right)^{\frac{1}{2}}$$

Geom mean $\overline{c_g}$ is the geometric mean value used for air components only, and it is computed from the arithmetic mean of ln c:

$$\overline{lnc} = \frac{1}{N} \cdot \sum_i lnc_i$$

$$\overline{c_g} = exp(\overline{lnc})$$

Geom sd — sd_g is the geometric standard deviation from the geometric mean value. It is computed for air components only, and it is based on the standard deviation of ln c:

$$sdlnc = \left(\frac{\sum_i (lnc_i - \overline{lnc})^2}{N-1} \right)^{\frac{1}{2}}$$

$$sd_g = exp(sdlnc)$$

Min — is the minimum value reported for a specific component, and it is printed both for precipitation and air components.

50% — is the 50 percentile, defined as above and computed for air data only.

Max — is the maximum value reported for a specific component, and it is given for precipitation and air components.

Dep — is the wet deposition of a specific precipitation component. The deposition is the product of the total precipitation amount measured and the weighted arithmetic mean of a component measured at a site.

Num bel — is the number of data below the detection limit (not used for precipitation amount).

Num samples — is the number of samples for a specific component.

Samp flag — is a two character code which gives information on the resolution of the reported data. Usually the resolution reported is the same as the sampling period, but not always. The code used in this report is:

D: daily
D1: one-day each week
D2: two-days each week
W: weekly
WC: weekly with change the first day each month
W1: one-week each month
W2: two weekly
W4: four-weekly
M: monthly
Y: yearly
*: monthly estimates (further details in 5.5)

QA: is a flag which gives information on the quality of the data (further details in 4)

The units used for the results in this report are given in Table 5. The deposition figures are calculated for the sampling period.

Table 5: Units used for the measured components.

Components	Units for W. mean, Min Max	Units for depositions
Amount precipitation	mm	mm
Heavy metals in precipitation	µg/l	µg /m^2
Mercury in precipitation	ng/l	ng//m^2
Heavy metals in air	ng/m^3	
Mercury in air	ng/m^3	
POPs in precipitation	ng/l	ng/m^2
PAHs in air	ng/m^3	
Pecicides, HCB and PCBs in air	pg/ m^3	

5.5 Monthly averages of the data

Monthly averages of heavy metals are given in Annex 5-8. The monthly mean values of precipitation data are precipitation weighted arithmetic averages. Average air concentrations are arithmetic averages of the reported values.

Data which do not have monthly resolution, but have parts of the sample in one month and parts in other months have estimated monthly means which are flagged (*). The precipitation data have been treated like this: If e.g. a weekly sample has 5 days in one month and 2 days in the next, 5/7 parts of the precipitation will be assigned to the first month and 2/7 parts to the next month, while the concentrations are assumed to be equal. The precipitation weighted monthly averages are then calculated as the estimated monthly deposition divided by the monthly precipitation amount.

For air samples starting and ending in different months weighted averages are calculated in a similar way. All values are multiplied with the number of days within a given month. The average is obtained by dividing the sum of these values with the number of days with measurements in that month.

6. Update

The data compiled in this report represent the best data available at present. If any further errors are detected, the data will be corrected in the database. It is important that the users make certain that they have access to the most recent version of the database. For the data presented here the latest alteration is 25 August 1999.

Scientific use of the EMEP data should be based on fresh copies of the data. Copies can be requested from the CCC (e-mail: torunn.berg@nilu.no). Information about the EMEP measurement network can be found at CCC's internet pages at "http://www.nilu.no/projects/ccc/index.html".

7. Conclusions and further work

Few stations in central parts of Europe, the Mediterranean region and the most eastern part of Europe have reported data for heavy metals in precipitation. The site density is also low for heavy metals in air in Scandinavia, the Mediterranean region and Eastern Europe.

Data for POPs have been reported from countries around the North and Baltic Seas, in the Arctic and from the Czech Republic.

Several countries have still not reported any data to the database. CCC has, however, got access to data from OSPARCOM (Oslo and Paris Conventions for the prevention of marine pollution), so a few of these countries are nevertheless included in the report. CCC will still appreciate receiving old data for the database. These data will be quality checked and transferred to the database in the same way as newer data. It is important that the participants report back information on sampling, analytical methods and quality control.

8. References

Bartnicki, J. (1998) Heavy metals eulerian transport model – HMET model description and results. Oslo (DNMI Research Report No. 65 June 1998).

Berg, T. and Semb, A. (1995) Preliminary results from the HELCOM - EMEP - PARCOM - AMAP analytical intercomparison of heavy metals in precipitation. Kjeller, Norwegian Institute for Air Research (EMEP/CCC-Note 1/95).

Berg, T., Hjellbrekke, A.G. and Skjelmoen, J.E. (1996*)* Heavy metals and POPs within the ECE region. Kjeller, Norwegian Institute for Air Research (EMEP/CCC-Report 8/96).

Berg, T., Hjellbrekke, A.G. and Ritter, N. (1997) Heavy metals and POPs within the ECE region. Additional data. Kjeller, Norwegian Institute for Air Research (EMEP/CCC-Report 9/97).

Berg, T. and Hjellbrekke, A.G. (1998) Heavy metals and POPs within the ECE region. Supplementary data for 1989-1996. Kjeller, Norwegian Institute for Air Research (EMEP/CCC-Report 7/98).

Breivik, K., Pacyna, J. and Münch, J. (1999) Use of α-, β- and γ-hexachlorocyclo-hexane in Europe, 1970–1996. *Sci. Tot. Environ.* (in press).

Journel, A.G. and Huijbregts C.G. (1978) Mining Geostatistics. London, Academic Press.

WMO (1997) Report and proceedings of the workshop on the assessment of EMEP activities concerning heavy metals and persistent organic pollutants and their further development (Vol. 1). Geneve, WMO (Global Atmosphere Watch No. 117) pp. 18-32.

9. Acknowledgements

A large number of anonymous co-workers in participating countries have been involved in this work. A list of participating institutes which have provided data for 1997 can be seen below. The staff at CCC wishes to express their gratitude and appreciation for continued good co-operation and efforts.

Belgium	Flemish Environmental Agency
Denmark	National Environmental Research Institute
Czech Republic	Czech Hydrometeorological Institute
Estonia	Estonian Environmental Research Centre
Finland	Finnish Meteorological Institute
Germany	Umweltbundesamt
Iceland	The Icelandic Meteorological Office
Ireland	Environmental Protection Agency (EPA)
Latvia	Latvian Hydrometeorological Agency
Lithuania	Institute of Physics
Netherlands	National Institute for Public Health and Environmental Protection (RIVM)
Norway	Norwegian Institute for Air Research (NILU)
Portugal	Ministerio do Ambiente, Instituto de Meteorologia
Sweden	Swedish Water and Air Pollution Research Institute (IVL)
United Kingdom	AEA Technology

Annex 1

Annual statistics on data for heavy metals in precipitation

BE0004R KNOKKE BELGIUM

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As bulk	-	0.30	4.30	8	11	W4	
Cd bulk	-	0.17	24.70	0	11	W4	
Cr wet only	2.14	0.60	11.30	0	12	W4	
Cu bulk	-	2.30	16.00	2	10	W4	
Pb bulk	-	3.20	147.00	0	11	W4	2/3/4
Hg wet only	18.99	10.00	30.00	3	7	W4	1
Ni wet only	1.55	1.10	5.90	7	12	W4	
Precip wet only	-	4.0	36.0	0	12	W4	
Zn bulk	-	6.00	83.50	1	11	W4	

CS0001R SVRATOUCH CZECH REPUBLIC

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.16	0.05	1.52	0	36	W	
Pb	4.15	1.00	17.10	0	36	W	
Mn	4.77	3.00	24.00	0	9	W	
Ni	1.75	1.00	10.00	0	36	W	
Precip	-	0.0	168.0	2	53	W	

CS0003R KOSETICE CZECH REPUBLIC

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.13	0.04	2.04	0	104	D	
Pb	3.02	0.70	20.80	0	43	D	
Mn	9.78	1.00	140.00	0	46	D	
Ni	1.48	1.00	12.00	0	103	D	
Precip	-	0.0	37.6	191	365	D	
Precip	-	0.0	103.3	5	53	D	

DE0001R WESTERLAND GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Al	38.61	0.00	107.99	1	12	M	
As	0.32	0.00	0.57	1	12	M	
Cr	0.41	0.00	0.99	1	12	M	
Cu	1.95	0.00	3.08	1	12	M	
Pb	1.85	0.00	3.24	1	12	M	
Hg	17.53	12.00	65.00	0	12	M	
Ni	0.63	0.00	1.79	1	12	M	
Precip	-	0.0	71.6	1	12	M	
Precip (Hg)	-	0.9	72.3	0	12	M	
Zn	10.46	0.00	17.02	1	12	M	

DE0002R LANGENBRUGGE GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.18	0.03	1.52	0	118	D	
Cd	0.32	0.09	2.05	0	114	D	
Cr	0.35	0.01	2.16	0	118	D	
Cu	5.09	0.80	29.70	0	118	D	
Pb	3.14	0.80	20.40	0	119	D	
Mn	5.99	0.90	62.50	0	119	D	
Ni	1.97	0.11	10.78	0	116	D	
Precip	-	0.0	31.2	187	365	D	
V	0.69	0.12	6.87	0	119	D	
Zn	40.71	7.00	247.00	0	116	D	

DE0004R DEUSELBACH GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.13	0.05	1.11	0	37	W	
Cd	0.19	0.08	0.85	0	37	W	
Cr	0.54	0.16	2.01	0	37	W	
Cu	4.62	1.40	12.70	0	36	W	
Pb	3.15	1.30	9.40	0	37	W	
Mn	5.46	1.80	29.50	0	37	W	
Ni	1.14	0.38	3.58	0	37	W	
Precip	-	0.0	57.5	6	48	W	
Zn	48.05	13.00	174.00	0	37	W	

DE0009R ZINGST GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Al	32.28	0.00	109.27	1	12	M	
As	0.28	0.00	0.71	1	12	M	
Cd	0.11	0.00	0.45	1	12	M	
Cr	0.38	0.00	1.09	1	12	M	
Cu	4.86	0.00	13.43	1	12	M	
Pb	1.99	0.00	3.18	1	12	M	
Ni	0.38	0.00	0.71	1	12	M	
Precip	-	0.0	99.5	1	12	M	
Zn	9.02	0.00	19.52	1	12	M	

DK0031R ULBORG DENMARK

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.06	0.03	0.15	0	11	M	
Cr	0.57	0.23	2.21	0	11	M	
Cu	1.78	0.64	3.64	0	11	M	
Pb	2.26	1.02	6.83	0	11	M	
Ni	0.89	0.32	8.64	0	11	M	
Precip	-	11.4	120.0	0	11	M	
Zn	15.39	6.47	59.90	0	11	M	

EE0009R LAHEMAA ESTONIA

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.41	0.25	1.70	65	100	D	
Cd	0.07	0.05	0.46	70	99	D	
Cr	0.51	0.50	2.30	99	100	D	
Cu	4.98	0.50	57.50	12	100	D	
Pb	0.79	0.50	7.70	83	103	D	6
Ni	0.58	0.50	5.10	85	100	D	
Precip	-	0.0	14.9	234	362	D	
Zn	10.45	5.00	280.00	50	101	D	

EE0011R VILSANDI ESTONIA

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.38	0.25	1.40	29	32	D	
Cd	0.07	0.00	0.24	24	32	D	
Cr	0.60	0.50	3.40	28	32	D	
Cu	3.65	0.50	53.00	4	32	D	
Pb	1.15	0.50	3.50	22	32	D	
Ni	0.64	0.50	3.50	25	32	D	
Precip	-	0.0	36.6	333	365	D	
Zn	11.31	5.00	90.00	17	32	D	

FI0009F UTO FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.35	0.19	1.80	0	11	M	
Cd	0.06	0.03	0.17	0	11	M	
Cr	0.21	0.11	1.82	0	11	M	
Cu	2.18	0.58	36.00	0	11	M	
Fe	92.5	18.8	781.0	0	11	M	
Pb	2.71	1.15	16.20	0	11	M	
Mn	4.12	1.25	26.40	0	11	M	
Ni	0.46	0.21	1.98	0	11	M	
Precip	-	0.0	92.0	1	12	M	
V	0.83	0.36	2.94	0	11	M	
Zn	7.17	3.05	33.40	0	11	M	

FI0017R VIROLAHTI II FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.33	0.10	0.75	0	12	M	
Cd	0.06	0.02	0.14	0	12	M	
Cr	0.17	0.05	0.42	0	12	M	
Cu	1.46	0.63	4.13	0	12	M	
Fe	54.3	10.9	288.7	0	12	M	
Pb	2.22	0.67	7.14	0	12	M	
Mn	3.23	0.57	25.87	0	12	M	
Ni	0.56	0.18	1.55	0	12	M	
Precip	-	9.7	68.0	0	12	M	
V	0.88	0.24	2.15	0	12	M	
Zn	5.69	2.19	12.90	0	12	M	

FI0053R HAILUOTO FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.13	0.05	0.39	0	12	M	
Cd	0.03	0.02	0.08	0	12	M	
Cr	0.13	0.03	0.62	1	12	M	
Cu	1.84	0.53	5.55	0	12	M	
Fe	34.3	17.3	173.5	0	12	M	
Pb	1.14	0.39	6.57	0	12	M	
Mn	4.48	1.65	13.40	0	12	M	
Ni	0.45	0.11	1.41	0	12	M	
Precip	-	4.9	74.7	0	12	M	
V	0.57	0.27	2.08	0	12	M	
Zn	6.68	2.41	14.95	0	12	M	

FI0092R HIETAJARVI FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.09	0.04	0.21	0	12	M	
Cd	0.02	0.01	0.05	0	12	M	
Cr	0.09	0.03	0.38	3	12	M	
Cu	0.97	0.40	3.23	0	12	M	
Fe	10.9	4.5	30.1	0	12	M	
Pb	0.83	0.28	1.69	0	12	M	
Mn	1.16	0.28	2.84	0	12	M	
Ni	0.29	0.12	0.60	0	12	M	
Precip	-	24.3	110.8	0	12	M	
V	0.28	0.11	0.77	0	12	M	
Zn	2.08	1.01	4.01	0	12	M	

FI0093R KOTINEN FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.12	0.04	0.34	0	12	M	
Cd	0.03	0.01	0.08	0	12	M	
Cr	0.12	0.03	0.47	2	12	M	
Cu	0.98	0.39	4.75	0	12	M	
Fe	20.9	6.1	223.5	0	12	M	
Pb	1.12	0.36	3.15	0	12	M	
Mn	2.24	0.65	15.40	0	12	M	
Ni	0.43	0.19	0.85	0	12	M	
Precip	-	12.0	81.4	0	12	M	
V	0.42	0.15	1.51	0	12	M	
Zn	3.61	1.26	10.33	0	12	M	

FI0094R PESOSJARVI FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.11	0.04	0.29	0	12	M	
Cd	0.02	0.01	0.06	0	12	M	
Cr	0.06	0.03	0.24	2	12	M	
Cu	1.12	0.55	3.25	0	12	M	
Fe	9.9	3.5	36.8	0	12	M	
Pb	0.66	0.22	1.67	0	12	M	
Mn	1.12	0.32	2.32	0	12	M	
Ni	0.29	0.06	0.98	0	12	M	
Precip	-	9.2	68.6	0	12	M	
V	0.22	0.08	0.92	0	12	M	
Zn	2.58	1.23	6.25	0	12	M	

FI0095R VUOSKOJARVI FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.13	0.04	0.35	0	12	M	
Cd	0.02	0.01	0.06	0	12	M	
Cr	0.05	0.03	0.23	6	12	M	
Cu	1.65	0.52	5.87	0	12	M	
Fe	6.8	1.2	32.0	1	12	M	
Pb	0.51	0.19	2.29	0	12	M	
Mn	0.61	0.18	3.04	0	12	M	
Ni	0.42	0.18	0.99	0	12	M	
Precip	-	6.1	49.4	0	12	M	
V	0.13	0.03	0.41	0	12	M	
Zn	1.59	0.79	6.18	0	12	M	

FI0096R PALLAS FINLAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.10	0.03	1.24	0	12	M	
Cd	0.01	0.00	0.19	0	12	M	
Cr	0.05	0.03	0.48	6	12	M	
Cu	0.96	0.36	13.55	0	12	M	
Fe	5.6	1.2	98.3	2	12	M	
Pb	0.38	0.21	4.39	0	12	M	
Mn	0.69	0.19	23.15	0	12	M	
Hg	14.23	3.90	51.70	0	11	M	
Ni	0.22	0.07	3.13	0	12	M	
Precip	-	2.1	75.5	0	12	M	
Precip (Hg)	-	3.0	53.0	0	11	M	
V	0.14	0.07	1.04	0	12	M	
Zn	1.61	1.06	18.10	0	12	M	

GB0014R HIGH MUFFLES UNITED KINGDOM

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.33	0.20	0.51	0	4	3M	7
Cd	0.05	0.03	0.11	0	4	3M	7
Cr	0.16	0.01	0.39	0	4	3M	7
Cu	1.32	0.64	3.15	0	4	3M	7
Pb	3.86	2.62	5.74	0	4	3M	7
Ni	0.18	0.02	0.58	0	4	3M	7
Precip	-	116.0	284.0	0	4	3M	7
Ti	1.23	0.30	2.80	0	4	3M	7
Zn	28.32	3.80	169.10	0	4	3M	7

GB0090R EAST RUSTON UNITED KINGDOM

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.27	0.10	0.71	0	4	3M	7
Cd	0.06	0.04	0.24	0	4	3M	7
Cr	0.47	0.05	2.70	0	4	3M	7
Cu	3.35	1.40	17.75	0	4	3M	7
Pb	3.85	2.40	10.94	0	4	3M	7
Ni	0.50	0.04	1.89	0	4	3M	7
Precip	-	66.0	261.0	0	4	3M	7
Ti	2.57	1.20	7.00	0	4	3M	7
Zn	9.82	4.20	36.10	0	4	3M	7

GB0091R BANCHORY UNITED KINGDOM

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.31	0.24	0.40	0	4	3M	7
Cd	0.25	0.02	0.59	0	4	3M	7
Cr	0.29	0.03	1.30	0	4	3M	7
Cu	1.15	0.62	1.50	0	4	3M	7
Pb	2.79	1.40	4.40	0	4	3M	7
Ni	0.20	0.03	0.91	0	4	3M	7
Precip	-	106.0	334.0	0	4	3M	7
Ti	2.39	1.30	3.70	0	4	3M	7
Zn	5.23	2.50	9.00	0	4	3M	7

IE0001R VALENTIA OBS. IRELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.29	0.25	0.50	7	7	M	
Cd	0.10	0.03	0.59	4	12	M	
Cr	0.25	0.25	0.25	11	11	M	
Cu	5.15	1.10	13.60	0	11	M	
Pb	0.57	0.25	3.30	5	10	M	
Hg	75.00	75.00	75.00	11	11	M	
Ni	0.55	0.50	1.50	11	12	M	
Precip	-	37.6	268.2	0	12	M	
Zn	21.74	4.00	60.90	0	10	M	

IE0002R TURLOUGH HILL IRELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.22	0.03	0.25	10	10	M	
Cd	0.05	0.03	0.27	5	12	M	
Cr	0.25	0.25	0.25	11	11	M	
Cu	0.77	0.25	8.80	5	11	M	
Pb	1.11	0.25	9.50	5	11	M	
Hg	75.00	75.00	75.00	12	12	M	
Ni	0.55	0.50	1.40	9	12	M	
Precip	-	32.1	358.6	0	12	M	
Zn	16.99	1.00	195.00	0	12	M	

IS0002R IRAFOSS ICELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.05	0.05	0.05	12	12	W4*	
Cd	0.09	0.03	0.22	6	12	W4*	
Cr	0.16	0.05	0.40	5	12	W4*	
Cu	1.49	0.20	6.50	0	12	W4*	
Pb	1.09	0.10	5.40	4	11	W4*	
Ni	0.47	0.25	2.50	10	12	W4*	
Precip	-	35.5	243.8	0	12	W4*	
Zn	18.91	6.00	40.00	0	12	W4*	

IS0090R REYKJAVIK ICELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.05	0.05	0.05	12	12	W4*	
Cd	0.04	0.03	0.19	11	12	W4*	
Cr	0.44	0.05	2.00	4	12	W4*	
Cu	1.68	0.70	3.10	0	12	W4*	
Pb	0.10	0.10	0.10	12	12	W4*	6
Ni	0.46	0.25	1.60	6	12	W4*	
Precip	-	13.5	108.9	0	12	W4*	
Zn	130.73	91.00	310.00	0	12	W4*	

LT0015R PREILA LITHUANIA

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.10	0.04	0.58	0	12	M	
Cu	1.42	0.60	8.35	0	12	M	
Pb	1.97	0.57	9.80	0	12	M	6
Mn	5.73	0.80	19.80	0	12	M	
Precip	-	1.6	144.2	0	12	M	
V	1.01	0.10	6.00	1	12	M	
Zn	9.90	2.80	33.50	0	12	M	

LV0010R RUCAVA LATVIA

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.12	0.01	0.38	0	12	M	
Cu	1.42	0.10	8.90	0	12	M	
Pb	4.04	0.60	16.20	0	12	M	
Precip	-	13.8	189.2	0	12	M	
Zn	13.22	5.00	37.00	0	12	M	

LV0016R ZOSENI LATVIA

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.13	0.01	0.22	0	10	M	
Cu	3.26	0.10	30.50	0	12	M	
Pb	3.08	0.40	16.80	0	12	M	
Precip	-	21.7	136.6	0	12	M	
Zn	117.06	2.00	400.00	0	12	M	

NL0009R KOLLUMERWAARD NETHERLANDS

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.33	0.08	1.69	0	11	W4	
Cu	2.09	0.63	4.89	0	12	W4	
Fe	135.8	10.0	593.7	0	13	W4	
Pb	2.15	1.04	7.04	0	12	W4	
Precip	-	11.7	66.0	0	8	W4	
Zn	21.33	6.50	90.90	0	11	W4	

NO0001R BIRKENES NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.03	0.00	0.30	6	45	WC	
Pb	1.73	0.34	10.57	0	45	WC	
Precip	-	0.0	134.7	5	62	WC	
Zn	4.16	0.95	155.14	0	45	WC	

NO0039R KAARVATN NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.01	0.00	0.22	25	53	WC	
Pb	0.69	0.04	8.58	0	53	WC	
Precip	-	0.0	185.2	4	62	WC	
Zn	1.56	0.14	29.91	0	53	WC	

NO0041R OSEN NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.02	0.00	0.53	6	38	WC	
Pb	0.93	0.23	7.80	0	38	WC	
Precip	-	0.0	126.6	11	62	WC	
Zn	3.96	1.07	84.28	0	38	WC	

NO0044R NORDMOEN NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.03	0.00	0.35	3	17	WC	
Pb	1.14	0.34	5.01	0	17	WC	
Precip	-	0.0	45.2	2	16	WC	
Zn	4.19	1.23	53.03	0	17	WC	

NO0047R SVANVIK NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	1.78	0.05	11.23	2	48	WC	
Cd	0.11	0.00	0.71	1	47	WC	
Cr	0.29	0.10	2.60	21	48	WC	
Co	0.57	0.00	3.70	1	48	WC	
Cu	21.40	0.25	138.33	0	48	WC	
Pb	1.88	0.25	21.12	0	48	WC	
Ni	17.34	0.10	108.30	1	48	WC	
Precip	-	0.0	22.9	6	61	WC	
Zn	3.84	0.72	22.43	0	48	WC	

