

Table D4.3(1) The Result of Upper-layer Meteorological Observation

Date: 19.11.1997		Time: 00:00			
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	980.0	233.0	60	3.0	
50	974.0	283.0	61	2.8	
100	968.1	333.0	62	2.6	
150	962.1	383.0	63	2.4	
200	956.3	433.0	65	2.2	
250	950.4	483.0	66	2.0	
300	944.6	533.0	67	1.8	
350	938.8	583.0	68	1.6	
400	932.9	633.0	69	1.4	
450	927.1	683.0	70	1.2	
500	921.4	733.0	73	1.2	
550	915.7	783.0	76	1.4	
600	910.0	833.0	79	1.6	
650	904.3	883.0	82	1.7	
700	898.7	933.0	85	1.9	
750	893.2	983.0	88	2.0	
800	887.6	1033.0	90	1.9	
850	882.1	1083.0	93	1.9	
900	876.6	1133.0	95	1.9	
950	871.2	1183.0	98	1.8	
1000	865.8	1233.0	98	1.7	
1050	860.3	1283.0	88	1.4	
1100	854.8	1333.0	78	1.1	
1150	849.4	1383.0	68	0.8	
1200	844.0	1433.0	58	0.5	
1250	838.7	1483.0	49	0.2	
1300	833.4	1533.0	99	0.5	
1350	828.1	1583.0	152	0.9	
1400	822.8	1633.0	204	1.2	
1450	817.6	1683.0	257	1.6	
1500	812.5	1733.0	310	1.9	
1550	807.3	1783.0	321	2.4	
1600	802.2	1833.0	316	2.9	
1650	797.1	1883.0	310	3.5	
1700	792.1	1933.0	305	4.0	
1750	787.0	1983.0	300	4.5	
1800	782.0	2033.0	296	4.9	
1850	776.9	2083.0	292	5.2	
1900	771.8	2133.0	289	5.4	
1950	766.8	2183.0	285	5.7	
2000	761.8	2233.0	289	5.4	

Date: 19.11.1997		Time: 6:00			
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	982.1	233.0	1.8	2.0	
50	976.0	283.0	1.5	2.2	
100	970.0	333.0	1.1	2.4	
150	964.0	383.0	0.8	2.7	
200	958.0	433.0	0.4	2.9	
250	952.1	483.0	0.1	3.1	
300	946.1	533.0	-0.2	3.3	
350	940.2	583.0	-0.6	3.5	
400	934.3	633.0	-0.9	3.9	
450	928.4	683.0	-1.3	4.6	
500	922.6	733.0	-1.6	5.4	
550	916.9	783.0	-1.9	6.1	
600	911.1	833.0	-2.3	6.8	
650	905.4	883.0	-2.6	7.3	
700	899.8	933.0	-3.0	7.5	
750	894.1	983.0	-3.3	7.7	
800	888.5	1033.0	-3.6	8.0	
850	883.0	1083.0	-4.0	8.2	
900	877.4	1133.0	-4.3	8.4	
950	871.8	1183.0	-4.5	8.6	
1000	866.2	1233.0	-4.7	8.2	
1050	860.7	1283.0	-4.9	7.8	
1100	855.2	1333.0	-5.2	7.5	
1150	849.8	1383.0	-5.4	7.1	
1200	844.3	1433.0	-5.6	6.7	
1250	839.0	1483.0	-5.8	6.3	
1300	833.6	1533.0	-6.1	5.9	
1350	828.3	1583.0	-6.3	5.4	
1400	823.0	1633.0	-6.5	4.9	
1450	817.7	1683.0	-6.7	4.4	
1500	812.5	1733.0	-6.9	3.9	
1550	807.3	1783.0	-7.2	3.4	
1600	802.2	1833.0	-7.4	3.0	
1650	797.1	1883.0	-7.6	2.8	
1700	792.0	1933.0	-7.8	2.98	
1750	786.9	1983.0	-8.1	2.83	
1800	781.9	2033.0	-8.3	2.67	
1850	776.9	2083.0	-8.5	2.52	
1900	772.0	2133.0	-8.7	2.37	
1950	767.0	2183.0	-9.0	2.34	
2000	762.2	2233.0	-9.2	2.32	

Table D4.3(2) The Result of Upper-layer Meteorological Observation

Date: 19.11.1997 Time: 18:00

Height m	Pressure mb	Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	984.7	233.0	2.0	70	4.0
50	978.6	283.0	1.6	110	4.5
100	972.5	333.0	1.3	150	4.9
150	966.5	383.0	0.9	190	5.4
200	960.5	433.0	0.6	230	5.9
250	954.6	483.0	0.2	270	6.3
300	948.7	533.0	-0.1	310	6.8
350	942.8	583.0	-0.5	350	7.3
400	936.9	633.0	-0.8	353	7.2
450	931.0	683.0	-1.2	352	7.2
500	925.2	733.0	-1.5	351	7.1
550	919.4	783.0	-1.8	351	7.0
600	913.6	833.0	-2.2	350	7.0
650	907.9	883.0	-2.5	349	6.9
700	902.2	933.0	-2.9	349	6.5
750	896.5	983.0	-3.2	348	6.1
800	890.9	1033.0	-3.6	348	5.7
850	885.3	1083.0	-3.9	348	5.3
900	879.7	1133.0	-4.3	348	4.9
950	874.2	1183.0	-4.5	348	4.5
1000	868.6	1233.0	-4.8	346	4.1
1050	863.1	1283.0	-5.0	339	3.7
1100	857.6	1333.0	-5.3	332	3.2
1150	852.2	1383.0	-5.5	325	2.8
1200	846.8	1433.0	-5.8	318	2.3
1250	841.4	1483.0	-6.0	310	1.9
1300	836.0	1533.0	-6.3	303	1.5
1350	830.7	1583.0	-6.5	296	1.0
1400	825.4	1633.0	-6.7	286	1.5
1450	820.2	1683.0	-7.0	275	2.1
1500	815.0	1733.0	-7.2	264	2.6
1550	809.8	1783.0	-7.0	253	3.2
1600	804.6	1833.0	-6.9	242	3.8
1650	799.5	1883.0	-6.7	238	4.3
1700	794.4	1933.0	-6.7	239	4.8
1750	789.2	1983.0	-7.0	240	5.2
1800	784.0	2033.0	-7.3	242	5.7
1850	778.9	2083.0	-7.7	243	6.2
1900	773.8	2133.0	-8.0	244	6.7
1950	768.7	2183.0	-8.4	245	7.2
2000	763.6	2233.0	-8.7	246	7.7

Date: 19.11.1997 Time: 12:00

Height m	Pressure mb	Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	983.1	233.0	4.2	0	0.0
50	977.0	283.0	3.7	47	0.6
100	971.0	333.0	3.2	95	1.3
150	965.0	383.0	2.8	142	1.9
200	959.1	433.0	2.3	190	2.5
250	953.2	483.0	1.8	237	3.1
300	947.3	533.0	1.3	285	3.8
350	941.5	583.0	0.8	332	4.4
400	935.6	633.0	0.4	328	4.8
450	929.8	683.0	-0.1	279	5.0
500	923.9	733.0	-0.5	230	5.2
550	918.1	783.0	-0.9	181	5.3
600	912.4	833.0	-1.3	132	5.5
650	906.6	883.0	-1.8	83	5.7
700	900.9	933.0	-2.2	34	5.9
750	895.3	983.0	-2.6	16	5.9
800	889.7	1033.0	-3.1	61	5.8
850	884.1	1083.0	-3.5	112	5.6
900	878.5	1133.0	-3.9	160	5.4
950	873.0	1183.0	-4.3	208	5.3
1000	867.5	1233.0	-4.8	256	5.1
1050	862.1	1283.0	-5.2	305	4.9
1100	856.7	1333.0	-5.6	345	4.8
1150	851.2	1383.0	-6.0	339	4.7
1200	845.8	1433.0	-6.3	332	4.7
1250	840.3	1483.0	-6.5	326	4.6
1300	834.9	1533.0	-6.8	320	4.6
1350	829.6	1583.0	-7.0	313	4.5
1400	824.3	1633.0	-7.3	307	4.5
1450	819.0	1683.0	-7.5	300	4.4
1500	813.7	1733.0	-7.8	295	4.6
1550	808.5	1783.0	-8.1	290	4.9
1600	803.3	1833.0	-8.3	286	5.3
1650	798.1	1883.0	-8.6	281	5.6
1700	793.0	1933.0	-8.8	277	6.0
1750	787.9	1983.0	-9.1	272	6.4
1800	782.8	2033.0	-9.3	268	6.7
1850	777.8	2083.0	-9.6	263	7.1
1900	772.8	2133.0	-9.9	258	7.4
1950	767.9	2183.0	-10.1	256	7.8
2000	762.9	2233.0	-10.4	257	8.2

Table D4.3(3) The Result of Upper-layer Meteorological Observation

Date: 20.11.1997 Time: 06:00

Height m	Pressure height mb	Pressure height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	985.9	233.0	0.6	0	0.0
50	979.7	283.0	0.3	3	0.3
100	973.6	333.0	0.0	6	0.6
150	967.5	383.0	-0.3	9	0.9
200	961.4	433.0	-0.7	12	1.2
250	955.4	483.0	-1.0	15	1.5
300	949.4	533.0	-1.3	18	1.8
350	943.4	583.0	-1.6	19	1.9
400	937.5	633.0	-1.9	19	2.0
450	931.7	683.0	-2.2	19	2.0
500	925.8	733.0	-2.5	18	2.1
550	920.0	783.0	-2.8	18	2.1
600	914.2	833.0	-3.2	18	2.2
650	908.5	883.0	-3.5	32	2.1
700	902.8	933.0	-3.8	53	2.0
750	897.2	983.0	-4.1	74	1.9
800	891.5	1033.0	-4.4	96	1.7
850	886.0	1083.0	-4.7	117	1.6
900	880.4	1133.0	-5.0	138	1.5
950	874.9	1183.0	-5.4	150	1.5
1000	869.3	1233.0	-5.4	153	1.8
1050	863.8	1283.0	-5.4	156	2.1
1100	858.3	1333.0	-5.4	159	2.3
1150	852.9	1383.0	-5.4	162	2.6
1200	847.5	1433.0	-5.4	165	2.9
1250	842.1	1483.0	-5.3	169	3.1
1300	836.8	1533.0	-4.8	177	3.0
1350	831.5	1583.0	-4.2	186	2.9
1400	826.3	1633.0	-3.6	194	2.8
1450	821.1	1683.0	-3.0	202	2.8
1500	815.9	1733.0	-2.4	211	2.7
1550	810.8	1783.0	-1.9	218	2.8
1600	805.7	1833.0	-2.0	223	3.6
1650	800.7	1883.0	-2.1	227	4.5
1700	795.7	1933.0	-2.1	232	5.4
1750	790.7	1983.0	-2.2	236	6.3
1800	785.7	2033.0	-2.3	240	7.1
1850	780.8	2083.0	-2.3	245	8.0
1900	775.9	2133.0	-2.4	246	8.8
1950	771.1	2183.0	-2.5	246	9.6
2000	766.2	2233.0	-2.7	247	10.4

Date: 20.11.1997 Time: 00:00

Height m	Pressure height mb	Pressure height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	986.2	233.0	1.2	80	2.0
50	980.1	283.0	1.0	129	1.9
100	974.0	333.0	0.8	178	1.9
150	968.0	383.0	0.6	227	1.8
200	962.0	433.0	0.5	276	1.8
250	956.0	483.0	0.2	324	1.7
300	950.0	533.0	-0.1	350	1.7
350	944.0	583.0	-0.5	346	1.6
400	938.1	633.0	-0.8	343	1.6
450	932.2	683.0	-1.2	339	1.5
500	926.4	733.0	-1.6	335	1.5
550	920.5	783.0	-1.9	331	1.4
600	914.8	833.0	-2.3	327	1.3
650	909.0	883.0	-2.7	323	1.3
700	903.3	933.0	-3.0	316	1.1
750	897.6	983.0	-3.4	309	1.0
800	892.0	1033.0	-3.8	302	0.8
850	886.4	1083.0	-4.1	295	0.7
900	880.8	1133.0	-4.5	288	0.6
950	875.3	1183.0	-4.8	281	0.4
1000	869.8	1233.0	-5.2	275	0.4
1050	864.3	1283.0	-5.6	270	0.8
1100	858.9	1333.0	-5.9	265	1.2
1150	853.4	1383.0	-6.2	260	1.7
1200	848.0	1433.0	-6.3	255	2.1
1250	842.6	1483.0	-6.5	250	2.5
1300	837.2	1533.0	-6.7	245	3.0
1350	831.9	1583.0	-6.9	240	3.4
1400	826.6	1633.0	-7.1	238	4.0
1450	821.3	1683.0	-7.3	240	4.8
1500	816.1	1733.0	-7.5	242	5.7
1550	810.8	1783.0	-7.6	244	6.6
1600	805.6	1833.0	-7.6	246	7.4
1650	800.5	1883.0	-7.7	248	8.3
1700	795.4	1933.0	-7.7	251	9.1
1750	790.3	1983.0	-7.8	253	10.0
1800	785.2	2033.0	-7.8	254	10.8
1850	780.2	2083.0	-7.9	255	11.7
1900	775.2	2133.0	-7.9	257	12.5
1950	770.2	2183.0	-8.0	258	13.3
2000	765.3	2233.0	-8.0	259	14.2

Table D4.3(4) The Result of Upper-layer Meteorological Observation

Date: 20.11.1997		Time: 18:00			
Height m	Pressure mb	Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	983.5	233.0	1.2	70	2.0
50	977.4	283.0	1.0	117	1.8
100	971.3	333.0	0.7	164	1.6
150	965.3	383.0	0.5	212	1.3
200	959.3	433.0	0.3	259	1.1
250	953.3	483.0	0.0	306	0.9
300	947.4	533.0	-0.2	317	0.8
350	941.5	583.0	-0.4	296	0.8
400	935.7	633.0	-0.7	274	0.7
450	929.9	683.0	-0.9	252	0.7
500	924.1	733.0	-1.1	230	0.7
550	918.3	783.0	-1.4	208	0.6
600	912.6	833.0	-1.3	186	0.6
650	906.9	883.0	-1.3	173	0.6
700	901.3	933.0	-1.2	170	0.6
750	895.7	983.0	-1.1	168	0.6
800	890.1	1033.0	-1.1	166	0.6
850	884.6	1083.0	-1.0	164	0.6
900	879.0	1133.0	-0.9	162	0.6
950	873.6	1183.0	-0.8	160	0.6
1000	868.1	1233.0	-0.8	164	0.7
1050	862.7	1283.0	-0.7	180	1.0
1100	857.3	1333.0	-0.6	196	1.2
1150	852.0	1383.0	-0.6	211	1.5
1200	846.7	1433.0	-0.5	227	1.8
1250	841.4	1483.0	-0.4	243	2.1
1300	836.2	1533.0	-0.4	259	2.3
1350	831.0	1583.0	-0.3	274	2.6
1400	825.8	1633.0	-0.2	270	3.1
1450	820.7	1683.0	-0.1	265	3.6
1500	815.5	1733.0	-0.1	260	4.1
1550	810.5	1783.0	0.0	256	4.5
1600	805.4	1833.0	-0.1	251	5.0
1650	800.4	1883.0	-0.1	247	5.5
1700	795.4	1933.0	-0.2	242	5.8
1750	790.5	1983.0	-0.2	236	5.9
1800	785.6	2033.0	-0.3	231	6.0
1850	780.7	2083.0	-0.3	225	6.0
1900	775.8	2133.0	-0.4	220	6.1
1950	771.0	2183.0	-0.4	214	6.1
2000	766.2	2233.0	-0.5	209	6.2

Date: 20.11.1997		Time: 12:00			
Height m	Pressure mb	Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	984.9	233.0	0.4	0	0.0
50	978.7	283.0	0.2	7	0.2
100	972.6	333.0	0.0	14	0.3
150	966.6	383.0	-0.2	21	0.5
200	960.5	433.0	-0.4	27	0.7
250	954.5	483.0	-0.6	34	0.8
300	948.6	533.0	-0.8	43	1.0
350	942.6	583.0	-1.0	51	1.0
400	936.7	633.0	-1.1	60	1.1
450	930.9	683.0	-1.3	69	1.2
500	925.1	733.0	-1.5	78	1.3
550	919.3	783.0	-1.7	85	1.5
600	913.6	833.0	-1.9	90	2.2
650	907.9	883.0	-2.1	95	2.8
700	902.2	933.0	-2.3	99	3.5
750	896.5	983.0	-2.5	104	4.1
800	890.9	1033.0	-2.7	109	4.6
850	885.4	1083.0	-2.9	113	5.0
900	879.9	1133.0	-3.1	118	5.4
950	874.4	1183.0	-3.3	123	5.8
1000	868.9	1233.0	-3.2	128	6.1
1050	863.4	1283.0	-3.1	133	6.5
1100	858.0	1333.0	-2.9	139	7.0
1150	852.6	1383.0	-2.8	145	7.6
1200	847.3	1433.0	-2.7	152	8.2
1250	842.0	1483.0	-2.6	158	8.8
1300	836.7	1533.0	-2.4	165	9.4
1350	831.5	1583.0	-2.3	171	10.0
1400	826.3	1633.0	-2.2	175	10.4
1450	821.1	1683.0	-2.1	178	10.7
1500	815.9	1733.0	-1.9	181	11.0
1550	810.8	1783.0	-1.8	183	11.3
1600	805.7	1833.0	-1.7	186	11.6
1650	800.7	1883.0	-1.6	189	11.9
1700	795.7	1933.0	-1.4	191	11.5
1750	790.7	1983.0	-1.3	193	11.1
1800	785.7	2033.0	-1.4	195	10.6
1850	780.8	2083.0	-1.6	197	10.2
1900	775.8	2133.0	-1.7	200	9.8
1950	771.0	2183.0	-1.9	202	9.3
2000	766.1	2233.0	-2.0	204	9.1

Table D4.3(5) The Result of Upper-layer Meteorological Observation

Date: 21.11.1997		Time: 00:00		
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	982.9	233.0	0	0.0
50	976.7	283.0	42	0.2
100	970.6	333.0	84	0.4
150	964.5	383.0	126	0.5
200	958.4	433.0	168	0.7
250	952.4	483.0	209	0.9
300	946.4	533.0	251	1.1
350	940.4	583.0	293	1.2
400	934.5	633.0	326	1.4
450	928.6	683.0	305	1.3
500	922.8	733.0	284	1.2
550	917.0	783.0	263	1.1
600	911.2	833.0	242	1.0
650	905.4	883.0	221	0.9
700	899.7	933.0	200	0.8
750	894.1	983.0	190	1.0
800	888.5	1033.0	191	1.6
850	882.9	1083.0	193	2.2
900	877.3	1133.0	195	2.7
950	871.8	1183.0	196	3.3
1000	866.3	1233.0	198	3.9
1050	860.8	1283.0	200	4.5
1100	855.4	1333.0	199	4.9
1150	850.0	1383.0	197	5.2
1200	844.7	1433.0	195	5.5
1250	839.4	1483.0	193	5.8
1300	834.1	1533.0	191	6.1
1350	828.8	1583.0	189	6.4
1400	823.6	1633.0	187	6.7
1450	818.4	1683.0	187	6.7
1500	813.3	1733.0	188	6.7
1550	808.2	1783.0	188	6.7
1600	803.1	1833.0	188	6.8
1650	798.0	1883.0	188	6.8
1700	793.0	1933.0	188	6.8
1750	788.0	1983.0	190	6.9
1800	783.1	2033.0	194	7.0
1850	778.2	2083.0	198	7.1
1900	773.3	2133.0	202	7.3
1950	768.5	2183.0	206	7.4
2000	763.7	2233.0	210	7.5

Date: 21.11.1997		Time: 06:00		
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	982.6	233.0	70	2.0
50	976.5	283.0	129	2.1
100	970.5	333.0	187	2.1
150	964.5	383.0	246	2.2
200	958.5	433.0	304	2.3
250	952.6	483.0	314	2.4
300	946.6	533.0	316	2.4
350	940.8	583.0	318	2.5
400	934.9	633.0	320	2.5
450	929.1	683.0	322	2.6
500	923.3	733.0	324	2.7
550	917.6	783.0	325	2.7
600	911.9	833.0	327	2.8
650	906.2	883.0	328	2.8
700	900.6	933.0	329	2.9
750	895.0	983.0	331	2.9
800	889.4	1033.0	332	3.0
850	883.9	1083.0	331	3.1
900	878.4	1133.0	327	3.2
950	873.0	1183.0	323	3.3
1000	867.5	1233.0	319	3.4
1050	862.2	1283.0	316	3.5
1100	856.8	1333.0	312	3.6
1150	851.5	1383.0	307	3.8
1200	846.2	1433.0	302	3.9
1250	841.0	1483.0	297	4.0
1300	835.7	1533.0	292	4.1
1350	830.6	1583.0	286	4.3
1400	825.4	1633.0	281	4.4
1450	820.3	1683.0	277	4.6
1500	815.2	1733.0	276	4.8
1550	810.1	1783.0	274	5.0
1600	805.0	1833.0	273	5.3
1650	800.0	1883.0	271	5.5
1700	795.0	1933.0	270	5.8
1750	790.0	1983.0	272	5.8
1800	785.1	2033.0	274	5.8
1850	780.2	2083.0	276	5.7
1900	775.3	2133.0	278	5.7
1950	770.5	2183.0	280	5.7
2000	765.7	2233.0	281	5.7

Table D4.3(6) The Result of Upper-layer Meteorological Observation

Date: 21.11.1997 Time: 18:00

Height m	Pressure Height mb	Pressure Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	985.9	233.0	5.5	80	2.0
50	979.9	283.0	5.2	107	2.0
100	973.9	333.0	5.0	135	1.9
150	968.0	383.0	4.7	162	1.9
200	962.1	433.0	4.4	189	1.9
250	956.2	483.0	4.1	216	1.8
300	950.4	533.0	3.9	244	1.8
350	944.5	583.0	3.6	271	1.8
400	938.7	633.0	3.4	298	1.7
450	933.0	683.0	3.1	324	1.7
500	927.2	733.0	2.8	321	1.7
550	921.5	783.0	2.6	319	1.7
600	915.8	833.0	2.3	316	1.7
650	910.2	883.0	2.1	313	1.7
700	904.6	933.0	1.8	312	1.8
750	899.1	983.0	1.5	310	2.0
800	893.5	1033.0	1.3	309	2.1
850	888.0	1083.0	1.0	307	2.3
900	882.5	1133.0	0.8	306	2.5
950	877.0	1183.0	0.6	305	2.6
1000	871.6	1233.0	0.3	303	2.8
1050	866.2	1283.0	0.1	302	3.0
1100	860.8	1333.0	-0.1	300	3.2
1150	855.5	1383.0	0.0	297	3.4
1200	850.2	1433.0	0.1	295	3.6
1250	844.9	1483.0	0.2	293	3.8
1300	839.6	1533.0	0.3	291	4.0
1350	834.4	1583.0	0.3	288	4.2
1400	829.3	1633.0	0.4	286	4.4
1450	824.1	1683.0	0.2	284	4.6
1500	819.0	1733.0	0.1	283	4.7
1550	813.9	1783.0	0.0	282	4.8
1600	808.8	1833.0	-0.1	281	4.9
1650	803.8	1883.0	-0.3	280	5.0
1700	798.8	1933.0	-0.4	279	5.1
1750	793.8	1983.0	-0.5	278	5.2
1800	788.9	2033.0	-0.7	277	5.3
1850	783.9	2083.0	-1.0	277	5.4
1900	779.0	2133.0	-1.3	277	5.4
1950	774.1	2183.0	-1.6	277	5.4
2000	769.3	2233.0	-1.9	278	5.1

Date: 21.11.1997 Time: 12:00

Height m	Pressure Height mb	Pressure Height gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	984.6	233.0	5.8	360	2.0
50	978.6	283.0	4.9	353	2.2
100	972.6	333.0	4.0	347	2.5
150	966.7	383.0	3.1	340	2.7
200	960.7	433.0	2.4	334	3.0
250	954.8	483.0	2.2	327	3.2
300	948.9	533.0	2.0	320	3.5
350	943.1	583.0	1.8	314	3.7
400	937.2	633.0	1.6	310	3.7
450	931.5	683.0	1.4	309	3.5
500	925.7	733.0	1.2	309	3.3
550	920.0	783.0	1.0	308	3.1
600	914.3	833.0	1.0	307	2.9
650	908.7	883.0	1.1	307	2.8
700	903.0	933.0	1.1	311	2.7
750	897.5	983.0	1.2	315	2.6
800	891.9	1033.0	1.3	318	2.4
850	886.4	1083.0	1.3	322	2.3
900	880.9	1133.0	1.4	325	2.2
950	875.5	1183.0	1.4	320	2.5
1000	870.1	1233.0	1.5	313	2.8
1050	864.7	1283.0	1.5	305	3.2
1100	859.4	1333.0	1.6	298	3.5
1150	854.1	1383.0	1.6	291	3.9
1200	848.8	1433.0	1.7	289	4.1
1250	843.5	1483.0	1.7	287	4.3
1300	838.3	1533.0	1.6	286	4.5
1350	833.2	1583.0	1.5	284	4.8
1400	828.0	1633.0	1.5	283	5.0
1450	822.9	1683.0	1.4	281	5.2
1500	817.8	1733.0	1.3	279	5.4
1550	812.8	1783.0	1.3	278	5.7
1600	807.7	1833.0	1.2	279	5.6
1650	802.8	1883.0	1.1	280	5.5
1700	797.8	1933.0	1.0	281	5.4
1750	792.9	1983.0	0.9	282	5.2
1800	787.9	2033.0	0.6	283	5.1
1850	783.0	2083.0	0.3	284	5.0
1900	778.2	2133.0	0.0	285	5.0
1950	773.3	2183.0	-0.3	286	5.0
2000	768.5	2233.0	-0.6	287	5.0

Table D4.3(7) The Result of Upper-layer Meteorological Observation

Date: 22.11.1997				Time: 00:00					
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	989.3	233.0	4.8	70	0	991.0	233.0	4.2	0
50	983.3	283.0	4.5	100	50	984.9	283.0	4.2	1
100	977.2	333.0	4.3	130	100	978.9	333.0	4.2	3
150	971.3	383.0	4.0	160	150	972.9	383.0	4.2	4
200	965.3	433.0	3.8	191	200	967.0	433.0	4.2	6
250	959.4	483.0	3.5	221	250	961.1	483.0	4.3	7
300	953.6	533.0	3.3	251	300	955.2	533.0	4.3	9
350	947.7	583.0	3.0	281	350	949.4	583.0	4.3	10
400	941.8	633.0	2.7	311	400	943.6	633.0	4.3	12
450	936.0	683.0	2.5	336	450	937.8	683.0	4.1	13
500	930.2	733.0	2.2	334	500	932.1	733.0	3.7	19
550	924.4	783.0	1.9	331	550	926.3	783.0	3.4	28
600	918.7	833.0	1.6	329	600	920.7	833.0	3.1	38
650	913.0	883.0	1.3	327	650	915.0	883.0	2.7	47
700	907.4	933.0	1.0	325	700	909.4	933.0	2.4	57
750	901.8	983.0	0.7	319	750	903.8	983.0	1.9	67
800	896.2	1033.0	0.4	312	800	898.2	1033.0	1.4	76
850	890.6	1083.0	0.2	305	850	892.6	1083.0	0.9	86
900	885.1	1133.0	-0.1	299	900	887.0	1133.0	0.4	96
950	879.6	1183.0	-0.4	299	950	881.5	1183.0	-0.1	105
1000	874.2	1233.0	-0.7	299	1000	876.0	1233.0	-0.6	114
1050	868.8	1283.0	-1.0	299	1050	870.6	1283.0	-1.1	122
1100	863.4	1333.0	-1.3	299	1100	865.2	1333.0	-1.6	131
1150	858.0	1383.0	-1.3	299	1150	859.8	1383.0	-2.1	139
1200	852.7	1433.0	-1.3	299	1200	854.5	1433.0	-2.4	148
1250	847.4	1483.0	-1.2	299	1250	849.1	1483.0	-1.6	156
1300	842.1	1533.0	-1.1	299	1300	843.9	1533.0	-0.9	164
1350	836.8	1583.0	-1.0	299	1350	838.6	1583.0	-0.1	169
1400	831.6	1633.0	-0.9	300	1400	833.4	1633.0	0.6	175
1450	826.4	1683.0	-0.8	300	1450	828.2	1683.0	0.3	180
1500	821.2	1733.0	-0.8	300	1500	823.0	1733.0	0.1	186
1550	816.1	1783.0	-0.7	301	1550	817.9	1783.0	-0.2	191
1600	811.0	1833.0	-0.6	301	1600	812.8	1833.0	-0.4	197
1650	806.0	1883.0	-0.5	301	1650	807.7	1883.0	-0.6	201
1700	800.9	1933.0	-0.4	301	1700	802.7	1933.0	-0.9	206
1750	795.9	1983.0	-0.3	301	1750	797.6	1983.0	-1.1	211
1800	791.0	2033.0	-0.2	300	1800	792.7	2033.0	-1.4	216
1850	786.0	2083.0	-0.4	300	1850	787.7	2083.0	-1.6	221
1900	781.1	2133.0	-0.8	300	1900	782.8	2133.0	-1.9	225
1950	776.2	2183.0	-1.2	300	1950	777.9	2183.0	-2.1	230
2000	771.3	2233.0	-1.6	299	2000	773.0	2233.0	-2.3	235

