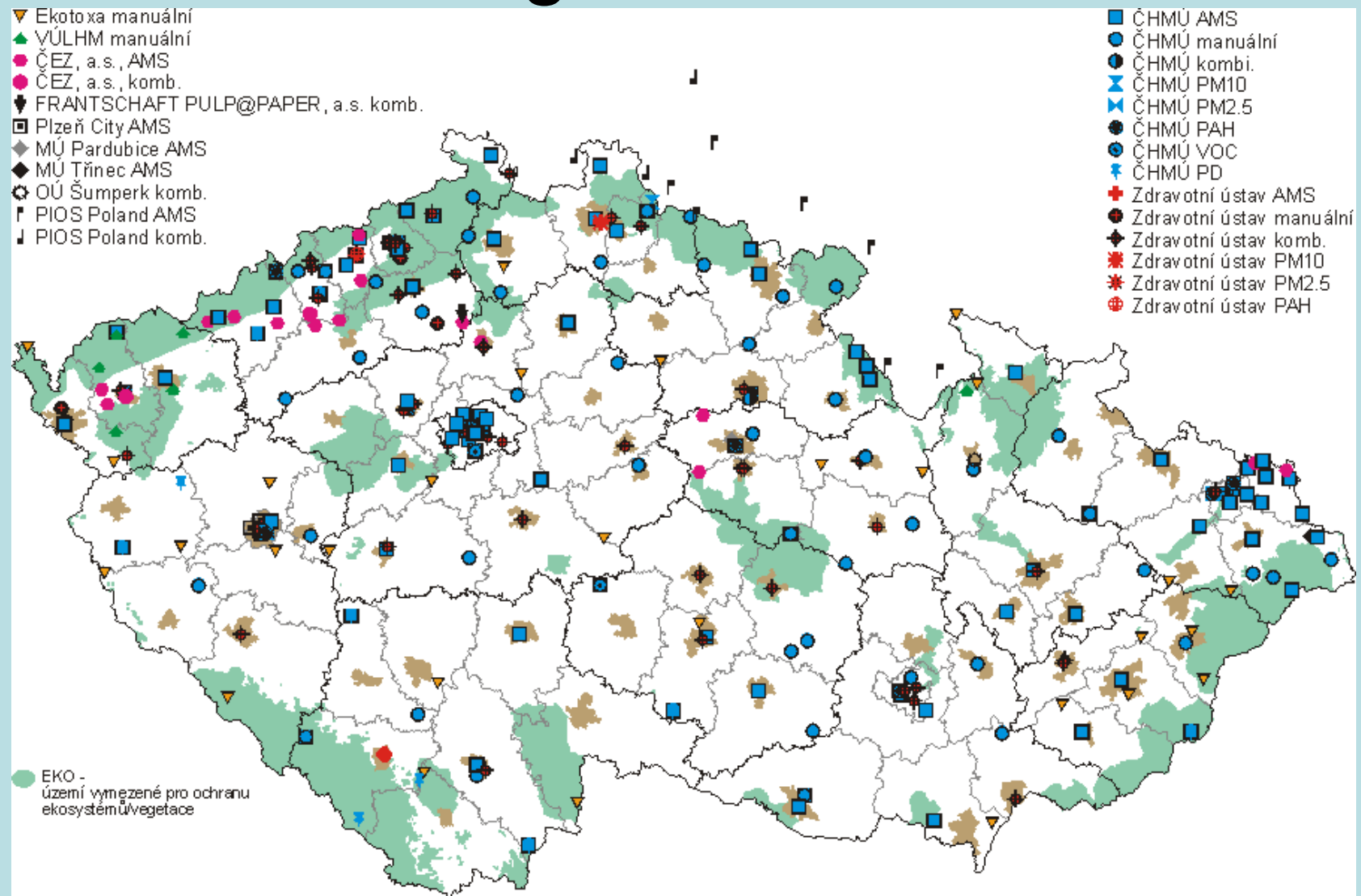


RAQ 6.3

Effort done by CHMI

- CHMI air quality database was inspected to find PM10 and ozone episodes – period 1999-2004
- Proposed period 2003 – 2004 suitable, significant PM10 and O₃ episodes occurred in CZ
- PM10: end of February – beginning of March 2003
- Ozone: 12.-14. Aug 2003

Monitoring network in CZ



Významné staniční sítě sledování kvality venkovního ovzduší, stav 2004

PM10Z-24HK	Přehled stanic s nejvyššími 24hodinovými koncentracemi / Stations with maximum 24-hour concentrations				
	Ochrana zdraví / Health protection				
Rok/Year: 2003	Látka / Pollutant: PM10	Jednotka / Unit: µg/m ³	LV: 50.0	MT: 10.0	TE: 35

