“SUPPORT TO UKRAINE IN APPROXIMATION OF THE EU ENVIRONMENTAL ACQUIS (AIR QUALITY, WASTE MANAGEMENT)” APENA 2

TOPIC OF THE PRESENTATION
SUPPORT TO UKRAINE IN APPROXIMATION OF THE EU ENVIRONMENTAL ACQUIS IN AIR QUALITY

Mr. Rostislav Neveceral
Key expert 4: Air quality

Consortium Partners

Start: 28 August 2020
Duration: 36 month

Project Director:
Ivelina Dilovska

Project Expert Team

Mrs. Elina Velinova Stoyanova-Lazarova
Key expert 1: Team leader

Mrs. Gordana Petkovic
Key expert 2: Senior Legal expert

Mrs. Nataliia Korzhunova
Key expert 3: Senior expert on Waste management

Mr. Rostislav Neveceral
Key expert 4: Air quality expert

Senior non key international experts

Senior non key local experts

Junior non key local experts

What we want to achieve?

Overall objective

Effectively raise Ukrainian public authorities' capacities in designing and implementing key reforms stemming from the Association Agreement and DCFTA, including capacity to carry out legal approximation process with the EU

Purpose

Effectively raise Ukrainian public authorities' capacities in designing and implementing key reforms stemming from the Association Agreement and DCFTA, including capacity to carry out legal approximation process with the EU

Specific Purposes

SP 1 Further assist in the transposition and implementation of Annex XXX to the Chapter 6 (Air Quality, Waste management) of the EU-Ukraine Association Agreement

SP 2 Support to the concrete implementation of the National Waste Management Strategy (incl. ad hoc support requested by the Beneficiary and EUD)

SP 3 Further raise the institutional capacity of authorities in charge (MPENR, MinRegion) and public awareness on environment issues ("greener lifestyles")

Component 1 , Activity 1.1Transposition of EU legislation related to air quality

Sub-activity 1.1.1	**Introduction in Ukraine of Air Quality Standards in accordance with Directive 2008/50/EC and Directive 2004/107/EC**
	Directive 2008/50/EC on ambient air quality and cleaner air for Europe **Directive 2004/107 / EC** on arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
Sub-activity 1.1.2	**Introduction in Ukraine of legislation on reducing the air pollution and air emissions from industrial sources**
	Directive 2010/75/EU on industrial emissions (IED) – Special provisions for large combustion plants - Chapter III of IED **Directive 2010/75/EU** on industrial emissions - Special provisions for installations and activities using organic solvents (VOC) - Chapter V of IED **Directive (2016/2284/EU**) National Emissions Ceilings (NEC) **Directive (EU) 2015/2193** on the limitation of emissions of certain pollutants into the air from medium combustion plants **Regulation (EC) No 166/2006** of concerning the establishment of a European Pollutant Release and Transfer Register (E-PRTR)
Sub-activity 1.1.3	Quality of fuels and other widely used materials which cause emissions to the air
	Directive 98/70/EC on the quality of petrol and diesel fuels **Directive 1999/32/EC** on reduction of sulphur content of certain liquid fuels, replaced

Component 3	
Activity 3.1	**Assistance to the Ministry and implementing agencies, and in particular to the establishment of State Environmental Protection Service**
Activity 3.2	**Training on enforcement of EU environmental standards with central government institutions**
Sub Activity 3.2.2 **Sub Activity 3.2.1**	Development and implementation of training programs Capacity building and training
Activity 3.3	**Further assistance in developing environmental legislation** Legal approximation requirements foreseen in Annex XXX in areas other than mentioned under Component 1, such as chemicals, climate change and protection of the ozone layer, genetically modified organisms, water, nature protection, environmental governance, etc
Activity 3.4	**Stakeholder (including the public, civil organisations and businesses) analysis in order to guide the project development and a stakeholder involvement plan.**
Activity 3.5	**Study tour on increasing institutional capacity and covering environmental aspects**

Component 1: Transposition of EU legislation related to air quality (AQ) (examples):