NO0093R VALDALEN NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.07	0.05	0.17	10	12	WC	
Cd	0.05	0.02	0.11	0	12	WC	
Cr	0.16	0.10	0.31	7	12	WC	
Co	0.02	0.00	0.05	3	12	WC	
Cu	1.08	0.22	2.26	0	12	WC	
Fe	15.0	5.0	67.9	6	12	WC	
Pb	1.12	0.30	1.86	0	12	WC	
Mn	1.97	0.25	4.61	1	12	WC	
Ni	0.36	0.10	1.10	3	12	WC	
Precip	-	9.6	145.9	0	12	WC	
V	0.19	0.05	0.30	4	12	WC	
Zn	6.18	3.12	15.94	0	11	WC	

NO0094R MOESVATN NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.10	0.05	0.23	7	12	WC	
Cd	0.02	0.00	0.09	1	12	WC	
Cr	0.10	0.10	0.10	12	12	WC	
Co	0.02	0.00	0.05	5	12	WC	
Cu	1.01	0.14	2.00	0	12	WC	
Fe	14.3	5.0	44.3	9	12	WC	
Pb	1.02	0.29	10.57	0	12	WC	
Mn	1.41	0.25	2.70	3	12	WC	
Ni	0.37	0.10	0.89	4	12	WC	
Precip	-	6.4	104.9	0	12	WC	
V	0.16	0.05	0.43	6	12	WC	
Zn	4.45	0.97	7.27	0	12	WC	

NO0095R UALAND NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.11	0.05	0.21	6	12	WC	
Cd	0.02	0.00	0.06	1	12	WC	
Cr	0.10	0.10	0.10	12	12	WC	
Co	0.01	0.00	0.05	7	12	WC	
Cu	0.35	0.22	0.90	0	12	WC	
Fe	14.1	5.0	82.6	7	12	WC	
Pb	1.34	0.63	2.48	0	12	WC	
Mn	1.08	0.25	3.63	2	12	WC	
Ni	0.15	0.10	0.36	6	12	WC	
Precip	-	43.7	452.8	0	12	WC	
V	0.39	0.21	0.78	0	12	WC	
Zn	2.55	1.36	4.73	0	12	WC	

NO0099R LISTA NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.48	0.05	2.05	1	48	WC	
Cd	0.05	0.00	0.34	1	47	WC	
Cr	0.16	0.10	2.11	30	48	WC	
Co	0.04	0.00	0.48	1	48	WC	
Cu	0.98	0.34	6.69	0	48	WC	
Pb	2.77	0.69	17.80	0	46	WC	
Hg	9.35	5.60	26.80	0	12	WC	
Ni	0.38	0.10	4.60	12	48	WC	
Precip	-	0.0	132.3	7	62	WC	
V	0.55	0.05	4.09	1	48	WC	
Zn	6.59	1.68	110.25	0	48	WC	

PT0001F BRAGANCA PORTUGAL

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.43	0.43	0.43	48	48	D	
Cu	2.60	0.32	61.13	21	48	D	
Pb	0.67	0.64	2.31	46	48	D	
Mn	3.51	1.08	15.74	26	47	D	
Ni	0.93	0.77	3.29	43	48	D	
Precip off	-	5.6	46.2	317	365	D	
Zn	28.30	2.00	113.00	0	48	D	

PT0003F V. DO CASTELO PORTUGAL

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.44	0.43	1.69	82	84	D	
Cu	1.96	0.32	16.91	11	84	D	
Pb	0.86	0.64	4.85	66	84	D	
Mn	3.80	1.08	29.50	41	84	D	
Ni	0.92	0.77	8.22	75	84	D	
Precip off	-	5.8	75.2	279	365	D	
Zn	33.10	0.08	494.00	1	84	D	

PT0004F MONTE VELHO PORTUGAL

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.52	0.43	4.51	39	46	D	
Cu	0.83	0.32	9.64	15	46	D	
Pb	0.65	0.64	1.69	45	46	D	
Mn	3.05	1.08	33.22	29	46	D	
Ni	0.89	0.77	3.00	39	46	D	
Precip off	-	4.8	92.5	319	365	D	
Zn	26.46	8.00	158.00	0	46	D	

SE0002R RORVIK SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Hg	14.58	6.90	53.00	0	11	M	
CH3Hg	0.17	0.03	0.81	3	11	M	
Precip	-	12.0	80.0	0	11	M	

SE0005R BREDKALEN SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.06	0.02	0.18	2	12	M	
Cd	0.04	0.01	0.07	0	12	M	
Cr	0.21	0.05	0.70	2	12	M	
Co	0.01	0.00	0.05	3	12	M	
Cu	3.42	1.08	5.89	0	4	M	
Fe	9.5	2.1	20.0	0	6	M	
Pb	0.87	0.22	2.31	0	12	M	
Mn	6.03	0.30	20.30	0	8	M	
Hg	7.01	0.00	23.20	1	12	M	
CH3Hg	0.13	0.03	0.32	3	12	M	
Ni	0.20	0.05	0.82	0	12	M	
Precip (Hg)	-	6.0	93.0	0	12	M	
Precip	-	17.0	79.0	0	12	M	
V	0.14	0.06	0.30	0	12	M	
Zn	14.78	1.21	93.83	0	12	M	

SE0011R VAVIHILL SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Hg	12.54	4.20	59.00	0	12	M	
CH3Hg	0.14	0.06	0.41	0	11	M	
Precip	-	0.0	109.0	1	12	M	

SE0012R ASPVRETEN SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.24	0.03	1.03	0	12	M	
Cd	0.09	0.03	1.01	0	12	M	
Cr	0.28	0.09	2.56	0	12	M	
Co	0.02	0.01	0.08	0	12	M	
Cu	4.48	1.20	7.17	0	4	M	
Fe	32.7	4.4	59.8	0	6	M	
Pb	2.77	1.09	7.01	0	12	M	
Mn	2.44	0.60	13.80	0	8	M	
Hg	12.44	0.00	48.80	1	12	M	
CH3Hg	0.32	0.03	1.04	1	12	M	
Ni	0.32	0.17	0.87	0	12	M	
Precip (Hg)	-	0.0	90.0	1	12	M	
Precip	-	3.0	92.0	0	12	M	
V	0.65	0.14	1.17	0	12	M	
Zn	19.24	3.67	69.26	0	12	M	

SE0051R ARUP SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.26	0.10	1.00	0	11	M	
Cd	0.10	0.04	1.34	0	11	M	
Cr	0.32	0.05	1.10	2	11	M	
Co	0.03	0.01	0.13	0	11	M	
Cu	3.23	1.06	7.92	0	4	M	
Fe	34.1	16.6	91.0	0	6	M	
Pb	3.34	1.51	11.48	0	11	M	
Mn	4.62	0.70	6.80	0	7	M	
Ni	0.42	0.18	2.29	0	11	M	
Precip	-	3.0	181.0	1	12	M	
V	0.84	0.39	4.31	0	11	M	
Zn	17.12	4.74	80.33	0	11	M	

SE0097R GÅRDSJON SWEDEN

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
As	0.17	0.05	0.32	3	12	M	
Cd	0.06	0.01	0.09	0	12	M	
Cr	0.21	0.05	0.48	5	12	M	
Co	0.02	0.01	0.03	0	12	M	
Cu	4.56	1.26	20.85	0	4	M	
Fe	28.4	10.6	37.7	0	6	M	
Pb	2.00	0.99	3.20	0	12	M	
Mn	2.98	0.30	10.70	0	6	M	
Ni	0.27	0.14	0.50	0	12	M	
Precip	-	17.0	155.0	0	12	M	
V	0.66	0.28	1.20	0	12	M	
Zn	9.48	3.52	18.68	0	12	M	

Annex 2

Annual statistics on data for heavy metals in air

BE0004R KNOKKE BELGIUM

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cu	12.50	4.63	11.89	1.38	10.00	10.00	20.00	0	8	M	2/3/4
Pb	43.75	10.61	42.90	1.22	40.00	40.00	70.00	0	8	M	2/3/4
Ni	11.25	3.54	10.90	1.28	10.00	10.00	20.00	0	8	M	2/3/4
Zn	120.00	20.00	118.64	1.17	100.00	110.00	160.00	0	8	M	2/3/4

DE0001R WESTERLAND GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.20	0.08	0.19	1.49	0.10	0.17	0.32	0	12	M	
Cu	1.53	0.50	1.46	1.37	0.92	1.39	2.50	0	12	M	
Fe	128.08	50.96	120.02	1.45	66.00	109.00	259.00	0	12	M	
Pb	8.04	3.88	7.26	1.60	3.50	6.30	14.50	0	12	M	
Mn	3.62	1.51	3.42	1.38	2.59	3.06	7.94	0	12	M	
Ni	1.24	0.31	1.20	1.33	0.67	1.26	1.80	0	12	M	

DE0003R SCHAUINSLAND GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.12	0.05	0.11	1.52	0.05	0.11	0.21	0	12	M	
Cu	1.41	0.65	1.24	1.79	0.36	1.56	2.37	0	12	M	
Fe	86.50	36.69	77.85	1.68	25.00	78.00	140.00	0	12	M	
Pb	5.64	2.53	5.09	1.63	2.54	5.40	9.65	0	12	M	
Mn	2.42	1.17	2.12	1.77	0.81	2.04	3.95	0	12	M	
Ni	0.58	0.28	0.51	1.67	0.23	0.61	1.18	0	12	M	

DE0004R DEUSELBACH GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.24	0.08	0.23	1.39	0.13	0.22	0.40	0	12	M	
Cu	2.08	0.58	2.01	1.33	1.29	1.89	3.10	0	12	M	
Fe	73.58	48.08	54.83	2.58	6.00	60.00	175.00	0	12	M	
Pb	12.81	4.09	12.33	1.32	8.90	11.00	23.60	0	12	M	
Mn	4.74	1.50	4.51	1.39	2.43	4.29	7.53	0	12	M	
Ni	0.55	0.26	0.50	1.57	0.29	0.48	1.00	0	12	M	

DE0005R BROTJACKLRIEGEL GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.14	0.05	0.13	1.46	0.07	0.14	0.25	0	12	M	
Cu	0.92	0.25	0.89	1.32	0.55	0.93	1.46	0	12	M	
Fe	52.67	38.08	32.64	3.83	1.00	36.00	109.00	0	12	M	
Pb	5.74	1.92	5.45	1.40	3.25	5.34	9.35	0	12	M	
Mn	2.18	1.04	1.96	1.63	0.92	1.56	3.94	0	12	M	
Ni	0.41	0.20	0.29	3.79	0.00	0.44	0.64	0	12	M	

DE0007R NEUGLOBSOW GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.28	0.14	0.25	1.67	0.11	0.21	0.57	0	12	M	
Cu	1.82	0.91	1.64	1.61	0.83	1.51	3.80	0	12	M	
Fe	92.92	52.60	78.38	1.95	16.00	78.00	214.00	0	12	M	
Pb	12.65	8.15	10.65	1.82	5.10	8.20	28.60	0	12	M	
Mn	4.08	2.05	3.72	1.53	2.07	3.16	9.40	0	12	M	
Ni	1.28	0.88	1.08	1.77	0.43	0.87	3.71	0	12	M	

DE0008R SCHMUCKE GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.18	0.06	0.17	1.37	0.10	0.16	0.26	0	12	M	
Cu	1.44	0.48	1.37	1.43	0.65	1.31	2.18	0	12	M	
Fe	72.33	39.78	49.61	3.77	1.00	61.00	132.00	0	12	M	
Pb	8.08	2.74	7.72	1.36	4.80	7.38	15.33	0	12	M	
Mn	2.83	1.42	2.49	1.72	1.15	2.63	4.96	0	12	M	
Ni	0.67	0.23	0.62	1.60	0.17	0.70	1.00	0	12	M	

DE0009R ZINGST GERMANY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.19	0.12	0.16	1.81	0.08	0.12	0.41	0	12	M	
Cu	1.78	0.58	1.70	1.38	0.97	1.46	2.80	0	12	M	
Fe	49.17	27.74	40.05	2.19	5.00	45.00	109.00	0	12	M	
Pb	8.40	5.64	6.94	1.88	3.30	5.30	18.50	0	12	M	
Mn	2.71	1.24	2.53	1.44	1.42	2.39	6.30	0	12	M	
Ni	1.16	0.26	1.13	1.28	0.76	1.22	1.55	0	12	M	

DK0005R KELDSNOR DENMARK

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cu	1.62	1.75	0.98	2.92	0.00	1.02	12.11	34	358	D	
Pb	8.28	10.11	4.57	3.19	0.05	4.93	78.92	4	358	D	
Ni	1.79	1.45	1.21	2.77	0.02	1.41	8.31	74	358	D	
Zn	15.22	15.62	9.62	2.88	0.01	10.81	103.42	6	358	D	

DK0008R ANHOLT DENMARK

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cu	1.04	1.36	0.61	2.91	0.00	0.60	11.55	70	338	D	
Pb	5.35	6.54	2.72	3.46	0.06	2.80	37.08	15	338	D	
Ni	1.42	2.27	0.86	3.10	0.01	1.11	38.29	106	338	D	
Zn	10.07	9.99	6.51	2.75	0.03	7.00	70.91	13	338	D	

DK0031R ULBORG DENMARK

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.42	0.57	0.24	3.06	0.00	0.26	5.16	146	353	D	
Cd	0.23	0.25	0.15	2.94	0.00	0.17	2.39	350	353	D	
Cr	0.39	0.55	0.21	3.57	0.00	0.24	5.96	299	353	D	
Cu	1.02	1.22	0.57	3.47	0.01	0.69	11.83	80	353	D	
Pb	5.73	8.53	2.80	3.83	0.01	3.21	78.27	24	353	D	
Ni	1.04	1.00	0.69	2.77	0.00	0.79	7.09	122	353	D	
Zn	10.87	12.88	6.11	3.39	0.14	7.69	110.88	46	353	D	

FI0096R PALLAS FINLAND

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Hg	1.23	0.23	1.20	1.22	0.60	1.20	1.80	0	41	M	
Hg	1.26	0.30	1.18	1.58	0.15	1.32	1.57	0	45	M	

GB0014R HIGH MUFFLES UNITED KINGDOM

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.40	0.35	0.32	2.06	0.19	0.22	0.92	0	4	3M	7
Cd	0.13	0.08	0.10	2.42	0.03	0.10	0.21	0	4	3M	7
Cr	0.87	0.60	0.75	1.85	0.40	0.66	1.74	0	4	3M	7
Cu	6.32	1.97	6.05	1.43	3.60	6.60	8.30	0	4	3M	7
Pb	8.15	4.95	6.95	1.98	2.90	6.20	14.60	0	4	3M	7
Ni	2.17	1.84	1.62	2.52	0.50	1.70	4.80	0	4	3M	7
Zn	96.00	144.56	31.79	6.18	5.30	10.70	309.90	0	4	3M	7

GB0090R EAST RUSTON UNITED KINGDOM

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.64	0.42	0.53	2.12	0.20	0.49	1.20	0	4	3M	7
Cd	0.17	0.12	0.14	2.25	0.05	0.11	0.33	0	4	3M	7
Cr	0.51	0.34	0.44	1.84	0.23	0.39	1.00	0	4	3M	7
Cu	2.42	1.01	2.24	1.61	1.20	2.00	3.30	0	4	3M	7
Pb	11.70	6.29	10.14	1.94	4.20	8.80	16.90	0	4	3M	7
Ni	1.58	0.58	1.46	1.63	0.70	1.80	1.90	0	4	3M	7
Zn	11.00	6.54	8.81	2.41	2.50	9.30	16.90	0	4	3M	7

GB0091R BANCHORY UNITED KINGDOM

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.44	0.38	0.32	2.48	0.11	0.26	0.98	0	4	3M	7
Cd	0.05	0.03	0.04	2.69	0.01	0.05	0.09	0	4	3M	7
Cr	0.40	0.33	0.32	2.01	0.18	0.24	0.89	0	4	3M	7
Cu	2.72	1.57	2.34	1.96	1.00	1.90	4.50	0	4	3M	7
Pb	3.45	1.79	3.04	1.86	1.30	3.00	5.60	0	4	3M	7
Ni	0.95	0.55	0.76	2.47	0.20	1.00	1.50	0	4	3M	7
Zn	26.95	22.22	20.58	2.37	8.10	13.40	57.60	0	4	3M	7

IE0031R MACE HEAD IRELAND

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Hg	1.71	0.20	1.70	1.12	1.36	1.69	2.44	0	202	D	

IS0091R STORHOFDI ICELAND

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.25	0.38	0.15	2.65	0.01	0.15	1.76	0	20	W2	
Cd	0.03	0.05	0.01	3.35	0.00	0.02	0.21	4	20	W2	
Cr	6.15	4.82	3.71	3.43	0.31	6.04	14.76	0	20	W2	
Cu	1.70	2.19	1.17	2.20	0.36	0.99	10.54	0	20	W2	
Pb	0.96	0.90	0.69	2.24	0.17	0.58	3.51	0	20	W2	
Ni	14.10	11.08	9.14	2.98	1.02	11.76	38.03	0	20	W2	
Se	0.20	0.00	0.20	1.00	0.20	0.20	0.20	20	20	W2	
Zn	8.66	7.20	6.79	2.02	2.13	6.27	34.15	0	20	W2	

LT0015R PREILA LITHUANIA

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.99	0.91	0.61	3.10	0.02	0.63	3.32	1	40	W	
Cd	0.27	0.17	0.22	2.04	0.03	0.22	0.63	0	47	W	
Cr	0.43	0.22	0.38	1.57	0.16	0.38	1.20	0	40	W	
Cu	3.48	1.33	2.98	2.09	0.15	3.46	6.29	0	47	W	
Pb	9.81	6.88	8.14	1.80	3.09	7.30	29.61	0	47	W	
Mn	3.15	2.93	2.47	1.91	0.69	2.26	17.86	0	47	W	
Ni	1.44	0.60	1.33	1.50	0.56	1.31	3.42	0	40	W	
V	2.51	1.41	2.18	1.72	0.65	2.24	8.23	0	47	W	
Zn	17.62	14.85	12.64	2.47	0.40	11.75	64.90	0	47	W	

LV0010R RUCAVA LATVIA

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.38	0.31	0.29	2.11	0.05	0.30	1.72	1	50	W	
Cu	1.88	1.26	1.49	2.13	0.20	1.50	6.70	3	50	W	
Pb	10.28	10.81	7.21	2.29	0.90	7.10	59.90	0	50	W	
Zn	35.19	23.88	26.42	2.54	0.35	28.80	101.20	1	50	W	

LV0016R ZOSENI LATVIA

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.16	0.10	0.14	1.82	0.04	0.13	0.46	1	47	W	
Cu	1.75	1.42	1.39	1.91	0.50	1.25	7.30	0	47	W	
Pb	3.45	2.15	2.85	1.91	0.70	2.80	10.70	0	47	W	
Zn	279.71	295.61	152.20	3.36	9.10	133.50	1056.60	0	46	W	

NL0009R KOLLUMERWAARD NETHERLANDS

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.79	1.11	0.45	2.76	0.13	0.45	8.32	52	182	D	
Cd	0.22	0.26	0.13	2.71	0.04	0.14	1.45	56	182	D	
Pb	11.18	11.52	6.73	3.06	0.33	8.00	69.60	4	182	D	
Zn	32.68	28.38	24.49	2.18	2.58	24.17	196.98	2	182	D	

NO0042G SPITZBERGEN NORWAY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
As	0.14	0.25	0.05	3.44	0.02	0.02	1.45	25	52	D2	
Cd	0.02	0.04	0.03	4.83	0.00	0.01	0.23	11	52	D2	
Co	0.02	0.02	0.01	2.47	0.00	0.01	0.10	19	52	D2	
Cu	0.41	0.33	0.29	2.37	0.07	0.33	1.30	8	52	D2	
Pb	0.70	1.26	0.22	5.15	0.01	0.23	7.64	0	52	D2	
Mn	0.35	0.45	0.18	3.42	0.03	0.20	2.31	11	52	D2	
Hg	1.19	0.31	1.15	1.30	0.63	1.14	2.07	0	52	D1	
Ni	0.13	0.17	0.08	2.32	0.04	0.05	0.79	35	52	D2	
V	0.20	0.38	0.07	4.22	0.01	0.05	1.88	4	52	D2	
Zn	1.56	1.92	0.86	2.99	0.25	0.92	9.22	18	52	D2	

NO0099R LISTA NORWAY

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Cd	0.08	0.03	0.07	1.52	0.04	0.06	0.13	0	12	D2	
Cr	1.66	0.72	1.55	1.45	0.88	1.62	3.70	0	12	D2	
Cu	1.22	0.35	1.17	1.36	0.72	1.23	1.64	0	12	D2	
Pb	3.24	1.06	3.09	1.38	1.92	2.93	5.39	0	12	D2	
Hg	1.43	0.43	1.37	1.38	0.59	1.40	2.67	-	41	D1	
Ni	1.58	1.19	1.37	1.64	0.75	1.20	5.24	0	12	D2	
V	1.60	0.54	1.52	1.39	0.90	1.42	2.72	0	12	D2	
Zn	7.01	2.20	6.69	1.38	3.81	6.52	10.83	0	12	D2	

SE0002R RORVIK SWEDEN

January 1997 - December 1997

Component	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samples	Samp flag	QA flag
Hg	1.15	0.25	1.12	1.24	0.70	1.10	1.90	0	78	D1	

Annex 3

Annual statistics on data for POPs in precipitation

BE0004R KNOKKE BELGIUM

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
aldrin	2.430	1.500	10.000	12	12	W4	1
alpha_HCH	6.334	2.000	30.000	5	12	W4	1
dieldrin	2.430	1.500	10.000	12	12	W4	1
endrin	2.430	1.500	10.000	12	12	W4	1
gamma_HCH	94.279	2.500	709.000	1	12	W4	
heptachlor	2.430	1.500	10.000	12	12	W4	1
pp_DDD	2.430	1.500	10.000	12	12	W4	1
pp_DDE	2.430	1.500	10.000	12	12	W4	1
pp_DDT	2.430	1.500	10.000	12	12	W4	1
Precip	-	4.0	36.0	0	12	W4	

DE0001R WESTERLAND GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
Dibenzo(a,h)anthracene	1.115	0.000	3.900	9	12	M	
PCB_101	0.030	0.000	0.030	12	12	M	
PCB_118	0.140	0.000	0.530	9	12	M	
PCB_138	0.228	0.000	1.300	5	12	M	
PCB_153	0.476	0.000	1.800	4	12	M	
PCB_180	1.396	0.000	5.100	8	12	M	
PCB_28	0.031	0.000	0.260	11	12	M	
PCB_52	0.296	0.000	0.940	8	12	M	
Sum_PCB	2.597	0.000	7.610	6	12	M	
anthracene	0.591	0.000	1.500	6	12	M	
benz_a_anthracene	4.855	0.000	21.000	1	12	M	
benzo_a_pyrene	2.931	0.000	9.400	1	12	M	
benzo_b_fluoranthene	4.956	0.000	17.000	1	12	M	
benzo_ghi_perylene	4.198	0.000	16.000	3	12	M	
benzo_k_fluoranthene	1.994	0.000	7.800	5	12	M	
chrysene	5.854	0.000	21.000	1	12	M	
fluoranthene	20.302	0.000	58.000	1	12	M	
inden_123cd_pyrene	3.958	0.000	7.300	10	12	M	
phenanthrene	14.110	0.000	37.000	1	12	M	
Precip	-	0.0	52.5	1	12	M	
pyrene	8.996	0.000	29.000	1	12	M	