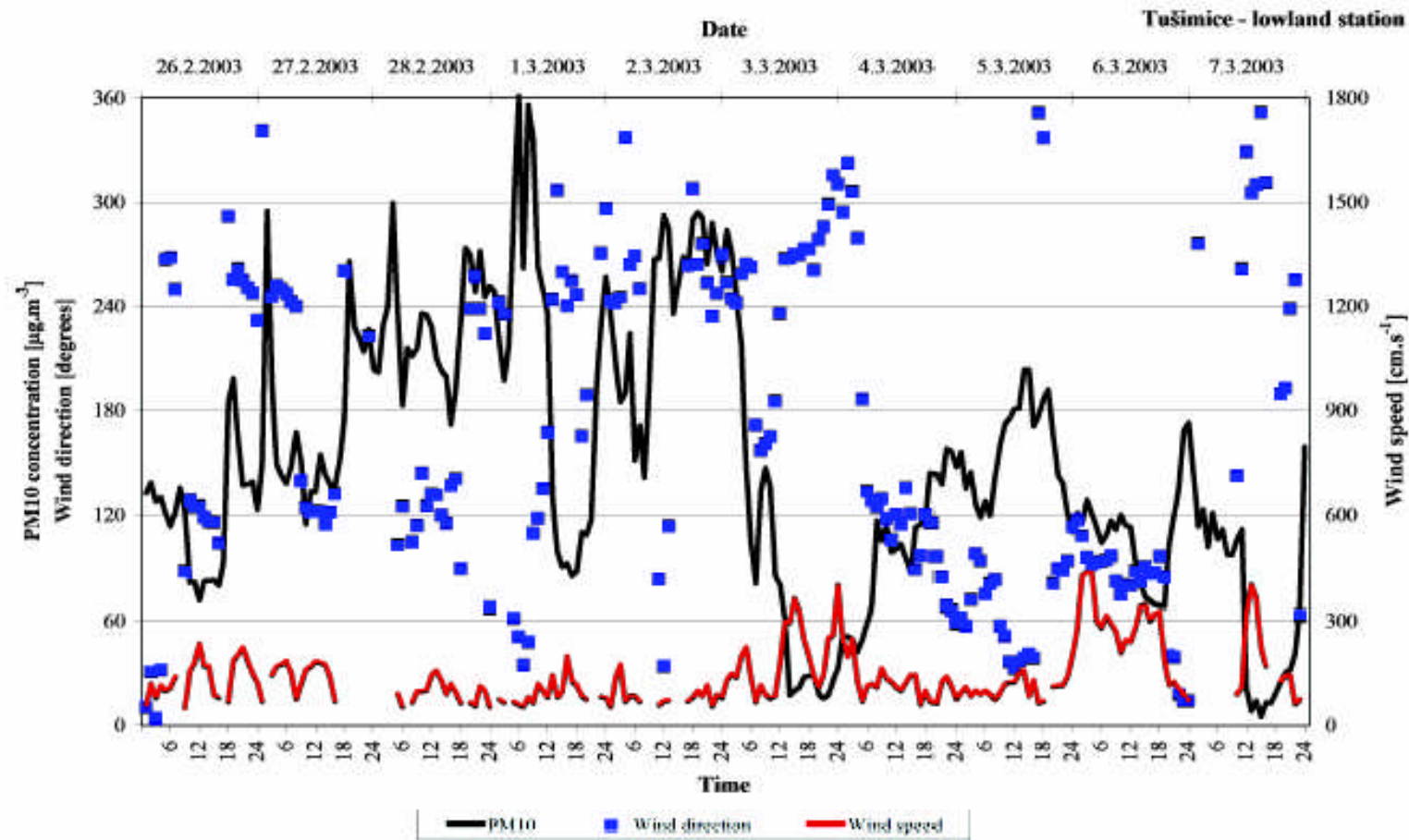
Počet stanic, kde došlo k překročení limitu / No of stations with exceedance of limit: 55
z celkového počtu stanic / of the total number of stations: 92 to je procent / in percent: 59.8

