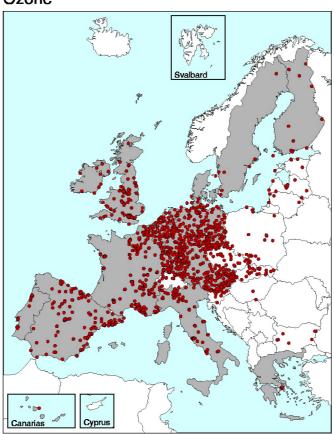




EUROPEAN EXCHANGE OF AIR QUALITY MONITORING META INFORMATION IN 2000

European Environment Agency European Topic Centre on Air and Climate Change

Ozone



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H. Looyschelder, P. van Hooydonk, W. Mol, F. de Leeuw (ETC/ACC)



EUROPEAN TOPIC CENTRE ON AIR AND CLIMATE CHANGE



RIVM UBA-B UBA-V IIASA NILU AEAT AUTh CHMI DNMI NTUA ÖKO SHMU TNO

Executive Summary

According to Articles 4.5 and 5.6 of Decision 97/101/EC, the Commission shall prepare each year a technical report on meta information and air quality data exchanged, and make the information available to Member States in a database. The reports on meta information and on air quality data transmitted have been combined into this one technical report. As agreed between the Commission and the European Environment Agency (EEA), the European Topic Centre on Air and Climate Change (ETC/ACC) prepared the report and loaded the information into the AIRBASE database. Access to this information is provided via the ETC/ACC website http://etc-acc.eionet.eu.int/databases/airbase.html.

The results of the 2001 reporting cycle presented in this report cover data for 2000¹. This report contains information from EU Member States; as well as from EFTA countries, Switzerland and Accession Countries, which have agreed to follow the data exchange procedures.

Nearly all countries, which updated their meta information, used the Air Quality Data Exchange Module (DEM) made available for this purpose by the ETC/ACC. Although some countries have not provided recent meta information on their networks and stations, the available meta information for most countries is up-to-date. Improvements are still needed in the quality of the descriptions of station environments.

26 countries in total including 14 EU Member States provided 2000 air quality data. Almost 9000 time series were transmitted, covering mainly SO₂, NO₂, NO, O₃, Total Suspended Particulates, CO, Black Smoke, PM10 and Strong Acidity

Most countries provided 2000 data only. Several countries provided data from previous years, which were loaded into AIRBASE as time allowed.

In order to help other Member States to identify and fill historical data gaps, as requested in Article 5.4 of the Decision, an overview of the AIRBASE contents is included in this report.

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¹ Data which arrived later than 1 October 2001 and which could be processed until June 2002 is presented in this report as well. The overview gives the situation of June 2002.

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1. Introduction

EU countries have a long tradition for exchanging air quality data. The reciprocal exchange between countries and the Commission is based on a series of Council Decisions. The latest Decision (97/101/EC) 'establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States' (in short: 'EoI') was adopted by the European Council in 1997. Recently the annexes to the Decision have been amended in order to adapt the list of pollutants covered as well as requirements on additional information, validation and aggregation (Decision 2001/752/EC). For the year 2000, data submission still followed the original Annexes of the Decision.

According to Articles 4.5 and Article 5.6 of Decision 97/101/EC, the Commission shall prepare each year a technical report on meta information and air quality data exchanged, and make the information available to Member States in a database. According to Article 1.2 of Decision 97/101/EC, the Commission will call upon the European Environment Agency (EEA) with regard to the operation and practical implementation of the information system. The European Topic Centre on Air and Climate Change (ETC-ACC), under contract to EEA, is managing the database system AIRBASE. The information submitted under EoI is stored in AIRBASE and is made publicly available on the Internet via the ETC-ACC Website:

http://etc-acc.eionet.eu.int/databases/airbase.html

The technical reports on meta information transmitted and the technical report on air quality data transmitted have been combined into this report. As agreed between the Commission and the European Environment Agency (EEA), the European Topic Centre on Air and Climate Change (ETC-ACC) prepared the report and loaded the information into the AIRBASE database. This report contains information on EU Member States as well as from other European countries, which have agreed to follow the data exchange procedures.

2. Meta Information On Networks, Stations And Measurement Configurations

Decision 97/101/EC requests the Member States to transmit meta information on networks, stations and measurement configurations according to Annex II of the Decision. Also the non-EU-Member States, which are member of the EEA, are asked to deliver data in the framework of the EuroAirnet programme. A special software tool for collecting, managing and exchanging the requested meta information (Air Quality Date Exchange Module, fourth version; DEMv4) was made available to all data suppliers by ETC-ACC.

Table 1 summarises all meta information, which is available in AIRBASE. It concerns only the networks and stations which has delivered raw data. Stations, which only delivered statistics, are not considered. It concerns both the meta information, which comes from the APIS and GIRAFE databases (1993/1994), and the meta information reported by the DEM from 1997 (the first year of the DEM) until June 2002.

Country	First year of AQ data reporting	Last year of AQ data reporting	Nr of networks	Nr of stations ^{1,2}
EU15				
Austria	1993	2000	1	197
Belgium	1975	2000	5	284
Denmark	1976	2000	4	31
Finland	1990	2000	7	33
France	1968	2001	44	762
Germany	1976	2000	18	674
Greece	1983	2000	4	14
Ireland	1973	2000	55	16
Italy	1976	2000	62	266
Luxembourg ³	1976	1993	3	5
Netherlands	1976	2000	2	89
Portugal	1986	2000	12	48
Spain	1986	2000	41	186
Sweden	1993	2000	3	30
United Kingdom	1969	2000	10	430
other				
Iceland ³	1993	1994	1	3
Norway	1994	2001	5	20
Switzerland	1992	2000	13	35
Liechtenstein				
Albania				
Bosnia Herzog.	Note 4			
Bulgaria	1998	2000	1	52
Czech republic	1992	2000	1	58
Estonia	1997	2000	3	6
FYROM	1997	2000	3	27
Hungary	1997	2000	3	13
Latvia	1997	2000	2	14
Lithuania	1997	2000	2	7
Poland	1997	2000	1	52
Romania	Note 4			
Slovak republic	1995	2000	1	40
Slovenia Note 1: This number of	1997	2000	1	5

Note 1: This number of stations only includes all stations for which AQ-raw-data (exclusive statistics) are available in AIRBASE. Thus, it includes stations that were operated in the past but not necessarily at present. Note 2: AirBase contains a considerable number of stations for which no AQ-data is archived.

