

Supplemental electronic material to
Numerical simulation of the microphysics of an orographic cloud: Comparison with
measurements and sensitivity studies

Martin Simmel¹, Karoline Diehl², Sabine Wurzler³

Leibniz Institute for Tropospheric Research

Permoserstraße 15

04318 Leipzig, Germany

All data are taken from the FEBUKO database which is accessible via

http://projects.tropos.de:8088/afo2000g3/FEBUK0_dateien/febuko.html

¹e-mail: simmel@tropos.de, phone: ++49 341 235-2176, fax: ++49 341 235-2139 (corresponding author)

²present address: Institut für Physik der Atmosphäre, Universität Mainz, Becherweg 21, 55099 Mainz, Germany

³present address: North Rhine-Westphalia State Environment Agency, Schederhofstr. 6, 45145 Essen, Germany

Soluble fraction of particulate mass

impactor stage	radius range (dry)	Event		
		E I	E II	E III
1	19–53 nm	0.247	0.385	0.487
2	53–157 nm	0.599	0.682	0.576
3	157–431 nm	0.782	0.821	0.771
4	431–1224 nm	0.604	0.639	0.780
5	1224–3499 nm	0.605	0.550	0.620
1–5	average	0.691	0.716	0.662

Table 1: Size-dependent and average soluble fraction ϵ for the events E I, E II, and E III derived from the 5-stage Berner impactor measurements at U.

Meteorological data

For E I

E I: 26./27.10.2001

time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
22:15	8.41	163.3	950.4	910.6	8.57
22:30	8.35	163.3	950.4	910.5	9.03
22:45	8.33	153.3	950.3	910.3	10.17
23:00	8.32	140.0	950.3	910.2	10.57
23:15	8.18	133.3	950.1	910.2	10.37
23:30	8.13	120.0	950.0	910.2	9.97
23:45	8.03	120.0	949.7	910.0	9.10
00:00	7.97	113.3	949.6	909.7	8.77
00:15	8.12	86.7	949.6	909.6	9.90
00:30	8.08	106.7	949.6	909.7	9.73
00:45	8.14	116.7	949.5	909.7	10.53
01:00	8.10	110.0	949.6	909.6	9.07
01:15	8.07	110.0	949.5	909.6	8.87
01:30	7.92	110.0	949.6	909.6	9.03
01:45	7.75	80.0	949.4	909.5	8.77
02:00	7.56	66.7	949.2	909.4	7.77
02:15	7.49	60.0	949.0	909.2	7.23
02:30	7.37	53.3	949.1	909.2	6.90
02:45	7.33	50.0	949.2	909.1	6.97
03:00	7.40	50.0	949.1	909.3	7.27

E I: 26./27.10.2001 cont.

time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
03:15	7.42	50.0	949.1	909.2	6.67
03:30	7.42	50.0	949.2	909.3	6.70
03:45	7.42	50.0	949.3	909.3	6.43
04:00	7.40	50.0	949.4	909.2	8.10
04:15	7.51	90.0	949.3	909.1	8.70
04:30	7.66	150.0	949.3	909.1	8.70
04:45	7.86	186.7	949.4	909.2	9.10
05:00	7.95	180.0	949.3	909.0	8.37
05:15	7.96	160.0	949.3	909.1	8.57
05:30	8.02	126.7	949.2	909.1	7.87
05:45	8.07	163.3	949.0	909.0	7.13
06:00	8.05	183.3	949.0	909.0	6.87
06:15	8.21	136.7	949.1	909.2	6.60
06:30	7.97	90.0	949.2	909.2	7.10
06:45	7.76	60.0	949.3	909.3	7.90
07:00	7.58	53.3	949.4	909.4	7.77
07:15	7.35	50.0	949.6	909.6	7.43
07:30	7.18	50.0	949.8	909.9	7.10
07:45	7.17	50.0	950.0	910.1	6.77
08:00	7.33	56.7	950.1	910.2	6.27