- Air Quality Directive (2008/50/EC) and Heavy Metal Directive (2004/107/EC)
- Transposed to: Decree Nr. 827/2019 State monitoring in the field of air protection and to Order Nr. 154/2018 Monitoring of arsenic cadmium mercury nickel and PAHs
- Directive on quality of petrol and diesel fuels (98/70/EC)
- Transposed to: Decree Nr. 927/2013 Technical Regulation for motor gasoline, diesel, marine and boiler fuels
- Reporting under the Convention on Long-range Transboundary AirPollution (CLRTAP)

Component 1: Transposition of EU legislation related to air quality (AQ) (examples):

- Many requirements were approximated, but there is still some information missing
- Reporting under the Convention on Long-range Transboundary Air Pollution (CLRTAP) – missing information:
  - Projections, gridded data (emission for grids: 0.1° x 0.1° grid cells), large point sources (LPS) data
  - Methodologies and information sources described

Component 3: Strengthening of administrative capacity

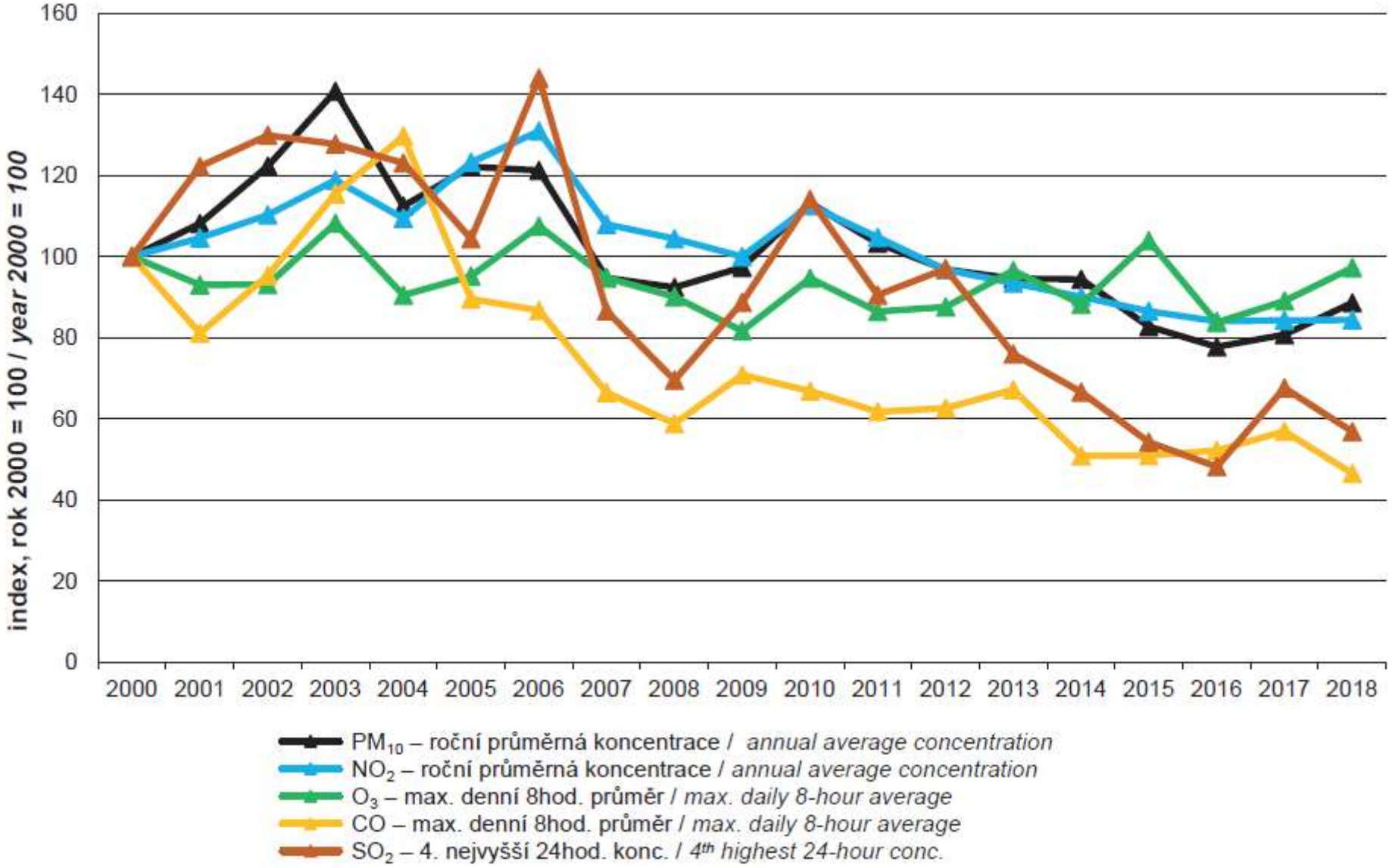
- Assessment of the structures of the public environmental administration
- Recommendations for the structure improvement and competences
- Workshops/trainings on air quality, waste management and resource management; Study tour