DE0009R ZINGST GERMANY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
HCB	0.162	0.000	0.850	8	12	M	
PCB_101	0.336	0.000	1.300	7	12	M	
PCB_118	0.081	0.000	0.300	11	12	M	
PCB_138	0.457	0.000	3.800	7	12	M	
PCB_153	0.428	0.000	3.100	7	12	M	
PCB_180	0.931	0.000	8.000	6	12	M	
PCB_28	0.010	0.000	0.010	12	12	M	
PCB_52	0.371	0.000	3.000	8	12	M	
Sum_PCB	2.239	0.000	7.150	8	11	M	
aldrin	0.013	0.000	0.040	11	12	M	
alpha_HCH	1.425	0.000	6.900	1	12	M	
anthracene	1.128	0.000	5.400	2	12	M	
benzo_a_anthracene	8.520	0.000	49.000	2	12	M	
benzo_a_pyrene	6.259	0.000	33.000	2	12	M	
benzo_b_fluoranthene	9.656	0.000	53.000	1	12	M	
benzo_ghi_perylene	7.591	0.000	44.000	3	12	M	
benzo_k_fluoranthene	4.214	0.000	23.000	2	12	M	
chrysene	10.510	0.000	52.000	1	12	M	
dibenzo_ah_anthracene	1.573	0.000	6.100	2	12	M	
dieldrin	0.134	0.000	0.580	9	12	M	
endrin	0.159	0.000	0.630	10	12	M	
fluoranthene	45.943	0.000	220.000	1	12	M	
gamma_HCH	22.058	4.600	61.000	0	11	M	
heptachlor	0.045	0.000	0.320	9	12	M	
indeno_123cd_pyrene	5.095	0.000	23.000	10	12	M	
op_DDE	0.286	0.000	1.500	9	12	M	
phenanthrene	26.930	0.000	87.000	1	12	M	
pp_DDD	0.340	0.000	0.930	5	12	M	
pp_DDE	0.177	0.000	0.510	7	12	M	
pp_DDT	1.162	0.000	10.800	9	12	M	
Precip	-	0.0	87.8	10	12	M	
pyrene	20.842	0.000	90.000	1	12	M	

IE0002R TURLOUGH HILL IRELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
PCB_101	0.803	0.500	3.500	12	12	M	1
PCB_118	0.803	0.500	3.500	12	12	M	1
PCB_138	0.803	0.500	3.500	12	12	M	1
PCB_153	0.803	0.500	3.500	12	12	M	1
PCB_180	0.803	0.500	3.500	12	12	M	1
PCB_52	0.803	0.500	3.500	12	12	M	1
aldrin	0.769	0.500	3.500	12	12	M	1
alpha_HCH	2.458	0.500	26.000	12	12	M	1
dieldrin	0.769	0.500	3.500	12	12	M	1
endrin	0.769	0.500	3.500	12	12	M	1
gamma_HCH	4.190	0.500	19.500	12	12	M	1
heptachlor	0.769	0.500	3.500	12	12	M	1
op_ddd	0.803	0.500	3.500	12	12	M	1
op_ddt	0.803	0.500	3.500	12	12	M	1
pp_DDE	0.769	0.500	3.500	12	12	M	1
pp_ddd	0.769	0.500	3.500	12	12	M	1
pp_ddt	0.769	0.500	3.500	12	12	M	1
Precip	-	32.1	358.6	0	12	M	

IS0091R STORHOFDI ICELAND

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
alpha_HCH	0.403	0.160	1.300	0	24	W2	
beta_HCH	0.007	0.000	0.020	14	24	W2	
cis_CD	0.002	0.000	0.030	23	24	W2	
dieldrin	0.042	0.020	0.090	0	24	W2	
gamma_HCH	0.418	0.070	4.260	0	24	W2	
HCB	0.021	0.000	0.080	2	24	W2	
op_DDE	0.000	0.000	0.000	24	24	W2	
op_DDT	0.002	0.000	0.030	23	24	W2	
PCB_101	0.008	0.000	0.080	13	24	W2	
PCB_105	0.002	0.000	0.020	21	24	W2	
PCB_118	0.008	0.000	0.060	13	24	W2	
PCB_138	0.008	0.000	0.060	13	24	W2	
PCB_153	0.011	0.000	0.060	14	24	W2	
PCB_156	0.005	0.000	0.080	17	24	W2	
PCB_180	0.011	0.000	0.060	10	24	W2	
PCB_28	0.185	0.000	2.540	11	24	W2	
PCB_31	0.151	0.000	1.920	12	24	W2	
PCB_52	0.050	0.000	0.810	12	24	W2	
pp_DDD	0.009	0.000	0.150	23	24	W2	
pp_DDE	0.006	0.000	0.060	21	24	W2	
pp_DDT	0.204	0.000	3.080	19	24	W2	
Precip off	-	7.0	149.0	0	24	W2	
trans_CD	0.000	0.000	0.000	24	24	W2	
trans_nonachlor	0.000	0.000	0.000	24	24	W2	

NO0099R LISTA NORWAY

January 1997 - December 1997

Component	W. mean	Min	Max	Num bel	Num samples	Samp flag	QA flag
HCB	0.903	0.300	1.300	0	12	M	
alpha_HCH	1.194	0.700	1.600	0	12	M	
gamma_HCH	4.888	1.300	10.900	0	12	M	
Precip	-	35.0	181.0	0	12	M	
sum_HCH	6.075	2.200	12.400	0	12	M	

Annex 4

Annual statistics on data for POPs in air

CS0003R KOSETICE CZECH REPUBLIC

January 1997 - December 1997

Component (OC pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
alpha_HCH	33.363	39.207	16.110	4.576	0.500	26.000	213.000	5	51	D1	
gamma_HCH	34.324	68.637	7.228	6.348	0.500	6.000	347.000	7	51	D1	

Component (PAH ng/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
acenaphtene	0.459	1.008	0.180	3.880	0.005	0.145	6.930	2	51	D1	
anthracene	0.515	1.286	0.182	4.080	0.005	0.190	8.920	2	51	D1	
benz_a_anthracene	0.944	3.365	0.116	8.272	0.005	0.115	23.780	6	51	D1	
benzo_a_pyrene	0.642	1.990	0.084	8.387	0.005	0.055	13.770	10	51	D1	
fluoranthene	4.354	10.970	1.459	5.261	0.005	1.740	77.330	2	51	D1	
fluorene	5.168	9.146	1.907	5.353	0.005	1.915	56.060	2	51	D1	
iden_123cd_pyrene	0.999	2.918	0.147	8.835	0.005	0.150	20.420	5	51	D1	
naphtalene	2.147	7.950	0.540	3.820	0.040	0.350	56.690	0	51	D1	
phenanthrene	10.704	17.862	4.597	5.566	0.005	5.110	117.500	2	51	D1	
pyrene	2.856	7.726	0.888	5.183	0.005	1.090	54.730	2	51	D1	

Component (PCB pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
PCB_101	22.873	14.724	14.730	3.682	0.500	23.000	79.000	5	51	D1	
PCB_118	3.725	2.532	2.828	2.308	0.500	3.000	13.000	6	51	D1	
PCB_138	32.539	23.165	22.342	3.149	0.500	25.500	112.000	3	51	D1	
PCB_153	40.637	22.327	29.559	3.167	0.500	39.000	101.000	3	51	D1	
PCB_180	25.480	22.654	16.403	3.147	0.500	16.500	117.000	3	51	D1	
PCB_28	24.814	15.740	16.831	3.334	0.500	23.500	84.000	3	51	D1	
PCB_52	19.833	12.994	12.787	3.664	0.500	19.000	72.000	5	51	D1	

IS0091R STORHOFDI ICELAND

January 1997 - December 1997

Component (OC pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
alpha_HCH	16.084	9.072	13.965	1.738	4.630	13.930	47.080	0	24	W2	
beta_HCH	0.064	0.217	0.977	1.084	0.000	0.000	0.850	22	24	W2	
cis_CD	0.528	0.497	0.854	1.412	0.000	0.530	1.420	9	24	W2	
dieldrin	0.905	0.656	0.964	1.624	0.000	0.880	2.560	4	24	W2	
gamma_HCH	6.493	4.026	5.403	1.773	0.000	4.960	15.270	1	24	W2	
HCB	10.253	6.632	8.344	1.978	2.070	8.180	26.990	0	24	W2	
op_DDE	0.244	0.583	1.059	1.184	0.000	0.000	1.900	20	24	W2	
op_DDT	0.011	0.055	0.947	1.299	0.000	0.000	0.270	23	24	W2	
trans_CD	0.277	0.326	0.716	1.453	0.000	0.000	1.080	12	24	W2	
trans_nonachlor	0.133	0.229	0.775	1.527	0.000	0.000	0.620	17	24	W2	

Component (PCB pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
PCB_101	0.297	0.432	0.873	1.493	0.000	0.000	1.070	15	24	W2	
PCB_105	0.045	0.117	0.786	1.731	0.000	0.000	0.450	20	24	W2	
PCB_118	0.200	0.305	0.616	1.865	0.000	0.000	1.200	13	24	W2	
PCB_138	0.268	0.380	0.662	1.730	0.000	0.000	1.500	12	24	W2	
PCB_153	0.267	0.407	0.588	1.870	0.000	0.110	1.800	11	24	W2	
PCB_156	0.006	0.029	0.921	1.481	0.000	0.000	0.140	23	24	W2	
PCB_180	0.103	0.165	0.584	1.924	0.000	0.000	0.600	15	24	W2	
PCB_28	1.955	2.645	1.814	1.882	0.000	0.000	9.000	13	24	W2	
PCB_31	2.093	2.473	1.920	1.869	0.000	0.000	6.900	12	24	W2	
PCB_52	0.887	1.057	1.332	1.339	0.000	0.000	3.140	13	24	W2	
pp_DDD	0.014	0.067	0.955	1.248	0.000	0.000	0.330	23	24	W2	
pp_DDE	0.020	0.098	0.970	1.158	0.000	0.000	0.480	23	24	W2	
pp_DDT	0.126	0.434	1.034	1.127	0.000	0.000	1.770	22	24	W2	

NO0099R LISTA NORWAY

January 1997 - December 1997

Component (OC pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
HCB	92.867	18.121	91.440	1.195	77.500	85.300	133.700	0	12	M	
alpha_HCH	50.317	14.850	48.540	1.315	33.600	44.300	84.100	0	12	M	
gamma_HCH	61.992	35.807	52.229	1.880	20.100	41.800	126.300	0	12	M	
sum_HCH	112.308	47.509	103.047	1.551	55.600	85.700	185.600	0	12	M	

NO0042G SPITZBERGEN NORWAY

January 1997 - December 1997

Component (OC pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
HCB	106.488	130.955	76.775	2.724	0.180	74.000	763.000	0	52	D2	
alpha_HCH	51.677	17.252	45.045	2.408	0.126	48.440	99.100	0	52	D2	
cis_CD	0.791	0.441	0.696	1.675	0.100	0.693	2.302	1	52	D2	
cis_NO	0.121	0.117	0.090	2.088	0.024	0.088	0.678	1	52	D2	
gamma_HCH	14.897	18.751	10.765	2.015	2.087	9.831	104.963	0	52	D2	
op_DDD	0.052	0.085	0.034	2.233	0.010	0.030	0.520	0	52	D2	
op_DDE	0.153	0.115	0.109	2.490	0.010	0.120	0.450	0	52	D2	
op_DDT	0.368	0.269	0.278	2.343	0.010	0.310	1.290	0	52	D2	
pp_DDD	0.045	0.066	0.029	2.326	0.005	0.030	0.410	2	52	D2	
pp_DDE	1.070	1.612	0.612	2.797	0.050	0.620	9.030	0	52	D2	
pp_DDT	0.250	0.262	0.180	2.350	0.010	0.180	1.670	0	52	D2	
trans_CD	0.317	0.204	0.266	1.845	0.035	0.268	1.103	1	52	D2	
trans_NO	0.526	0.271	0.470	1.655	0.050	0.477	1.824	1	52	D2	

Component (PAH ng/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
N1methylnaphtalene	0.429	0.602	0.189	4.046	0.002	0.200	3.040	0	51	D2	
N1methylphenanthrene	0.014	0.018	0.010	2.205	0.000	0.008	0.105	1	51	D2	
N2methylnaphtalene	0.537	0.682	0.275	3.520	0.003	0.280	3.080	0	51	D2	
N2methylphenanthrene	0.019	0.019	0.016	1.942	0.000	0.013	0.108	1	51	D2	
N2metylanthracene	0.005	0.007	0.004	2.771	0.000	0.003	0.037	5	51	D2	
acenaphtene	0.012	0.013	0.008	2.437	0.000	0.006	0.062	1	51	D2	
acenaphtylene	0.008	0.014	0.004	3.584	0.000	0.002	0.071	6	51	D2	
anthanthrene	0.001	0.003	0.234	11.021	0.000	0.000	0.020	43	51	D2	
anthracene	0.009	0.011	0.006	2.534	0.001	0.004	0.060	0	47	D2	
benz_a_anthracene	0.015	0.042	0.061	9.925	0.000	0.001	0.199	24	51	D2	
benzo_a_fluoranthene	0.005	0.013	0.208	9.883	0.000	0.000	0.075	41	51	D2	
benzo_a_fluorene	0.012	0.027	0.025	8.434	0.000	0.001	0.127	29	51	D2	
benzo_a_pyrene	0.015	0.036	0.070	8.880	0.000	0.001	0.205	27	51	D2	
benzo_b_fluorene	0.005	0.010	0.073	9.725	0.000	0.000	0.051	31	51	D2	
benzo_bjk_fluoranthenes	0.069	0.159	0.039	9.633	0.000	0.002	0.812	20	51	D2	
benzo_e_pyrene	0.022	0.050	0.070	8.002	0.000	0.001	0.267	24	51	D2	
benzo_ghi_fluoranthene	0.013	0.033	0.020	7.515	0.000	0.001	0.208	19	51	D2	
benzo_ghi_perylene	0.011	0.024	0.103	8.078	0.000	0.000	0.121	29	51	D2	
biphenyl	0.691	0.865	0.250	5.683	0.001	0.235	3.710	0	51	D2	
chrysene_triphenylene	0.037	0.092	0.013	7.201	0.000	0.003	0.492	10	51	D2	
coronene	0.006	0.013	0.287	6.629	0.000	0.000	0.068	39	51	D2	
cyclopenta_cd_pyrene	0.009	0.027	0.184	9.384	0.000	0.000	0.171	34	51	D2	
dibenzo_ac_ah_anthracenes	0.002	0.004	0.322	7.395	0.000	0.000	0.021	41	51	D2	
dibenzofuran	1.113	1.448	0.414	4.897	0.000	0.353	5.420	1	51	D2	
dibenzothiophene	0.042	0.053	0.025	3.026	0.000	0.017	0.210	1	51	D2	
fluoranthene	0.138	0.272	0.045	4.205	0.000	0.027	1.480	1	51	D2	
fluorene	0.350	0.506	0.140	4.111	0.000	0.065	2.220	1	51	D2	
inden_123cd_pyrene	0.017	0.040	0.094	9.510	0.000	0.000	0.192	32	51	D2	
naphtalene	2.444	3.123	1.548	2.478	0.122	1.255	18.490	0	51	D2	
perylene	0.002	0.005	0.216	9.700	0.000	0.000	0.027	40	51	D2	
phenanthrene	0.277	0.462	0.133	3.580	0.001	0.106	2.810	0	49	D2	
pyrene	0.081	0.166	0.028	3.976	0.000	0.016	0.933	1	51	D2	
retene	0.001	0.002	0.070	11.056	0.000	0.000	0.007	33	51	D2	

Component (PCB pg/m3)	Arit mean	Arit sd	Geom mean	Geom sd	Min	50%	Max	Num bel	Num samp	Samp flag	QA flag
PCB_101	1.759	2.310	1.072	2.549	0.060	0.910	9.970	0	52	D2	3
PCB_105	0.314	0.301	0.209	2.555	0.010	0.190	1.110	0	52	D2	3
PCB_114	0.031	0.035	0.019	2.641	0.005	0.020	0.150	14	52	D2	3
PCB_118	0.742	0.761	0.513	2.262	0.100	0.410	3.270	0	52	D2	3
PCB_123	0.025	0.029	0.015	2.651	0.005	0.010	0.120	15	52	D2	3
PCB_128	0.107	0.089	0.077	2.323	0.010	0.060	0.390	0	52	D2	3
PCB_138	0.517	0.420	0.385	2.213	0.040	0.370	2.060	0	52	D2	
PCB_141	0.124	0.101	0.091	2.304	0.005	0.080	0.410	1	52	D2	3
PCB_149	0.648	0.606	0.460	2.338	0.020	0.390	2.740	0	52	D2	3
PCB_153	0.702	0.596	0.528	2.123	0.090	0.420	2.910	0	52	D2	
PCB_156	0.047	0.040	0.034	2.336	0.005	0.030	0.170	2	52	D2	3
PCB_157	0.011	0.007	0.009	1.702	0.005	0.010	0.040	20	52	D2	3
PCB_167	0.026	0.022	0.019	2.184	0.005	0.020	0.110	4	52	D2	3
PCB_170	0.072	0.064	0.050	2.464	0.005	0.060	0.310	2	52	D2	3
PCB_18	67.297	124.716	39.707	2.624	1.120	35.070	898.110	0	52	D2	3
PCB_180	0.193	0.163	0.138	2.370	0.010	0.160	0.920	1	52	D2	
PCB_183	0.074	0.053	0.056	2.315	0.005	0.060	0.220	2	33	D2	3
PCB_187	0.138	0.096	0.106	2.219	0.005	0.100	0.370	1	52	D2	3
PCB_189	0.006	0.004	0.006	1.470	0.005	0.005	0.030	49	52	D2	3
PCB_206	0.009	0.011	0.006	1.832	0.005	0.005	0.050	48	52	D2	3
PCB_209	0.013	0.014	0.009	2.239	0.005	0.005	0.050	41	52	D2	3
PCB_28	45.933	80.166	24.628	3.013	0.410	22.490	543.660	0	52	D2	3
PCB_31	43.404	76.225	23.609	2.941	0.450	21.140	521.390	0	52	D2	3
PCB_33	39.826	71.706	20.140	3.111	0.370	18.020	461.890	0	52	D2	3
PCB_37	10.110	19.616	4.058	3.528	0.170	4.040	93.180	0	52	D2	3
PCB_47	7.121	13.317	3.680	2.880	0.100	3.230	82.850	0	52	D2	3
PCB_52	10.375	17.880	5.866	2.631	0.330	5.000	113.670	0	52	D2	3
PCB_66	8.621	16.161	3.575	3.373	0.200	3.140	76.990	0	52	D2	3
PCB_74	4.109	7.761	1.770	3.254	0.080	1.560	36.200	0	52	D2	3
PCB_99	0.754	0.984	0.470	2.448	0.040	0.370	4.520	0	52	D2	3

Annex 5

Monthly mean values on data for heavy metals in precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Samp Flag	QA
BE0004R arsenic	1.100	1.100	1.100	1.100	-	4.236	0.400	0.982	0.322	1.100	1.100	1.103	W4*	
BE0004R cadmium	0.170	0.262	0.206	0.200	-	17.116	0.190	0.464	24.049	10.115	14.795	0.370	W4*	
BE0004R chromium	4.988	1.386	7.153	1.460	1.561	0.800	5.668	7.190	0.807	1.284	2.600	1.300	W4*	
BE0004R copper	4.000	4.000	14.954	16.000	-	3.900	3.900	6.063	6.695	5.827	4.453	2.699	W4*	
BE0004R lead	3.500	6.728	8.369	8.500	-	4.348	7.200	8.115	6.062	16.934	113.347	5.592	W4*	2/3/4
BE0004R mercury	18.417	10.000	30.000	29.000	16.345	10.000	10.000	-	-	-	-	30.000	W4*	1
BE0004R nickel	2.118	1.280	5.438	2.185	1.150	1.150	1.683	1.936	1.207	1.749	2.900	2.154	W4*	
BE0004R precipitation_amount	13.069	13.295	4.172	16.071	21.107	30.286	9.321	11.679	26.538	20.462	7502.248	2525.467	W4*	
BE0004R zinc	16.000	28.911	50.995	53.000	-	12.079	16.800	72.281	31.245	58.214	43.579	57.443	W4*	
CS0001R cadmium	0.100	-	-	0.214	0.143	0.203	0.060	0.173	0.239	0.843	0.154	0.211	W*	
CS0001R lead	2.100	-	-	3.899	3.369	3.903	4.244	5.285	6.170	1.393	4.120	6.628	W*	
CS0001R manganese	-	-	-	-	-	-	3.619	8.597	12.916	10.000	-	-	W*	
CS0001R nickel	1.000	-	-	1.583	1.403	1.106	1.013	1.577	1.250	2.902			W*	
CS0001R precipitation_amount	16.014	44.743	66.029	67.443	83.286	98.571	344.329	42.586	20.857	54.600	68.914	54.400	W*	
CS0003R cadmium	-	-	0.249	0.113	0.139	0.094	0.091	0.168	0.294	-	0.120	0.120	D	
CS0003R lead	5.132	3.488	1.000	2.465	4.621	3.753	2.570	3.197	1.846	1.498	8.496	2.206	D	
CS0003R manganese	25.377	14.252	15.479	20.759	9.672	6.733	6.379	8.689	7.712	5.949	7.331	3.028	D	
CS0003R nickel	-	-	1.000	1.782	1.068	1.421	1.423	1.229	2.293	-	1.024	2.816	D	
CS0003R precipitation_amount	13.457	28.357	67.029	69.986	46.143	58.571	178.214	53.800	21.257	47.229	44.071	43.800	D	
CS0003R precipitation_amount	15.300	32.100	63.200	74.200	45.100	55.400	186.800	48.900	15.700	49.100	44.500	42.800	D	
DE0001R aluminium	-	107.990	48.160	18.360	31.310	30.130	6.470	49.180	77.220	13.040	40.660	27.200	M	
DE0001R arsenic	-	0.250	0.240	0.250	0.250	0.520	0.570	0.240	0.250	0.230	0.360	0.250	M	
DE0001R chromium	-	0.990	0.530	0.850	0.380	0.310	0.130	0.310	0.150	0.400	0.530	0.280	M	
DE0001R copper	-	2.790	3.060	1.360	1.810	2.200	1.040	3.080	2.470	0.960	3.020	1.290	M	
DE0001R lead	-	3.240	2.300	2.040	1.510	2.240	1.140	2.000	1.500	1.190	2.910	1.560	M	
DE0001R mercury	65.000	16.000	24.000	26.000	17.000	15.000	13.000	38.000	28.000	12.000	12.000	12.000	M	
DE0001R nickel	-	0.660	0.740	1.280	0.580	1.790	0.330	0.750	0.250	0.230	0.820	0.280	M	
DE0001R precipitation_amount	0.000	51.200	39.900	19.300	60.500	44.400	71.600	34.000	33.300	59.500	22.600	51.900	M	
DE0001R precipitation_amount	0.900	59.400	45.500	22.800	67.800	45.900	72.300	22.400	47.100	71.400	29.300	63.600	M	
DE0001R zinc	-	11.090	7.430	6.540	9.460	17.020	10.810	12.840	9.460	8.680	15.730	7.520	M	
DE0002R arsenic	0.423	0.132	0.214	0.176	0.180	0.140	0.197	0.247	0.208	0.146	0.118	0.286	D	
DE0002R cadmium	0.745	0.196	0.777	0.287	0.263	0.205	0.594	0.326	0.271	0.306	0.184	0.219	D	
DE0002R chromium	0.492	0.103	0.423	0.302	0.274	0.325	0.401	0.509	0.675	0.577	0.332	0.455	D	
DE0002R copper	9.550	2.104	7.423	5.091	5.812	2.984	3.061	5.224	12.508	8.486	5.388	7.780	D	
DE0002R lead	6.533	2.354	5.004	2.082	4.236	2.247	2.711	3.673	3.976	2.757	1.939	4.685	D	
DE0002R manganese	14.167	3.127	9.508	11.009	10.352	5.526	3.701	9.582	11.904	7.610	1.858	2.336	D	
DE0002R nickel	2.400	0.799	2.243	2.218	3.209	1.850	2.212	3.160	1.881	2.171	1.143	0.940	D	
DE0002R precipitation_amount	5.000	65.000	26.200	29.500	95.000	55.300	118.900	23.100	23.500	29.200	62.500	51.500	D	
DE0002R vanadium	1.498	0.426	1.077	1.397	0.694	0.300	0.566	0.896	1.144	1.102	0.456	0.832	D	
DE0002R zinc	58.333	17.254	104.581	25.951	26.481	24.628	76.056	27.524	30.478	49.451	36.309	22.337	D	
DE0004R arsenic	0.417	0.080	0.175	0.225	0.126	0.078	0.182	0.206	0.230	0.081	0.074	0.175	W*	
DE0004R cadmium	0.357	0.136	0.227	0.298	0.244	0.148	0.256	0.213	0.650	0.115	0.157	0.215	W*	
DE0004R chromium	0.694	0.254	0.343	0.925	0.464	0.410	0.624	0.336	0.980	0.562	0.528	1.257	W*	
DE0004R copper	4.943	3.121	3.584	5.079	3.773	2.316	4.291	7.433	12.700	2.200	9.941	5.980	W*	
DE0004R lead	4.471	1.902	5.103	4.019	3.663	2.797	4.795	3.341	5.800	2.098	2.114	4.056	W*	
DE0004R manganese	4.171	3.818	5.643	14.975	5.655	4.031	7.669	7.083	19.700	4.645	2.143	6.273	W*	
DE0004R nickel	1.804	0.594	0.758	1.802	1.099	0.631	1.354	1.991	2.760	0.674	1.766	1.438	W*	
DE0004R precipitation_amount	10.867	96.667	33.567	20.933	59.821	127.246	44.700	74.200	7.750	63.550	59.700	69.500	W*	
DE0004R zinc	50.571	27.364	47.090	95.928	51.647	32.731	56.577	56.752	153.000	22.637	30.104	99.600	W*	
DE0009R aluminium	-	54.570	20.230	109.270	26.200	27.740	37.090	13.930	47.710	6.440	27.450	30.310	M	
DE0009R arsenic	-	0.250	0.250	0.290	0.240	0.250	0.230	0.230	0.250	0.280	0.710	0.260	M	

