

Annex C

SOME INFORMATION ON MEASUREMENT SITES

The Annex contains some information on measurement sites used for the analysis of the comparison of measurements with model results. This information is collected from CCC reports and web-site.

Table C.1. General information on sites measuring PAHs (BaP) u PCB (PCB-153)

Station code	Location				Surroundings or location, cities and cars	Land use	Participating in other programmes
	Latitude	Longitude	m a.s.l.	Distance from sea, km *			
CZ3	49.58	15.01	534	-	Location: The observatory is located in Czech-moravian Highlans in agricultural countryside outside of settlements, about 80 km from Prague (to the south-east).	Built-up area – 1% Forest coniferous – 31% Forest deciduous – 2%	
					Sites: Jihlava: population 50,000; 42 km southeast	Farmland, grass and pasture – 8%	
					T bor: population 36,500; 37 km sothwest	Farmland, cereals – 29%	
					Pelhrimov: population 17,000; 20 km southeast	Farmland, other crops – 28%	
					Vla im: population 12,500; 20 km northwest	Other – 1%	
					Humpolec: population 10,000; 20 km east		
					Cars: Only a small country lane leading to the station		
DE1	54.93	8.32	12	0.55	Surroundings: The measurements are done at two different lacations, westerland and Tinnun, about 3 km apart. Westerland is situated directly at the shore of the North Sea, dunes and little forest.	Built-up area - 25%; Forest, coniferous - 10%; Forest, deciduous - 5%	CAMP
					Cites: Westerland: approx. 10,000 inhabitants, 2 km to NW of Westerland.	Bog and heather --10%	
					Cars: There are approx. 17,000 cars registered on the island, in the months June-September there are 200,000 cars. Small path near the site with approx. 30 vehicles/day	Water surface - 40%; Sand/dunes - 10%	
DE9	54.43	12.73	1	0.6	Surroundings: The station is situated at the shore of the Baltic Sea (600 m north), meadows and some farming. One heating plant at 9 km distance, 10 kg S/month.	Built-up area -3%; Forest, coniferous -15%; Forest, deciduous -5%;	HELCOM
					Cites: Zingst: 3,224 inhabitants; Bath: 8,000 inhab., 6 km southwest of the station.	Grassland -42%; Farmland, grass and pasture -15%;	
					Cars: One minor road 50 m from the station and 2 roads 10 km from the site with approx. 5,000 cars/day.	Farmland, other crops -5%; Water surface – 15%	
FI96	67.97	24.01	566				AMAP
IE2	53.01	-6.4	420	19		Forest, coniferous -5%; Bog and heather -85%; Water surface – 10%	CAMP
IS91	63.45	-20.25	118	0.5			CAMP
LT15	55.39	21.01	5				HELCOM
NO42	78.90	11.88	474	2	Surroundings: the site is located in an undisturbed Arctic environment. Zeppelin Mountain is an excellent site for atmospheric monitoring, with minimal contamination from the local settlement due to its location the inversion layer.	Gravel and stone – 100%.	AMAP, CAMP
SE2	57.41	11.93	10	0.65		Built-up area -2%; Forest, coniferous -30%; Forest, deciduous -10%; Grassland – 28%; Farmland, grass and pasture – 10%; Farmland, cereals – 10%; Water surface – 10%	AMAP, CAMP, HELCOM
SE12	58.8	17.38	20				
SE14	57.39	11.89	10	5			AMAP, CAMP, HELCOM

* - cited from: Comprehensive Atmospheric Monitoring Programme (CAMP). Observations from N.E. Atlantic Coastal Stations in 2000, OSPAR Commission, 2002

Table C.2. Measurement programmes

Station code	Air			Precipitation (or flux)			Remarks
	Substances	Sampling period	Sampler	Substances	Sampling period	Sampler	
CZ3	PAHs PCBs	1 d a week	High Vol - GRASEBY	Measurements are not submitted to the EMEP program			
DE1				PAHs PCBs	Monthly	Wet only	Measurements of air samples are not carried out in the framework of the EMEP program
DE9				PAHs PCBs	Monthly	Wet only	
FI96	PAHs PCBs	1 week in month	High Vol	PAHs PCBs	1 week in month	Bulk +dray deposition	The results on deposition fluxes in ng/m ² /day are presented
IE2				PCBs	Monthly	Bulk	Measurements of air samples are not carried out
IS91	PCBs	Biweekly	High Vol	PCBs	Biweekly	Bulk	
LT15	B[a]P	Monthly		B[a]P	Monthly	Bulk	B[a]P is not included to the measurement program according to the station's website
NO42	PAHs PCBs	2 d a week	High Vol				Sampling frequency is 2 samples per week as indicated on the station's website.
SE2	PAHs PCBs	Weekly	High Vol	PAHs PCBs	1 week in month	Bulk	The results on deposition fluxes in ng/m ² /day are presented
SE12	PAHs PCBs	1 week in month	High Vol	PAHs PCBs	1 week in month	Bulk	The results on deposition fluxes in ng/m ² /day are presented
SE14	PAHs PCBs	Weekly	High Vol	PAHs PCBs	1 week in month	Bulk	The results on deposition fluxes in ng/m ² /day are presented