Por. No.	Lokalita Locality	KMPL	ID	Okres District	Vlastník Owner	MP	Metoda měření Meas. method	Klasifikace Classification	pLV	pLV +MT	24h konc. 24h conc.
1	Havířov	THARA	1068	Karviná	ČHMÚ	AMS	RADIO	B/U/R	209	162	238.6
2	Český Těšín	TCTNA	1066	Karviná	ČHMÚ	AMS	RADIO	B/U/R	214	154	218.9
3	Kladno-Švermov	SKLSA	1455	Kladno	ČHMÚ	AMS	RADIO	B/U/R	197	141	318.7
4	Bohumín	TBOMA	1065	Karviná	ČHMÚ	AMS	RADIO	B/S/R/I	178	127	295.0
5	Pha5-Smíchov	ASMA	1459	Praha 5	ČHMÚ	AMS	RADIO	T/U/R/C	175	127	273.7
6	Věřňovice	TVERA	1072	Karviná	ČHMÚ	AMS	RADIO	B/R/AI	169	123	418.7
7	Ostrava - Přívoz	TOPRA	1410	Ostrava-město	ČHMÚ	AMS	RADIO	I/U/I/R	166	120	236.1
8	Vsechlapy	UVSEA	1009	Teplice	ČHMÚ	AMS	RADIO	B/R/AI	156	114	399.8
9	Ostrava-Fifejdy	TOFFA	1061	Ostrava-město	ČHMÚ	AMS	RADIO	B/U/R	158	106	299.5
10	Karviná	TKARA	1069	Karviná	ČHMÚ	AMS	RADIO	B/U/R	157	106	330.9
11	Orlová	TORVA	1070	Karviná	ČHMÚ	AMS	RADIO	B/U/R	139	100	287.1
12	Frydek-Místek	TFMIA	1067	Frydek-Místek	ČHMÚ	AMS	RADIO	B/S/R	135	97	214.5
13	Ostrava-Zábřeh	TOZRA	1064	Ostrava-město	ČHMÚ	AMS	RADIO	B/U/R	144	92	250.8
14	Ústí n.L.-město	UUNMA	1012	Ústí nad Labem	ČHMÚ	AMS	RADIO	B/U/R/C	130	92	279.2
15	Děčín	UDCNA	1014	Děčín	ČHMÚ	AMS	RADIO	B/U/R	127	90	265.9
16	Ostrava-Radvanice	TORAA	1063	Ostrava-město	ČHMÚ	AMS	RADIO	B/S/R	129	88	409.3
17	Trinec-Kosmos	TTRROA	1188	Frydek-Místek	ČHMÚ	AMS	RADIO	B/U/R	126	78	257.6
18	Přerov	MPRRA	1076	Přerov	ČHMÚ	AMS	RADIO	B/U/CR	110	76	161.5
19	Olomouc	MOLOA	1075	Olomouc	ČHMÚ	AMS	RADIO	B/U/R	137	75	210.0
20	Studenka	TSTDA	1074	Nový Jičín	ČHMÚ	AMS	RADIO	B/R/A	120	74	277.9
21	Ostrava-Přívoz HS	TOPIA	1467	Ostrava-město	HS	AMS	RADIO	I/U/I/R	106	73	213.4
22	Teplice	UTEPA	1008	Teplice	ČHMÚ	AMS	RADIO	B/U/R	106	72	353.9
23	Pha1-nám. Republiky	AREPA	771	Praha 1	ČHMÚ	AMS	RADIO	T/U/J/C	104	69	242.8
24	Pha2-Riegrovy sady	ARIEA	772	Praha 2	ČHMÚ	AMS	RADIO	B/U/INR	103	69	241.2
25	Tušíme	UTUSA	1002	Chomutov	ČHMÚ	AMS	RADIO	B/R/AI	118	65	244.5
26	Mladá Boleslav	SMBOA	1437	Mladá Boleslav	ČHMÚ	AMS	RADIO	B/U/R	93	65	240.0
27	Sokolov	KSOKA	1032	Sokolov	ČHMÚ	AMS	RADIO	B/S/R	86	64	219.6
28	Pha10-Počernická	APOCA	804	Praha 10	ČHMÚ	AMS	RADIO	T/U/R	109	63	142.6
29	Chomutov	UCHVA	1001	Chomutov	ČHMÚ	AMS	RADIO	B/U/R	89	63	213.5
30	Ostrava-Por. IV.obvod	TOPBA	1062	Ostrava-město	ČHMÚ	AMS	RADIO	T/U/R	86	63	225.2
31	Pha4-Braník	ABRAA	773	Praha 4	ČHMÚ	AMS	RADIO	T/U/R	108	62	139.2
32	Pha8-Kobylisy	AKOBA	779	Praha 8	ČHMÚ	AMS	RADIO	B/S/R	102	62	213.3
33	Pha5-Mlýnská	AMLYA	775	Praha 5	ČHMÚ	AMS	RADIO	T/U/R/C	88	62	224.3
34	Pha10-Vršovice	AVRSA	805	Praha 10	ČHMÚ	AMS	RADIO	T/U/R	96	60	198.3
35	Opava-Kateřinky	TOVKA	1186	Opava	ČHMÚ	AMS	RADIO	B/U/R	90	60	351.8
36	Litoměřice-OHS	ULIHT	617	Litoměřice	HS	TK	RADIO	B/U/R/C	85	59	241.0
37	Pha6-Santínka	ASANA	776	Praha 6	ČHMÚ	AMS	RADIO	B/U/R	83	58	226.7
38	Karviná-OHS	TKAOT	517	Karviná	HS	TK	RADIO	T/U/R	80	58	292.0
39	Pha9-Vysočany	AVVYA	780	Praha 9	ČHMÚ	AMS	RADIO	I/U/ICR	81	55	273.7
40	Kladno-střed města	SKLMA	1454	Kladno	ČHMÚ	AMS	RADIO	B/U/R	84	54	207.6
41	Ostrava-Poruba/ČHMÚ	TOPOM	125	Ostrava-město	ČHMÚ	Manual	GRV		76	54	231.0
42	Prostějov	MPSTA	1133	Prostějov	ČHMÚ	AMS	RADIO	B/U/R	83	53	177.5
43	Most	UMOAA	1005	Most	ČHMÚ	AMS	RADIO	B/U/R	77	51	181.4
44	Ústí n.L.-Kočkov	UUNKA	1011	Ústí nad Labem	ČHMÚ	AMS	RADIO	B/S/R/N	70	50	221.0
45	Trinec-Kanada	TTRKA	1187	Frydek-Místek	MÚTf	AMS	RADIO	B/U/R	89	48	181.2
46	Pha6-Veleslavin	AVELA	777	Praha 6	ČHMÚ	AMS	RADIO	B/S/R	65	47	216.6
47	Jablonec-město	LJAMA	1017	Jablonec nad Nisou	ČHMÚ	AMS	RADIO	B/U/R	72	44	147.8
48	Pízeň-Bory	PPLBA	1323	Pízeň-město	MPI	AMS	RADIO	B/U/R	76	43	126.7
49	Pízeň-Slovany	PPLAA	1322	Pízeň-město	MPI	AMS	RADIO	T/U/R/C	80	41	136.0
50	Brno-Tuřany	BBNYA	1130	Brno-město	ČHMÚ	AMS	RADIO	B/S/R	74	41	215.2
51	Ústí n.Orl.-Podměstí	EUOPT	1117	Ústí nad Orlicí	HS	TK	TEOM	T/U/R	68	39	133.8
52	Vsetín - hvězdárna	ZVSHM	1359	Vsetín	ČHMÚ	Manual	GRV		58	39	218.0
53	Pha4-Libuš	ALIBA	774	Praha 4	ČHMÚ	AMS	RADIO	B/S/R	59	38	135.0
54	Beroun	SBERA	1140	Beroun	ČHMÚ	AMS	RADIO	T/U/R/C	67	37	115.6
55	Česká Lipa	LCLPA	1023	Česká Lipa	ČHMÚ	AMS	RADIO	B/U/R	59	36	181.4
56	Prachatice	CPRAA	1225	Prachatice	HS	AMS	RADIO	B/S/R	57	32	118.9
57	Pízeň-Doubravka	PPLVA	1105	Pízeň-město	ČHMÚ	AMS	RADIO	B/S/A	56	32	139.5
58	Pízeň-Lochotín	PPLLA	1324	Pízeň-město	MPI	AMS	RADIO	B/U/R	54	35	159.1
59	Litvínov	ULTVT	929	Most	HS	TK	RADIO	B/U/R	50	32	195.0
60	České Budějovice	CCBDA	1104	České Budějovice	ČHMÚ	AMS	RADIO	B/U/R	49	31	122.3
61	Pardubice Dukla	EPAUA	1465	Pardubice	ČHMÚ	AMS	RADIO	B/U/R	48	24	184.1
62	Most-OHS	UMSOT	537	Most	HS	TK	RADIO	I/U/I	43	20	90.0
63	Svitavy	ESTVT	1195	Svitavy	HS	TK	TEOM	B/U/R	42	29	116.4
64	Sokolov	KSOVT	1199	Sokolov	HS	TK	TEOM	I/U/R/C	42	21	106.2
65	Mikulov-Sedlec	BMISA	1135	Břeclav	ČHMÚ	AMS	RADIO	B/R/A	41	24	130.6
66	Košetice	JKOSA	1138	Pelhřimov	ČHMÚ	AMS	RADIO	B/R/A/N	39	17	109.9
67	Hr.Král.-Sukovy sady	HHKST	396	Hradec Králové	HS	TK	TEOM	T/U/R/C	37	25	133.7
68	Klatovský soud	PKLST	808	Klatov	HS	TK	TEOM	T/U/R	37	18	114.0
69	Sněžník	USNZA	1013	Děčín	ČHMÚ	AMS	RADIO	B/R/A/N	20	13	165.0
70	Ondřejov	SONRA	1108	Praha-východ	ČHMÚ	AMS	RADIO	B/R/N	31	19	155.5
71	Krupka	UKRUA	1007	Teplice	ČHMÚ	AMS	RADIO	B/R/N	30	14	152.8
72	Olomouc-Šmeralova	MULST	1197	Olomouc	HS	TK	TEOM	B/U/R	32	20	137.9
73	Jeseník	MJESA	1080	Jeseník	ČHMÚ	AMS	RADIO	B/R/N	16	12	132.1
74	Kolín SAZ	SKOAT	1191	Kolín	HS	TK	TEOM	B/U/R	30	19	122.5
75	Pízeň-střed	PPLPA	1321	Pízeň-město	MPI	AMS	RADIO	T/U/R/C	20	12	117.2
76	Hodonín	PHODT	1198	Hodonín	HS	TK	TEOM	B/U/R	18	12	116.5
77	Slaný	SSLAA	1106	Kladno	ČHMÚ	AMS	RADIO	B/U/R	31	20	116.3