DE0009R	cadmium	-	0.020	0.450	0.170	0.160	0.080	0.030	0.120	0.080	0.030	0.100	0.030	M	
DE0009R	chromium	-	0.530	0.480	0.790	0.280	0.350	1.090	0.110	0.350	0.100	0.240	0.280	M	
DE0009R	copper	-	2.020	2.300	5.260	2.770	6.060	1.700	2.060	13.430	10.310	1.120	3.290	M	
DE0009R	lead	-	1.360	1.090	2.690	2.040	2.010	3.070	2.000	2.790	0.800	3.180	1.560	M	
DE0009R	nickel	-	0.330	0.560	0.710	0.320	0.430	0.230	0.270	0.250	0.380	0.410	0.550	M	
DE0009R	precipitation_amount	0.000	44.400	31.700	20.000	99.500	44.200	39.300	30.500	50.000	58.300	34.200	35.700	M	
DE0009R	zinc	-	9.190	6.140	10.060	6.040	15.640	7.210	8.720	12.720	4.310	19.520	5.580	M	
DK0031R	cadmium	0.119	0.047	0.076	0.072	0.060	0.063	0.071	0.089	0.048	0.033	0.106	-	M	
DK0031R	chromium	1.672	0.235	0.611	0.883	0.673	0.491	0.358	0.546	0.278	0.557	1.436	-	M	
DK0031R	copper	2.826	0.665	2.912	2.423	2.517	2.008	1.584	2.404	0.937	1.087	3.373	-	M	
DK0031R	lead	3.970	1.433	1.956	3.569	1.735	2.302	2.019	2.538	1.157	1.135	6.831	-	M	
DK0031R	nickel	6.385	0.405	3.388	0.888	0.569	0.553	0.328	0.473	0.446	0.798	1.078	-	M	
DK0031R	precipitation_amount	15.726	117.021	40.824	51.669	59.529	38.948	48.383	81.356	93.248	90.877	51.958	0.000	M	
DK0031R	zinc	27.489	7.650	58.579	27.881	15.817	8.850	11.468	11.404	6.544	8.985	24.183	-	M	
EE0009R	arsenic	0.457	0.477	0.736	0.384	0.300	0.250	0.250	0.250	0.250	0.366	1.219	0.367	D	
EE0009R	cadmium	0.077	0.072	0.108	0.078	0.076	0.085	0.050	0.050	0.051	0.061	0.069	0.285	D	
EE0009R	chromium	0.500	0.500	0.731	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	D	
EE0009R	copper	4.503	7.438	19.551	4.540	8.107	1.672	0.830	2.685	13.933	1.200	1.466	2.343	D	
EE0009R	lead	1.934	1.016	0.787	1.342	2.267	0.500	0.500	0.500	0.500	0.559	0.546	0.500	D	6
EE0009R	nickel	0.914	0.500	0.500	0.830	0.827	0.500	0.500	0.582	0.586	0.514	0.500	0.500	D	
EE0009R	precipitation_amount	21.600	27.700	9.600	20.700	13.100	28.200	34.500	9.500	38.000	47.800	25.300	13.800	D	
EE0009R	zinc	18.984	7.625	23.071	10.366	10.496	5.213	5.000	5.000	11.184	7.117	29.847	11.807	D	
EE0011R	arsenic	0.250	-	0.250	0.457	0.250	0.250	0.250	0.250	0.250	0.575	0.375	0.250	D	
EE0011R	cadmium	0.170	-	0.120	0.139	0.050	0.019	0.050	0.130	0.051	0.050	0.150	0.140	D	
EE0011R	chromium	0.500	-	2.550	0.500	1.021	0.500	0.500	2.300	0.500	0.500	0.500	0.500	D	
EE0011R	copper	12.100	-	4.050	1.900	3.939	21.617	1.600	42.700	2.050	1.854	1.678	0.500	D	
EE0011R	lead	1.300	-	0.500	2.273	2.903	0.500	0.500	0.500	0.500	0.817	2.135	2.600	D	
EE0011R	nickel	0.500	-	2.050	0.786	0.500	0.867	0.500	3.000	0.548	0.606	0.500	0.500	D	
EE0011R	precipitation_amount	8.800	0.000	9.200	26.400	29.500	22.900	7.600	1.600	99.900	129.500	27.200	16.400	D	
EE0011R	zinc	40.000	-	60.000	15.909	5.000	5.000	5.000	50.000	6.637	8.073	20.000	20.000	D	
FI0009F	arsenic	-	0.631	1.800	0.194	0.215	0.200	0.283	0.626	0.190	0.195	0.680	0.473	M	
FI0009F	cadmium	-	0.106	0.174	0.035	0.065	0.040	0.070	0.061	0.046	0.029	0.172	0.134	M	
FI0009F	chromium	-	0.160	1.820	0.140	0.150	0.110	0.490	0.120	0.180	0.160	0.330	0.370	M	
FI0009F	copper	-	2.670	36.000	2.460	3.980	0.810	4.340	1.520	0.580	0.950	3.790	2.170	M	
FI0009F	iron	-	41.300	781.000	18.800	41.500	34.150	341.500	49.200	86.400	81.850	129.500	153.000	M	
FI0009F	lead	-	4.630	16.200	1.480	2.790	1.510	3.150	2.330	1.150	1.560	8.410	5.220	M	
FI0009F	manganese	-	2.890	26.400	1.250	4.980	2.690	18.100	3.750	2.740	2.490	3.720	3.800	M	
FI0009F	nickel	-	0.980	1.980	0.370	0.380	0.330	0.580	0.340	0.210	0.300	0.920	1.160	M	
FI0009F	precipitation_amount	0.000	14.300	6.100	31.700	22.000	82.200	22.300	58.500	92.000	43.800	27.800	29.000	M	
FI0009F	vanadium	-	1.600	2.940	0.630	0.810	0.430	1.000	0.620	0.360	0.540	2.200	2.280	M	
FI0009F	zinc	-	11.150	33.400	5.440	6.030	3.050	10.750	7.640	6.290	4.420	13.800	10.950	M	
FI0017R	arsenic	0.750	0.754	0.570	0.230	0.487	0.109	0.122	0.324	0.098	0.123	0.658	0.362	M	
FI0017R	cadmium	0.040	0.102	0.072	0.037	0.106	0.034	0.053	0.085	0.023	0.027	0.137	0.108	M	
FI0017R	chromium	0.410	0.320	0.380	0.090	0.420	0.150	0.130	0.110	0.060	0.050	0.220	0.220	M	
FI0017R	copper	1.900	2.570	1.640	1.530	4.130	1.440	0.940	1.590	0.630	0.650	1.990	2.600	M	
FI0017R	iron	28.870	59.800	152.000	10.940	288.670	93.230	69.770	53.730	14.500	15.330	62.070	39.350	M	
FI0017R	lead	1.690	4.370	2.620	1.060	2.740	0.880	0.920	3.100	0.670	0.760	7.140	2.590	M	
FI0017R	manganese	1.720	2.620	4.810	1.070	25.870	6.070	3.740	4.620	1.480	0.570	2.560	2.030	M	
FI0017R	nickel	1.550	1.050	1.480	0.390	1.000	0.300	0.330	0.280	0.180	0.300	0.650	0.800	M	
FI0017R	precipitation_amount	28.400	27.400	25.000	34.600	9.700	39.600	41.400	45.100	68.000	57.000	47.000	14.900	M	
FI0017R	vanadium	1.370	1.810	1.400	0.720	1.230	0.410	0.420	0.680	0.240	0.340	1.960	2.150	M	
FI0017R	zinc	5.850	9.620	8.140	5.060	12.900	4.470	5.680	7.370	3.250	2.190	7.690	7.140	M	
FI0053R	arsenic	0.073	0.168	0.183	0.218	0.388	0.061	0.048	0.275	0.061	0.141	0.230	0.259	M	

FI0053R cadmium	0.042	0.035	0.057	0.053	0.037	0.019	0.025	0.079	0.021	0.019	0.051	0.073	M
FI0053R chromium	0.210	0.140	0.620	0.560	0.150	0.100	0.100	0.170	0.025	0.130	0.150	0.200	M
FI0053R copper	5.550	1.740	3.670	5.480	3.230	1.080	0.940	1.470	0.530	2.730	3.730	5.010	M
FI0053R iron	27.350	20.600	173.500	46.150	37.750	49.250	27.400	39.450	17.300	26.300	50.100	41.500	M
FI0053R lead	0.760	1.510	2.460	1.700	0.850	0.400	0.480	4.000	0.390	0.600	2.800	6.570	M
FI0053R manganese	3.530	2.320	7.140	3.960	2.690	7.290	1.730	13.400	4.300	1.650	3.200	5.960	M
FI0053R nickel	0.310	1.410	1.080	0.900	0.580	0.390	0.110	0.520	0.110	0.300	1.090	0.600	M
FI0053R precipitation_amount	8.200	20.400	6.100	11.100	17.300	37.100	39.200	16.600	74.700	15.100	17.500	4.900	M
FI0053R vanadium	0.770	1.080	1.900	1.020	0.460	0.310	0.280	1.110	0.270	0.390	1.000	2.080	M
FI0053R zinc	6.310	3.900	8.970	6.500	4.410	3.430	2.410	14.950	10.120	3.010	7.880	9.930	M
FI0092R arsenic	0.040	0.214	0.175	0.146	0.149	0.045	0.048	0.132	0.052	0.045	0.126	0.080	M
FI0092R cadmium	0.007	0.048	0.043	0.028	0.026	0.013	0.019	0.029	0.018	0.019	0.035	0.026	M
FI0092R chromium	0.060	0.160	0.210	0.250	0.120	0.060	0.070	0.025	0.060	0.025	0.025	0.380	M
FI0092R copper	0.490	1.300	1.220	3.230	1.520	0.400	0.580	0.910	0.490	0.850	1.560	2.240	M
FI0092R iron	4.980	9.590	30.150	24.850	22.700	10.400	8.290	15.400	7.750	4.530	8.680	6.230	M
FI0092R lead	0.280	1.690	1.660	0.830	1.040	0.300	0.400	0.930	1.160	0.290	1.520	0.570	M
FI0092R manganese	0.390	0.910	2.180	1.290	2.520	2.840	0.710	1.560	0.820	0.280	0.490	0.560	M
FI0092R nickel	0.120	0.600	0.570	0.290	0.410	0.200	0.280	0.190	0.350	0.140	0.220	0.380	M
FI0092R precipitation_amount	37.600	35.300	24.300	24.400	33.100	65.400	79.000	41.700	110.800	51.300	40.800	27.700	M
FI0092R vanadium	0.190	0.670	0.770	0.490	0.300	0.200	0.110	0.290	0.170	0.170	0.480	0.370	M
FI0092R zinc	1.620	3.600	4.010	3.230	3.170	1.350	1.010	3.030	2.210	1.070	2.040	1.580	M
FI0093R arsenic	0.082	0.186	0.236	0.194	0.290	0.097	0.043	0.122	0.083	0.070	0.342	0.134	M
FI0093R cadmium	0.023	0.041	0.058	0.050	0.079	0.025	0.015	0.064	0.019	0.025	0.072	0.036	M
FI0093R chromium	0.025	0.060	0.470	0.170	0.250	0.070	0.025	0.130	0.210	0.130	0.180	0.100	M
FI0093R copper	0.390	1.310	4.750	1.620	1.950	0.530	0.570	0.810	0.810	1.010	1.260	0.970	M
FI0093R iron	8.480	9.570	223.500	44.700	92.250	18.600	6.140	15.700	13.700	8.130	18.100	7.100	M
FI0093R lead	0.630	1.690	2.610	1.580	2.400	0.430	0.360	2.190	0.720	0.750	3.150	1.130	M
FI0093R manganese	1.290	1.100	8.800	2.920	15.400	5.450	1.010	2.130	1.430	0.650	1.350	0.720	M
FI0093R nickel	0.650	0.260	0.850	0.490	0.610	0.200	0.190	0.510	0.710	0.190	0.470	0.460	M
FI0093R precipitation_amount	55.500	38.800	15.300	25.800	12.000	51.200	81.400	42.400	79.400	62.700	29.600	32.300	M
FI0093R vanadium	0.290	0.720	1.510	0.690	0.950	0.270	0.150	0.350	0.180	0.170	1.150	0.770	M
FI0093R zinc	3.230	4.160	10.330	5.800	9.190	4.500	1.260	6.570	1.850	2.040	5.120	3.200	M
FI0094R arsenic	0.035	0.103	0.115	0.270	0.287	0.059	0.155	0.064	0.093	0.078	0.177	0.090	M
FI0094R cadmium	0.007	0.017	0.025	0.056	0.025	0.011	0.025	0.019	0.015	0.017	0.021	0.021	M
FI0094R chromium	0.025	0.130	0.080	0.240	0.060	0.070	0.060	0.025	0.060	0.060	0.050	0.070	M
FI0094R copper	0.550	1.260	1.350	3.250	1.770	0.770	1.460	0.560	0.890	1.220	1.720	1.040	M
FI0094R iron	5.690	3.500	15.300	36.850	11.800	20.400	9.570	6.260	7.750	4.660	5.220	5.280	M
FI0094R lead	0.260	0.580	0.820	1.670	0.650	0.730	0.740	0.680	0.670	0.220	0.760	0.840	M
FI0094R manganese	0.370	0.360	1.630	2.320	1.220	1.790	1.420	1.610	0.940	0.320	0.390	0.530	M
FI0094R nickel	0.060	0.200	0.600	0.980	0.350	0.360	0.460	0.110	0.240	0.200	0.450	0.200	M
FI0094R precipitation_amount	26.100	33.300	17.100	9.200	41.700	60.100	41.900	63.100	68.600	29.900	22.800	17.100	M
FI0094R vanadium	0.080	0.270	0.380	0.920	0.300	0.210	0.190	0.150	0.120	0.150	0.280	0.420	M
FI0094R zinc	2.470	1.230	1.830	4.000	2.050	1.520	1.990	1.780	6.250	1.860	1.920	2.080	M
FI0095R arsenic	0.038	0.157	0.112	0.260	0.125	0.352	0.324	0.092	0.069	0.090	0.140	0.097	M
FI0095R cadmium	0.014	0.021	0.014	0.028	0.019	0.064	0.021	0.015	0.013	0.012	0.017	0.014	M
FI0095R chromium	0.025	0.060	0.025	0.230	0.080	0.180	0.080	0.025	0.025	0.025	0.090	0.049	M
FI0095R copper	0.520	2.560	2.940	3.330	1.690	5.870	2.370	0.640	1.110	1.430	4.920	1.260	M
FI0095R iron	1.250	5.010	8.060	15.350	7.030	32.050	9.480	6.920	3.550	8.730	11.900	3.420	M
FI0095R lead	0.190	0.440	0.450	0.740	0.690	2.290	0.360	0.690	0.390	0.310	0.470	0.300	M
FI0095R manganese	0.180	0.260	0.540	0.560	0.300	3.040	1.230	0.850	0.290	0.370	0.270	0.630	M
FI0095R nickel	0.290	0.800	0.540	0.970	0.280	0.830	0.840	0.180	0.240	0.260	0.990	0.440	M
FI0095R precipitation_amount	20.500	16.100	13.000	6.200	21.700	6.100	27.700	49.300	49.400	14.900	7.000	19.200	M
FI0095R vanadium	0.030	0.280	0.150	0.240	0.080	0.410	0.080	0.130	0.110	0.080	0.100	0.160	M

FI0095R	zinc	0.790	1.250	1.010	2.710	2.060	6.180	1.190	1.310	1.630	1.470	2.700	1.660	M	
FI0096R	arsenic	0.029	0.062	0.054	0.379	0.126	1.240	0.173	0.038	0.025	0.203	0.074	0.079	M	
FI0096R	cadmium	0.005	0.013	0.014	0.038	0.015	0.191	0.015	0.007	0.008	0.015	0.011	0.013	M	
FI0096R	chromium	0.025	0.090	0.080	0.160	0.110	0.480	0.025	0.025	0.025	0.050	0.025	0.049	M	
FI0096R	copper	0.430	1.300	0.670	4.560	0.960	13.550	0.870	0.810	0.360	1.360	0.760	0.780	M	
FI0096R	iron	5.500	4.500	9.360	11.060	5.550	98.300	7.540	5.750	3.190	6.170	1.250	2.460	M	
FI0096R	lead	0.210	0.370	0.480	1.040	0.400	4.390	0.390	0.320	0.210	0.370	0.450	0.340	M	
FI0096R	manganese	0.800	0.210	0.630	1.200	0.390	23.150	1.310	0.710	0.320	0.430	0.270	0.190	M	
FI0096R	mercury	51.700	7.900	20.300	36.400	15.800	-	23.400	8.000	4.300	7.500	5.800	3.900	M	
FI0096R	nickel	0.090	0.200	0.660	0.390	0.120	3.130	0.300	0.070	0.080	0.210	0.170	0.140	M	
FI0096R	precipitation_amount (Hg)	3.000	9.000	5.000	10.000	6.000	0.000	53.000	23.000	45.000	6.000	7.000	1.018	M	
FI0096R	precipitation_amount	19.100	40.300	34.000	11.700	23.100	2.100	67.400	38.300	75.500	20.500	25.200	47.000	M	
FI0096R	vanadium	0.070	0.190	0.210	0.370	0.140	1.040	0.120	0.080	0.070	0.180	0.130	0.180	M	
FI0096R	zinc	1.410	1.350	1.450	3.920	1.580	18.100	1.080	1.480	2.040	1.190	1.690	1.060	M	
GB0014R	arsenic	0.510	0.510	0.510	0.200	0.200	0.200	0.300	0.300	0.300	0.390	0.390	0.390	3M	7
GB0014R	cadmium	0.110	0.110	0.110	0.030	0.030	0.030	0.060	0.060	0.060	0.050	0.050	0.050	3M	7
GB0014R	chromium	0.390	0.390	0.390	0.010	0.010	0.010	0.200	0.200	0.200	0.200	0.200	0.200	3M	7
GB0014R	copper	3.150	3.150	3.150	1.340	1.340	1.340	1.140	1.140	1.140	0.640	0.640	0.640	3M	7
GB0014R	lead	5.740	5.740	5.740	2.620	2.620	2.620	4.950	4.950	4.950	3.800	3.800	3.800	3M	7
GB0014R	nickel	0.580	0.580	0.580	0.030	0.030	0.030	0.540	0.540	0.540	0.020	0.020	0.020	3M	7
GB0014R	precipitation_amount	39.956	36.089	39.956	89.341	92.319	89.341	40.435	40.435	39.130	95.696	92.609	95.696	3M	7
GB0014R	titanium	2.800	2.800	2.800	1.000	1.000	1.000	0.300	0.300	0.300	1.200	1.200	1.200	3M	7
GB0014R	zinc	169.100	169.100	169.100	3.800	3.800	3.800	4.700	4.700	4.700	4.200	4.200	4.200	3M	7
GB0090R	arsenic	0.710	0.710	0.710	0.330	0.330	0.330	0.300	0.300	0.300	0.100	0.100	0.100	3M	7
GB0090R	cadmium	0.240	0.240	0.240	0.040	0.040	0.040	0.060	0.060	0.060	0.040	0.040	0.040	3M	7
GB0090R	chromium	2.700	2.700	2.700	0.050	0.050	0.050	0.300	0.300	0.300	0.300	0.300	0.300	3M	7
GB0090R	copper	17.750	17.750	17.750	1.940	1.940	1.940	1.840	1.840	1.840	1.400	1.400	1.400	3M	7
GB0090R	lead	10.940	10.940	10.940	3.720	3.720	3.720	3.250	3.250	3.250	2.400	2.400	2.400	3M	7
GB0090R	nickel	1.890	1.890	1.890	0.160	0.160	0.160	1.430	1.430	1.430	0.040	0.040	0.040	3M	7
GB0090R	precipitation_amount	22.733	20.533	22.733	66.264	68.473	66.264	35.717	35.717	34.565	87.946	85.109	87.946	3M	7
GB0090R	titanium	7.000	7.000	7.000	3.500	3.500	3.500	1.400	1.400	1.400	1.200	1.200	1.200	3M	7
GB0090R	zinc	36.100	36.100	36.100	8.300	8.300	8.300	10.200	10.200	10.200	4.200	4.200	4.200	3M	7
GB0091R	arsenic	0.240	0.240	0.240	0.240	0.240	0.240	0.300	0.300	0.300	0.400	0.400	0.400	3M	7
GB0091R	cadmium	0.050	0.050	0.050	0.020	0.020	0.020	0.100	0.100	0.100	0.590	0.590	0.590	3M	7
GB0091R	chromium	1.300	1.300	1.300	0.030	0.030	0.030	0.300	0.300	0.300	0.200	0.200	0.200	3M	7
GB0091R	copper	0.620	0.620	0.620	0.840	0.840	0.840	1.400	1.400	1.400	1.500	1.500	1.500	3M	7
GB0091R	lead	1.400	1.400	1.400	1.700	1.700	1.700	2.400	2.400	2.400	4.400	4.400	4.400	3M	7
GB0091R	nickel	0.180	0.180	0.180	0.030	0.030	0.030	0.910	0.910	0.910	0.080	0.080	0.080	3M	7
GB0091R	precipitation_amount	36.511	32.978	36.511	101.209	104.582	101.209	44.815	44.815	43.370	112.543	108.913	112.543	3M	7
GB0091R	titanium	1.300	1.300	1.300	3.400	3.400	3.400	3.700	3.700	3.700	1.300	1.300	1.300	3M	7
GB0091R	zinc	3.700	3.700	3.700	2.500	2.500	2.500	3.300	3.300	3.300	9.000	9.000	9.000	3M	7
IE0001R	arsenic	-	0.250	-	-	0.250	0.250	-	0.500	-	0.250	0.250	0.492	M	
IE0001R	cadmium	0.210	0.060	0.025	0.130	0.025	0.025	0.140	0.120	0.590	0.070	0.025	0.100	M	
IE0001R	chromium	0.250	0.250	0.250	-	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.492	M	
IE0001R	copper	10.900	1.100	2.800	-	13.600	2.400	2.700	1.700	10.800	3.900	5.600	7.700	M	
IE0001R	lead	3.300	0.700	0.800	-	0.250	0.700	0.600	0.250	0.250	0.250	0.250	-	M	
IE0001R	nickel	1.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.984	M	
IE0001R	precipitation_amount	68.800	170.800	37.600	37.600	80.100	103.500	82.900	193.800	78.200	111.700	268.200	173.000	M	
IE0001R	zinc	46.900	-	-	60.900	18.700	35.500	21.500	4.000	47.900	4.400	16.600	23.700	M	
IE0002R	arsenic	-	0.025	-	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.492	M	
IE0002R	cadmium	0.270	0.025	0.025	0.230	0.100	0.070	0.025	0.050	0.090	0.050	0.025	0.049	M	
IE0002R	chromium	0.250	0.250	0.250	-	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.492	M	
IE0002R	copper	8.800	0.500	2.400	-	1.900	1.200	0.500	0.250	0.250	0.250	0.250	0.492	M	