Table C.3. Data on reliability of measurement data on air concentrations

Station code	Data for sites	The analysis of air samples						
		1997	1998	1999	2000	2001	2002	2003
PCB-153								
FI96	The number of samples analyzed	12**	12**	12	12	12	12	12
	Below the detection limit	0	0	0	0	0	1	*
IS91	The number of samples analyzed	24	23	24	24	25	25	24
	Below the detection limit	11	23	23	20	21	25	23
CZ3	The number of samples analyzed	51	-	51	50	-	52	53
	Below the detection limit	3	-	0	0		1	*
NO42	The number of samples analyzed	52	48	52	52	52	57	54
	Below the detection limit	0	0	0	0	0	9	*
SE2	The number of samples analyzed	12***	12***	12	12	48	—	
	Below the detection limit	0	0	1	0	0		
SE12	The number of samples analyzed	12	12	12	12	12	12	12
	Below the detection limit	0	1	1	0	0	0	*
SE14	The number of samples analyzed	—					50	50
	Below the detection limit						0	*
B[a]P								
FI96	The number of samples analyzed	12	12	12	12	12	12	12
	Below the detection limit	3	2	1	2	0	0	*
LT15	The number of samples analyzed	0	0	0	12	12	12	
	Below the detection limit				0	0	0	
CZ3	The number of samples analyzed	51	52	51	50	52	53	53
	Below the detection limit	10	16	0	0	1	1	*
NO42	The number of samples analyzed	51	38	50	54	52	58	54
	Below the detection limit	27	22	1	1	0	34	
SE2	The number of samples analyzed	12	12	12	12	48	—	
	Below the detection limit	0	1	1	4	0		
SE12	The number of samples analyzed	0	0		12	12	12	12
	Below the detection limit				5	1	3	*
SE14	The number of samples analyzed	0	0	0	0	0	51	51
	Below the detection limit	—					0	*

Table C.4. Data on reliability of measurement data on concentrations in precipitation and deposition fluxes

Station code	Data for sites	The analysis of samples (concentrations on precipitation and deposition fluxes)						
		1997	1998	1999	2000	2001	2002	2003
PCB-153								
FI96	The number of samples analyzed	12**	12**	12***	12	10	12	12
	Below the detection limit	1	0	*	0	0	0	*
IS91	The number of samples analyzed	24	24	23	24	25	25	24
	Below the detection limit	14	22	11	17	17	22	*
DE1	The number of samples analyzed	12	12			12	12	12
	Below the detection limit	4	9			0	0	*
DE9	The number of samples analyzed	12	12			12	11	12
	Below the detection limit	7	7			0	0	*
IE2	The number of samples analyzed	12	12***	12***	10	8	10	12
	Below the detection limit	12	*	*	10	8	3	*
SE2	The number of samples analyzed	12**	12**			12	—	
	Below the detection limit	0	0			0		
SE12	The number of samples analyzed		—		12	11	12	12
	Below the detection limit				0	1	1	*
SE14	The number of samples analyzed		—				12	12
	Below the detection limit						0	*
BaP								
FI96	The number of samples analyzed	12**	12**	12***	12	12	12	12
	Below the detection limit	7	7	*	7	2	5	*
DE1	The number of samples analyzed	12	11		12	12	12	12
	Below the detection limit	1	2		3	1	0	*
DE9	The number of samples analyzed	12	12			12	11	12
	Below the detection limit	2	0			3	0	*
LT15	The number of samples analyzed		11		12	11		
	Below the detection limit		0		0	0		
SE2	The number of samples analyzed	12**	11**		12	12	—	
	Below the detection limit	1	0		3	0		
SE12	The number of samples analyzed		—		12	11	12	12
	Below the detection limit				5	1	6	*
SE14	The number of samples analyzed		—				12	12
	Below the detection limit						0	*

*- without quality control

** - [Brorström-Lundén *et al.*, 2000]

*** - data from the EMEP database

Table C.5. Availability of data for EMEP sites

Availability of information	CZ3	DE1	DE9	FI96	IE2	IS91	LT15	NO42	SE2	SE12	SE14
General information											
Latitude	+	+	+	+	+	+	+	+	+	+	+
Longitude	+	+	+	+	+	+	+	+	+	+	+
Height over sea level	+	+	+	+	+	+	+	+	+	+	+
Distance from sea		+	+	-	+	+	-	+	+	-	+
Main wind direction	+	+	+	-	+	-	-	+	+	-	+
Surroundings	+	+	+	-	-	-	-	+	-	-	-
Land use	+	+	+	-	+	-	-	+	+	-	-
Air sampling	+		-	+		+	+	+	+	+	+
Sampling frequency	+		-	+		+	+	+	+	+	+
Sampler description	-		-	-		-	-	-	-	-	-
Sampling height	+			-		-	-	-	+	+	+
Air flow	+			-		-	-	+	+	+	+
Air volume	+			-		+	-	-	-	-	-
Field blank	+			+		-	-	+	+	+	+
Precipitation sampling	-	+	+	+	+	+		-	-	+	+
Sampling frequency		+	+	+	+	+				+	+
Sampler description		+*	+*	+**	-	-				+**	+**
Sampling height		+*	+*	+**	-	-				+**	+**
Sample volume		-	-	-	-	-				-	-
Field blank		-	-	-	-	-				-	-
The analysis of samples											
Participating in the intercalibration	+	+	+	-	+	+	+	+	-	-	-

+* - Data from Canadian-German project “Quality of measuring data on atmospheric inputs of POPs” [Gusev *et al.*, 2005b]

+** - [Brorström-Lundén *et al.*, 2000]