Air quality data in the Czech Republic

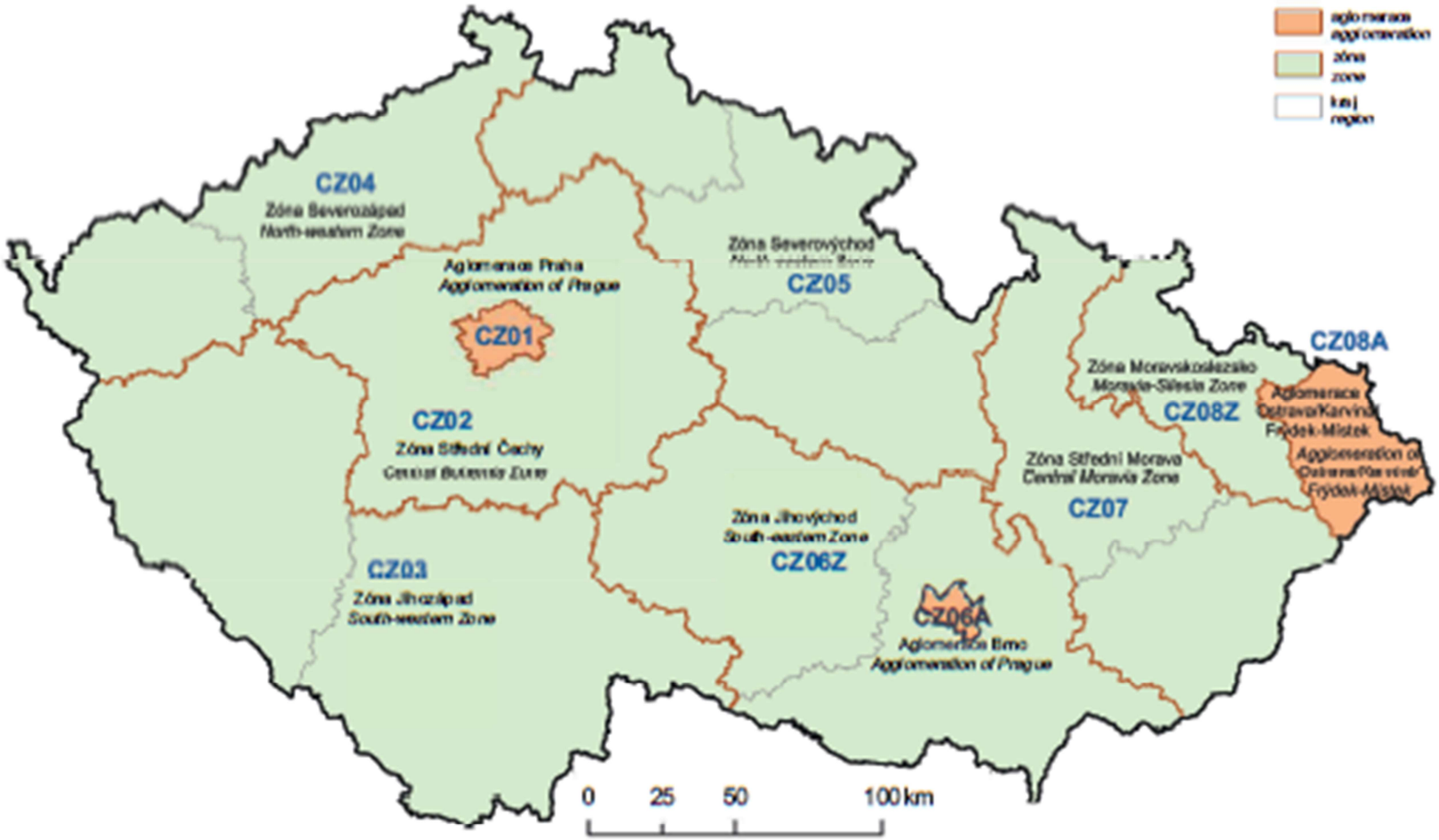
Air quality data in the Czech Republic

- The data are presented by the Czech Hydrometeorological Institute (CHMI) the Yearbook
- Benzo[a]pyrene, PM10 and PM2.5 and ground-level O3 are the major problem
- Most pollutants shows a decreasing trend since 2000
- The most serious situation in the Ostrava/Karviná/Frýdek-Místek agglomeration (Iron and steel production, emission from Poland)