E I: 26./27.10.2001 cont.					
time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
08:15	7.53	73.3	950.0	910.2	5.80
08:30	7.54	60.0	950.0	910.1	5.77
08:45	7.60	53.3	950.1	910.2	5.97
09:00	8.10	93.3	950.2	910.4	5.73
09:15	8.25	110.0	950.2	910.4	6.33
09:30	8.22	96.7	950.2	910.3	7.40
09:45	8.25	96.7	950.3	910.3	7.73
10:00	8.33	96.7	950.4	910.3	8.10
10:15	8.54	113.3	950.3	910.3	8.03
10:30	8.91	133.3	950.2	910.3	7.63
10:45	9.74	180.0	950.0	910.2	7.57
11:00	9.86	200.0	950.0	910.2	7.97
11:15	9.60	173.3	950.1	910.2	8.37
11:30	9.50	180.0	950.0	910.2	8.80
11:45	9.55	180.0	949.9	910.1	8.60
12:00	9.51	180.0	949.8	910.1	7.20
12:15	9.66	193.3	949.8	910.0	6.73
12:30	9.92	200.0	949.6	910.0	7.57
12:45	9.95	196.7	949.6	909.9	9.37
13:00	9.91	190.0	949.6	909.9	9.53

Table 2: Initialisation data for E I measured at U and S: temperature ($^{\circ}\text{C}$), cloud base height (m), pressure (hPa), and wind speed (m/s).

For E II

E II: 7./8.10.2001					
time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
18:15	10.44	2660.0	942.0	903.0	3.77
18:30	10.30	7586.7	941.9	902.9	3.13
18:45	10.04	9999.0	941.9	902.9	3.33
19:00	10.05	3486.3	941.9	902.8	2.77
19:15	10.09	230.0	941.8	902.8	2.83
19:30	10.42	216.7	941.6	902.7	3.17
19:45	10.62	223.3	941.6	902.6	3.37
20:00	10.91	230.0	941.6	902.6	4.20
20:15	11.14	253.3	941.4	902.4	4.93
20:30	11.37	233.3	941.2	902.2	5.07
20:45	11.41	143.3	941.1	902.0	5.27
21:00	11.29	70.0	941.1	902.0	5.57
21:15	11.22	70.0	941.0	901.9	5.50
21:30	11.34	116.7	940.9	901.8	5.07
21:45	11.39	180.0	940.9	901.8	5.80
22:00	11.50	140.0	941.0	901.8	6.97
22:15	11.51	140.0	940.9	901.8	7.03
22:30	11.55	146.7	940.8	901.6	7.57
22:45	11.60	136.7	940.8	901.6	8.37
23:00	11.60	96.7	940.8	901.6	8.17

E II: 7./8.10.2001 cont.

time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
23:15	11.55	100.0	940.7	901.5	8.63
23:30	11.56	113.3	940.7	901.5	8.87
23:45	11.50	110.0	940.6	901.3	9.13
00:00	11.49	116.7	940.5	901.3	8.83
00:15	11.60	116.7	940.4	901.1	9.43
00:30	11.54	170.0	940.3	901.1	8.93
00:45	11.56	110.0	940.3	901.1	7.53
01:00	11.60	130.0	940.2	901.0	7.53
01:15	11.61	133.3	940.1	900.9	7.27
01:30	11.60	180.0	940.1	900.9	7.67
01:45	11.66	160.0	940.1	901.0	8.00
02:00	11.67	140.0	940.3	901.1	8.33
02:15	11.63	160.0	940.4	901.2	8.33
02:30	11.63	140.0	940.4	901.2	7.87
02:45	11.60	120.0	940.4	901.3	6.93
03:00	11.61	166.7	940.5	901.3	6.47
03:15	11.59	200.0	940.4	901.3	6.87
03:30	11.53	173.3	940.5	901.3	6.53
03:45	11.58	200.0	940.6	901.4	7.13
04:00	11.51	186.7	940.7	901.5	7.60

E II: 7./8.10.2001 cont.

