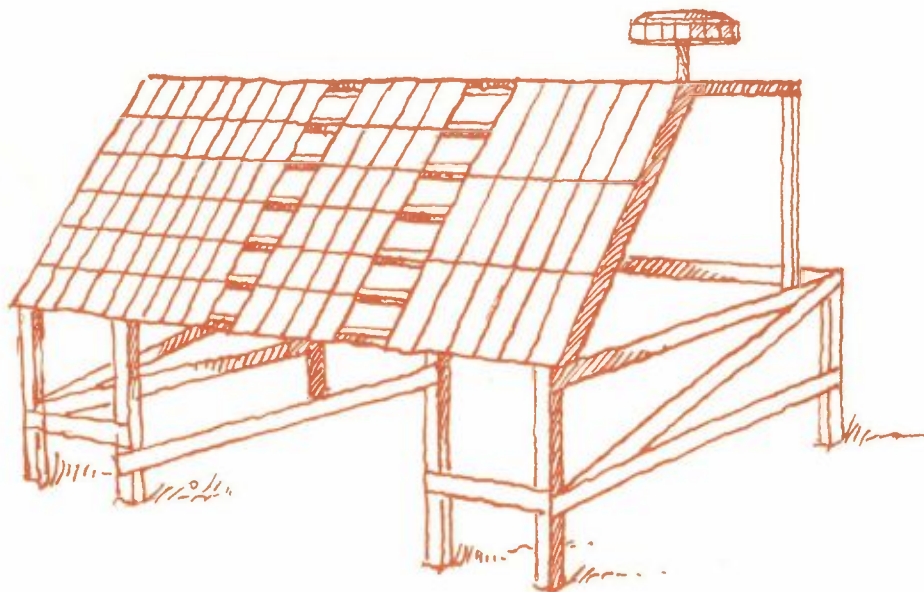


# CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

UN/ECE INTERNATIONAL CO-OPERATIVE PROGRAMME  
ON EFFECTS ON MATERIALS, INCLUDING HISTORIC  
AND CULTURAL MONUMENTS



Report No. 20:  
ENVIRONMENTAL DATA REPORT  
SEPTEMBER 1993 TO AUGUST 1994

APRIL 1996

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PREPARED BY THE ENVIRONMENTAL SUB-CENTRE



NORWEGIAN INSTITUTE FOR AIR RESEARCH  
LILLESTRØM/NORWAY

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# **International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments**

**Environmental data report  
September 1993 to August 1994**

**Jan F. Henriksen, Kari Arnesen and Arild Rode**

Prepared by the Environmental Sub-Centre  
Norwegian Institute for Air Research  
P.O. Box 100, N-2001 Kjeller, Norway

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# International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments

## Environmental data report September 1993 to August 1994

### 1. Introduction

Airborne acidifying pollutants are known to be one major cause of corrosion of different materials including the extensive damage that has been observed on historic and cultural monuments. In order to fill some important gaps of knowledge in this field the Executive Body for the Convention on Long-range Transboundary Air Pollution decided to launch an international co-operative programme. The programme started in September 1987 and involves exposure at 39 test sites in 12 European countries and in the United States and Canada.

The aim of the programme is to perform a quantitative evaluation of the effect of sulphur pollutants in combination with NO<sub>x</sub> and other pollutants as well as climatic parameters on the atmospheric corrosion of important materials. For this purpose measurements of gaseous pollutants, precipitation and climate parameters have been initiated at or nearby each test site, together with evaluation of corrosion of the exposed test materials at each site.

A Task Force is organizing the programme with Sweden as lead country and the Swedish Corrosion Institute serving as the Main Research Centre. Sub-centres in different countries have been appointed, each responsible for their own materials group. The materials groups are:

**Structural metals**, including steel, weathering steel, zinc and aluminium (Sub-centre responsible for evaluation: Company for Corrosion Protection and Surface Treatment, Prague, Czech Republic), copper and cast bronze (Bayerisches Landesamt für Denkmalpflege, Munich, Germany).

**Stone materials**, including Portland limestone and White Mansfield dolomitic sandstone (Building Research Establishment, Department of Environment, Watford, United Kingdom).

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**Paint coatings**, including coil coated steel with alkyd melamine, steel with alkyd paint, wood with alkyd paint system and wood with primer and acrylate (Norwegian Institute for Air Research, Lillestrøm, Norway).

**Electric contact materials**, including nickel, copper, silver and tin as coupons; Eurocard connectors of different performance classes (Swedish Corrosion Institute and Royal Institute of Technology, Stockholm, Sweden).

Environmental data storing, reporting and evaluation are the responsibility of the Norwegian Institute for Air Research. The aim of this report is to present all environmental data available from the seventh year of exposure, September 1993 to August 1994.

The yearly values for all test-sites for all seven years are included in this report. To illustrate the quality of the data reported a statistical treatment of some of the environmental data was performed in the environmental report no. 9 (Henriksen et al., 1992). In this report only few conclusions are drawn. A more complete evaluation of the data will take place when the eight year's and final data sets are reported.

## 2. The measuring programme

The measuring programme includes a normal programme and an extended programme.

The measuring programme.

Components to be measured		
Normal programme	Gas Precipitation Climate	SO <sub>2</sub> , NO <sub>2</sub> mm, pH, SO <sub>4</sub> -S, NO <sub>3</sub> -N, Cl <sup>-</sup> , conductivity Temperature, relative humidity, time of wetness (TOW) and sunshine hours
Extended programme	Gas Precipitation	O <sub>3</sub> NH <sub>4</sub> -N, Na, Ca, Mg, K

The data are to be reported to the environmental sub-centre as daily, weekly or monthly mean values, except for TOW, sunshine hours and mm precipitation which are reported as the sums. The data will be presented as monthly and yearly values.

## 3. Data from the monitoring test sites

The data are sent to the environmental sub-centre on special reporting forms. Some sites have given the results in ASCII files on diskette.

All data presented by the environmental sub-centre, as in this report, are given with the same accuracy as in the filled-in reporting forms. For data series which include values "below the detection limit", these are, by convention, replaced with one half of the reported detection limits when calculating the mean values.

The monthly mean values are calculated from the daily or weekly values or used directly if monthly values are the only reported. Information about the data sets used for calculation of the mean values reported in this report is given by letter code

D = daily records  
 W = weekly records  
 M = monthly records.

Information about the original measuring system for each test site is given the report "Description of test sites".

#### **4. Monthly mean concentrations**

The monthly and yearly values are given in the tables in Annex A. The data have been subject to the following restrictions and classifications:

##### **4.1. Gases, temperatures and relative humidity**

- For monthly mean values calculated from daily measurements, the percentage of data used in the calculations is listed together with mean values.
- A monthly mean value with more than 75% data for a given component is accepted without any remarks.
- A monthly mean value for a component with between 50% and 75% of available data has been marked with an asterisk.
- A monthly mean value with less than 50% data is reported with an (X). Monthly values with less than 50% of the data included in the calculations are not recommended used for statistical dose-response treatment.

##### **4.2. Precipitation components**

- For monthly mean values calculated from daily or weekly rain results, the percentages of the total amount of rain used in the calculations are listed together with the mean values.
- A monthly mean value for a component with more than 75% of the amount of rain used in the calculations is accepted without any remarks.
- A monthly mean value for a component with between 50% and 75% of the amount of rain used in the calculations has been marked with an asterisk.
- A monthly mean value with less than 50% of the amount of rain used in the calculations is reported with an (X). Monthly values with less than 50% of the total rain included in the calculations are not recommended used for further data treatment.

##### **4.3. TOW and sunshine hours**

The total sum from the recorded days is adjusted to a complete month by dividing the sum with the numbers of records and multiply with the number of days in the month. The percentage of data used for these adjustment is listed together with the monthly value.

- With more than 75% of the values reported, the monthly value will be reported without any remarks.
- With between 50% and 75% of the values reported, the monthly value will be reported with an asterisk.

- With less than 50% of the values reported, a monthly value is reported with an (X). For further data treatment these data are often replaced by estimated values, see chapter 5.

## 5. Yearly mean concentrations

### 5.1. Yearly mean values

All values given for yearly mean values are treated in the same way as the monthly values. If daily results are reported during the whole year, all available daily values are used for the calculation of the mean value. The percentage of available data is also calculated and listed together with the yearly values in the tables in Annex A.

- A yearly mean value for observations including 75% of the monthly values is accepted without any remarks. A yearly mean value including between 50% and 75% of the monthly values is accepted with an asterisk.
- A yearly mean value including less than 50% is reported with an (X).

If weekly or monthly values are reported, the monthly values are used in the calculations and the percentage is not listed.

### 5.2. TOW, sunshine hours and amount of precipitation

TOW, sunshine hours and amount of precipitation are reported as the total sum and must be completed to a full year if the results shall be of any use. Since there are seasonal variations in the climatic factors the use of average values for adjusting the results can be incorrect. To complete the yearly results estimated values were used. The estimated values were formed by comparing similar sites, by looking at reported values for other months from the same season or from meteorologic statistics. Only 4 estimated values are accepted for each parameter, and the estimated values are marked with a plus (+). If monthly values are available from the previous years, the missing monthly value is substituted with the mean value from the same month for the available years and marked with a (+).

If more than 4 of the monthly values are missing no yearly value is reported.

## 6. Calculations of monthly values

Mean temperature ( $T_M$ )	$T_M = \frac{\sum_0^i T_i}{i}$
$T_i$ = measured values	$i$ = number of records
Mean relative humidity ( $RH_M$ )	$RH_M = \frac{\sum_0^i RH_i}{i}$



Time of wetness (TOW) (for incomplete data sets  
see chapter 4.3 and 5.2)

$$TOW = \sum_0^i TOW_i$$

Sunshine hours (sh) (for incomplete data sets  
see chapter 4.3 and 5.2)

$$sh = \sum_0^i sh_i$$

Sunshine hours shall report the number of hours where the test panels have been exposed to sunlight. So far no efforts have been made to transform different sun radiation measurements to sunshine hours.

Mean gas concentrations  $G_M$

$$G_M = \frac{\sum_0^i G_i}{i}$$

For some sites where complete information of the sampling period exists, another equation is used

$$G_M = \frac{\sum_0^i (n_i \cdot G_i)}{\sum_0^i n_i}$$

$n_i = \text{sampling period}$

Precipitation (for incomplete data sets  
see chapter 4.3 and 5.2)

$$mm = \sum_0^i mm_i$$

weighted mean pH ( $pH_M$ )

$$pH_M = \div \log \frac{\sum_0^i [mm_i \cdot (10^{-pH_i})]}{\sum_0^i mm_i}$$

weighted mean values for cations, anions and conductivity ( $C_M$ )

$$C_M = \frac{\sum_0^i (mm_i \cdot C_i)}{\sum_0^i mm_i}$$

## 7. Results and discussions

A list with site numbers, names and description of locations is given in Table 1. The yearly results for the first, second, third, fourth, fifth, sixth and seventh year, are given in Table 2 and the monthly and yearly results from September 1993 to August 1994 in Annex A. The regularity of the environmental data is comparable to the previous years for most of the participants. UK and Estonia have not reported environmental data for the seventh year. Canada has also reported very minor amounts of data. There are some gaps in the data base for several countries and some question marks have been raised to some of the data reported. For that reason the TOW data from the Czech Republic are not listed in this report, but they will be reported together with the eighth year's results later.

For calculating dose-response equation it is crucial to have complete data sets and sufficient spread in the values for the most important parameters. If gaps in the data occur, estimated values must sometimes be generated. To illustrate the quality of the data measured and their yearly fluctuation, scatter plots of the most important parameters are made.

The pattern of the seventh year results is similar to them of the previous years. In Figures 1-4 scatter plots of NO<sub>2</sub>, SO<sub>2</sub>, TOW and pH for the sixth versus the seventh year results are presented. The figures show that the environmental condition at the sites do not change too much from one year to the next. The trend with reduced yearly concentrations of SO<sub>2</sub> through the years of the project is not so obvious for the seventh year as for the previous ones. For the rest of the parameters plotted, the results were clustered around a y=x line.

When the ECE programme started it was important to find test sites with different concentrations of SO<sub>2</sub>, NO<sub>2</sub> and H<sup>+</sup> (pH). The figures show that we still are reasonably successful with the sites selected. The yearly mean concentrations for SO<sub>2</sub> has dropped and the total range goes now from 1 µg/m<sup>3</sup> to 50 µg/m<sup>3</sup> with the majority of sites reporting values below 30 µg/m<sup>3</sup>. For NO<sub>2</sub> the distribution is comparable with the fifth year results. The yearly mean concentrations are now ranging from 4 to 60 µg/m<sup>3</sup> plus one site (Milan) with a little less than 90 µg/m<sup>3</sup>.

The pH was between 4.0 and 6.5 and TOW between 1 100 and 6 000 hours per year. Many of the test sites closer to the Atlantic ocean are more or less affected by marine aerosols contribution. This is particularly the case for the sites in the United Kingdom, Lisbon, two Norwegian sites and the sites in the Netherlands. In addition high chloride concentrations are observed at the Italian and Spanish sites.

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## 8. Characterization of the air quality data

In report no. 9 Environmental data report September 1989 to August 1990 (Henriksen et al., 1992) an extensive statistical evaluation of the results for gas concentrations was carried out. The main conclusions drawn in this report are still valid and can be summarized as follows:

Mean, median and 90-percentile characteristics of the annual data series for each test site were in most cases in good agreement, however, for some sites where the data have a distribution that is far from symmetry, their differences may be substantial.

Little difference in the distribution of daily concentrations was found between the three yearly series by cumulative frequency plots. Most of the observed differences were due to unequal patterns of missing data. This indicates good quality of the daily reported data.

The three-year and one-year series of gaseous compounds were found to mostly obey log-normal law of distribution, however, the data did not fit either normal or log-normal distribution in more cases than what would be expected by chance. It may therefore be necessary to establish other models. It is reasonable to assume that the deviations from the distribution are to some extent due to seasonal variations, but this hypothesis was not tested.

When calculating annual means of concentrations, the seasonal differences are of most importance; therefore it may be reasonable to construct a rule based on seasonal availability of the data rather than on annual availability. Missing of two months in a season may probably be acceptable. However, four months of missing data will give a biased mean value.

When calculating monthly means, the rules for accepting the mean based on amount of available data were found reasonable. However, if we exclude daily data for calculation of annual means for other reasons than erroneous results, we are losing information. We therefore recommend to use all available daily values for annual mean calculations, even if the daily data reported in a month is below 50%.

## 9. References

Henriksen, J.F., Arnesen, K. and Rode, A. (1991) Environmental data report, September 1987 to August 1989. Lillestrøm, Norwegian Institute for Air Research (UN/ECE International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments. Report No. 3).

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Henriksen, J.F., Arnesen, K. and Rode, A. (1995) Environmental data report, September 1992 to August 1993. Kjeller, Norwegian Institute for Air Research (UN/ECE International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments. Report No. 17) (NILU OR 21/95).

## Tables and Figures



Table 1: List of test sites and starting dates of exposure programme.

Test site no.	Test site name	Country	Location
1	Prague-Letnany	The Czech Republic	Urban
2	Kasperske Hory	"	Rural
3	Kopisty	"	Industry
4	Espoo	Finland	Urban
5	Ähtäri	"	Rural
6	Helsinki-Vallila	"	Industry
7	Waldhof-Langenbrügge	Federal Republic of Germany	Rural
8	Aschaffenburg	"	Urban
9	Langenfeld-Reusrath	"	Rural
10	Bottrop	"	Industry
11	Essen-Leithe	"	Rural
12	Garmisch-Partenkirchen	"	Rural
13	Rome	Italy	Urban
14	Casaccia	"	Rural
15	Milan	"	Urban
16	Venice	"	Urban
17	Vlaardingen	Netherlands	Industry
18	Eibergen	"	Rural
19	Vredepeel	"	Rural
20	Wijnandsrade	"	Rural
21	Oslo	Norway	Urban
22	Borregaard	"	Industry
23	Birkenes	"	Rural
24	Stockholm South	Sweden	Urban
25	Stockholm Centre	"	Urban
26	Aspvreten	"	Rural
27	Lincoln Cathedral	United Kingdom	Urban
28	Wells Cathedral	"	Urban
29	Clatteringshaws Loch	"	Rural
30	Stoke Orchard	"	Rural, industry
31	Madrid	Spain	Urban
32	Bilbao	"	Industry
33	Toledo	"	Rural
34	Moscow	Russia	Urban
35	Lahemaa	Estonia	Rural
36	Lisbon-Jeronimo Monastery	Portugal	Urban
37	Dorset	Canada	Rural
38	Research Triangle Park	USA (NC)	Rural
39	Steubenville	USA (Oh)	Industry

Table 2: Yearly mean values for all parameters and sites for first, second, third, fourth, fifth, sixth and seventh year of the programme.

SITE	YEAR	CLIMATE			GASSES			PRECIPITATION					PRE-OPTIONS					
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m <sup>3</sup>	NO <sub>2</sub> ug/m <sup>3</sup>	O <sub>3</sub> ug/m <sup>3</sup>	mm	pH	SO <sub>4</sub> -S <sup>-</sup> mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l
CH 1	87-88	9.5	79	2830	1865	77.5	42.4		639.3	4.03	3.25	0.65	2.16	45.9	0.55			0.86
CH 1	88-89	9.8	75	3181	1563	74.2	32.6		385.6	4.71	7.86	0.65	2.32	121.4	0.97			0.60
CH 1	89-90	10.3	74	2555	1848	58.1	34.2		380.8	4.66	6.43	1.02	3.93	40.9	1.98			1.12
CH 1	90-91	8.5	75	2940	1593	61.4	34.9		469.5	4.21	4.95	1.95	1.82	58.1				
CH 1	91-92	10.0	71	2789	2274	41.9	20.5		684.3	4.41	10.47	3.00	0.92	47.5				
CH 1	92-93	9.1	73	2627	2372	41.2	24.9		684.3	4.15	7.12	3.02	0.79	45.1	9.36			
CH 1	93-94	9.9	76		1789	40.2	22.5		562.5	5.42	10.04	3.93	2.44	31.5				
CH 2	87-88	7.0	77	3011		19.7	17.9		850.2	3.85	1.48	0.77	0.77	48.7	0.41			0.80
CH 2	88-89	7.0	77	3690		14.5	14.2		751.8	4.53	2.99	0.94	1.12	22.8	0.77			1.76
CH 2	89-90	7.4	76	3405		25.6	8.8		703.4	4.35	1.85	1.42	1.61	26.7	3.50			1.42
CH 2	90-91	5.8	79	2939		18.4	9.4		832.1	4.21	4.84	1.78	0.60	38.3				
CH 2	91-92	7.2	73	3212		12.0	8.1		573.4	3.60	4.17	3.10	0.75	32.0				
CH 2	92-93	6.6	73	2981		17.9	8.1		921.0	3.72	3.81	2.43	0.48	17.7	4.60			
CH 2	93-94	7.2	73			16.4	7.2		808.9	4.97	3.51	2.22	3.20	19.1				
CH 3	87-88	9.6	73	2480	1665	83.3	42.2		426.4	4.39	11.12	2.21	2.21	70.9	1.22			1.14
CH 3	88-89	9.7	73	2273	1496	94.6	39.1		449.6	4.88	11.31	0.56	1.45	72.4	1.50			1.28
CH 3	89-90	9.9	72	2056	1564	78.4	36.0		416.6	4.62	9.05	1.29	3.10	90.9	4.72			2.79
CH 3	90-91	8.6	73	2252	1484	75.9	35.1		416.4	4.31	10.47	1.09	1.13	119.7				
CH 3	91-92	9.9	71	2899	2302	56.9	30.6		502.2	4.39	22.19	4.18	4.12	105.8				
CH 3	92-93	8.9	71	2866	2261	49.0	35.6		431.6	4.24	23.35	8.66	0.98	82.7	35.43			
CH 3	93-94	9.6	73		1571	48.9	29.8		597.4	4.97	14.37	3.62	1.70	37.5				
FIN 4	87-88	5.9	76	3322	1623	18.6	20.0		625.9	4.24	1.06	0.41	0.31	58.8				
FIN 4	88-89	6.0	77	3717	1904	11.8	17.6		768.6	4.39	1.70	0.72	1.06	33.1				
FIN 4	89-90	6.4	80	4127	1926	13.9	20.7		657.0	4.41	1.88	0.85	1.61	31.6				
FIN 4	90-91	5.2	82	3834	1627	24.9	24.9		649.8	4.36	2.99	1.05	1.75	32.8				
FIN 4	91-92	6.2	79	4271	1693	2.4	24.1		671.7	4.43	1.84	0.81	2.04	29.2				
FIN 4	92-93	5.6	79	3446	1548	2.3	20.8		754.6	4.64	1.06	0.34	0.55	17.9				
FIN 4	93-94	4.0	81	2268	2053	5.7	30.3		569.6	4.39	0.85	0.78	0.82	29.4				
FIN 5	87-88	3.1	78	2810	1566	6.3	5.0	52	801.3	4.53	0.71	0.33	0.26	19.1	0.05	0.15	0.02	0.04
FIN 5	88-89	4.0	79	3159	1731	5.3	4.9	54	666.4	4.52	0.61	0.28	0.28	18.7	0.13	0.12	0.02	0.06
FIN 5	89-90	3.9	80	3342	1714	1.8	4.4	52	670.7	4.57	0.47	0.27	0.28	16.6	0.13	0.08	0.02	0.07
FIN 5	90-91	2.9	80	3012	1480	1.8	5.6	51	543.5	4.55	0.57	0.28	0.24	18.0	0.16	0.10	0.03	0.13
FIN 5	91-92	4.2	78	3240	1440	0.8	2.0	66	698.4	4.58	0.51	0.29	0.31	16.4	0.25	0.12	0.04	0.07
FIN 5	92-93	3.4	81	2994	1356	0.9	2.0	60	609.7	4.70	0.36	0.22	0.17	12.5	0.13	0.10	0.02	0.04
FIN 5	93-94	1.7	80	2340	1631	1.3	4.0	58	506.0	4.55	0.43	0.28	0.15	15.6	0.12	0.11	0.02	0.05

\* Not corrected for sea-salt sulphate.