Airbase contains also information from the APIS and GIRAFE databases (before 1997, the first year that the DEM is used to

Table 1: Summary of periods and number of stations for which AQ- data are available.

Note 3: deliver the data); Luxembourg and Iceland has delivered data until 1993 and 1994.

Note 4: Bosnia Herzogawina and Romania has delivered only statistics.

3. Meta Information On Air Quality Data

26 Countries in total including 14 Member States provided air quality data for the reporting year 2000, most of them using the DEM. Some countries provided (part of) their data in separate files. All delivered data for the reporting year 2000 has been successfully loaded in AirBase.

About 9000 (8810 to be exactly) time series were transmitted, covering mainly SO₂, NO₂, NO, O₃, Total Suspended Particulates, CO, Black Smoke, PM10 and Strong Acidity.

Most countries provided 2000 data only. Upon request of the ETC/ACC, several countries provided data from previous years, which were loaded into AIRBASE as time allowed. A limited number of countries provided corrections on data submitted in earlier years; for all replacements, a confirmation by the data supplier was requested.

According to the EoI Decision the Member States are responsible for the validation of the data. The ETC/ACC is not responsible for the quality of the data. Nevertheless we noted that occasionally questionable data are found. The ETC/ACC will pay more attention on the detection and correction of these outliers.

This report presents an overview of available information by June 2002. In due course, a further processing of data that was transmitted at a later stage has been taken place. For the most recent overview of progress in processing the data, the reader is referred to the AIRBASE web site:

http://etc-acc.eionet.eu.int/databases/airbase.html

Table 2 presents the number of stations per station type and per pollutant for which countries transmitted 2000 air quality data.

Map 1a and 1b show the location of the stations for which 2000 air quality data was reported and uploaded to AIRBASE.

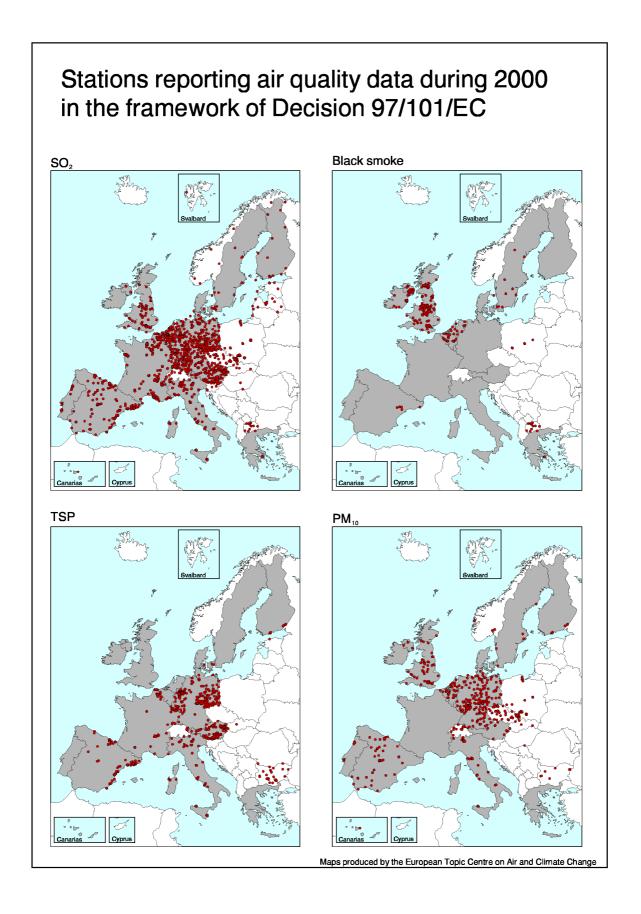
Table 3a and 3b separately give the number of stations for which hourly or daily 2000 data are loaded into AIRBASE. All stations with data are taken into account. So, no criteria of data coverage are considered.

Whereas table 2 gives the number of stations regardless of what kind of data (hourly or daily) was transmitted, table 3, in more detail, distinguishes between Member States as well as hourly (table 3a) and daily (table 3b) data. Thus, it is possible that the sum of stations in table 3a and b for a particular component is higher than the total number given in table 2.

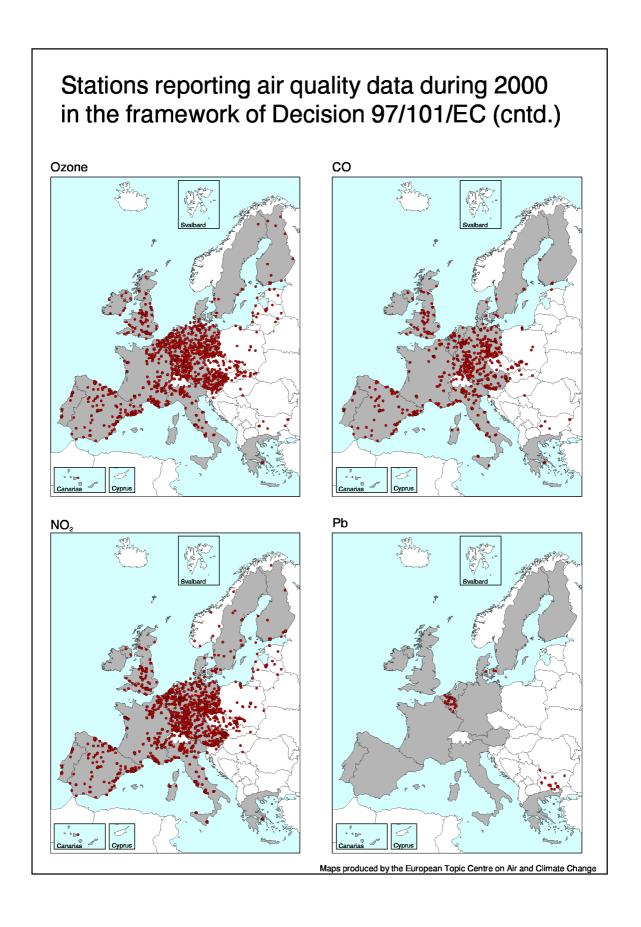
European Union									
type	Black	CO	NO_2	O_3	Pb	PM10	SO_2	TSP Be	enzene
	smoke								
reporting countries	7	14	14	13	2	10	14	7	3
(sub)urban (background)	237	302	602	556	12	174	571	194	5
(sub)urban (traffic/industrial)	22	386	503	235	25	155	457	195	18
(sub)urban (unknown)	2	6	16	8	0	6	32	7	0
rural	13	56	303	343	7	45	348	113	1
unknown	4	62	149	109	0	31	126	59	0
total number of stations	278	812	1573	1251	44	411	1534	568	24
Other countries									
type	Black	CO	NO_2	O_3	Pb	PM10	SO_2	TSP Be	enzene
	smoke								
reporting countries	2	7	10	10	1	7	11	3	0
(sub)urban (background)	22	40	85	66	23	70	89	37	0
(sub)urban (traffic/industrial)	12	21	37	29	0	24	39	1	0
(sub)urban (unknown)	0	0	0	0	0	0	0	0	0
rural	0	7	50	50	0	27	41	0	0
total number of stations	34	68	172	145	23	121	169	38	0
All countries									
	Black	CO	NO_2	O_3	Pb	PM10	SO_2	TSP Bo	enzene
type	smoke		1102	O ₃	10	1 10110	302	131 D	JIIZCIIC
total number of stations	312	880	1745	1396	67	532	1703	606	24