Table D4.3(8) The Result of Upper-layer Meteorological Observation

Date: 22.11.1997 Time: 18:00

Height m	Pressure height mb	gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	992.2	233.0	6.8	0	0.0
50	986.2	283.0	6.7	31	0.4
100	980.2	333.0	6.7	62	0.9
150	974.3	383.0	6.6	93	1.3
200	968.3	433.0	6.4	124	1.7
250	962.4	483.0	6.1	155	2.2
300	956.6	533.0	5.7	163	2.6
350	950.7	583.0	5.4	160	3.0
400	944.9	633.0	5.1	157	3.4
450	939.1	683.0	4.8	155	3.7
500	933.4	733.0	4.5	152	4.1
550	927.7	783.0	4.2	149	4.5
600	922.0	833.0	3.8	147	4.9
650	916.4	883.0	3.5	146	5.2
700	910.8	933.0	3.2	147	5.5
750	905.2	983.0	2.9	148	5.8
800	899.7	1033.0	2.6	148	6.1
850	894.2	1083.0	2.3	149	6.4
900	888.7	1133.0	2.5	149	6.7
950	883.3	1183.0	2.7	150	7.0
1000	877.8	1233.0	2.8	152	6.8
1050	872.5	1283.0	3.0	154	6.5
1100	867.1	1333.0	3.2	156	6.3
1150	861.8	1383.0	3.4	158	6.1
1200	856.5	1433.0	3.5	159	5.9
1250	851.2	1483.0	3.7	161	5.7
1300	846.0	1533.0	3.9	164	5.4
1350	840.8	1583.0	3.9	168	5.0
1400	835.6	1633.0	3.5	172	4.6
1450	830.4	1683.0	3.1	175	4.2
1500	825.3	1733.0	2.8	179	3.8
1550	820.2	1783.0	2.4	183	3.4
1600	815.1	1833.0	2.0	187	3.1
1650	810.1	1883.0	1.6	192	3.3
1700	805.1	1933.0	1.2	198	3.5
1750	800.1	1983.0	0.8	203	3.7
1800	795.2	2033.0	0.5	209	3.9
1850	790.2	2083.0	0.1	214	4.1
1900	785.4	2133.0	-0.3	220	4.3
1950	780.5	2183.0	-0.7	224	4.8
2000	775.7	2233.0	-1.1	226	5.5

Date: 22.11.1997 Time: 12:00

Height m	Pressure height mb	gpm	Temperature °C	Wind Direction deg	Wind Speed m/s
0	991.8	233.0	7.8	0	0.0
50	985.7	283.0	7.4	16	0.1
100	979.7	333.0	7.0	32	0.2
150	973.7	383.0	6.6	48	0.3
200	967.8	433.0	6.2	64	0.4
250	961.8	483.0	5.8	80	0.4
300	956.0	533.0	5.4	96	0.5
350	950.1	583.0	5.0	109	0.7
400	944.3	633.0	4.6	114	0.9
450	938.5	683.0	4.2	118	1.1
500	932.8	733.0	3.8	123	1.4
550	927.1	783.0	3.4	128	1.6
600	921.4	833.0	3.0	132	1.9
650	915.8	883.0	2.6	122	1.9
700	910.2	933.0	2.2	108	1.9
750	904.6	983.0	1.8	94	1.8
800	899.1	1033.0	1.4	79	1.8
850	893.6	1083.0	1.0	65	1.8
900	888.1	1133.0	0.6	51	1.8
950	882.7	1183.0	0.4	37	1.7
1000	877.3	1233.0	0.9	22	1.7
1050	871.8	1283.0	1.5	8	1.7
1100	866.4	1333.0	2.0	52	1.9
1150	861.1	1383.0	2.6	96	2.2
1200	855.8	1433.0	3.0	139	2.4
1250	850.5	1483.0	3.0	183	2.7
1300	845.3	1533.0	2.9	227	2.9
1350	840.1	1583.0	2.9	270	3.2
1400	834.9	1633.0	2.9	314	3.4
1450	829.8	1683.0	2.8	305	3.5
1500	824.7	1733.0	2.8	294	3.5
1550	819.6	1783.0	2.7	283	3.6
1600	814.5	1833.0	2.7	272	3.7
1650	809.5	1883.0	2.7	261	3.8
1700	804.5	1933.0	2.6	250	3.8
1750	799.6	1983.0	2.6	239	3.9
1800	794.6	2033.0	2.3	237	4.1
1850	789.6	2083.0	2.0	235	4.3
1900	784.6	2133.0	1.7	232	4.5
1950	779.7	2183.0	1.4	230	4.7
2000	774.7	2233.0	1.1	228	4.9



Table D4.3(9) The Result of Upper-layer Meteorological Observation

Date: 23.11.1997		Time: 00:00				Time: 06:00			
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	992.7	233.0	6.0	0	0	992.9	233.0	6.0	0
50	986.7	283.0	6.0	25	50	986.9	283.0	6.0	24
100	980.7	333.0	6.0	49	100	980.9	333.0	5.9	48
150	974.7	383.0	6.0	74	150	974.9	383.0	5.9	72
200	968.8	433.0	6.0	98	200	969.0	433.0	5.8	96
250	962.9	483.0	5.9	123	250	963.1	483.0	5.8	120
300	957.0	533.0	5.6	148	300	957.3	533.0	5.7	144
350	951.2	583.0	5.4	159	350	951.5	583.0	5.7	168
400	945.3	633.0	5.1	156	400	945.7	633.0	5.5	166
450	939.6	683.0	4.9	153	450	939.9	683.0	5.3	162
500	933.8	733.0	4.6	150	500	934.1	733.0	5.1	158
550	928.1	783.0	4.3	147	550	928.4	783.0	4.9	155
600	922.4	833.0	4.1	144	600	922.8	833.0	4.7	151
650	916.8	883.0	3.8	141	650	917.1	883.0	4.5	148
700	911.2	933.0	3.6	140	700	911.5	933.0	4.3	144
750	905.6	983.0	3.3	141	750	905.9	983.0	4.1	141
800	900.1	1033.0	3.1	142	800	900.4	1033.0	3.8	142
850	894.6	1083.0	2.8	142	850	894.9	1083.0	3.6	143
900	889.1	1133.0	2.6	143	900	889.4	1133.0	3.4	144
950	883.6	1183.0	2.3	144	950	884.0	1183.0	3.2	145
1000	878.2	1233.0	2.1	144	1000	878.6	1233.0	3.0	146
1050	872.8	1283.0	2.2	147	1050	873.2	1283.0	2.8	147
1100	867.5	1333.0	2.6	150	1100	867.9	1333.0	2.6	147
1150	862.1	1383.0	2.9	154	1150	862.6	1383.0	2.5	149
1200	856.8	1433.0	3.2	157	1200	857.3	1433.0	2.4	152
1250	851.6	1483.0	3.2	161	1250	852.0	1483.0	2.3	154
1300	846.3	1533.0	3.0	164	1300	846.7	1533.0	2.3	157
1350	841.1	1583.0	2.8	168	1350	841.5	1583.0	2.2	159
1400	835.9	1633.0	2.6	171	1400	836.3	1633.0	2.1	161
1450	830.7	1683.0	2.4	173	1450	831.2	1683.0	2.1	164
1500	825.5	1733.0	2.2	176	1500	826.1	1733.0	2.0	166
1550	820.4	1783.0	2.0	179	1550	821.0	1783.0	1.9	169
1600	815.4	1833.0	1.8	182	1600	815.9	1833.0	1.9	171
1650	810.3	1883.0	1.6	185	1650	810.9	1883.0	1.8	174
1700	805.3	1933.0	1.4	188	1700	805.9	1933.0	1.7	176
1750	800.3	1983.0	1.2	192	1750	800.9	1983.0	1.6	178
1800	795.4	2033.0	1.0	195	1800	796.0	2033.0	1.4	181
1850	790.5	2083.0	0.8	199	1850	791.0	2083.0	1.3	183
1900	785.6	2133.0	0.6	203	1900	786.1	2133.0	1.1	183
1950	780.7	2183.0	0.4	206	1950	781.2	2183.0	0.9	183
2000	775.9	2233.0	0.2	210	2000	776.4	2233.0	0.7	184

Table D4.3(10) The Result of Upper-layer Meteorological Observation

Date: 24. 11. 1997 Time: 06:00

Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	990.2	233.0	160	3.0
50	984.2	283.0	158	3.4
100	978.3	333.0	157	3.7
150	972.4	383.0	155	4.1
200	966.5	433.0	153	4.5
250	960.6	483.0	151	4.9
300	954.8	533.0	150	5.5
350	949.1	583.0	148	6.0
400	943.3	633.0	146	6.5
450	937.6	683.0	144	7.1
500	932.0	733.0	142	7.6
550	926.3	783.0	140	8.1
600	920.6	833.0	138	8.6
650	914.9	883.0	136	8.8
700	909.3	933.0	135	8.8
750	903.8	983.0	134	8.9
800	898.2	1033.0	133	9.0
850	892.7	1083.0	132	9.0
900	887.2	1133.0	131	9.1
950	881.8	1183.0	130	9.1
1000	876.4	1233.0	129	9.1
1050	871.0	1283.0	131	8.7
1100	865.7	1333.0	132	8.4
1150	860.4	1383.0	134	8.0
1200	855.1	1433.0	136	7.6
1250	849.9	1483.0	137	7.3
1300	844.7	1533.0	139	6.9
1350	839.5	1583.0	140	6.5
1400	834.3	1633.0	142	6.2
1450	829.2	1683.0	143	6.1
1500	824.2	1733.0	144	6.1
1550	819.1	1783.0	145	6.0
1600	814.1	1833.0	146	6.0
1650	809.1	1883.0	147	5.9
1700	804.1	1933.0	149	5.9
1750	799.0	1983.0	150	5.8
1800	794.0	2033.0	149	5.9
1850	789.0	2083.0	148	6.1
1900	784.1	2133.0	148	6.2
1950	779.1	2183.0	147	6.3
2000	774.2	2233.0	146	6.5

Date: 24. 11. 1997 Time: 00:00

Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	990.7	233.0	160	2.0
50	984.8	283.0	156	2.4
100	978.9	333.0	152	2.9
150	973.0	383.0	148	3.3
200	967.1	433.0	144	3.7
250	961.2	483.0	140	4.1
300	955.3	533.0	136	4.6
350	949.5	583.0	133	5.0
400	943.7	633.0	133	5.5
450	937.9	683.0	134	6.0
500	932.2	733.0	134	6.5
550	926.5	783.0	135	7.0
600	920.8	833.0	135	7.5
650	915.2	883.0	136	8.0
700	909.6	933.0	136	8.4
750	904.0	983.0	136	8.5
800	898.5	1033.0	136	8.5
850	893.0	1083.0	137	8.6
900	887.5	1133.0	137	8.6
950	882.1	1183.0	137	8.7
1000	876.7	1233.0	137	8.8
1050	871.4	1283.0	138	8.7
1100	866.0	1333.0	141	8.4
1150	860.7	1383.0	145	8.1
1200	855.5	1433.0	148	7.7
1250	850.2	1483.0	151	7.4
1300	845.0	1533.0	155	7.0
1350	839.9	1583.0	158	6.7
1400	834.7	1633.0	162	6.3
1450	829.6	1683.0	163	6.4
1500	824.5	1733.0	164	6.4
1550	819.5	1783.0	165	6.5
1600	814.5	1833.0	166	6.5
1650	809.5	1883.0	166	6.6
1700	804.5	1933.0	167	6.6
1750	799.5	1983.0	168	6.7
1800	794.5	2033.0	165	6.9
1850	789.5	2083.0	162	7.1
1900	784.6	2133.0	159	7.2
1950	779.7	2183.0	156	7.4
2000	774.8	2233.0	153	7.5

Table D4.3(11) The Result of Upper-layer Meteorological Observation

Date: 24. 11. 1997		Time: 00:00		
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	990.7	233.0	9.6	160
50	984.8	283.0	9.3	156
100	978.9	333.0	9.0	152
150	973.0	383.0	8.8	148
200	967.1	433.0	8.5	144
250	961.2	483.0	8.2	140
300	955.3	533.0	7.9	136
350	949.5	583.0	7.6	133
400	943.7	633.0	7.3	133
450	937.9	683.0	6.9	134
500	932.2	733.0	6.6	134
550	926.5	783.0	6.3	135
600	920.8	833.0	6.0	135
650	915.2	883.0	5.7	136
700	909.6	933.0	5.4	136
750	904.0	983.0	5.1	136
800	898.5	1033.0	4.8	136
850	893.0	1083.0	4.5	137
900	887.5	1133.0	4.2	137
950	882.1	1183.0	3.9	137
1000	876.7	1233.0	3.6	137
1050	871.4	1283.0	3.2	138
1100	866.0	1333.0	2.9	141
1150	860.7	1383.0	2.6	145
1200	855.5	1433.0	2.3	148
1250	850.2	1483.0	2.0	151
1300	845.0	1533.0	1.7	155
1350	839.9	1583.0	1.4	158
1400	834.7	1633.0	1.1	162
1450	829.6	1683.0	0.8	163
1500	824.5	1733.0	0.5	164
1550	819.5	1783.0	0.2	165
1600	814.5	1833.0	-0.1	166
1650	809.5	1883.0	-0.4	166
1700	804.5	1933.0	-0.6	167
1750	799.5	1983.0	-0.7	168
1800	794.5	2033.0	-0.8	165
1850	789.5	2083.0	-0.9	162
1900	784.6	2133.0	-1.0	159
1950	779.7	2183.0	-1.1	156
2000	774.8	2233.0	-1.2	153

Date: 24. 11. 1997		Time: 06:00		
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	990.2	233.0	8.3	160
50	984.2	283.0	8.1	158
100	978.3	333.0	7.9	157
150	972.4	383.0	7.7	155
200	966.5	433.0	7.4	153
250	960.6	483.0	7.2	151
300	954.8	533.0	7.0	150
350	949.1	583.0	6.8	148
400	943.3	633.0	6.6	146
450	937.6	683.0	6.4	144
500	932.0	733.0	6.2	142
550	926.3	783.0	5.9	140
600	920.6	833.0	5.7	138
650	914.9	883.0	5.5	136
700	909.3	933.0	5.2	135
750	903.8	983.0	5.0	134
800	898.2	1033.0	4.8	133
850	892.7	1083.0	4.6	132
900	887.2	1133.0	4.3	131
950	881.8	1183.0	4.1	130
1000	876.4	1233.0	3.9	129
1050	871.0	1283.0	3.7	131
1100	865.7	1333.0	3.4	132
1150	860.4	1383.0	3.2	134
1200	855.1	1433.0	3.0	136
1250	849.9	1483.0	2.8	137
1300	844.7	1533.0	2.5	139
1350	839.5	1583.0	2.3	140
1400	834.3	1633.0	2.1	142
1450	829.2	1683.0	1.9	143
1500	824.2	1733.0	1.6	144
1550	819.1	1783.0	1.4	145
1600	814.1	1833.0	1.2	146
1650	809.1	1883.0	0.9	147
1700	804.1	1933.0	0.7	149
1750	799.0	1983.0	0.5	150
1800	794.0	2033.0	0.2	149
1850	789.0	2083.0	0.0	148
1900	784.1	2133.0	-0.3	148
1950	779.1	2183.0	-0.5	147
2000	774.2	2233.0	-0.8	146

Table D4.3(12) The Result of Upper-layer Meteorological Observation

Date: 24. 11. 1997		Time: 12:00			
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	990.2	233.0	12.8	300	2.0
50	984.3	283.0	12.3	271	1.9
100	978.4	333.0	11.9	243	1.8
150	972.6	383.0	11.4	214	1.7
200	966.8	433.0	11.0	186	1.7
250	961.0	483.0	10.5	157	1.6
300	955.3	533.0	10.0	129	1.5
350	949.6	583.0	9.6	100	1.4
400	944.0	633.0	9.1	72	1.3
450	938.3	683.0	8.7	43	1.2
500	932.6	733.0	8.3	38	1.3
550	926.9	783.0	8.0	54	1.5
600	921.3	833.0	7.6	69	1.7
650	915.7	883.0	7.2	85	1.9
700	910.2	933.0	6.9	101	2.1
750	904.7	983.0	6.5	117	2.3
800	899.2	1033.0	6.1	129	2.6
850	893.7	1083.0	5.7	133	3.2
900	888.3	1133.0	5.4	136	3.8
950	882.9	1183.0	5.0	140	4.4
1000	877.6	1233.0	4.6	144	5.0
1050	872.3	1283.0	4.3	147	5.6
1100	867.0	1333.0	3.9	151	6.2
1150	861.7	1383.0	3.7	150	6.6
1200	856.4	1433.0	3.6	150	7.0
1250	851.1	1483.0	3.4	150	7.4
1300	845.9	1533.0	3.3	149	7.8
1350	840.7	1583.0	3.1	149	8.1
1400	835.5	1633.0	3.0	149	8.5
1450	830.4	1683.0	2.8	148	8.9
1500	825.3	1733.0	2.7	148	9.3
1550	820.2	1783.0	2.5	148	9.8
1600	815.1	1833.0	2.3	147	10.3
1650	810.1	1883.0	2.2	147	10.8
1700	805.1	1933.0	2.0	146	11.2
1750	800.2	1983.0	1.9	146	11.7
1800	795.3	2033.0	1.7	145	12.2
1850	790.4	2083.0	1.6	145	12.7
1900	785.5	2133.0	1.4	145	13.2
1950	780.7	2183.0	1.2	145	13.2
2000	775.8	2233.0	1.1	145	13.2

Date: 24. 11. 1997		Time: 18:00			
Height m	Pressure Height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	990.3	233.0	8.8	0	0.0
50	984.3	283.0	8.6	2	0.3
100	978.4	333.0	8.4	4	0.6
150	972.5	383.0	8.3	5	1.0
200	966.7	433.0	8.1	7	1.2
250	960.8	483.0	7.9	9	1.3
300	955.1	533.0	7.7	10	1.4
350	949.3	583.0	7.6	12	1.5
400	943.6	633.0	7.3	13	1.6
450	937.8	683.0	7.0	15	1.7
500	932.2	733.0	6.7	17	1.8
550	926.5	783.0	6.4	18	1.9
600	920.9	833.0	6.0	26	2.2
650	915.3	883.0	5.7	36	2.6
700	909.7	933.0	5.5	45	2.9
750	904.1	983.0	5.3	54	3.2
800	898.5	1033.0	5.0	63	3.6
850	893.0	1083.0	4.8	72	3.9
900	887.5	1133.0	4.6	79	4.3
950	882.0	1183.0	4.4	82	4.7
1000	876.6	1233.0	4.1	84	5.1
1050	871.2	1283.0	3.9	86	5.6
1100	865.9	1333.0	3.7	88	6.0
1150	860.5	1383.0	3.5	90	6.4
1200	855.2	1433.0	3.2	92	6.8
1250	850.0	1483.0	3.0	98	7.2
1300	844.7	1533.0	2.8	108	7.5
1350	839.5	1583.0	2.6	117	7.8
1400	834.4	1633.0	2.3	126	8.1
1450	829.2	1683.0	2.1	135	8.4
1500	824.1	1733.0	1.9	145	8.7
1550	819.1	1783.0	1.7	154	9.0
1600	814.0	1833.0	1.4	158	9.4
1650	809.0	1883.0	1.2	163	9.9
1700	804.0	1933.0	1.0	167	10.4
1750	799.1	1983.0	0.8	171	10.9
1800	794.2	2033.0	0.5	175	11.4
1850	789.3	2083.0	0.3	179	11.9
1900	784.4	2133.0	0.1	183	12.4
1950	779.6	2183.0	-0.1	185	11.6
2000	774.8	2233.0	-0.4	187	10.7

Table D4.3(13) The Result of Upper-layer Meteorological Observation

Date: 25. 11. 1997		Time: 00:00			
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	990.7	233.0	7.7	90	3.0
50	984.7	283.0	7.6	76	2.6
100	978.7	333.0	7.4	62	2.3
150	972.8	383.0	7.3	47	1.9
200	966.9	433.0	7.2	33	1.6
250	961.1	483.0	7.1	19	1.2
300	955.2	533.0	6.9	5	0.9
350	949.5	583.0	6.8	9	0.9
400	943.7	633.0	6.7	19	1.0
450	938.0	683.0	6.6	29	1.1
500	932.3	733.0	6.4	39	1.2
550	926.7	783.0	6.3	49	1.4
600	921.1	833.0	6.2	55	1.5
650	915.5	883.0	6.1	60	1.6
700	909.9	933.0	5.9	65	1.7
750	904.4	983.0	5.8	69	1.8
800	898.9	1033.0	5.7	74	1.9
850	893.5	1083.0	5.6	78	2.0
900	888.1	1133.0	5.4	83	2.1
950	882.6	1183.0	5.2	88	2.2
1000	877.2	1233.0	5.0	92	2.2
1050	871.8	1283.0	4.8	95	2.2
1100	866.5	1333.0	4.6	99	2.2
1150	861.2	1383.0	4.4	103	2.3
1200	855.9	1433.0	4.2	107	2.3
1250	850.7	1483.0	4.0	111	2.3
1300	845.5	1533.0	3.8	115	2.3
1350	840.3	1583.0	3.6	118	2.3
1400	835.1	1633.0	3.4	122	2.4
1450	830.0	1683.0	3.2	125	2.5
1500	824.9	1733.0	3.0	129	2.5
1550	819.9	1783.0	2.8	133	2.6
1600	814.9	1833.0	2.6	136	2.7
1650	809.9	1883.0	2.4	140	2.7
1700	804.9	1933.0	2.2	143	2.8
1750	800.0	1983.0	2.0	143	3.0
1800	795.1	2033.0	1.7	141	3.3
1850	790.1	2083.0	1.5	139	3.5
1900	785.2	2133.0	1.3	137	3.8
1950	780.3	2183.0	1.1	136	4.1
2000	775.4	2233.0	0.8	134	4.4

Date: 25. 11. 1997		Time: 06:00			
Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s	
0	990.7	233.0	5.0	60	3.0
50	984.7	283.0	5.0	62	2.8
100	978.7	333.0	5.0	64	2.7
150	972.7	383.0	5.1	66	2.5
200	966.8	433.0	5.1	68	2.3
250	960.9	483.0	5.1	71	2.2
300	955.1	533.0	5.1	73	2.0
350	949.2	583.0	5.1	75	1.9
400	943.5	633.0	5.1	77	1.7
450	937.7	683.0	5.2	79	1.5
500	932.0	733.0	5.2	81	1.4
550	926.3	783.0	5.2	83	1.2
600	920.7	833.0	5.1	85	1.0
650	915.1	883.0	5.1	92	1.1
700	909.5	933.0	5.0	101	1.2
750	903.9	983.0	4.9	110	1.4
800	898.4	1033.0	4.9	119	1.5
850	892.9	1083.0	4.8	128	1.6
900	887.5	1133.0	4.7	136	1.8
950	882.1	1183.0	4.7	142	2.0
1000	876.7	1233.0	4.6	147	2.2
1050	871.3	1283.0	4.5	153	2.4
1100	866.0	1333.0	4.5	158	2.6
1150	860.7	1383.0	4.4	164	2.9
1200	855.5	1433.0	4.3	166	3.9
1250	850.2	1483.0	4.3	169	4.8
1300	845.0	1533.0	4.2	172	5.7
1350	839.9	1583.0	4.1	173	5.9
1400	834.8	1633.0	4.1	174	6.0
1450	829.7	1683.0	4.0	175	6.1
1500	824.6	1733.0	4.0	176	6.2
1550	819.6	1783.0	3.9	176	6.3
1600	814.6	1833.0	3.8	177	6.4
1650	809.6	1883.0	3.5	178	6.5
1700	804.6	1933.0	3.1	179	6.6
1750	799.6	1983.0	2.7	180	6.4
1800	794.7	2033.0	2.3	180	6.1
1850	789.8	2083.0	1.9	180	5.9
1900	784.9	2133.0	1.5	181	5.7
1950	780.1	2183.0	1.1	181	5.4
2000	775.3	2233.0	0.7	181	5.3

Table D4.3(14) The Result of Upper-layer Meteorological Observation

Date: 25.11.1997 Time: 18:00

Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	989.5	233.0	8.6	0
50	983.6	283.0	8.6	27
100	977.7	333.0	8.7	53
150	971.8	383.0	8.7	80
200	965.9	433.0	8.7	107
250	960.1	483.0	8.8	134
300	954.4	533.0	8.7	156
350	948.6	583.0	8.4	153
400	942.8	633.0	8.1	151
450	937.1	683.0	7.7	149
500	931.5	733.0	7.4	146
550	925.8	783.0	7.0	144
600	920.2	833.0	6.7	142
650	914.6	883.0	6.4	142
700	909.1	933.0	6.0	142
750	903.6	983.0	5.7	142
800	898.1	1033.0	5.3	142
850	892.7	1083.0	5.0	143
900	887.3	1133.0	4.6	143
950	881.9	1183.0	4.3	144
1000	876.5	1233.0	4.3	145
1050	871.2	1283.0	4.4	146
1100	865.9	1333.0	4.6	148
1150	860.6	1383.0	4.7	149
1200	855.3	1433.0	4.8	150
1250	850.1	1483.0	5.0	151
1300	844.9	1533.0	4.7	155
1350	839.8	1583.0	4.3	161
1400	834.6	1633.0	3.9	167
1450	829.5	1683.0	3.5	173
1500	824.4	1733.0	3.2	179
1550	819.3	1783.0	2.9	185
1600	814.3	1833.0	2.7	191
1650	809.3	1883.0	2.5	188
1700	804.3	1933.0	2.2	184
1750	799.3	1983.0	2.0	179
1800	794.4	2033.0	1.8	175
1850	789.5	2083.0	1.6	171
1900	784.6	2133.0	1.3	167
1950	779.8	2183.0	1.1	163
2000	775.0	2233.0	0.9	160

Date: 25.11.1997 Time: 12:00

Height m	Pressure height mb	Temperature °C	Wind Direction deg	Wind Speed m/s
0	990.1	233.0	9.8	0
50	984.2	283.0	9.2	26
100	978.2	333.0	8.6	52
150	972.4	383.0	8.0	78
200	966.5	433.0	7.4	104
250	960.7	483.0	7.1	130
300	954.8	533.0	6.8	146
350	949.0	583.0	6.6	146
400	943.2	633.0	6.3	145
450	937.5	683.0	6.1	144
500	931.8	733.0	5.8	143
550	926.1	783.0	5.6	143
600	920.5	833.0	5.3	142
650	914.9	883.0	5.0	141
700	909.4	933.0	4.8	142
750	903.8	983.0	4.5	144
800	898.3	1033.0	4.3	145
850	892.9	1083.0	4.0	146
900	887.4	1133.0	3.8	148
950	882.0	1183.0	3.9	149
1000	876.6	1233.0	4.1	151
1050	871.3	1283.0	4.2	152
1100	865.9	1333.0	4.3	153
1150	860.6	1383.0	4.1	155
1200	855.4	1433.0	3.9	156
1250	850.1	1483.0	3.8	158
1300	844.9	1533.0	3.6	159
1350	839.7	1583.0	3.4	160
1400	834.6	1633.0	3.3	162
1450	829.5	1683.0	3.1	164
1500	824.4	1733.0	2.9	168
1550	819.3	1783.0	2.8	171
1600	814.3	1833.0	2.6	174
1650	809.3	1883.0	2.4	178
1700	804.4	1933.0	2.3	181
1750	799.4	1983.0	2.0	184
1800	794.4	2033.0	1.8	186
1850	789.5	2083.0	1.5	187
1900	784.7	2133.0	1.3	188
1950	779.8	2183.0	1.0	189
2000	775.0	2233.0	0.8	190

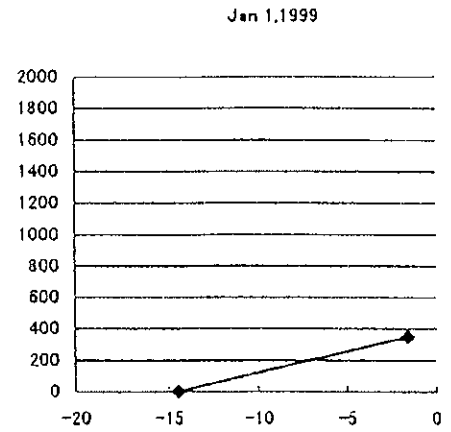
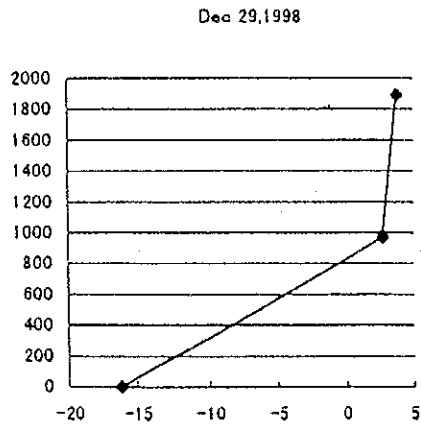
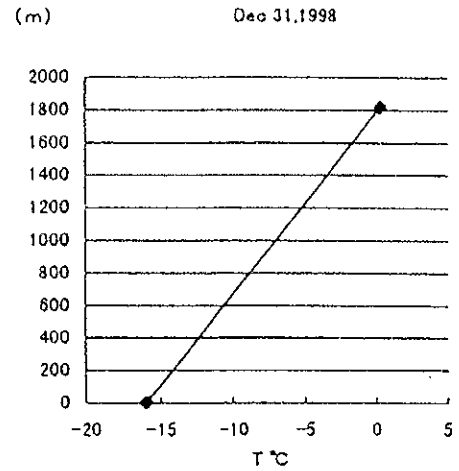
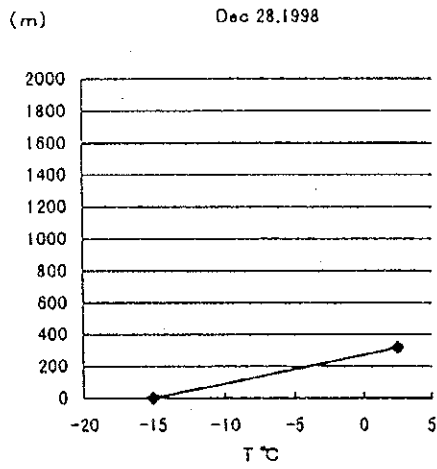
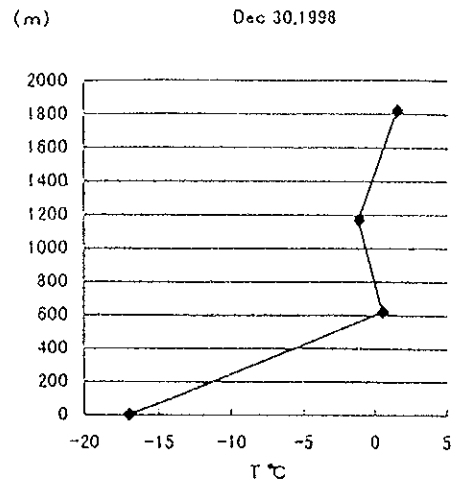
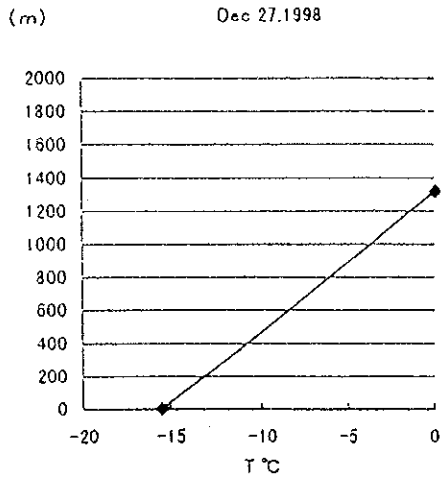