time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
04:15	11.53	180.0	940.9	901.6	8.00
04:30	11.46	173.3	940.8	901.7	7.10
04:45	11.49	203.3	940.5	901.5	7.10
05:00	11.42	243.3	940.6	901.5	6.37
05:15	11.39	220.0	940.8	901.7	6.77
05:30	11.29	180.0	941.0	901.8	6.87
05:45	11.28	170.0	941.3	902.0	7.47
06:00	11.29	183.3	941.3	902.1	7.63
06:15	11.55	260.0	941.2	902.0	7.43
06:30	11.46	220.0	941.4	902.1	7.17
06:45	11.40	160.0	941.4	902.2	7.37
07:00	11.59	186.7	941.5	902.2	7.17
07:15	11.76	260.0	941.5	902.3	7.63
07:30	11.91	266.7	941.6	902.4	8.40
07:45	12.03	266.7	941.7	902.4	8.20
08:00	11.91	240.0	941.7	902.3	8.53
08:15	11.83	233.3	941.6	902.2	8.67
08:30	12.13	253.3	941.8	902.4	9.07
08:45	12.25	276.7	941.7	902.3	8.00
09:00	12.31	276.7	941.7	902.4	7.27

E II: 7./8.10.2001 cont.					
time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
09:15	12.49	290.0	941.8	902.5	7.13
09:30	12.44	290.0	941.7	902.4	7.20
09:45	12.58	266.7	941.6	902.4	7.13
10:00	12.60	300.0	941.8	902.5	7.57
10:15	12.45	300.0	941.8	902.5	7.43
10:30	12.60	300.0	941.8	902.5	7.50
10:45	12.65	333.3	941.9	902.7	6.90
11:00	12.77	333.3	942.0	902.8	6.60
11:15	13.10	410.0	941.9	902.7	7.73

Table 3: Initialisation data for E II measured at U and S: temperature ($^{\circ}\text{C}$), cloud base height (m), pressure (hPa), and wind speed (m/s).

For E III

E III: 16./17.10.2002					
time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
21:15	11.32	210.0	932.4	893.2	10.10
21:30	11.30	230.0	932.2	893.0	10.77
21:45	11.20	246.7	932.1	892.9	11.43
22:00	11.15	240.0	932.1	892.8	11.17
22:15	11.11	240.0	932.0	892.7	10.07
22:30	11.03	253.3	932.1	892.8	10.60
22:45	10.85	260.0	932.0	892.7	11.00
23:00	10.68	226.7	932.1	892.8	10.13
23:15	10.55	220.0	932.4	893.0	11.03
23:30	10.46	233.3	932.4	892.8	10.63
23:45	10.41	253.3	932.1	892.6	10.47
00:00	10.41	253.3	932.2	892.7	9.87
00:15	10.37	250.0	932.2	892.8	9.57
00:30	10.02	223.3	932.0	892.6	9.23
00:45	10.01	203.3	932.0	892.7	8.90
01:00	10.14	150.0	931.8	892.5	9.30
01:15	10.19	180.0	931.7	892.1	9.50
01:30	10.14	200.0	931.5	892.1	10.10
01:45	10.10	186.7	931.8	892.3	9.20
02:00	10.12	200.0	931.9	892.3	11.13

E III: 16./17.10.2002 cont.					
time UTC	temp.	c. b. h.	pressure		wind sp.
	U	U	U	S	S
02:15	10.20	260.0	932.1	892.6	11.13
02:30	10.08	240.0	931.9	892.4	11.47
02:45	9.99	253.3	931.7	892.2	9.20
03:00	9.90	260.0	931.2	891.9	9.27
03:15	9.88	273.3	931.7	892.2	10.00
03:30	9.86	253.3	931.5	892.1	11.07
03:45	9.77	230.0	931.7	892.2	8.53
04:00	9.70	203.3	931.6	892.1	9.33

Table 4: Initialisation data for E III measured at U and S: temperature ($^{\circ}\text{C}$), cloud base height (m), pressure (hPa), and wind speed (m/s).