IE0002R lead	9.500	1.100	0.600	-	0.250	1.400	0.250	2.900	0.250	0.250	0.250	0.600	M	
IE0002R mercury	75.000	75.000	75.000	75.000	75.000	75.000	75.000	75.000	75.000	75.000	75.000	147.581	M	
IE0002R nickel	1.200	0.500	1.400	1.000	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.984	M	
IE0002R precipitation_amount	41.700	214.200	32.100	37.000	104.400	209.000	56.200	193.300	57.700	133.800	358.600	244.700	M	
IE0002R zinc	13.600	5.100	9.200	12.700	28.200	48.700	195.000	2.200	4.500	2.200	2.400	1.000	M	
IS0002R arsenic	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.098	W4*	
IS0002R cadmium	0.090	0.127	0.217	0.025	0.025	0.025	0.025	0.025	0.070	0.120	0.037	0.070	W4*	
IS0002R chromium	0.050	0.280	0.300	0.300	0.300	0.391	0.100	0.050	0.050	0.200	0.069	0.098	W4*	
IS0002R copper	6.500	1.809	0.918	3.200	0.506	2.410	0.500	0.300	0.200	1.700	0.826	0.800	W4*	
IS0002R lead	-	3.700	2.737	0.400	0.111	4.943	0.100	0.100	0.100	1.300	0.426	0.300	W4*	
IS0002R nickel	2.500	0.752	0.263	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.492	W4*	
IS0002R precipitation_amount	147.152	126.537	253.111	110.877	101.070	38.853	172.600	147.900	193.000	190.125	100.975	199.258	W4*	
IS0002R zinc	10.000	37.594	16.883	9.000	16.697	26.137	6.000	8.000	18.000	35.000	14.887	28.000	W4*	
IS0090R arsenic	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.098	W4*	
IS0090R cadmium	0.025	0.182	0.036	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.049	W4*	
IS0090R chromium	0.300	0.490	0.500	0.400	0.948	1.097	0.200	0.050	0.050	2.000	0.210	0.098	W4*	
IS0090R copper	3.100	1.198	2.033	2.400	2.674	2.116	1.300	0.700	0.900	0.800	1.259	3.100	W4*	
IS0090R lead	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.197	W4*	6
IS0090R nickel	0.600	0.267	0.250	0.700	1.522	1.600	0.250	0.250	0.250	0.900	0.303	0.600	W4*	
IS0090R precipitation_amount	63.706	89.579	102.415	35.767	14.283	16.650	85.700	93.400	83.300	80.531	65.469	105.387	W4*	
IS0090R zinc	200.000	96.346	108.736	192.000	299.811	219.514	129.000	115.000	150.000	105.000	103.164	119.000	W4*	
LT0015R cadmium	0.410	0.140	0.131	0.147	0.119	0.040	0.064	0.196	0.151	0.036	0.149	0.130	M	
LT0015R copper	5.581	1.287	4.674	0.736	0.603	0.798	0.703	0.791	0.733	1.160	2.453	4.000	M	
LT0015R lead	7.554	3.931	1.166	1.664	1.815	2.647	0.594	1.353	0.930	1.316	3.453	5.000	M	6
LT0015R manganese	14.378	6.079	17.073	9.830	8.099	2.263	0.920	4.728	2.397	6.093	5.141	3.400	M	
LT0015R precipitation_amount	2.527	27.079	20.356	20.276	58.284	29.539	22.603	21.355	62.653	140.667	32.687	32.323	M	
LT0015R vanadium	4.529	5.898	1.791	1.396	0.395	0.111	0.546	0.400	0.400	0.406	1.233	2.200	M	
LT0015R zinc	27.498	17.951	15.798	9.406	8.730	21.752	11.843	6.640	7.614	2.895	15.165	20.000	M	
LV0010R cadmium	0.380	0.200	0.300	0.190	0.140	0.070	0.070	0.060	0.010	0.090	0.160	0.110	M	
LV0010R copper	2.600	8.900	1.400	2.100	0.700	0.500	0.900	0.100	0.100	0.900	1.000	0.800	M	
LV0010R lead	16.200	7.800	10.600	5.800	1.900	1.300	0.600	2.700	1.700	2.900	5.500	3.900	M	
LV0010R precipitation_amount	31.600	47.800	19.400	56.600	61.900	51.800	26.200	13.800	108.400	189.200	49.800	69.800	M	
LV0010R zinc	37.000	16.000	25.000	20.000	13.000	12.000	31.000	30.000	5.000	7.000	14.000	12.000	M	
LV0016R cadmium	-	0.210	-	0.190	0.110	0.040	0.080	0.010	0.030	0.200	0.220	0.100	M	
LV0016R copper	30.500	3.700	11.300	5.400	0.900	1.500	0.500	0.700	0.100	0.900	1.500	5.300	M	
LV0016R lead	13.000	5.200	16.800	7.700	0.900	0.400	1.100	0.400	0.700	2.000	3.800	2.800	M	
LV0016R precipitation_amount	36.700	59.900	21.700	48.700	119.800	105.500	63.500	22.000	75.900	136.600	71.600	40.800	M	
LV0016R zinc	52.000	14.000	116.000	360.000	9.000	6.000	200.000	2.000	5.000	400.000	14.000	17.000	M	
NL0009R cadmium	0.292	0.247	0.209	0.450	0.258	0.258	-	0.236	0.194	1.112	1.686	-	W4*	
NL0009R copper	1.334	1.377	1.518	1.779	4.448	4.448	-	1.271	1.223	1.718	2.033	-	W4*	
NL0009R iron	62.000	64.066	77.419	120.600	593.700	593.700	-	31.300	62.510	10.891	44.100	-	W4*	
NL0009R lead	1.240	1.311	1.560	2.070	4.970	4.970	-	1.040	1.350	1.580	1.660	-	W4*	
NL0009R precipitation_amount	11.829	37.764	32.836	7.771	26.896	17.404	0.000	37.411	18.375	67.350	10.864	0.000	W4*	
NL0009R zinc	17.700	14.143	11.034	28.800	20.300	20.300	-	20.900	13.041	60.271	90.900	-	W4*	
NO0001R cadmium	0.110	0.011	0.036	0.012	0.018	0.038	0.051	0.038	0.020	0.019	0.049	0.064	WC	
NO0001R lead	4.037	1.209	1.938	0.802	0.897	1.586	1.642	1.828	1.304	1.172	2.759	2.989	WC	
NO0001R precipitation_amount	21.210	233.089	76.338	25.924	54.364	94.395	44.044	87.484	111.051	126.210	164.969	147.580	WC	
NO0001R zinc	11.990	2.075	4.428	8.024	4.343	5.221	5.105	4.439	2.750	2.681	5.497	6.260	WC	
NO0039R cadmium	0.005	0.006	0.005	0.007	0.003	0.023	0.024	0.026	0.011	0.003	0.008	0.013	WC	
NO0039R lead	0.178	0.204	0.795	0.450	0.154	1.049	0.885	0.899	1.718	0.109	0.183	0.087	WC	
NO0039R precipitation_amount	108.504	66.720	290.956	259.745	77.580	38.472	55.734	58.631	367.899	353.854	48.249	35.542	WC	
NO0039R zinc	1.373	0.735	2.684	0.638	0.844	4.424	2.921	2.393	1.948	0.736	1.926	0.666	WC	
NO0041R cadmium	0.005	0.016	0.009	0.032	0.004	0.017	0.030	0.060	0.008	0.027	0.030	0.017	WC	

NO0041R	lead	0.398	0.693	0.705	1.325	0.422	0.665	1.294	1.388	0.393	2.376	1.163	0.739	WC
NO0041R	precipitation_amount	11.943	54.395	14.427	9.713	156.050	58.122	36.719	99.587	74.331	62.771	56.465	76.783	WC
NO0041R	zinc	2.002	4.724	7.457	9.536	3.315	4.467	4.708	4.748	2.268	4.767	2.527	3.801	WC
NO0044R	cadmium	0.053	0.024	0.050	-	-	-	-	-	-	-	-	-	WC
NO0044R	lead	1.821	0.934	1.388	-	-	-	-	-	-	-	-	-	WC
NO0044R	precipitation_amount	17.834	83.534	19.428	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	WC
NO0044R	zinc	6.989	3.084	6.436	-	-	-	-	-	-	-	-	-	WC
NO0047R	arsenic	0.224	1.031	1.453	4.344	3.706	2.990	1.278	2.244	1.971	0.920	1.182	1.367	WC
NO0047R	cadmium	0.010	0.081	0.091	0.240	0.179	0.189	0.078	0.146	0.093	0.068	0.095	0.041	WC
NO0047R	chromium	0.100	0.122	0.172	0.360	0.346	1.327	0.445	0.247	0.337	0.251	0.317	0.220	WC
NO0047R	cobalt	0.150	0.299	0.481	1.359	0.690	1.718	0.708	0.523	0.762	0.540	0.221	0.303	WC
NO0047R	copper	4.068	15.185	20.094	68.391	27.641	45.390	22.218	14.714	28.455	20.995	13.159	22.244	WC
NO0047R	lead	0.384	0.707	1.644	1.650	2.380	1.630	1.339	1.236	0.920	6.344	0.757	0.639	WC
NO0047R	nickel	5.044	7.483	12.654	40.322	19.845	46.056	19.413	15.540	24.700	18.637	6.326	12.486	WC
NO0047R	precipitation_amount	14.523	25.031	11.275	11.114	13.312	6.688	15.605	65.477	40.860	38.313	22.293	15.031	WC
NO0047R	zinc	1.287	2.428	5.596	3.982	8.529	12.086	4.174	3.734	2.460	3.510	3.475	6.751	WC
NO0093R	arsenic	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.133	0.050	0.050	0.165	WC
NO0093R	cadmium	0.080	0.053	0.086	0.028	0.017	0.065	0.043	0.049	0.047	0.025	0.054	0.112	WC
NO0093R	chromium	0.100	0.100	0.100	0.100	0.100	0.312	0.292	0.100	0.226	0.100	0.219	0.314	WC
NO0093R	cobalt	0.005	0.005	0.014	0.015	0.010	0.010	0.047	0.029	0.013	0.005	0.020	0.024	WC
NO0093R	copper	0.389	0.690	1.315	0.704	0.590	1.732	1.543	0.940	2.257	0.217	1.258	1.467	WC
NO0093R	iron	18.673	5.000	5.000	5.000	5.000	16.407	17.721	15.331	5.000	5.000	67.862	42.289	WC
NO0093R	lead	1.120	1.139	1.449	1.150	1.364	1.859	1.151	1.199	0.795	0.302	1.238	0.989	WC
NO0093R	manganese	1.772	0.250	0.905	0.970	0.878	4.158	4.606	2.942	2.246	0.811	1.449	1.896	WC
NO0093R	nickel	0.100	0.100	0.340	0.428	0.216	0.357	1.095	0.453	0.298	0.100	0.543	0.501	WC
NO0093R	precipitation_amount	9.650	62.134	17.006	20.350	111.720	51.147	38.790	145.892	79.236	72.070	40.446	43.726	WC
NO0093R	vanadium	0.050	0.050	0.102	0.050	0.220	0.217	0.178	0.297	0.245	0.050	0.202	0.160	WC
NO0093R	zinc	4.510	4.505	12.598	3.664	3.288	11.121	9.918	4.011	7.817	3.116	15.937	-	WC
NO0094R	arsenic	0.050	0.050	0.116	0.112	0.050	0.232	0.102	0.152	0.050	0.050	0.050	0.098	WC
NO0094R	cadmium	0.045	0.017	0.008	0.014	0.013	0.024	0.015	0.020	0.003	0.015	0.087	0.011	WC
NO0094R	chromium	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.197	WC
NO0094R	cobalt	0.046	0.005	0.005	0.005	0.014	0.050	0.034	0.021	0.019	0.005	0.049	0.010	WC
NO0094R	copper	1.580	0.751	0.462	0.145	1.096	2.000	1.300	1.636	0.342	0.234	0.683	0.282	WC
NO0094R	iron	5.000	5.000	5.000	5.000	5.000	44.300	5.000	18.742	5.000	5.000	20.239	9.839	WC
NO0094R	lead	0.642	0.487	0.514	10.573	1.223	2.150	0.857	1.051	0.371	0.446	0.938	0.291	WC
NO0094R	manganese	0.850	0.524	0.752	0.250	1.431	2.700	1.905	2.557	1.509	0.250	0.536	0.492	WC
NO0094R	nickel	0.893	0.360	0.100	0.100	0.382	0.300	0.604	0.632	0.399	0.100	0.426	0.197	WC
NO0094R	precipitation_amount	11.051	74.010	53.217	6.401	40.350	104.873	72.898	84.586	65.860	41.975	58.885	50.700	WC
NO0094R	vanadium	0.050	0.050	0.050	0.050	0.428	0.200	0.201	0.234	0.050	0.050	0.252	0.110	WC
NO0094R	zinc	6.259	3.395	2.352	2.413	4.425	6.900	3.901	6.699	1.843	3.436	7.272	0.973	WC
NO0095R	arsenic	0.050	0.050	0.050	0.050	0.050	0.199	0.147	0.212	0.157	0.126	0.050	0.211	WC
NO0095R	cadmium	0.041	0.002	0.022	0.006	0.019	0.041	0.047	0.061	0.022	0.014	0.017	0.018	WC
NO0095R	chromium	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.197	WC
NO0095R	cobalt	0.005	0.005	0.052	0.005	0.028	0.036	0.040	0.040	0.005	0.005	0.005	0.010	WC
NO0095R	copper	0.338	0.251	0.443	0.268	0.409	0.898	0.681	0.673	0.325	0.216	0.487	0.230	WC
NO0095R	iron	5.000	5.000	82.609	5.000	5.000	43.000	16.327	38.083	5.000	5.000	17.704	9.839	WC
NO0095R	lead	2.059	1.123	2.006	0.632	1.006	2.363	1.402	2.481	1.235	0.959	1.766	0.884	WC
NO0095R	manganese	0.818	0.250	3.629	0.669	0.965	3.606	2.362	3.437	1.040	0.514	0.715	0.492	WC
NO0095R	nickel	0.244	0.100	0.289	0.100	0.231	0.358	0.354	0.295	0.100	0.100	0.100	0.197	WC
NO0095R	precipitation_amount	99.586	452.750	132.357	96.529	78.567	43.694	62.229	116.656	371.600	183.949	127.516	216.783	WC
NO0095R	vanadium	0.685	0.348	0.781	0.255	0.357	0.709	0.583	0.505	0.314	0.260	0.211	0.306	WC
NO0095R	zinc	3.848	1.622	3.534	1.494	4.233	4.625	4.733	4.603	2.068	1.763	4.453	1.364	WC
NO0099R	arsenic	0.548	0.830	1.161	0.324	0.151	0.752	0.158	0.282	0.560	0.479	0.284	0.294	WC

NO0099R cadmium	0.096	0.014	0.073	0.017	0.035	0.101	0.059	0.066	0.030	0.031	0.049	0.075	WC
NO0099R chromium	0.100	0.100	0.219	0.170	0.100	0.276	0.294	0.179	0.144	0.108	0.181	0.100	WC
NO0099R cobalt	0.025	0.029	0.092	0.036	0.030	0.105	0.046	0.033	0.031	0.024	0.020	0.022	WC
NO0099R copper	0.806	1.763	1.683	0.595	1.292	2.190	0.795	0.667	0.742	0.614	0.744	0.582	WC
NO0099R lead	4.428	1.624	3.077	1.955	2.856	7.085	6.640	2.443	2.008	1.679	2.668	1.67	WC
NO0099R mercury	20.200	10.500	19.100	26.800	8.600	25.400	11.500	9.500	8.300	5.900	6.700	5.600	WC
NO0099R nickel	0.520	0.185	0.440	0.195	0.408	0.873	0.933	0.559	0.263	0.147	0.297	0.208	WC
NO0099R precipitation_amount	60.570	176.880	60.830	47.390	45.090	35.060	93.760	179.620	93.380	175.440	99.970	151.380	WC
NO0099R vanadium	1.024	0.543	1.300	0.221	0.285	0.716	0.941	0.392	0.335	0.344	0.550	0.565	WC
NO0099R zinc	8.610	7.172	14.712	8.685	4.996	14.917	6.157	5.193	5.947	4.589	5.127	3.639	WC
PT0001F cadmium	0.425	-	-	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425	D
PT0001F copper	11.944	-	-	0.325	0.694	0.325	0.325	0.325	0.325	0.357	1.803	1.460	D
PT0001F lead	0.807	-	-	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	D
PT0001F manganese	4.926	-	-	9.923	5.041	1.640	12.990	6.640	12.470	2.044	1.621	1.075	D
PT0001F nickel	1.244	-	-	0.775	0.775	0.775	0.775	0.775	0.775	0.775	1.014	0.925	D
PT0001F precipitation_amount_off	16.335	-	-	10.630	13.276	13.642	32.776	18.400	19.100	26.843	20.799	30.299	D
PT0001F zinc	50.211	-	-	13.489	16.969	31.493	97.000	18.000	27.000	12.253	21.541	24.108	D
PT0003F cadmium	0.425	0.425	-	0.425	0.425	0.813	-	0.425	-	0.425	0.425	0.449	D
PT0003F copper	2.386	2.374	-	3.749	0.999	0.860	-	1.500	-	1.037	2.367	2.216	D
PT0003F lead	1.273	0.645	-	0.891	0.839	0.645	-	0.645	-	0.949	0.645	1.018	D
PT0003F manganese	1.427	2.618	-	3.409	2.843	1.464	-	7.510	-	2.551	7.014	1.449	D
PT0003F nickel	0.906	2.745	-	0.775	0.775	0.775	-	0.775	-	0.775	0.905	1.011	D
PT0003F precipitation_amount_off	17.049	8.866	-	11.642	17.140	10.700	10.900	43.000	-	42.486	31.309	33.170	D
PT0003F zinc	43.852	35.049	-	55.230	38.876	113.651	-	42.000	-	22.972	26.418	24.113	D
PT0004F cadmium	0.491	-	-	0.425	0.844	1.410	0.425	-	0.425	0.425	0.457	0.444	D
PT0004F copper	0.474	-	-	0.325	0.775	0.325	1.120	-	0.811	0.560	1.079	1.325	D
PT0004F lead	0.645	-	-	0.645	0.645	0.645	0.645	-	0.645	0.645	0.669	0.645	D
PT0004F manganese	1.272	-	-	5.640	5.617	1.075	9.910	-	1.075	6.686	1.154	1.936	D
PT0004F nickel	0.775	-	-	0.775	0.775	0.775	0.775	-	0.775	0.775	1.064	0.993	D
PT0004F precipitation_amount_off	26.012	-	-	17.858	18.263	26.500	10.700	-	7.173	69.556	28.326	18.550	D
PT0004F zinc	18.234	-	-	81.737	36.291	22.000	26.000	-	34.893	32.525	16.551	24.793	D
SE0002R mercury	29.300	12.600	17.800	53.000	10.800	13.000	-	16.800	11.000	6.900	8.600	21.700	M
SE0002R methylmercury	0.250	0.240	0.650	0.160	0.130	0.080	-	0.030	0.030	0.810	0.110	0.059	M
SE0002R precipitation_amount	12.000	66.000	14.000	18.000	80.000	80.000	0.000	74.000	69.000	37.000	16.000	15.000	M
SE0005R arsenic	0.020	0.030	0.030	0.040	0.090	0.040	0.050	0.070	0.070	0.050	0.090	0.180	M
SE0005R cadmium	0.030	0.010	0.020	0.050	0.060	0.070	0.040	0.040	0.030	0.040	0.040	0.020	M
SE0005R chromium	0.160	0.060	0.700	0.580	0.290	0.270	0.050	0.200	0.130	0.050	0.080	0.120	M
SE0005R cobalt	0.010	0.000	0.010	0.000	0.010	0.010	0.000	0.010	0.020	0.020	0.010	0.050	M
SE0005R copper	-	-	-	-	-	-	-	-	3.740	2.840	5.890	1.080	M
SE0005R iron	20.000	2.100	6.900	14.800	5.800	12.500	-	-	-	-	-	-	M
SE0005R lead	0.310	0.220	0.530	0.510	1.290	0.730	1.130	0.820	2.310	0.570	1.250	1.440	M
SE0005R manganese	15.600	0.300	-	-	-	-	6.500	4.100	7.100	20.300	0.600	1.400	M
SE0005R mercury	23.200	4.200	14.100	11.000	9.200	7.800	9.200	4.600	5.400	5.500	2.300	0.000	M
SE0005R methylmercury	0.250	0.030	0.320	0.140	0.130	0.230	0.180	0.070	0.030	0.160	0.070	0.059	M
SE0005R nickel	0.470	0.060	0.140	0.180	0.100	0.160	0.050	0.080	0.270	0.820	0.180	0.360	M
SE0005R precipitation_amount (Hg)	6.000	26.000	6.000	50.000	25.000	60.000	91.000	93.000	28.000	14.000	32.000	18.000	M
SE0005R precipitation_amount	17.000	50.000	31.000	41.000	21.000	45.000	65.000	79.000	21.000	40.000	37.000	32.000	M
SE0005R vanadium	0.080	0.060	0.100	0.300	0.200	0.150	0.060	0.170	0.140	0.100	0.160	0.250	M
SE0005R zinc	7.080	1.210	2.890	3.460	6.350	9.770	17.240	9.170	93.830	33.220	10.800	17.180	M
SE0011R mercury	-	19.000	30.000	42.200	12.600	20.000	11.100	8.100	9.500	4.200	9.300	7.700	M
SE0011R methylmercury	-	0.200	0.380	0.330	0.060	0.100	0.100	0.120	0.060	0.150	0.060	0.410	M
SE0011R precipitation_amount	0.000	51.000	27.000	25.000	103.000	38.000	92.000	56.000	82.000	109.000	27.000	42.000	M
SE0012R arsenic	0.340	0.140	1.030	0.130	0.220	0.030	0.080	0.200	0.080	0.190	0.560	0.360	M