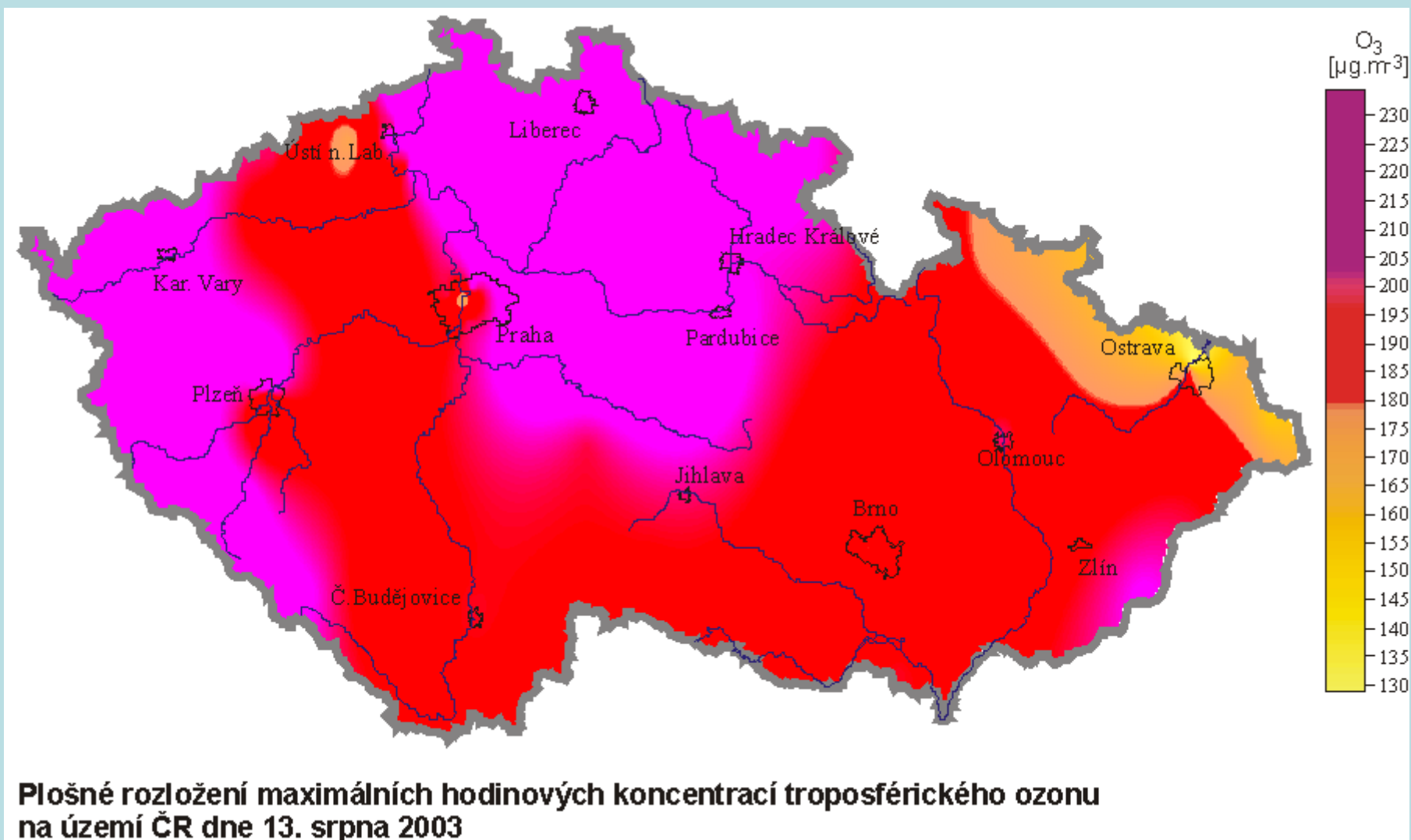
Maximum hourly PM10 concentrations in CZ 2003

PM10 daily courses during episode – lowland station

Figure 28. Maximum concentration in wintertime: CZ - lowland station Tušimice
Obrázek 28. Maximální koncentrace v zimním období: Tušimice, nízko položená stanice (CZ)
Abbildung 28. Winterepisode für die tiefgelegene Station Tušimice (CZ)
Rysunek 28. Maksymalne stężenia w okresie zimowym: stacja nizinna Tušimice (CZ)