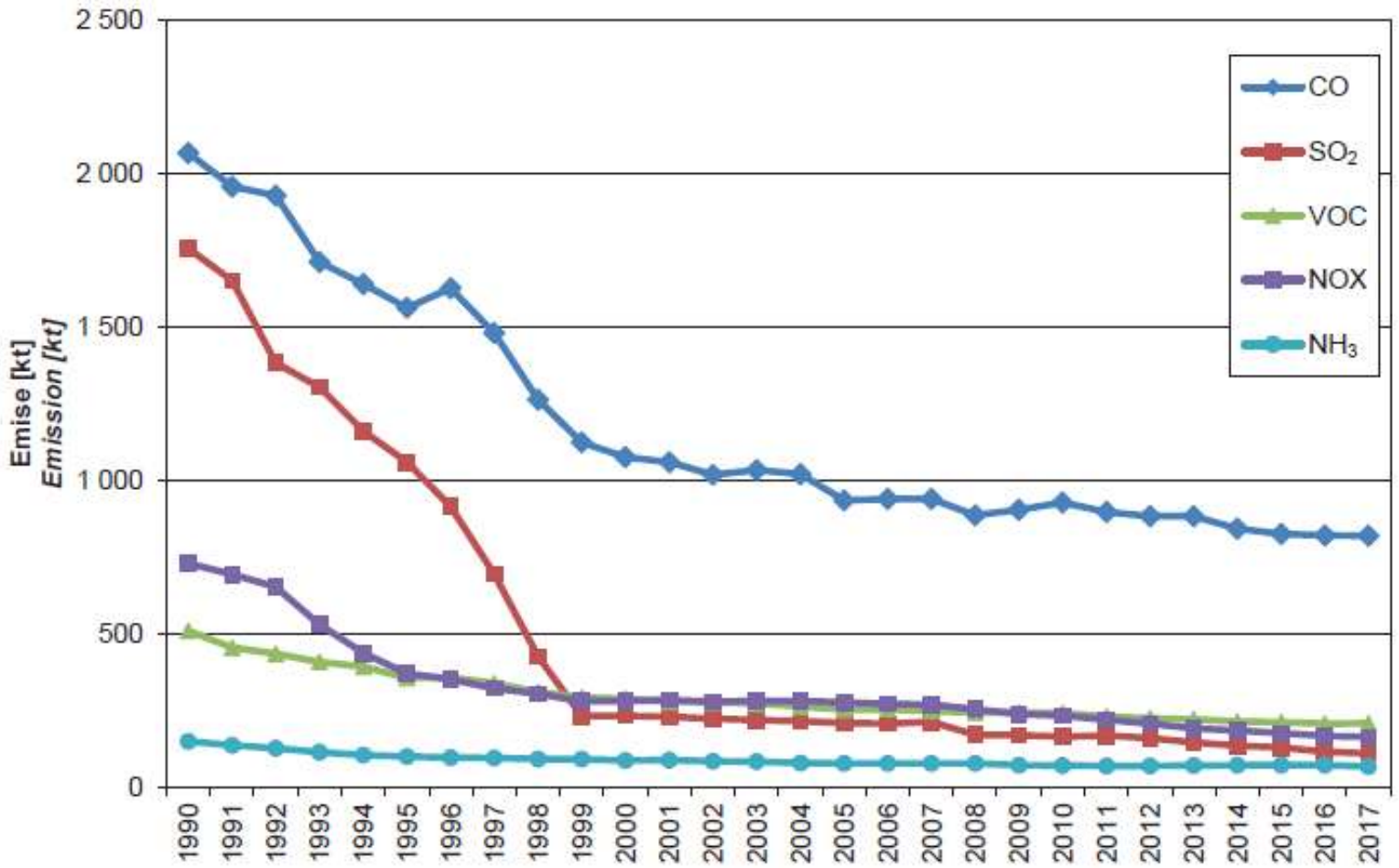
Air quality data in the Czech Republic