Table 2, cont.

SITE	YEAR	CLIMATE			GASSES			PRECIPITATION						PRE-OPTIONS					
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m <sup>3</sup>	NO <sub>2</sub> ug/m <sup>3</sup>	O <sub>3</sub> ug/m <sup>3</sup>	mm	pH	SO <sub>4</sub> -S <sup>-</sup> mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
FIN 6	87-88	6.3	78	3453	1635	20.7	30.5		673.1	4.41	1.54	0.46	0.89	36.4					
FIN 6	88-89	6.7	78	3813	1904	17.4	27.4		691.0	4.42	2.63	1.08	2.11	39.2					
FIN 6	89-90	6.8	80	4017	1926	15.3	38.9		665.6	4.26	2.03	0.82	1.97	44.0					
FIN 6	90-91	5.8	81	3820	1627	18.2	38.3		636.9	4.28	2.54	0.98	2.33	42.2					
FIN 6	91-92	6.9	80	4080	1693	6.0	41.2		621.5	4.51	1.86	0.83	2.08	35.3					
FIN 6	92-93	6.2	78	3360	1548	4.8	39.4		702.4	4.66	0.87	0.83	0.68	19.9					
FIN 6	93-94	4.7	76	2268	1952	6.8	36.8		508.8	4.47	0.72	0.67	0.65	29.1					
GER 7	87-88	9.3	80	4561	1374	13.7	11.3	59	630.6	4.26	1.59	0.82	1.01	42.0	0.92	0.47	0.56	0.10	0.13
GER 7	88-89	10.0	81	4867	1615	11.4	13.0	69	448.4	4.35	1.47	0.86	1.42	39.4	0.95	0.65	0.72	0.16	0.18
GER 7	89-90	10.2	80	4390	1688	11.0	11.6	64	499.7	4.45	1.35	1.12	1.66	37.9	0.94	0.80	0.67	0.18	0.19
GER 7	90-91	8.9	81	4474	1548	12.9	11.9	45	529.1	4.47	0.99	0.61	0.98	28.2	0.68	0.46	0.49	0.12	0.19
GER 7	91-92	10.2	78	4406	1669	7.3	11.5	53	503.4	4.55	0.98	0.66	1.18	27.6	0.87	0.68	0.52	0.14	0.18
GER 7	92-93	8.9	81	4382	1527	8.2	10.9	57	624.4	4.47	1.01	0.71	1.10	28.0	0.75	0.54	0.52	0.13	0.14
GER 7	93-94	8.9	82	4827	1580	7.8	9.3	55	743.2	4.50	1.04	0.68	1.43	29.7	0.68	0.70	0.55	0.14	0.15
GER 8	87-88	12.3	77		1559	23.7	33.2	27	626.9	4.96	2.44	1.17	1.87	44.6	1.33		1.87		
GER 8	88-89	11.8	72	3756	1625	14.6	44.8	26	673.8	4.61	2.10	1.08	2.09	50.3	1.54		1.41		
GER 8	89-90	12.2	67	2541	1882	14.2	39.5	31	655.4	4.39	2.63	0.93	2.75	75.3	3.62				
GER 8	90-91	10.9	65	4227	1761	18.9	38.0	29	653.8	4.94	2.20	0.90	1.89	48.5	1.49		2.77	2.01	
GER 8	91-92	11.7	66	4611	1702	15.6	41.2	36		5.79	1.68	0.65	1.03	60.8	4.12	1.12	1.87	0.85	1.80
GER 8	92-93	11.4	64	3563	1770	12.6	38.8	33		4.74	1.18	2.23	0.71	54.0	3.10	0.47	1.89	0.64	0.80
GER 8	93-94	11.4	64	2165		11.6	40.2	37	754.0	5.12	0.75	3.21	0.40	27.9	0.96		0.55	0.26	
GER 9	87-88	10.8	77	4220	1315	24.5	42.8	30	782.9										
GER 9	88-89	11.2	78	4754	1475	25.7	49.9	27	686.0										
GER 9	89-90	11.7	80	4940	1624	20.3	44.4	33	697.6	4.44	1.75	0.74	1.75	39.0	1.11	1.41	0.92	0.18	0.26
GER 9	90-91	7.9	80	4365	1427	23.7	45.8	32	661.7	4.41	1.88	0.77	1.41	38.1	1.84	0.89	1.17	0.19	0.39
GER 9	91-92	11.2	76	4071	1563	19.7	40.2	36	696.8	4.56	1.63	0.77	1.44	50.8	1.06	1.33	1.64	0.18	0.38
GER 9	92-93	10.7	81	4437	1562	16.3	37.3	34	619.1	4.54	0.82	0.33	1.31	61.0	0.90	1.13	1.13	0.19	0.39
GER 9	93-94	10.7	82	5393	1434	13.6	35.6	28	839.1	4.74	1.23	0.73	1.40	28.8	0.75	0.72	1.43	0.06	0.22
GER10	87-88	11.2	75	4077	1430	50.6	47.9	28	873.8										
GER10	88-89	11.6	76	4594	1690	48.6	49.5	27	733.7										
GER10	89-90	12.0	76	4107	1812	48.5	46.4	27	696.6	4.60	2.69	0.81	5.35	54.6	1.34	2.22	1.72	0.38	1.28
GER10	90-91	8.4	78	4002	1560	53.0	46.8	27	619.4	4.30	2.38	0.71	1.79	43.7	1.36	1.23	1.35	0.28	0.36
GER10	91-92	11.5	76	4137	1618	51.5	43.8	33	680.6	4.71	1.94	0.74	1.63	50.7	1.14	1.24	1.39	0.28	0.35
GER10	92-93	10.3	81	4201	1606	41.6	37.9	34	707.3	4.68	1.14	0.32	2.04	66.7	0.83	1.79	1.43	0.29	0.43
GER10	93-94	10.8	79	4762	1485	35.5	37.6	26	843.1	4.76	1.71	0.73	2.05	33.3	0.93	1.04	1.61	0.15	0.25

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE				GASSES				PRECIPITATION				PRE-OPTIONS						
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m <sup>3</sup>	NO <sub>2</sub> ug/m <sup>3</sup>	O <sub>3</sub> ug/m <sup>3</sup>	mm	pH	SO <sub>4</sub> -S* mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
GER11	87-88	10.5	79	4537	1430	30.3	46.8		713.1	4.38	1.95	0.87	2.22	43.5	1.25	1.67	1.09	0.20	0.32	
GER11	88-89	10.9	78	4711	1690	27.6	44.3		643.9	4.43	1.74	0.73	1.36	31.3	1.20	1.11	1.12	0.17	0.35	
GER11	89-90	11.5	77	4040	1812	25.6	41.7		577.5	4.69	1.59	0.66	1.51	44.3	1.10	1.17	0.94	0.22	0.27	
GER11	90-91	8.0	80	4216	1560	24.4	41.9		675.8	4.60	0.79	0.33	1.55	55.5	0.72	1.37	0.99	0.22	0.45	
GER11	91-92	13.1	78	4387	1618	25.7	40.5		887.6	4.81	1.36	0.80	2.06	30.2	0.89	0.80	1.83	0.34	0.61	
GER11	92-93	10.1	81	4120	1606	22.9	37.2		1491.5	4.81	0.87	0.52	0.25	20.4	0.59	0.23	0.53		0.05	
GER11	93-94	10.3	80	4798	1490	18.5	33.7		1185.4	4.77	0.86	0.49	0.25	18.5	0.55	0.21	0.45		0.05	
GER12	87-88	7.5	82	4989	1598	9.4	12.1	50	1183.1	4.81	0.87	0.52	0.25	17.6	0.58	0.10	0.33		0.04	
GER12	88-89	7.9	84	4983	1629	13.4	14.0	49	1091.5	5.13	0.71	0.39	0.21	12.7	0.42	0.08	0.29		0.05	
GER12	89-90	7.3	82	4201	1940	6.1	14.3	55	1552.4	5.76	0.71	0.39	0.21	14.8	0.37	0.15	0.94		0.05	
GER12	90-91	7.6	82	1654	1654	5.2	12.6	57		5.21	0.52	0.49	0.19	22.8	0.83	0.30				
GER12	91-92	7.3	83	3693	1686	4.6	15.1	55		4.60										
GER12	92-93	7.1	84	4545	1594	3.2	16.6	49												
GER12	93-94	9.4	79	4094	1522	2.2	11.0	61												
ITA13	87-88	15.4	66	1013		29.4	69.2	26	591.4	4.60	0.80	0.04	1.30	20.7					0.06	
ITA13	88-89	16.1	62	1611		44.9	69.5	27	509.3	4.68	1.01	0.10	7.99	38.5						
ITA13	89-90	17.4	65	2267		38.5	62.5	23	463.3	4.74	0.76	0.11	2.11	38.8						
ITA13	90-91	16.3	67			24.4	73.3	19	480.5	4.76	0.86	0.15	2.62	32.9						
ITA13	91-92	22.2	58			2.4		14			0.84	0.13	2.04	22.3						
ITA13	92-93	17.9	60	1672		6.8	33.1	12			0.53	0.14	2.23	14.0						
ITA13	93-94	19.5	67			14.4	28.5	9	969.0	5.06	0.56	0.23	2.87	32.0						
ITA14	87-88	14.6	71	3578					650.2	4.94	0.80	0.04	1.30	18.2		0.48			0.06	
ITA14	88-89	14.0	70	2996					674.2	4.80	1.01	0.10	7.99	20.7						
ITA14	89-90	14.3	72	3714		7.4	8.3	56	626.1	5.38	0.76	0.11	2.11	38.8						
ITA14	90-91	15.1	72	3577		6.4	18.8	45	721.0	5.05	0.86	0.15	2.62	32.9						
ITA14	91-92	14.9	74	3881		4.7	16.6	38	972.6	5.47	0.84	0.13	2.04	22.3		2.22	2.00	0.81	0.26	
ITA14	92-93	18.3	72	3360		7.5	14.6	27	659.4	5.30	0.53	0.14	2.23	14.0		0.97	0.25	0.15	0.08	
ITA14	93-94	15.2	74	3930		4.7	11.1	15		4.82	0.56	0.23	2.87	32.0		1.18	0.93	0.77	0.07	
ITA15	87-88	15.3	72	3548		72.2	109.2	18	1124.7	4.22	13.20	5.41	4.82	57.3		1.86	4.50	0.63	0.24	
ITA15	88-89	14.9	79	3458		82.7	99.1	16	1003.7	4.50	8.60	2.57	2.71	76.5		1.15	5.33	0.92	0.41	
ITA15	89-90	15.4	72	3036		65.4	120.9	22	669.8	4.19	4.26	3.07	3.28	45.1		0.47	1.47	0.16	1.83	
ITA15	90-91	14.2	69	2941		50.3	107.8	21	658.4	4.54	4.84		2.34	25.4						
ITA15	91-92	14.4	73	3402		58.5	110.0	17	936.1	4.68				24.3						
ITA15	92-93	14.7	68	3299		39.4	108.3	22	1041.4	4.66				25.8						
ITA15	93-94	14.9	67	3013		32.4	86.6	26	1283.4	4.42										

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE			GASES			PRECIPITATION					PRE-OPTIONS						
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m3	NO <sub>2</sub> ug/m3	O <sub>3</sub> ug/m	mm	pH	SO <sub>4</sub> -S* mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
ITA16	87-88	14.5	76	3561		21.1	40.9	21	714.0	5.02	3.70	0.89	3.58	56.6					
ITA16	88-89	14.7	82	4530		25.7	40.7	29	535.8	4.90	4.69	1.13	4.32	72.0					
ITA16	89-90	13.5	79	4148		20.2	51.0	31	488.0	5.24	3.70	1.10	3.21	59.1					
ITA16	90-91	12.9	80	4565		16.4	47.7	14	809.9	6.12	2.18	0.77	3.56	48.7					
ITA16	91-92	13.6	86	6019		18.6			511.0	6.49	2.86	1.07	4.53	50.7					
ITA16	92-93	13.2	86	5813		11.0			399.6	6.36	3.58	1.52	4.90	70.8					
ITA16	93-94	13.8	84			7.1				6.52	2.06	0.94	3.32	53.4	2.09	4.41	0.71		2.18
NL 17	87-88	10.5	84	5875	1313	35.3	52.1	28	977.7	4.44	1.52	0.51	4.86	48.6	2.49	0.51	0.32		0.15
NL 17	88-89	11.0	83	5589	1663	31.8	57.2	33	685.9	4.41	1.55	0.59	4.61	48.9	2.53	0.33	0.31		0.18
NL 17	89-90	11.3	81	4996	1810	32.5	56.7	32	692.0	4.42	1.79	0.54	7.64	59.7	4.20	0.45	0.51		0.26
NL 17	90-91	9.7	84	5293	1474	30.6	53.8	28	722.6	4.59	1.65	0.60	5.62	50.0	3.06	0.45	0.38		0.27
NL 17	91-92	10.7	85	5542	1520	27.8	47.3	26	721.7	4.65	1.48	0.54	4.79	44.4	2.62	0.41	0.33		0.28
NL 17	92-93	10.3	83	5337	1661	25.5	46.6	24	860.2	4.41	1.33	0.54	4.20	47.0	2.18	0.37	0.29		0.23
NL 17	93-94	10.1	83	5292	1583	10.1	45.4	29	883.1	4.61	1.11	0.45	4.39	40.4	2.56	0.26	0.31		0.28
NL 18	87-88	9.9	83	5459	1230	10.1	23.2	40	904.2	5.45	1.52	0.54	1.88	30.1	1.11	0.22	0.11		0.11
NL 18	88-89	10.2	82	5280	1507	8.0	26.9	46	710.5	5.50	1.38	0.54	2.87	32.2	2.33	0.21	0.19		0.12
NL 18	89-90	10.9	79	4482	1643	8.5	26.5	47	705.9	5.34	1.63	0.60	2.96	35.6	1.77	0.24	0.18		0.28
NL 18	90-91	9.1	79	4422	1410	9.5	24.6	38	701.8	5.51	1.22	0.49	1.68	25.6	1.01	0.15	0.11		0.15
NL 18	91-92	10.2	79	4428	1475	8.0	23.5	39	686.8	5.34	1.34	0.56	2.17	27.9	1.59	0.24	0.12		0.19
NL 18	92-93	9.5	82	4808	1441	7.4	22.8	33	860.2	5.36	1.26	0.62	2.22	29.1	1.60	0.25	0.16		0.18
NL 18	93-94	9.4	83	5179	1459	5.6	21.4	38	969.0	5.38	1.01	0.53	1.41	23.6	0.80	0.20	0.11		0.16
NL 19	87-88	10.3	81	5354	1292	13.0	28.7	36	845.0	5.32	1.61	0.57	1.50	31.0	0.95	0.33	0.12		0.12
NL 19	88-89	10.8	81	5282	1585	10.2	33.4	39	693.3	5.33	1.61	0.60	2.00	30.9	1.07	0.28	0.14		0.09
NL 19	89-90	11.0	81	4969	1709	9.9	33.1	45	569.1	5.31	2.29	0.69	3.58	43.6	2.09	0.40	0.28		0.26
NL 19	90-91	9.4	80	4401	1484	10.4	33.4	37	543.9	5.80	1.65	0.53	1.81	29.9	1.07	0.21	0.11		0.19
NL 19	91-92	10.4	80	4692	1533	8.1	32.5	38	799.2	4.90	1.91	0.58	2.21	36.6	1.19	0.37	0.17		0.25
NL 19	92-93	10.0	82	5084	1558	8.3	29.4	35	936.0	5.94	1.39	0.61	1.73	29.6	0.96	0.30	0.13		0.21
NL 19	93-94	10.0	83	5357	1556	6.7	27.9	36	936.0	5.09	1.27	0.49	1.78	28.3	6.92	0.27	0.14		0.20
NL 20	87-88	10.3	81	5125	1290	13.7	28.9	39	801.3	4.73	1.63	0.66	1.61	35.4	0.94	0.69	0.15		0.14
NL 20	88-89	10.8	80	5208	1553	11.2	32.0	42	642.2	4.65	1.59	0.65	1.72	35.4	0.94	0.48	0.12		0.11
NL 20	89-90	11.1	77	4424	1698	10.3	26.9	45	608.8	4.98	1.47	0.54	2.37	32.0	1.41	0.51	0.19		0.20
NL 20	90-91	9.5	83	4824	1434	12.9	31.7	39	647.0	4.91	1.43	0.54	1.38	28.0	0.75	0.42	0.11		0.13
NL 20	91-92	10.5	82	5005	1488	11.0	29.1	36	541.6	5.03	1.53	0.60	1.43	31.1	0.88	0.52	0.12		0.26
NL 20	92-93	10.1	81	4688	1614	9.3	26.8	34	914.2	4.94	1.18	0.56	1.28	25.6	0.89	0.44	0.11		0.13
NL 20	93-94	10.2	82	5170	1512	7.8	25.4	38	914.2	5.13	0.96	0.42	1.36	23.3	0.80	0.33	0.11		0.18