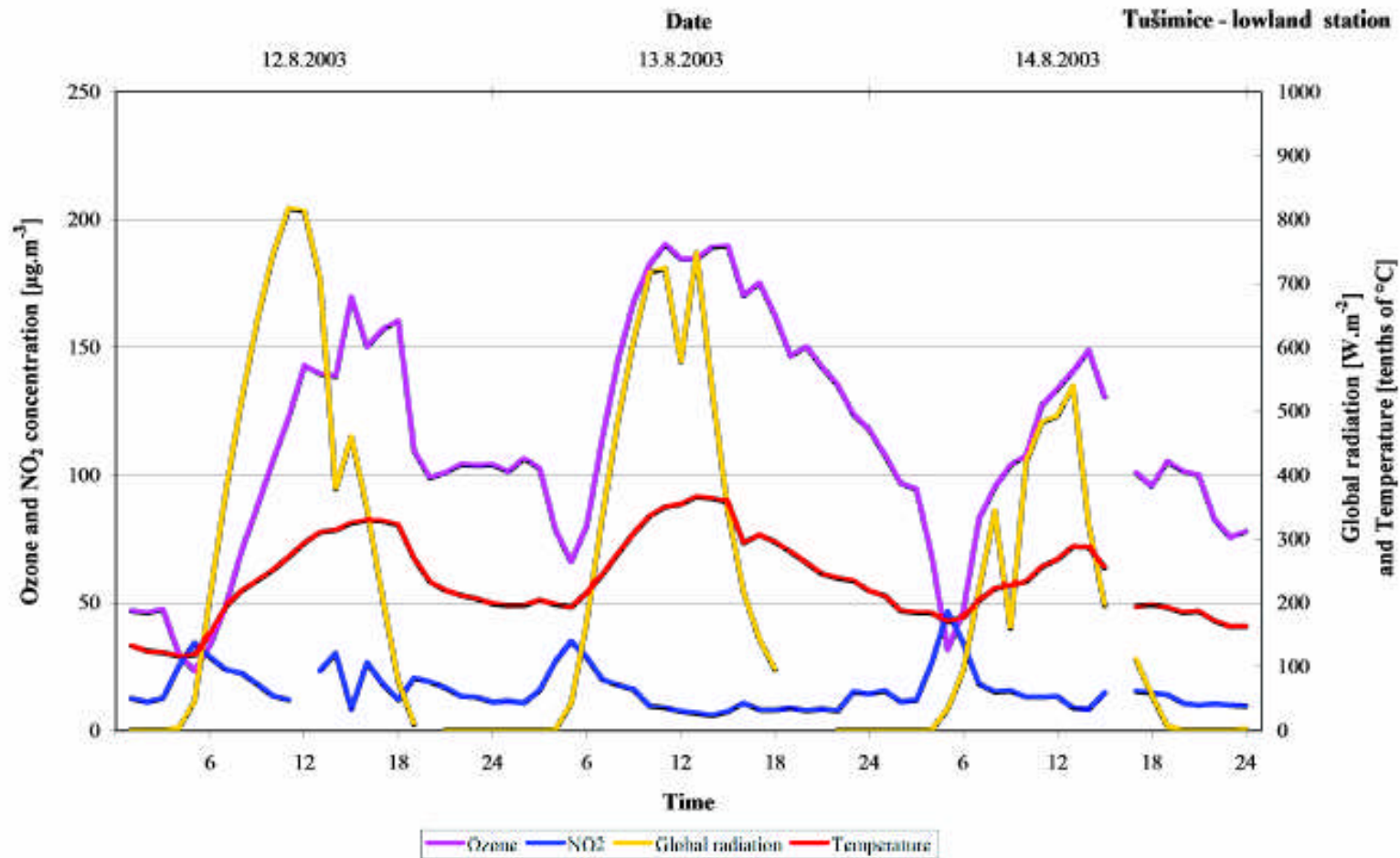


Maximum hourly concentrations of ozone in CZ, 13. Aug. 2003



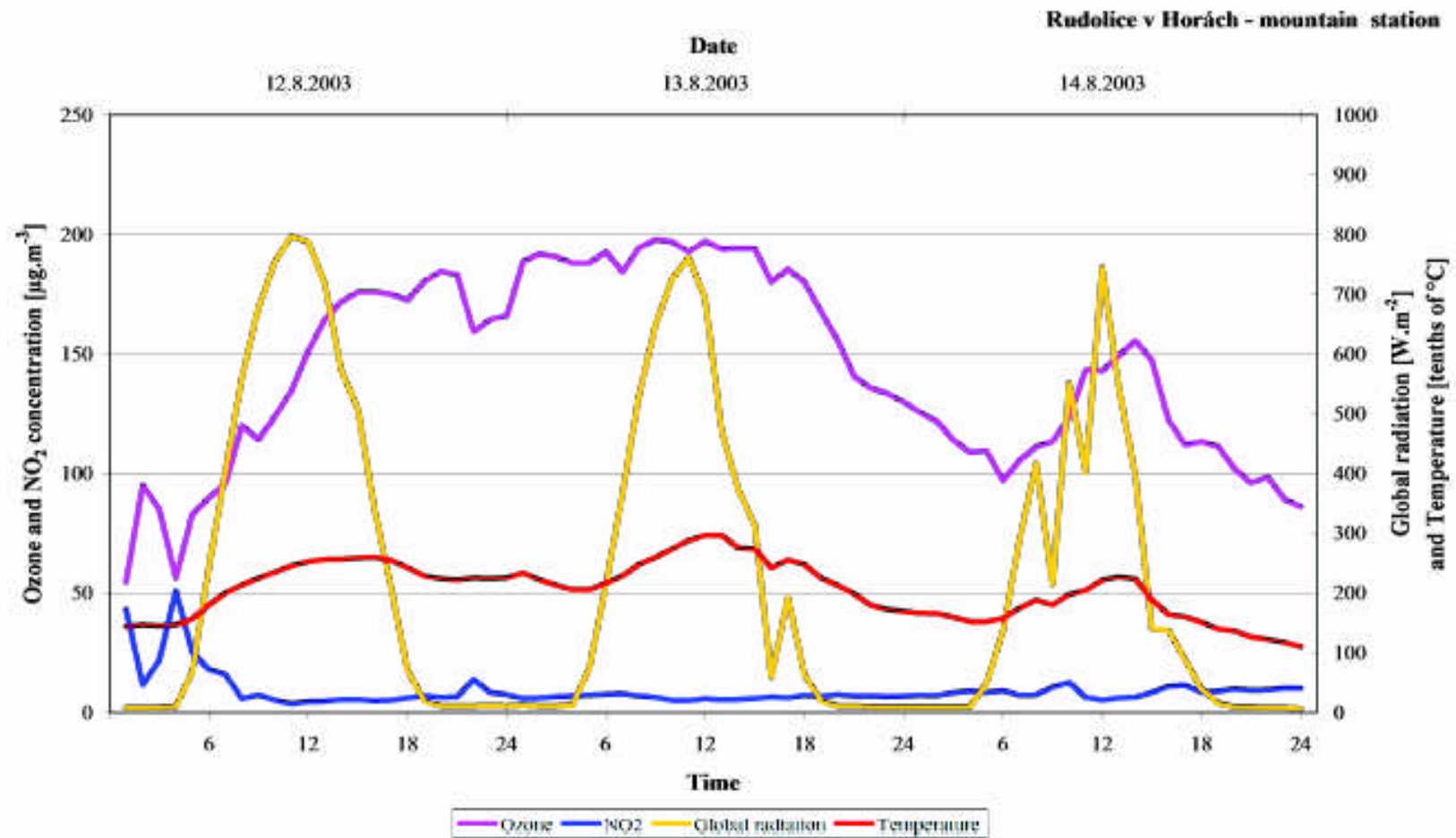
Ozone daily courses during episode – lowland station