Table 2. Number of stations (disaggregated per station type) per pollutant for which countries transmitted 2000 AQ data (Status June 2002)

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Map 1a: Location of stations for which 2000 air quality data was reported and uploaded in AIRBASE.



Map 1b: Location of stations for which 2000 air quality data was reported and uploaded in AIRBASE.

H2SO4	CH4	HC1	PAN	T-VOC	NM-VOC	CH3	C6H5-	H2S	TSP	NH3	XON	NO	Benzene	03	СО	PM10	NO2	SO2	
									11 9			14 6		11 3	61	3	14 6	15 3	Austria
												41		31	8		42	66	Belgium
3		1						29		9				7	6				Bulgaria
											57			35	26		57	56	Czech Republic
												8			4		8		Denmark
											4			5	1		4		Estonia
											15			13	5	8	16	9	Finland
														34 8	89		42 6		France
																			F.Y.R.O. M.
									21 9			47 5		38 2	32 0	9	47 3	44 6	Germany
												10		9	8		10	9	Greece
											1	1		2	1	1	1	1	Hungary
														6	1		2	2	Ireland
	18		4	6		7	0	6	60	2	$\begin{matrix} 10 \\ 0 \end{matrix}$	88	19	65	10 2	31	12 6	95	Italy
														13			12	12	Latvia
														3					Lithuania
										9		45		38	21	20	45	38	Netherland s
											2					4	2	1	Norway
											29			22	18		30		Poland
												29		23	23	10	29	25	Portugal
									2		8			23	5	5	8	8	Slovak Republic
											2			5			2	3	Slovenia
	5			12					74			13 9		14 1	10 0	50	14 3	14 1	Spain
											4			8	5	7	7	5	Sweden
					3						26	26		30	11	1	29	15	Switzerlan d
											87			74	65	55	87	67	United Kingdom
3	23	1	4	18	3	7	0	35	474	20	335	1008	19	1396	088	394	1705	1152	All Countries

Table 3-a Number of stations for which hourly 2000 data were loaded in AIRBASE.

Strong	Black smoke	TSP	As	Mn	Cr	Ni	Cd	Hg	SO4	NOX	NO	Benzene	03	СО	Pb	PM10	NO2	SO2	
																5			Austria
	26		26			31	28	1				1			41	22		99	Belgium
		35													23	7			Bulgaria
																56			Czech Republic
		3	3	3	3	3	3								3			3	Denmark
		1																5	Estonia
		10														1		4	Finland
		83																46 4	France
	27																	23	F.Y.R.O. M.
																			Germany
	5																		Greece
																	1	1	Hungary
	35																		Ireland
																			Italy
																	2	2	Latvia
																	1	1	Lithuania
	15											4							Netherland s
									7								6	7	Norway
	7									9						28	47	34	Poland
																			Portugal
																			Romania
																			Slovakia
	4	74									13 9		14 1	10		50	14 3	14 1	Spain
	10								4								13	7	Sweden
																19			Switzerlan d
18	18 3																		United Kingdom
183	312	206	29	3	3	34	31	1	11	9	139	5	141	100	67	188	213	758	All Countries

activity	Radio-	aerosols
3		
J	,	

Total ammonium (NH3+NH4)	Total nitrate (HNO3+NO 3)	CH4	T-VOC	C6H5-CH3	acidity
				4	
7	7				
			ļ		
		5	12		
					3
7	7	5	12	4	

Table 3-b Number of stations for which daily 2000 data were loaded in AIRBASE.

4. Overview Of Airbase Contents

The reciprocal exchange of air quality information in the European Union has a history of more than 25 year starting with the Decision 75/441/EEC. In the most recent Decision 97/101/EC, EU Member States are requested to transmit, as far as possible, data for those stations, which took part in the exchange established by Decision 82/459/EC (article 5.4). Long-term time series are indispensable in the assessment of air quality changes resulting from abatement measures or other processes.

Figure 1 presents the total number of time series (main pollutants) transmitted for Europe in the period 1968-1999, while Figure 2 shows the relative contribution of all pollutants to the total for the same period.

The number of time series exchanged in the period 1990-1995 dropped considerably compared to 1988 - 1989. The exchange was voluntary in this period (no Decision was in force). We try to get this period more complete by asking the countries to submit also historical data. 1996 and especially 1997 shows a sharp rise in the number of series exchanged. From 1997 onward, the exchange is obligatory again in the framework of Decision 97/101/EC; moreover, the exchange now includes non-EU countries in the framework of EEA/EuroAirnet. The number of series exchanged in 2000 stabilised at about 8810.

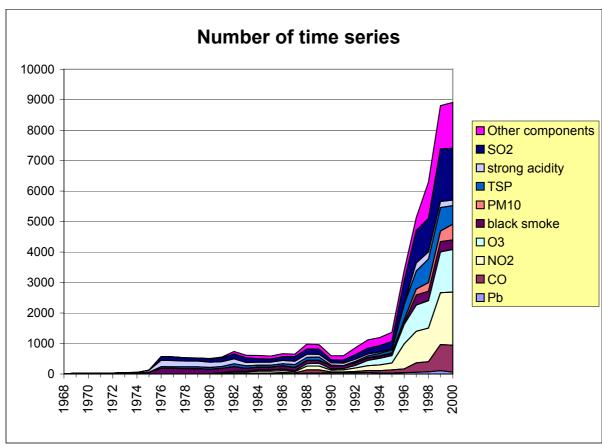


Figure 1. Number of time series transmitted and included in AIRBASE for main pollutants, 1968-2000. Situation per June 2002. The "other components" are: Benzene, H₂S, HC, NO, NH₃, NO_x, Tot VOC, NM-VOC, Arsenic, Nickel, Cadmium, SO₄-part, Zinc, Copper, Mercury, Chromium, Manganese, Toluene, Benzo(a)Pyrene, Peroxyacetyl nitrate, Wet sulphur deposition, HCl, Methane, Wet deposition, HC C₂-C₆ (excl. AROM & Chlorinated hydrocarbons), H₂SO₄ aerosols, Total Nitrate, Total Ammonium, Radioactivity and pH.