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE				GASSES			PRECIPITATION					PRE-OPTIONS					
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m3	NO <sub>2</sub> ug/m3	O <sub>3</sub> ug/m	mm	pH	SO <sub>4</sub> -S* mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
NOR21	87-88	7.6	70	2673	1565	14.4	51.7		1023.8	4.48	1.36	0.62	1.45	29.3	0.37	0.64	1.72		
NOR21	88-89	7.9	70	2580	1747	12.6	51.9		576.8	4.66	2.08	0.66	1.72	35.5	0.43	0.72	2.64		
NOR21	89-90	8.8	70	2864	1841	7.9	46.8		526.6	4.49	1.73	0.70	1.86	38.1	0.53	0.91	1.58	0.17	0.14
NOR21	90-91	7.0	75	3013	1686	8.6	51.9		433.1	4.71	1.41	0.64	1.64	30.5	0.66	0.87	1.51	0.19	0.17
NOR21	91-92	8.5	72	3169	1730	6.6	47.1		614.0	4.65	1.24	0.48	1.54	27.6	0.37	0.85	1.33	0.17	0.14
NOR21	92-93	7.7	68	2471	1637	6.0	53.4		440.1	4.81	1.39	0.57	2.10	30.9	0.59	1.19	1.37	0.18	0.32
NOR21	93-94	6.7	71	1934	1680	5.2	55.2		697.7	4.80	0.98	0.59	1.49	27.0	0.70	0.91	0.90	0.11	0.28
NOR22	87-88	6.0	78	3064		35.8	19.2		1115.5	3.93	2.93	0.71	2.21	63.8	1.11	1.14	0.46		
NOR22	88-89	6.9	74	3445		54.0	18.3		535.4	3.96	3.28	0.97	4.85	74.9	1.46	2.47	0.97		
NOR22	89-90	6.8	76	3678		41.5	16.4		517.5	4.07	2.42	0.64	3.67	64.9	1.44	1.80	0.52	0.23	0.38
NOR22	90-91	6.7	77	3599		30.7	18.0		286.2	3.96	2.70	0.99	4.10	73.5	1.59	1.75	0.56	0.22	0.24
NOR22	91-92	7.8	73	3384		31.1	16.6		673.6	4.18	2.03	0.67	4.36	57.4	1.12	1.89	0.56	0.25	0.21
NOR22	92-93	7.0	76	3588		26.4	17.8		627.5	4.32	2.01	0.63	3.95	51.7	0.91	2.18	0.98	0.27	0.43
NOR22	93-94	6.5	76	3104		22.8	20.1		687.6	4.33	1.45	0.55	1.73	38.8	0.63	0.91	0.61	0.11	0.15
NOR23	87-88	6.5	80	4831	1717	1.3	3.9	60	2144.3	4.25	0.93	0.56	2.04	32.2	0.57	1.19	0.15	0.14	0.17
NOR23	88-89	7.5	76	4043	2002	1.1	4.0	53	1160.6	4.26	1.07	0.70	2.47	39.9	0.69	1.40	0.20	0.18	0.20
NOR23	89-90	7.4	77	4193	1901	0.9	3.1	54	1762.2	4.38	0.87	0.56	2.88	35.2	0.50	1.61	0.39	0.19	0.15
NOR23	90-91	6.1	80	4114	1820	1.1	3.1	55	1287.6	4.35	0.92	0.53	3.35	36.2	0.52	1.78	0.32	0.22	0.17
NOR23	91-92	7.1	77	4122		0.8	1.8	64	1272.0	4.35	0.83	0.54	2.07	32.5	0.45	1.15	0.10	0.14	0.08
NOR23	92-93	5.9	75	3341		0.7	1.8	58	1188.6	4.43	0.84	0.53	4.00	36.7	0.46	2.27	0.16	0.26	0.11
NOR23	93-94	4.9	79	3316	2399	0.9	2.3	53	1542.1	4.39	0.88	0.60	1.96	32.3	0.57	1.05	0.13	0.12	0.07
SWE24	87-88	7.6	78	3959	1616	16.8	26.5	44	531.0	4.35	1.14	0.52	0.42	31.7	0.51	0.23	0.27	0.05	0.04
SWE24	88-89	8.4	67	2543	1978	12.6	31.2	47	412.0	4.28	1.16	0.45	0.49	32.0	0.39	0.22	0.32	0.05	0.03
SWE24	89-90	8.7	70	3074	1837	8.4	31.6	52	473.2	4.44	0.90	0.41	0.44	23.9	0.34	0.24	0.93	0.05	0.11
SWE24	90-91	7.3	72	3643	1527	6.3	27.3	39	643.4	4.57	0.61	0.32	0.34	18.1	0.31	0.20	0.20	0.04	0.02
SWE24	91-92	8.6	70	2945	1793	5.7	28.1	45	496.0	4.58	0.80	0.42	0.54	25.8	0.32	0.25	0.18	0.04	0.03
SWE24	92-93	7.0	70	2580		5.7	25.2	43	577.0	4.37	0.66	0.37	0.40	31.2	0.32	0.25	0.11	0.04	0.03
SWE24	93-94	6.7	70	2171	1965	5.4	25.0	49		4.49	0.65	0.35	0.67	22.1	0.30	0.38	0.16	0.06	0.06
SWE25	87-88	7.6	78	3959	1616	19.6	45.8		531.0	4.35	1.14	0.52	0.42	31.7	0.51	0.23	0.27	0.05	0.04
SWE25	88-89	9.1	67	2543	1978	20.0	45.4		412.0	4.28	1.16	0.45	0.49	32.0	0.39	0.22	0.32	0.05	0.03
SWE25	89-90	8.7	70	3074	1831	10.3	40.2		473.2	4.44	0.90	0.41	0.44	23.9	0.34	0.24	0.93	0.05	0.11
SWE25	90-91	7.3	72	3643	1527	2.7	26.1		643.4	4.57	0.61	0.32	0.34	18.1	0.31	0.20	0.20	0.04	0.02
SWE25	91-92	8.6	70	2945	1793	3.9	25.3		496.0	4.58	0.80	0.42	0.54	25.8	0.32	0.25	0.18	0.04	0.03
SWE25	92-93	7.0	70	2580		4.7	26.3		577.0	4.37	0.66	0.37	0.40	31.2	0.32	0.25	0.11	0.04	0.03
SWE25	93-94	6.7	70	2171	1965	5.2	25.5			4.49	0.65	0.35	0.67	22.1	0.30	0.38	0.16	0.06	0.06

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE			GASSES			PRECIPITATION					PRE-OPTIONS							
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m3	NO <sub>2</sub> ug/m3	O <sub>3</sub> ug/m	mm	pH	SO <sub>4</sub> -S* mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
SWE26	87-88	6.0	83	4534	1673	3.3	5.1	55	542.7	4.27	1.30	0.60	0.54	32.6	0.71	0.40	0.27	0.08	0.11	
SWE26	88-89	6.9	77	3407	1902	1.9	4.5	61	377.0	4.28	1.31	0.64	0.61	34.6	0.78	0.44	0.26	0.07	0.11	
SWE26	89-90	7.6	77	3469	1817	2.0	4.8	59	342.3	4.37	1.02	0.56	0.63	32.6	0.52	0.45	0.20	0.07	0.14	
SWE26	90-91	6.1	80	3315	1555	2.6	3.8	54	516.5	4.46	0.84	0.44	0.74	25.7	0.46	0.50	0.17	0.07	0.08	
SWE26	91-92	7.2	77	3438	1837	1.8	3.6	58	412.6	4.45	0.78	0.46	0.68	22.6	0.48	0.33	0.12	0.06	0.09	
SWE26	92-93	6.0	81	3592		1.3	3.2	58	467.8	4.37	0.75	0.48	0.71	26.4	0.34	0.37	0.12	0.06	0.04	
SWE26	93-94	5.6	82	3713	1911	1.8	3.6	38	490.0	4.37	0.87	0.46	0.65	26.4	0.51	0.34	0.14	0.06	0.09	
UK 27	87-88	9.2	84	6230		17.7	68.6		364.9	4.86	1.69	0.75	2.09	41.4	0.98	0.66	2.74	0.13	0.34	
UK 27	88-89	10.7	83	5583		19.6	54.2		288.8	4.11	2.22	0.75	5.20	67.0	0.91	2.24	1.85	0.30	0.18	
UK 27	89-90	11.1	81	5510		15.5	33.0		308.2	4.20	1.67	0.47	3.34	42.9	0.55	1.33	1.29	0.24	0.13	
UK 27	90-91	10.0	87	6310		20.2	28.3		206.3	4.30	2.14	0.81	4.62	67.4	0.98	2.15	1.76	0.42	0.48	
UK 27	91-92	11.0	86	5839		20.4	29.9		404.1	4.47	1.50	0.55	3.40	45.6	0.74	1.29	1.20	0.27	0.46	
UK 27	92-93	11.1	91			20.2	35.4			4.77	1.22	0.44	2.07	29.9	0.55	0.77	1.91	0.16	0.64	
UK 27	93-94																			
UK 28	87-88	11.2	86	5715		7.2	21.5		447.1	5.44	1.22	0.32	4.11	46.3	0.88	3.47	0.93	0.32	0.48	
UK 28	88-89	12.2	75	5625		6.6	24.7		455.6	5.42	1.21	0.43	3.75	51.2	1.91	2.97	1.02	0.29	2.00	
UK 28	89-90	12.7	82	5995		6.9	25.1		415.8	5.09	1.64	0.39	6.89	58.6	1.88	5.13	1.03	0.39	1.60	
UK 28	90-91	12.0	88	6628		5.0	22.1		535.6	6.22	2.87	0.76	7.86	90.9	5.82	5.71	1.50	0.51	4.15	
UK 28	91-92	12.9	88			6.4	22.1			6.08	1.77	0.68	3.78	59.1	2.66	3.78	1.41	0.35	1.37	
UK 28	92-93	9.6	96			3.0	23.8			3.72	2.50	0.78	8.30	104.1	4.87	4.91	1.44	0.58	4.38	
UK 28	93-94																			
UK 29	87-88	9.8				4.3	2.3	49	1702.9	4.82	0.66	0.19	4.08		0.27	2.36	0.32	0.38	0.15	
UK 29	88-89	10.9				3.2	4.1	62	1683.5	4.61	0.84	0.20	4.74		0.29	2.65	0.32	0.28	0.19	
UK 29	89-90	10.7	96			3.5	4.2	57	2046.3	4.84	1.18	0.06	10.87		0.32	6.00	0.74	0.60	0.49	
UK 29	90-91	6.7				5.2	4.6	45												
UK 29	91-92																			
UK 29	92-93																			
UK 29	93-94																			
UK 30	87-88	10.2	78	3763		15.0	86.0		609.5	4.12	2.17	0.55	3.87		0.19	1.68	1.08	0.21	0.22	
UK 30	88-89	9.2	75	6163		9.1	34.2		628.8	4.13	1.89	0.36	4.43		0.92	1.85	1.07	0.28	0.19	
UK 30	89-90			5873		12.1	30.0		648.2	3.84	1.38	0.29	5.05		0.44	2.20	0.80	0.31	0.24	
UK 30	90-91			5200		27.4	39.2		498.5	3.18	2.37	0.36	4.59		2.96	1.82	2.47	0.38	0.79	
UK 30	91-92			3968		8.7	25.1		588.9	4.66	1.20	0.45	1.90		0.66	1.09	1.32	0.12	0.30	
UK 30	92-93					9.3	27.6			4.31	1.54	0.52	3.31		0.43	1.70	0.65	0.32	0.26	
UK 30	93-94																			

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE			GASSES			PRECIPITATION						PRE-OPTIONS					
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m3	NO <sub>2</sub> ug/m3	O <sub>3</sub> ug/m	mm	pH	SO <sub>4</sub> -S <sup>-</sup> mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
SPA31	87-88	14.1	66	2762	2606	18.4	24.3	26	3.0	5.26	1.43	0.33	0.61	26.5	0.75	0.84	1.71	0.23	0.15
SPA31	88-89	15.0	52	974	2894	18.1	31.9		322.1	6.42	2.49	0.45	0.69	25.9	0.57	0.63	1.89	0.21	0.19
SPA31	89-90	16.3	54	1160	2648	15.3	22.8		331.5	5.14	1.23	0.45	0.73	31.7	0.65	0.65	2.69	0.18	0.11
SPA31	90-91	14.4	57	1555	2843	10.3	20.1		307.9	6.14	1.26	0.37	0.62	25.8	0.71	0.78	1.91	0.21	0.10
SPA31	91-92	13.8	59	1447	2576	8.6	21.9		309.8	6.46	1.34	0.37	0.54	26.2	0.48	0.43	1.57	0.14	0.10
SPA31	92-93	14.3	67	2319	2856	8.2	32.1		360.1	6.56	1.36	0.56	0.53	34.8	0.53	0.32	1.35	0.12	0.11
SPA31	93-94	15.0	72	3164	2957	7.6	29.6		339.4	6.40	1.87	0.94	0.97	32.7	0.25	0.58	1.15	0.15	0.18
SPA32	87-88	15.2	74	4221	1368	35.2	34.7		1355.4	4.73	8.95	2.28	6.67	54.9	1.88	2.69	3.69		
SPA32	88-89	15.3	73	4245	1840	49.1	43.0		773.5	5.32	14.26	3.54	9.71	79.0	2.92	3.28	7.02		
SPA32	89-90	16.2	71	3769	1879	41.4	41.8		830.7	4.71	13.26	3.83	9.00	78.9	2.51	3.28	6.86		
SPA32	90-91	13.9	74	4536	1577	23.5	31.6		1110.8	5.00	8.61	2.98	6.65	57.1	2.03	2.75	4.33	0.00	0.00
SPA32	91-92	14.2	77	5133	1629	7.1	32.8		1031.9	5.02	9.54	3.29	8.14	63.6	1.77	3.04	5.42	0.40	0.27
SPA32	92-93	14.2	75	4573	1512	9.3	21.4		1560.3	5.10	12.28	2.31	7.49	73.8	1.10	2.66	9.17	0.48	0.34
SPA32	93-94	13.6	75	4500	1416	8.5	32.0		1012.1	5.51	8.43	2.59	10.26	64.9	1.38	3.34	6.60	0.67	0.32
SPA33	87-88	14.0	64	2275	2432	3.3	9.1		785.0	5.27	0.45	0.12	0.51	11.2	0.12	0.65	0.49	0.12	0.24
SPA33	88-89	15.1	59	1848	2665	8.6	14.8		426.9	5.23	0.59	0.10	0.47	13.4	0.21	0.45	0.58	0.08	0.08
SPA33	89-90	15.5	61	2147	2573	13.5	16.3		610.4	6.20	0.60	0.20	0.72	11.3	0.24	0.74	1.21	0.12	0.14
SPA33	90-91	13.9	56	945	2609	6.0	16.1		477.1	5.74	0.41	0.17	0.54	13.4	0.18	0.47	0.56	0.09	0.06
SPA33	91-92	13.6	58	1426	2661	4.6	14.9		539.6	5.73	0.70	0.23	0.53	13.4	0.32	0.36	0.49	0.07	0.08
SPA33	92-93	13.4	61	1888	2685	1.7	24.0	76	432.5	5.93	0.54	0.17	0.58	16.2	0.24	0.38	0.42	0.06	0.13
SPA33	93-94	13.9	58	2025	2812	3.5	19.3	74	468.0	5.91	0.48	0.17	0.82	17.8	0.12	0.49	0.26	0.07	0.06
RUS34	87-88	5.5	73	2084	1580	19.2	74.9		575.4	6.18	1.44	0.06	1.30	28.8	1.15				
RUS34	88-89	7.0	75	2682	1590	25.5	69.5		612.7	4.89	3.09	0.15	0.53	45.8	0.80				
RUS34	89-90	5.7	76	2894	1592	30.8	50.1		860.2	6.22	2.56	0.14	0.33	29.4	0.45				
RUS34	90-91	6.0	75	2589	1502	26.0	53.2		801.8	6.12	2.35	0.15	0.43	38.5	0.35				
RUS34	91-92	7.2	72	1960	1593	28.0	38.7		534.4	6.07	1.87	0.15	0.56	36.7	0.41				
RUS34	92-93	5.7	74	2444	1597	28.7	37.1		880.6	6.04	2.19	0.14	0.64	30.3	0.47				
RUS34	93-94	4.0	74	1817	1597	18.9	31.5		745.0	6.06	2.39	0.19	0.81	33.1	0.67				
EST35	87-88	5.5	83	4092	1571	0.9	2.9		447.8	4.66	1.11	0.30			0.28	0.39	0.88		
EST35	88-89	6.9	80	3609	1871	0.3	3.8		588.5	4.50	0.87	0.30			0.23	0.56	0.29		0.42
EST35	89-90	6.7	81	4332	1850	0.6	6.5		532.7	4.65	0.75	0.31	0.81	19.9	0.20	0.55	0.51	0.08	0.08
EST35	90-91	5.5	83	4272	1634		5.3		564.0	4.76	0.81	0.26	0.48	15.1	0.12	0.28	1.06	0.05	0.29
EST35	91-92	11.2	80																
EST35	92-93																		
EST35	93-94																		

\* Not corrected for sea-salt sulphate.

Table 2, cont.

SITE	YEAR	CLIMATE			GASSES			PRECIPITATION					PRE-OPTIONS						
		Temp C	Rh %	Tow hours	Sun hours	SO <sub>2</sub> ug/m <sup>3</sup>	NO <sub>2</sub> ug/m <sup>3</sup>	O <sub>3</sub> ug/m <sup>3</sup>	mm	pH	SO <sub>4</sub> -S* mg/l	NO <sub>3</sub> -N mg/l	Cl mg/l	Cond uS/cm	NH <sub>4</sub> -N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
POR36	87-88	12.1	64	1517		6.8	36.8		972.0	6.06	11.63	1.01	3.18	63.5	0.43	2.73	2.56		0.34
POR36	88-89	17.8	61	764	4560	11.9	21.5	35	625.4	5.46	9.80	1.71	4.15	62.0	0.55	2.74	4.07	0.64	0.58
POR36	89-90	19.3	63	989	3758	6.6	32.9	29	1103.1	5.57	5.31	1.90	3.99	53.2	0.59	2.52	1.95	0.42	0.45
POR36	90-91	18.2	62	1000		11.3	30.1	42	954.5	5.37		1.45	3.37	51.0	0.63	4.08	1.97	0.36	0.50
POR36	91-92	18.2	60	1087		41.1	45.7	25		5.54		1.51	1.89	76.9	1.05	1.45	4.73	0.19	0.19
POR36	92-93	18.0	62	1072		16.1	35.0	37	544.9	5.83	17.10	6.47	11.87	82.6	1.40	4.96	7.95	0.67	0.35
POR36	93-94	18.3	65	1278		10.0	33.3	34		5.59	8.34	1.41	13.92	69.6	0.43	8.42	5.83	0.78	1.19
CAN37	87-88	5.5	75	3252	2138	3.3	1.6	59	961.1	4.27	0.89	0.62	0.14	27.9	0.42	0.07	0.26		
CAN37	88-89	4.8	73	2676	1985	4.2	2.0	60	958.6	4.33	0.81	0.51	0.12	24.8	0.36	0.06	0.18		
CAN37	89-90	5.0	79	3431	1996	3.0	2.0	64	1103.0	4.38	0.76	0.53	0.11	25.0	0.34	0.04	0.22		
CAN37	90-91	5.9	79	3566	2061	2.8	1.0	52	1057.0	4.34	0.75	0.46	0.08	23.8	0.31	0.03	0.14		
CAN37	91-92	3.8	75	3078	1628	2.1		61	983.0	4.40	0.69	0.46	0.13	23.4	0.32	0.06	0.13		
CAN37	92-93	4.3	80	3302	1679	2.1		56	1080.0	4.32	0.68		0.08	25.4	0.34	0.03	0.12		
CAN37	93-94	3.2	81	3432	1870			59											
USA38	87-88	14.6	69	3178	2610	9.6	26.9	54	846.7	4.29	0.73	0.28	0.36	24.9	0.18	0.17	0.06	0.03	0.04
USA38	88-89	15.0	66	2839	2229	10.0	25.3	50	1412.8	4.29	0.75	0.28	0.24	23.4	0.19	0.10	0.05	0.02	0.03
USA38	89-90	16.3	66	3026	2421	9.2	25.3	57	1106.7	4.45	0.61	0.24	0.36	19.6	0.26	0.16	0.06	0.02	0.03
USA38	90-91	15.5	69	2967	2298	7.9	25.2	52	1093.3	4.43	0.59	0.28	0.47	20.9	0.16	0.21	0.08	0.03	0.04
USA38	91-92	15.4	66	2714	2215	13.0	26.2	48	940.2	4.54	0.59	0.33	0.32	17.9	0.29	0.17	0.07	0.03	0.02
USA38	92-93	15.5	64	2644	2377	10.1	25.7	41	982.3	4.46	0.64	0.26	0.32	18.9	0.17	0.15	0.09	0.05	0.03
USA38	93-94	15.6	66	3078	2516	8.9	26.6	49	973.4	4.42	0.72	0.33	0.30	22.0	0.15	0.12	0.06	0.04	0.05
USA39	87-88	12.3	67	2111	1942	58.1	41.8	42	733.1	4.00	1.76	0.51	0.48	54.0	0.32	0.09	0.40	0.07	0.07
USA39	88-89	10.9	64	1781	1769	59.4	44.8	36	932.8	3.91	1.82	0.49	0.35	54.9	0.42	0.05	0.35	0.06	0.04
USA39	89-90	11.2	61	1319	1713	55.2	40.5	33	967.4	4.08	2.00	0.46	0.46	46.3	0.35	0.09	0.56	0.08	0.06
USA39	90-91	13.6	59	1787	1787	64.3	50.9	44	937.6	3.88	1.74	0.52	0.83	45.4	0.41	0.29	0.87	0.25	0.19
USA39	91-92	11.6	61	1459	1758	33.9	25.5	30	729.9	4.15	2.04	0.40	0.39	47.5	0.39	0.05	0.42	0.07	0.04
USA39	92-93	11.8	65	1532	1794	43.1	43.3	36	729.4	4.03	1.91	0.48	0.39	48.3	0.37	0.11	0.52	0.08	0.06
USA39	93-94	10.6	68	1673	1842	44.3	40.8	40	1043.0	4.20	2.41	0.39	0.46	59.2	0.34	0.18	0.71	0.05	0.04

\* Not corrected for sea-salt sulphate.