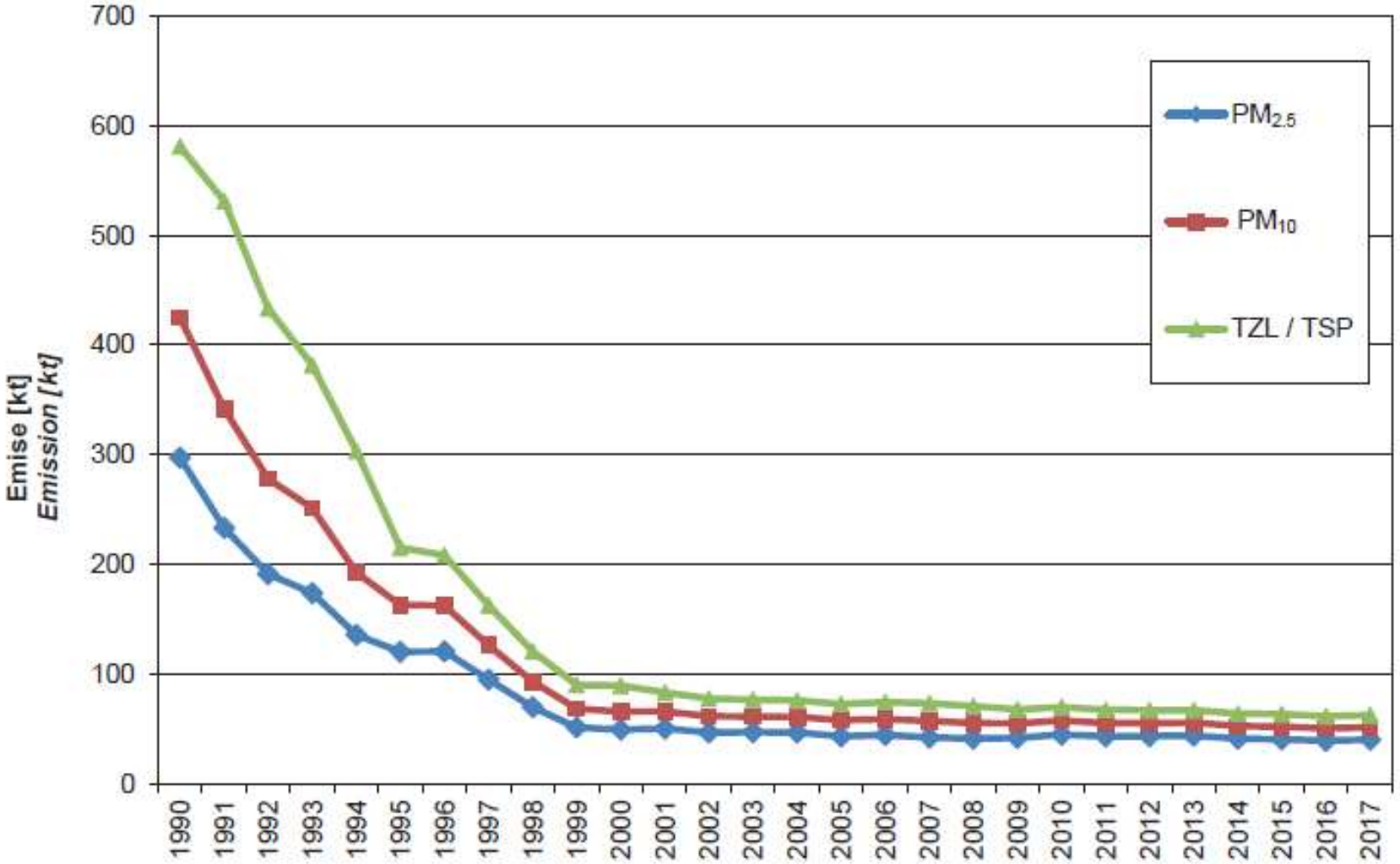
Air quality data in the Czech Republic – Zones and agglomerations