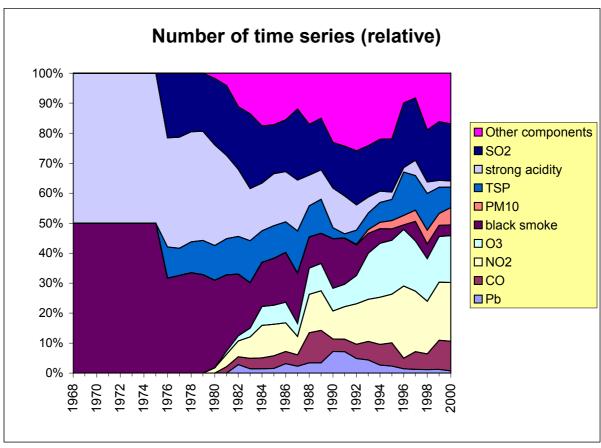


Figure 2. Relative number of time series transmitted and included in AIRBASE for main pollutants, 1968-2000. Situation per June 2002.

Tables 4- 42 present a historical overview of the number of time series transmitted per country per pollutant.

The components are: SO₂, Strong Acidity, TSP, PM₁₀, Black Smoke, Ozone, NO₂, CO, Pb. The "other" components are: Benzene, H₂S, HC, NO, NH₃, NO_x, T-VOC, NM-VOC, Arsenic, Nickel, Cadmium, SO4part, Zinc, Copper, Mercury, Chromium, Manganese, Toluene, Benzo(a)Pyrene, Peroxyacetyl nitrate, Wet sulphur deposition, HCl, Methane, (Wet deposition), HC C₂-C₆ (excl. AROM & CHLH), H₂SO₄ aerosols (=SO₄ part.), Total Nitrate, Total Ammonium, Radioactivity and pH.

5. Conclusions

26 Countries in total including 14 Member States provided air quality data for the reporting year 2000. All delivered data for the reporting year 2000 has been successfully loaded in AIRBASE.

About 9000 (8810 to be exact) time series were transmitted, covering mainly SO₂, NO₂, NO, O₃, Total Suspended Particulates, CO, Black Smoke, PM₁₀ and Strong Acidity.

The well-established data flow using the DEM allows the ETC/ACC to handle growing number of time series. The number of stations reported in the EU is stabilising but increases in other countries. Still, the majority of stations is located in EU15. The historical overview of the database contents still shows that there are considerable data gaps in the recent period

1989-1998. These gaps are a serious restriction for the evaluation of representative trends in air quality at the EU level.

In this overview all stations with data are counted. In the future ETC/ACC will take also data coverage into account.

According to the EoI Decision the Member States are responsible for validation of their data. Nevertheless ETC/ACC noted that occasionally questionable data are delivered. ETC/ACC will take more attention to detection and correction of these outliers.

Total	SK	SI	PL	M X	LV	LT	S	Н	EE	CZ	SH	BG	SE	PT	NL	LU	П	m	GR	GB	FR	Ξ	ES	R	DE	BE	AT	Country
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	28	0	0	0	0	0	0	6	58	0	0	1976
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	27	0	0	0	0	0	0	6	55	0	0	1977
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	24	0	0	0	0	0	0	6	42	0	0	1978
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	17	0	0	0	0	0	0	6	47	0	0	1979
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0	16	0	0	0	0	0	0	6	57	0	0	1980
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	16	0	0	0	2	0	0	5	73	0	0	1981
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	14	0	0	0	19	0	0	16	73	0	0	1982
153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	15	0	3	0	19	0	0	12	72	0	0	1983
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	7	0	5	0	21	0	0	12	32	0	0	1984
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	8	0	3	0	20	0	0	12	35	0	0	1985
115	0	0	0	0	0	0	0	0	0	0	0	0	0	6	31	0	ယ	0	3	0	19	0	18	12	23	0	0	1986
155	0	0	0	0	0	0	0	0	0	0	0	0	0	7	21	0	2	0	3	0	19	0	17	8	78	0	0	1987
167	0	0	0	0	0	0	0	0	0	0	0	0	0	5	21	0	ပ	0	3	0	19	0	17	7	92	0	0	1988
165	0	0	0	0	0	0	0	0	0	0	0	0	0	4	21	0	2	0	3	0	20	0	15	7	93	0	0	1989
91	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	0	0	0	3	0	6	2	15	0	0	42	0	1990
100	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	0	0	0	3	0	0	2	15	3	0	54	0	1991
156	0	0	0	0	0	0	0	0	0	21	27	0	0	3	20	0	0	0	3	0	0	2	13	3	5	59	0	1992
192	0	0	0	0	0	0	_	0	0	34	28	0	6	0	19	0	0	0	3	19	0	6	14	2	0	60	0	1993
207	0	0	0	0	0	0	2	0	0	55	24	0	6	0	13	0	0	0	3	25	0	6	0	2	0	59	12	1994
242	8	0	0	0	0	0	0	0	0	56	27	0	0	0	13	0	0	0	3	28	0	5	12	2	0	61	27	1995
736	8	0	0	0	0	0	0	0	0	57	28	0	0	0	13	0	0	0	0	42	0	7	10	2	481	61	27	1996
1067	31	3	13	24	2	1	0	12	4	56	26	0	9	17	39	0	0	0	9	64	0	9	99	4	447	61	137	1997
1093	9	3	13	23	2	3	0	_	6	56	26	50	11	18	39	0	0	0	0	65	0	16	107	4	435	61	145	1998
1725	9	0	26	15	7	ယ	0	2	6	58	22	49	11	22	37	0	128	0	7	64	475	14	151	4	406	60	149	1999
1695	8	ပ	34	23	14	_	0	2	5	56	15	0	12	25	38	0	95	2	9	67	464	13	141	3	446	66	153	2000

Table 4: Historical overview AIRBASE, Number of time series for Sulphur Dioxide. Situation per June 2002.