Figure D4.12(1) The Results of Upper-layer Meteorological Observation

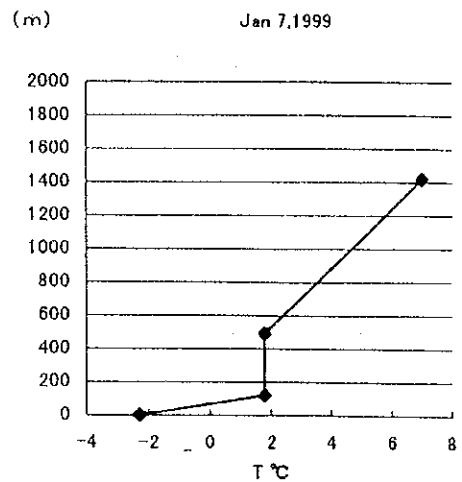
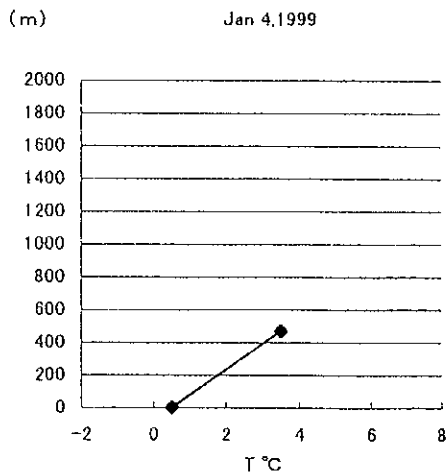
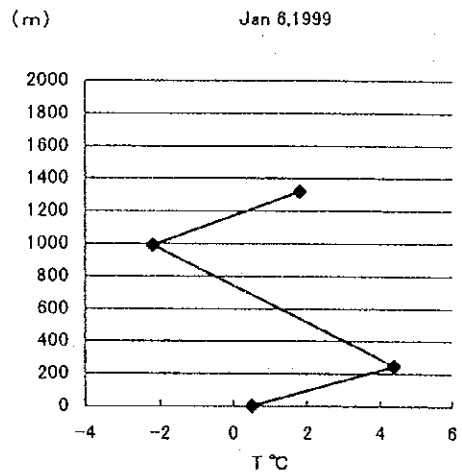
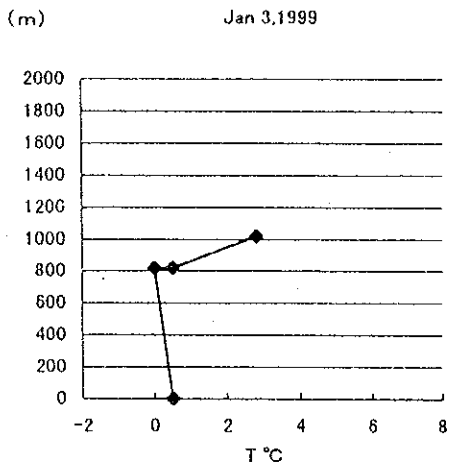
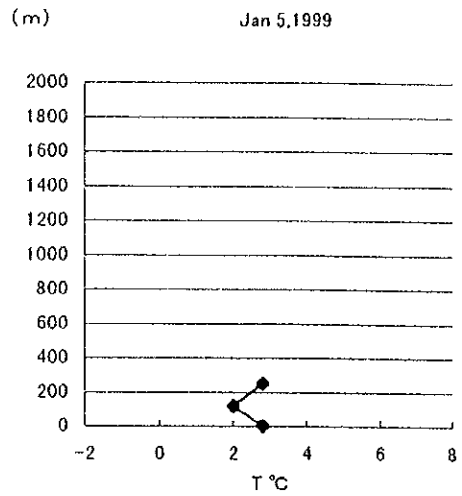
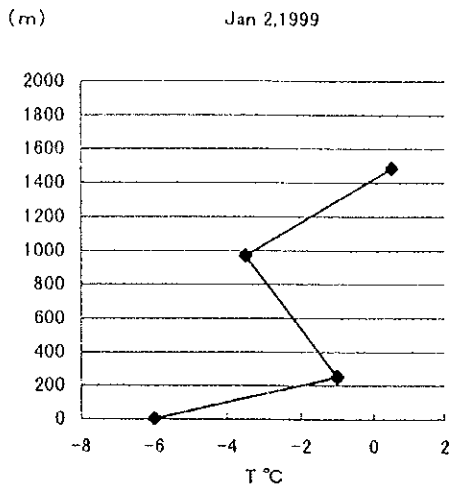


Figure D4.12(2) The Results of Upper-layer Meteorological Observation



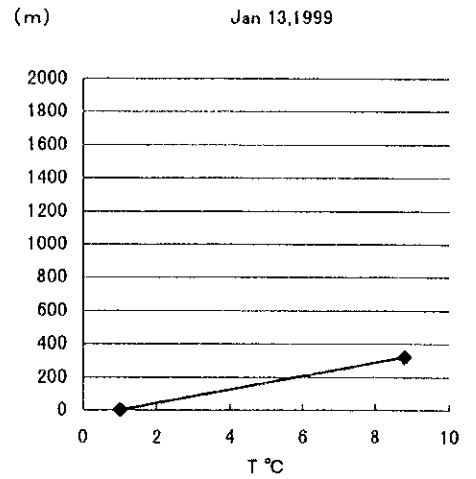
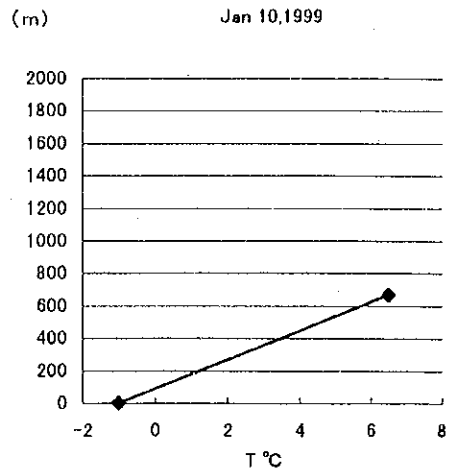
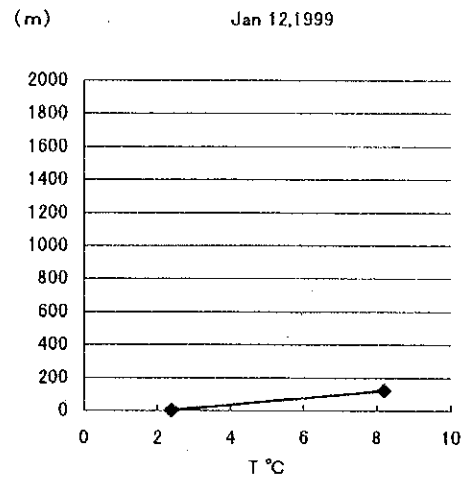
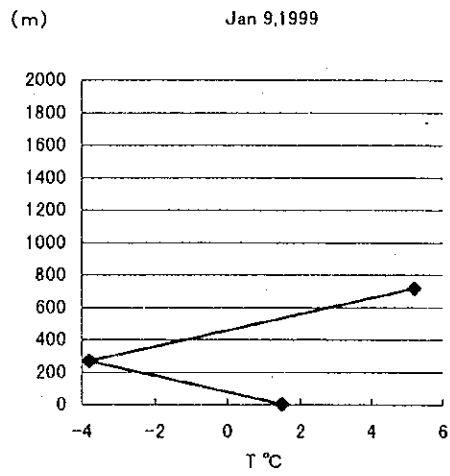
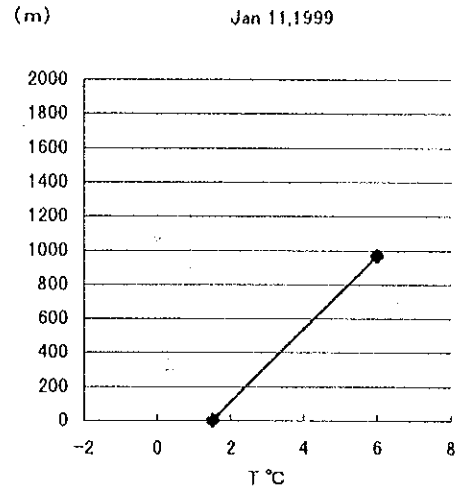
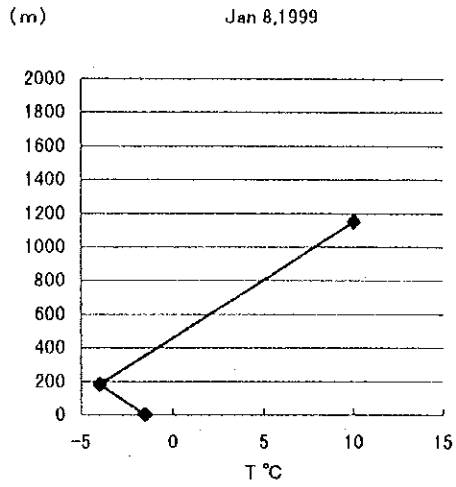


Figure D4.12(3) The Results of Upper-layer Meteorological Observation

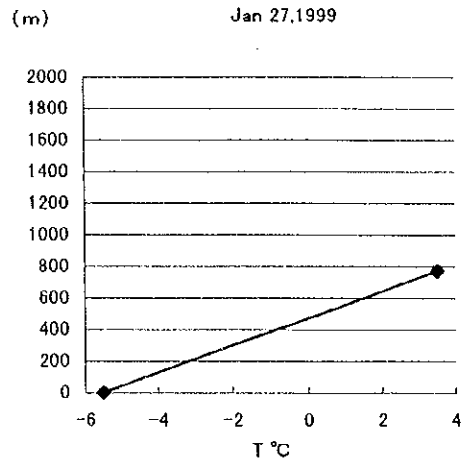
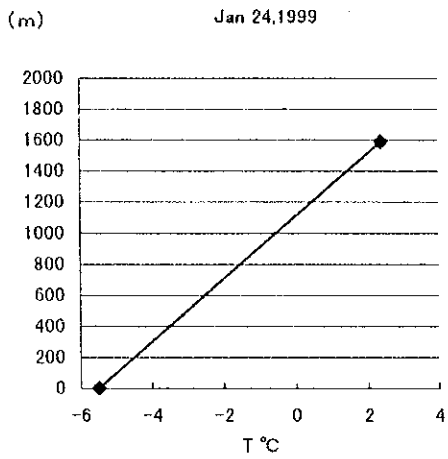
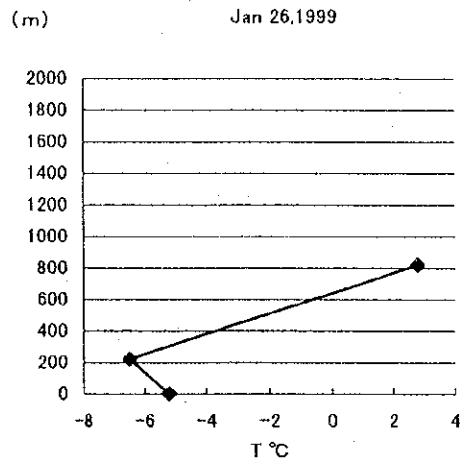
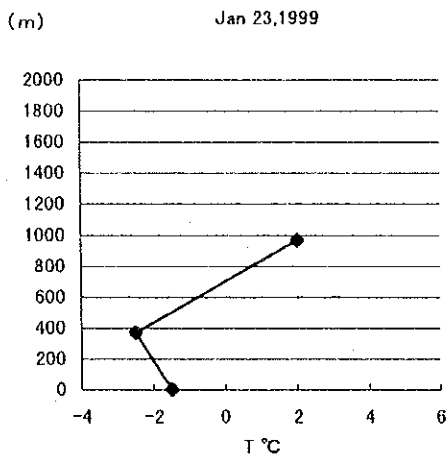
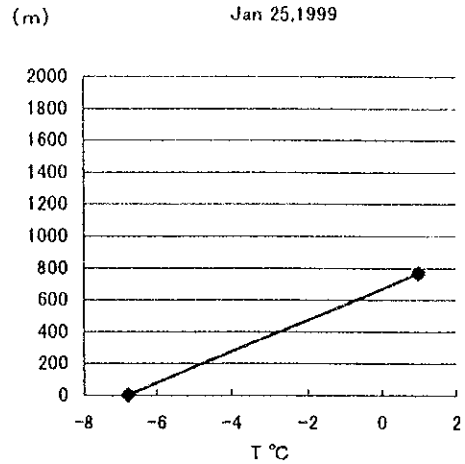
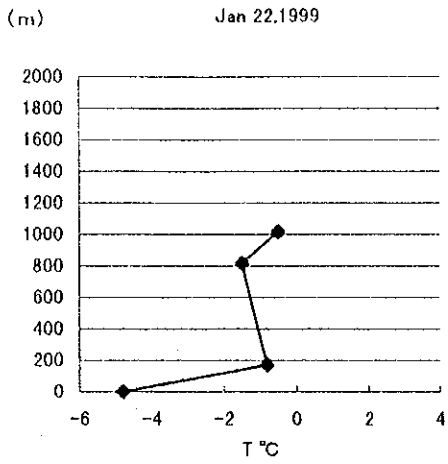


Figure D4.12(4) The Results of Upper-layer Meteorological Observation

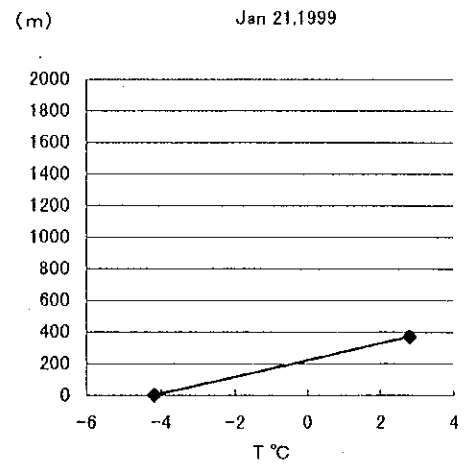
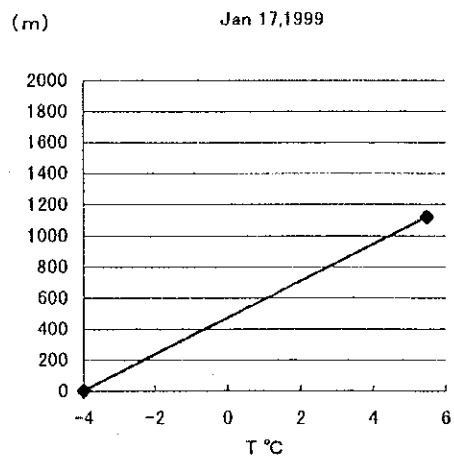
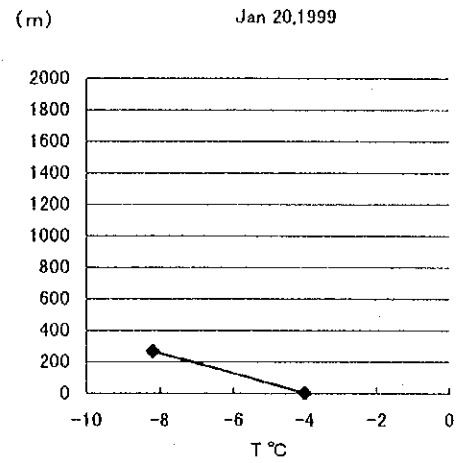
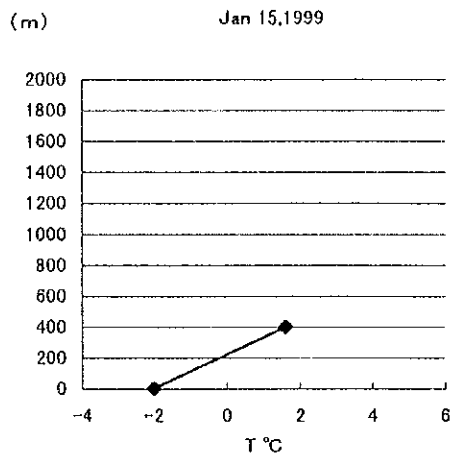
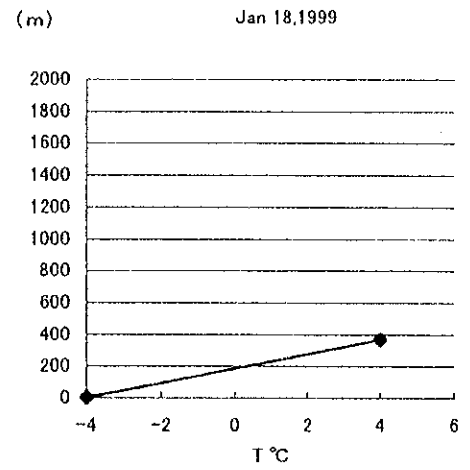
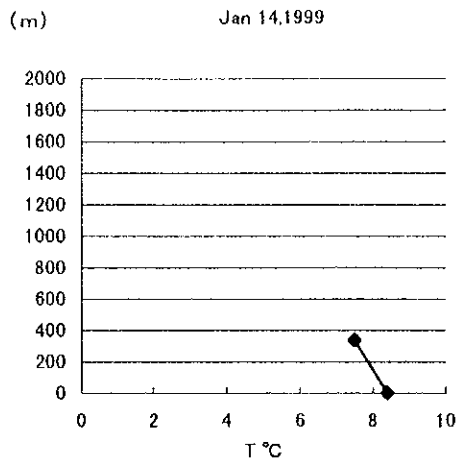


Figure D4.12(5) The Results of Upper-layer Meteorological Observation

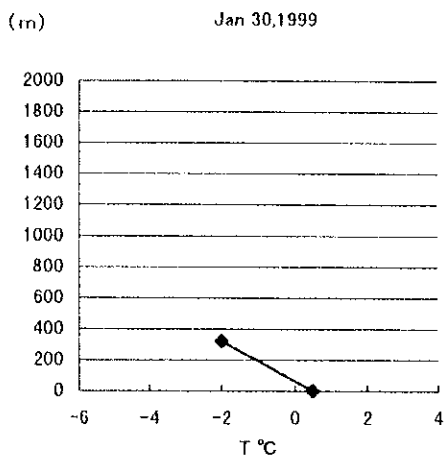
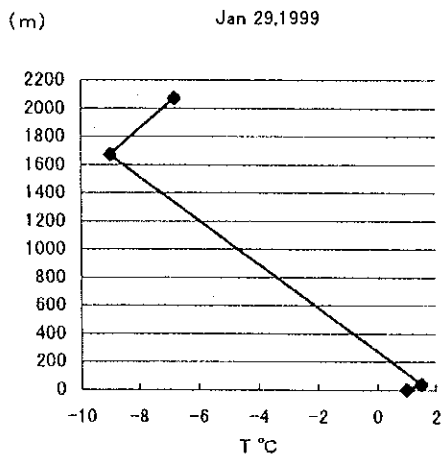
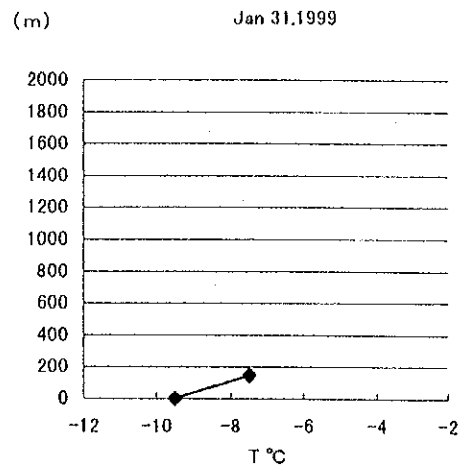
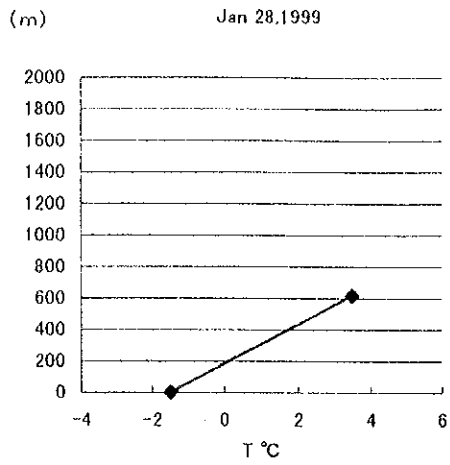


Figure D4.12(6) The Results of Upper-layer Meteorological Observation

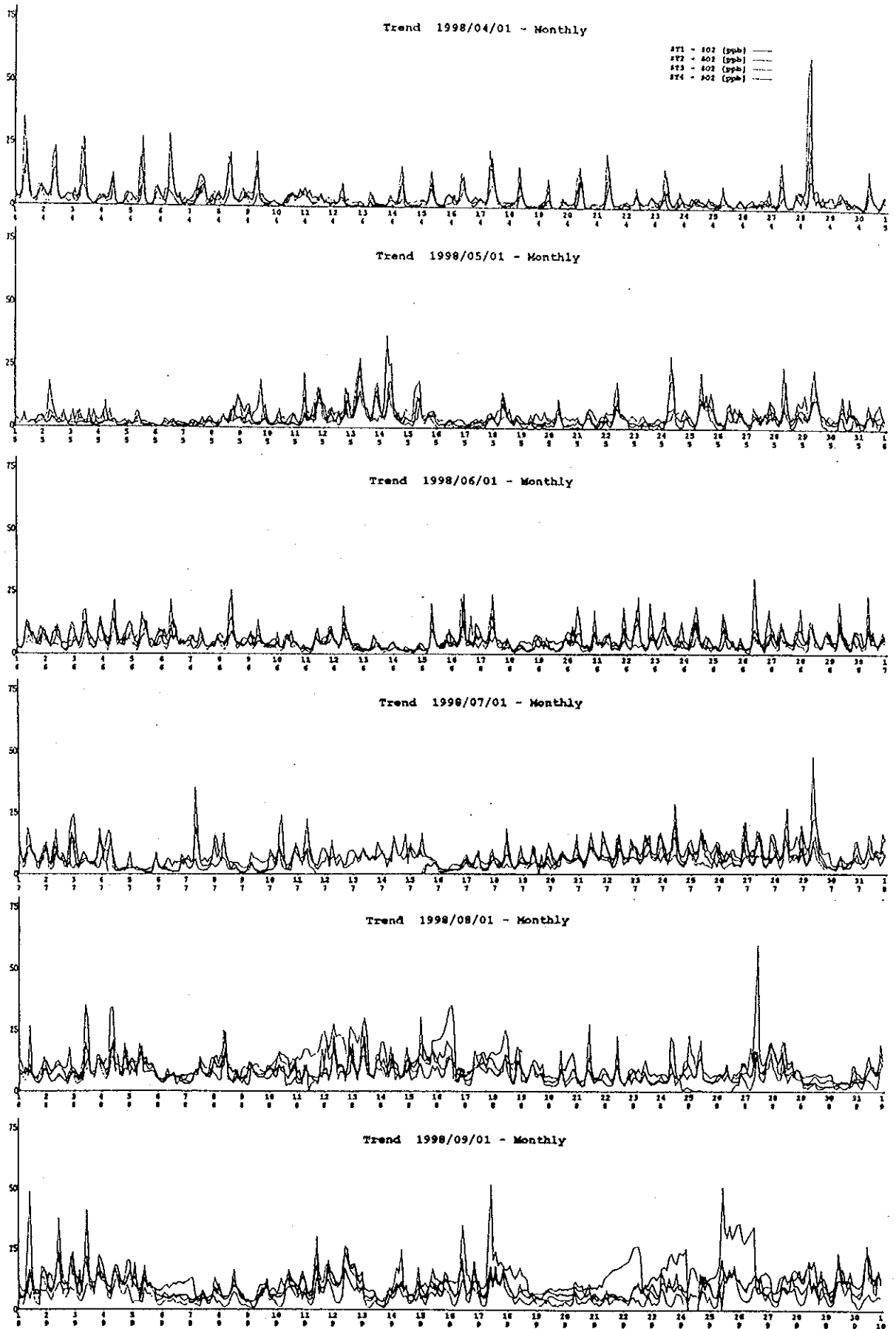


Figure D4.13(1) Fluctuation of SO<sub>2</sub> Concentration (April 1 to September 30, 1998)

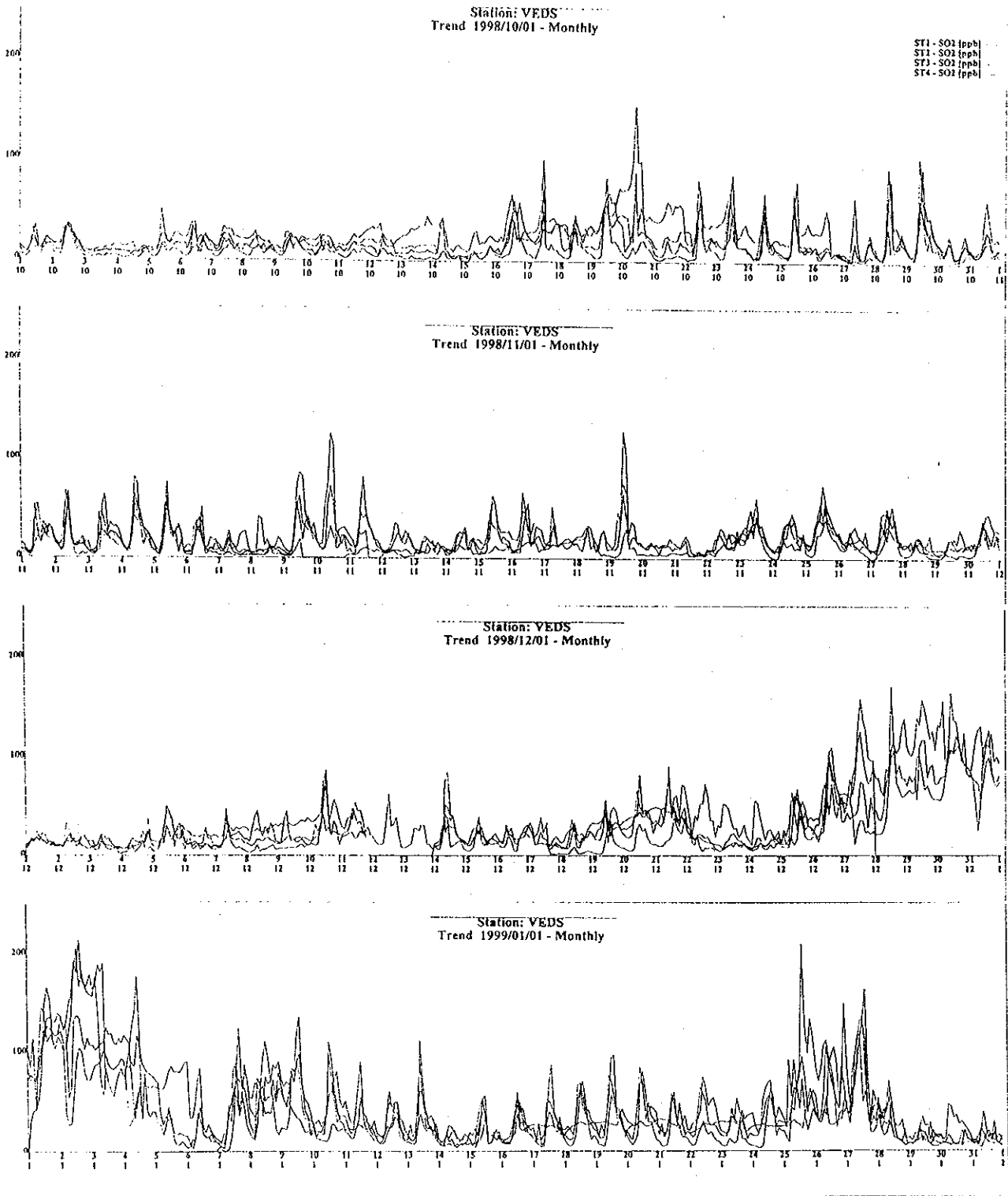


Figure D4.13(2) Fluctuation of SO<sub>2</sub> Concentration (October 1, 1998 to January 31, 1999)