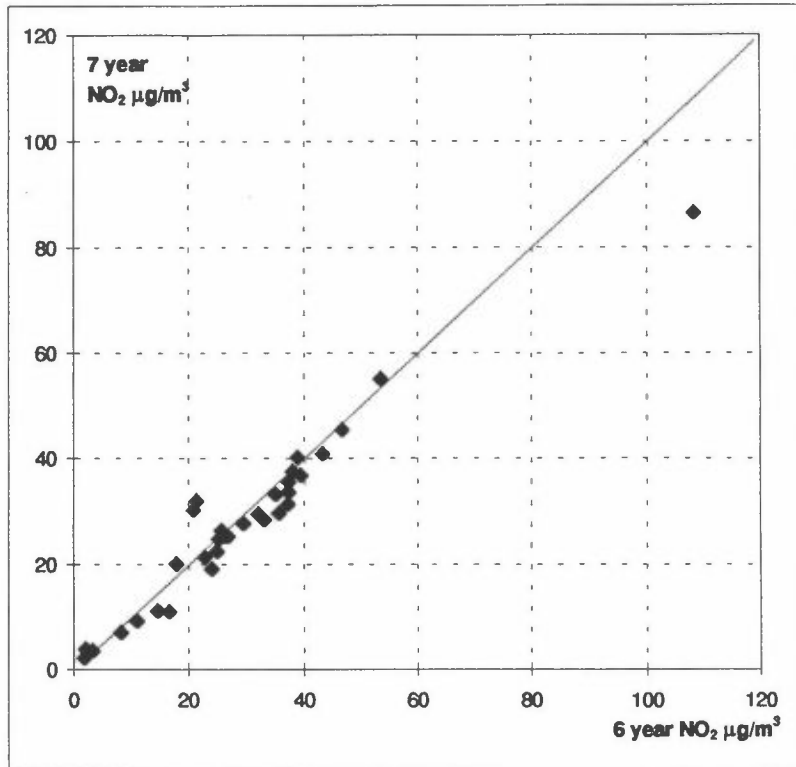


Figure 1: Scatterplot for NO<sub>2</sub> yearly mean values for the sixth versus the seventh year results.

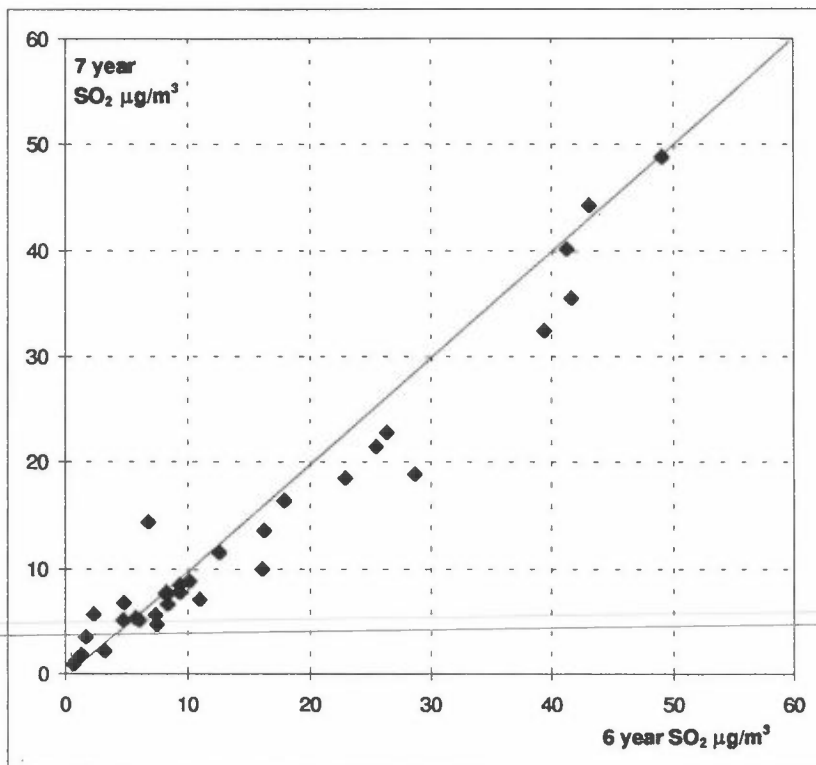


Figure 2: Scatterplot for SO<sub>2</sub> yearly mean values for the sixth versus the seventh year results.



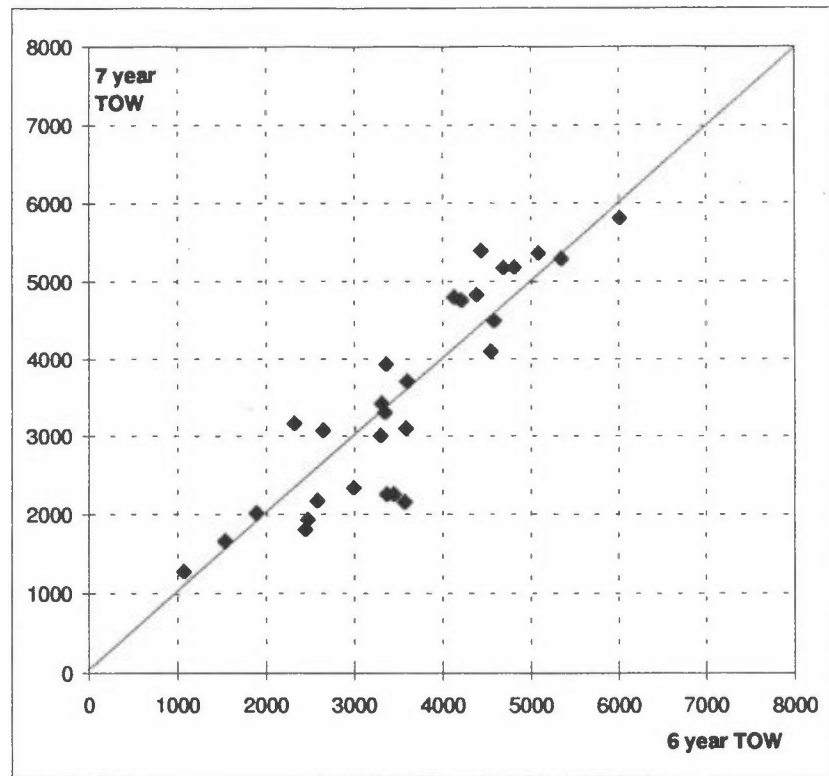


Figure 3: Scatterplot for TOW yearly mean values for the sixth versus the seventh year results.

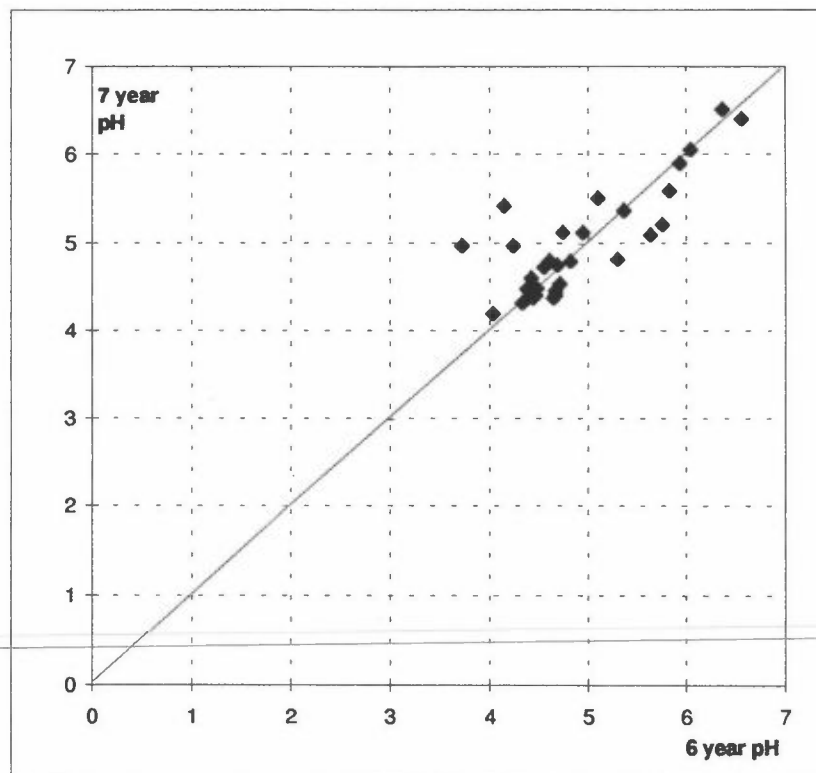


Figure 4: Scatterplot for pH yearly mean values for the sixth versus the seventh year results.



## **Appendix A**

### **Environmental data for the seventh year monthly and yearly values**



ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (01) Prague-Letnany, The Czech Rep.

Date	C L I M A T E		G A S E S			P R E C I P I T A T I O N			P R E C. - O P T I O N									
	Temp C	Rh %	Tow hours	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	13.1	77.	170.	21.8	21.9	51.4	5.30	4.80	2.40	0.50	19.0	12.00						
	d	d	d	m	m	d	m	m	m	m	m	m						
	100%	100%	100%			100%												
Oct93	8.3	80.	91.	34.2	22.1	49.9	5.60	10.00	3.60	2.30	25.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Nov93	1.0	93.	37.	72.1	26.2	38.9	6.30	8.60	3.20	1.60	22.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Dec93	3.5	76.	47.	39.7	26.3	50.3	6.20	7.60	3.60	3.10	24.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Jan94	2.9	85.	56.	59.2	26.5	15.5	6.30	21.00	8.60	3.70	47.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Feb94	-0.1	87.	78.	68.5	27.4	13.9	4.44	18.00	14.00	3.50	52.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Mar94	6.9	79.	98.	46.3	24.2	43.8	6.59	8.30	3.30	0.20	37.9							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Apr94	8.7	74.	164.	43.9	21.8	45.3	4.99	8.50	3.00	1.00	24.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
May94	13.7	73.	237.	29.3	18.2	46.7	5.20	9.00	4.50	0.80	25.5							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Jun94	17.8	67.	250.	23.3	18.3	36.4	8.61	29.00	8.30	1.70	44.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Jul94	22.9	57.	319.	23.1	15.6	25.7	8.54	10.00	1.20	1.80	49.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Aug94	19.3	68.	242.	20.8	21.4	144.7	5.56	7.80	3.10	4.90	36.0							
	d	d	d	m	m	d	m	m	m	m	m							
	100%	100%	100%			100%												
Mean	9.9	76.	1789.	40.2	22.5	562.5	5.42	10.04	3.93	2.44	31.5	12.00						
	d	d	d	m	m	d	m	m	m	m	m	m						
	100%	100%	100%			100%												

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (02) Kasperske Hory, The Czech Rep.

Date	CLIMATE		GASES			PRECIPITATION			PRECIPITATION			PRECIPITATION					
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	10.5	78. d		9.1	5.6		60.4 d 100%	5.18 m	2.10 m	1.60 m	0.80 m	11.0 m	10.00 m				
Oct93	6.2	79. d		10.1	7.7		61.0 d 100%	5.65 m	2.80 m	1.80 m	0.70 m	18.6 m					
Nov93	-2.6	83. d		40.7	14.3		44.5 d 100%	5.39 m	4.30 m	2.50 m	0.80 m	16.4 m					
Dec93	1.3	78. d		15.0	5.9		129.3 d 100%	5.80 m	2.50 m	1.80 m	1.70 m	10.3 m					
Jan94	1.1	74. d		15.6	7.5		36.4 d 100%	5.75 m	3.80 m	2.50 m	1.40 m	13.9 m					
Feb94	-2.0	75. d		24.1	10.0		17.7 d 100%	4.29 m	7.80 m	6.50 m	1.30 m	30.2 m					
Mar94	5.1	72. d		15.5	5.8		58.4 d 100%	5.75 m	2.80 m	3.50 m	1.10 m	15.2 m					
Apr94	5.4	74. d		21.8	8.7		63.7 d 100%	4.07 m	7.70 m	4.60 m	9.70 m	33.0 m					
May94	10.8	72. d		11.9	5.0		61.3 d 100%	5.28 m	4.20 m	3.10 m	6.20 m	22.0 m					
Jun94	14.7	67. d		9.8	3.9		61.3 d 100%	5.93 m	4.00 m	1.70 m	1.80 m	20.0 m					
Jul94	18.6	62. d		9.4	4.9		106.5 d 100%	5.08 m	2.90 m	1.30 m	6.90 m	21.0 m					
Aug94	16.1	69. d		13.9	6.7		108.4 d 100%	6.28 m	2.60 m	1.00 m	2.40 m	25.6 m					
Mean	7.2	73. d		16.4	7.2		808.9 d 100%	4.97 m	3.51 m	2.22 m	3.20 m	19.1 m	10.00 xm				

ECE-PROGRAMME ON EFFECTS ON MATERIALS				SITE: (03) Kopisty, The Czech Rep.													
Date	C L I M A T E		G A S E S			P R E C I P I T A T I O N			P R E C I P I T A T I O N			P R E C I P I T A T I O N					
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	12.6 d 100%100%	76. d 100%100%	134. d 100%	37.5 m	29.0 m		25.9 d 100%	4.98 m	3.00 m	0.51 m	0.30 m	7.9 m					7.50 m
Oct93	7.7 d 100%100%	82. d 100%100%	71. d 100%	46.8 m	34.3 m		40.8 d 100%	5.29 m	22.00 m	0.00 m	1.20 m	39.0 m					
Nov93	0.5 d 100%100%	88. d 100%100%	19. d 100%	63.0 m	34.3 m		39.9 d 100%	4.78 m	18.00 m	3.60 m	0.80 m	37.0 m					
Dec93	3.0 d 100%100%	80. d 100%100%	44. d 100%	30.3 m	31.9 m		61.4 d 100%	5.40 m	9.40 m	1.80 m	1.60 m	27.9 m					
Jan94	2.8 d 100%100%	79. d 100%100%	42. d 100%	62.1 m	32.4 m		54.1 d 100%	5.60 m	6.80 m	2.50 m	1.10 m	34.3 m					
Feb94	-0.5 d 100%100%	81. d 100%100%	59. d 100%	55.5 m	34.9 m		17.2 d 100%	4.93 m	22.00 m	10.60 m	2.70 m	80.0 m					
Mar94	6.7 d 100%100%	72. d 100%100%	94. d 100%	55.5 m	29.4 m		39.0 d 100%	4.36 m	14.00 m	6.50 m	1.70 m	41.8 m					
Apr94	9.1 d 100%100%	67. d 100%100%	145. d 100%	56.1 m	34.3 m		38.2 d 100%	4.89 m	19.00 m	8.00 m	5.80 m	60.0 m					
May94	13.9 d 100%100%	67. d 100%100%	214. d 100%	52.0 m	25.1 m		74.0 d 100%	4.67 m	16.00 m	5.80 m	0.90 m	42.0 m					
Jun94	17.9 d 100%100%	61. d 100%100%	231. d 100%	44.5 m	20.0 m		15.7 d 100%	4.75 m	23.00 m	7.10 m	5.00 m	41.0 m					
Jul94	22.3 d 100%100%	60. d 100%100%	299. d 100%	46.0 m	24.6 m		100.3 d 100%	5.68 m	12.00 m	1.40 m	1.50 m	32.0 m					
Aug94	18.8 d 100%100%	69. d 100%100%	219. d 100%	37.0 m	27.6 m		90.9 d 100%	5.42 m	17.00 m	3.70 m	1.50 m	36.0 m					
Mean	9.6 d 100%100%	73. d 100%100%	1571. d 100%	48.9 m	29.8 m		597.4 d 100%	4.97 m	14.37 m	3.62 m	1.70 m	37.5 m					7.50 m

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (04) Espoo, Finland

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION			PRECIPITATION			
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	6.5	78.	264.	2.0	27.0		43.0	4.60	0.60	0.40	0.50	21.4				
	m	m	m	m	m		m	m	m	m	m	m				
Oct93	4.0	83.	306.	3.0	31.0		73.8	4.30	1.00	1.00	1.00	34.0				
	m	m	m	m	m		m	m	m	m	m	m				
Nov93	-2.4	79.	126.	14.0	43.0		2.8									
	m	m	m	m	m		m									
Dec93	-2.8	91.	228.	7.0	30.0		70.1									
	m	m	m	m	m		m									
Jan94	-3.9	93.	192.	6.0	32.0		53.7									
	m	m	m	m	m		m									
Feb94	-12.8	86.	0.	17.0	49.0		0.9									
	m	m	m	m	m		m									
Mar94	-2.5	86.	276.	8.0	34.0		80.5									
	m	m	m	m	m		m									
Apr94	4.4	81.	336.	4.0	37.0		52.3									
	m	m	m	m	m		m									
May94	8.0	64.	114.	3.0	23.0		59.2									
	m	m	m	m	m		m									
Jun94	12.5	78.	282.	1.0	17.0		57.7									
	m	m	m	m	m		m									
Jul94	18.8	67.	72.	1.0	18.0		3.3									
	m	m	m	m	m		m									
Aug94	17.6	82.	72.	2.0	23.0		72.3									
	m	m	m	m	m		m									
Mean	4.0	81.	2268.	5.7	30.3		569.6	4.39	0.85	0.78	0.82	29.4				
	m	m	m	m	m		m	xcn	xcn	xcn	xcn	xcn				



ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (05) Ahtari, Finland

Date	C L I M A T E		G A S E S			P R E C I P I T A T I O N			P R E C I P I T A T I O N			P R E C I P I T A T I O N					
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	4.2 d	83 m	318 m	0.4 d	2.5 d	39 d	19.2 d	4.45 d	0.58 d	0.21 d	0.11 d	18.2 d	0.13 d	0.14 d	0.07 d	0.02 d	0.10 d
	100%			93%	96%	100%	100%	100%	96%	96%	96%	96%	96%	96%	96%	96%	96%
Oct93	1.3 d	87 m	360 m	0.4 d	2.7 d	49 d	61.0 d	4.55 d	0.59 d	0.32 d	0.21 d	17.7 d	0.29 d	0.16 d	0.11 d	0.02 d	0.07 d
	100%			100%	77%	96%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Nov93	-4.8 d	88 m	54 m	3.1 d	5.2 d	41 d	3.5 d	3.92 d	2.24 d	1.06 d	0.53 d	70.1 d	0.56 d	0.69 d	0.53 d	0.08 d	0.12 d
	100%			100%	100%	100%	100%	97%	88%	88%	88%	97%	88%	88%	88%	88%	88%
Dec93	-6.0 d	91 m	72 m	2.7 d	5.1 d	44 d	65.3 d	4.53 d	0.24 d	0.33 d	0.13 d	14.6 d	0.11 d	0.09 d	0.04 d	0.02 d	0.03 d
	100%			100%	93%	83%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Jan94	-7.6 d	90 m	75 m	2.0 d	4.5 d	48 d	42.2 d	4.36 d	0.40 d	0.42 d	0.34 d	22.7 d	0.10 d	0.24 d	0.06 d	0.03 d	0.03 d
	100%			100%	100%	93%	100%	100%	99%	99%	99%	100%	99%	99%	99%	99%	99%
Feb94	-15.9 d	83 m	0 m	3.4 d	10.1 d	53 d	1.2 d	4.30 d				35.6 d					
	100%			100%	96%	100%	100%	100%				100%					
Mar94	-4.8 d	83 m	75 m	1.9 d	4.7 d	81 d	57.3 d	4.53 d	0.20 d	0.32 d	0.16 d	13.7 d	0.08 d	0.09 d	0.05 d	0.01 d	0.01 d
	100%			93%	96%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Apr94	3.2 d	77 m	267 m	1.0 d	3.6 d	84 d	61.8 d	4.75 d	0.62 d	0.25 d	0.15 d	14.5 d	0.30 d	0.12 d	0.32 d	0.04 d	0.08 d
	100%			100%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
May94	6.1 d	63 m	129 m	0.4 d	3.3 d	78 d	13.7 d	4.91 d	0.23 d	0.16 d	0.10 d	7.9 d	0.07 d	0.17 d	0.11 d	0.02 d	0.03 d
	100%			77%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jun94	11.8 d	73 m	309 m	0.2 d	1.9 d	62 d	111.2 d	4.64 d	0.35 d	0.16 d	0.10 d	11.7 d	0.13 d	0.08 d	0.05 d	0.01 d	0.07 d
	100%			93%	86%	93%	100%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
Jul94	17.5 d	67 m	282 m	0.3 d	2.2 d	61 d	24.1 d	4.43 d	0.84 d	0.29 d	0.11 d	21.1 d	0.42 d	0.04 d	0.16 d	0.02 d	0.04 d
	100%			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Aug94	13.7 d	77 m	399 m	0.2 d	2.2 d	50 d	45.5 d	4.60 d	0.45 d	0.29 d	0.09 d	15.0 d	0.28 d	0.06 d	0.09 d	0.01 d	0.05 d
	100%			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	1.7 d	80 m	2340 m	1.3 d	4.0 d	58 d	506.0 d	4.55 d	0.43 d	0.28 d	0.15 d	15.6 d	0.19 d	0.12 d	0.11 d	0.02 d	0.05 d
	100%			96%	95%	97%	100%	99%	98%	98%	98%	99%	98%	98%	98%	98%	98%

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (06) Helsinki-Vallila, Finland

Date	CLIMATE			GASES				PRECIPITATION				PRECIPITATION				
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	7.7 d	75. 100%	264. m	4.0 m	36.0 m		16.3 d	4.80 m	0.50 m	0.30 m	0.50 m					
Oct93	4.9 d	79. 100%	306. m	4.0 m	35.0 m		47.5 d	4.40 m	0.80 m	0.70 m	33.0 m					
Nov93	-1.6 d	76. 100%	126. m	11.0 m	38.0 m		7.1 d									
Dec93	-2.0 d	88. 100%	228. m	13.0 m	32.0 m		75.7 d									
Jan94	-3.0 d	90. 100%	192. m	5.0 m	29.0 m		53.7 d									
Feb94	-11.6 d	85. 100%	0. m	15.0 m	47.0 m		0.9 d									
Mar94	-2.1 d	84. 100%	276. m	9.0 m	46.0 m		68.8 m									
Apr94	4.6 d	75. 100%	336. m	5.0 m	47.0 m		64.1 m									
May94	8.8 d	59. 100%	114. m	5.0 m	41.0 m		48.8 m									
Jun94	12.5 d	73. 100%	282. m	3.0 m	30.0 m		56.7 m									
Jul94	19.8 d	60. 100%	72. m	3.0 m	33.0 m		1.8 m									
Aug94	16.4 d	69. 100%	72. m	5.0 m	27.0 m		67.4 d									
Mean	4.7 d	76. 100%	2268. m	6.8 m	36.8 m		508.8 m	4.47 m	0.72 m	0.67 m	0.65 m					29.1 m

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (07) Waldhof-Langenbrugge, Germany

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N								
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sep93	12.3	87	514	7.5	3.7	41	65.7	4.32	1.26	0.77	0.55	32.5	0.71	0.24	0.66	0.09	0.16	
	d	d	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%				100%	99%	98%	98%	98%	99%	98%	98%	98%	98%	98%	98%
Oct93	7.9	94	487	6.6	11.5	30	33.1	4.78	0.91	0.65	0.39	22.3	0.73	0.19	0.54	0.07	0.17	
	d	d	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
	100%	93%	100%				100%	97%	95%	95%	95%	97%	95%	95%	95%	95%	95%	95%
Nov93	0.0	94	363	25.6	18.2	28	26.2	4.54	0.91	0.67	0.42	26.3	0.43	0.14	0.54	0.07	0.12	
	d	d	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
	96%	96%	100%				100%	98%	94%	94%	94%	98%	94%	94%	94%	94%	94%	94%
Dec93	3.0	93	619	8.8	14.1	35	104.8	4.59	0.84	0.60	1.74	25.8	0.38	0.82	0.51	0.15	0.19	
	d	d	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%				100%	99%	94%	94%	94%	99%	94%	94%	94%	94%	94%	94%
Jan94	3.1	92	619	6.0	13.8	33	104.0	4.60	0.79	0.48	4.34	32.6	0.36	2.32	0.43	0.31	0.17	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	99%	99%	99%	99%	95%	99%	99%	99%	99%	99%
Feb94	-1.8	83	239	18.3	12.4	38	19.1	4.22	1.02	0.91	0.42	38.8	0.49	0.13	0.52	0.06	0.12	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	96%	90%	90%	90%	96%	94%	94%	94%	94%	94%	94%
Mar94	5.4	85	470	3.4	10.0	58	105.4	4.80	0.88	0.58	2.06	25.6	0.70	1.00	0.42	0.17	0.13	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	99%	99%	99%	99%	99%	98%	98%	98%	98%	98%
Apr94	8.4	75	315	4.2	6.1	75	50.2	4.75	0.93	0.55	0.56	21.6	0.86	0.24	0.36	0.07	0.14	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	99%	99%	99%	99%	98%	98%	98%	98%	98%	98%
May94	12.8	72	319	3.6	5.2	78	51.5	4.42	1.24	0.71	0.51	29.8	0.61	0.23	0.91	0.12	0.19	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	97%	97%	97%	99%	98%	99%	99%	99%	99%	99%
Jun94	15.5	72	320	2.5	5.4	75	29.4	4.52	1.09	0.92	0.77	26.8	0.84	0.30	0.62	0.11	0.16	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	98%	99%	99%	99%	98%	99%	98%	98%	98%	98%	98%
Jul94	22.0	62	199	4.5	5.3	99	44.6	4.14	1.87	0.80	0.22	44.2	0.93	0.12	0.73	0.08	0.11	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	98%	98%	98%	99%	100%	100%	100%	100%	100%	100%
Aug94	17.9	73	363	2.0	6.2	75	109.2	4.42	1.20	0.87	0.50	32.8	1.08	0.20	0.57	0.08	0.13	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Mean	8.9	82	4827	7.8	9.3	55	743.2	4.50	1.04	0.68	1.43	29.7	0.68	0.70	0.55	0.14	0.15	
	m	m	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d
							100%	99%	98%	98%	98%	99%	97%	98%	98%	98%	98%	98%

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (08) Aschaffenburg, Germany

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION							
	Temp C	Rh %	Tow Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	15.1	66.	234.	7.0	36.0	27.	72.0	5.84	0.43	4.95	0.28	19.8	0.00	0.50	0.22		
Oct93	9.7	71.	224.	12.0	39.0	16.	44.0	6.74	1.05	0.45	0.59	38.0	2.69	0.64	0.32		
Nov93	2.2	69.	156.	32.0	42.0	12.	16.0	4.26	1.34	2.95	0.45	36.7	0.50	0.53	0.31		
Dec93	4.8	76.	266.	8.0	36.0	26.	165.0										
Jan94	4.5	73.	209.	11.0	41.0	24.	54.0										
Feb94	2.3	66.	211.	26.0	53.0	19.	39.0										
Mar94	8.7	65.	188.	8.0	40.0	37.	85.0										
Apr94	10.6	61.	144.	10.0	39.0	52.	60.0										
May94	15.2	59.	176.	6.0	37.0	53.	91.0										
Jun94	19.2	55.	105.	6.0	36.0	57.	39.0										
Jul94	24.4	52.	88.	8.0	45.0	72.	56.0										
Aug94	20.2	59.	164.	5.0	38.0	49.	33.0										
Mean	11.4	64.	2165.	11.6	40.2	37.	754.0	5.12	0.75	3.21	0.40	27.9	0.96	0.55	0.26		

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (09) Langenfeld-Reusrath, Germany

Date	CLIMATE		GASES			PRECIPITATION		COND		PRECIPITATION							
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	12.6	85	531	9.0	33.0	134.1	4.70	0.28	0.09	0.45	17.7	0.43	0.09	0.33	0.00	0.04	
Oct93	9.7	89	569	13.4	36.7	119.5	4.60	0.22	0.09	0.45	18.3	0.35	0.24	0.38	0.00	0.13	
Nov93	3.2	86	339	26.4	39.0	26.7	4.60	0.61	0.15	4.30	38.3	0.91	0.64	1.49	0.04	3.04	
Dec93	5.8	90	617	15.6	32.5	150.8	8.60	0.34	0.10	1.84	27.3	0.60	1.08	0.46	0.00	0.27	
Jan94	5.3	90	604	12.5	34.6	48.7	4.90	1.14	0.53	2.93	30.1	0.65	1.47	1.02	0.16	0.07	
Feb94	2.7	80	358	23.7	42.7	27.1	4.26	2.53	1.30	2.22	58.5	1.97	1.07	1.64	0.11	0.21	
Mar94	8.4	82	459	13.1	32.2	68.8	4.66	1.78	0.64	2.13	32.6	0.95	1.13	1.25	0.16	0.05	
Apr94	9.1	79	396	12.6	36.3	44.2	4.80	1.31	0.72	1.42	28.7	0.93	0.63	0.88	0.04	0.02	
May94	13.4	80	432	9.3	33.9	69.9	4.41	1.98	0.91	1.22	39.2	0.93	0.96	1.91	0.02	0.07	
Jun94	16.7	78	364	9.9	29.4	62.0	5.48	1.23	0.64	1.13	24.8	0.83	0.90	5.60	0.10	0.12	
Jul94	22.8	72	311	9.5	38.7	38.4	4.35	4.97	4.27	1.12	54.5	1.10	0.79	4.16	0.13	0.33	
Aug94	18.6	79	413	8.3	38.8	48.9	5.75	3.98	3.37	1.23	31.9	1.31	0.45	2.90	0.20	0.08	
Mean	10.7	82	5393	13.6	35.6	839.1	4.74	1.23	0.73	1.40	28.8	0.75	0.72	1.43	0.06	0.22	

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (10) Bottrop, Germany

Date	CLIMATE		GASES			mm	PRECIPITATION			PRECIPITATION			PRECIPITATION				
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	12.6	85	501	23.0	36.0	21.	140.0	4.70	0.36	0.09	0.74	20.5	0.41	0.14	0.64	0.04	0.00
Oct93	9.8	86	520	39.4	38.3	16.	19.2	4.70	0.53	0.06	1.37	21.2	0.55	0.48	1.15	0.25	0.10
Nov93	2.8	85	304	64.3	46.2	11.	47.8	4.60	0.53	0.13	2.95	29.1	0.58	0.35	0.90	0.04	1.52
Dec93	5.5	86	570	41.0	36.9	17.	168.3	4.60	0.52	0.09	2.41	32.5	0.53	1.38	0.60	0.05	0.25
Jan94	5.3	87	532	37.4	36.0	19.	70.9	4.85	1.98	0.47	5.33	47.6	0.90	2.93	1.34	0.50	0.21
Feb94	2.4	78	289	61.9	50.0	15.	28.3	4.56	2.96	1.03	2.21	49.3	1.54	1.04	2.22	0.37	0.18
Mar94	8.4	77	396	33.8	37.8	31.	105.0	4.87	2.05	0.52	2.01	31.9	1.20	1.02	1.00	0.05	0.15
Apr94	9.7	76	372	31.5	35.8	40.	83.0	4.78	1.56	0.48	1.35	28.8	1.02	0.35	0.83	0.03	0.05
May94	13.9	75	385	26.9	34.2	42.	76.4	5.11	2.49	1.11	1.37	39.8	1.58	1.19	3.66	0.18	0.26
Jun94	17.1	72	307	24.4	28.3	52.	43.5	5.63	1.56	0.70	1.74	35.2	0.97	1.16	7.71	0.50	0.30
Jul94	23.3	65	251	22.9	36.0		27.0	4.72	4.08	3.81	0.77	40.2	1.21	1.83	1.84	0.00	0.00
Aug94	19.2	72	335	20.1	36.1		33.7	5.51	9.90	5.97	2.56	53.4	2.59	1.10	3.04	0.49	0.61
Mean	10.8	79	4762	35.5	37.6	26.	843.1	4.76	1.71	0.73	2.05	33.3	0.93	1.04	1.61	0.15	0.25

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (11) Essen-Leithe, Germany

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N							
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sept93	12.4	86.	469.	11.0	31.0		134.4	4.70	0.30	0.09	0.48	19.0	0.43	0.16	0.42	0.02	0.13
Oct93	9.2	86.	528.	16.9	32.0		76.3	4.80	0.26	0.11	0.68	17.5	0.44	0.13	0.48	3.00	0.00
Nov93	2.6	84.	292.	36.8	42.7		35.6	4.50	0.45	0.13	9.75	67.8	0.66	0.44	0.77	0.00	11.24
Dec93	5.0	88.	562.	16.5	33.0		150.8	4.80	0.30	0.09	2.21	24.5	0.37	0.77	0.37	0.09	0.31
Jan94	4.7	86.	508.	17.6	30.9		69.4	4.92	1.11	0.45	3.61	31.7	0.61	2.31	0.84	0.26	0.10
Feb94	2.1	79.	301.	34.2	43.6		21.5	4.23	3.40	1.48	2.54	61.4	2.65	1.06	1.89	0.10	0.15
Mar94	8.0	78.	398.	19.1	36.2		105.3	4.72	1.45	0.49	1.85	27.4	1.01	0.85	0.73	0.00	0.13
Apr94	9.2	77.	366.	15.4	31.9		61.8	4.76	1.08	0.52	1.40	26.4	0.94	0.72	0.61	0.03	0.03
May94	13.3	77.	409.	11.5	27.8		72.8	4.97	2.64	1.32	2.08	43.0	2.04	1.26	1.76	0.06	0.45
Jun94	16.5	74.	333.	15.4	29.9		80.8	5.76	1.25	0.59	1.41	23.9	0.87	1.21	7.38	0.02	0.11
Jul94	22.3	69.	271.	15.8	31.2		23.6	4.90	6.32	6.95	3.92	67.7	2.25	0.30	11.51	0.75	0.35
Aug94	18.3	75.	361.	11.3	34.2		55.3	5.95	4.92	3.88	1.60	37.4	1.46	0.67	4.33	0.23	0.02
Mean	10.3	80.	4798.	18.5	33.7		887.6	4.81	1.36	0.80	2.06	30.2	0.89	0.80	1.83	0.34	0.61

BCE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (12) Garmisch-Partenkirchen, Germany

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION							
	Temp C	Rh %	Tow Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	512.	144.	78.1	5.29	0.25	0.15	12.5	0.37	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Oct93	532.	94.	62.2	4.97	0.61	0.24	16.8	0.50	0.38	0.13	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Nov93	301.	65.	37.8	6.26	0.78	1.13	54.0	2.33	0.63	0.23	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Dec93	295.	43.															
Jan94	0.1	90.	318.	65.	5.0	19.0	32.	91.0									
Feb94	-0.7	86.	141.	87.	8.0	24.0	41.	34.0									
Mar94	7.1	74.	188.	139.	1.0	9.0	65.	79.0									
Apr94	5.5	80.	318.	112.	1.0	10.0	72.	110.0									
May94	11.6	79.	359.	164.	1.0	7.0	68.	126.0									
Jun94	15.3	73.	358.	171.	1.0	7.0	73.	126.0									
Jul94	18.9	75.	370.	235.	0.0	6.0	78.	137.0									
Aug94	17.6	78.	402.	203.	1.0	6.0	62.	201.0									
Mean	9.4	79.	4094.	1522.	2.2	11.0	61.	5.21	0.49	0.52	0.19	22.8	0.83	0.30	0.12	0.83	0.12



ECE-PROGRAMME ON EFFECTS ON MATERIALS										SITE: (13) Rome, Italy							
Date	C L I M A T E			G A S E S			P R E C I P I T A T I O N			P R E C. - O P T I O N							
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	24.4	66	189.	133.	24.4	5.	141.6										
	d	d	d	m	d	xd	m										
	100%	100%	100%		100%	26%											
Oct93	20.7	72.	283.	91.	26.0		266.8										
	d	d	d	m	d		m										
	100%	100%	100%		100%												
Nov93	15.0	78.	367.	52.	6.3	24.4	167.8										
	d	d	d	m	d	d	m										
	86%	86%	86%		80%	86%											
Dec92	13.0	75.	335.	44.	8.8	26.8	112.4										
	d	d	d	m	d	d	m										
	83%	83%	83%		83%	83%											
Jan94	13.3	74.		42.	24.7	25.2	2.	81.4	5.88			14.3					
	d	d		m	d	d	d	d	d			d					
	80%	80%			100%	80%	80%	100%	100%			100%					
Feb94	11.7	67.		82.	26.6	28.8	3.	33.6	6.12			9.6					
	d	d		m	d	d	d	d	d			d					
	79%	79%			86%	82%	82%	100%	100%			100%					
Mar94	16.4	68.		117.	26.3	33.8	7.	0.0									
	d	d		m	d	xd	d	d									
	93%	93%			100%	35%	90%										
Apr94	15.9	68.		129.	15.8	32.5	6.	109.4	4.68			20.6					
	d	d		m	d	d	d	d	d			d					
	96%	96%			93%	96%	96%	100%	100%			100%					
May94	22.3	59.		201.	11.7	30.7	13.	48.4	6.46			24.9					
	*d	*d		m	d	*d	*d	d	d			d					
	73%	73%			100%	73%	66%	100%	100%			100%					
Jun94	26.4	56.		223.	10.5	31.5	18.	0.2	5.78			17.5					
	d	d		m	d	d	d	d	d			d					
	76%	76%			100%	76%	76%	100%	100%			100%					
Jul94	29.5	58.		195.	8.0	35.3	17.	7.4	6.11			19.7					
	*d	*d		m	d	*d	*d	d	d			d					
	58%	58%			100%	54%	58%	100%	100%			100%					
Aug94	31.2	57.		186.	5.5	29.2	18.	0.0									
	*d	*d		m	d	xd	xd	d									
	61%	61%			100%	45%	41%										
Mean	19.5	67.		1495.	14.4	28.5	9.	969.0	5.06			18.2					
	d	d		m	m	d	*d	m	xm			xm					
	82%	82%			m	76%	51%										