Relative humidity

Initial values for relative humidity are derived from the cloud base height (corresponds to $\text{rh}=100\%$) adiabatically.

AP number size distributions

For E I

E I: 26./27.10.2001												
time UTC	mode 1			mode 2			mode 3			mode 4		
	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>
22:15	339.63	1.409	301.44	2029.35	1.990	53.73	–	–	–	–	–	–
22:30	390.63	1.403	295.14	1965.84	1.965	52.48	–	–	–	–	–	–
22:45	445.20	1.429	272.45	1812.45	1.881	51.40	–	–	–	–	–	–
23:00	455.59	1.470	256.51	1759.88	1.963	49.58	–	–	–	–	–	–
23:15	472.32	1.439	270.73	1800.46	1.859	52.60	–	–	–	–	–	–
23:30	407.34	1.423	279.20	2078.59	1.840	55.07	–	–	–	–	–	–
23:45	484.26	1.463	259.58	2136.81	1.672	59.67	214.99	1.384	21.73	–	–	–
00:00	464.04	1.459	267.43	1773.17	1.622	62.85	327.50	1.458	27.06	–	–	–
00:15	405.24	1.443	280.28	2349.67	1.841	56.58	–	–	–	–	–	–
00:30	385.30	1.458	276.43	2258.31	1.861	56.84	–	–	–	–	–	–
00:45	406.23	1.459	276.94	2310.79	1.871	56.95	–	–	–	–	–	–
01:00	316.34	1.424	304.38	2461.30	1.950	58.69	–	–	–	–	–	–
01:15	336.46	1.436	298.43	2503.62	1.915	57.27	–	–	–	–	–	–
01:30	420.27	1.450	286.56	1991.45	1.681	65.57	453.55	1.378	29.56	–	–	–
01:45	433.04	1.446	287.07	1997.78	1.690	67.48	388.23	1.423	30.34	–	–	–
02:00	439.65	1.466	281.15	2300.55	1.766	57.11	–	–	–	–	–	–
02:15	406.88	1.441	294.86	2024.61	1.702	66.99	305.92	1.375	30.42	–	–	–
02:30	422.65	1.467	282.80	2020.40	1.711	63.59	160.55	1.309	27.95	–	–	–
02:45	400.83	1.450	290.02	2260.01	1.752	60.08	–	–	–	–	–	–
03:00	361.09	1.438	302.15	2112.31	1.758	64.64	91.81	1.208	27.96	–	–	–

E I: 26./27.10.2001 cont.

time UTC	mode 1			mode 2			mode 3			mode 4		
	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>
03:15	311.06	1.414	321.34	1811.05	1.696	76.16	491.51	1.459	37.42	–	–	–
03:30	340.87	1.460	299.79	2407.60	1.814	62.91	–	–	–	–	–	–
03:45	329.98	1.448	306.46	2335.53	1.709	70.45	401.72	1.347	30.28	–	–	–
04:00	304.29	1.432	315.76	2585.06	1.799	61.98	–	–	–	–	–	–
04:15	274.14	1.425	310.30	2238.61	1.761	69.84	197.78	1.336	32.00	–	–	–
04:30	249.26	1.431	307.99	2168.10	1.819	66.50	9.01	1.134	10.31	–	–	–
04:45	207.35	1.430	308.75	1749.45	1.797	74.60	228.43	1.367	36.07	–	–	–
05:00	274.87	1.467	277.00	1802.48	1.812	66.67	30.34	1.207	11.58	21.61	1.181	7.28
05:15	272.97	1.459	284.99	1913.80	1.861	67.59	13.89	1.212	8.77	–	–	–
05:30	264.75	1.463	275.54	1905.97	1.892	71.00	4.14	1.177	6.02	–	–	–
05:45	230.52	1.421	298.84	2154.37	1.888	72.09	66.92	1.346	12.40	–	–	–
06:00	209.41	1.422	298.15	2149.80	1.918	73.67	52.84	1.228	10.56	–	–	–
06:15	270.81	1.481	274.70	2484.12	1.843	67.14	16.59	1.187	10.40	–	–	–
06:30	147.38	1.372	335.97	3121.15	2.033	69.76	–	–	–	–	–	–
06:45	244.24	1.394	321.98	2079.11	1.643	85.22	1142.79	1.570	35.58	–	–	–
07:00	133.44	1.341	351.36	2995.33	1.986	72.45	–	–	–	–	–	–
07:15	139.92	1.362	354.90	2610.64	1.917	68.55	10.98	1.202	8.62	–	–	–
07:30	183.17	1.367	340.69	2792.08	1.860	67.66	–	–	–	–	–	–
07:45	249.23	1.415	293.30	3012.50	1.852	63.63	–	–	–	–	–	–
08:00	174.28	1.390	331.05	3226.27	1.888	64.98	7.13	1.119	8.98	–	–	–