Figure 21. Summer episode: Tušimice - lowland station (CZ)
Obrázek 21. Letní epizoda: Tušimice, nízko položená stanice (CZ)
Abbildung 21. Sommerepisode für die tiefgelegene Station Tušimice (CZ)
Rysunek 21. Epizod letni: Tušimice - stacja nizinna (CZ)



Ozone daily courses during episode – mountain station

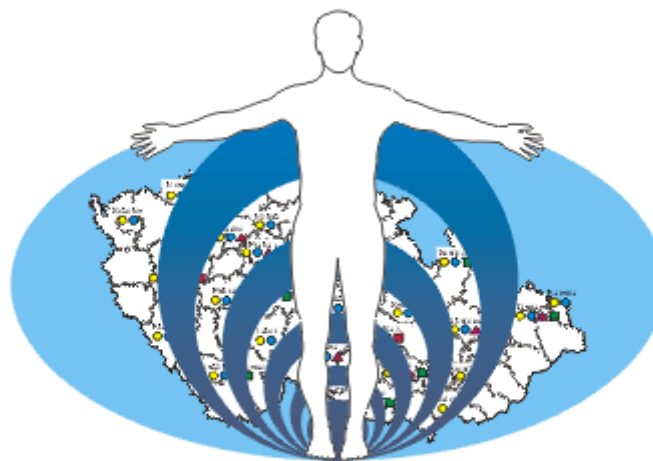
Figure 22. Summer episode: Rudolice-mountain station (CZ)
Obrázek 22. Letní epizoda: Rudolice, horská stanice (CZ)
Abbildung 22. Sommerepisode für die Bergstation Rudolice (CZ)
Rysunek 22. Epizod letni: Rudolice - stacja górská (CZ)



- Air quality versus human health studies never provided in CHMI, no experience with them. National Institute of Public Health (NIPH) contacted for cooperation
- Health data resources in CZ summarized and checked for availability
- Approach to studies of AQ/HH relationship is under discussion (statistics, epidemiological studies..?)
- **MONARO** project (**MON**itoring of **A**cute **R**espiratory Diseases) realised by NIPH in selected cities in CZ – one example of possible approach

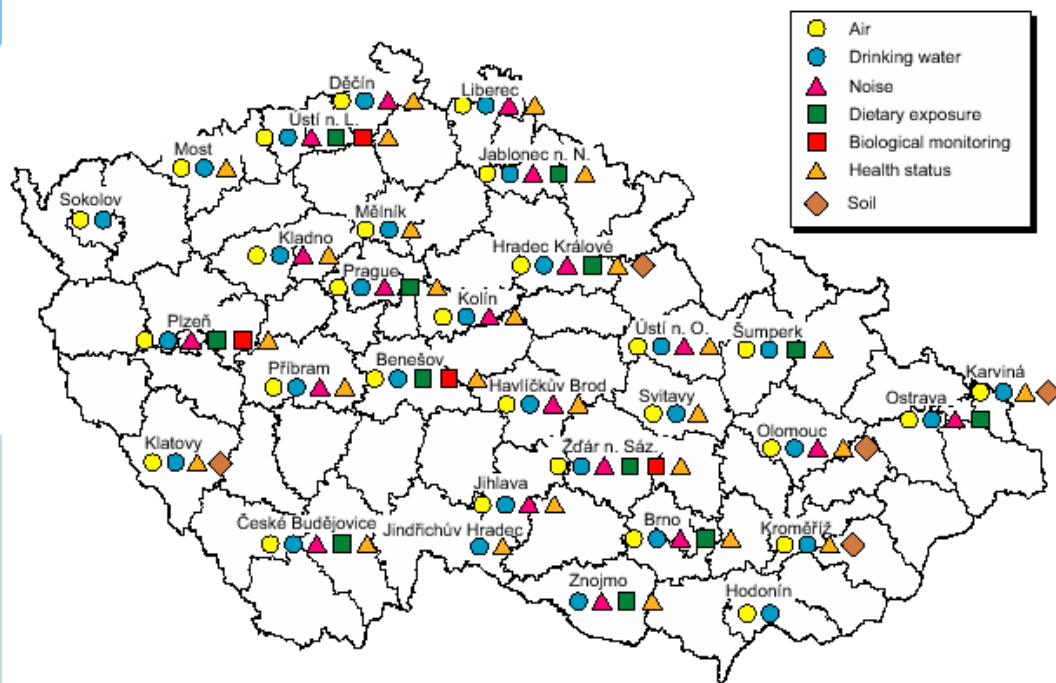
Environmental Health Monitoring System in the Czech Republic

Summary Report - 2003



National Institute of Public Health, Prague
Prague, September 2004

Fig. 3.1 Environmental Health Monitoring System in the Czech Republic – participant cities



Some MONARO results in 2003 (1)