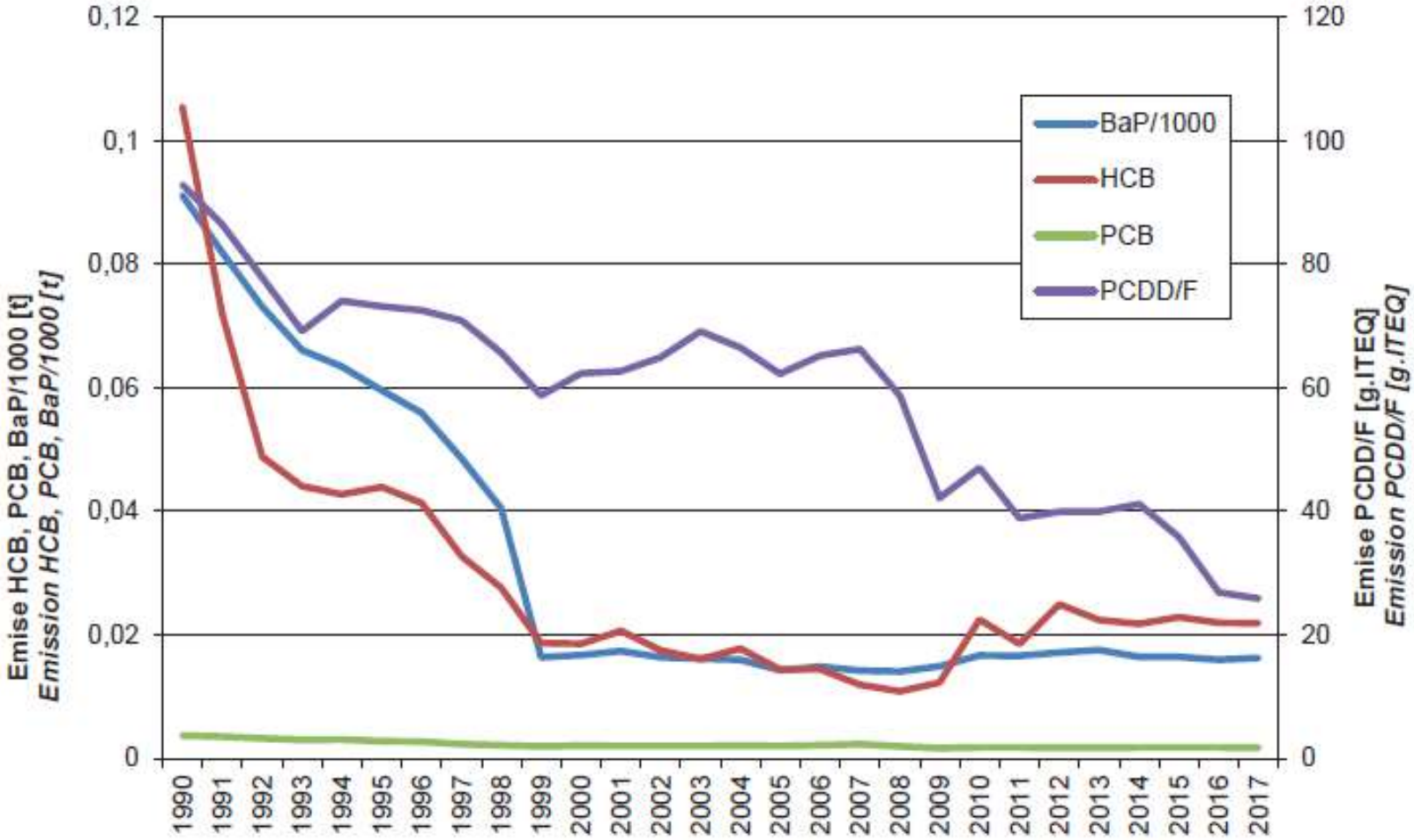
Air quality data in the Czech Republic – Emissions development