Total	PT	LU	m	GB	FR	PK	BE	Country
1	0	0	0	0	1	0	0	1968
16	0	0	0	15	1	0	0	1969
17	0	0	0	16	1	0	0	1970
17	0	0	0	16	1	0	0	1971
17	0	0	0	16	1	0	0	1972
24	0	0	4	18	2	0	0	1973
27	0	0	4	18	5	0	0	1974
63	0	0	4	18	5	0	36	1975
209	0	5	7	82	73	6	36	1976
208	0	5	7	83	70	6	37	1977
195	0	5	7	80	58	6	39	1978
192	0	5	7	76	59	6	39	1979
171	0	5	6	70	46	6	38	1980
154	0	5	6	67	38	0	38	1981
165	0	5	9	70	44	0	37	1982
107	0	4	8	22	39	0	34	1983
97	0	0	8	23	39	0	27	1984
102	0	5	8	23	32	0	34	1985
112	6	5	8	23	36	0	34	1986
111	5	5	8	23	36	0	34	1987
101	0	5	8	19	36	0	33	1988
94	3	3	7	18	30	0	33	1989
79	3	3	6	17	1	0	49	1990
76	2	3	6	16	0	0	49	1991
73	0	3	6	15	0	0	49	1992
59	0	1	6	14	0	0	38	1993
45	0	0	5	14	0	0	26	1994
34	0	0	5	13	0	0	16	1995
51	0	0	5	12	0	0	34	1996
260	0	0	4	210	0	0	46	1997
240	0	0	0	224	0	0	16	1998
201	0	0	0	201	0	0	0	1999
183	0	0	0	183	0		0	2000

Table 5: Historical overview AIRBASE, Number of time series for Strong Acidity. Situation per June 2002.

Total	SK	H	EE	CZ	유	BG	SE	PT	П	GR	Ŧ	Ξ	ES	못	DE	AT	Country
60	0	0	0		0	0	0	0	16	0	0	0	0	6	38	0	1976
51	0	0	0		0	0	0	0	10	0	0	0	0	6	35	0	1977
55	0	0	0		0	0	0	0	13	0	0	0	0	6	36	0	1978
60	0	0	0		0	0	0	0	12	0	0	0	0	6	42	0	1979
59	0	0	0		0	0	0	0	12	0	0	0	0	6	41	0	1980
67	0	0	0		0	0	0	0	8	0	0	0	0	5	54	0	1981
93	0	0	0		0	0	0	0	8	0	13	0	0	16	56	0	1982
86	0	0	0		0	0	0	0	7	0	11	0	0	12	56	0	1983
64	0	0	0		0	0	0	0	5	ω	12	0	0	12	32	0	1984
64	0	0	0		0	0	0	0	5	_	11	0	0	12	35	0	1985
68	0	0	0		0	0	0	5	3	_	5	0	10	12	32	0	1986
92	0	0	0		0	0	0	5	3	_	5	0	10	6	62	0	1987
102	0	0	0		0		0	4	4		5	0	10	7	71	0	1988
109	0	0	0		0	0	0	0	2	0	5	0	10	7	85	0	1989
22	0	0	0	0	0	0	0	1	0	0	_	0	9	0	11	0	1990
ω	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	1991
41	0	0	0	18	11	0	0	0	0	0	0	0	8	0	4	0	1992
62	0	0	0	33	11	0	5	0	0	0	0	2	9	2	0	0	1993
79	0	0	0	52	10	0	5	0	0	0	0	3	0	2	0	7	1994
96	7	0	0	50	10	0	0	0	0	0	0	2	9	2	0	16	1995
493	6	0	0	0	12	0	0	0	0	0	0	3	9	2	445	16	1996
593	26	8	_	0	2	0	0	0	0	0	0	5	77	4	359	111	1997
504	7	0	1	0	1	39	0	0	0		0	11	81	4	343	121	1998
771	8	0	1	0	0	37	0	0	77	0	121	10	97	4	294	122	1999
606	2	0	1	0	0	35	0	0	60	0	83	10	74	3	219	119	2000

Table 6: Historical overview AIRBASE, Number of time series for TSP. Situation per June 2002.

519	347	286	193	108	38	26	14	2	_	Total
5	3	0	0	0	0	0	0	0	0	SK
0	1	0	0	0	0	0	0	0	0	LT
28	19	o	8	0	0	0	0	0	0	PL
4	5	5	3	7	8	6	0	0	0	NO
1	0	0	0	0	0	0	0	0	0	HU
56	57	56	56	55	0	0	0	0	0	CZ
20	17	16	15	1	1	1	2	1	0	СН
7	0	4	0	0	0	0	0	0	0	BG
7	4	2	0	0	0	0	0	0	0	SE
10	8	2	1	0	0	0	0	0	0	PT
20	19	19	19	0	0	0	0	0	0	NL
31	34	0	0	0	0	0	0	0	0	IT
0	0	0	0	0	0	2	0	0	0	IS
0	4	0	0	0	0	0	0	0	0	IE
55	51	50	49	33	19	15	10	0	0	GB
9	8	8	3	2	2	2	2	1	1	FI
50	66	35	25	0	0	0	0	0	0	ES
199	35	63	0	0	0	0	0	0	0	DE
22	20	18	14	10	8	0	0	0	0	BE
8	0	0	0	0	0	0	0	0	0	TA
2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	Country

Table 7: Historical overview AIRBASE, Number of time series for **PM** ₁₀. Situation per June 2002.