E I: 26./27.10.2001 cont.

time UTC	mode 1			mode 2			mode 3			mode 4		
	N	σ	D	N	σ	D	N	σ	D	N	σ	D
08:15	198.28	1.403	327.68	3559.94	1.505	88.85	1027.89	1.717	37.95	–	–	–
08:30	202.64	1.444	303.70	3475.96	1.856	64.74	–	–	–	–	–	–
08:45	203.61	1.453	314.94	3209.56	1.892	66.62	–	–	–	–	–	–
09:00	191.88	1.390	335.46	3439.95	1.863	68.16	56.07	1.327	7.88	–	–	–
09:15	216.66	1.404	313.83	3429.74	1.826	69.64	27.28	1.200	9.08	–	–	–
09:30	236.69	1.435	293.85	3270.67	1.873	69.49	57.39	1.243	9.28	–	–	–
09:45	244.84	1.442	286.25	3284.75	1.870	68.22	59.40	1.238	7.96	–	–	–
10:00	318.46	1.432	281.69	3127.83	1.825	67.46	15.59	1.205	8.89	–	–	–
10:15	170.97	1.369	316.11	3210.95	1.974	72.97	–	–	–	–	–	–
10:30	469.37	1.490	241.63	2849.40	1.745	71.89	290.62	1.583	19.29	50.16	1.222	7.01
10:45	331.28	1.443	261.07	2979.38	1.920	73.49	84.71	1.357	12.15	53.54	1.201	7.44
11:00	307.39	1.442	246.02	2970.49	1.947	76.45	196.27	1.356	11.37	57.87	1.241	6.62
11:15	292.63	1.393	254.46	3044.32	1.989	73.19	151.51	1.609	12.81	–	–	–
11:30	286.48	1.422	257.80	3206.11	1.956	71.95	33.62	1.226	8.00	–	–	–
11:45	368.93	1.462	241.04	3209.74	1.947	73.95	111.76	1.331	10.26	–	–	–
12:00	449.37	1.480	230.52	3813.05	1.877	78.95	53.45	1.224	16.04	–	–	–
12:15	359.12	1.456	238.83	3471.21	1.918	75.29	47.97	1.257	10.81	–	–	–
12:30	313.90	1.415	256.92	3422.46	1.952	76.09	34.53	1.211	11.50	–	–	–
12:45	466.53	1.482	224.54	3461.58	1.915	75.36	84.55	1.397	12.21	–	–	–
13:00	282.44	1.417	255.83	3618.41	1.973	74.80	98.45	1.350	12.33	–	–	–

Table 5: Mode parameters for E I AP number size distributions measured at U: N in cm^{-3} , D in nm.