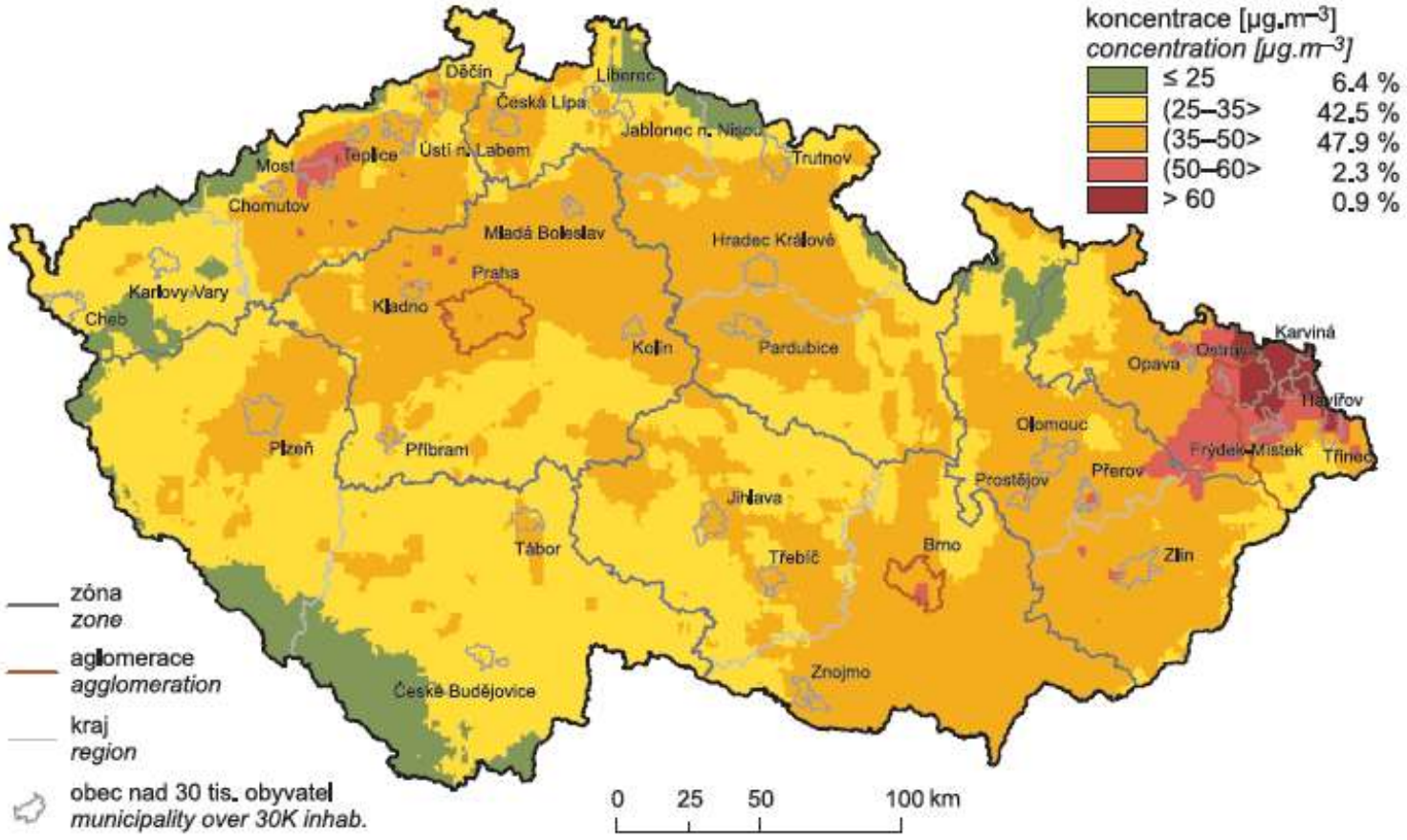
Air quality data in the Czech Republic – Emissions PM