- In 2003, 74 paediatricians and 43 general practitioners providing care to a total of 177,112 patients in 25 cities took part in ARD data collection.
- The data of 2003 do not markedly differ from those of previous years with the monthly incidence rates ranging from tens to hundreds of cases per 1,000 population of a given age group depending on season and epidemiological situation.
- In 2003, the monthly ARD incidence (excluding influenza) in children under 18 years of age varied widely from 3 (Sokolov) to 691 (Šumperk) per 1,000 children. As in previous years, the highest morbidity was recorded in the age group 1 to 5 years.
- In most cities, the ARD morbidity shows seasonal trend with a typical downward tendency in summer. The seasonal trend was found in all age groups of urban population, being most marked in the age group 1–5 years, less marked in children aged from 6 to 14 years and least marked in adults.
- Figures show the highest and the lowest monthly ARD incidence rates, the mean monthly ARD incidence rates in 2003 and the range of the mean monthly ARD incidence rates for 1995–2003.
- The mean monthly ARD incidence rates in children aged from 1 to 14 years recorded in 2003 were mostly close to the lower limit of the mean values range of previous years, with the exception of the age group 1 to 5 years in Hodonín and Šumperk and the age group 6 to 14 years in Příbram and Hodonín, showing the highest incidence rates since 1995.

Some MONARO results in 2003 (2)

- As in previous years, diseases of the upper respiratory tract were responsible for the major share in the total morbidity, accounting for 76 % of the morbidity on average (for all the monitored cities and age categories).
- Influenza was the second with 14 %
- Followed by acute bronchitis with 7 %
- The order of the remaining diagnoses by frequency is the following:
 - otitis media – rhinosinusitis – mastoiditis 2.1 %
 - pneumonia 0.5 %
 - asthma 0.5 %

Fig. 4.1a Treated acute respiratory diseases excluding influenza children 1–5 years, 1995–2003

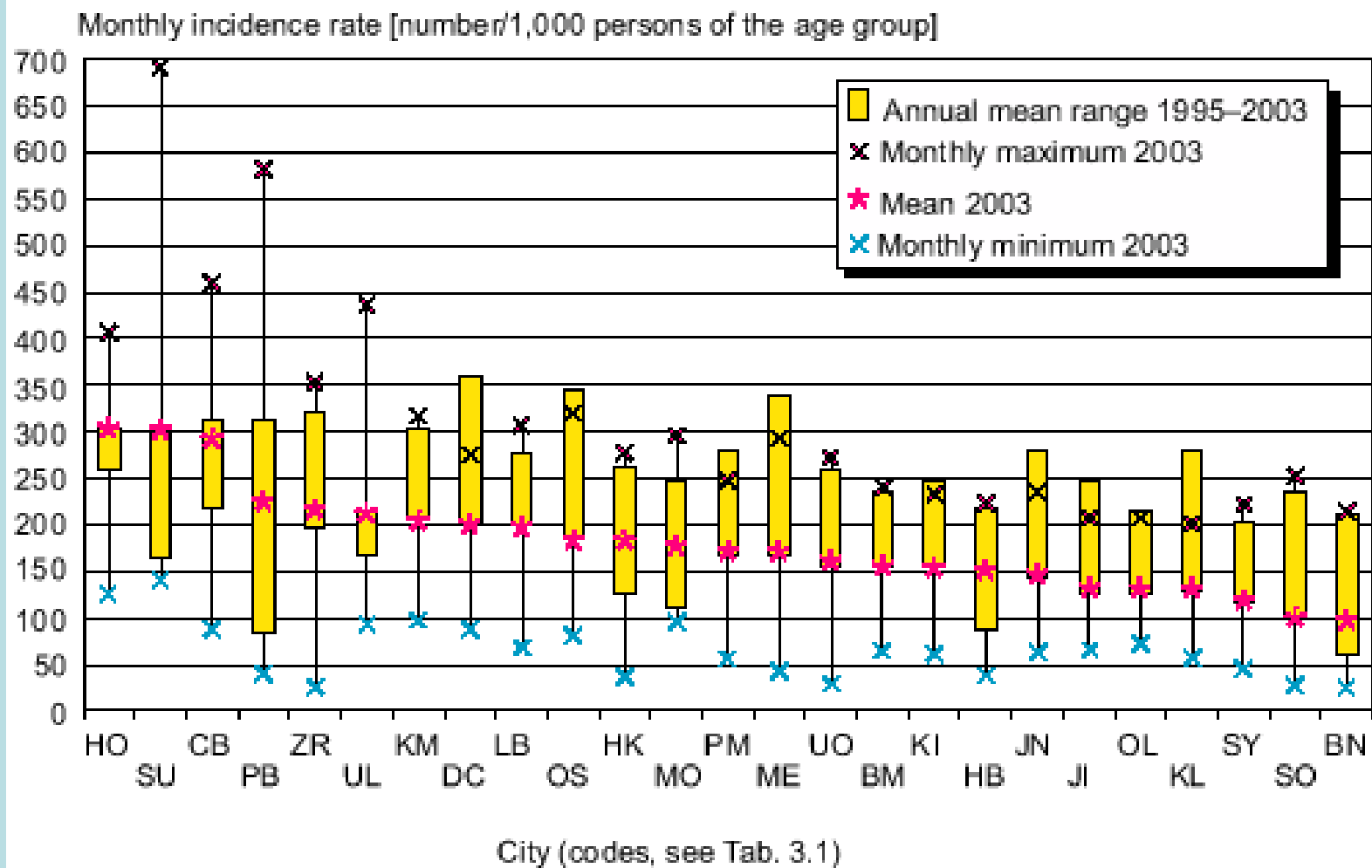
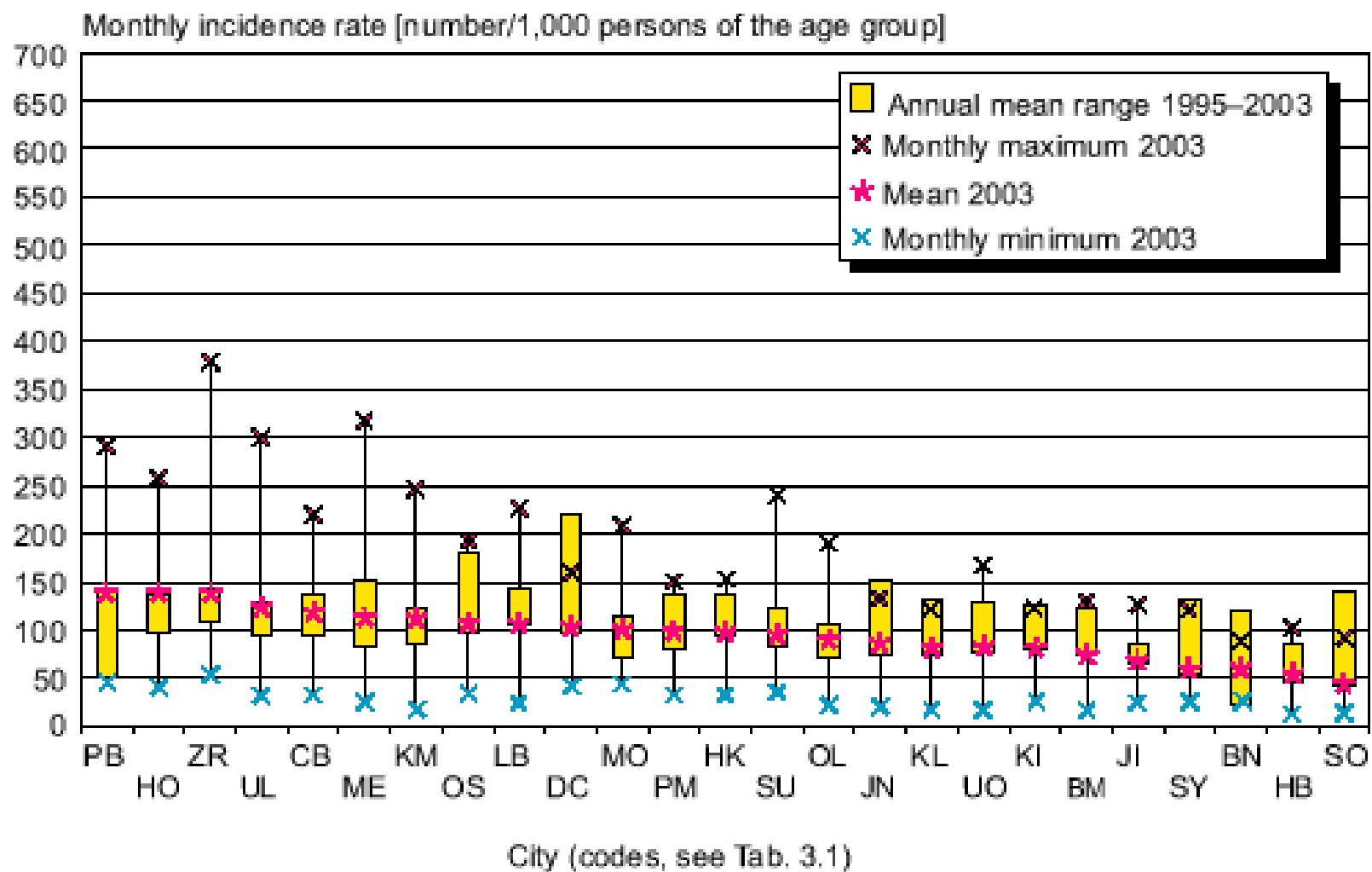