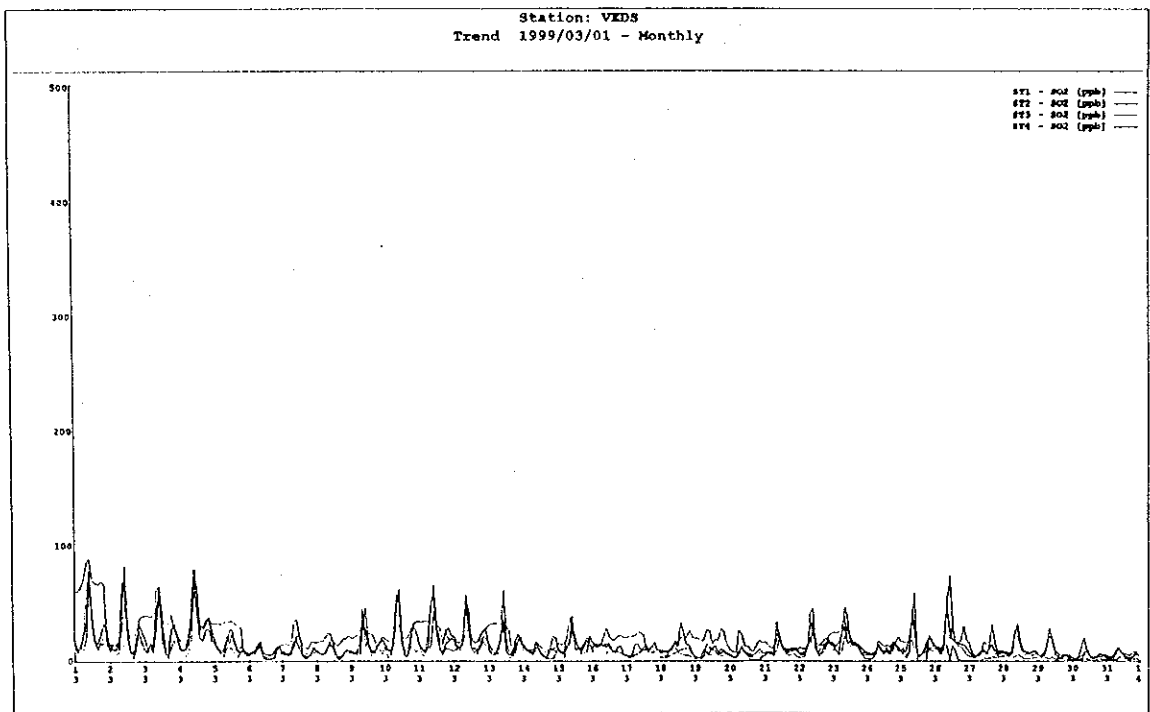
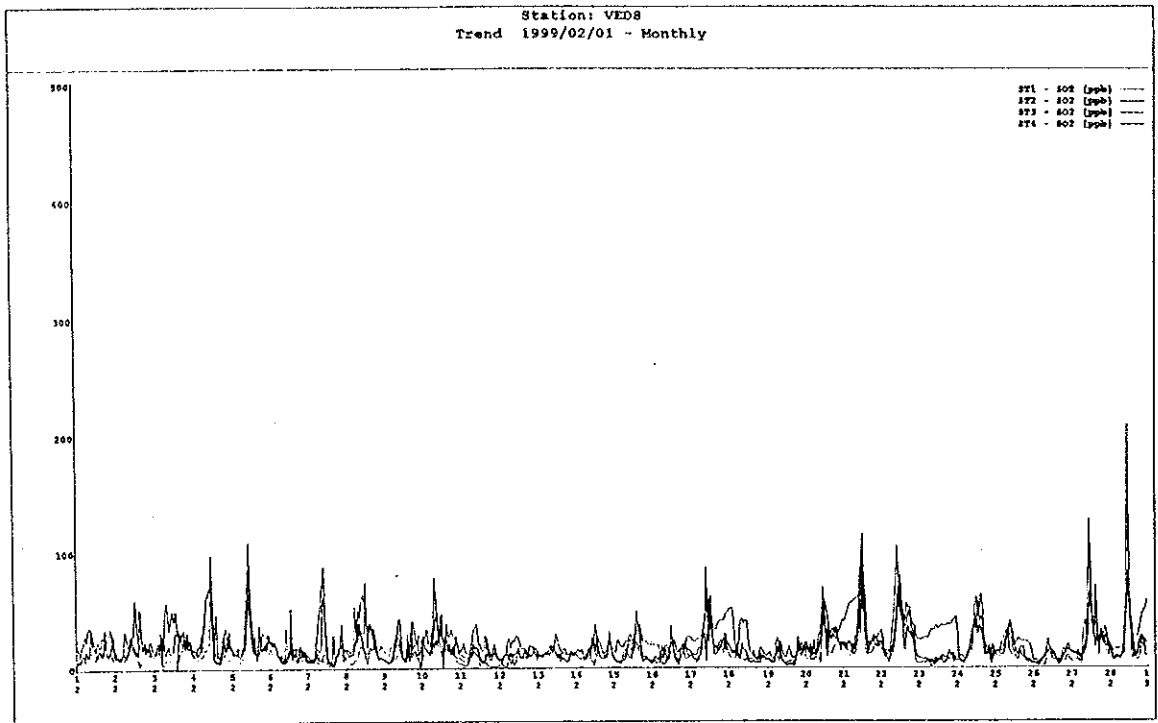


Figure D4.13(3) Fluctuation of SO<sub>2</sub> Concentration (February 1 to March 31, 1999)

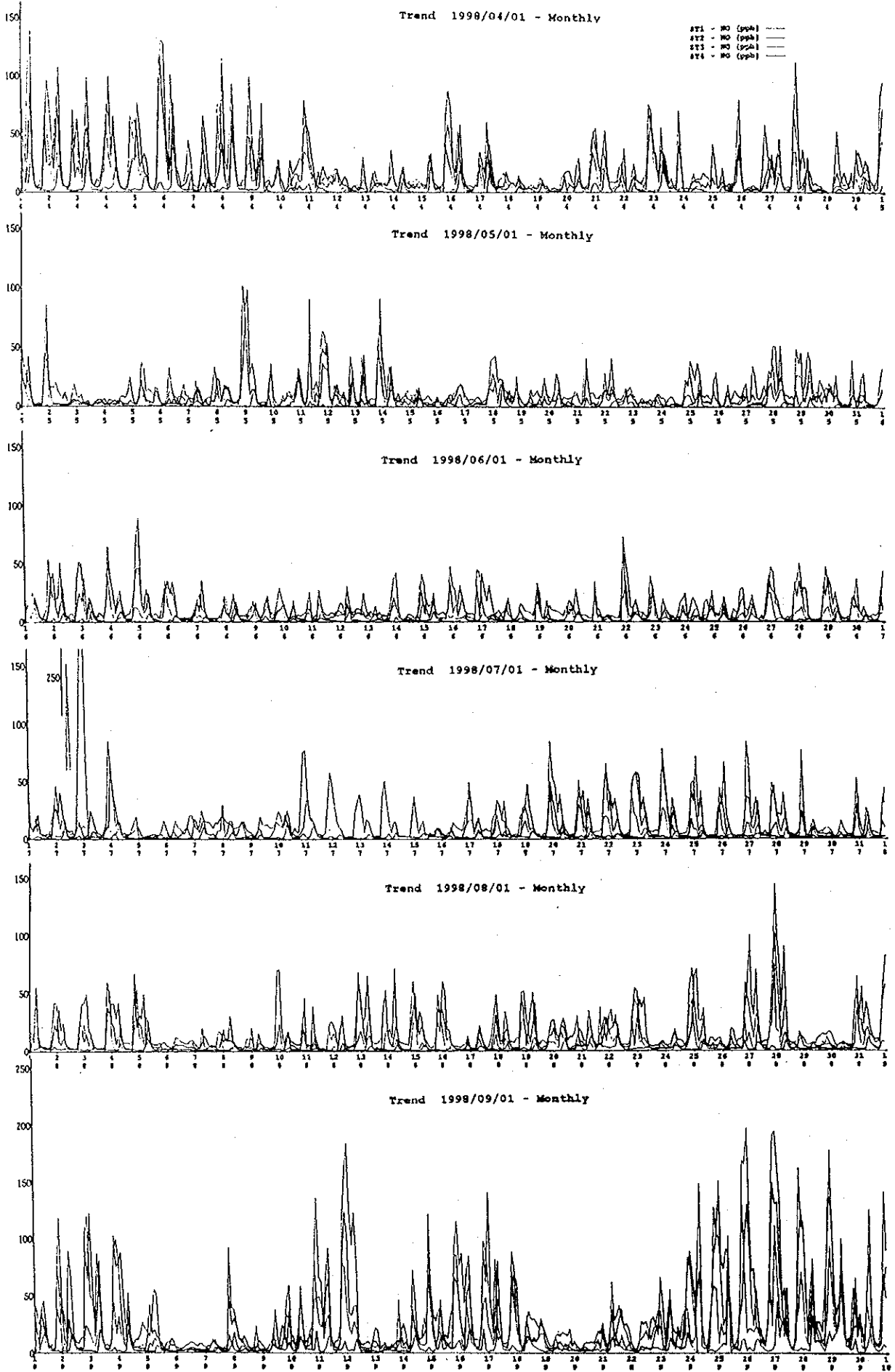


Figure D4.14 Fluctuation of NO Concentration (April 1 to September 30, 1998)



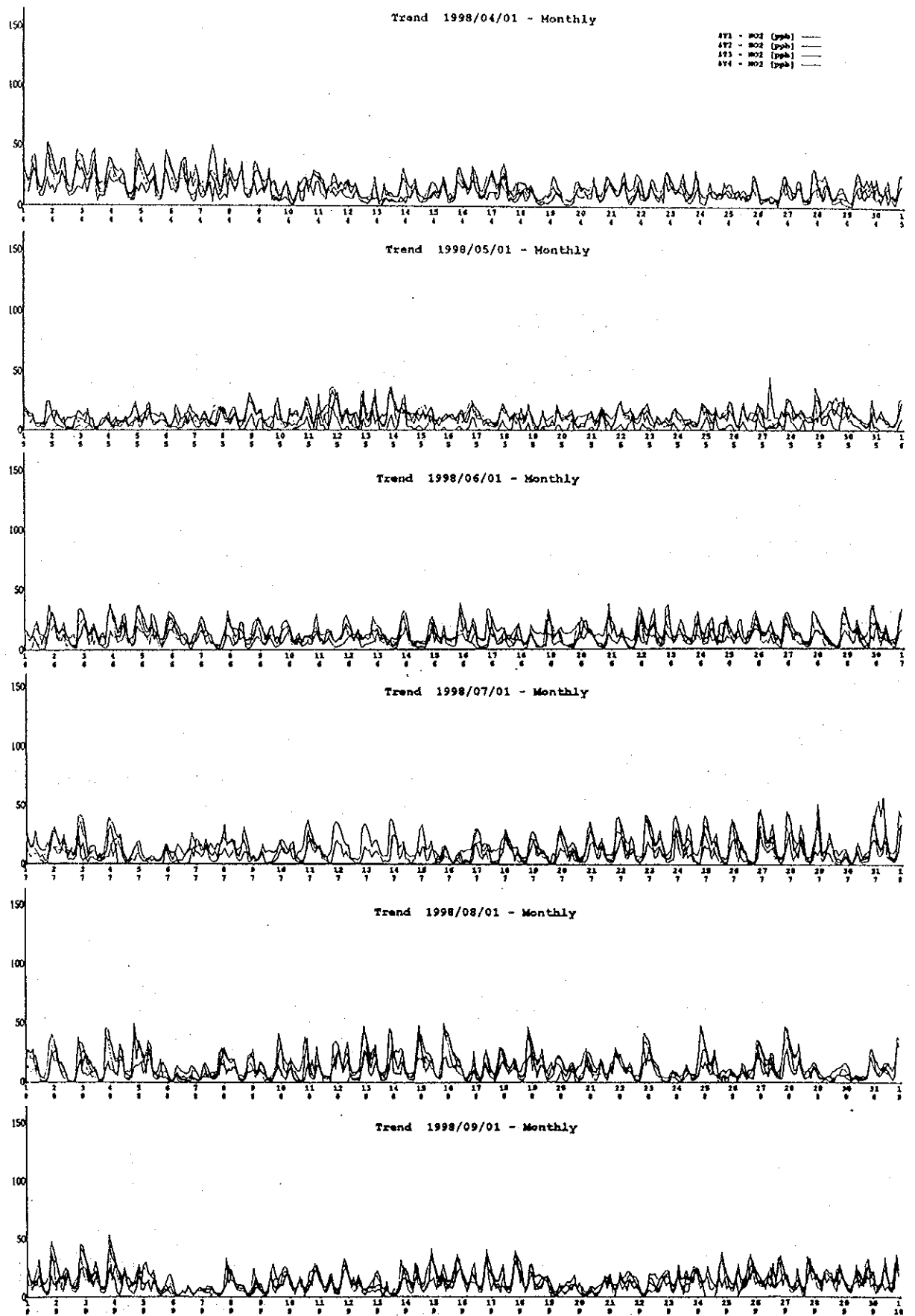


Figure D4.15 Fluctuation of NO<sub>2</sub> Concentration (April 1 to September 30, 1998)

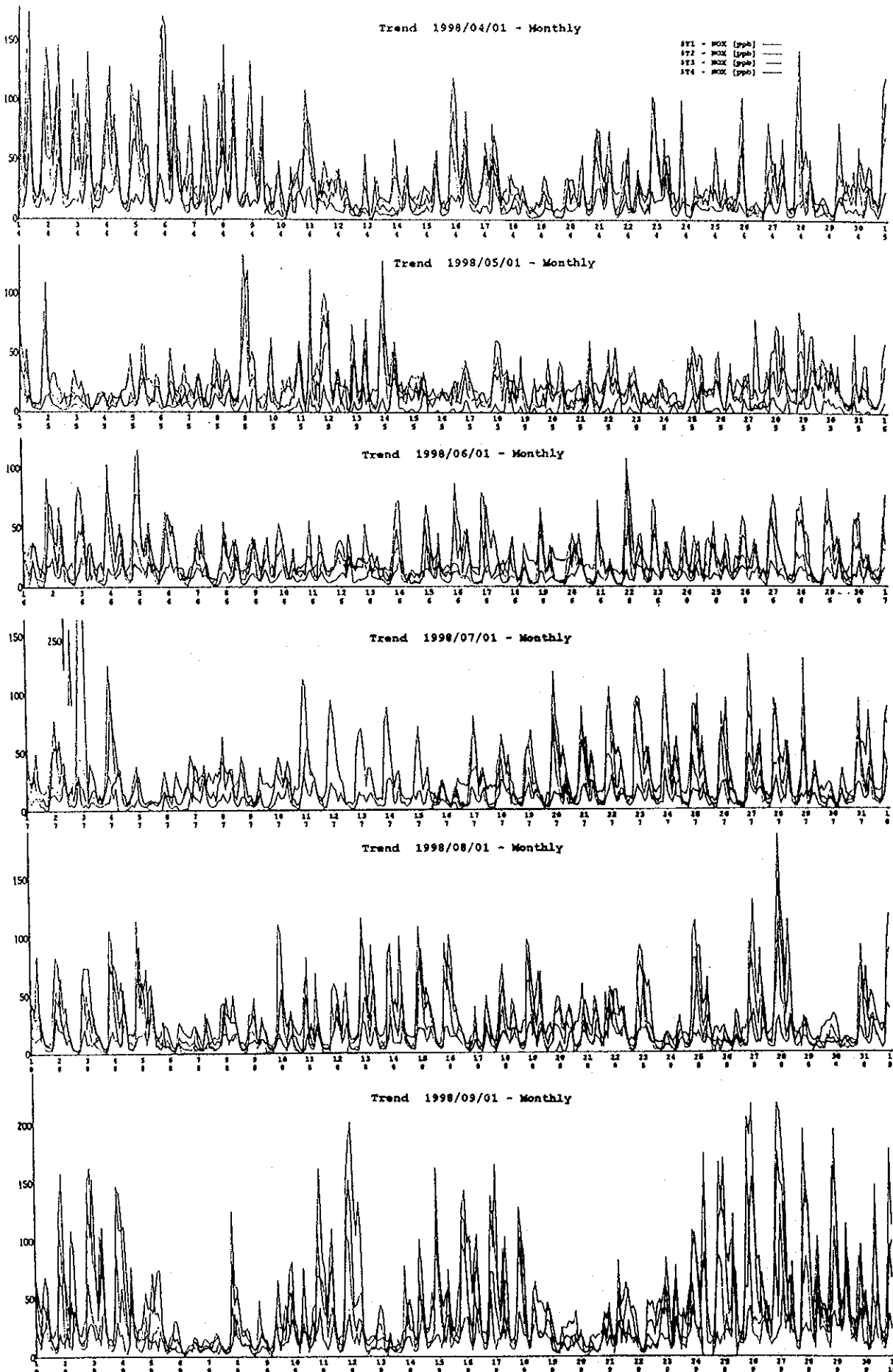
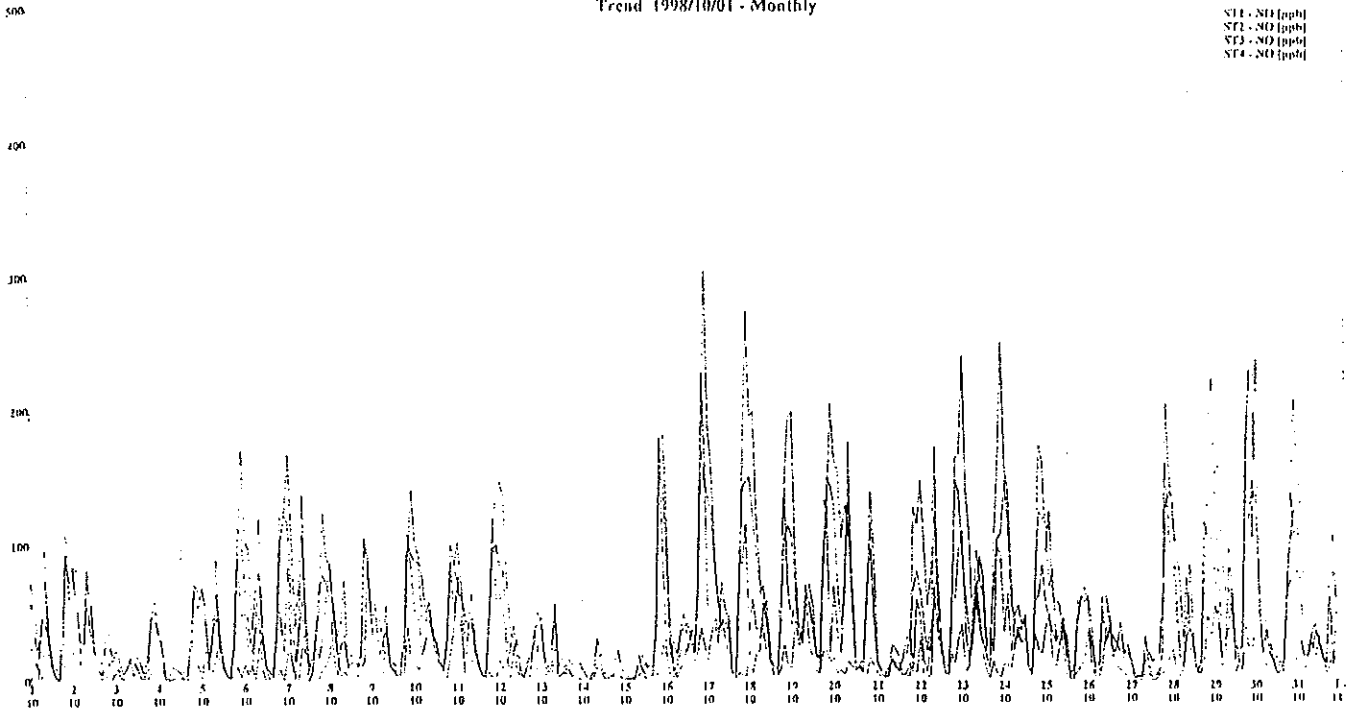


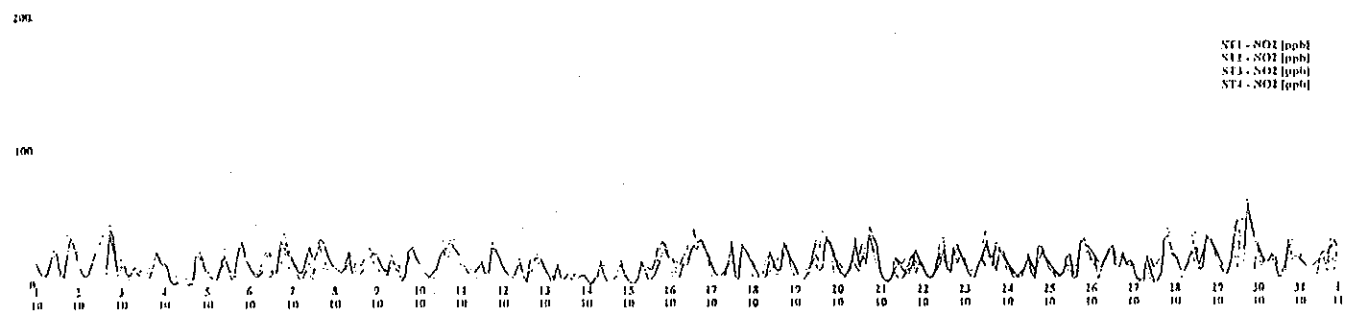
Figure D4.16 Fluctuation of NOx Concentration (April 1 to September 30, 1998)

Station: VEDS  
Trend 1998/10/01 - Monthly

ST1 - NO [ppb]  
ST2 - NO [ppb]  
ST3 - NO [ppb]  
ST4 - NO [ppb]



ST1 - NO2 [ppb]  
ST2 - NO2 [ppb]  
ST3 - NO2 [ppb]  
ST4 - NO2 [ppb]



ST1 - NOx [ppb]  
ST2 - NOx [ppb]  
ST3 - NOx [ppb]  
ST4 - NOx [ppb]

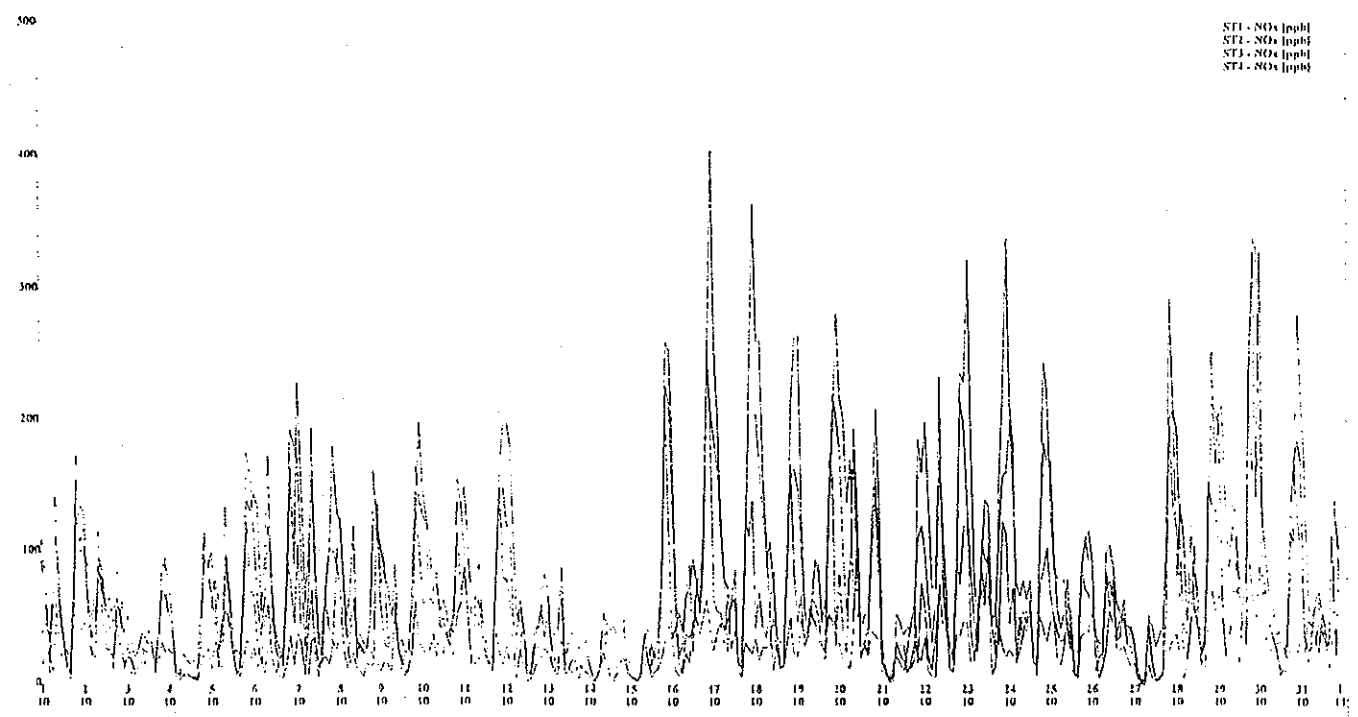


Figure D4.17(1) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (October, 1998)

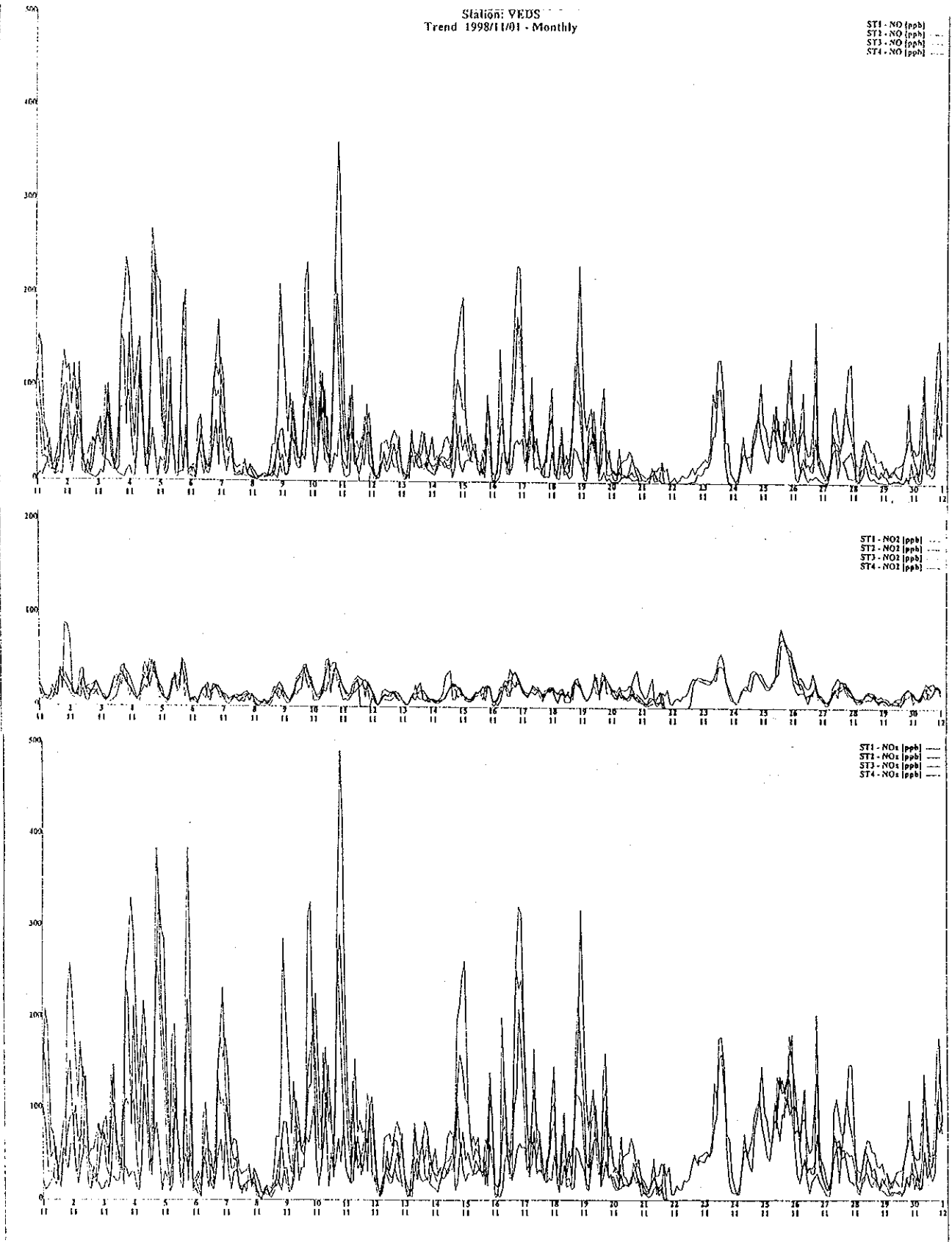


Figure D4.17(2) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (November, 1998)