For E II

E II: 7./8.10.2001												
time UTC	mode 1			mode 2			mode 3			mode 4		
	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>
18:15	321.50	1.588	163.78	1123.76	1.622	55.60	175.34	1.433	15.40	-	-	-
18:30	-	-	-	-	-	-	-	-	-	-	-	-
18:45	440.57	1.621	149.58	911.74	1.488	57.04	344.89	1.545	19.53	-	-	-
19:00	293.91	1.559	173.67	1011.01	1.720	51.09	105.08	1.304	13.54	-	-	-
19:15	369.97	1.483	184.14	839.01	1.557	57.25	186.96	1.379	17.11	-	-	-
19:30	365.02	1.571	163.18	845.42	1.641	53.58	107.33	1.265	15.29	-	-	-
19:45	318.33	1.554	170.78	904.28	1.715	53.78	61.50	1.288	15.14	-	-	-
20:00	298.70	1.589	171.74	795.93	1.657	51.79	29.85	1.296	15.82	-	-	-
20:15	141.67	1.449	217.84	974.81	1.987	57.80	-	-	-	-	-	-
20:30	348.87	1.589	171.74	795.93	1.657	51.79	86.30	1.296	15.82	-	-	-
20:45	245.39	1.489	198.18	912.97	1.785	61.42	42.60	1.345	16.70	-	-	-
21:00	319.02	1.638	169.60	873.72	1.789	57.56	-	-	-	-	-	-
21:15	107.82	1.424	284.90	1107.89	1.886	73.02	-	-	-	-	-	-
21:30	76.97	1.391	308.17	266.64	1.628	148.89	493.52	1.506	97.32	414.87	1.490	45.67
21:45	144.52	1.437	273.73	606.76	1.481	105.95	485.51	1.493	47.99	24.74	1.260	19.67
22:00	102.55	1.420	274.62	1172.80	1.880	74.91	-	-	-	-	-	-
22:15	151.99	1.458	252.08	1143.67	1.823	71.09	-	-	-	-	-	-
22:30	179.51	1.474	237.12	1233.99	1.822	69.71	8.13	1.174	11.54	-	-	-
22:45	202.58	1.470	229.73	1204.69	1.845	64.17	66.40	1.321	17.63	-	-	-
23:00	232.46	1.498	218.01	1302.68	1.791	57.77	48.14	1.273	14.90	-	-	-

E II: 7./8.10.2001 cont.

time UTC	mode 1			mode 2			mode 3			mode 4		
	N	σ	D	N	σ	D	N	σ	D	N	σ	D
23:15	201.66	1.449	247.26	1208.64	1.790	64.68	62.86	1.377	18.67	–	–	–
23:30	199.26	1.492	227.88	1153.70	1.856	64.30	34.99	1.412	12.89	10.96	1.160	6.89
23:45	101.64	1.407	277.47	1275.28	1.942	67.93	13.68	1.170	9.53	–	–	–
00:00	138.72	1.426	272.61	1316.30	1.926	63.87	32.19	1.242	12.49	–	–	–
00:15	186.00	1.491	236.37	1264.48	1.859	59.83	26.64	1.212	12.67	–	–	–
00:30	231.58	1.515	227.65	1174.16	1.879	58.42	–	–	–	–	–	–
00:45	195.02	1.481	241.77	1374.31	1.791	63.32	88.57	1.372	21.83	–	–	–
01:00	184.49	1.491	249.38	1264.05	1.864	62.03	–	–	–	–	–	–
01:15	179.77	1.455	257.45	1379.24	1.919	62.16	–	–	–	–	–	–
01:30	174.37	1.459	255.14	1305.95	1.922	62.74	–	–	–	–	–	–
01:45	307.73	1.596	193.44	1040.63	1.792	54.58	–	–	–	–	–	–
02:00	302.46	1.539	209.62	1083.19	1.779	56.58	15.90	1.155	15.46	–	–	–
02:15	218.86	1.518	228.00	1332.73	1.922	57.78	–	–	–	–	–	–
02:30	226.93	1.560	210.54	1086.51	1.930	59.95	19.25	1.202	7.46	–	–	–
02:45	189.87	1.492	238.31	1127.03	1.937	62.98	–	–	–	–	–	–
03:00	190.09	1.479	237.40	1108.18	1.973	64.74	–	–	–	–	–	–
03:15	181.03	1.468	241.33	1187.62	1.894	64.00	24.82	1.244	12.51	–	–	–
03:30	231.57	1.555	207.01	952.03	1.728	66.00	157.08	1.613	20.40	29.32	1.174	5.30
03:45	202.91	1.503	230.05	1333.11	1.946	58.43	7.27	1.152	8.12	–	–	–
04:00	113.01	1.384	267.68	1442.38	2.022	63.35	27.97	1.196	9.31	–	–	–