Total	MK	PL	SE	PT	Z	Г	m	GR	GB	FR	ES	DK	BE	Country
_	0	0	0	0	0	0	0	0	0	1	0	0	0	1968
16	0	0	0	0	0	0	0	0	15	_	0	0	0	1969
17	0	0	0	0	0	0	0	0	16	1	0	0	0	1970
17	0	0	0	0	0	0	0	0	16	1	0	0	0	1971
17	0	0	0	0	0	0	0	0	16	1	0	0	0	1972
24	0	0	0	0	0	0	4	0	18	2	0	0	0	1973
27	0	0	0	0	0	0	4	0	18	5	0	0	0	1974
63	0	0	0	0	0	0	4	0	18	5	0	0	36	1975
182	0	0	0	0	0	5	7	0	83	45	0	6	36	1976
183	0	0	0	0	0	5	7	0	84	44	0	6	37	1977
178	0	0	0	0	0	5	7	0	81	40	0	6	39	1978
173	0	0	0	0	0	5	7	0	77	39	0	6	39	1979
149	0	0	0	0	0	5	6	0	71	23	0	6	38	1980
141	0	0	0	0	0	5	6	0	68	19	0	5	38	1981
151	0	0	0	0	0	5	9	0	71	25	0	4	37	1982
93	0	0	0	0	0	4	8	0	22	25	0	0	34	1983
90	0	0	0	0	0	4	8	2	23	25	0	0	28	1984
92	0	0	0	0	0	5	8	3	23	19	0	0	34	1985
111	0	0	0	6	0	5	8	3	23	26	6	0	34	1986
110	0	0	0	5	0	5	8	3	23	26	6	0	34	1987
103	0	0	0	2	0	5	8	4	19	26	6	0	33	1988
96	0	0	0	3	0	3	7	4	18	23	5	0	33	1989
99	0	0	0	3	8	3	6	3	17	5	5	0	49	1990
92	0	0	0	2	8	ပ	6	ပ	16	0	5	0	49	1991
88	0	0	0	0	8	ပ	6	ပ	15	0	4	0	49	1992
74	0	0	0	0	8	1	6	3	14	0	4	0	38	1993
58	0	0	0	0	8	0	5	3	14	0	0	0	28	1994
52	0	0	0	0	8	0	5	3	13	0	3	0	20	1995
49	0	0	0	0	8	0	5	0	12	0	2	0	22	1996
333	27	6	13	0	14	0	4	6	210	0	1	0	52	1997
309	26	6	11	0	14	0	0	0	224	0	1	0	27	1998
333	19	8	12	0	14	0	35	5	201	0	11	0	28	1999
312	27	7	10	0	15	0	35	5	183	0	4	0	26	2000

Table 8: Historical overview AIRBASE, Number of time series for Black Smoke. Situation per June 2002.

1396	1338	895	862	645	246	215		82	45	45	88	86	28	46	37	38	18	13	6	Total
23		15		0	0			0	0	0	0	0					0	0	0	SK
5		5		0	0			0	0	0	0	0	0	0	0	0	0	0	0	SI
22		19		0	0			0	0	0	0	0		0		0	0	0	0	PL
0		10		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	NO
13	5	1	1	0	0		0	0	0	0	0	0	0	0		0	0	0	0	LV
3		2		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	LT
2		1		0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	НΟ
5					0			0	0	0	0	0	0	0	0	0	0	0	0	EE
35					25			2	0	0	0	0	0	0	0	0	0	0	0	CZ
30					32			30	0	0	0	0		0		0	0	0	0	СН
7					0			0	0	0	0	0	0	0		0	0	0	0	BG
8					0			0	0	0	0	0		0				0	0	SE
23					0			2	2	2	2	2	1	1	0	0	0	0	0	PT
38					17			20	20	20	15	15	15	17		6	6	6	6	NL
65					0		0	0	0	0	0	0	0	0	0			0	0	П
6					0		0	0	0	0	0	0	0			0	0	0	0	ΙΕ
9			8		3	3	3	3	3	3	3	3	2					0	0	GR
74					35		27	3	3	4	2	3		3	3			3	0	GB
348					0		0	0	0	0	0	0		0				4	0	FR
13					10		5	2	2	2	0	0	0	0		0	0	0	0	F
141					2			3	3	2	2	3		0				0	0	ES
0	7	8	2		0			0	0	0	0	0	0	0	0	0	0	0	0	DK
382	335	363		372	0			3	0	0	60	56		21	21	20	0	0	0	DE
31	31	31	27	28	24	16	14	14	12	12	4	4	4	4	1	0	0	0	0	BE
113	111					94		0	0	0	0	0		0		0	0	0	0	AT
2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	Country

Table 9: Historical overview AIRBASE, Number of time series for Ozone. Situation per June 2002.

1745	1705	1105	1034	820		188				56	126	126	40	64	62	66	44	39	23	9	Total
8	9							0			0	0	0		0	0	0	0	0	0	SK
2	0										0	0	0	0	0	0	0	0	0	0	SI
47	36										0		0	0	0	0	0	0	0	0	PL
8	11							0			0	0	0	0	0	0	0	0	0	0	ON
14	7	2	2	0	0	0	0		0	0				0	0	0	0	0	0	0	LV
1	3										0	0		0	0	0	0	0	0	0	LT
2	2													0	0	0	0	0	0	0	HU
4	5							0			0		0	0	0	0	0	0	0	0	EE
57	58) <u>21</u>		0		0		0	0	0	0	0	0	0	CZ
29	32) <u>28</u>						0	0	0	0	0	0	0	СН
0	48													0	0	0	0	0	0	0	BG
20	20													0	0	0	0	0	0	0	SE
29	25							2 2				2	1	1	0	0	0	0	0	0	PT
45	44										1	_	_	25	15	19	14	15	14	0	NL
126	127													0	0	0	0	0	0	0	П
2	3													0	0	0	0	0	0	0	ΙΕ
10	7					3		3 3			3	3	3	3	3	3	3	0	0	0	GR
87	85													1	1	2	2	2	2	2	GB
426	412														10	11	11	8	0	0	FR
16	17														0	0	0	0	0	0	FI
143	142														0	0	0	0	0	0	ES
8	8	8	4								7	7	8		7	7	7	7	0	0	DK
473	424	444												1	20	17	0	0	0	0	DE
42	37	37						3		26	8	8		8	9	7	7	7	7	7	BE
146	143	138							0						0	0	0	0	0	0	АТ
2000	1999	1998	1997	1996	1995	1994	3,	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	Country

Table 10: Historical overview AIRBASE, Number of time series for Nitrogen Dioxide. Situation per June 2002.

328	305	121	106	82	69	41	25	25	104	99	25	27	25	22	21	19	12	0	Total
	7	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SK
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PL
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	HU
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EE
	26	26	24	22	14	1	0	0	0	0	0	0	0	0	0	0	0	0	CZ
	16	15	13	14	15	15	0	0	0	0	0	0	0	0	0	0	0	0	СН
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	BG
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SE
13	11	0	0	0	0	0	0	0											РТ
21	21	8	8	8	9	13	13	13	16	16	16	22	13	12	12	13	12	0	NL
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ΙΤ
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IE
	8	0	3	3	3	3	3	2	3	3	3	3	3	2	2	0	0	0	GR
63	59	39	25	22	17	2	2	3	2	1	1	1	1	2	2	2	0	0	GB
	0	0	0	0	0	0	0	0	0	0	0	0	5	6	5	4	0	0	FR
	6	4	4	3	3	2	2	2	0	0	0	0	0	0	0	0	0	0	FI
81	75	7	7	0	8	5	5	5	5	6	5	0	0	0	0	0	0	0	ES
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DK
	0	0	0	0	0	0	0	0	78	73	0	1	3	0	0	0	0	0	DE
	4	3	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	BE
66	60	15	15	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	AT
1998	1997 1	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	Country

Table 11: Historical overview AIRBASE, Number of time series for Carbon Monoxide. Situation per June 2002.