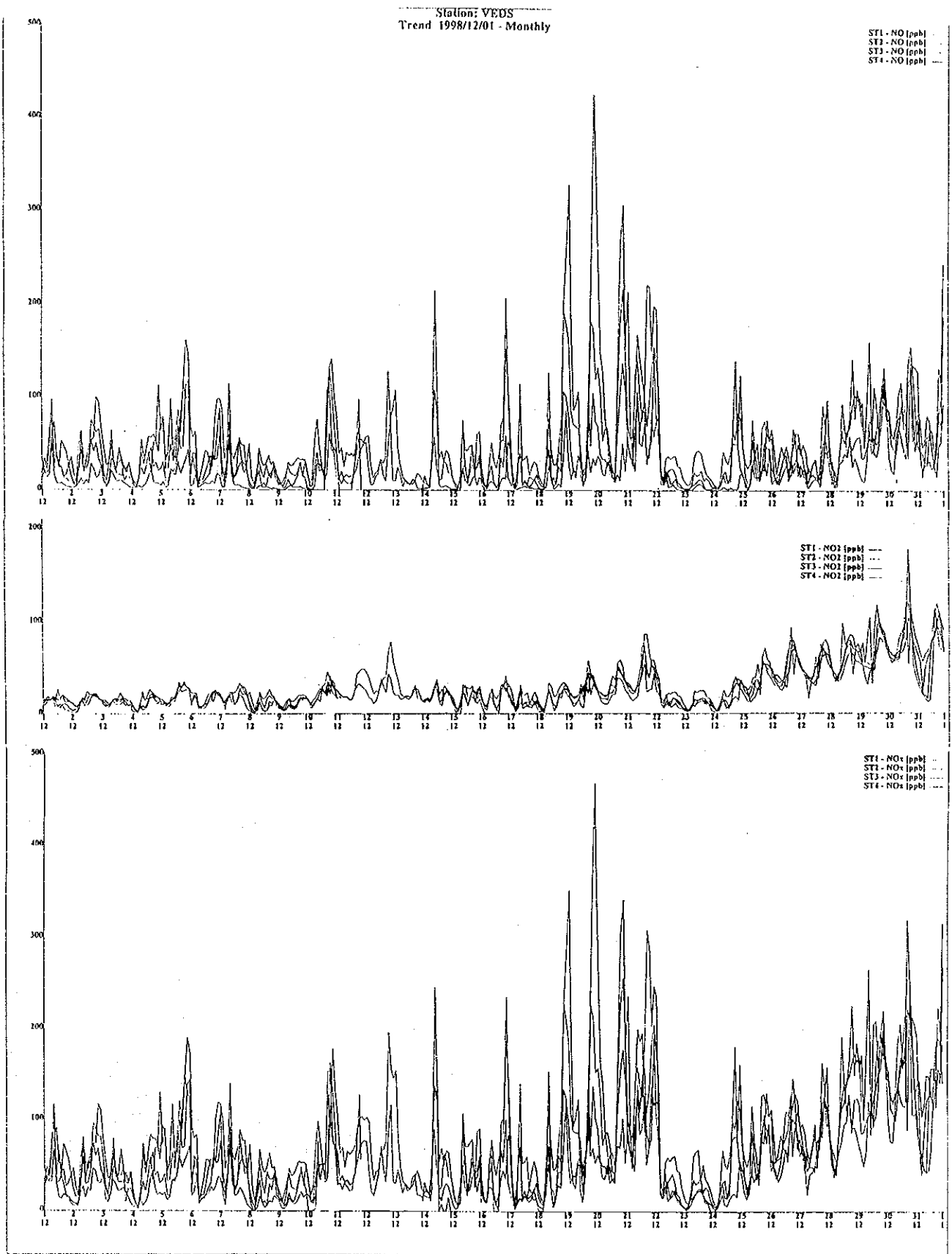
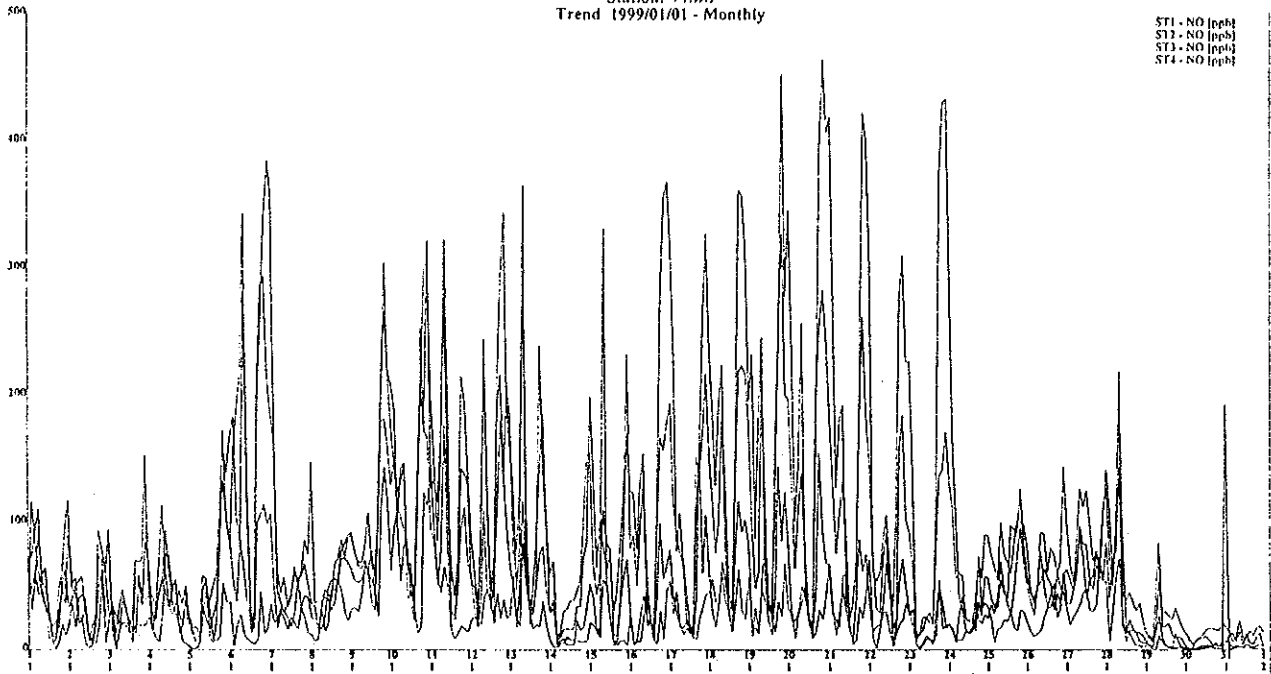


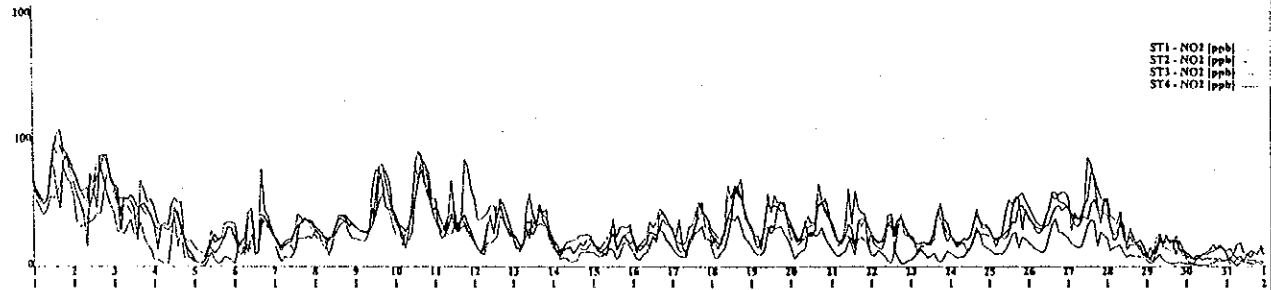
Figure D4.17(3) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (December, 1998)

Station: VEDS  
Trend 1999/01/01 - Monthly

ST1 - NO [ppb]  
ST2 - NO [ppb]  
ST3 - NO [ppb]  
ST4 - NO [ppb]



ST1 - NO2 [ppb]  
ST2 - NO2 [ppb]  
ST3 - NO2 [ppb]  
ST4 - NO2 [ppb]



ST1 - NOx [ppb]  
ST2 - NOx [ppb]  
ST3 - NOx [ppb]  
ST4 - NOx [ppb]

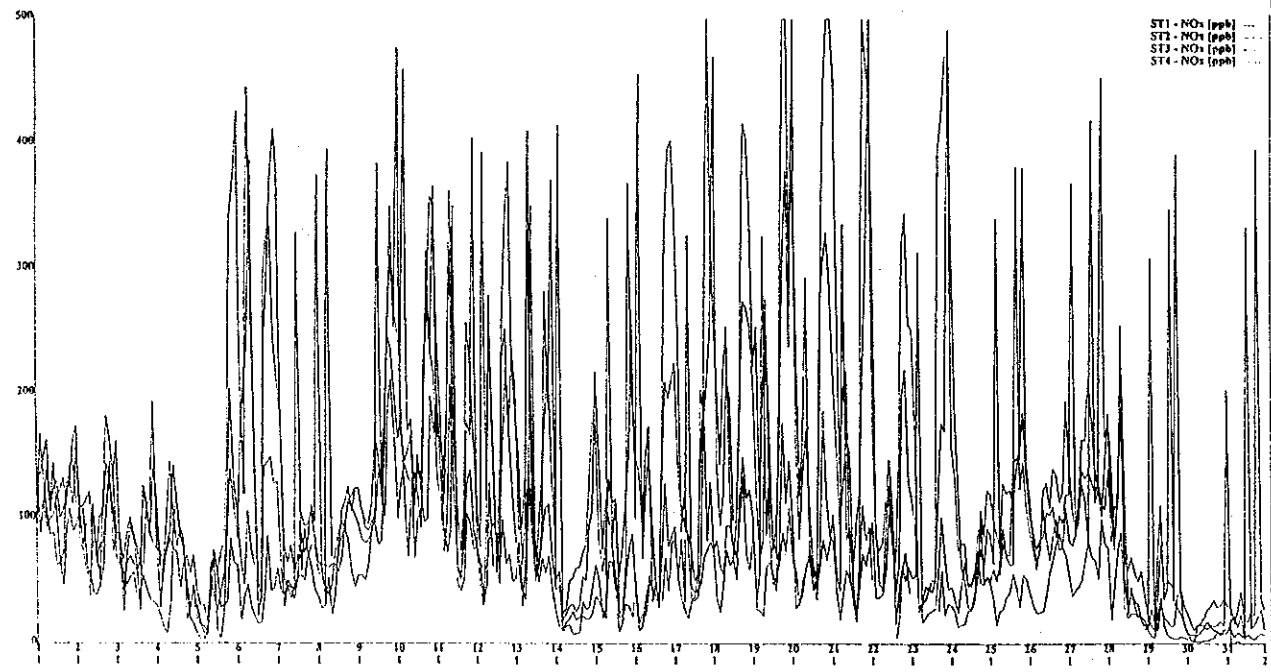


Figure D4.17(4) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (January, 1999)

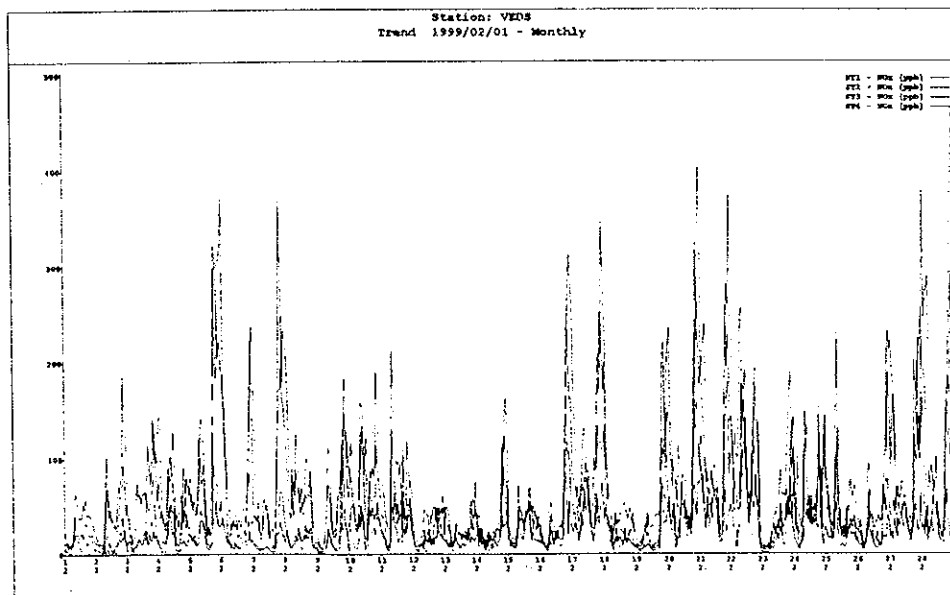
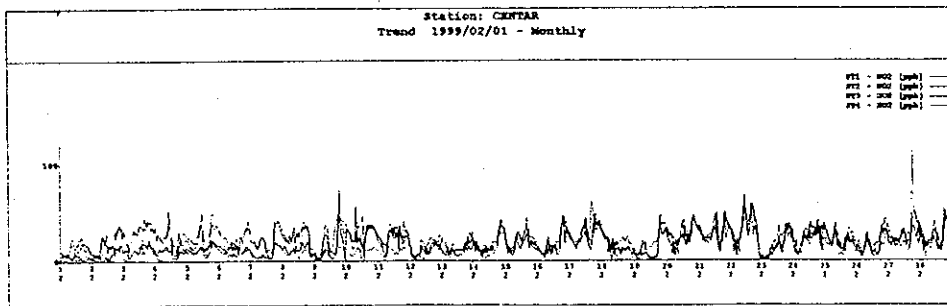
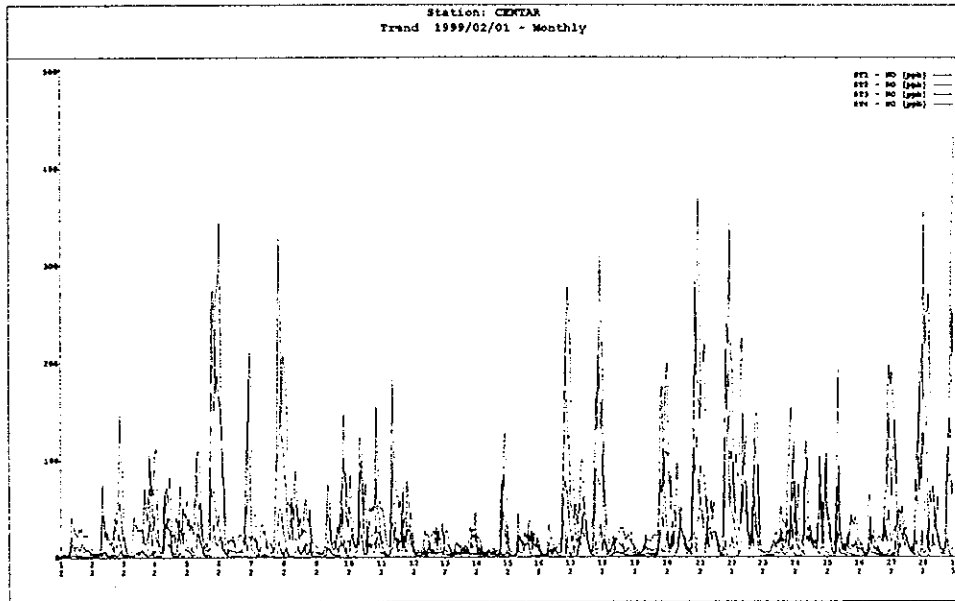


Figure D4.17(5) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (February, 1998)

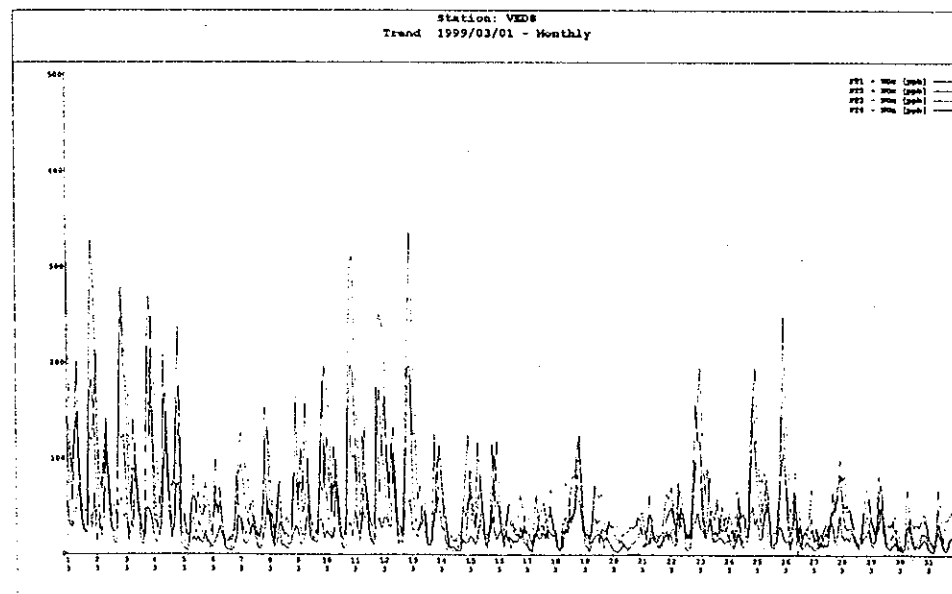
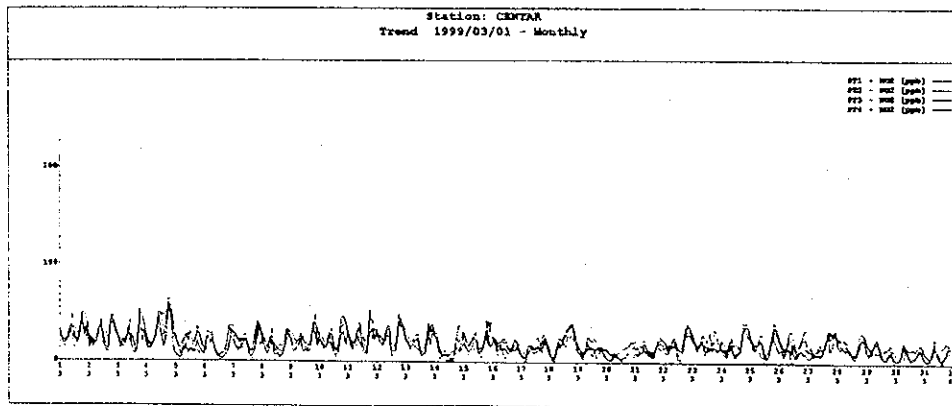
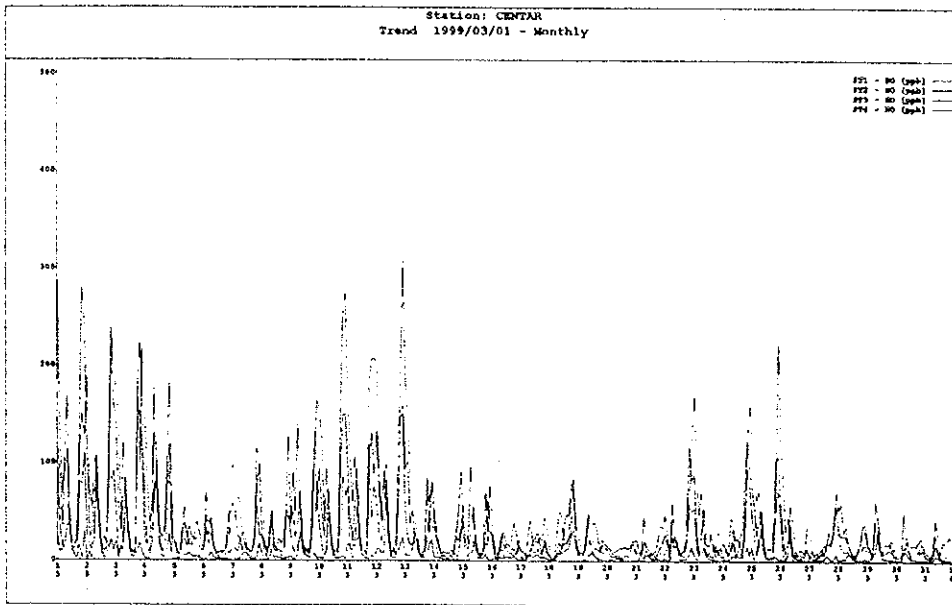


Figure D4.17(6) Fluctuation of NO, NO<sub>2</sub>, NO<sub>x</sub> (March, 1998)



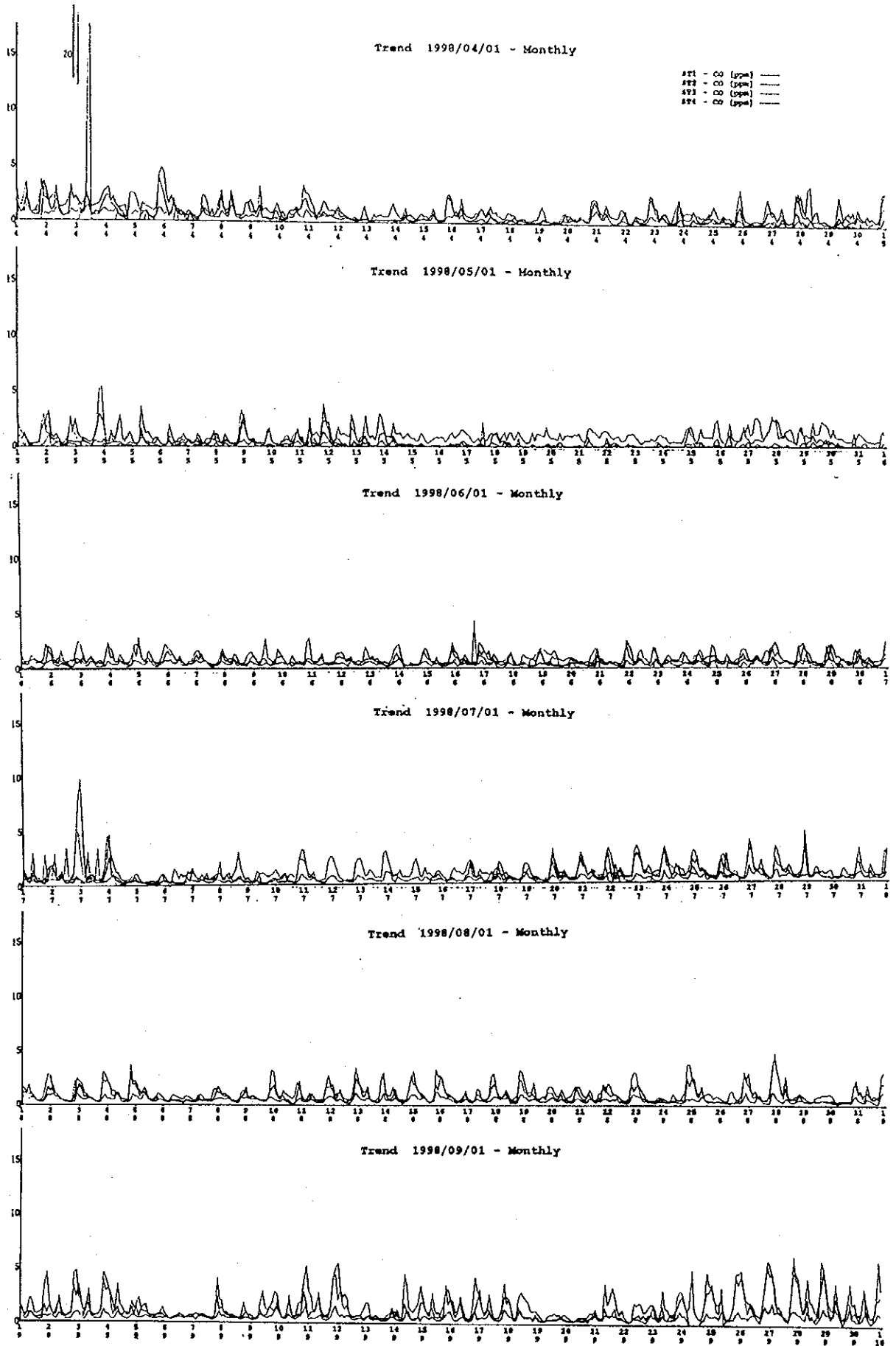


Figure D4.18(1) Fluctuation of CO Concentration (April 1 to September 30, 1998)

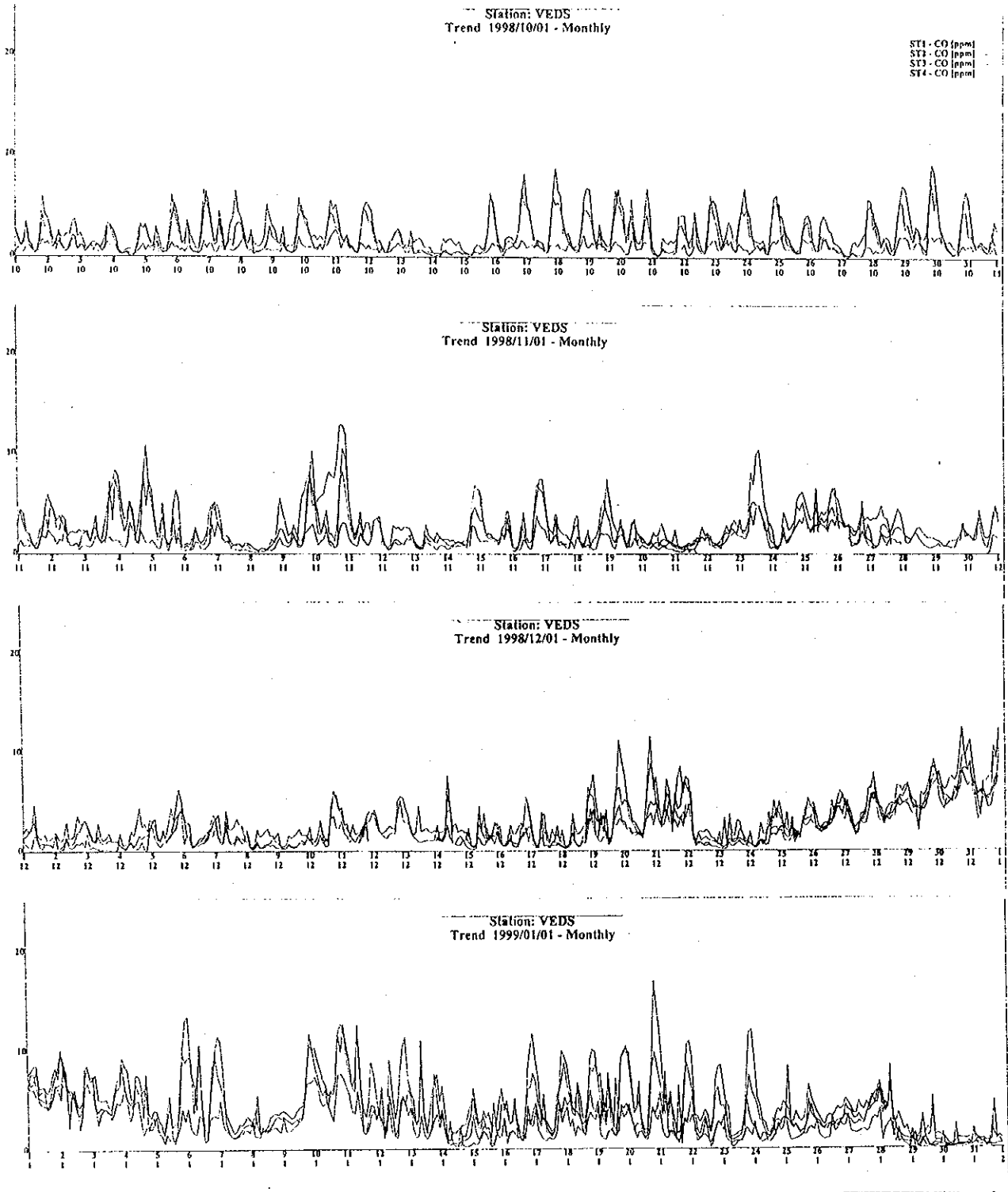


Figure D4.18(2) Fluctuation of CO Concentration (October 1, 1998, to January 31, 1999)

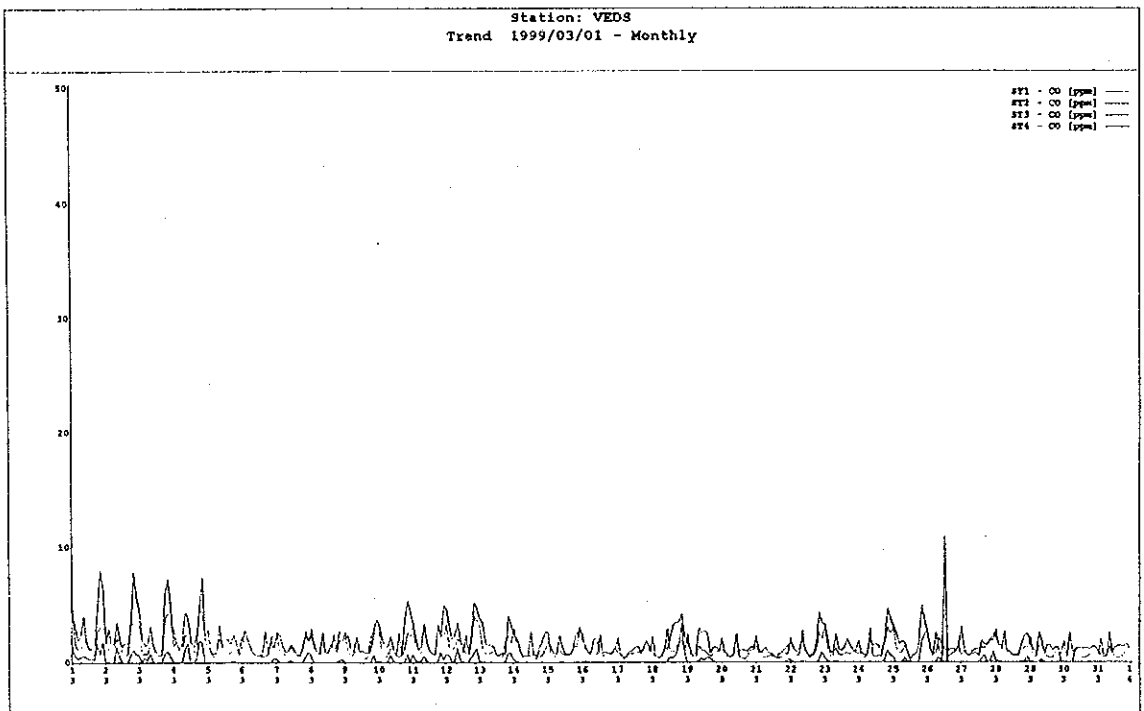
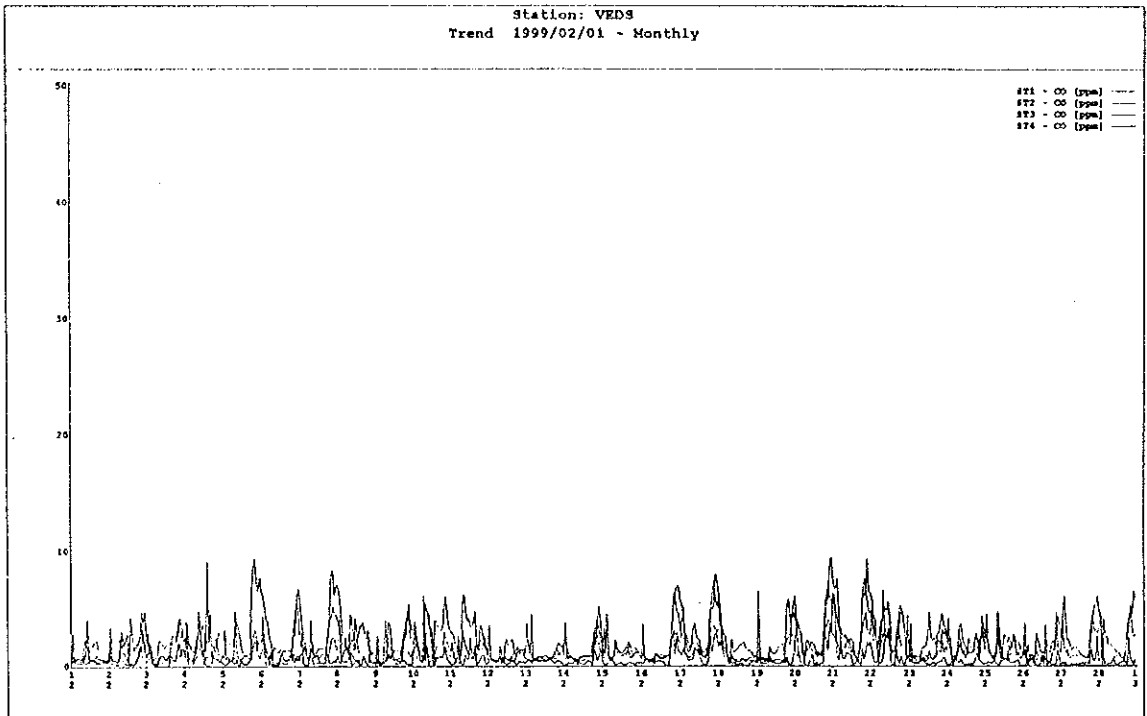