SE0012R cadmium	0.150	0.030	1.010	0.100	0.070	0.080	0.250	0.200	0.030	0.070	0.150	0.070	M
SE0012R chromium	0.640	0.170	2.560	0.980	0.480	0.290	0.290	0.890	0.090	0.200	0.130	0.150	M
SE0012R cobalt	0.030	0.020	0.080	0.030	0.020	0.010	0.060	0.030	0.020	0.020	0.010	0.010	M
SE0012R copper	-	-	-	-	-	-	-	-	1.910	1.200	5.570	7.170	M
SE0012R iron	16.700	4.400	59.800	47.300	56.400	11.100	-	-	-	-	-	-	M
SE0012R lead	3.070	1.090	6.890	1.760	1.880	1.140	4.640	7.010	1.360	3.130	5.030	3.360	M
SE0012R manganese	2.700	2.700	-	-	-	-	13.800	3.500	3.500	1.600	1.300	0.600	M
SE0012R mercury	48.800	9.600	23.400	34.200	14.300	16.700	14.400	-	6.700	4.200	6.800	3.000	M
SE0012R methylmercury	0.610	0.220	0.600	0.030	0.310	1.040	0.590	-	0.070	0.140	0.080	0.110	M
SE0012R nickel	0.570	0.190	0.870	0.310	0.360	0.180	0.250	0.330	0.170	0.220	0.300	0.560	M
SE0012R precipitation_amount (Hg)	3.000	42.000	11.000	25.000	90.000	53.000	27.000	0.000	59.000	45.000	58.000	7.000	M
SE0012R precipitation_amount	4.000	36.000	3.000	19.000	71.000	44.000	18.000	8.000	55.000	52.000	60.000	92.000	M
SE0012R vanadium	0.980	0.550	1.120	0.500	0.720	0.140	0.320	0.550	0.360	0.490	0.720	1.170	M
SE0012R zinc	12.880	3.670	51.120	9.190	6.370	9.940	68.440	69.260	37.670	31.780	15.750	11.240	M
SE0051R arsenic	1.000	0.240	0.360	0.240	0.100	0.350	0.100	-	0.640	0.100	0.680	0.170	M
SE0051R cadmium	1.340	0.070	0.260	0.090	0.060	0.120	0.050	-	0.060	0.040	0.190	0.100	M
SE0051R chromium	0.910	0.410	1.100	0.740	0.310	0.570	0.050	-	0.300	0.090	0.050	0.070	M
SE0051R cobalt	0.130	0.030	0.100	0.050	0.020	0.050	0.020	-	0.040	0.010	0.030	0.050	M
SE0051R copper	-	-	-	-	-	-	-	-	7.920	1.060	4.200	2.880	M
SE0051R iron	55.400	16.600	89.200	62.900	21.600	91.000	-	-	-	-	-	-	M
SE0051R lead	11.480	3.240	7.530	2.200	1.550	3.870	2.660	-	3.470	1.510	6.420	3.570	M
SE0051R manganese	5.700	6.800	-	-	-	-	6.400	-	3.900	0.700	2.500	2.800	M
SE0051R nickel	2.290	0.370	1.040	0.530	0.180	0.790	0.240	-	0.330	0.190	0.530	0.530	M
SE0051R precipitation_amount	3.000	181.000	20.000	29.000	61.000	34.000	38.000	0.000	22.000	60.000	50.000	60.000	M
SE0051R vanadium	4.310	0.950	1.800	1.200	0.460	0.670	0.510	-	0.500	0.390	1.250	0.750	M
SE0051R zinc	33.500	6.830	26.140	9.300	4.740	18.690	19.240	-	80.330	35.830	18.730	15.200	M
SE0097R arsenic	0.320	0.230	0.300	0.180	0.100	0.110	0.090	0.200	0.050	0.050	0.290	0.050	M
SE0097R cadmium	0.090	0.060	0.090	0.080	0.030	0.080	0.070	0.070	0.030	0.020	0.080	0.010	M
SE0097R chromium	0.480	0.320	0.310	0.410	0.390	0.310	0.080	0.050	0.050	0.050	0.050	0.050	M
SE0097R cobalt	0.030	0.020	0.030	0.020	0.020	0.020	0.020	0.020	0.010	0.010	0.010	0.010	M
SE0097R copper	-	-	-	-	-	-	-	-	1.820	1.260	20.850	1.260	M
SE0097R iron	16.300	24.200	37.200	37.700	10.600	32.900	-	-	-	-	-	-	
SE0097R lead	2.320	2.280	2.940	1.530	0.990	1.690	3.200	2.690	1.210	1.080	3.000	1.140	M
SE0097R manganese	-	-	-	-	-	-	3.100	3.300	2.500	1.000	10.700	0.300	M
SE0097R nickel	0.450	0.340	0.500	0.210	0.230	0.200	0.260	0.140	0.180	0.160	0.240	0.210	M
SE0097R precipitation_amount	40.000	118.000	155.000	30.000	58.000	85.000	17.000	89.000	100.000	100.000	50.000	64.000	M
SE0097R vanadium	1.130	1.120	1.200	0.540	0.480	0.370	0.410	0.280	0.430	0.350	0.460	0.450	M
SE0097R zinc	7.050	4.870	7.830	5.260	3.520	9.290	14.650	9.540	18.680	13.710	14.500	4.800	M

Annex 6

Monthly mean values on data for heavy metals in air

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sampflag	QA
BE0004R copper	-	-	-	-	10.000	10.000	10.000	10.000	10.000	10.000	20.000	20.000	M	2/3/4
BE0004R lead	-	-	-	-	40.000	40.000	40.000	40.000	40.000	40.000	70.000	40.000	M	2/3/4
BE0004R nickel	-	-	-	-	10.000	10.000	10.000	10.000	10.000	10.000	20.000	10.000	M	2/3/4
BE0004R zinc	-	-	-	-	100.000	100.000	110.000	110.000	120.000	130.000	160.000	130.000	M	2/3/4
DE0001R cadmium	0.315	0.268	0.224	0.161	0.125	0.105	0.168	0.219	0.108	0.160	0.285	0.316	M	
DE0001R copper	2.500	1.280	1.660	1.020	0.920	1.170	1.390	2.310	1.140	1.430	1.970	1.610	M	
DE0001R iron	66.000	70.000	129.000	142.000	109.000	156.000	143.000	259.000	105.000	154.000	96.000	108.000	M	
DE0001R lead	14.500	7.800	9.100	5.100	4.600	5.300	5.300	7.700	3.500	6.300	13.500	13.800	M	
DE0001R manganese	3.120	2.910	3.200	3.510	3.060	4.510	4.440	7.940	2.910	2.610	2.620	2.590	M	
DE0001R nickel	1.800	1.450	1.370	1.170	1.260	1.100	1.180	1.360	0.670	0.730	1.310	1.500	M	
DE0003R cadmium	0.055	0.078	0.210	0.140	0.124	0.118	0.099	0.175	0.174	0.113	0.066	0.076	M	
DE0003R copper	0.680	0.810	1.890	1.730	1.560	1.590	1.430	2.370	2.200	1.690	0.650	0.360	M	
DE0003R iron	78.000	25.000	130.000	113.000	121.000	83.000	67.000	140.000	111.000	77.000	43.000	50.000	M	
DE0003R lead	2.680	2.970	7.910	6.500	5.400	7.320	4.750	9.650	9.140	5.800	3.000	2.540	M	
DE0003R manganese	2.030	0.950	3.490	3.950	3.020	2.040	2.180	3.830	3.770	2.020	0.990	0.810	M	
DE0003R nickel	0.231	0.625	0.728	0.606	0.630	0.484	0.319	0.796	0.753	1.182	0.241	0.322	M	
DE0004R cadmium	0.396	0.301	0.358	0.222	0.162	0.133	0.163	0.214	0.258	0.261	0.185	0.237	M	
DE0004R copper	2.710	1.890	2.580	2.280	1.720	1.580	2.060	2.590	3.100	1.840	1.290	1.320	M	
DE0004R iron	50.000	55.000	126.000	175.000	60.000	66.000	43.000	114.000	97.000	77.000	6.000	14.000	M	
DE0004R lead	23.600	15.600	15.300	10.100	8.900	9.600	10.600	11.700	15.100	11.300	10.900	11.000	M	
DE0004R manganese	4.000	4.880	5.720	7.530	4.290	4.090	4.350	5.910	6.720	4.140	2.430	2.790	M	
DE0004R nickel	0.970	0.513	0.995	0.872	0.329	0.350	0.335	0.534	0.483	0.652	0.293	0.320	M	
DE0005R cadmium	0.204	0.092	0.173	0.135	0.140	0.158	0.067	0.252	0.084	0.101	0.139	0.126	M	
DE0005R copper	0.840	0.930	0.770	1.140	1.040	1.010	1.080	1.460	0.580	0.940	0.730	0.550	M	
DE0005R iron	70.000	1.000	53.000	95.000	86.000	100.000	20.000	109.000	22.000	36.000	9.000	31.000	M	
DE0005R lead	8.520	5.620	6.520	5.340	6.740	4.970	3.250	9.350	3.710	4.190	6.820	3.840	M	
DE0005R manganese	2.400	1.110	2.030	3.390	3.250	3.320	1.550	3.940	1.550	1.560	1.200	0.920	M	
DE0005R nickel	0.642	0.005	0.348	0.560	0.439	0.619	0.247	0.643	0.224	0.441	0.276	0.490	M	
DE0007R cadmium	0.435	0.209	0.381	0.155	0.188	0.136	0.110	0.326	0.193	0.228	0.569	0.383	M	
DE0007R copper	3.800	1.940	2.960	1.010	1.040	1.190	0.830	2.080	1.580	1.230	2.660	1.510	M	
DE0007R iron	42.000	16.000	122.000	153.000	78.000	70.000	72.000	214.000	106.000	96.000	91.000	55.000	M	
DE0007R lead	28.600	10.800	13.900	6.100	5.700	6.900	5.100	12.300	7.500	8.200	26.000	20.700	M	
DE0007R manganese	2.900	2.250	4.660	6.400	2.930	3.160	3.020	9.400	4.340	4.080	3.720	2.070	M	
DE0007R nickel	3.710	0.430	1.900	0.750	1.010	0.850	0.870	1.650	0.830	0.670	1.640	1.030	M	
DE0008R cadmium	0.258	0.134	0.263	0.158	0.128	0.133	0.099	0.249	0.172	0.151	0.221	0.173	M	
DE0008R copper	1.310	0.990	1.460	2.170	1.480	1.540	1.290	2.030	2.180	1.250	0.960	0.650	M	
DE0008R iron	21.000	1.000	58.000	104.000	88.000	105.000	51.000	132.000	124.000	69.000	61.000	54.000	M	
DE0008R lead	15.330	6.070	9.340	7.380	6.690	5.550	4.800	9.460	8.490	6.810	9.160	7.830	M	
DE0008R manganese	1.150	1.320	2.630	4.590	3.410	3.530	2.710	4.820	4.960	1.900	1.680	1.240	M	
DE0008R nickel	0.519	0.173	0.470	0.998	0.591	0.754	0.506	0.905	0.853	0.774	0.705	0.772	M	
DE0009R cadmium	0.273	0.160	0.238	0.095	0.077	0.124	0.088	0.218	0.084	0.125	0.373	0.410	M	
DE0009R copper	2.700	1.850	2.020	1.460	1.310	1.280	0.970	2.170	1.420	1.360	2.800	2.030	M	
DE0009R iron	5.000	32.000	55.000	63.000	21.000	86.000	45.000	109.000	41.000	50.000	36.000	47.000	M	
DE0009R lead	14.800	8.000	7.800	4.200	3.500	5.300	3.300	8.900	4.100	4.300	18.100	18.500	M	
DE0009R manganese	2.070	1.980	2.390	2.970	1.420	3.230	2.300	6.300	2.760	1.830	2.670	2.620	M	
DE0009R nickel	1.210	1.220	1.440	0.890	0.820	1.550	1.370	1.220	0.760	0.840	1.340	1.220	M	
DK0005R copper	2.676	1.750	1.832	1.072	0.928	1.101	1.230	2.104	1.428	1.200	2.111	2.058	D	
DK0005R lead	14.554	9.002	8.860	4.610	4.218	5.371	3.990	9.459	5.046	4.856	15.309	14.372	D	
DK0005R nickel	2.603	1.822	1.700	1.213	1.849	2.217	1.870	2.748	1.069	1.087	1.738	1.620	D	
DK0005R zinc	26.009	17.164	15.694	8.357	10.418	10.630	8.570	19.265	9.705	10.466	25.753	20.947	D	
DK0008R copper	1.675	1.027	0.806	0.636	0.713	0.837	0.898	1.418	0.556	0.790	1.461	1.438	D	
DK0008R lead	8.432	6.176	4.247	2.647	2.537	4.865	2.278	6.768	2.636	3.715	10.706	8.220	D	

DK0008R	nickel	2.255	1.348	0.966	1.220	1.419	1.635	1.404	1.819	0.655	0.903	1.095	2.284	D	
DK0008R	zinc	15.922	9.233	8.024	6.542	6.164	9.645	6.842	13.884	5.763	7.490	16.653	13.268	D	
DK0031R	arsenic	0.735	0.309	0.352	0.361	0.243	0.355	0.276	0.750	0.212	0.287	0.484	0.620	D	
DK0031R	cadmium	0.552	0.220	0.224	0.217	0.180	0.201	0.194	0.177	0.154	0.188	0.171	0.307	D	
DK0031R	chromium	0.878	0.442	0.415	0.397	0.208	0.241	0.289	0.254	0.331	0.384	0.467	0.396	D	
DK0031R	copper	1.901	0.927	1.273	0.774	0.629	0.865	0.643	1.369	0.675	0.887	1.269	1.051	D	
DK0031R	lead	11.988	6.032	5.614	3.727	3.272	3.872	2.835	5.326	2.688	4.191	8.145	11.330	D	
DK0031R	nickel	1.935	1.392	1.114	0.998	0.897	0.885	0.985	1.142	0.606	0.627	1.078	0.971	D	
DK0031R	zinc	23.991	10.104	10.054	6.846	6.760	8.462	6.545	12.830	5.276	8.946	15.935	14.982	D	
FI0096R	mercury	1.800	1.430	1.107	1.095	1.047	0.988	1.060	1.040	1.321	1.222	1.630	1.431	D1	
GB0014R	arsenic	0.220	0.220	0.220	0.190	0.190	0.190	0.270	0.270	0.270	0.920	0.920	0.920	3M	7
GB0014R	cadmium	0.180	0.180	0.180	0.030	0.030	0.030	0.100	0.100	0.100	0.210	0.210	0.210	3M	7
GB0014R	chromium	1.740	1.740	1.740	0.400	0.400	0.400	0.670	0.670	0.670	0.660	0.660	0.660	3M	7
GB0014R	copper	8.300	8.300	8.300	6.600	6.600	6.600	6.800	6.800	6.800	3.600	3.600	3.600	3M	7
GB0014R	lead	8.900	8.900	8.900	2.900	2.900	2.900	6.200	6.200	6.200	14.600	14.600	14.600	3M	7
GB0014R	nickel	4.800	4.800	4.800	0.500	0.500	0.500	1.700	1.700	1.700	1.700	1.700	1.700	3M	7
GB0014R	zinc	309.900	309.900	309.900	10.700	10.700	10.700	58.100	58.100	58.100	5.300	5.300	5.300	3M	7
GB0090R	arsenic	1.200	1.200	1.200	0.200	0.200	0.200	0.490	0.490	0.490	0.680	0.680	0.680	3M	7
GB0090R	cadmium	0.330	0.330	0.330	0.050	0.050	0.050	0.110	0.110	0.110	0.200	0.200	0.200	3M	7
GB0090R	chromium	1.000	1.000	1.000	0.230	0.230	0.230	0.410	0.410	0.410	0.390	0.390	0.390	3M	7
GB0090R	copper	3.300	3.300	3.300	1.200	1.200	1.200	2.000	2.000	2.000	3.200	3.200	3.200	3M	7
GB0090R	lead	16.900	16.900	16.900	4.200	4.200	4.200	8.800	8.800	8.800	16.900	16.900	16.900	3M	7
GB0090R	nickel	1.800	1.800	1.800	0.700	0.700	0.700	1.900	1.900	1.900	1.900	1.900	1.900	3M	7
GB0090R	zinc	16.900	16.900	16.900	2.500	2.500	2.500	9.300	9.300	9.300	15.300	15.300	15.300	3M	7
GB0091R	arsenic	0.980	0.980	0.980	0.110	0.110	0.110	0.260	0.260	0.260	0.400	0.400	0.400	3M	7
GB0091R	cadmium	0.090	0.090	0.090	0.010	0.010	0.010	0.050	0.050	0.050	0.070	0.070	0.070	3M	7
GB0091R	chromium	0.890	0.890	0.890	0.180	0.180	0.180	0.290	0.290	0.290	0.240	0.240	0.240	3M	7
GB0091R	copper	3.500	3.500	3.500	1.000	1.000	1.000	1.900	1.900	1.900	4.500	4.500	4.500	3M	7
GB0091R	lead	5.600	5.600	5.600	1.300	1.300	1.300	3.000	3.000	3.000	3.900	3.900	3.900	3M	7
GB0091R	nickel	1.000	1.000	1.000	0.200	0.200	0.200	1.500	1.500	1.500	1.100	1.100	1.100	3M	7
GB0091R	zinc	57.600	57.600	57.600	8.100	8.100	8.100	28.700	28.700	28.700	13.400	13.400	13.400	3M	7
IE0031R	mercury	1.748	1.867	1.731	1.826	1.654	1.609	1.600	-	-	-	-	-	D	
IS0091R	arsenic	0.194	0.200	0.215	0.129	0.363	0.835	0.149	0.113	0.081	0.135	0.143	-	W2*	
IS0091R	cadmium	0.081	0.118	0.011	0.020	0.013	0.017	0.014	0.014	0.008	0.007	0.011	-	W2*	
IS0091R	chromium	2.580	5.884	6.765	11.171	3.834	4.566	3.950	8.946	7.707	8.292	14.763	-	W2*	
IS0091R	copper	1.145	0.892	1.465	1.556	2.418	5.779	0.444	0.553	1.063	1.190	0.598	-	W2*	
IS0091R	lead	0.569	1.257	0.411	1.047	0.674	0.973	0.274	0.343	0.721	3.207	3.087	-	W2*	
IS0091R	nickel	6.403	15.490	14.017	20.366	8.764	11.528	10.151	19.070	21.507	18.689	31.919	-	W2*	
IS0091R	selenium	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.297	0.400	-	W2*	
IS0091R	zinc	7.827	19.947	7.040	8.126	11.513	10.601	4.075	2.776	6.060	8.282	5.532	-	W2*	
LT0015R	arsenic	1.698	1.070	0.684	0.412	0.666	0.173	-	0.474	0.377	0.636	2.078	1.974	W	
LT0015R	cadmium	0.456	0.301	0.184	0.236	0.216	0.113	0.199	0.244	0.179	0.170	0.458	0.452	W	
LT0015R	chromium	0.385	0.337	0.311	0.379	0.440	0.356	-	1.034	0.319	0.498	0.364	0.578	W	
LT0015R	copper	4.429	3.979	3.045	3.285	3.912	2.074	2.256	2.292	3.631	4.291	4.039	4.201	W	
LT0015R	lead	17.820	9.642	5.898	7.607	8.212	5.193	9.727	7.206	5.269	6.681	16.879	15.386	W	
LT0015R	manganese	2.804	2.028	1.847	2.240	3.185	2.848	4.771	9.514	3.804	1.080	2.470	2.220	W	
LT0015R	nickel	2.163	1.538	1.163	1.334	1.452	1.067	-	1.142	0.783	0.834	1.867	2.257	W	
LT0015R	vanadium	4.216	2.461	2.319	1.906	2.047	1.835	2.681	2.089	0.959	1.165	3.768	4.428	W	
LT0015R	zinc	37.974	17.279	9.771	9.700	17.094	8.280	28.332	11.330	7.360	7.145	23.152	28.353	W	
LV0010R	cadmium	0.288	0.225	0.327	0.235	0.293	0.357	0.358	0.723	0.303	0.237	0.533	0.653	W*	
LV0010R	copper	1.567	1.107	1.865	2.160	1.730	1.557	1.387	1.761	1.513	1.206	2.873	3.925	W*	
LV0010R	lead	17.839	19.896	6.742	4.487	7.847	14.440	6.474	6.771	2.367	8.539	22.047	5.775	W*	
LV0010R	zinc	42.733	27.971	34.302	46.122	30.833	38.250	25.268	30.074	22.703	17.074	47.507	65.300	W*	

LV0016R	cadmium	0.098	0.128	0.159	0.131	0.064	0.086	0.143	0.126	0.125	0.150	0.207	0.383	W*
LV0016R	copper	2.509	4.229	2.468	2.085	1.836	1.420	1.010	1.221	0.803	0.961	0.887	1.716	W*
LV0016R	lead	3.682	4.889	3.064	1.148	3.864	3.900	2.158	1.654	1.727	3.845	6.620	4.926	W*
LV0016R	zinc	39.768	628.689	291.254	483.237	68.480	52.840	112.574	240.986	101.283	197.306	287.243	457.694	W*
NL0009R	arsenic	2.006	0.326	0.847	0.299	0.381	0.358	0.372	0.967	0.417	0.467	2.108	0.885	W*
NL0009R	cadmium	0.445	0.264	0.179	0.134	0.144	0.170	0.103	0.197	0.111	0.161	0.436	0.297	D
NL0009R	lead	25.367	11.140	10.333	6.811	7.111	5.752	6.309	9.908	6.176	8.943	22.456	14.043	D
NL0009R	zinc	71.255	33.410	26.849	21.455	16.221	16.755	31.288	27.146	29.107	33.372	50.839	35.722	D
NO0042G	arsenic	0.399	0.759	0.272	0.136	0.041	0.020	0.020	0.024	0.035	0.020	0.035	0.050	D2
NO0042G	cadmium	0.060	0.110	0.038	0.025	0.007	0.011	0.001	0.031	0.007	0.004	0.006	0.020	D2
NO0042G	cobalt	0.013	0.019	0.017	0.027	0.011	0.008	0.004	0.016	0.006	0.029	0.013	0.030	D2
NO0042G	copper	0.568	0.786	0.791	0.731	0.243	0.201	0.197	0.212	0.200	0.291	0.266	0.549	D2
NO0042G	lead	1.962	3.624	1.283	0.877	0.227	0.122	0.033	0.019	0.094	0.155	0.194	0.615	D2
NO0042G	manganese	0.618	0.758	0.383	0.427	0.129	0.220	0.039	0.068	0.220	0.631	0.119	0.612	D2
NO0042G	mercury	1.264	1.537	1.125	0.817	0.750	1.118	1.220	1.237	0.810	1.120	0.845	1.030	D2
NO0042G	nickel	0.336	0.367	0.262	0.155	0.053	0.050	0.050	0.050	0.050	0.065	0.077	0.130	D2
NO0042G	vanadium	0.702	0.907	0.329	0.194	0.042	0.058	0.021	0.057	0.028	0.085	0.042	0.145	D2
NO0042G	zinc	2.973	4.771	1.652	1.553	1.354	0.597	0.449	0.541	1.129	0.561	2.491	1.551	D2
NO0099R	cadmium	0.130	0.055	0.089	0.062	0.035	0.072	0.055	0.090	0.047	0.054	0.111	0.132	M
NO0099R	chromium	1.700	2.020	1.700	1.650	1.620	1.550	1.630	1.250	1.320	0.880	3.700	0.930	M
NO0099R	copper	1.090	1.580	0.760	1.640	1.390	1.610	0.830	1.300	1.230	0.720	0.910	1.540	M
NO0099R	lead	5.390	2.600	3.460	2.810	2.020	3.170	1.920	3.650	2.250	2.930	4.100	4.590	M
NO0099R	mercury	1.525	0.660	1.420	1.615	1.305	1.255	-	1.460	1.300	1.830	1.150	-	M
NO0099R	nickel	1.200	1.150	1.040	1.000	1.540	1.820	1.400	1.610	0.750	0.910	5.240	1.300	M
NO0099R	vanadium	1.680	1.240	1.470	1.420	2.290	2.720	1.960	1.990	0.900	1.050	1.240	1.230	M
NO0099R	zinc	10.290	3.810	8.810	6.520	4.350	7.280	5.720	6.660	5.990	5.490	8.370	10.830	M
SE0002R	mercury	1.440	1.333	1.117	1.283	1.100	1.087	0.988	1.038	0.975	1.040	1.189	1.200	M