Total	BG	Ē	Ξ	ES	R	DE	BE	Country
21	0	_	0	0	12	0	8	2061
9	0	1	0	0	0	0	8	900
9	0	1	0	0	0	0	8	904
9	0	1	0	0	0	0	8	900
21	0	1	0	0	12	0	8	900
15	0	1	0	0	6	0	8	1907
34	0	1	0	0	7	18	8	1900
33	0	0	0	0	7	18	8	808
43	0	0	0	0	0	0	43	1990
43	0	0	0	0	0	0	43	1881
42	0	0	0	0	0	0	42	7661
49	0	0	1	4	2	0	42	1993
32	0	0	1	0	2	0	29	1994
32	0	0	0	4	2	0	26	Cee
49	0	0	0	0	2	0	47	1990
63	0	0	0	7	4	0	52	1881
76	24	0	0	2	4	0	46	990
108	23	0	0	24	4	0	57	999
67	23	0	0	0	3	0	41	2000

Table 12: Historical overview AIRBASE, Number of time series for Lead. Situation per October 2000.

All components previously refered to as "other components":

Total	PL	NO	S	CZ	유	BG	SE	Ξ	NL	П	GB	ES	DE	BE	Country
6	0	0	0	0	1	0	0	0	0	0	0	0	0	5	1994
10	0	0	0	0	2	0	0	0	0	0	0	0	0	8	1995
10	0	0	0	0	1	0	0	0	0	0	0	0	0	9	1996
18	0	0	0	0	1	0	0	0	4	0	0	0	0	13	1997
14	0	0	0	0	0	0	0	0	4	0	0	0	0	10	1998
86	0	0	0	0	0	0	0	0	4	20	0	0	49	13	1999
24	0	0	0	0	0	0	0	0	4	19	0	0	0	1	2000

Table 13: Historical overview of AIRBASE, Number of time series for Benzene. Situation per June 2002.

<u>ვ</u>	47	36	ര	Total
6	10	0	0	П
0	0	2	6	SK
29	37	34	0	BG
2000	1999	1998	1997	Country

Table 14: Historical overview of AIRBASE, Number of time series for H₂S. Situation per June 2002.

C	0	0	0	0	0	0	1	1	1	Total
 0	0	0	0	0	0	0	1	1	1	ES
 2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	Country

Table 15: Historical overview of AIRBASE, Number of time series for HC. Situation per June 2002.

Total	LT	H	BG	СН	PT	N.	╕	GR	GB	FR	≖	ES	R	DE	BE	AT	Country
9	0	0	0	0	0	0	0	0	2	0	0		0	0	7	0	1980
23	0	0	0	0	0	14	0	0	2	0	0		0	0	7	0	1981
39	0	0	0	0	0	15	0	0	2	8	0		7	0	7	0	1982
41	0	0	0	0	0	14	0	0	2	11	0		7	0	7	0	1983
63	0	0	0	0	0	19	0	0	2	11	0		7	17	7	0	1984
57	0	0	0	0	0	15	0	0	1	10	0		7	18	6	0	1985
60	0	0	0	0	1	25	0	0	1	0	0		7	18	8	0	1986
40	0	0	0	0	1	18	0	3	2	0	0		8	0	8	0	1987
107	0	0	0	0	2	18	0	3	2	0	0		7	67	8	0	1988
85	0	0	0	0	2	18	0	ယ	2	0	0		7	45	8	0	1989
51	0	0	0	0	2	20	0	0	ω	0	0	0	0	0	26	0	1990
53	0	0	0	0	1	20	0	0	2	0	0	0	3	0	27	0	1991
82	0	0	0	25	0	20	0	0	2	0	0	0	3	2	30	0	1992
101	0	0	0	27	0	18	0	0	23	0	1	0	2	0	30	0	1993
103	0	0	0	26	0	17	0	0	27	0	1	0	2	0	30	0	1994
110	0	0	0	26	0	17	0	0	31	2	2	0	2	0	30	0	1995
83	0	0	0	27	0	17	0	0	0	2	2	0	2	0	33	0	1996
131	1	8	0	27	19	29	0	9	0	5	5	0	0	0	28	0	1997
834	3	0	5	27	21	44	0	0	85	14	14	0	8	444	37	132	1998
806	3	_	6	27	25	44	82	7	0	0	0	0	8	423	37	143	1999
1008	0		0	26	29	45	88	10	0	0	0	139	8	475	41	146	2000

Table 16: Historical overview of AIRBASE, Number of time series for Nitrogen Monoxide. Situation per June 2002.

20	21	17	œ	Total
9	8	8	8	NL NL
2	2	0	0	П
9	11	9	0	BG
2000	1999	1998	1997	Country

Table 17: Historical overview of AIRBASE, Number of time series for Ammonium. Situation per June 2002.

Total	SK	<u>S</u>	PL	NO	LT	HU	EE	CZ	CH	BG	PT	SE	GB	FR	E	DE	Country
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1980
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1981
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1982
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1983
_	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1984
_	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1985
_	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1986
_	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1987
ر ت	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	1988
ω	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1989
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1990
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1991
50	0	0	0	0	0	0	0	22	26	0	0	0	0	0	2	0	1992
64	0	0	0	0	0	0	0	34	27	0	0	0	0	0	3	0	1993
88	0	0	0	3	0	0	0	55	27	0	0	0	0	0	3	0	1994
99	00	0	0	5	0	0	0	56	27	0	0	0	0	0	3	0	1995
152	8	0	0	4	0	0	0	57	27	0	0	0	53	0	3	0	1996
122	31	2	0	0	_	0	2	56	27	0	0	0	0	0	3	0	1997
121	9	2	_	4	ယ	0	3	56	27	0	0	2	0	0	14	0	1998
171	9	0	18	4	3	_	5	0	27	_	0	3	85	0	15	0	1999
235	8	2	29	2	0	_	4	57	26	0	0	4	87	0	15	0	2000

Table 18: Historical overview of AIRBASE, Number of time series for Nitrogen Oxides. Situation per June 2002.

18	32	21	19	0	Total
0	0	0	0	2	유
6	0	0	0	0	П
12	32	21	19	0	ES
2000	1999	1998	1997	1996	Country

Table 19: Historical overview of AIRBASE, Number of time series for Total VOC. Situation per June 2002.