ECP-PROGRAMME ON EFFECTS ON MATERIALS SITE: (14) Casaccia, Italy

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION								
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sep93	20.1 d	75 d	297 d	3.3 d	9.6 d	16 d	0.0 d											
	100%	100%	93%	96%	96%	96%												
Oct93	15.6 d	81 d	422 *d	2.7 d	9.7 d	14 d	107.8 d	4.88 d	0.56 xd	0.23 xd	2.87 xd	17.2 d	1.18 xd	0.93 xd	0.77 xd	0.07 xd		
	93%	90%	74%	100%	100%	100%	100%	100%	38%	38%	38%	100%	38%	38%	38%	38%		
Nov93	10.3 d	82 d	400 d	3.8 xd	12.0 xd	9 xd												
	100%	96%	80%	40%	40%	40%												
Dec93	9.4 d	84 d	551 *d	4.0 d	11.8 d	7 d												
	80%	77%	67%	83%	83%	83%												
Jan94	8.5 d	78 d	344 *d				0.0 d											
	87%	87%	64%															
Feb94	8.4 d	76 d	327 d	7.9 *d	7.1 *d	10 *d	19.4 d	4.85 d				12.0 d						
	96%	96%	79%	65%	65%	65%	100%	100%				100%						
Mar94	11.8 d	77 d	395 d	5.7 d	18.1 d	10 d	0.0 d											
	100%	100%	96%	87%	87%	90%												
Apr94	12.8 d	74 d	312 d	5.0 *d	12.3 *d	10 *d	90.2 d	4.70 d				55.4 d						
	76%	76%	76%	60%	60%	60%	100%	100%				100%						
May94	17.0 d	73 d	340 d	4.2 d	10.8 d	12 d	0.0 d											
	83%	83%	83%	100%	100%	100%												
Jun94	20.6 d	69 d	254 d	4.3 *d	9.5 *d	17 *d	14.8 d	5.86 d				24.0 d						
	90%	90%	90%	56%	56%	56%	100%	100%				100%						
Jul94	25.1 d	60 d	159 d	5.6 d	10.9 d	25 d	0.0 d											
	80%	80%	80%	93%	93%	93%												
Aug94	27.5 *d	57 *d	100 *d	5.9 d	10.1 d	31 d	0.0 d											
	54%	54%	54%	83%	83%	83%												
Mean	15.2 d	74 d	3930 d	4.7 *d	11.1 *d	15 *d		4.82 d	0.56 xd	0.23 xd	2.87 xd	32.0 d	1.18 xd	0.93 xd	0.77 xd	0.07 xd		
	86%	86%	78%	72%	72%	72%		100%	17%	17%	17%	100%	17%	17%	17%	17%		

ECE-PROGRAMME ON EFFECTS ON MATERIALS										SITE: (15) Milan, Italy									
Date	C L I M A T E			G A S E S			P R E C I P I T A T I O N			P R E C. - O P T I O N			Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l								
Sep93	18.3	73	342	14.2	88.2	14.	333.0	4.81				15.5							
	d	d	m	d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	100%				100%							
Oct93	13.3	76	458	20.9	78.7	7.	224.0	4.70				19.8							
	d	d	m	d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	99%				99%							
Nov93	8.3	73	398	48.3	102.3	6.	69.6	4.24				17.8							
	d	d	m	d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	92%				92%							
Dec93	6.0	69	308	80.8	105.4	5.	14.8	3.04				72.0							
	d	d	m	d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	83%				83%							
Jan94	6.6	70	351	71.2	95.5	5.	104.4	4.73				28.0							
	d	d		d	d	d	m	m				m							
	100%	100%	100%	100%	100%	100%													
Feb94	5.5	69	265	64.6	97.6	5.	69.2	4.15				39.7							
	d	d		d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	93%				91%							
Mar94	13.7	53	41	40.4	85.5	58.	22.2	3.83				58.0							
	d	d		d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	100%				100%							
Apr94	13.1	58	168	24.1	76.6	25.	80.0	4.53				44.7							
	d	d		d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	99%				99%							
May94	18.2	69	276	8.7	68.0	33.	102.6	5.57				35.9							
	d	d		d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	99%				99%							
Jun94	22.0	65	190	7.3	85.3	42.	76.6	4.61				28.8							
	d	d		d	d	d	d	d				d							
	100%	100%	100%	100%	100%	100%	100%	85%				85%							
Jul94	26.7	63	82	6.8	96.1	50.	72.6												
	d	d		d	d	d	d												
	100%	100%	100%	100%	100%	100%	100%												
Aug94	26.5	64	134	3.6	61.8	54.	114.4												
	d	d		d	d	d	d												
	100%	100%	100%	100%	100%	100%	100%												
Mean	14.9	67	3013	32.4	86.6	26.	1283.4	4.42				25.8							
	d	d		d	d	d	m	m				m							
	100%	100%	100%	100%	100%	100%													

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (16) Venice, Italy

Date	CLIMATE		GASES			mm	PRECIPITATION			PRECIPITATION			PRECIPITATION					
	Temp C	Rh & hours	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sep93	18.4	86	503	4.7	1.13	69.0	6.63	1.13	0.27	3.02	33.5	1.99	1.79	0.34	0.20			
	d	d	m	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Oct93	14.3	92	630	4.3	1.90	53.0	6.39	1.90	0.77	5.71	54.6	3.37	4.15	0.65	0.23			
	d	d	m	d	d	d	d	d	d	d	d	d	d	d	d	d	d	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Nov93	7.4	88	491	4.3	0.83	87.0	6.33	0.83	0.53	1.27	21.6	1.12	1.18	0.20	0.14			
	d	d	m	d	d	d	d	d	d	d	d	d	d	d	d	d	d	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Dec93	4.7	93	658	6.1		45												
	d	d	m	d														
	100%	100%	100%	100%														
Jan94	5.9	89	565	10.8	3.73	38.0	6.07	3.73	1.10	6.20	107.9	3.70	5.90	1.80	10.30			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Feb94	4.6	89	489	13.4	2.59	35.0	6.44	2.59	0.87	4.62	67.8	2.84	4.11	0.73	3.44			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mar94	10.8	90	615	10.9		0.0												
	d	d	d	d		d												
	100%	100%	100%	100%														
Apr94	11.8	80	417	9.4	2.80	71.0	6.84	2.80	1.17	3.88	77.0	2.28	7.71	0.99	4.63			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	57%	100%	100%	100%	100%	100%	100%	100%
May94	16.9	81	469	4.8	3.67	27.0	6.88	3.67	2.27	4.37	90.8	2.60	9.10	1.23	4.33			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jun94	20.7	78	380	5.1	3.23	28.0	6.87	3.23	1.60	3.12	81.8	1.70	8.10	0.91	3.47			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jul94	25.3	69	207	6.5	1.73	53.0	6.89	1.73	1.00	1.71	42.1	1.19	4.34	0.62	0.31			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Aug94	24.6	78	389	5.1	1.80	53.0	6.91	1.80	1.20	2.20	40.4	1.50	3.80	0.60	0.22			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	13.8	84	5813	7.1	2.06		6.52	2.06	0.94	3.32	53.4	2.09	4.41	0.71	2.18			
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	100%	100%	100%	100%	100%	100%	100%

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (17) Vlaardingen, Netherlands

Date	C L I M A T E		G A S E S			P R E C I P I T A T I O N			P R E C . - O P T I O N									
	Temp C	Rh %	Tow hours	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	13.5	87.	536.	101.	19.6	46.8	15.	175.8	4.70	0.99	0.55	2.57	32.1	0.87	1.49	0.25	0.18	0.20
	m	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
					100%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oct93	9.3	88.	573.	100.	17.1	44.2	14.	69.0	4.68	0.57	0.29	4.03	30.3	0.27	2.33	0.17	0.28	0.14
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	80%	93%											
Nov93	2.8	92.	425.	73.	36.0	51.6	9.	66.3	4.70	1.34	0.29	15.56	78.6	0.42	9.68	0.47	1.14	0.41
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	90%	90%											
Dec93	5.6	92.	654.	29.	22.9	42.6	20.	136.3	4.49	1.03	0.33	5.02	43.2	0.45	2.73	0.20	0.35	0.16
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					87%	100%	100%											
Jan94	5.6	89.	615.	52.	28.8	43.1	23.	117.0	4.67	0.70	0.22	2.85	27.0	0.27	1.61	0.12	0.19	0.16
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	96%	96%											
Feb94	2.2	78.	294.	97.	33.6	57.5	14.	25.0	4.60	1.55	0.53	10.75	65.8	0.87	6.24	0.49	0.75	0.52
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	96%											
Mar94	7.6	81.	393.	115.	24.4	43.7	33.	71.2	4.53	1.32	0.43	2.36	34.9	0.87	1.24	0.22	0.17	0.10
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	96%											
Apr94	8.3	80.	371.	162.	18.5	43.1	42.	95.1	6.59	1.10	0.36	4.60	40.6	1.86	2.85	0.28	0.34	0.95
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	93%	96%											
May94	12.1	80.	388.	173.	12.1	42.2	42.	28.4	4.70	2.01	0.95	0.81	36.1	2.14	0.36	0.36	0.07	0.13
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Jun94	15.1	80.	383.	197.	16.4	43.7	39.	67.0	4.24	1.38	0.79	2.34	46.5	0.92	1.28	0.21	0.16	0.12
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	96%	100%											
Jul94	20.8	73.	294.	300.	12.5	44.8	61.	15.9	4.37	2.37	1.07	1.38	50.4	1.90	0.84	0.61	0.12	0.42
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Aug94	17.9	78.	366.	184.	15.1	42.2	36.	16.1	4.48	2.12	1.16	1.36	47.6	1.92	0.73	0.59	0.09	0.49
	m	m	m	m	*d	d	d	m	m	m	m	m	m	m	m	m	m	m
					67%	96%	100%											
Mean	10.1	83.	5292.	1583.	21.5	45.4	29.	883.1	4.61	1.11	0.45	4.39	40.4	0.83	2.56	0.26	0.31	0.28
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					96%	95%	97%											

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (18) Eibergen, Netherlands

Date	C L I M A T E			G A S E S			P R E C I P I T A T I O N				P R E C . - O P T I O N						
	Temp C	Rh %	Tow Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	12.5	88	556	3.0	16.8	24	234.8	5.46	0.83	0.45	0.43	16.8	1.13	0.25	0.13	0.03	0.09
	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
				100%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oct93	8.6	89	551	3.9	20.1	20	48.8	5.03	0.48	0.37	0.52	14.8	0.64	0.28	0.08	0.04	0.10
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				87%	87%	87%											
Nov93	1.5	90	357	14.2	29.2	14	53.1	5.21	0.90	0.36	0.97	18.5	0.94	0.60	0.13	0.08	0.20
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				93%	93%	90%											
Dec93	4.4	92	653	4.1	21.2	24	125.9	5.60	1.00	0.40	3.51	28.7	1.22	2.00	0.16	0.24	0.16
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Jan94	4.4	89	566	4.2	24.6	25	126.6	5.60	0.67	0.28	0.92	15.0	0.87	0.52	0.06	0.05	0.07
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	90%	93%											
Feb94	0.6	78	262	15.6	31.6	21	49.1	5.34	1.24	0.47	4.51	35.6	1.33	2.53	0.20	0.33	0.15
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Mar94	7.0	81	428	4.5	21.3	41	97.5	5.64	1.21	0.63	2.09	27.2	1.57	1.12	0.21	0.16	0.16
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				96%	96%	96%											
Apr94	8.1	80	390	4.0	19.5	51	81.6	5.88	0.70	0.30	1.00	16.1	0.94	0.65	0.10	0.08	0.15
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				96%	100%	100%											
May94	12.3	79	385	2.9	15.5	54	44.1	6.23	1.78	0.90	0.65	32.2	2.46	0.32	0.60	0.05	0.11
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Jun94	15.1	79	377	3.6	16.7	50	56.5	6.62	1.22	0.86	1.06	35.1	2.90	0.59	0.36	0.17	0.25
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				93%	93%	93%											
Jul94	21.3	71	266	4.9	20.4	76	29.5	4.49	2.83	2.18	0.72	62.6	3.51	0.35	0.84	0.15	0.40
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				80%	96%	100%											
Aug94	17.4	77	388	3.6	20.6	45	21.5	4.90	1.64	1.28	0.60	36.7	1.76	0.60	0.61	0.07	0.91
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	96%	100%											
Mean	9.4	83	5179	5.6	21.4	38	969.0	5.38	1.01	0.53	1.41	23.6	1.36	0.80	0.20	0.11	0.16
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				95%	95%	96%											

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (19) Vredepeel, Netherlands

Date	C L I M A T E		G A S E S		P R E C I P I T A T I O N		P R E C I P I T A T I O N		P R E C I P I T A T I O N		P R E C I P I T A T I O N						
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	13.0	90	579	3.6	27.0	23	179.6	5.94	0.72	0.36	0.45	15.3	1.06	0.38	0.17	0.03	0.25
	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
				100%	100%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oct93	9.0	90	593	4.3	27.7	21	38.9	5.62	0.66	0.50	0.62	15.5	1.11	0.31	0.08	0.06	0.09
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Nov93	2.2	93	390	16.1	37.4	12	57.2	6.01	0.71	0.26	1.48	17.4	1.02	0.84	0.07	0.09	0.09
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Dec93	5.2	90	632	6.7	24.9	28	116.1	5.68	1.14	0.37	2.88	27.3	1.39	1.58	0.12	0.20	0.12
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	87%	100%											
Jan94	4.9	90	602	6.7	27.0	27	121.1	5.84	0.70	0.22	1.52	17.0	0.87	0.87	0.08	0.11	0.05
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Feb94	1.5	83	343	13.2	40.0	18	28.5	5.90	2.08	0.71	5.22	49.8	2.44	3.09	0.71	0.38	0.33
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Mar94	7.5	82	446	6.5	26.5	40	89.3	5.94	1.46	0.43	1.58	25.9	1.75	0.86	0.21	0.11	0.09
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Apr94	8.5	80	401	4.6	24.4	47	98.1	5.98	1.26	0.45	1.88	26.8	1.66	1.11	0.21	0.13	0.15
	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
May94	12.5	80	386	4.4	22.5	51	38.1	6.33	1.72	1.43	0.70	40.9	2.96	0.89	0.50	0.10	0.88
	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
				96%	90%	74%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jun94	15.7	77	365	5.6	21.8	53	49.7	5.66	1.14	0.54	1.10	25.0	1.61	0.69	0.29	0.09	0.31
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	90%	96%											
Jul94	21.6	70	271	5.3	29.7	76	68.6	4.63	1.24	1.00	0.30	31.2	0.14	80.17	0.43	0.04	0.11
	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Aug94	18.1	75	349	3.7	25.9	41	50.8	4.02	4.98	0.74	7.56	110.3	1.57	4.27	1.41	0.79	0.56
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				100%	100%	100%											
Mean	10.0	83	5357	6.7	27.9	36	936.0	5.09	1.27	0.49	1.78	28.3	1.31	6.92	0.27	0.14	0.20
	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
				99%	97%	97%											

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (20) Wijndanszade, Netherlands

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N								
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sep93	13.3	86.	520.	107.	4.2	21.4	27.	192.2	4.98	0.75	0.39	0.39	0.39	0.75	0.20	0.21	0.04	0.04
	m	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
					90%	93%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oct93	9.0	90.	614.	93.	8.4	27.0	21.	61.3	4.71	0.71	0.33	0.54	0.60	0.25	0.13	0.04	0.02	0.02
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Nov93	2.1	93.	379.	89.	18.5	33.5	14.	76.0	5.67	0.87	0.29	1.45	0.76	1.16	0.17	0.11	0.48	0.48
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	93%	96%											
Dec93	5.1	94.	680.	17.	6.9	22.2	31.	167.0	5.09	0.72	0.25	1.76	0.62	0.98	0.20	0.12	0.08	0.08
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Jan94	4.5	91.	607.	50.	6.8	24.0	30.	48.5	5.51	0.91	0.23	1.40	0.71	0.87	0.38	0.10	0.18	0.18
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Feb94	2.3	80.	328.	88.	13.0	36.3	20.	34.0	4.95	1.77	0.69	8.59	1.40	5.02	0.61	0.59	0.51	0.51
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Mar94	7.7	80.	428.	115.	7.1	23.3	44.	85.0	5.58	0.99	0.38	1.32	1.02	0.69	0.34	0.10	0.08	0.08
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	87%	93%											
Apr94	8.7	78.	355.	145.	6.2	23.4	51.	60.3	5.54	0.81	0.37	1.38	0.81	0.91	0.35	0.11	0.23	0.23
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
May94	12.9	79.	378.	160.	4.2	23.2	48.	60.6	4.90	1.66	0.94	0.88	1.81	0.45	0.50	0.09	0.18	0.18
	m	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jun94	16.4	75.	302.	220.	7.5	21.5	57.	60.9	5.26	1.22	0.60	0.87	1.21	0.48	0.61	0.11	0.15	0.15
	m	m	m	m	d	d	d	W	W	W	W	W	W	W	W	W	W	W
					100%	76%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jul94	22.2	67.	200.	252.	6.4	25.2	72.	8.7	5.15	1.47	0.84	0.29	1.40	0.27	0.86	0.07	0.31	0.31
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	100%											
Aug94	18.3	76.	379.	176.	4.4	23.5	41.	59.7	6.82	1.34	0.55	1.13	3.43	0.68	0.77	0.20	0.65	0.65
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					100%	100%	96%											
Mean	10.2	82.	5170.	1512.	7.8	25.4	38.	914.2	5.13	0.96	0.42	1.36	1.05	0.80	0.33	0.11	0.18	0.18
	m	m	m	m	d	d	d	m	m	m	m	m	m	m	m	m	m	m
					99%	95%	98%											



ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (21) Oslo, Norway

Date	C L I M A T E		G A S E S		P R E C I P I T A T I O N		P R E C. - O P T I O N											
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	mm	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	
Sep93	9.8	70	199	3.4	51.9	20.5	4.52	1.69	0.85	0.37	34.0	0.34	0.34	1.69	0.15	0.22		
	d	100%	d	d	d	100%	99%	99%	99%	99%	100%	99%	99%	99%	99%	99%	99%	
Oct93	4.4	78	280	6.0	59.0	92.0	4.58	0.82	0.48	0.76	23.7	0.51	0.42	0.32	0.02	0.33		
	d	80%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Nov93	0.2	81	290	8.1	46.5	93.6	4.62	1.33	0.96	1.30	36.1	1.03	0.73	1.09	0.11	0.16		
	d	100%	d	*d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Dec93	-2.7	79	114	9.2	59.7	41.4	5.02	1.48	0.72	6.35	53.8	1.30	3.69	1.46	0.26	1.85		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Jan94	-3.5	79	87	6.1	61.4	69.6	4.95	0.67	0.42	1.31	23.6	0.98	0.82	0.52	0.08	0.13		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Feb94	-6.7	73	0	8.9	67.9	14.7	4.97	1.33	1.01	6.15	45.4	0.62	4.02	1.53	0.12	0.15		
	d	100%	d	d	*d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Mar94	0.9	68	130	5.2	63.3	22.3	5.91	2.07	1.10	5.34	59.9	1.27	3.56	2.96	0.26	0.34		
	d	100%	d	d	d	100%	100%	97%	97%	97%	100%	97%	97%	97%	97%	97%	97%	
Apr94	7.5	66	235	2.9	59.2	63.2	4.77	1.51	1.26	1.93	37.7	1.53	1.14	1.33	0.17	0.22		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
May94	13.9	57	67	3.4	49.6	2.8	5.80	1.48	1.16	0.95	30.1	0.93	0.47	2.81	0.23	0.13		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Jun94	15.6	63	150	2.8	43.6	40.2	4.64	1.22	0.66	1.17	26.4	0.35	0.66	1.27	0.15	0.10		
	d	100%	d	d	d	100%	99%	99%	99%	99%	100%	99%	99%	99%	99%	99%	99%	
Jul94	22.1	63	139	5.7	56.0	31.9	5.45	1.25	0.78	1.52	31.9	1.13	1.12	1.57	0.27	0.68		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Aug94	17.7	70	265	1.8	48.1	205.5	4.94	0.44	0.12	0.26	10.4	0.15	0.19	0.39	0.06	0.04		
	d	100%	d	d	d	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Mean	6.7	71	1934	5.2	55.2	697.7	4.80	0.98	0.59	1.49	27.0	0.70	0.91	0.90	0.11	0.28		
	d	98%	d	d	d	m	m	m	m	m	m	m	m	m	m	m	m	