Figure D4.18(3) Fluctuation of CO Concentration (February 1 to March 31, 1999)

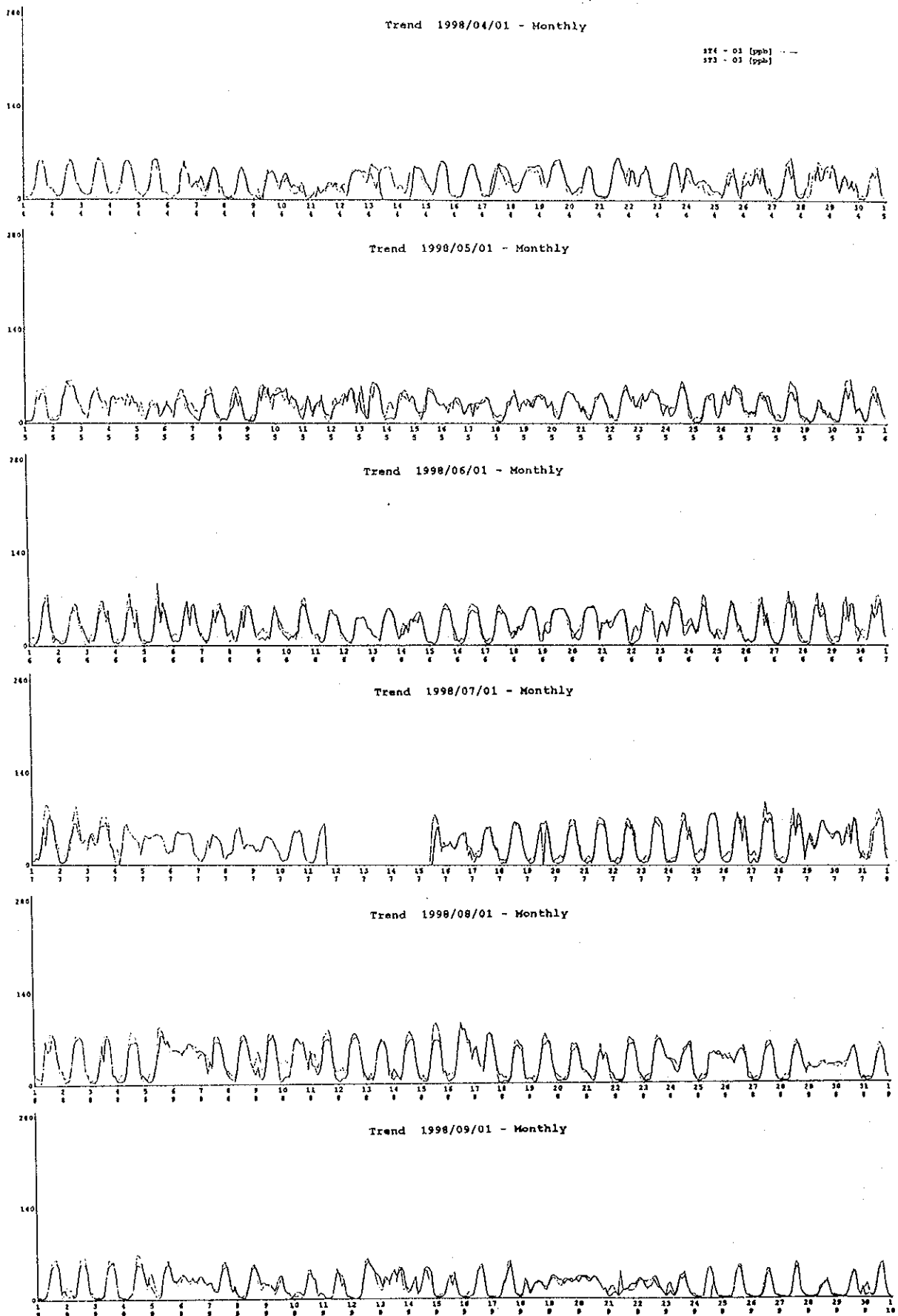


Figure D4.19(1) Fluctuation of O<sub>3</sub> Concentration (April 1 to September 30, 1998)

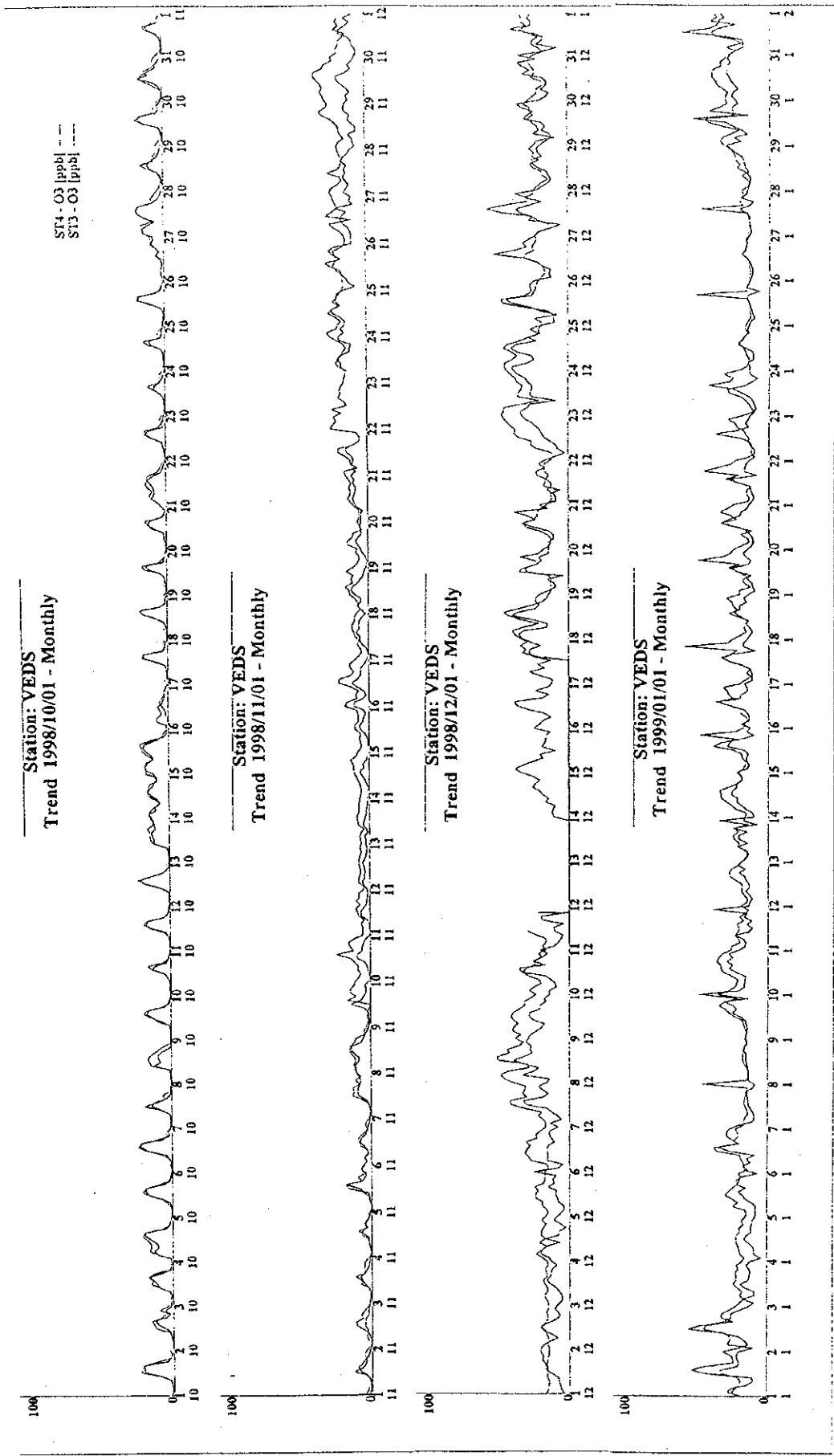


Figure D4.19(2) Fluctuation of O<sub>3</sub> Concentration (October 1, 1998, to January 31, 1999)

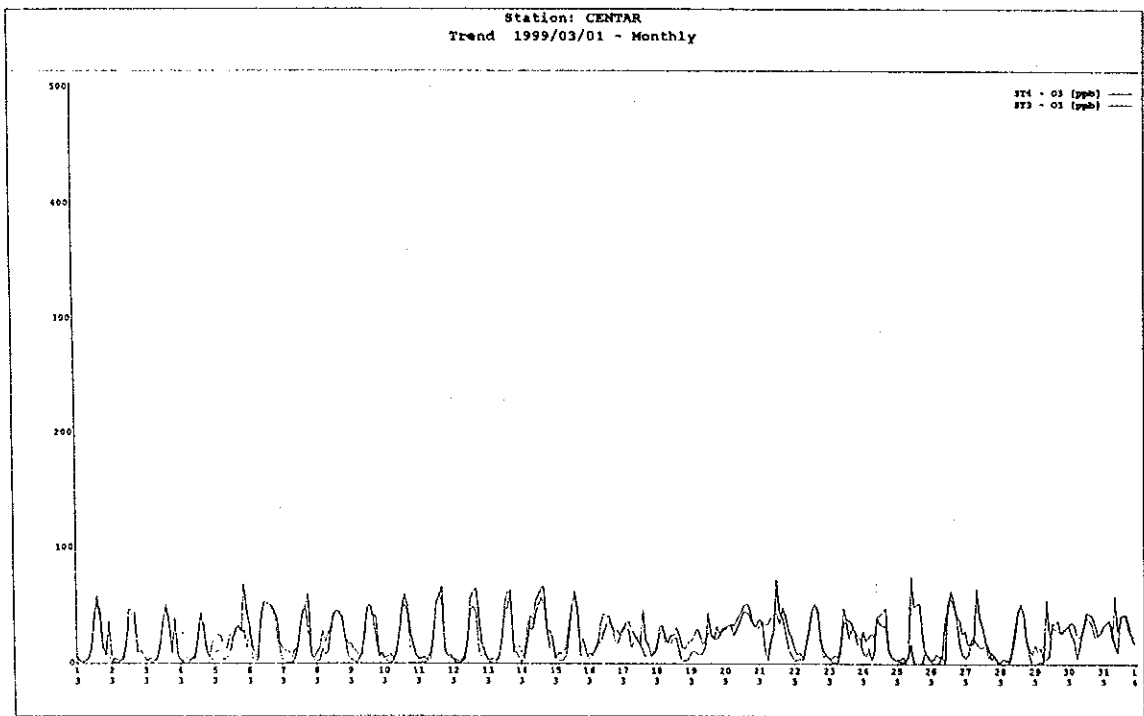
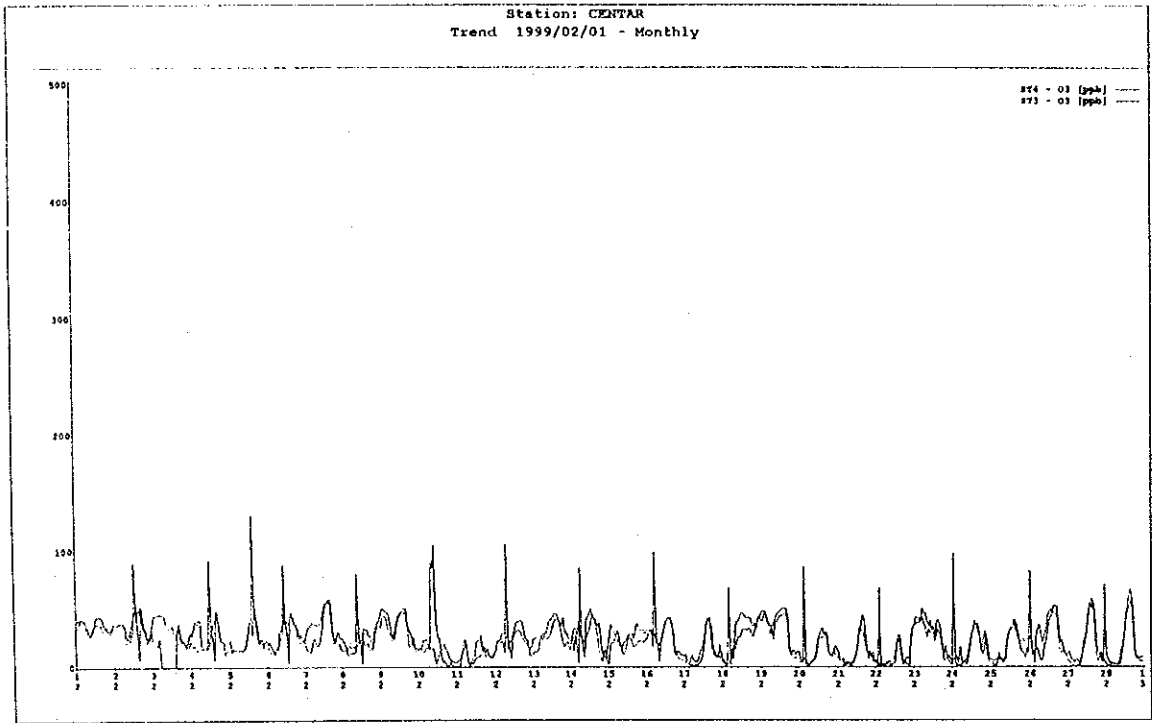


Figure D4.19(3) Fluctuation of O<sub>3</sub> Concentration (February 1 to March 31, 1999)

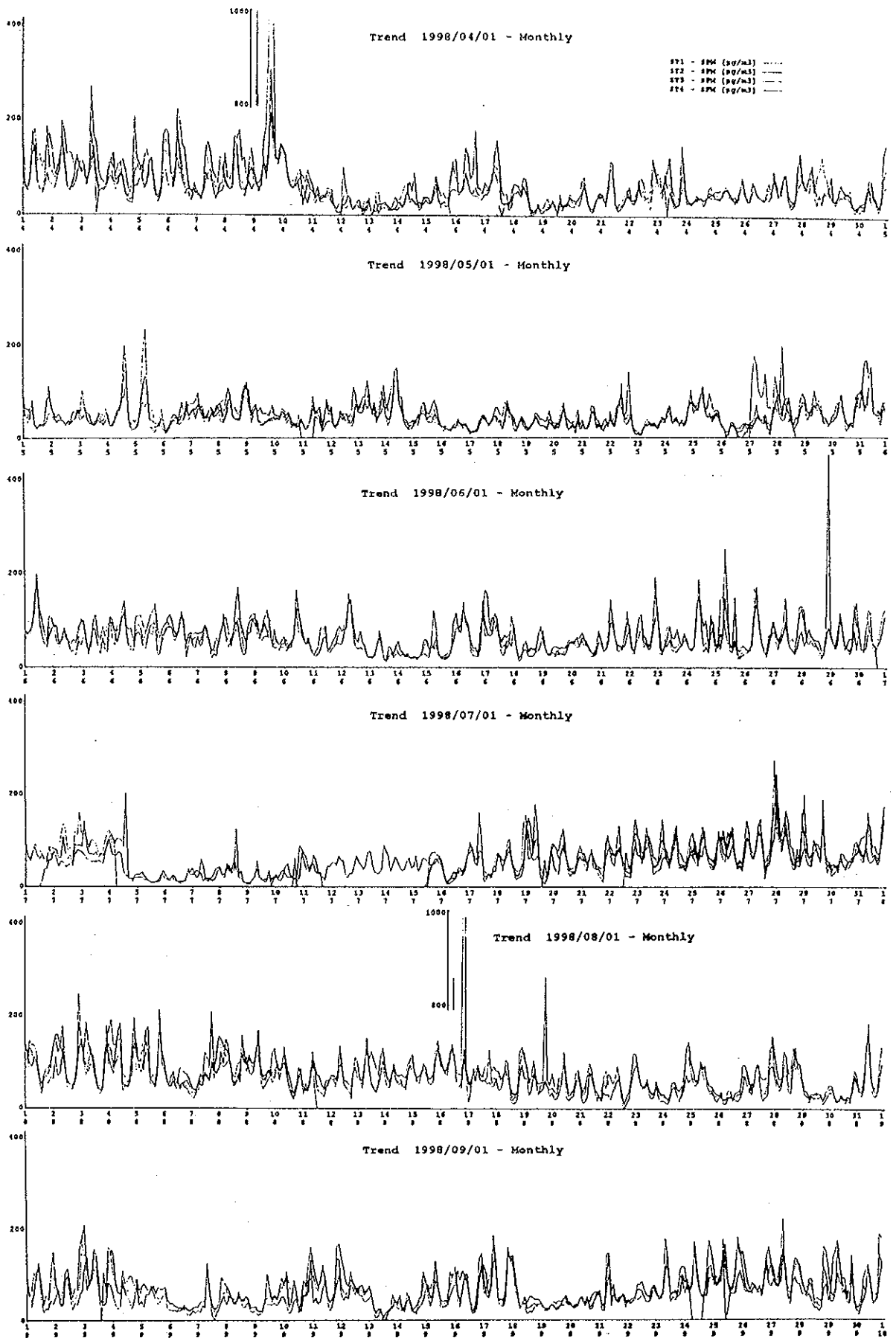


Figure D4.20(1) Fluctuation of SPM Concentration (April 1 to September 30, 1998)

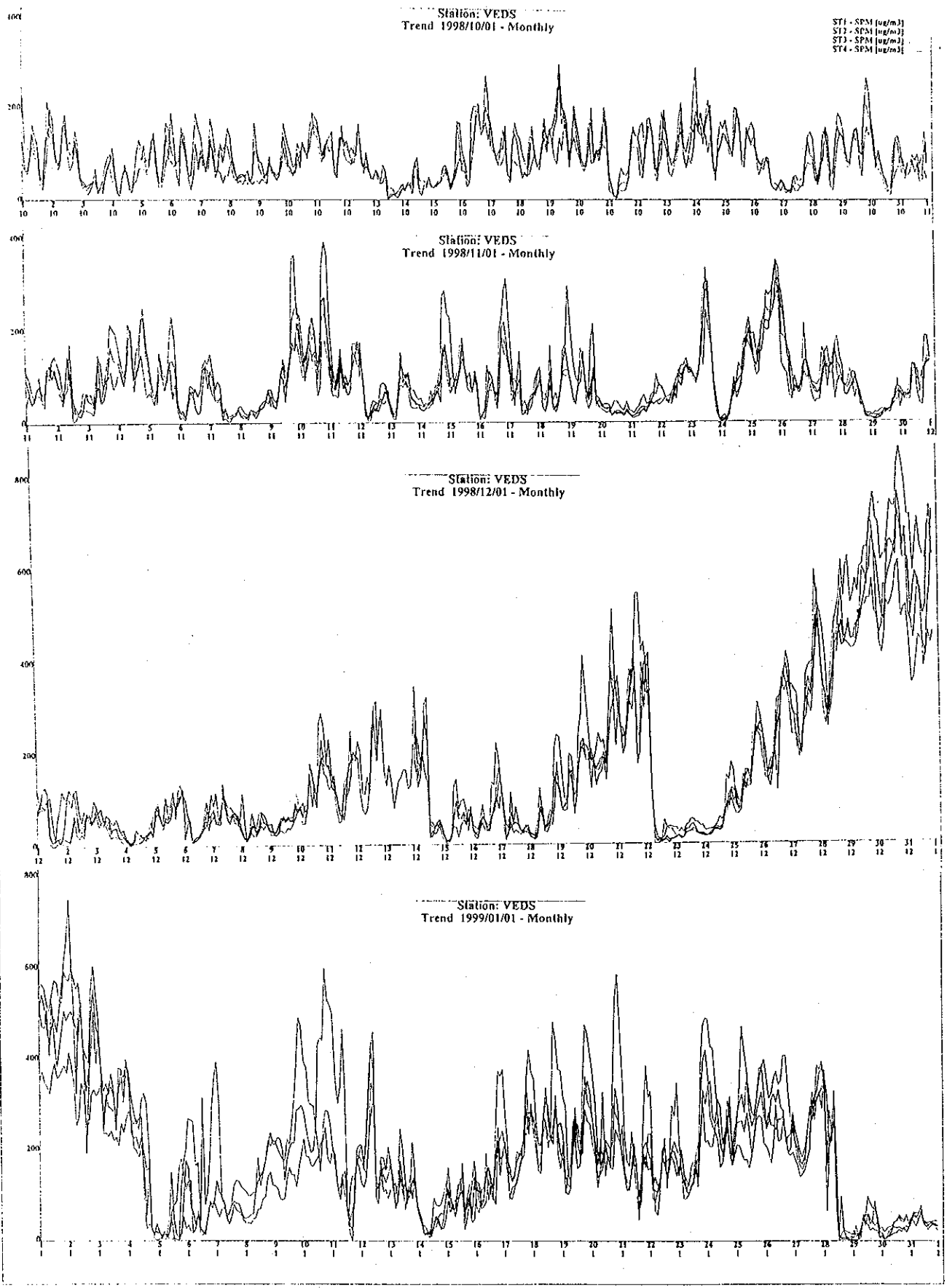


Figure D4.20(2) Fluctuation of SPM Concentration (October 1, 1998, to January 31, 1999)



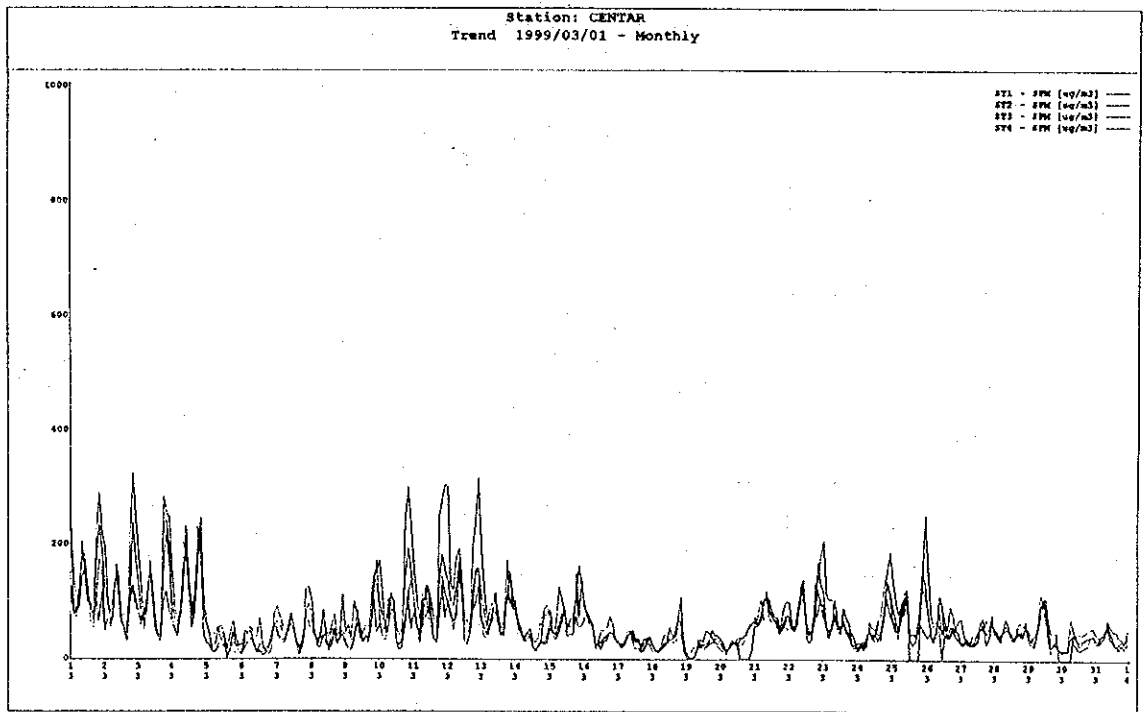
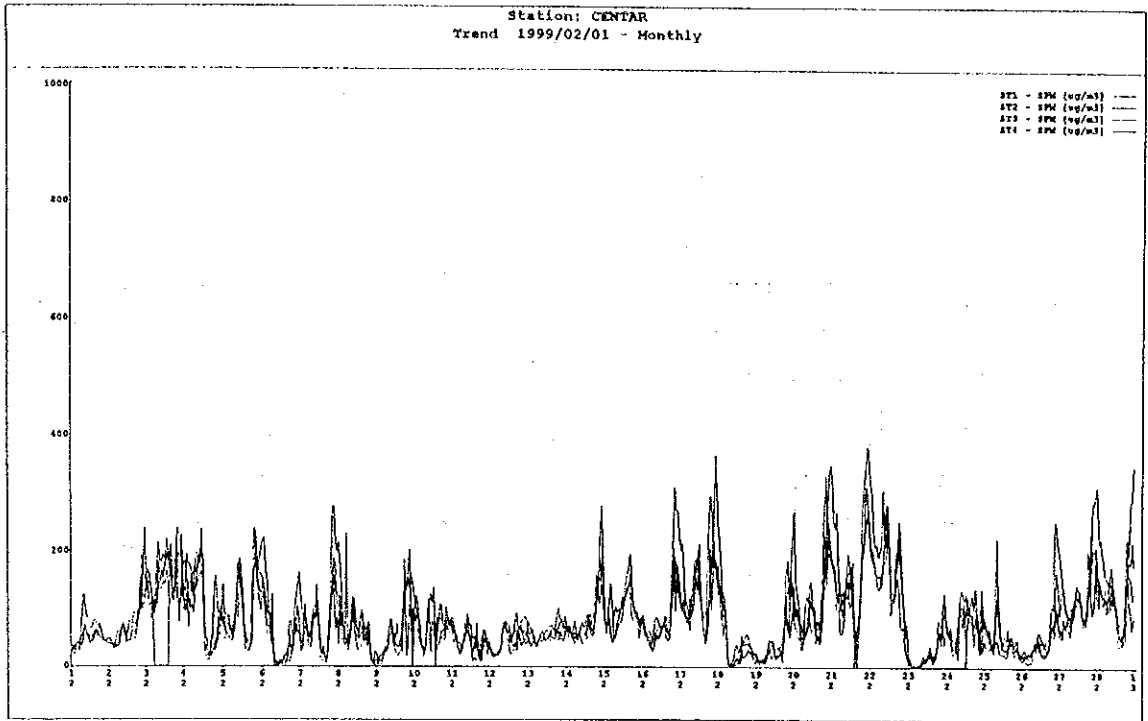
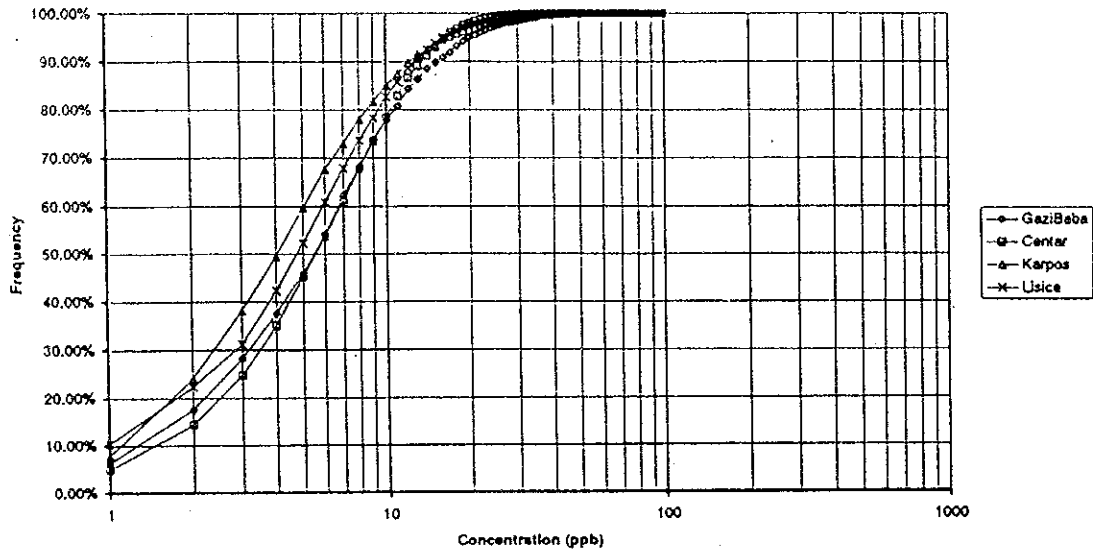


Figure D4.20(3) Fluctuation of SPM Concentration (February 1 to March 31, 1999)

Non-Heating Season  
 Frequency Curve of SO<sub>2</sub> Concentration  
 (April 1998 - September 1998)



Heating Season  
 Frequency Curve of SO<sub>2</sub> Concentration  
 (October 1998 - January 1999)