E II: 7./8.10.2001 cont.

time UTC	mode 1			mode 2			mode 3			mode 4		
	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>
04:15	141.34	1.409	248.79	1353.19	2.066	61.63	28.19	1.296	8.69	–	–	–
04:30	121.86	1.411	260.74	1396.03	2.045	64.08	56.11	1.258	14.58	16.06	1.189	7.33
04:45	130.48	1.386	266.00	1544.99	2.062	60.60	32.50	1.182	7.26	–	–	–
05:00	114.29	1.384	278.05	1565.25	2.015	59.81	26.85	1.219	9.03	–	–	–
05:15	120.15	1.394	273.98	1475.00	2.021	61.00	39.21	1.277	11.23	–	–	–
05:30	114.33	1.402	274.42	1511.31	1.981	61.10	104.27	1.456	12.59	–	–	–
05:45	195.46	1.460	259.13	1139.38	1.686	75.57	347.90	1.615	26.73	63.67	1.208	5.85
06:00	119.77	1.390	284.48	1565.34	2.040	62.47	74.10	1.317	10.02	–	–	–
06:15	174.98	1.502	251.37	1557.48	2.034	58.96	54.73	1.328	9.79	–	–	–
06:30	178.04	1.495	232.11	1619.38	2.008	54.44	–	–	–	–	–	–
06:45	147.39	1.438	262.07	1610.66	1.969	59.19	87.47	1.314	13.14	42.30	1.174	8.34
07:00	122.19	1.434	270.73	1712.09	1.969	60.48	72.28	1.263	14.85	50.99	1.218	8.26
07:15	94.93	1.370	281.01	1722.44	2.089	59.97	–	–	–	–	–	–
07:30	165.80	1.485	227.95	1884.48	2.000	55.86	–	–	–	–	–	–
07:45	417.58	1.679	155.31	1605.23	1.872	47.78	280.40	1.411	10.88	–	–	–
08:00	140.78	1.419	225.30	1982.79	2.103	55.01	366.78	1.396	11.95	55.86	1.163	6.00
08:15	143.88	1.458	222.32	1975.34	2.171	48.71	85.80	1.275	8.05	–	–	–
08:30	288.06	1.489	215.29	1664.10	1.806	55.53	458.06	1.606	13.27	48.98	1.218	4.97
08:45	436.82	1.589	170.81	1530.09	1.745	48.58	317.59	1.473	13.58	72.04	1.192	4.88
09:00	161.80	1.366	228.18	2121.92	2.229	45.89	–	–	–	–	–	–

E II: 7./8.10.2001 cont.

time UTC	mode 1			mode 2			mode 3			mode 4		
	N	σ	D	N	σ	D	N	σ	D	N	σ	D
09:15	479.43	1.632	170.75	1385.08	1.647	49.00	386.74	1.605	14.85	–	–	–
09:30	180.16	1.372	237.57	1997.84	2.169	48.44	–	–	–	–	–	–
09:45	5.35	1.339	459.33	383.32	1.467	188.42	1498.37	1.703	50.16	271.31	1.494	13.93
10:00	276.26	1.469	197.42	2084.99	2.307	38.49	–	–	–	–	–	–
10:15	229.65	1.413	220.47	2052.62	2.135	49.26	124.22	1.348	9.75	–	–	–
10:30	584.86	1.618	159.56	1131.15	1.528	50.57	642.87	1.643	15.99	109.93	1.222	5.31
10:45	743.75	1.649	144.45	1692.99	2.003	27.30	–	–	–	–	–	–
11:00	17.44	1.160	387.80	424.25	1.546	180.39	1430.46	1.740	48.77	339.78	1.434	11.58
11:15	278.84	1.421	198.93	1801.17	2.171	46.15	395.31	1.513	9.10	–	–	–

Table 6: Mode parameters for E II AP number size distributions measured at U: N in cm^{-3} , D in nm.