Annex 7

Monthly mean values on data for POPs in precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Samp flag	QA flag
BE0004R aldrin	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R alpha_HCH	14.008	29.453	9.037	3.150	6.442	2.264	4.609	2.786	2.906	6.763	14.000	3.917	W4*	1
BE0004R dieldrin	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R endrin	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R gamma_HCH	21.266	29.039	148.564	657.200	141.660	53.755	12.960	9.564	19.812	40.184	79.000	16.000	W4*	
BE0004R heptachlor	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R pp_DDD	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R pp_DDE	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R pp_DDT	1.658	2.705	9.037	2.500	2.317	2.198	3.841	2.500	2.094	2.171	2.500	3.917	W4*	1
BE0004R precipitation_amount	13.069	13.295	4.172	16.071	21.107	30.286	9.321	11.679	26.538	20.462	3.000	25.714	W4*	
DE0001R Dibenzo(a,h)anthracene	-	1.700	0.670	0.670	0.670	0.670	0.670	0.670	0.670	0.670	3.900	1.800	M	
DE0001R PCB_101	-	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	M	
DE0001R PCB_118	-	0.070	0.070	0.300	0.070	0.100	0.530	0.070	0.070	0.070	0.070	0.070	M	
DE0001R PCB_138	-	0.210	0.100	1.300	0.130	0.270	0.070	0.070	0.070	0.070	0.600	0.250	M	
DE0001R PCB_153	-	1.000	0.880	1.800	0.290	0.610	0.070	0.070	0.070	0.420	0.260	0.450	M	
DE0001R PCB_180	-	0.070	0.070	4.100	1.900	5.100	3.500	0.070	0.070	0.070	0.070	0.070	M	
DE0001R PCB_28	-	0.260	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	M	
DE0001R PCB_52	-	0.700	0.940	0.070	0.070	0.630	0.070	0.070	0.070	0.520	0.070	0.070	M	
DE0001R SummePCB	-	2.340	2.100	7.610	2.500	6.750	4.280	0.390	0.390	1.190	1.110	0.950	M	
DE0001R anthracene	-	0.500	0.300	0.300	0.300	0.300	0.500	1.000	1.200	0.300	1.500	0.800	M	
DE0001R benz_a_anthracene	-	4.800	3.500	1.500	1.500	2.600	2.600	1.800	2.800	3.500	21.000	9.700	M	
DE0001R benzo_a_pyrene	-	3.100	2.400	0.670	1.000	2.800	1.200	1.300	2.200	3.000	9.400	5.500	M	
DE0001R benzo_b_fluoranthene	-	6.900	4.300	1.100	1.800	2.200	1.800	2.100	2.700	4.000	17.000	11.000	M	
DE0001R benzo_ghi_perylene	-	6.400	6.800	0.670	1.600	2.100	1.100	1.200	3.500	0.670	16.000	8.500	M	
DE0001R benzo_k_fluoranthene	-	2.600	1.700	0.670	0.670	1.000	0.670	0.670	1.400	1.200	7.800	4.300	M	
DE0001R chrysene	-	7.600	4.600	1.400	2.600	3.500	1.600	1.800	3.000	3.500	21.000	14.000	M	
DE0001R fluoranthene	-	27.000	18.000	6.900	13.000	17.000	9.400	11.000	8.600	7.500	58.000	45.000	M	
DE0001R inden_123cd_pyrene	-	3.330	3.330	3.330	3.330	3.330	3.330	3.330	3.330	3.330	5.000	7.300	M	
DE0001R phenanthrene	-	14.000	12.000	8.000	9.200	12.000	10.000	9.700	10.000	8.100	37.000	26.000	M	
DE0001R precipitation_amount	0.000	33.400	32.200	19.100	52.200	38.300	48.800	26.700	26.700	45.400	26.300	52.500	M	
DE0001R pyrene	-	9.400	6.200	0.670	5.400	10.000	2.600	5.400	9.000	3.300	29.000	19.000	M	
DE0009R HCB	-	0.010	0.110	0.010	0.110	0.010	0.010	0.010	0.320	0.850	0.010	0.010	M	
DE0009R PCB_101	-	0.030	0.740	0.030	0.700	0.440	1.300	0.200	0.030	0.030	0.030	0.030	M	
DE0009R PCB_118	-	0.070	0.070	0.300	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	M	
DE0009R PCB_138	-	0.070	0.070	0.070	0.180	0.070	0.490	0.320	0.070	0.070	3.800	0.520	M	
DE0009R PCB_153	-	0.070	0.070	0.070	0.260	0.070	0.070	0.600	0.070	0.240	3.100	0.360	M	
DE0009R PCB_180	-	0.070	0.070	0.070	0.070	1.100	8.000	1.700	1.200	0.590	0.070	1.200	M	
DE0009R PCB_28	-	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	M	
DE0009R PCB_52	-	0.070	0.410	0.430	0.070	0.150	0.070	0.070	0.070	0.070	0.070	3.000	M	
DE0009R Sum_PCB	-	0.390	1.440	0.980	1.360	1.910	-	2.970	1.520	1.080	7.150	5.190	M	
DE0009R aldrin	-	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.040	0.010	0.010	0.010	M	
DE0009R alpha_HCH	-	1.600	1.200	6.900	1.500	0.060	0.360	0.290	0.650	1.800	2.200	0.780	M	
DE0009R anthracene	-	1.400	0.750	1.500	0.600	0.500	0.300	0.500	0.330	0.700	5.400	1.600	M	
DE0009R benzo_a_anthracene	-	6.700	5.200	8.000	3.900	1.800	0.670	5.700	1.900	4.700	49.000	15.000	M	
DE0009R benzo_a_pyrene	-	3.100	2.600	6.800	5.200	1.800	0.670	6.400	1.100	4.000	33.000	6.900	M	

DE0009R	benzo_b_fluoranthene	-	7.400	3.800	7.000	7.200	3.000	1.400	6.000	3.000	5.600	53.000	13.000	M	
DE0009R	benzo_ghi_perylene	-	4.300	2.400	2.800	4.900	1.100	0.670	8.900	0.670	6.900	44.000	9.800	M	
DE0009R	benzo_k_fluoranthene	-	2.800	2.100	3.200	3.400	1.200	0.670	2.700	1.100	2.400	23.000	5.400	M	
DE0009R	chrysene	-	10.000	6.000	8.200	7.600	3.100	1.500	7.500	2.500	6.300	52.000	16.000	M	
DE0009R	dibenzo_ah_anthracene	-	1.000	1.000	1.000	1.000	1.000	0.670	1.000	1.000	2.000	6.100	2.000	M	
DE0009R	dieldrin	-	0.580	0.070	0.240	0.070	0.070	0.070	0.070	0.070	0.070	0.260	0.070	M	
DE0009R	endrin	-	0.130	0.000	0.630	0.370	0.000	0.000	0.000	0.000	0.130	0.130	0.130	M	
DE0009R	fluoranthene	-	44.000	24.000	36.000	36.000	14.000	4.900	21.000	7.600	27.000	220.000	86.000	M	
DE0009R	gamma_HCH	-	10.000	10.000	53.000	61.000	14.000	4.600	5.000	10.000	7.000	6.400	6.300	M	
DE0009R	heptachlor	-	0.010	0.230	0.320	0.030	0.010	0.010	0.010	0.010	0.010	0.010	0.010	M	
DE0009R	indeno_123cd_pyrene	-	3.330	3.330	3.330	3.330	3.330	3.330	3.330	3.330	3.330	23.000	6.400	M	
DE0009R	op_DDE	-	0.010	1.500	0.010	0.010	0.010	0.010	0.010	0.010	0.810	0.010	0.990	M	
DE0009R	phenanthrene	-	38.000	28.000	24.000	18.000	13.000	5.200	26.000	9.900	15.000	87.000	48.000	M	
DE0009R	pp_DDD	-	0.490	0.070	0.070	0.070	0.070	0.480	0.620	0.450	0.200	0.930	0.750	M	
DE0009R	pp_DDE	-	0.070	0.070	0.510	0.070	0.070	0.430	0.070	0.270	0.240	0.010	0.480	M	
DE0009R	pp_DDT	-	0.070	0.370	0.070	0.070	0.070	3.100	0.070	0.070	0.070	0.070	10.800	M	
DE0009R	precipitation_amount	0.000	32.700	27.200	19.800	87.800	35.900	19.400	31.100	36.500	45.600	30.600	34.600	M	
DE0009R	pyrene	-	18.000	10.000	26.000	18.000	6.400	5.900	20.000	5.500	9.800	90.000	30.000	M	
IE0002R	PCB_101	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	PCB_118	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	PCB_138	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	PCB_153	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	PCB_180	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	PCB_52	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	aldrin	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	alpha_HCH	3.500	1.500	3.500	2.000	2.000	4.000	26.000	2.500	1.000	1.000	0.500	0.984	M	1
IE0002R	dieldrin	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	endrin	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	gamma_HCH	3.500	2.000	3.500	2.500	3.500	15.000	19.500	0.500	1.000	1.500	3.000	1.968	M	1
IE0002R	heptachlor	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	op_ddd	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	op_ddt	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	2.000	1.000	0.500	0.984	M	1
IE0002R	pp_DDE	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	pp_ddd	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	pp_ddt	3.500	0.500	3.500	2.000	1.000	0.500	1.000	0.500	1.000	1.000	0.500	0.984	M	1
IE0002R	precipitation_amount	41.700	214.200	32.100	37.000	104.400	209.000	56.200	193.300	57.700	133.800	358.600	244.700	M	
IS0091R	HCB	0.033	0.030	0.020	0.032	0.049	0.008	0.010	0.010	0.019	0.012	0.014	0.023	W2*	
IS0091R	PCB_101	0.024	0.010	0.010	0.013	0.014	0.001	0.000	0.000	0.000	0.006	0.000	0.010	W2*	
IS0091R	PCB_105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.002	0.007	W2*	
IS0091R	PCB_118	0.017	0.027	0.016	0.014	0.015	0.017	0.000	0.000	0.000	0.002	0.000	0.000	W2*	
IS0091R	PCB_138	0.017	0.030	0.014	0.013	0.017	0.016	0.000	0.000	0.000	0.005	0.000	0.000	W2*	
IS0091R	PCB_153	0.041	0.027	0.019	0.014	0.018	0.008	0.000	0.000	0.000	0.005	0.000	0.003	W2*	
IS0091R	PCB_156	0.000	0.000	0.019	0.026	0.022	0.001	0.000	0.000	0.006	0.002	0.000	0.000	W2*	
IS0091R	PCB_180	0.010	0.033	0.020	0.026	0.015	0.012	0.000	0.000	0.000	0.012	0.002	0.010	W2*	
IS0091R	PCB_28	0.613	0.073	0.055	0.101	0.181	0.019	0.180	0.000	0.000	0.199	0.000	0.444	W2*	
IS0091R	PCB_31	0.653	0.037	0.036	0.093	0.139	0.015	0.154	0.000	0.000	0.150	0.000	0.288	W2*	
IS0091R	PCB_52	0.154	0.030	0.013	0.025	0.064	0.044	0.052	0.000	0.000	0.063	0.000	0.094	W2*	
IS0091R	alpha_HCH	0.233	0.987	0.472	0.438	0.529	0.328	0.297	0.317	0.369	0.269	0.438	0.256	W2*	

IS0091R	beta_HCH	0.001	0.020	0.001	0.000	0.000	0.000	0.009	0.010	0.010	0.009	0.014	0.000	W2*
IS0091R	cis_CD	0.001	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
IS0091R	dieldrin	0.034	0.077	0.057	0.042	0.054	0.035	0.035	0.020	0.036	0.032	0.043	0.037	W2*
IS0091R	gamma_HCH	0.090	0.243	0.124	0.650	2.280	1.462	0.446	0.356	0.169	0.316	0.615	0.155	W2*
IS0091R	op_DDE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
IS0091R	op_DDT	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
IS0091R	pp_DDD	0.117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
IS0091R	pp_DDE	0.048	0.020	0.000	0.000	0.000	0.000	0.000	0.011	0.001	0.000	0.000	0.000	W2*
IS0091R	pp_DDT	2.401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.003	0.029	0.014	W2*
IS0091R	precipitation_amount_off	75.765	68.333	82.179	47.852	33.368	28.638	56.354	60.135	76.046	136.571	71.490	88.987	W2*
IS0091R	trans_CD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
IS0091R	trans_nonachlor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*
NO0099R	HCB	1.000	1.200	0.900	0.800	0.700	1.100	0.300	1.300	0.800	0.900	0.600	0.700	M
NO0099R	alpha_HCH	1.100	1.300	1.600	0.900	0.700	1.100	1.200	1.000	1.000	1.200	1.600	1.300	M
NO0099R	gamma_HCH	3.200	3.300	3.000	1.300	6.500	10.900	3.100	7.200	4.100	3.900	10.800	3.700	M
NO0099R	precipitation_amount	66.000	180.000	62.000	44.000	44.000	35.000	94.000	181.000	105.000	174.000	95.000	140.000	M
NO0099R	sum_HCH	4.300	4.600	4.700	2.200	7.200	12.100	4.300	8.100	5.100	5.100	12.400	5.000	M

Annex 8

Monthly mean values on data for POPs in air

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
CS0003R PCB_101	23.900	3.375	23.000	35.000	27.750	28.500	37.000	32.250	22.250	7.100	14.500	15.000	D1	
CS0003R PCB_118	0.800	1.875	4.000	5.600	4.500	5.500	6.600	5.000	3.750	1.700	2.750	2.333	D1	
CS0003R PCB_138	34.100	8.125	22.250	46.800	32.750	54.000	66.800	41.000	26.500	10.900	20.500	15.333	D1	
CS0003R PCB_153	48.700	8.375	27.500	51.800	35.750	51.750	68.000	45.250	34.500	25.900	43.500	38.000	D1	
CS0003R PCB_180	43.100	5.125	15.000	38.600	20.500	36.500	55.600	27.000	14.000	7.100	16.250	13.333	D1	
CS0003R PCB_28	23.700	6.625	25.500	35.800	31.000	34.500	36.800	35.250	25.500	8.900	17.250	12.333	D1	
CS0003R PCB_52	15.700	13.125	23.250	29.600	25.250	21.125	23.300	27.500	20.000	7.100	16.000	16.000	D1	
CS0003R acenaphtene	2.292	0.191	0.188	0.260	0.127	0.090	0.126	0.100	0.062	0.341	0.945	0.497	D1	
CS0003R alpha_HCH	18.900	15.625	22.000	31.400	82.500	25.875	39.600	28.875	67.750	5.100	36.250	37.000	D1	
CS0003R anthracene	2.608	0.221	0.332	0.238	0.115	0.090	0.064	0.052	0.083	0.443	0.925	0.737	D1	
CS0003R benz_a_anthracene	5.942	0.081	0.600	0.296	0.046	0.021	0.010	0.023	0.090	0.985	1.367	1.023	D1	
CS0003R benzo_a_pyrene	3.282	0.044	0.495	0.216	0.036	0.005	0.007	0.030	0.102	0.847	1.300	0.973	D1	
CS0003R fluoranthene	23.202	1.996	3.348	2.484	1.090	0.553	0.498	0.615	0.658	3.915	5.907	4.970	D1	
CS0003R fluorene	25.360	2.394	3.410	2.552	1.375	0.870	0.836	0.832	0.827	4.465	8.975	7.590	D1	
CS0003R gamma_HCH	4.100	12.375	48.375	38.600	158.500	22.500	22.400	4.750	87.500	1.500	14.250	8.167	D1	
CS0003R iden_123cd_pyrene	5.714	0.121	1.070	0.340	0.051	0.009	0.013	0.057	0.140	0.949	1.590	1.233	D1	
CS0003R naphtalene	15.400	0.642	0.733	0.768	0.403	0.430	0.314	0.292	0.220	1.656	1.720	0.353	D1	
CS0003R phenanthrene	46.904	8.051	8.843	6.460	3.828	2.317	2.360	2.280	2.197	8.351	16.497	16.487	D1	
CS0003R pyrene	15.142	1.136	2.202	1.652	0.632	0.358	0.248	0.332	0.420	2.871	3.940	3.333	D1	
IS0091R HCB	7.651	9.715	19.313	6.476	3.065	3.257	4.829	7.165	10.625	11.716	16.054	20.513	W2*	
IS0091R PCB_101	0.000	0.000	0.075	0.982	0.935	0.793	0.024	0.000	0.000	0.000	0.490	0.189	W2*	
IS0091R PCB_105	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.005	0.000	0.000	0.163	0.189	W2*	
IS0091R PCB_118	0.013	0.255	0.585	0.523	0.300	0.077	0.000	0.000	0.000	0.000	0.327	0.189	W2*	
IS0091R PCB_138	0.013	0.315	0.790	0.816	0.411	0.390	0.242	0.014	0.000	0.000	0.163	0.000	W2*	
IS0091R PCB_153	0.054	0.215	0.915	0.700	0.304	0.388	0.160	0.009	0.000	0.000	0.327	0.000	W2*	
IS0091R PCB_156	0.000	0.000	0.000	0.000	0.000	0.000	0.063	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R PCB_180	0.006	0.155	0.260	0.343	0.119	0.068	0.076	0.005	0.000	0.000	0.163	0.000	W2*	
IS0091R PCB_28	2.791	3.200	4.043	5.879	3.464	3.578	0.051	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R PCB_31	3.544	2.830	3.577	5.506	4.180	5.120	0.157	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R PCB_52	1.629	1.525	0.142	2.426	1.709	1.690	0.051	0.000	0.000	0.000	1.465	0.000	W2*	
IS0091R alpha_HCH	13.832	22.475	35.484	13.722	5.473	6.811	8.298	11.535	18.289	14.891	19.107	20.852	W2*	
IS0091R beta_HCH	0.023	0.765	0.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R cis_CD	0.491	0.500	0.051	0.000	0.000	0.000	1.311	1.275	0.924	0.746	0.777	0.308	W2*	
IS0091R dieldrin	0.357	0.340	0.290	1.110	1.853	1.347	1.394	1.038	0.914	0.746	1.104	0.373	W2*	
IS0091R gamma_HCH	3.639	4.335	5.873	12.257	12.926	10.490	6.039	5.552	4.302	0.798	6.907	4.035	W2*	
IS0091R op_DDE	0.000	0.000	0.000	0.000	1.452	1.436	0.059	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R op_DDT	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R pp_DDD	0.143	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R pp_DDE	0.016	0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R pp_DDT	1.439	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R trans_CD	0.834	0.595	0.716	0.483	0.296	0.393	0.012	0.000	0.000	0.000	0.000	0.000	W2*	
IS0091R trans_nonachlor	0.542	0.360	0.020	0.574	0.018	0.000	0.000	0.000	0.084	0.006	0.000	0.000	W2*	
NO0042G HCB	83.220	109.525	68.086	93.944	83.225	71.900	60.261	45.171	238.125	244.740	74.950	80.167	D2	
NO0042G N1methylnaphtalene	1.629	0.648	0.554	0.831	0.067	0.060	0.055	0.054	0.127	0.155	0.397	0.413	D2	
NO0042G N1methylphenanthrene	0.055	0.019	0.009	0.009	0.011	0.012	0.006	0.008	0.004	0.006	0.007	0.013	D2	
NO0042G N2methylnaphtalene	1.666	0.708	0.788	1.262	0.126	0.103	0.095	0.083	0.197	0.218	0.516	0.523	D2	
NO0042G N2methylphenanthrene	0.065	0.031	0.015	0.010	0.011	0.020	0.009	0.013	0.006	0.011	0.014	0.022	D2	
NO0042G N2metylanthracene	0.015	0.008	0.005	0.003	0.003	0.003	0.006	0.002	0.001	0.004	0.008	0.005	D2	
NO0042G PCB_101	0.440	0.800	0.759	2.814	1.425	2.418	1.121	2.010	4.727	1.508	1.195	1.120	D2	3

NO0042G PCB_105	0.082	0.160	0.151	0.376	0.313	0.593	0.363	0.299	0.608	0.224	0.280	0.197	D2	3
NO0042G PCB_114	0.005	0.011	0.020	0.038	0.030	0.068	0.022	0.035	0.065	0.028	0.029	0.015	D2	3
NO0042G PCB_118	0.204	0.370	0.429	0.857	0.635	1.338	0.551	0.833	1.547	0.666	0.725	0.517	D2	3
NO0042G PCB_123	0.021	0.007	0.009	0.030	0.020	0.040	0.019	0.028	0.051	0.023	0.026	0.012	D2	3
NO0042G PCB_128	0.038	0.065	0.089	0.104	0.100	0.213	0.216	0.090	0.132	0.042	0.062	0.097	D2	3
NO0042G PCB_138	0.216	0.375	0.620	0.571	0.536	1.103	0.726	0.371	0.585	0.254	0.330	0.467	D2	
NO0042G PCB_141	0.040	0.072	0.051	0.148	0.132	0.233	0.170	0.110	0.175	0.086	0.107	0.127	D2	3
NO0042G PCB_149	0.198	0.332	0.301	0.896	0.619	0.995	0.558	0.684	1.183	0.554	0.663	0.623	D2	3
NO0042G PCB_153	0.334	0.502	1.013	0.836	0.716	1.510	0.708	0.506	0.775	0.394	0.498	0.577	D2	3
NO0042G PCB_156	0.020	0.032	0.054	0.044	0.040	0.105	0.085	0.042	0.055	0.012	0.020	0.047	D2	3
NO0042G PCB_157	0.005	0.009	0.014	0.010	0.009	0.020	0.016	0.008	0.011	0.006	0.009	0.012	D2	3
NO0042G PCB_167	0.011	0.018	0.039	0.026	0.025	0.058	0.038	0.022	0.020	0.012	0.011	0.018	D2	3
NO0042G PCB_170	0.022	0.060	0.110	0.064	0.053	0.100	0.121	0.067	0.095	0.022	0.037	0.103	D2	3
NO0042G PCB_18	21.016	21.160	37.761	237.986	62.892	97.145	121.451	38.551	80.927	21.556	18.440	43.373	D2	3
NO0042G PCB_180	0.079	0.160	0.319	0.182	0.158	0.310	0.339	0.174	0.193	0.072	0.091	0.207		
NO0042G PCB_183	-	-	-	-	0.053	0.127	0.127	0.061	0.068	0.036	0.042	0.060	D2	3
NO0042G PCB_187	0.048	0.085	0.126	0.149	0.144	0.240	0.243	0.122	0.143	0.078	0.107	0.123	D2	3
NO0042G PCB_189	0.010	0.005	0.009	0.005	0.005	0.008	0.007	0.005	0.005	0.005	0.005	0.007	D2	3
NO0042G PCB_206	0.006	0.006	0.009	0.005	0.005	0.019	0.013	0.012	0.005	0.005	0.005	0.006	D2	3
NO0042G PCB_209	0.016	0.024	0.013	0.006	0.005	0.017	0.013	0.011	0.006	0.014	0.016	0.013	D2	3
NO0042G PCB_28	10.586	10.863	21.689	139.856	41.720	64.312	63.203	35.950	94.985	14.856	11.932	24.527	D2	3
NO0042G PCB_31	10.648	11.205	21.493	134.363	39.072	60.658	59.967	33.075	87.163	13.534	10.960	23.183	D2	3
NO0042G PCB_33	8.740	9.530	17.723	118.223	34.827	54.823	50.642	33.306	93.983	10.476	9.238	18.990	D2	3
NO0042G PCB_37	1.186	2.115	2.843	22.234	7.249	11.620	8.042	12.453	37.018	4.288	1.895	2.400	D2	3
NO0042G PCB_47	1.834	2.635	3.146	21.328	6.007	8.468	6.736	5.709	19.747	2.414	1.720	3.060	D2	3
NO0042G PCB_52	2.938	4.517	4.933	29.602	8.645	13.207	10.797	8.656	25.720	3.710	2.850	5.157	D2	3
NO0042G PCB_66	0.932	2.172	1.999	14.571	5.327	8.148	5.260	11.926	34.983	6.758	3.120	1.790	D2	3
NO0042G PCB_74	0.548	1.140	1.159	8.527	2.753	4.020	2.767	5.169	15.917	2.460	1.115	0.950	D2	3
NO0042G PCB_99	0.198	0.390	0.419	1.138	0.605	1.043	0.452	0.893	2.022	0.624	0.510	0.370	D2	3
NO0042G acenaphtene	0.016	0.012	0.023	0.031	0.012	0.005	0.003	0.003	0.004	0.005	0.010	0.013	D2	
NO0042G acenaphtylene	0.040	0.013	0.011	0.005	0.001	0.001	0.002	0.001	0.001	0.001	0.003	0.006	D2	
NO0042G alpha_HCH	49.520	55.076	66.343	69.333	68.718	48.261	35.383	49.805	50.853	40.868	49.491	51.272	D2	
NO0042G anthanthrene	0.008	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	D2	
NO0042G anthracene	0.030	0.012	0.005	0.003	0.004	0.006	0.003	0.005	0.003	0.008	0.017	0.010	D2	
NO0042G benz_a_anthracene	0.106	0.050	0.003	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.008	D2	
NO0042G benzo_a_fluoranthene	0.033	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	D2	
NO0042G benzo_a_fluorene	0.073	0.032	0.002	0.001	0.004	0.001	0.001	0.001	0.000	0.001	0.002	0.017	D2	
NO0042G benzo_a_pyrene	0.098	0.043	0.007	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.002	0.010	D2	
NO0042G benzo_b_fluorene	0.029	0.012	0.001	0.001	0.002	0.000	0.000	0.001	0.000	0.001	0.001	0.006	D2	
NO0042G benzo_bjk_fluoranthenes	0.436	0.234	0.034	0.005	0.002	0.002	0.001	0.001	0.000	0.001	0.013	0.056	D2	
NO0042G benzo_e_pyrene	0.137	0.072	0.011	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.005	0.020	D2	
NO0042G benzo_ghi_fluoranthene	0.078	0.040	0.005	0.002	0.002	0.001	0.000	0.001	0.000	0.001	0.002	0.011	D2	
NO0042G benzo_ghi_perylene	0.064	0.039	0.006	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.013	D2	
NO0042G biphenyl	2.448	1.970	0.814	0.574	0.073	0.073	0.040	0.041	0.120	0.455	0.721	0.873	D2	
NO0042G chrysene_triphenylene	0.226	0.128	0.014	0.004	0.002	0.002	0.001	0.001	0.000	0.002	0.006	0.029	D2	
NO0042G cis_CD	0.472	0.672	0.547	0.874	1.122	1.093	0.790	0.775	1.030	0.607	0.882	0.578	D2	
NO0042G cis_NO	0.035	0.051	0.053	0.078	0.132	0.257	0.221	0.173	0.216	0.078	0.070	0.053	D2	
NO0042G coronene	0.032	0.024	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	D2	
NO0042G cyclopenta_cd_pyrene	0.066	0.021	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	D2	
NO0042G dibenzo_ac_ah_anthracenes	0.012	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	D2	