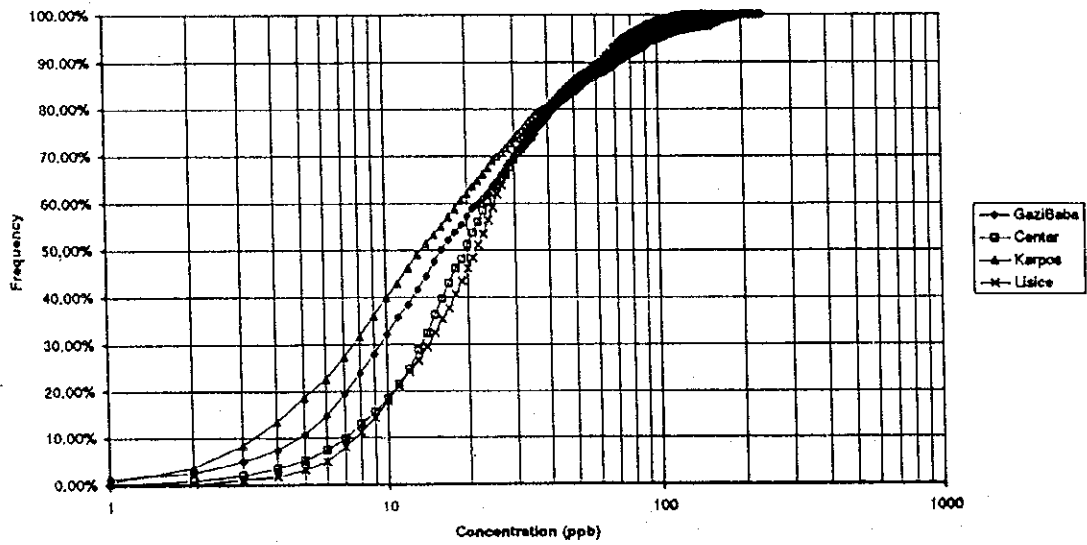
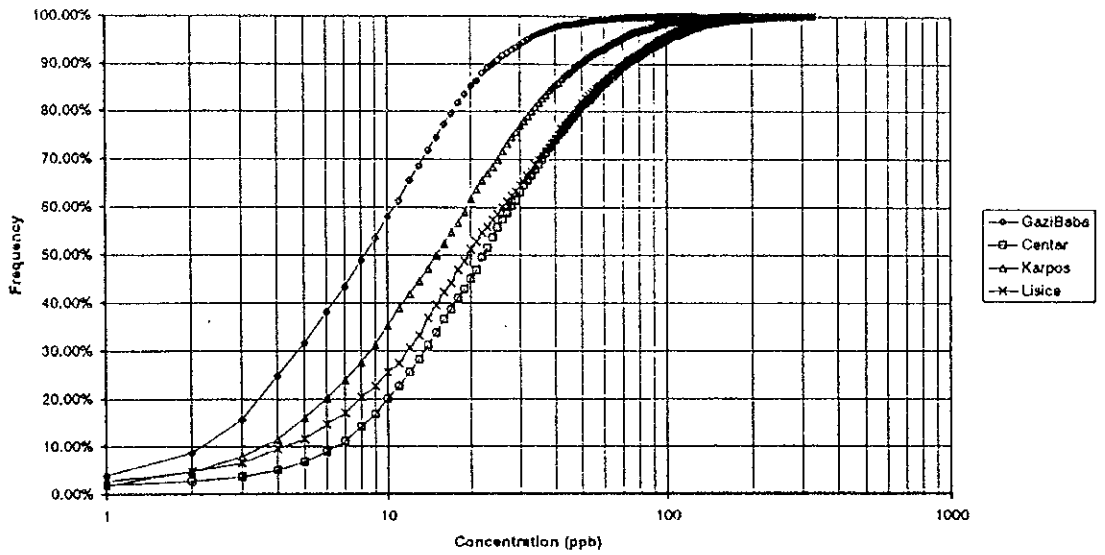


Figure D4.21 Frequency Curve of SO<sub>2</sub> Concentration

Non-Heating Season  
 Frequency Curve of NOx Concentration  
 (April 1998 - September 1998)



Heating Season  
 Frequency Curve of NOx Concentration  
 (October 1998 - January 1999)

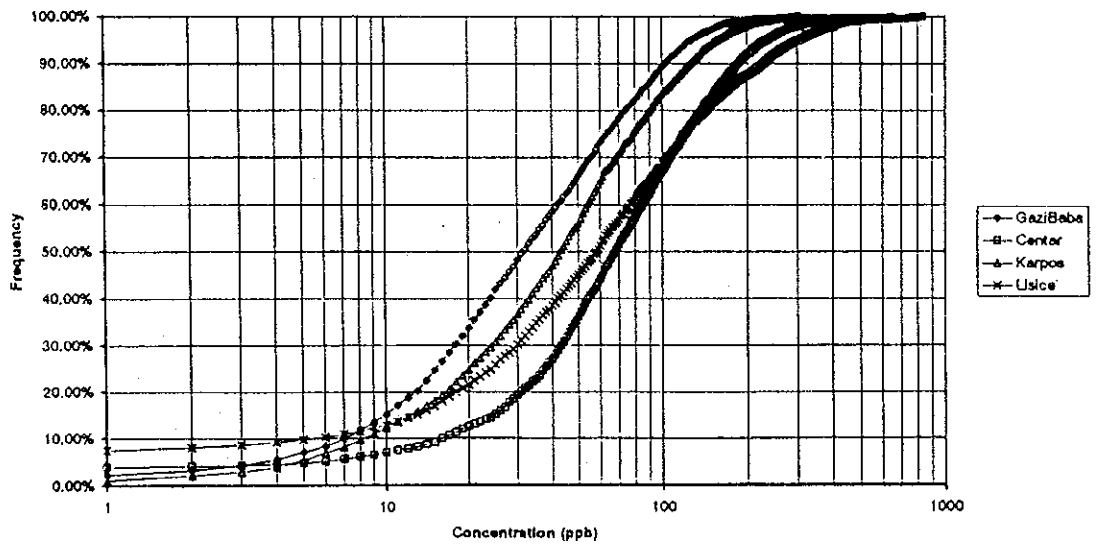
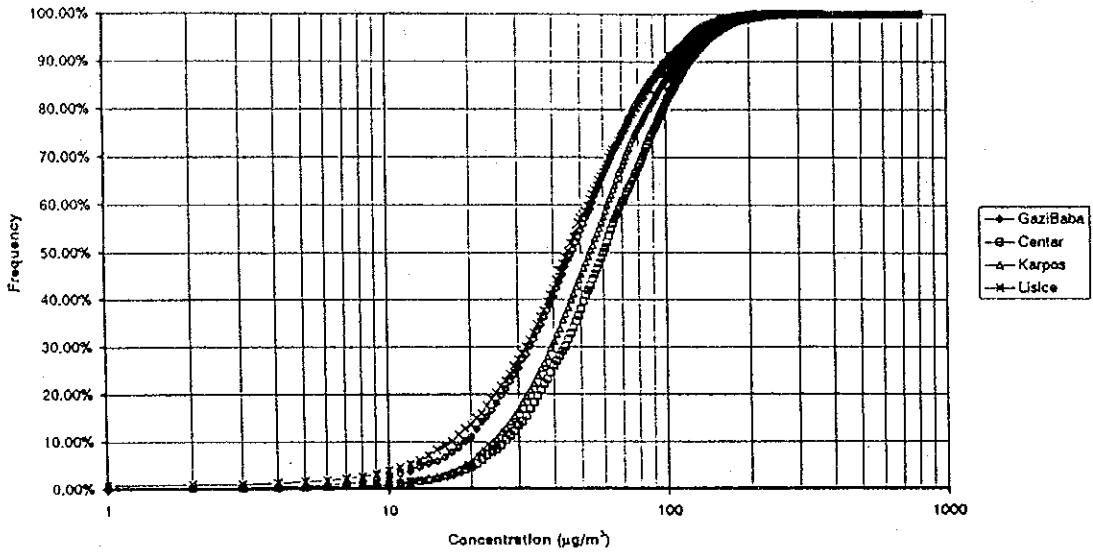


Figure D4.22 Frequency Curve of NOx Concentration

Non-Heating Season  
 Frequency Curve of SPM Concentration  
 (April 1998 - September 1998)



Heating Season  
 Frequency Curve of SPM Concentration  
 (October 1998 - January 1999)

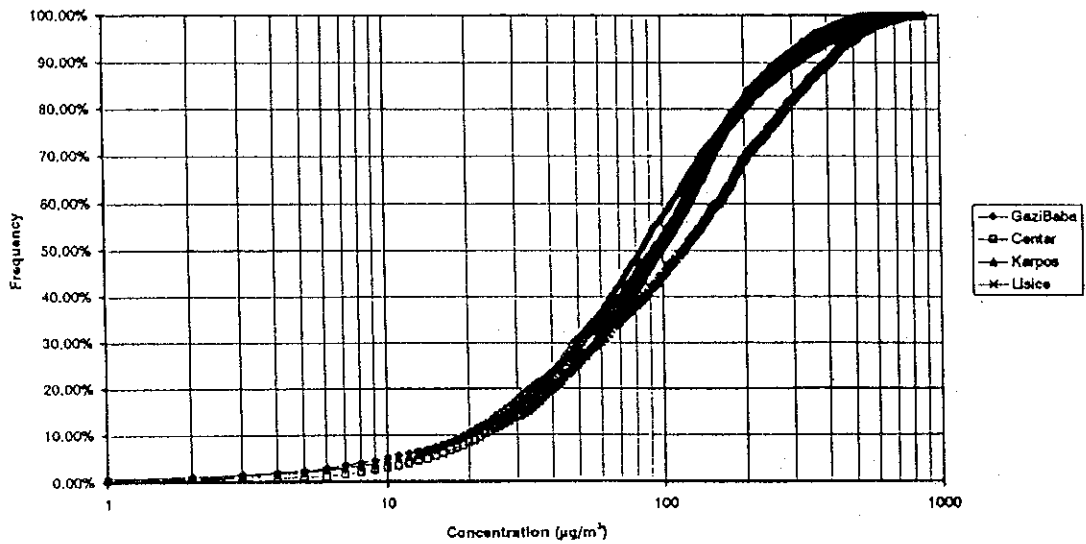


Figure D4.23 Frequency Curve of SPM Concentration

Table D4.4 Correlation Coefficient between Pollutant

Non-Heating Season  
(April 1998 - September 1998)

Heating Season  
(October 1998 - January 1999)

Gazi Baba

	SO2	NO	NO2	NOx	CO	SPM
SO2	1.000					
NO	0.409	1.000				
NO2	0.412	0.465	1.000			
NOx	0.488	0.823	0.886	1.000		
CO	0.384	0.491	0.754	0.745	1.000	
SPM	0.381	0.346	0.468	0.488	0.492	1.000

Gazi Baba

	SO2	NO	NO2	NOx	CO	SPM
SO2	1.000					
NO	0.416	1.000				
NO2	0.708	0.482	1.000			
NOx	0.482	0.690	0.583	1.000		
CO	0.340	0.491	0.718	0.552	1.000	
SPM	0.739	0.514	0.831	0.599	0.784	1.000

Centar

	SO2	NO	NO2	NOx	CO	SPM
SO2	1.000					
NO	0.382	1.000				
NO2	0.432	0.665	1.000			
NOx	0.429	0.968	0.830	1.000		
CO	0.464	0.870	0.706	0.884	1.000	
SPM	0.365	0.371	0.397	0.410	0.374	1.000

Centar

	SO2	NO	NO2	NOx	CO	SPM
SO2	1.000					
NO	0.139	1.000				
NO2	0.650	0.393	1.000			
NOx	0.206	0.817	0.439	1.000		
CO	0.339	0.793	0.582	0.686	1.000	
SPM	0.672	0.437	0.743	0.461	0.676	1.000

Karpos

	SO2	NO	NO2	NOx	SPM	CO	O3
SO2	1.000						
NO	0.183	1.000					
NO2	0.263	0.678	1.000				
NOx	0.229	0.954	0.869	1.000			
SPM	0.256	0.422	0.425	0.455	1.000		
CO	***	***	***	***	***	1.000	
O3	0.042	-0.470	-0.498	-0.520	-0.263	***	1.000

Karpos

	SO2	NO	NO2	NOx	SPM	CO	O3
SO2	1.000						
NO	0.067	1.000					
NO2	0.585	0.475	1.000				
NOx	-0.028	0.946	0.732	1.000			
SPM	0.310	0.456	0.352	0.478	1.000		
CO	0.480	0.389	0.730	0.565	0.345	1.000	
O3	0.196	-0.061	0.129	-0.001	0.065	-0.185	1.000

Lisice

	SO2	NO	NO2	NOx	SPM	CO	O3
SO2	1.000						
NO	0.345	1.000					
NO2	0.420	0.605	1.000				
NOx	0.399	0.972	0.775	1.000			
SPM	***	***	***	***	1.000		
CO	0.415	0.860	0.678	0.885	***	1.000	
O3	-0.121	-0.494	-0.541	-0.552	***	-0.473	1.000

Lisice

	SO2	NO	NO2	NOx	SPM	CO	O3
SO2	1.000						
NO	0.046	1.000					
NO2	0.499	0.364	1.000				
NOx	0.170	0.908	0.451	1.000			
SPM	0.270	0.833	0.569	0.698	1.000		
CO	0.493	0.487	0.818	0.500	0.798	1.000	
O3	0.179	0.100	0.269	0.206	0.267	0.171	1.000

Note: \*\*\* Missing Date

Table D4.5 Correlation Coefficient between Monitoring Stations

Non-Heating Season

(April 1998 - September 1998)

Heating Season

(October 1998 - January 1999)

SO<sub>2</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.571	1.000		
Karpos	0.338	0.415	1.000	
Lisice	0.544	0.626	0.504	1.000

SO<sub>2</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.804	1.000		
Karpos	0.556	0.585	1.000	
Lisice	0.606	0.655	0.358	1.000

NO

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.328	1.000		
Karpos	0.287	0.687	1.000	
Lisice	0.228	0.669	0.603	1.000

NO

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.417	1.000		
Karpos	0.377	0.722	1.000	
Lisice	0.274	0.795	0.575	1.000

NO<sub>2</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.658	1.000		
Karpos	0.546	0.732	1.000	
Lisice	0.583	0.705	0.673	1.000

NO<sub>2</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.810	1.000		
Karpos	0.802	0.816	1.000	
Lisice	0.832	0.793	0.774	1.000

NO<sub>x</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.557	1.000		
Karpos	0.460	0.715	1.000	
Lisice	0.456	0.693	0.631	1.000

NO<sub>x</sub>

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.327	1.000		
Karpos	0.409	0.593	1.000	
Lisice	0.280	0.614	0.528	1.000

CO

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.585	1.000		
Karpos	***	***	***	
Lisice	0.603	0.651	***	1.000

CO

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.658	1.000		
Karpos	0.174	0.377	1.000	
Lisice	0.558	0.833	0.348	1.000

SPM

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.618	1.000		
Karpos	0.714	0.680	1.000	
Lisice	***	***	***	***

SPM

Station	Gazi Baba	Centar	Karpos	Lisice
Gazi Baba	1.000			
Centar	0.918	1.000		
Karpos	0.936	0.934	1.000	
Lisice	0.910	0.868	0.869	1.000

O<sub>3</sub>

Station	Karpos	Lisice
Karpos	1.000	
Lisice	0.827	1.000

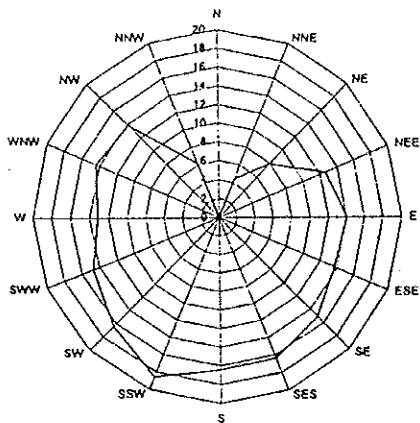
O<sub>3</sub>

Station	Karpos	Lisice
Karpos	1.000	
Lisice	0.339	1.000

Note: \*\*\* Missing Date

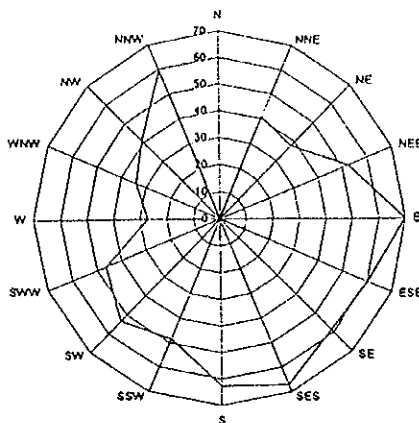
Non-Heating Season

Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Gazi Baba, April - September 1998)

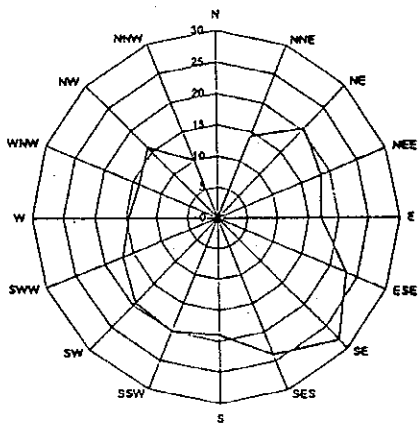


Heating Season

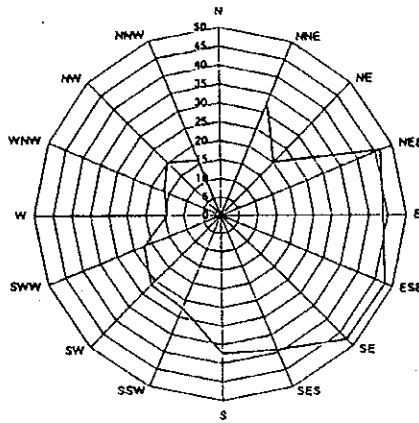
Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Gazi Baba, October 1998 - January 1999)



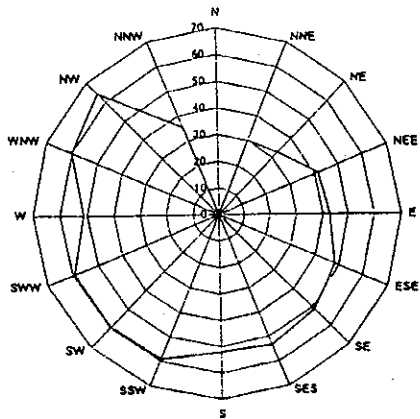
Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Gazi Baba, April - September 1998)



Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Gazi Baba, October 1998 - January 1999)



Mean Concentration of SPM by Wind Direction  
(Gazi Baba, April - September 1998)



Mean Concentration of SPM by Wind Direction  
(Gazi Baba, October 1998 - January 1999)

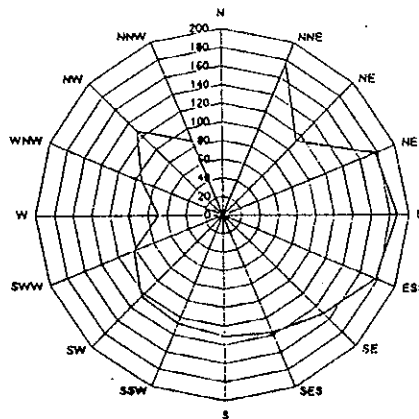
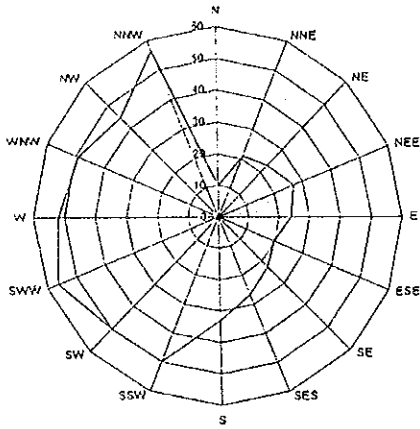


Figure D4.24(1) Mean Concentration of NO<sub>x</sub>, SO<sub>2</sub> and SPM by Wind Direction (Gazi Baba)

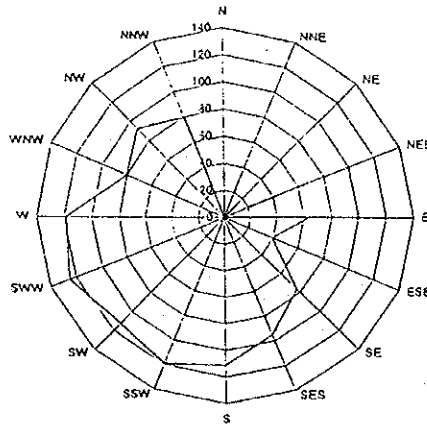
Non-Heating Season

Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Center, April - September 1998)

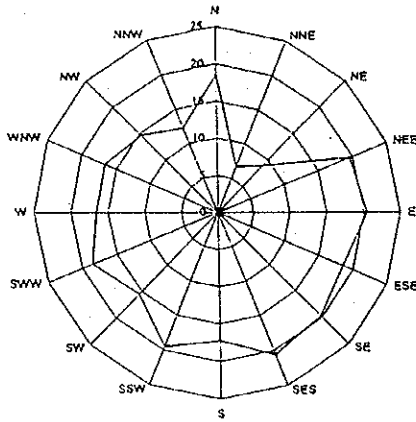


Heating Season

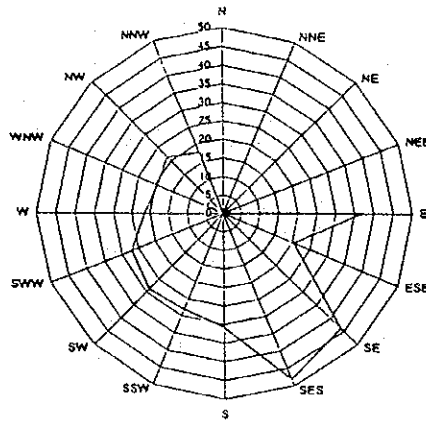
Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Center, October 1998 - January 1999)



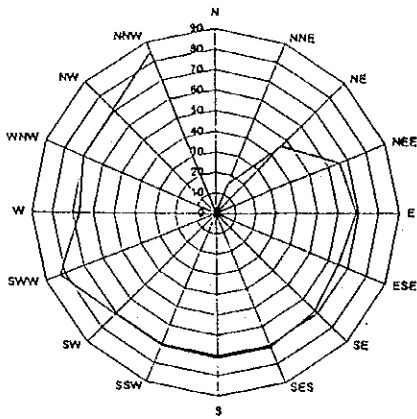
Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Center, April - September 1998)



Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Center, October 1998 - January 1999)



Mean Concentration of SPM by Wind Direction  
(Center, April - September 1998)



Mean Concentration of SPM by Wind Direction  
(Center, October 1998 - January 1999)

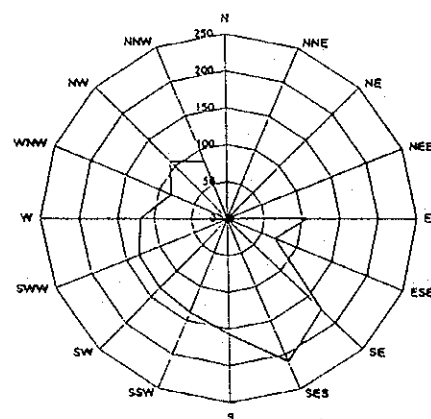
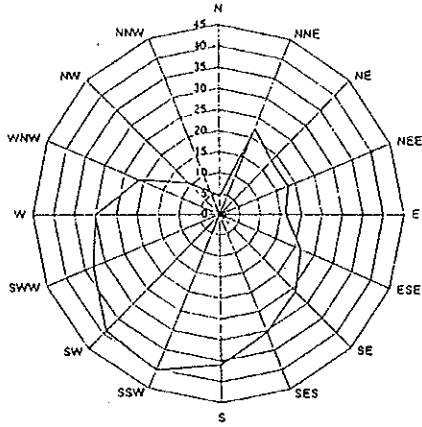


Figure D4.24(2) Mean Concentration of NO<sub>x</sub>, SO<sub>2</sub> and SPM by Wind Direction (Center)



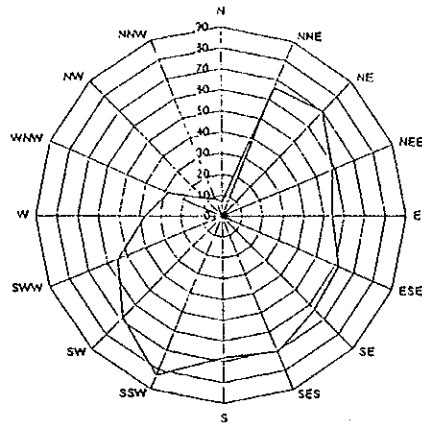
Non-Heating Season

Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Karpos, April - September 1998)

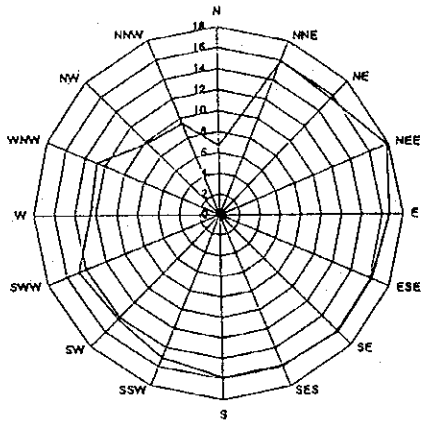


Heating Season

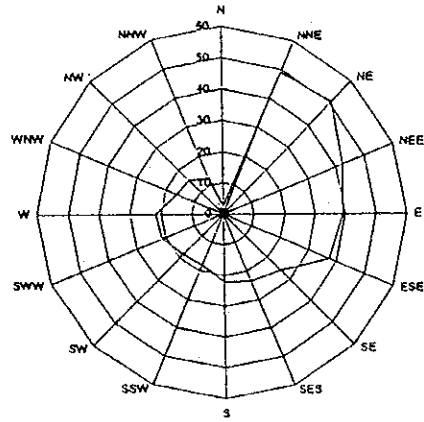
Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Karpos, October 1998 - January 1999)



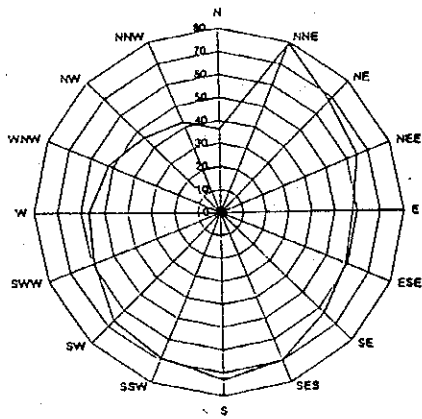
Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Karpos, April - September 1998)



Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Karpos, October 1998 - January 1999)



Mean Concentration of SPM by Wind Direction  
(Karpos, April - September 1998)



Mean Concentration of SPM by Wind Direction  
(Karpos, October 1998 - January 1999)

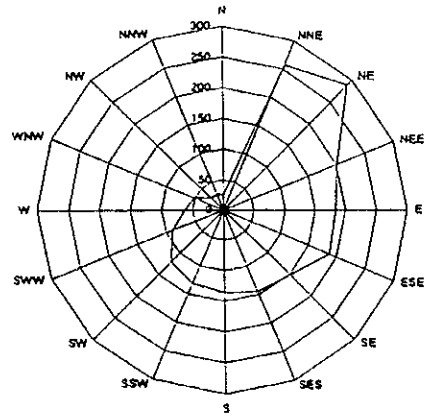
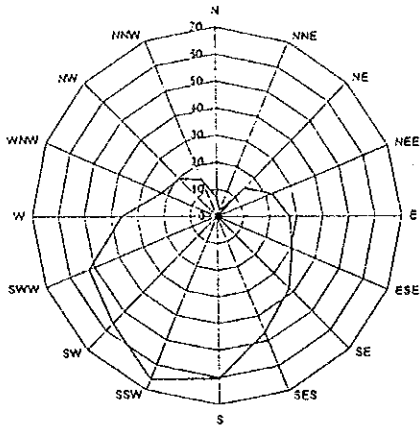


Figure D4.24(3) Mean Concentration of NO<sub>x</sub>, SO<sub>2</sub> and SPM by Wind Direction (Karpos)

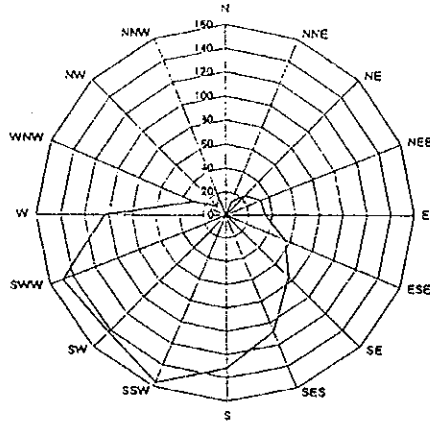
Non-Heating Season

Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Lisice, April - September 1998)

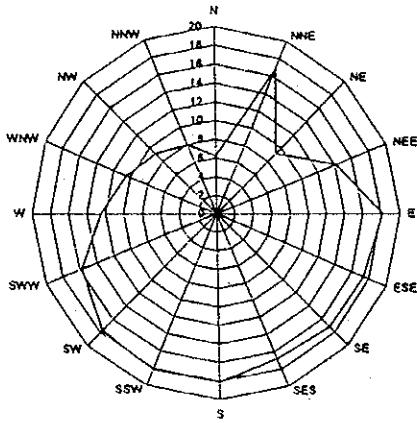


Heating Season

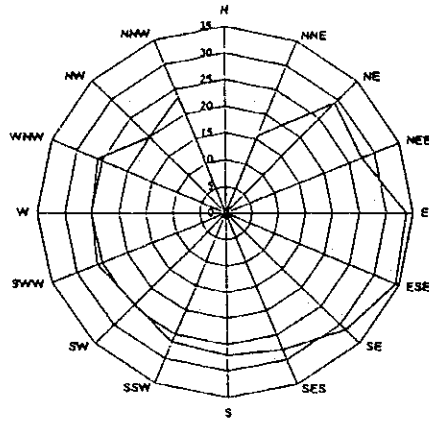
Mean Concentration of NO<sub>x</sub> by Wind Direction  
(Lisice, October 1998 - January 1999)



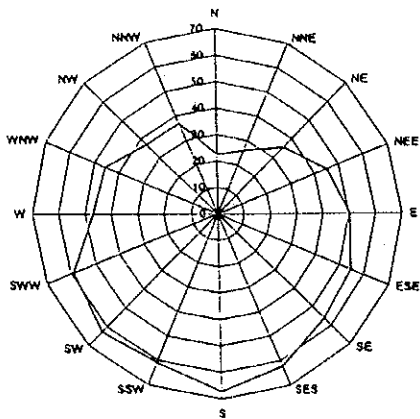
Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Lisice, April - September 1998)



Mean Concentration of SO<sub>2</sub> by Wind Direction  
(Lisice, October 1998 - January 1999)



Mean Concentration of SPM by Wind Direction  
(Lisice, April - September 1998)



Mean Concentration of SPM by Wind Direction  
(Lisice, October 1998 - January 1999)

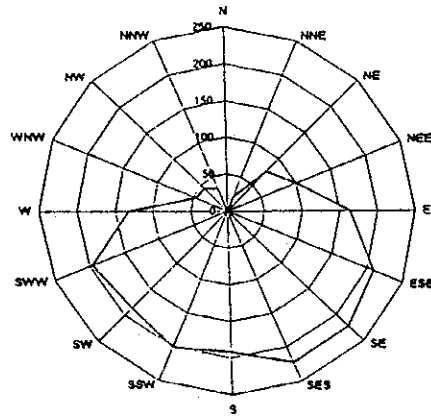


Figure D4.24(4) Mean Concentration of NO<sub>x</sub>, SO<sub>2</sub> and SPM by Wind Direction (Lisice)