For E III

E III: 16./17.10.2002												
time UTC	mode 1			mode 2			mode 3			mode 4		
	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>	<i>N</i>	σ	<i>D</i>
21:15	934.45	1.638	143.02	1558.69	1.792	38.51	–	–	–	–	–	–
21:30	1023.55	1.644	141.74	1423.60	1.699	37.49	–	–	–	–	–	–
21:45	944.41	1.667	138.48	1419.01	1.680	39.53	163.43	1.419	11.76	–	–	–
22:00	586.23	1.596	160.50	1583.11	1.860	43.06	309.47	1.370	15.40	103.84	1.267	6.39
22:15	781.65	1.608	144.16	1538.30	1.790	38.11	260.31	1.352	11.69	–	–	–
22:30	571.70	1.586	162.29	1823.78	1.925	38.74	235.13	1.421	8.91	–	–	–
22:45	571.70	1.586	162.29	1823.78	1.925	38.74	186.33	1.321	8.91	–	–	–
23:00	728.81	1.669	134.66	1475.64	1.659	34.19	258.85	1.342	10.63	–	–	–
23:15	634.14	1.594	146.74	1460.25	1.665	35.46	263.77	1.356	12.80	–	–	–
23:30	1.18	1.248	622.84	464.07	1.490	159.50	1435.22	1.770	32.95	302.75	1.387	14.46
23:45	530.47	1.595	147.60	1432.19	1.674	33.22	329.32	1.322	13.07	–	–	–
00:00	493.12	1.569	151.52	1722.47	1.808	28.29	–	–	–	–	–	–
00:15	461.50	1.587	151.83	1544.95	1.820	28.65	–	–	–	–	–	–
00:30	519.84	1.619	145.71	1352.63	1.644	33.59	269.07	1.361	13.67	–	–	–
00:45	413.74	1.532	161.71	1304.05	1.680	34.00	394.96	1.400	13.35	–	–	–
01:00	539.53	1.519	162.31	1556.74	1.688	31.60	–	–	–	–	–	–
01:15	555.79	1.531	156.77	1600.87	1.729	32.20	49.83	1.195	7.33	–	–	–
01:30	547.79	1.577	149.37	1274.71	1.565	34.92	358.64	1.408	15.90	–	–	–
01:45	471.33	1.490	163.43	1791.09	1.770	32.43	46.87	1.230	6.92	–	–	–
02:00	634.81	1.628	139.39	1605.71	1.617	30.84	17.55	1.162	6.91	–	–	–

E III: 16./17.10.2002 cont.												
time UTC	mode 1			mode 2			mode 3			mode 4		
	N	σ	D	N	σ	D	N	σ	D	N	σ	D
02:15	3.57	1.273	521.50	429.99	1.443	170.32	1724.24	1.708	33.93	–	–	–
02:30	416.24	1.500	162.10	1662.30	1.720	32.70	119.05	1.241	11.15	–	–	–
02:45	460.38	1.500	162.10	1721.55	1.720	32.70	48.47	1.241	9.15	–	–	–
03:00	473.37	1.470	165.24	1688.83	1.670	33.30	–	–	–	–	–	–
03:15	460.38	1.500	162.10	1662.52	1.720	32.70	48.47	1.241	8.10	–	–	–
03:30	461.86	1.571	149.43	1755.57	1.590	33.00	297.32	1.387	13.08	–	–	–
03:45	447.99	1.550	149.43	1826.33	1.620	32.50	297.32	1.387	13.08	–	–	–
04:00	5.89	1.439	418.49	354.59	1.442	174.02	1998.96	1.703	32.37	27.13	1.156	6.00

Table 7: Mode parameters for E III AP number size distributions measured at U: N in cm^{-3} , D in nm.