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (22) Borregaard, Norway

Date	CLIMATE		GASES			PRECIPITATION			PRECIPITATION			PRECIPITATION					
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	CL mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	9.2 d	72 d	288 d	9.3 100%	14.4 100%		54.3 100%	4.46 100%	1.51 100%	0.50 100%	0.44 100%	31.2 100%	0.57 100%	0.35 100%	0.71 100%	0.04 100%	0.10 100%
Oct93	5.4 d	85 d	456 d	26.5 100%	21.3 100%		107.2 100%	4.42 100%	0.81 99%	0.44 99%	1.02 99%	27.0 100%	0.38 99%	0.44 99%	0.18 99%	0.04 99%	0.12 99%
Nov93	0.5 d	86 d	377 d	23.1 100%	20.7 100%		42.3 100%	3.96 100%	1.80 99%	1.28 99%	2.01 99%	70.9 100%	0.93 99%	1.10 99%	0.46 99%	0.13 99%	0.12 99%
Dec93	-0.8 d	84 d	246 d	25.5 100%	23.5 100%		107.5 100%	4.22 100%	1.44 100%	0.63 100%	2.88 100%	47.8 100%	0.63 100%	1.43 100%	0.40 100%	0.17 100%	0.18 100%
Jan94	-2.5 d	84 d	173 d	24.7 93%	23.5 100%		86.3 100%	4.45 100%	1.25 100%	0.38 100%	3.11 100%	36.0 100%	0.44 100%	1.77 100%	0.35 100%	0.19 100%	0.30 100%
Feb94	-8.5 d	81 d	0 d	9.9 100%	29.7 100%		12.9 100%	4.14 100%	1.31 96%	0.81 96%	1.31 96%	50.3 100%	0.45 96%	0.75 96%	0.50 96%	0.08 96%	0.23 96%
Mar94	2.1 *d	73 *d	183 *d	26.0 100%	20.5 100%		55.0 100%	4.24 100%	2.72 100%	0.99 100%	2.95 100%	64.8 100%	1.49 100%	1.38 100%	2.21 100%	0.11 100%	0.13 100%
Apr94	7.0 d	73 d	328 d	26.3 100%	20.6 100%		44.2 100%	4.22 99%	2.51 99%	0.73 99%	2.08 99%	55.4 99%	1.34 99%	1.00 99%	0.86 99%	0.13 99%	0.15 99%
May94	11.5 d	63 d	153 d	21.0 100%	16.7 100%		6.6 100%	5.64 100%	1.39 100%	0.55 100%	1.01 100%	22.9 100%	0.51 100%	0.63 100%	1.79 100%	0.12 100%	0.31 100%
Jun94	13.7 d	69 d	237 d	18.8 100%	16.4 100%		44.9 100%	4.43 100%	1.48 100%	0.42 100%	1.02 100%	31.4 100%	0.50 100%	0.58 100%	0.81 100%	0.08 100%	0.08 100%
Jul94	19.1 d	69 d	255 d	35.8 100%	18.9 100%		3.1 100%	4.54 96%	5.19 90%	1.47 90%	2.26 90%	74.3 96%	2.07 90%	1.68 90%	3.12 90%	0.26 90%	0.38 90%
Aug94	16.3 d	76 d	348 d	24.6 93%	14.8 93%		123.3 100%	4.59 100%	0.98 100%	0.20 100%	0.50 100%	19.6 100%	0.31 100%	0.35 100%	0.39 100%	0.07 100%	0.08 100%
Mean	6.5 d	76 d	3104 d	22.8 98%	20.1 98%		687.6 m	4.33 m	1.45 m	0.55 m	1.73 m	38.8 m	0.63 m	0.91 m	0.61 m	0.11 m	0.15 m

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (23) Birkenes, Norway

Date	CLIMATE			GASES			PRECIPITATION			PREC. - ION			PREC. - O P T I O N			
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	8.2	80	421.	0.4	1.3	41.	107.1	4.45	0.31	1.45	25.8	0.28	0.81	0.16	0.10	0.08
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	93%	96%	100%	100%	98%	98%	98%	98%	98%	98%	98%	98%	98%
Oct93	4.2	85.	405.	0.4	1.5	37.	110.3	4.37	0.42	0.85	26.5	0.24	0.45	0.07	0.05	0.11
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	100%
Nov93	-1.0	89.	302.	1.3	3.6	33.	254.3	4.22	1.18	0.64	2.14	0.63	1.14	0.10	0.13	0.07
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	96%	100%	100%	99%	98%	98%	98%	98%	98%	98%	98%	98%
Dec93	-2.7	86.	203.	1.5	4.1	43.	240.3	4.40	0.53	3.32	33.4	0.44	1.76	0.13	0.21	0.12
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Jan94	-2.5	87.	168.	0.4	2.8	48.	176.7	4.54	0.36	2.41	25.1	0.17	1.32	0.12	0.15	0.06
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	99%	98%	98%	98%	98%	98%
Feb94	-6.8	84.	20.	2.4	3.9	53.	97.4	4.26	0.72	2.10	36.7	0.55	1.10	0.17	0.13	0.07
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	100%	96%	96%	100%	96%	96%	96%	96%	96%
Mar94	0.0	79.	274.	0.5	3.0	71.	167.6	4.54	0.83	2.21	31.6	0.87	1.18	0.17	0.14	0.05
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Apr94	3.8	79.	323.	1.1	2.1	68.	118.8	4.30	1.12	2.33	43.4	1.12	1.15	0.18	0.15	0.09
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	96%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%
May94	9.1	68.	278.	0.7	1.4	68.	32.3	4.45	1.31	0.60	39.5	1.97	0.32	0.20	0.01	0.01
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	84%	96%	96%	84%	96%	96%	96%	96%	96%
Jun94	12.1	67.	243.	0.6	1.2	62.	52.1	4.56	0.34	0.66	21.2	0.36	0.39	0.12	0.05	0.06
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	96%	96%	100%	100%	100%	100%	97%	96%	96%	100%	96%	96%	96%	96%	96%
Jul94	18.3	67.	282.	1.3	1.5	66.	22.2	4.80	0.36	0.19	17.7	0.59	0.11	0.10	0.01	0.01
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	93%	100%	100%	100%	99%	97%	97%	100%	97%	97%	97%	97%	97%
Aug94	14.8	74.	396.	0.3	1.8	46.	163.0	4.50	0.82	0.47	24.4	0.63	0.33	0.09	0.04	0.04
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	99%	98%	98%	98%	98%	98%
Mean	4.9	79.	3316.	0.9	2.3	53.	1542.1	4.39	0.60	1.96	32.3	0.57	1.05	0.13	0.12	0.07
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
	100%	99%	99%	98%	99%	100%	100%	99%	98%	98%	99%	98%	98%	98%	97%	98%

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (24) Stockholm South, Sweden

Date	CLIMATE		GASES		mm	PRECIPITATION			PRECIPITATION			Conc uS/cm	PRECIPITATION			
	Temp C	Rh %	Tow hours	Sun hours		SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l		Cl mg/l	NH4-N mg/l	Na mg/l	Ca mg/l
Sep93	9.4 d	71.0 d	218.0 d	158.0 m	4.3 *d	27.5 d	34.0 d	43.0 m	0.74 m	0.26 m	1.54 m	24.0 m	0.90 m	0.27 m	0.13 m	0.12 m
Oct93	6.4 d	75.0 d	308.0 d	95.0 m	4.3 d	28.3 d	33.0 d	29.0 m	0.68 m	0.32 m	0.23 m	20.0 m	0.15 m	0.19 m	0.03 m	0.01 m
Nov93	1.4 d	80.0 d	286.0 d	9.0 m	10.4 d	30.3 d	30.0 xd	13.0 m	3.86 m			70.0 m				
Dec93	0.1 d	84.0 d	317.0 d	24.0 m	8.3 d	25.8 d		55.0 m	0.73 m	0.57 m	0.50 m		0.25 m	0.05 m	0.04 m	0.02 m
Jan94	-1.5 d	82.0 d	238.0 d	43.0 m	5.8 d	20.7 d	34.0 d	18.0 m	4.42 m	1.01 m	2.18 m	32.0 m	1.27 m	0.45 m	0.14 m	0.07 m
Feb94	-6.1 d	76.0 d		96.0 m	9.9 d	31.0 d	34.0 d	0.0 m								
Mar94	0.7 d	71.0 d	158.0 d	130.0 m	6.2 d	25.1 d	40.0 d									
Apr94	6.5 d	64.0 d	155.0 d	196.0 m	5.0 d	25.2 d	67.0 d									
May94	9.6 d	50.0 d	47.0 d	325.0 m	3.3 d	19.1 d	67.0 d	21.0 m	5.31 m	0.48 m	0.33 m	12.0 m	0.42 m	0.38 m	0.24 m	0.11 m
Jun94	14.2 d	62.0 d	128.0 d	275.0 m	2.4 d	19.1 d	58.0 d	58.0 m	4.64 m	0.52 m	0.25 m	15.0 m	0.22 m	0.09 m	0.10 m	0.06 m
Jul94	21.2 d	53.0 d	66.0 d	424.0 m	2.4 *d	16.9 xd	75.0 d	34.0 m	4.61 m	0.54 m	0.19 m	16.0 m	0.24 m	0.13 m	0.05 m	0.02 m
Aug94	17.3 d	69.0 d	250.0 d	190.0 m	1.1 d	22.9 d	51.0 d									
Mean	6.7 d	70.0 d	217.0 d	196.5 m	5.4 d	25.0 d	49.0 d	4.49 *m	0.65 m	0.35 m	0.67 m	22.1 m	0.30 xm	0.38 m	0.16 m	0.06 m

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (25) Stockholm Centre, Sweden

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N						
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	PH	SO4-S mg/l	NO3-N mg/l	Cl	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l
Sep93	9.4	71.	218.	2.9	25.3	43.0	0.74	0.26	1.54	24.0	0.90	0.27	0.13	0.12		
	d	d	d	m	m	m	m	m	m	m	m	m	m	m		
	100%	100%	100%													
Oct93	6.4	75.	308.	4.9	26.5	29.0	4.53	0.68	0.23	20.0	0.15	0.19	0.03	0.01		
	d	d	d	m	m	m	m	m	m	m	m	m	m	m		
	100%	100%	100%													
Nov93	1.4	80.	286.	12.5	28.8	13.0	3.86			70.0						
	d	d	d	m	m	m	m									
	100%	100%	100%													
Dec93	0.1	84.	317.	6.4		55.0		0.73	0.57	0.50	0.25	0.05	0.04	0.02		
	d	d	d	m		m		m	m	m	m	m	m	m		
	100%	100%	100%													
Jan94	-1.5	82.	238.	5.9	27.3	18.0	4.42	1.01	0.65	2.18	0.50	1.27	0.45	0.14	0.07	
	d	d	d	m	m	m	m	m	m	m	m	m	m	m	m	
	100%	100%	100%													
Feb94	-6.1	76.	0.	9.9	34.4	0.0										
	d	d	d	m	m	m										
	100%	100%	100%													
Mar94	0.7	71.	158.	6.5	23.7											
	d	d	d	m	m											
	100%	100%	100%													
Apr94	6.5	64.	155.	5.5	25.9											
	d	d	d	m	m											
	100%	100%	100%													
May94	9.6	50.	47.	2.0	29.0	21.0	5.31	0.48	0.33	0.77	12.0	0.42	0.38	0.24	0.06	0.11
	d	d	d	m	m	m	m	m	m	m	m	m	m	m	m	m
	100%	100%	100%													
Jun94	14.2	62.	128.	1.6	22.9	58.0	4.64	0.52	0.25	0.21	15.0	0.22	0.09	0.10	0.03	0.06
	d	d	d	m	m	m	m	m	m	m	m	m	m	m	m	m
	100%	100%	100%													
Jul94	21.2	53.	66.	2.2	21.4	34.0	4.61	0.54	0.19	0.14	16.0	0.24	0.13	0.05	0.02	0.06
	d	d	d	m	m	m	m	m	m	m	m	m	m	m	m	m
	100%	100%	100%													
Aug94	17.3	69.	250.	1.6	15.8											
	d	d	d	m	m											
	100%	100%	100%													
Mean	6.7	70.	2171.	5.2	25.5		4.49	0.65	0.35	0.67	22.1	0.30	0.38	0.16	0.06	0.06
	d	d	d	m	m		*m	m	m	m	m	µm	m	m	m	m
	100%	100%	100%													

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (26) Aspvröten, Sweden

Date	CLIMATE		GASES			PRECIPITATION			PRECIPITATION			PRECIPITATION					
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	8.0	83.	389.	156.	0.6	1.9	47.	19.1	4.49	0.72	0.19	20.1	0.11	0.46	0.21	0.08	0.06
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					96%	93%	100%	100%	100%	99%	99%	93%	99%	99%	99%	99%	99%
Oct93	5.6	86.	446.	96.	0.9	3.2	45.	57.5	4.44	0.95	0.43	25.8	0.54	0.30	0.26	0.06	0.06
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					90%	100%	100%	100%	100%	99%	99%	95%	97%	97%	97%	97%	97%
Nov93	1.2	89.	372.	5.	4.7	6.0	40.	29.9	3.97	1.62	0.79	49.7	0.63	1.01	0.16	0.15	0.11
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					96%	96%	100%	100%	100%	96%	96%	90%	96%	95%	95%	95%	95%
Dec93	0.0	92.	403.	17.	2.7	5.3	42.	87.8	4.23	0.86	0.58	31.4	0.31	0.35	0.07	0.05	0.04
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					100%	100%	100%	100%	100%	100%	100%	96%	99%	99%	99%	98%	98%
Jan94	-1.4	91.	324.	40.	1.5	3.7	24.	43.6	4.32	0.77	0.53	28.8	0.30	0.66	0.07	0.09	0.04
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					100%	100%	100%	100%	100%	99%	99%	89%	99%	99%	99%	99%	99%
Feb94	-6.6	85.	10.	74.	5.2	6.0	31.	14.2	3.90	2.17	1.28	69.0	0.98	0.27	0.11	0.05	0.10
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					100%	100%	100%	100%	100%	100%	100%	94%	98%	98%	98%	98%	98%
Mar94	0.4	83.	288.	141.	2.0	2.8	36.	37.1	4.45	0.69	0.54	21.5	0.41	0.39	0.11	0.06	0.04
	m	m	m	m	d	d	d	d	d	d	d	xd	d	d	d	d	d
					100%	100%	100%	100%	100%	99%	99%	47%	98%	97%	96%	95%	95%
Apr94	5.2	79.	307.	206.	1.6	2.2	39.	25.3	4.53	0.89	0.36	21.9	0.49	0.11	0.20	0.04	0.03
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					100%	100%	100%	100%	100%	99%	99%	96%	99%	98%	98%	98%	98%
May94	7.9	68.	177.	317.	0.7	2.4	40.	18.4	4.50	0.51	0.38	18.2	0.28	0.17	0.08	0.05	0.04
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					96%	96%	100%	100%	100%	98%	98%	92%	98%	98%	98%	98%	98%
Jun94	12.9	75.	315.	263.	0.5	2.7	35.	53.1	4.84	0.74	0.28	20.2	1.29	0.10	0.10	0.05	0.35
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					100%	100%	100%	100%	99%	99%	99%	94%	99%	98%	98%	98%	98%
Jul94	18.4	73.	302.	405.	0.5		38.	12.2	4.15	1.79	0.49	41.2	0.71	0.05	0.19	0.04	0.11
	m	m	m	m	d		d	d	d	d	d	d	d	d	d	d	d
					77%		96%	100%	100%	100%	100%	96%	100%	100%	100%	100%	100%
Aug94	15.5	84.	380.	191.	0.4		26.	91.8	4.72	0.58	0.25	13.7	0.35	0.24	0.18	0.05	0.06
	m	m	m	m	d		xd	d	d	d	d	d	d	d	d	d	d
					100%		12%	100%	100%	100%	100%	95%	100%	99%	99%	99%	99%
Mean	5.6	82.	3713.	1911.	1.8	3.6	38.	490.0	4.37	0.87	0.46	26.4	0.51	0.34	0.14	0.06	0.09
	m	m	m	m	d	d	d	d	d	d	d	d	d	d	d	d	d
					96%	81%	92%	100%	99%	99%	99%	91%	99%	98%	98%	98%	98%

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (27) Lincoln Cathedral, United Kingdom

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N				P R E C . - O P T I O N							
	Temp C	Rh %	Tow hours	Sun hours	SO2 ug/m3		NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93																		
Oct93																		
Nov93																		
Dec93																		
Jan94																		
Feb94																		
Mar94																		
Apr94																		
May94																		
Jun94																		
Ju194																		
Aug94																		
Mean																		

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (28) Wells Cathedral, United Kingdom

C L I M A T E      G A S E S      P R E C I P I T A T I O N      P R E C . - O P T I O N  
 Temp Rh    Tow Sun    SO2 NO2 O3    mm    pH    SO4-S NO3-N    Cl    Cond    NH4-N    Na    Ca    Mg    K  
 C    %    hours    hours    ug/m3 ug/m3 ug/m3    ug/m3    mg/l    mg/l    mg/l    uS/cm    mg/l    mg/l    mg/l    mg/l    mg/l

Date      Sep93      Oct93      Nov93      Dec93      Jan94      Feb94      Mar94      Apr94      May94      Jun94      Jul94      Aug94      Mean



ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (29) Chatteringshaws Loch, United Kingdom

Date	CLIMATE		GASES		mm	PRECIPITATION			PRECIPITATION						
	Temp C	Rh %	SO2 ug/m3	NO2 ug/m3		PH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93															
Oct93															
Nov93															
Dec93															
Jan94															
Feb94															
Mar94															
Apr94															
May94															
Jun94															
Jul94															
Aug94															
Mean															

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (30) Stoke Orchard, United Kingdom

C L I M A T E	G A S E S	P R E C I P I T A T I O N	P R E C . - O P T I O N
Temp C	SO2 ug/m3	mm	NH4-N mg/l
Rh %	NO2 ug/m3	PH	Na mg/l
Tow Sun	O3 ug/m3	SO4-S mg/l	Ca mg/l
hours		NO3-N mg/l	K mg/l
		Cl mg/l	
		Cond uS/cm	