Fig. 4.1b Treated acute respiratory diseases excluding influenza children 6–14 years, 1995–2003



Thank you !!!

Some MONARO results in 2003

- Acute respiratory diseases (ARD) account for the highest percentage of morbidity in children (peaking in pre-school children), and therefore the ARD incidence is used as an important indicator of population health. The major factors involved in the ARD incidence are the epidemiological situation, climatic conditions, air pollution, individual susceptibility and physician's subjective evaluation. The information source is medical records on the first treatment given to patients presenting with acute respiratory disease. The basic outputs are absolute numbers of new cases of selected diagnoses in the population monitored and their incidence rates per 1,000 population of different age groups. The data are entered in the system database of treated ARD with the acronym MONARO. The database is an integrated system that allows continual collection, processing and evaluation of the data on ARD morbidity from general practitioners and paediatricians. The central database is being regularly validated to clear possible redundant or incorrect records.
- In 2003, 74 paediatricians and 43 general practitioners providing care to a total of 177,112 patients in 25 cities took part in ARD data collection.
- The data of 2003 do not markedly differ from those of previous years with the monthly incidence rates ranging from tens to hundreds of cases per 1,000 population of a given age group depending on season and epidemiological situation. In 2003, the monthly ARD incidence (excluding influenza) in children under 18 years of age varied widely from 3 (Sokolov) to 691 (Šumperk) per 1,000 children. As in previous years, the highest morbidity was recorded in the age group 1 to 5 years. In most cities, the ARD morbidity shows seasonal trend with a typical downward tendency in summer. The seasonal trend was found in all age groups of urban population, being most marked in the age group 1–5 years, less marked in children aged from 6 to 14 years and least marked in adults.
- [Figs. 4.1a](#) and [4.1b](#) show the highest and the lowest monthly ARD incidence rates, the mean monthly ARD incidence rates in 2003 and the range of the mean monthly ARD incidence rates for 1995–2003. The mean monthly ARD incidence rates in children aged from 1 to 14 years recorded in 2003 were mostly close to the lower limit of the mean values range of previous years, with the exception of the age group 1 to 5 years ([Fig. 4.1a](#)) in Hodonín and Šumperk and the age group 6 to 14 years in Příbram and Hodonín, showing the highest incidence rates since 1995. A downward trend was detected for all combinations of age group and disease in 1995–2002. The most marked decrease was recorded in the age category 1–5 years, higher age categories showing less marked declines. Morbidity of the lower respiratory tract compared to the upper respiratory tract exhibits a less marked downward trend ([Fig. 4.1c](#)).
- As in previous years, diseases of the upper respiratory tract were responsible for the major share in the total morbidity, accounting for 76 % of the morbidity on average (for all the monitored cities and age categories). Influenza was the second with 14 %, followed by acute bronchitis with 7 %. The order of the remaining diagnoses by frequency is the following: otitis media – rhinosinusitis – mastoiditis (2.1 %), pneumonia (0.5 %) and asthma (0.5 %).

Fig. 4.3 Distribution of the population according to the potential exposure to selected pollutants (in annual limit intervals)