3	35	6	3	3	3	3	3	3	Total
0	32	0	0	0	0	0	0	0	П
ω	3	3	3	3	3	3	3	3	CH
0	0	3	0	0	0	0	0	0	BG
2000	1999	1998	1997	1996	1995	1994	1993	1992	Country

Table 20: Historical overview of AIRBASE, Number of time series for NM VOC. Situation per June 2002.

29	35	22	22	12	13	8	8	8	9	11	Total
သ	4	4	0	0	0	0	0	0	0	0	R
26	31	18	15	12	13	8	8	8	9	11	BE
2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	Country

Table 21: Historical overview of AIRBASE, Number of time series for Arsenic. Situation per June 2002.

34	45	32	28	22	22	10	16	16	16	9	Total
3	4	4	0	0	0	0	0	0	0	0	R
31	41	32	28	22	22	10	16	16	16	9	BE
2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	Country

Table 22: Historical overview of AIRBASE, Number of time series for Nickel. Situation per June 2002.

3	52	43	42	43	40	24	43	41	42	42	33	JJ	14	20	20	20	er.	20	lotal
		•	ò	•	•		•			5	0			9	9		4	8	-1-T
	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	BG
3	4	4	0	2	2	2	2	0	0	0	7	7	6	12	12	12	11	12	PK
0	0	0	0	0	0	0	0	0	0	0	18	18	0	0	0	0	0	0	DE
28	46	37	42	41	38	22	41	41	42	42	8	8	8	8	8	8	8	8	BE
2000	1998 1999 2000		1997	1996	1994 1995	1994	1993	1992	1990 1991		1989	1988	1987	1986 1	985	3 1984 1	198	1982	Country

Table 23: Historical overview of AIRBASE, Number of time series for **Cadmium**. Situation per June 2002.

4	5	0	0	ယ	0	13	17	7	7	7	7	7	7	7	7	7	7	7	Total
7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NO
0	0	0	0	0	0	1	_	0	0	0	0	0	0	0	0	0	0	0	IS
4	5	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	SE
0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	Ŧ
0	0	0	0	3	0	4	8	7	7	7	7	7	7	7	7	7	7	7	BE
2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1987 1988 1989	١.	1985 1986		1984	1983	1982	Country

Table 24: Historical overview of AIRBASE, Number of time series for **SO₄ particles**. Situation per June 2002.

Total	BE	Country
8	8	1982
8	8	1983
8	8	1984
8	8	1985
8	8	1986
<u>∞</u>	8	1987
8	8	1988
8	8	1989
8	8	1990
8	8	1991
8	8	1992
8	8	1993
ω	3	1994
0	0	1995
ω	3	1996
0	0	1997
0	0	1998
0	0	1999
0	0	2000

Table 25: Historical overview of AIRBASE, Number of time series for Zinc. Situation per June 2002.

Total	BE	Country
8	8	1982
8	8	1983
8	8	1984
00	8	1985
8	8	1986
00	8	1987
8	8	1988
8	8	1989
8	8	1990
00	8	1991
8	8	1992
8	8	1993
3	3	1994
0	0	1995
ω	3	1996
0	0	1997
0	0	1998
0	0	1999
0	0	2000

Table 26: Historical overview of AIRBASE, Number of time series for Copper. Situation per June 2002.

_		Total
_	1	BE
2000	1999	Country

Table 27: Historical overview of AIRBASE, Number of time series for Mercury. Situation per June 2002

ω	4	4	Total
ω	4	4	DK
2000	1999	1998	Country

Table 28: Historical overview of AIRBASE, Number of time series for Chromium. Situation per June 2002

ω	4	4	Total
3	4	4	DK
2000	1999	1998	Country

Table 29: Historical overview of AIRBASE, Number of time series for Manganese. Situation per June 2002.

13	19	4	5	1	2	1	Total
4	4	4	4	0	0	0	NL
9	15	0	0	0	0	0	П
0	0	0	1	1	2	1	CH
2000	1999	1998	1997	1996	1995	1994	Country

Table 30: Historical overview of AIRBASE, Number of time series for **Toluene**. Situation per June 2002.

Country	1999	2000
IT	1	0
Total	1	0

Table 31: Historical overview of AIRBASE, Number of time series for **Benzo(a)Pyrene**. Situation per June 2002.

4	3	Total
4	3	П
2000	1999	Country

Table 32: Historical overview of AIRBASE, Number of time series for **Peroxyacetyl nitrate**. Situation per June 2002

0	0	1	_	Total
0	0	1	1	SE
2000	1999	1998	1997	Country

Table 33: Historical overview of AIRBASE, Number of time series for **Wet sulphur deposition**. Situation per June 2002.

_	Total
_	BG
2000	Country

Table 34: Historical overview of AIRBASE, Number of time series for **HCl**. Situation per June 2002.

23	39	15	17	Total
18	12	0	0	П
5	27	15	17	ES
2000	1999	1998	1997	Country

Table 35: Historical overview of AIRBASE, Number of time series for Methane. Situation per June 2002

0	0	0	1	Total
0	0	0	1	SE
2000	1999	1998	1997	Country

Table 36: Historical overview of AIRBASE, Number of time series for Wet deposition. Situation per June 2002.

0	0	0	0	2	_	Total
0	0	0	0	2	1	СН
2000	1999	1998	1997	1996	1995	Country

Table 37: Historical overview of AIRBASE, Number of time series for HC C2-C6 (excl. AROM & CHLH). Situation per June

 3	4	4	Total
 3	4	4	BG
2000	1999	1998	Country

Table 38: Historical overview of AIRBASE, Number of time series for H₂SO₄ aerosols. Situation per June 2002.

Country	1998	1999	2000
NO	7	7	7
Total	7	7	7

Table 39: Historical overview of AIRBASE, Number of time series for Total Nitrate. Situation per June 2002.

7	7	7	Total
7	7	7	NO
2000	1999	1998	Country

Table 40: Historical overview of AIRBASE, Number of time series for **Total Ammonium**. Situation per June 2002.

Table 41: Historical overview of AIRBASE, Number of time series for **Radioactivity**. Situation per June 2002.

Country	1993	1994	1995	1996	1997	1998	1999	2000
IS	1	1	0	0	0	0	0	0
SE	0	0	0	0	_	0	0	0
Total	1	1	0	0	_	0	0	0

Table 42: Historical overview of AIRBASE, Number of time series for **pH**. Situation per June 2002.