Sep93

Oct93

Nov93

Dec93

Jan94

Feb94

Mar94

Apr94

May94

Jun94

Jul94

Aug94

Mean

ECE-PROGRAMME ON EFFECTS ON MATERIALS										SITE: (31) Madrid, Spain									
Date	C L I M A T E			G A S E S			P R E C I P I T A T I O N			P R E C. - O P T I O N			NH4-N mg/l	Cond uS/cm	Cl mg/l	Ca mg/l	Mg mg/l	K mg/l	
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	mg/l	mg/l							mg/l
Sep93	18.7	69	150.	2.1	28.2		6.0	6.99	3.42	2.14	1.32	78.2	0.19	1.55	5.09	0.58	0.55		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	96%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Oct93	12.0	83.	473.	3.1	30.6		180.6	6.30	0.70	0.22	0.54	15.0	0.18	0.30	0.64	0.07	0.04		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	96%	93%		100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%		
Nov93	8.5	85.	534.	21.6	28.0		23.2	6.30	1.85	0.69	0.61	27.1	0.45	0.38	1.31	0.16	0.20		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Dec93	7.0	83.	512.	9.4	35.4		0.0												
	d	d	d	d	d	d	d												
	100%	100%	100%	100%	100%														
Jan94	6.0	80.	359.	15.9	38.9		17.2	6.60	0.00	0.00	0.00	33.8	0.23	2.20	1.53	0.19	0.46		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	96%	96%	93%	100%	100%		100%	100%				100%	100%	100%	100%	100%	100%		
Feb94	7.0	79.	352.	12.1	18.2		23.6	6.24	2.32	0.79	1.97	85.1	0.45	0.78	1.88	0.21	0.31		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	100%		100%	100%	99%	99%	99%	100%	99%	99%	99%	99%	99%		
Mar94	12.8	72.	260.	10.5	36.6		0.0												
	d	d	d	d	d	d	d												
	100%	100%	80%	100%	100%														
Apr94	12.0	69.	150.	5.6	23.9		27.9	6.72	8.72	5.43	1.85	70.0	0.34	0.73	1.87	0.28	0.52		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
May94	17.1	73.	275.	3.7	13.6		58.2	6.75	1.06	0.65	0.91	32.9	0.17	0.54	1.12	0.13	0.17		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	96%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Jun94	23.4	60.	48.	3.9	20.2		0.8	6.99	7.81	5.89	4.85	209.0	0.62	1.75	5.72	0.66	0.93		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Jul94	27.8	56.	20.	3.5	30.9		1.9	7.12	24.62	11.68	20.18	348.4	3.49	8.60	13.30	3.30	4.00		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	100%	96%	96%	100%	100%		100%	100%	100%	100%	100%	100%	78%	78%	78%	78%	78%		
Aug94	26.6	60.	27.	0.7	48.5		0.0												
	d	d	d	d	d	d	d												
	100%	100%	100%	100%	100%														
Mean	15.0	72.	3164.	7.6	29.6		339.4	6.40	1.87	0.94	0.97	32.7	0.25	0.58	1.15	0.15	0.18		
	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d		
	99%	99%	97%	100%	98%		100%	100%	94%	94%	94%	100%	99%	99%	99%	99%	99%		

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (32) Bilbao, Spain

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N						
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l
Sep93	17.1 d	74. d	345. d	10.6 W	24.0 W		80.4 W	7.00 W	5.88 W	1.24 W	5.68 W	50.9 W	1.62 W	7.84 W	0.86 W	0.18 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Oct93	14.3 d	74. d	312. d	8.8 W	16.2 W		105.3 W	6.82 W	5.02 W	1.77 W	7.18 W	51.4 W	2.22 W	6.24 W	0.56 W	0.33 W
	100%	100%	96%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Nov93	10.4 d	78. d	440. d	10.6 W	16.6 W		68.0 W	6.43 W	12.03 W	3.77 W	7.67 W	65.8 W	2.64 W	7.37 W	0.65 W	0.39 W
	100%	100%	93%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Dec93	10.2 d	77. d	383. d	12.0 W	19.1 W		195.4 W	6.16 W	5.44 W	0.75 W	8.01 W	44.6 W	3.78 W	3.63 W	0.55 W	0.28 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jan94	7.9 d	76. d	374. d	8.8 W	12.4 W		79.5 W	6.38 W	6.54 W	2.05 W	9.98 W	59.1 W	4.94 W	4.12 W	0.74 W	0.34 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Feb94	10.1 d	68. d	278. d	9.8 W	43.1 W		69.7 W	6.65 W	8.75 W	3.40 W	7.04 W	59.7 W	2.29 W	7.02 W	0.51 W	0.26 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mar94	11.4 d	76. d	435. d	8.7 W	27.7 W		27.2 W	6.45 W	21.98 W	8.55 W	17.52 W	126.1 W	4.59 W	12.59 W	1.02 W	0.58 W
	100%	100%	100%				100%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Apr94	10.7 d	73. d	316. d	4.8 W	36.9 W		171.6 W	4.91 W	7.53 W	2.61 W	13.83 W	70.6 W	6.38 W	4.01 W	0.89 W	0.44 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
May94	14.2 d	71. d	332. d	6.4 W	51.0 W		85.8 W	6.13 W	6.27 W	1.65 W	9.14 W	53.3 W	0.57 W	7.25 W	0.29 W	0.16 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jun94	16.7 d	72. d	332. d	13.6 W	44.6 W		39.2 W	6.07 W	15.26 W	3.30 W	19.60 W	110.6 W	2.28 W	16.07 W	0.84 W	0.36 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jul94	20.1 d	80. d	495. d	4.7 W	60.8 W		53.1 W	4.92 W	18.93 W	6.77 W	15.97 W	110.2 W	1.95 W	12.18 W	0.71 W	0.39 W
	100%	100%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Aug94	20.6 d	79. d	472. d	2.7 W	32.1 W		36.9 W	5.82 W	13.19 W	5.95 W	14.80 W	103.9 W	2.18 W	11.68 W	0.80 W	0.29 W
	83%	83%	83%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean	13.6 d	75. d	4500. d	8.5 m	32.0 m		1012.1 m	5.51 m	8.43 m	2.59 m	10.26 m	64.9 m	3.34 m	6.60 m	0.67 m	0.32 m
	98%	98%	98%													

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (33) Toledo, Spain

Date	C L I M A T E		G A S E S			mm	P R E C I P I T A T I O N			P R E C. - O P T I O N							
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	17.0 d	59.0 d	71.0 d	1.2 d	28.4 d	94.0 xd	16.0 d	6.07 d	0.71 d	0.38 d	0.64 d	19.4 d	0.52 d	0.50 d	0.72 d	0.11 d	0.13 d
	100%	100%	100%	100%	96%	20%	100%	100%	100%	100%	100%	100%	96%	93%	93%	93%	93%
Oct93	9.6 d	77.0 d	419.0 d	1.1 d	33.2 d	69.0 d	184.6 d	6.18 d	0.34 d	0.14 d	0.99 d	11.5 d	0.07 d	0.49 d	0.22 d	0.06 d	0.03 d
	100%	100%	100%	100%	100%	83%	100%	100%	100%	100%	98%	98%	100%	98%	100%	100%	100%
Nov93	8.1 d	78.0 d	447.0 d	3.1 d	26.3 d	67.0 d	36.3 d	5.68 d	0.53 d	0.17 d	0.77 d	11.7 d	0.06 d	0.45 d	0.32 d	0.09 d	0.04 d
	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Dec93	7.1 d	72.0 d	328.0 d	3.2 d	26.0 d	59.0 d	8.4 d	6.02 d	0.68 d	0.34 d	0.63 d	20.5 d	0.53 d	0.90 d	0.61 d	0.14 d	0.28 d
	100%	100%	100%	77%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jan94	5.5 d	66.0 d	229.0 d	4.9 d	16.7 d	57.0 d	56.6 d	5.34 d	0.29 d	0.06 d	0.65 d	7.0 d	0.07 d	0.32 d	0.14 d	0.02 d	0.03 d
	100%	96%	100%	100%	100%	100%	100%	100%	99%	99%	99%	100%	99%	99%	99%	99%	99%
Feb94	6.9 d	65.0 d	224.0 d	7.2 d	10.4 d	64.0 d	76.2 d	6.13 d	0.26 d	0.07 d	0.58 d	38.8 d	0.08 d	0.36 d	0.15 d	0.07 d	0.02 d
	100%	96%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	98%	98%	98%	98%	98%
Mar94	12.6 d	53.0 d	280.0 d	4.1 d	11.5 d	77.0 d	0.2 d	4.90 d	0.00 d	0.00 d	0.00 d	60.8 d	0.00 d	0.00 d	0.00 d	0.00 d	0.00 d
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Apr94	10.2 d	53.0 d	74.0 d	4.9 d	6.6 d	85.0 d	15.7 d	6.03 d	2.55 d	0.91 d	0.69 d	18.2 d	0.33 d	0.48 d	0.27 d	0.07 d	0.04 d
	100%	100%	100%	100%	96%	100%	100%	100%	99%	99%	99%	100%	96%	96%	96%	96%	96%
May94	15.1 d	59.0 d	166.0 d	5.2 d	7.9 d	77.0 d	72.5 d	6.53 d	0.61 d	0.20 d	0.83 d	21.2 d	0.17 d	0.73 d	0.38 d	0.09 d	0.15 d
	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	100%	99%	99%	99%	99%	99%
Jun94	20.7 d	46.0 d	6.0 d	3.0 d	8.4 d	87.0 d	1.2 d	5.99 d	4.64 d	2.06 d	5.16 d	79.4 d	1.22 d	3.27 d	1.79 d	0.69 d	1.23 d
	100%	100%	100%	96%	86%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jul94	26.1 d	34.0 d	0.0 d	2.1 d	29.8 d	92.0 d	0.0 d										
	100%	100%	100%	100%	100%	90%											
Aug94	25.8 d	37.0 d	9.0 d	1.8 d	23.6 d	100.0 d	0.0 d										
	100%	100%	100%	100%	100%	100%											
Mean	13.9 d	58.0 d	2025.0 d	3.5 d	19.3 d	74.0 d	468.0 d	5.91 d	0.48 d	0.17 d	0.82 d	17.8 d	0.12 d	0.49 d	0.26 d	0.07 d	0.06 d
	98%	99%	99%	97%	98%	82%	100%	99%	99%	99%	98%	99%	99%	98%	99%	99%	99%

## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (34) Moscow, Russia

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION			PRECIPITATION				
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond us/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	8.0	78.0	393	28.8	30.4		81.2	6.21	1.85	0.15	0.51	26.0	0.43				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Oct93	4.8	75.0	213	23.9	23.0		80.4	6.22	2.86	0.18	0.68	42.4	0.70				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Nov93	-7.3	82.0	62	20.8	37.6		13.4	6.40	3.63	0.25	0.85	48.8	1.12				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Dec93	-3.3	89.0	138	23.2	30.8		85.1	6.37	3.15	0.12	1.03	42.7	0.75				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Jan94	-5.1	78.0	69	16.8	27.6		72.6	6.06	2.03	0.24	0.79	26.9	0.65				
	*d	*d	m	m	m		m	m	m	m	m	m	m				
	64%	64%															
Feb94	-10.5	77.0	77	7.4	10.6		20.6	6.15	1.59	0.05	0.48	13.6	0.29				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Mar94	-3.2	79.0	95	17.9	31.8		52.0	6.08	2.79	0.31	1.13	38.0	0.85				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Apr94	4.8	65.0	113	15.0	33.9		10.4	5.92	2.87	0.22	0.65	42.4	0.53				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
May94	9.6	66.0	126	20.7	36.7		57.1	6.58	3.25	0.30	1.19	55.6	1.20				
	d	d	m	m	m		m	m	m	m	m	m	m				
	77%	77%															
Jun94	13.5	70.0	203	14.8	40.7		104.0	5.81	2.20	0.12	0.79	29.9	0.61				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Jul94	16.9	64.0	132	16.7	31.6		57.8	5.75	2.22	0.11	1.10	26.6	0.39				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Aug94	15.9	69.0	196	21.0	43.7		110.4	6.03	1.69	0.23	0.55	21.8	0.62				
	d	d	m	m	m		m	m	m	m	m	m	m				
	100%	100%															
Mean	4.0	74.0	1817	18.9	31.5		745.0	6.06	2.39	0.19	0.81	33.1	0.67				
	d	d	m	m	m		m	m	m	m	m	m	m				
	95%	95%															

ECE-PROGRAMME ON EFFECTS ON MATERIALS

SITE: (35) Lahemaa, Estonia

Date	CLIMATE			GASES			PRECIPITATION			PRECIPITATION							
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	pH	mm	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93																	
Oct93																	
Nov93																	
Dec93																	
Jan94																	
Feb94																	
Mar94																	
Apr94																	
May94																	
Jun94																	
Jul94																	
Aug94																	
Mean																	

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (36) Lisbon-Jeronimo, Portugal

Date	C L I M A T E		G A S E S		mm	P R E C I P I T A T I O N			P R E C. - O P T I O N								
	Temp C	Rh %	Sun hours	SO2 ug/m3		NO2 ug/m3	O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	23.2 d	62 d	36 d	2.7 d	22.4 d	58. xd											
	100%	100%	100%	100%	100%	16%											
Oct93	18.7 d	63 d	139 d	5.1 d	30.5 d	53. xd											
	100%	100%	100%	87%	87%	48%											
Nov93	15.2 d	67 d	86 d	13.6 d	43.2 d	29. d											
	96%	93%	100%	100%	100%	86%											
Dec93	14.8 d	66 d	134 d	17.8 d	36.8 d	25. d											
	100%	100%	100%	100%	100%	100%											
Jan94	14.6 d	64 d	200 d	105.2 w	5.38 w	21.14 w											
	100%	100%	100%	100%	100%	100%											
Feb94	12.2 d	79 d	374 d	156.7 w	5.36 w	6.82 w											
	100%	100%	100%	100%	100%	100%											
Mar94	16.6 d	70 d	51 d	4.2 w	6.10 w	7.77 w											
	90%	87%	100%	100%	100%	100%											
Apr94	17.8 d	53 d	8 d	33.3 w	6.49 w												
	76%	76%	100%	100%	100%												
May94	17.6 d	69 d	181 d	203.0 w	5.84 w	8.56 w											
	100%	100%	100%	100%	100%	100%											
Jun94	22.0 d	62 d	54 d														
	100%	100%	100%														
Jul94	23.1 d	59 d	11 d														
	93%	93%	100%														
Aug94	23.0 d	63 d	4 d														
	100%	100%	100%														
Mean	18.3 d	65 d	1278 d	10.0 xd	33.3 xd	34. xd											
	96%	95%	100%	32%	32%	21%											
				5.59 m	8.34 m	1.41 m											
				69.6 *m	13.92 m	0.43 m											
				8.42 m	5.83 m	0.78 m											
				1.19 m													



## ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (37) Dorset, Canada

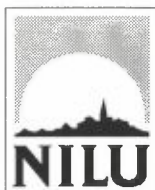
Date	C L I M A T E			G A S E S			P R E C I P I T A T I O N			P R E C . - O P T I O N					
	Temp C	Rh %	Tow hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cond us/cm	NH4-N mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	10.7	87.	482.	149.			45.								
Oct93	5.0	85.	388.	118.			43.								
Nov93	-0.5	87.	317.	69.			45.								
Dec93	-6.9	87.	156.	91.			43.								
Jan94	-18.2	77.	14.	82.			57.								
Feb94	-12.7	75.	36.	131.			67.								
Mar94	-3.5	75.	76.	127.			77.								
Apr94	4.2	71.	182.	179.			79.								
May94	9.7	73.	329.	215.			77.								
Jun94	16.3	81.	449.	229.			63.								
Jul94	18.4	86.	492.	262.			55.								
Aug94	15.7	87.	511.	218.			53.								
Mean	3.2	81.	3432.	1870.			59.								

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (38) Research Triangle Park, USA (NC)

Date	CLIMATE		GASES			mm	PRECIPITATION			PRECIPITATION							
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3		O3 ug/m3	pH	SO4-S mg/l	NO3-N mg/l	Cl mg/l	Cond uS/cm	NH4-N mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	23.3	65.	215.	7.3	23.1	48.											
	m	m	m	m	m	m											
Oct93	15.0	61.	167.	6.4	29.2	32.	74.9										
	m	m	m	m	m	m	m										
Nov93	11.1	58.	153.	9.2	33.4	25.	67.5										
	m	m	m	m	m	m	m										
Dec93	6.2	60.	103.	14.8	36.1	21.	51.0										
	m	m	m	m	m	m	m										
Jan94	2.8	57.	148.	9.1	35.9	28.	90.2										
	m	m	m	m	m	m	m										
Feb94	6.7	62.	149.	11.2	29.1	32.	75.4										
	m	m	m	m	m	m	m										
Mar94	11.1	60.	205.	8.2	25.8	38.	150.1										
	m	m	m	m	m	m	m										
Apr94	17.5	76.	296.	10.9	28.9	60.	21.8										
	m	m	m	m	m	m	m										
May94	17.7	71.	329.	8.2	23.6	78.	72.4										
	m	m	m	m	m	m	m										
Jun94	25.0	73.	245.	7.9	20.3	80.	55.9										
	m	m	m	m	m	m	m										
Jul94	26.3	80.	242.	7.0	18.1	75.	118.6										
	m	m	m	m	m	m	m										
Aug94	24.4	71.	264.	6.8	16.2	71.	106.7										
	m	m	m	m	m	m	m										
Mean	15.6	66.	3078.	8.9	26.6	49.	973.4	4.42	0.72	0.33	0.30	22.0	0.15	0.12	0.06	0.04	0.05
	m	m	y	m	m	m	m	m	y	y	y	y	y	y	y	y	y

ECE-PROGRAMME ON EFFECTS ON MATERIALS SITE: (39) Steubenville, USA (Oh)

Date	C L I M A T E		G A S E S			P R E C I P I T A T I O N			P R E C I P I T A T I O N						
	Temp C	Rh %	Sun hours	SO2 ug/m3	NO2 ug/m3	O3 ug/m3	mm	pH	SO4-S mg/l	NO3-N mg/l	Cond uS/cm	NH4-N mg/l	Ca mg/l	Mg mg/l	K mg/l
Sep93	17.2	70.	128.	48.1	30.1	44.	61.7								
Oct93	10.5	61.	173.	50.2	37.1	25.	27.4								
Nov93	6.1	63.	99.	51.1	42.2	19.	50.5								
Dec93	4.4	60.	79.	60.8	44.1	20.	82.3								
Jan94	-6.1	59.	65.	40.4	40.1	22.	99.0								
Feb94	-1.3	62.	134.	59.1	49.7	48.	82.4								
Mar94	3.3	64.	105.	47.2	52.7	26.	127.0								
Apr94	12.2	68.	189.	37.3	54.4	40.	94.5								
May94	13.5	71.	199.	22.6	45.5	52.	64.5								
Jun94	22.8	74.	238.	36.4	36.1	68.	73.9								
Jul94	23.5	80.	233.	37.2	29.8	69.	83.0								
Aug94	21.1	78.	200.	40.8	27.2	50.	196.8								
Mean	10.6	68.	1673.	44.3	40.8	40.	1043.0	4.20	0.39	0.46	59.2	0.34	0.18	0.71	0.04



# Norsk institutt for luftforskning (NILU)

P.O. Box 100, N-2007 Kjeller - Norway

REPORT SERIES OPPDRAKSRAPPORT	REPORT NO. OR 23/96	ISBN-82-425-0764-3	
DATE <i>6.5.1996</i>	SIGN. <i>Arne Semb</i>	NO. OF PAGES 65	PRICE NOK 105,-
TITLE International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments Environmental data report September 1993 to August 1994		PROJECT LEADER Jan F. Henriksen	
		NILU PROJECT NO. O-8208	
AUTHOR(S) Jan F. Henriksen, Kari Arnesen and Arild Rode		CLASSIFICATION * A	
		CONTRACT REF. SFT	
REPORT PREPARED FOR: Statens forurensningstilsyn P.O. Box 8100 Dep. 0032 OSLO 1			
ABSTRACT The International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments has an extensive programme on material exposure in well defined environments. This report includes the environmental data from the seventh exposure year of temperature, relative humidity, time of wetness, sunshine hours, concentrations of SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , and precipitation amount and quality. The yearly results from the previous years are also reported and the data has been evaluated in respect to the internal consistency.			
NORWEGIAN TITLE			
KEYWORDS Environment	Air pollution	Precipitation	
ABSTRACT (in Norwegian)			

\* Classification

A	Unclassified (can be ordered from NILU)
B	Restricted distribution
C	Classified (not to be distributed)