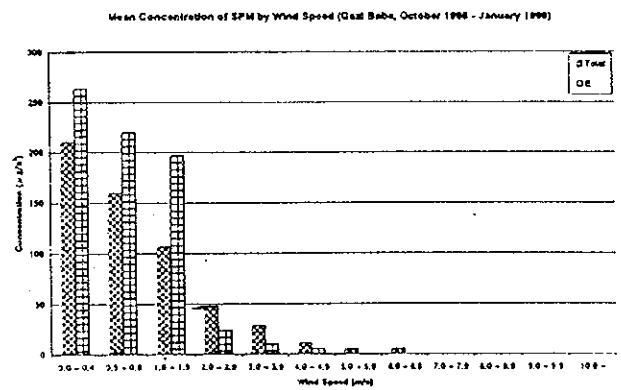
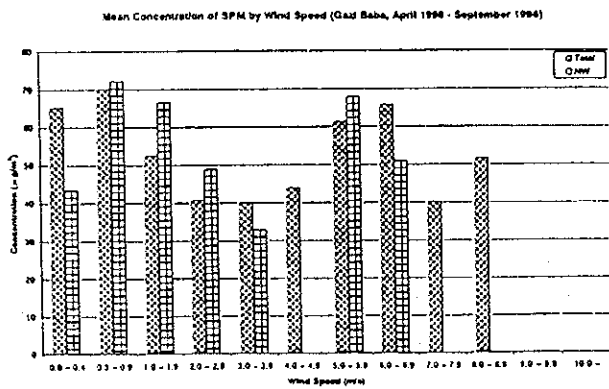
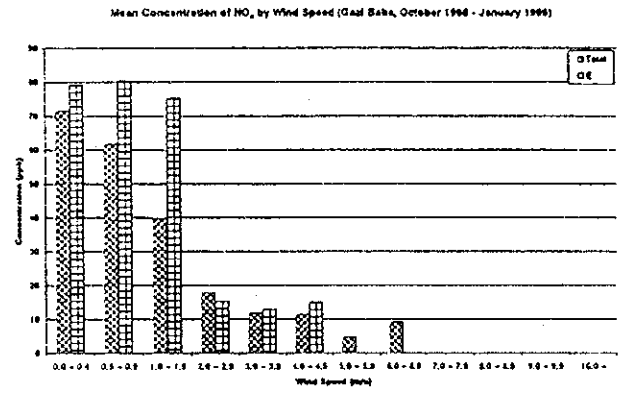
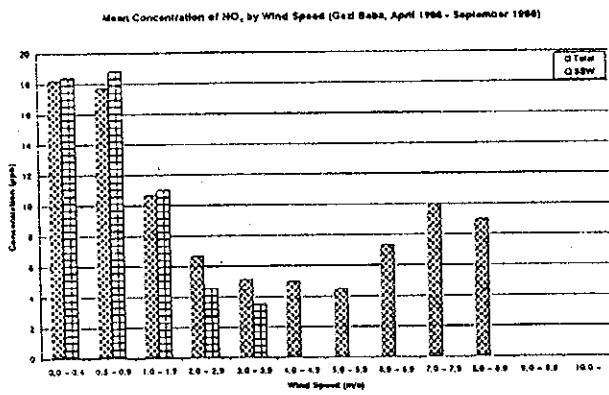
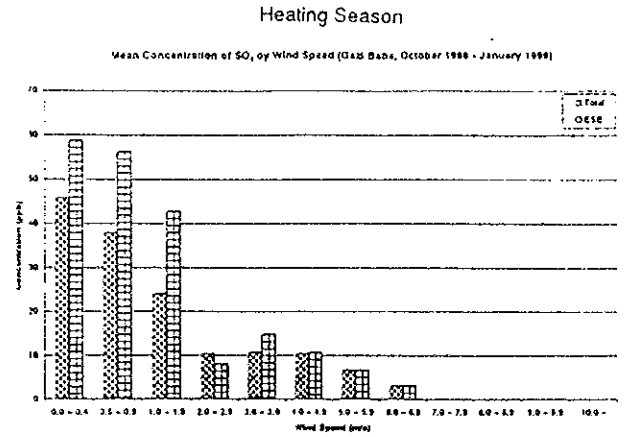
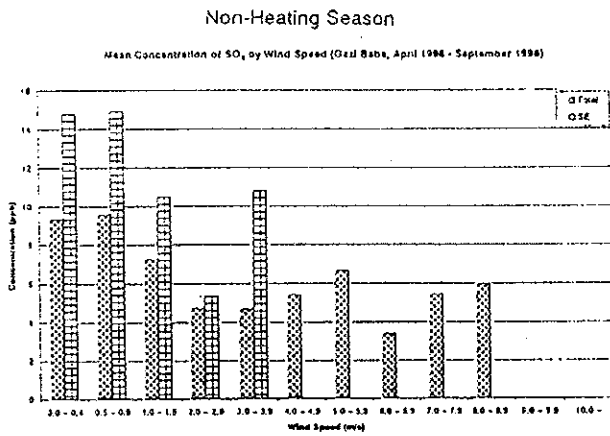
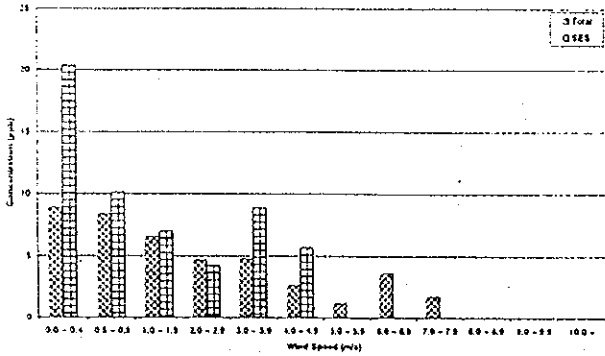


Figure D4.25(1) Mean Concentration of SO<sub>2</sub>, NO<sub>x</sub> and SPM by Wind Velocity (Gazi Baba)

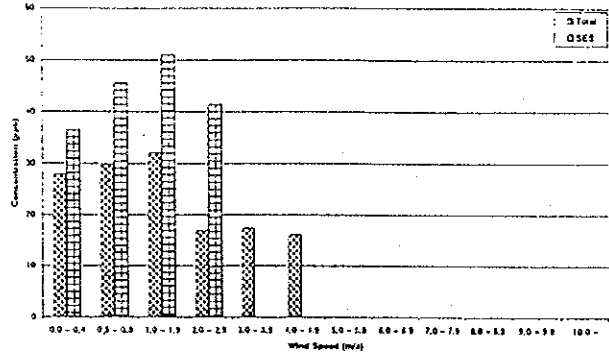
Non-Heating Season

Mean Concentration of SO<sub>2</sub> by Wind Speed (Center, April 1998 - September 1998)

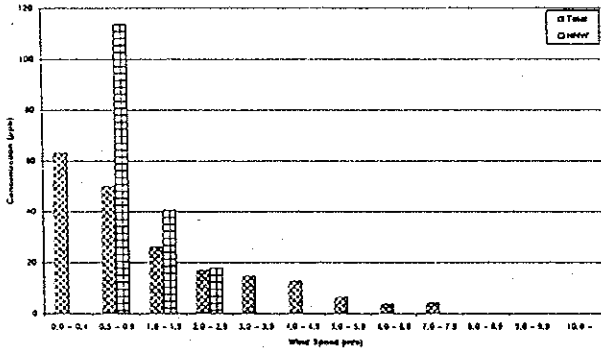


Heating Season

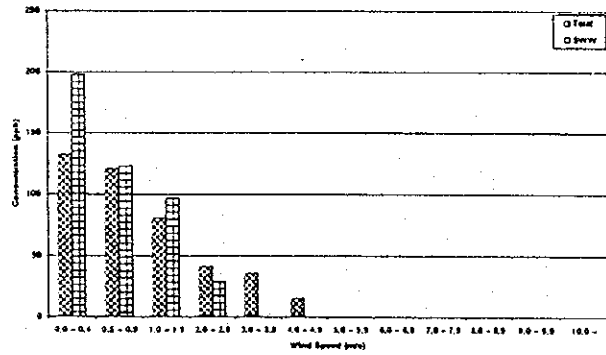
Mean Concentration of SO<sub>2</sub> by Wind Speed (Center, October 1998 - January 1999)



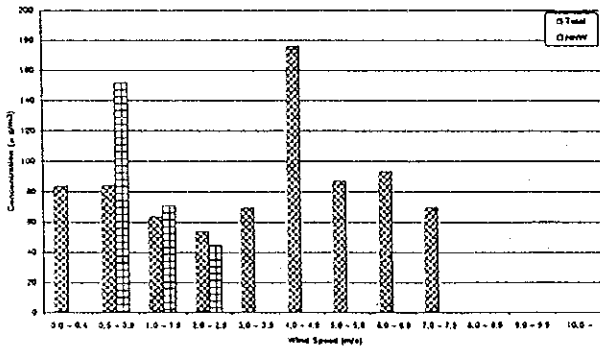
Mean Concentration of NO<sub>x</sub> by Wind Speed (Center, April 1998 - September 1998)



Mean Concentration of NO<sub>x</sub> by Wind Speed (Center, October 1998 - January 1999)



Mean Concentration of SPM by Wind Speed (Center, April 1998 - September 1998)



Mean Concentration of SPM by Wind Speed (Center, October 1998 - January 1999)

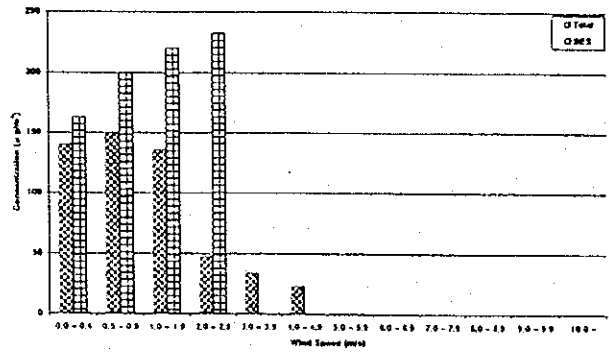


Figure D4.25(2) Mean Concentration of SO<sub>2</sub>, NO<sub>x</sub> and SPM by Wind Velocity (Center)

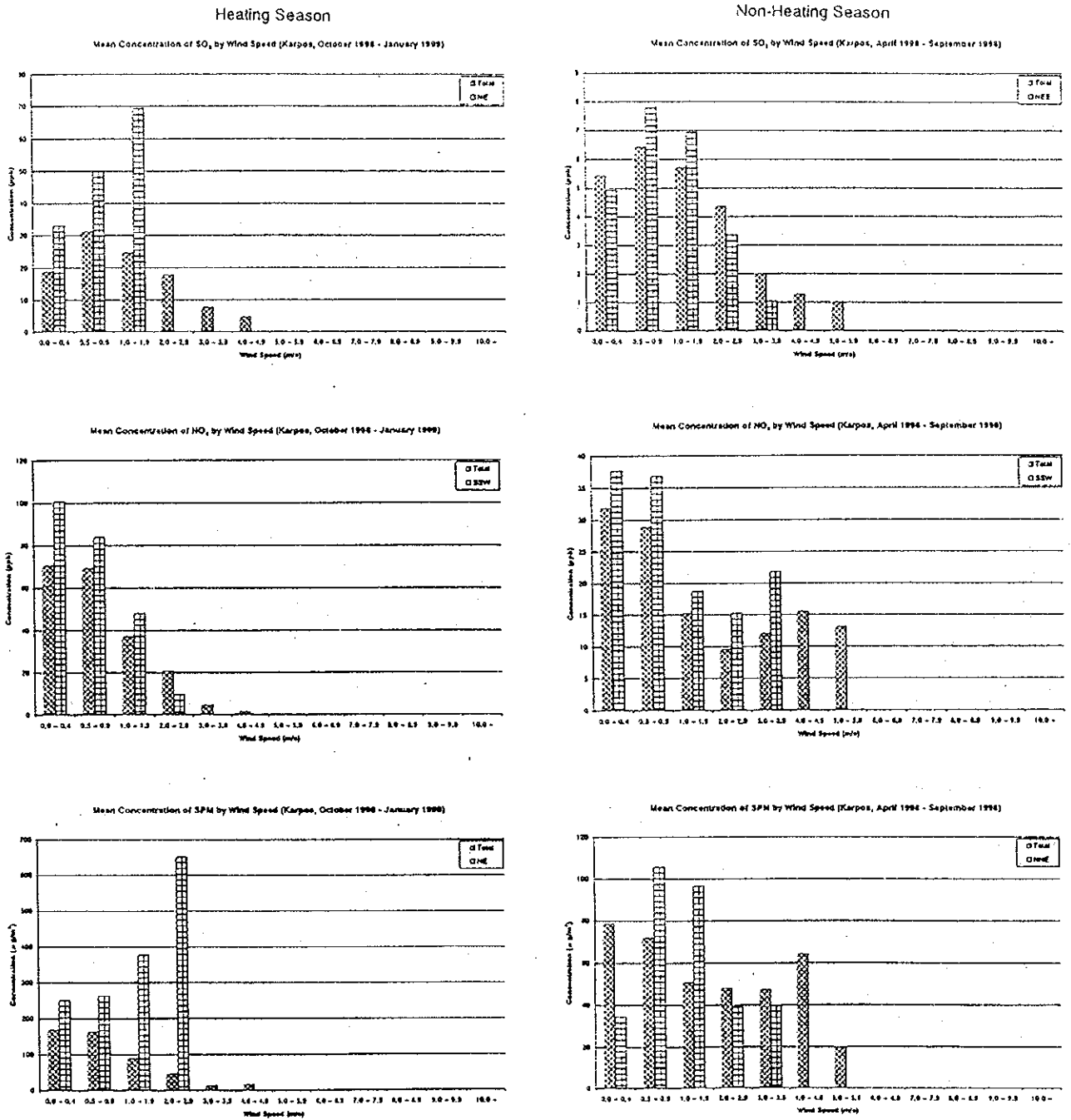
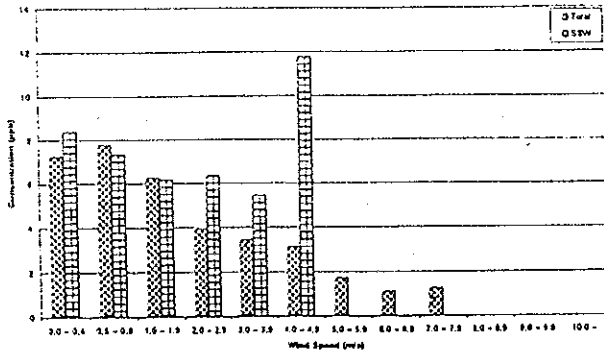


Figure D4.25(3) Mean Concentration of SO<sub>2</sub>, NO<sub>x</sub> and SPM by Wind Velocity (Karpos)

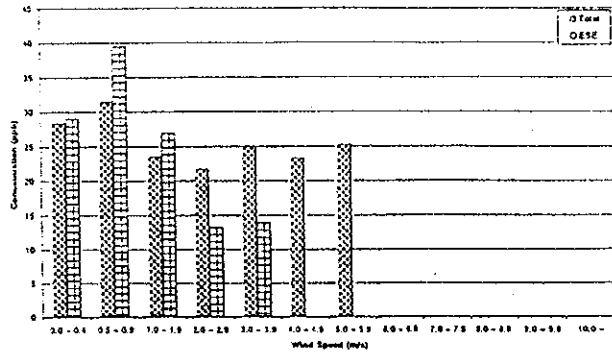
Non-Heating Season

Mean Concentration of SO<sub>2</sub> by Wind Speed (Lisice, April 1996 - September 1996)

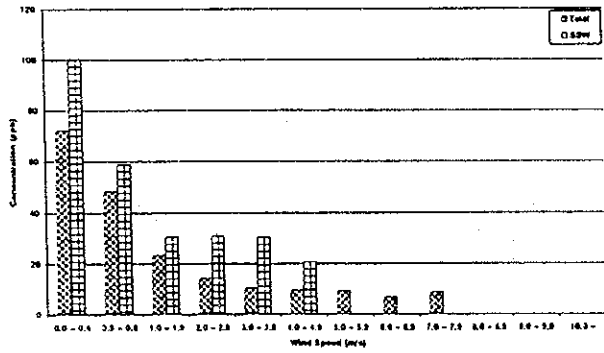


Heating Season

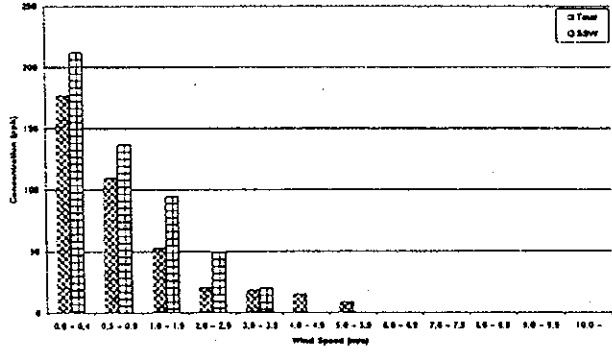
Mean Concentration of SO<sub>2</sub> by Wind Speed (Lisice, October 1996 - January 1997)



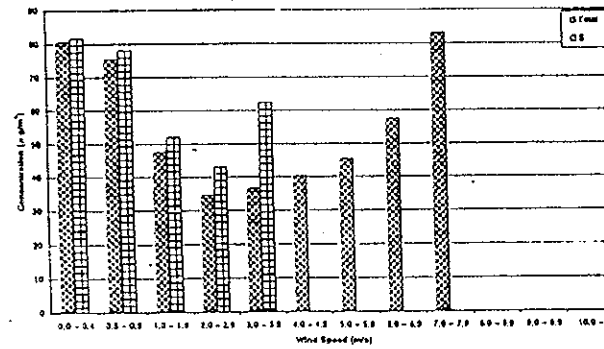
Mean Concentration of NO<sub>x</sub> by Wind Speed (Lisice, April 1996 - September 1996)



Mean Concentration of NO<sub>x</sub> by Wind Speed (Lisice, October 1996 - January 1997)



Mean Concentration of SPM by Wind Speed (Lisice, April 1996 - September 1996)



Mean Concentration of SPM by Wind Speed (Lisice, October 1996 - January 1997)

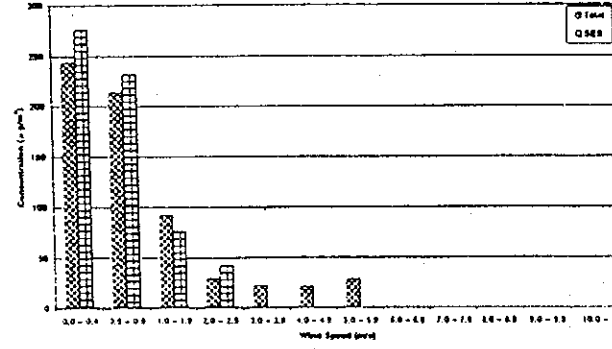


Figure D4.25(4) Mean Concentration of SO<sub>2</sub>, NO<sub>x</sub> and SPM by Wind Velocity (Lisice)

Table D4.6(1) SPM Concentration Determined by High Volume Sampler

Monitoring Station Month	PM <sub>10</sub> total	PM <sub>10</sub> , <2 μm		PM <sub>10</sub> , >2 μm <10 μm		PM <sub>10</sub> , >10 μm	
	μg/m <sup>3</sup>	μg/m <sup>3</sup>	%	μg/m <sup>3</sup>	%	μg/m <sup>3</sup>	%
April I							
Gaza Baba	42.44	40.61	95.61	1.22	2.87	0.61	1.52
Centar	48.01	45.73	94.85	1.52	3.17	0.76	1.98
Karpos	38.31	37.25	97.24	0.76	1.98	0.30	0.78
Lisice	40.15	38.93	96.96	0.61	1.52	0.61	1.52
April II							
Gazi Baba	29.93	29.01	97.18	0.31	0.78	0.61	2.04
Centar	34.30	33.54	97.79	0.46	1.34	0.30	0.87
Karpos	37.10	36.64	98.76	0.46	1.24	0.0	0.0
Lisice	33.23	32.62	98.13	0.61	1.87	0.0	0.0
May I							
Gaza Baba	21.37	19.39	90.73	1.22	5.71	0.76	3.56
Centar	23.78	22.10	92.94	1.07	4.50	0.61	2.56
Karpos	24.27	22.44	92.46	1.22	5.03	0.61	2.51
Lisice	25.46	23.78	93.41	1.07	4.20	0.61	2.39
May II							
Gazi Baba	28.56	27.18	95.17	0.92	3.22	0.46	1.61
Centar	34.75	33.68	96.92	0.64	1.84	0.43	1.24
Karpos	30.37	29.46	97.01	0.76	2.50	0.15	0.49
Lisice	37.04	35.82	96.71	1.07	2.89	0.15	0.40
June I							
Gaza Baba	44.28	42.14	95.17	1.68	3.79	0.46	1.04
Centar	45.12	42.53	94.26	1.68	3.72	0.91	2.02
Karpos	41.98	40.00	95.29	1.68	4.00	0.30	0.71
Lisice	42.83	40.24	93.96	1.98	4.62	0.61	1.42
June II							
Gazi Baba	26.11	24.50	92.88	1.70	6.51	0.16	0.61
Centar	43.75	41.62	95.13	1.37	3.13	0.76	1.74
Karpos	42.44	39.85	93.89	2.29	5.40	0.30	0.71
Lisice	38.41	36.43	94.85	1.83	4.76	0.15	0.39
July I							
Gaza Baba	26.53	26.37	99.40	0.16	0.60	0.0	0.0
Centar	38.32	35.88	93.63	2.29	5.98	0.15	0.39
Karpos	23.51	22.44	95.45	1.07	4.55	0.0	0.0
Lisice	27.63	25.65	92.88	1.98	7.12	0.0	0.0
July II							
Gazi Baba	39.23	37.71	96.13	1.37	3.49	0.15	0.38
Centar	48.53	46.53	95.88	2.00	4.12	0.0	0.0
Karpos	43.57	42.81	98.26	0.76	1.74	0.0	0.0
Lisice	44.09	41.17	93.38	2.61	5.92	0.31	0.70
August I							
Gaza Baba	18.62	17.40	93.45	1.22	6.55	0.0	0.0
Centar	34.91	32.20	92.24	2.37	6.79	0.34	0.97
Karpos	39.99	38.01	95.05	1.83	4.58	0.15	0.37
Lisice	58.77	55.04	93.65	3.36	5.72	0.37	0.63
August II							
Gazi Baba	35.89	34.64	96.52	1.25	3.48	0.0	0.0
Centar	81.28	74.88	92.12	5.42	6.67	0.98	1.21
Karpos	44.42	43.05	96.91	1.22	2.75	0.15	0.34
Lisice	49.12	44.99	91.59	3.93	8.00	0.20	0.41

Table D4.6(2) SPM Concentration Determined by High Volume Sampler

Monitoring Station	PM, total	PM, <2 $\mu\text{m}$		PM, >2 $\mu\text{m}$ <10 $\mu\text{m}$		PM, >10 $\mu\text{m}$	
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	%	$\mu\text{g}/\text{m}^3$	%	$\mu\text{g}/\text{m}^3$	%
January 25/26, 1999							
Gaza Baba	94.41	87.75	92.95	5.75	6.09	0.91	0.96
Centar	215.62	206.47	97.76	2.68	1.24	6.47	3.00
Karpos	197.96	186.93	94.43	3.94	1.99	7.09	3.58
Lisice	127.79	121.49	95.07	4.20	3.29	2.10	1.64
January 26/27, 1999							
Gazi Baba	-	-	-	-	-	-	-
Centar	95.44	78.72	82.48	8.05	8.44	8.66	9.08
Karpos	140.70	134.21	95.75	3.72	2.66	2.77	1.55
Lisice	62.74	58.01	92.24	2.90	1.76	1.83	3.00
February 24/25, 1999							
Gaza Baba	-	-	-	-	-	-	-
Centar	59.56	56.40	94.69	2.66	4.47	0.50	0.84
Karpos	73.74	70.20	95.20	3.35	4.54	0.19	0.26
Lisice	91.09	83.96	92.17	5.17	5.68	1.96	2.15
March 29/30, 1999							
Gaza Baba							
Centar	27.47	26.97	98.18	0.33	1.20	0.17	0.62
Karpos	27.87	26.96	96.73	0.73	2.62	0.18	0.65
Lisice	36.20	34.89	96.39	1.12	3.09	0.19	0.52



<Outline of Andersen Sampler>

As shown in Fig. , the Andersen sampler is stack of eight cylindrical stages. The individual stages have 800, 400 and 200 jet nozzles in them under which a collection disc is provided.

As sample air of a constant flow rate (1 cfm = 28.3 liters/min) is suctioned through the sample air inlet in the upper part of the Andersen sampler model KA-200, the velocity of the jet current in each stage increases than lower stage is.

Generally, the impactor inertia parameter is defined by the proportion among the particle sizes of SPM, sectional area of nozzle and SPM flow velocity. According to an analytical study of jet collision on particles by Ranz, Wong, et al., the relationship mentioned in the following formula establishes:

The grain size range shown in Fig. 9.35 was obtained with the Andersen sampler when the particle sizes of aerosols collected in each stage were calculated using equations.

This grain size distribution was confirmed to extremely well match the results of experiments conducted with reference particles whose particle sizes were known.

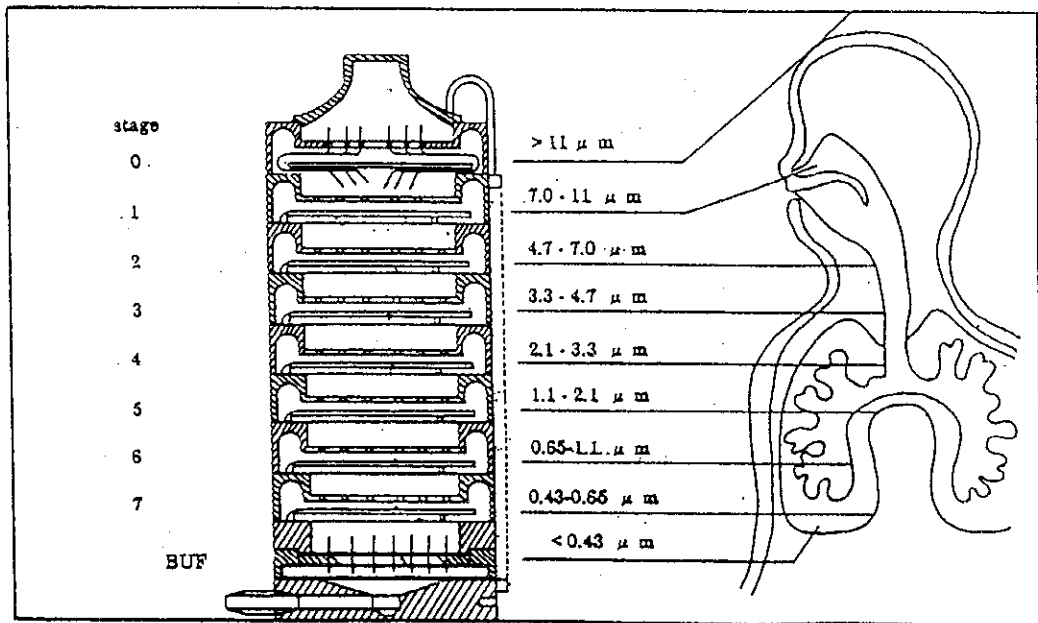


Figure D4.26 Structure and Grain Size Distribution of Andersen Air Sampler

Theory (Ranz and Wong)

$$\Psi = \frac{C \cdot \rho \cdot V_c \cdot d_p^2}{18 \mu D_c} \dots\dots\dots(1)$$

$\Psi$  : Dimensionless Parameter of Inertia for Impacting ( - )

(Case of Impact Effect 50 %  $\Psi_{50} = 0.14$ )

C : Slip Correction Coefficient of

( $C = 1.00 + 0.16 \times 10^{-4} / D_p$ )

$d_p$  : Particle Size of SPM ( cm )

$\mu$  : Viscosity of Air ( $1.84 \times 10^{-4}$  g / cm · sec )

$\rho$  : Density of SPM ( g / cm<sup>3</sup> )

$V_c$  : Through to Jet Nozzle of Air Velocity ( cm / sec )

$D_c$  : Diameter of Jet Nozzle ( cm )

$$d_{p_{50}} = \sqrt{\frac{18 \mu D_c \Psi_{50}}{C V_c}} \dots\dots\dots(2)$$

If ; Suction Volume of Sample Air : Q ( cm<sup>3</sup> / min ), Number of Jet Nozzle on Collection Stage : N

$$V_c = \frac{Q}{60 \pi ( D_c / 2 )^2 N} \dots\dots\dots(3)$$

Expression (2) Substitute to Expression (3)

$$\begin{aligned} d_{p_{50}} &= \sqrt{\frac{18 \mu \Psi_{50} N \pi \times 60 D_c^3}{4 C Q}} \\ &= \sqrt{7.71 \times 10^{-7} \times \frac{N D_c^3}{C}} \dots\dots\dots(4) \end{aligned}$$

However : Q = 28,317 cm<sup>3</sup> / min  $\approx$  28.3 L / min

And moreover; Critical Particle Size of SPM =  $\sqrt{d_p^2 / \rho}$

<SPM Sampling method>

① PM 2.5 : Except of Collection Stage No.5, 6, 7  
Suction Volume of Sample Air : 20.0 ( L /min )

② PM 5.0 : Except of Collection Stage No.3, 4, 5, 6, 7  
Suction Volume of Sample Air : 25.0 ( L /min )

③ PM 10

< Cease 1 >

PM 10 : Except of Collection Stage No.1, 2, 3, 4, 5, 6, 7  
Suction Volume of Sample Air : 34.2 ( L /min )

< Cease 2 >

PM 10 : Except of Collection Stage No.2, 3, 4, 5, 6, 7  
Suction Volume of Sample Air : 13.8 ( L /min )

Make use of only back up filter : 47 mm  $\phi$  quartz fiber filter (for heavy metal analysis)  
47 mm  $\phi$  teflon fiber filter (for carbon analysis).