NO0042G dibenzofuran	3.442	3.295	2.378	0.378	0.096	0.064	0.065	0.064	0.243	0.662	1.303	1.447	D2
NO0042G dibenzothiophene	0.137	0.144	0.056	0.012	0.008	0.016	0.008	0.011	0.007	0.017	0.040	0.047	D2
NO0042G fluoranthene	0.717	0.434	0.087	0.023	0.038	0.031	0.011	0.010	0.009	0.020	0.048	0.175	D2
NO0042G fluorene	1.398	1.100	0.450	0.057	0.032	0.040	0.032	0.043	0.054	0.137	0.336	0.510	D2
NO0042G gamma_HCH	6.170	8.424	11.049	16.522	24.031	34.049	9.640	7.862	32.945	7.030	15.217	10.752	D2
NO0042G inden_123cd_pyrene	0.103	0.067	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015	D2
NO0042G naphtalene	8.672	4.573	1.875	1.200	0.970	0.869	3.506	0.793	0.953	1.012	1.736	1.887	D2
NO0042G op_DDD	0.036	0.065	0.043	0.050	0.048	0.145	0.031	0.027	0.115	0.020	0.032	0.040	D2
NO0042G op_DDE	0.176	0.275	0.234	0.158	0.153	0.130	0.036	0.041	0.165	0.102	0.185	0.310	D2
NO0042G op_DDT	0.354	0.553	0.557	0.533	0.400	0.205	0.153	0.107	0.303	0.222	0.432	0.900	D2
NO0042G perylene	0.015	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	D2
NO0042G phenanthrene	1.165	0.718	0.255	0.097	0.085	0.155	0.056	0.091	0.042	0.102	0.152	0.274	D2
NO0042G pp_DDD	0.040	0.050	0.039	0.073	0.036	0.117	0.022	0.021	0.082	0.017	0.018	0.033	D2
NO0042G pp_DDE	0.740	1.308	1.277	0.657	0.716	2.663	0.166	0.231	2.200	0.490	1.220	2.383	D2
NO0042G pp_DDT	0.252	0.332	0.227	0.256	0.201	0.165	0.232	0.116	0.157	0.118	0.267	0.903	D2
NO0042G pyrene	0.439	0.232	0.045	0.015	0.028	0.019	0.008	0.009	0.006	0.011	0.024	0.097	D2
NO0042G retene	0.004	0.001	0.000	0.001	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.001	D2
NO0042G trans_CD	0.318	0.447	0.350	0.519	0.419	0.244	0.174	0.163	0.285	0.187	0.400	0.369	D2
NO0042G trans_NO	0.338	0.490	0.411	0.700	0.907	0.527	0.514	0.480	0.450	0.400	0.622	0.422	D2
NO0099R HCB	82.200	87.000	77.500	78.900	85.300	94.600	80.300	80.200	87.100	120.000	133.700	107.600	D2
NO0099R alpha_HCH	35.500	40.800	33.600	40.200	44.500	59.300	68.200	84.100	50.100	43.900	59.300	44.300	D2
NO0099R gamma_HCH	20.100	36.700	26.500	23.400	84.200	126.300	105.300	86.000	92.700	41.800	61.900	39.000	D2
NO0099R sum_HCH	55.600	77.400	60.100	63.600	128.700	185.600	173.600	170.100	142.800	85.700	121.200	83.300	D2

Annex 9

Overview of sampling and analytical methods

This Annex gives an overview of the sampling methods used in the participating countries. The information given is mostly based on answered questionnaires issued by the CCC. Most countries have not reported this information.

Table 9.1: Techniques for sampling of precipitation and aerosols.

Country	Heavy metals in precipitation	Heavy metals in air/ air particles	POPs in precipitation	POPs in air
Czech Republic	Bulk	Filter-1pack		High vol.
Denmark	Bulk	Filter-3pack		
Finland	Bulk		Bulk	High vol.
France				
Germany	DE1,9: Wet-only DE2,4:Bulk	Machery/Nagel MN 85/90 (glassfiber) High Vol	Wet only	
Iceland	IS02: Wet-only IS90: Bulk	High vol.	Bulk (Steel funnel 1m^2/PUR foam)	PUR-foam 1000m^3/15days
Ireland	Bulk	Hg-monitor	Bulk	
Italy				
Latvia	Bulk			
Lithuania	Bulk	Low vol		
Netherlands				
Norway	Bulk	NO42: 20 l/h Whatman 40 fine fraction Hg: gold traps NO99: 10 l/min Gelman Zefluor teflon filter 2.5 μm / Nucleopore PC-membran 8 μm	Bulk Funnel and bottle of glass	NILU's High Vol. Sampler Gelman AE filter + 2 PUR foams 20m3/h NO42: 1000m3 NO99: 500m3
Poland	Bulk	2 m^3/day membrane filters Synpor-4, 0.85		
Portugal	Bulk			

Table 9.1 cont.

Country	Heavy metals in precipitation	Heavy metals in air / air particles	POPs in precipitation	POPs in air
Slovak Republic	1.3.94→ Wet-only (Bulk earlier)	Nitrocellulose filters 45mm, 15-60 m3/day (Earlier: Nitrocellulose filters 35mm, 12 m3/day)		
Sweden	Bulk	Hg: gold traps	bulk	High vol.
Switzerland		Glassfiber filters		
Turkey				
United Kingdom	Bulk			
Yugoslavia	Bulk			

Annex 10

Quality control

CCC has asked the participant to comment the accuracy and precision on their analysis, and this Annex contains information received on this inquiry.

Finland:

GF-AAS was used in the period 1989-1993, and for Cr and Fe in 1994. Usually 2-4 control samples were analysed three times each in a batch.

Element	Number of RSDs	Median of RSD, %	Number of samples	Median of rel. error, %
Cd	93	2.3	397	4.0
Cr	15	3.4	101	6.7
Cu	82	2.0	405	4.3
Fe	12	5.3	98	5.1
Mn	11	5.7	57	4.8
Ni	12	2.4	82	4.6
Pb	98	4.1	467	3.8
V	11	6.1	55	5.0
Zn	81	3.8	407	3.6

ICP-MS has been used since 1994. The following table shows the results of analysis of a certified standard reference material SLRS-3 (riverine water reference material for trace metals) measured in 1995.

Element	Measured values (µg/l)	RSD % (µg/l)	Certified value
As	0.75±0.02	2.6	0.72±0.05
Cd	0.014±0.003	21	0.013±0.002
Cr	0.27	15	0.30±0.044
Cu	1.48±004	2.6	0.35±0.07
Fe	106±5	4.7	100±2
Mn	3.9±0.1	2.3	3.9±0.3
Ni	0.74±003	3.5	0.83±0.08
Pb	0.070±004	6.1	0.068±0.007
V	0.32±01	3.7	0.30±0.02
Zn	1.17±05	4.5	1.04±0.09

In the analytical intercomparisons of the HELCOM-EMEP-AMAP-PARCOM in 1994 the error of all 24 results was smaller than 5.1%. Cd, Cr, Cu, Ni, Pb and Zn were included.

Germany:

DE2, DE4: Det. limits.

As	0.01 µg/l
Cd	0.01
Pb	0.1
Cu	0.1
Cr	0.01
Fe	1.0
Mn	0.1
Ni	0.01
Zn	1
V	0.01

Iceland:

Heavy metals:

Accuracy (HELCOM - EMEP - PARCOM -AMAP intercalibration samples)

Cr:	10-15%
Ni:	8-13%
Cu:	0-5%
Zn:	0-3%
As:	20-44%
Cd:	2-22%
Pb:	0-6%

Detection limits:	As, Cr, Cu, Zn:	0.1 µg/l
	Cd:	0.05 µg/l
	Ni, Pb:	0.5 µg/l

POPs:
ICES/IOC/OSPARCOM intercomparison program on the analysis of chlorobiphenyls in marine media (1991-1994)
IUPAC project 650/80/94 on the determination of toxicologically relevant chlorobiphenyls in two fish oils and an analyte solution in 1995 and 1996.

Detection limits for 1995 (for 1996 lower for most compounds):

HCHs:	0.5 - 0.6 ng
HCB:	0.1 - 0.2 ng
DDE:	0.5 - 0.7 ng
DDD:	0.8 - 1.3 ng
DDT:	1.0 - 1.5 ng
PCBs:	0.2 - 0.3 ng
Dieldrin:	2 - 4 ng
Chlordanes:	0.4 - 0.5 ng

Corresponding minimum concentrations in air using average air quantity per period:

HCHs:	0.5 - 0.6 pg/m^3	=	0.00055 ng/m^3
HCB:	0.1 - 0.2 pg/m^3	=	0.00015 ng/m^3
DDE:	0.5 - 0.7 pg/m^3	=	0.00060 ng/m^3
DDD:	0.8 - 1.3 pg/m^3	=	0.00105 ng/m^3
DDT:	1.0 - 1.5 pg/m^3	=	0.00125 ng/m^3
PCBs:	0.2 - 0.3 pg/m^3	=	0.00025 ng/m^3
Dieldrin:	2 - 4 pg/m^3	=	0.00300 ng/m^3
Chlordanes:	0.4 - 0.5 pg/m^3	=	0.00045 ng/m^3

Latvia:

	Precipitation	*Aerosols*
Analytical method:	GF-AAS	Zn,Cu(AAS);Pb,Cd(GF-AAS)
Analytical accuracy:	10-15%	15-20%
Analytical precision:	8-12%	10-15%
Detection limits (aerosols):	Zn - 0.5 µg/l	1 ng/l
	Cu - 0.2 µg/l	1 ng/l
	Cd - 0.01 µg/l	0.2 ng/l
	Pb - 0.1 µg/l	0.2 ng/l

Lithuania:

Analytical method:	AAS
Analytical accuracy:	<25%
Analytical precision:	< 15%
Detection limits (aerosols):	Pb - 0.15 ng/m^3
	Cd - 0.015 ng/m^3
	Zn - 0.15 ng/m^3

Norway:

Heavy metals
Analytical precision: 10% in general at 10 ng/l.
Short time precision (10 replicates - 10 minutes): ~2%.

Q.A. procedures:	Spex standards (traceable to NIST)
	Samples from different intercalibrations
Detection limits (precipitation):	Cr - 0.2 µg/l
	Co - 0.01 µg/l
	Ni - 0.2 µg/l
	Cu - 0.1 µg/l
	Zn - 0.1 µg/l
	As - 0.1 µg/l
	Cd - 0.005 µg/l
	Pb - 0.1 µg/l

Poland:

Analysis:	1992 - Voltammetry
	1993 - F-AAS or F-AES
From 1994 - ICP-AES:	
Analytical precision:	2-3% RSD
Detection limits:	Cu: 1 µg/l
	Zn: 3 µg/l
	Cd: 0.3 µg/l
	Pb: 3 µg/l
Q.A. procedures:	reagent standards
	filter blanks

Annex 11

List of data reports

Data Report October 1977-September 1978.
EMEP/CCC-Report 3/80 by J. Schaug, H. Dovland, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1980.

Data Report October 1978-September 1979.
EMEP/CCC-Report 4/81 by J.E. Skjelmoen, H. Dovland, J. Schaug.
Lillestrøm, Norwegian Institute for Air Research, 1981.

Data Report October 1979-September 1980.
EMEP/CCC-Report 5/84 by J.E. Skjelmoen, J. Schaug. Lillestrøm, Norwegian Institute for Air Research, 1984.

Data Report October 1980-September 1981.
EMEP/CCC-Report 6/84 by J.E. Skjelmoen, J. Schaug.
Lillestrøm, Norwegian Institute for Air Research, 1984.

Data Report October 1981-September 1982.
EMEP/CCC-Report 2/85 by K. Nodop, J.E. Skjelmoen, J. Schaug.
Lillestrøm, Norwegian Institute for Air Research, 1985.

Data Report October 1982-December 1982.
EMEP/CCC-Report 4/86 by J. Schaug, A. Harstad, T. Krognes, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1986.

Data Report January 1983-December 1983.
EMEP/CCC-Report 5/86 by J. Schaug, A. Harstad, T. Krognes,
J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1986.

Data Report January 1984-June 1984
EMEP/CCC-Report 1/87 by J. Schaug, J. Pacyna, A. Harstad, T. Krognes, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1987.

Data Report July 1984-December 1984
EMEP/CCC-Report 2/87 by J. Schaug, J. Pacyna, A. Harstad, T. Krognes, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1987.

Data Report January 1985-June 1985
EMEP/CCC-Report 5/87 by J. Pacyna, J. Schaug, A. Harstad, T. Krognes, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1987.

Data Report July 1985-December 1985
EMEP/CCC-Report 6/87 by J. Pacyna, J. Schaug, A. Harstad, T. Krognes, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1987.

Ozone measurements January-December 1985
EMEP/CCC-Report 3/89 by U. Feister, U. Pedersen.
Potsdam/Lillestrøm, Meteorological Service of the GDR/Norwegian Institute for Air Research, 1989.

European Precipitation Chemistry Atlas.
An Atlas of monthly and seasonal maps of precipitation amount, non-marine sulphate, nitrate, ammonium and hydrogen ion concentrations and depositions based on the EMEP precipitation network: October 1977 to September 1982.
EMEP/CCC-Report 5/88 by R.J. Barthelmie, T.D. Davies, G. Farmer, J. Schaug.
Norwich/Lillestrøm, Climatic Research Unit, University of East Anglia/ Norwegian Institute for Air Research, 1988.

Data Report 1986. Part 1: Annual summaries.
EMEP/CCC-Report 6/88 by J. Schaug, J.E. Skjelmoen, S.E. Walker, A. Harstad, K. Nodop, J. Pacyna
Lillestrøm, Norwegian Institute for Air Research, 1988.

Data Report 1986. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 7/88 by J. Schaug, J.E. Skjelmoen, S.E. Walker, A. Harstad, K. Nodop, J. Pacyna
Lillestrøm, Norwegian Institute for Air Research, 1988.

Ozone measurements January-December 1986.
EMEP/CCC-Report 8/90 by U. Feister, U. Pedersen, E. Schulz, S. Hechler.
Potsdam/Lillestrøm, Meteorological Service of the GDR/Norwegian Institute for Air Research, 1990.

Data Report 1987. Part 1: Annual summaries.
EMEP/CCC-report 1/89 by J. Schaug, J.E. Skjelmoen, S.-E. Walker, U. Pedersen, A. Harstad
Lillestrøm, Norwegian Institute for Air Research, 1989.

Data Report 1987. Part 2: Monthly and seasonal summaries. EMEP/CCC-Report 2/89 by J. Schaug, J.E. Skjelmoen, S.E. Walker, U. Pedersen, A. Harstad
Lillestrøm, Norwegian Institute for Air Research, 1989.

Data Report 1988. Part 1: Annual summaries.
EMEP/CCC-Report 4/90 by U. Pedersen, J. Schaug, J.E. Skjelmoen, J.E. Hanssen.
Lillestrøm, Norwegian Institute for Air Research, 1990.

European Precipitation Chemistry Atlas (Volume 2).
An Atlas of monthly and seasonal maps of precipitation amount, non-marine sulphate, nitrate, ammonium and hydrogen ion concentrations and depositions based on the EMEP precipitation network: October 1982 to December 1985.
EMEP/CCC-Report 6/90 by T.D. Davies, R.J. Barthelmie, M. Varley, S. Dorling, G. Farmer, J. Schaug.
Norwich/Lillestrøm, Climatic Research Unit, University of East Anglia/ Norwegian Institute for Air Research, 1990.

Data Report 1988. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 5/90 by J. Schaug, U. Pedersen, J.E. Skjelmoen, J.E. Hanssen.
Lillestrøm, Norwegian Institute for Air Research, 1990.

Data Report 1989. Part 1: Annual summaries.
EMEP/CCC-Report 2/91 by J. Schaug, U. Pedersen, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1991.

Data Report 1989. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 3/91 by J. Schaug, U. Pedersen, J.E. Skjelmoen. Lillestrøm, Norwegian Institute for Air Research, 1991.

Ozone Data Report 1988.
EMEP/CCC-Report 1/92 by U. Pedersen.
Lillestrøm, Norwegian Institute for Air Research, 1992.

Data Report 1990. Part 1: Annual summaries.
EMEP/CCC-Report 2/92 by U. Pedersen, J. Schaug, J.E. Skjelmoen.
Lillestrøm, Norwegian Institute for Air Research, 1992.

Data Report 1990. Part 2: Monthly and Seasonal Summaries.
EMEP/CCC-Report 3/92 by J. Schaug, U. Pedersen, J.E. Skjelmoen and I. Kvalvågnes.
Lillestrøm, Norwegian Institute for Air Research, 1992.

European Precipitation Chemistry Atlas (Volume 3). An Atlas of monthly and seasonal maps of precipitation amount, non-sea-salt sulphate, nitrate, ammonium and hydrogen ion concentrations and depositions based on the EMEP precipitation chemistry network: January 1986 to December 1989.
EMEP/CCC-Report 6/92 by T.D. Davies, S. Glynn, R.J. Barthelmie.
Norwich/Lillestrøm, Climate Research Unit, University of East Anglia, Norwegian Institute for Air Research, 1992.

Ozone Data Report 1989.
EMEP/CCC-Report 2/93 by U. Pedersen and I. Kvalvågnes.
Lillestrøm, Norwegian Institute for Air Research, 1993.

Data Report 1991. Part 1: Annual summaries.
EMEP/CCC-Report 4/93 by J. Schaug, U. Pedersen, J.E. Skjelmoen and I. Kvalvågnes.
Lillestrøm, Norwegian Institute for Air Research, 1993.

Data Report 1991. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 5/93 by J. Schaug, U. Pedersen, J.E. Skjelmoen and I. Kvalvågnes.
Lillestrøm, Norwegian Institute for Air Research, 1993.

Data Report 1992. Part 1: Annual summaries.
EMEP/CCC-Report 4/94 by J. Schaug, U. Pedersen, J.E. Skjelmoen, K. Arnesen, A. Bartonova.
Lillestrøm. Norwegian Institute for Air Research, 1992.

Data Report 1992. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 5/94 by J. Schaug, U. Pedersen, J.E. Skjelmoen and K. Arnesen.
Lillestrøm, Norwegian Institute for Air Research, 1993.

VOC measurements August 1992-June 1993.
EMEP/CCC-Report 6/93 by S. Solberg, N. Schmidbauer, C. Dye, U. Pedersen and J. Schaug.
Lillestrøm, Norwegian Institute for Air Research, 1993.

VOC measurements 1993.
EMEP/CCC-Report 3/94 by S. Solberg, C. Dye and N. Schmidbauer.
Lillestrøm, Norwegian Institute for Air Research, 1994.

Ozone Measurements 1990-1992.
EMEP/CCC-Report 4/95 by A.-G. Hjellbrekke.
Kjeller, Norwegian Institute for Air Research, 1995.

Data Report 1993. Part 1: Annual summaries.
EMEP/CCC-Report 7/95 by A.-G. Hjellbrekke, G. Lövblad, K. Sjöberg, J. Schaug, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1995.

Data Report 1993. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 8/95 by G. Lövblad, A.-G. Hjellbrekke, K. Sjöberg, J. Schaug, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1995.

Ozone Measurements 1993-1994.
EMEP/CCC-Report 1/96 by A.G. Hjellbrekke.
Kjeller, Norwegian Institute for Air Research, 1996.

Data Report 1994. Part 1: Annual summaries.
EMEP/CCC-Report 4/96 by A.-G. Hjellbrekke, J. Schaug, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1996.

Data Report 1994. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 5/96 by A.-G. Hjellbrekke, J. Schaug, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1996.

VOC measurements 1994–1995.
EMEP/CCC-Report 6/96 by S. Solberg, C. Dye and N. Schmidbauer.
Lillestrøm, Norwegian Institute for Air Research, 1996.

Heavy metals and POPs within the ECE region.
EMEP/CCC-Report 8/96 by T. Berg, A.-G. Hjellbrekke, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1996.

Ozone Measurements 1995.
EMEP/CCC-Report 3/97 by A.-G. Hjellbrekke.
Kjeller, Norwegian Institute for Air Research, 1997.

Data Report 1995. Part 1: Annual summaries.
EMEP/CCC-Report 4/97 by A.-G. Hjellbrekke, J. Schaug, J.E. Hanssen, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1997.

Data Report 1995. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 5/97 by A.-G. Hjellbrekke, J. Schaug, J.E. Hanssen, J.E. Skjelmoen.
Kjeller, Norwegian Institute for Air Research, 1997.

VOC measurements 1996.
EMEP/CCC-Report 7/97 by S. Solberg, C. Dye and N. Schmidbauer.
Lillestrøm, Norwegian Institute for Air Research, 1997.

Heavy metals and POPs within the ECE region. Additional data.
EMEP/CCC-Report 9/97 by T. Berg, A.-G. Hjellbrekke, N. Ritter.
Kjeller, Norwegian Institute for Air Research, 1996.

Data Report 1996. Part 1: Annual summaries.
EMEP/CCC-Report 1/98 by A.-G. Hjellbrekke and J.E. Hanssen.
Kjeller, Norwegian Institute for Air Research, 1998.

Data Report 1996. Part 2: Monthly and seasonal summaries.
EMEP/CCC-Report 2/98 by A.-G. Hjellbrekke and J.E. Hanssen.
Kjeller, Norwegian Institute for Air Research, 1998.

Ozone Measurements 1996.
EMEP/CCC-Report 3/98 by A.-G. Hjellbrekke.
Kjeller, Norwegian Institute for Air Research, 1998.

VOC measurements 1997.
EMEP/CCC-Report 4/98 by S. Solberg, C. Dye and N. Schmidbauer.
Kjeller, Norwegian Institute for Air Research, 1998.