Air quality data in the Czech Republic – Emissions of POPs (Persistent Organic Pollutants)

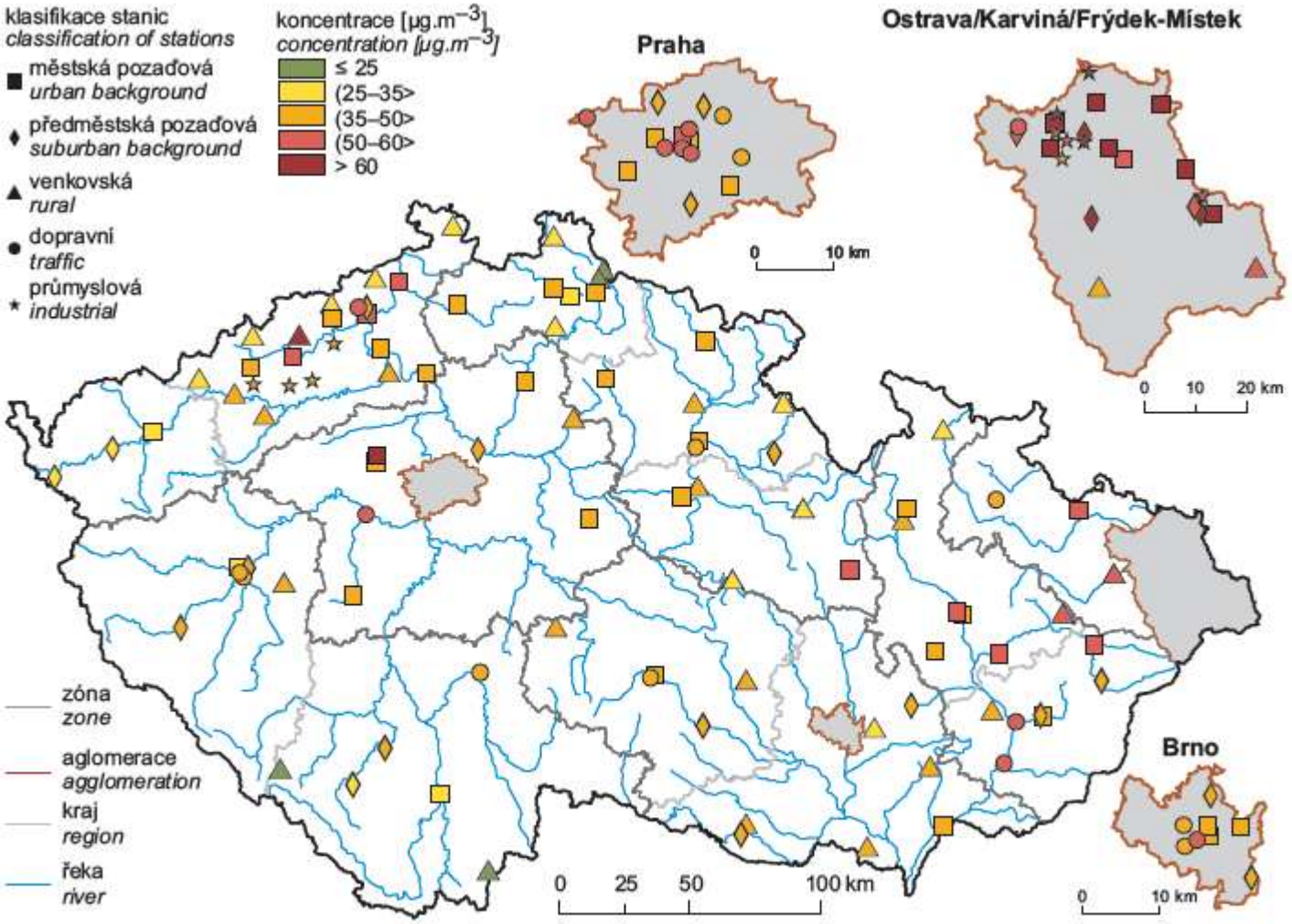


Air quality data in the Czech Republic – Concentration PM10



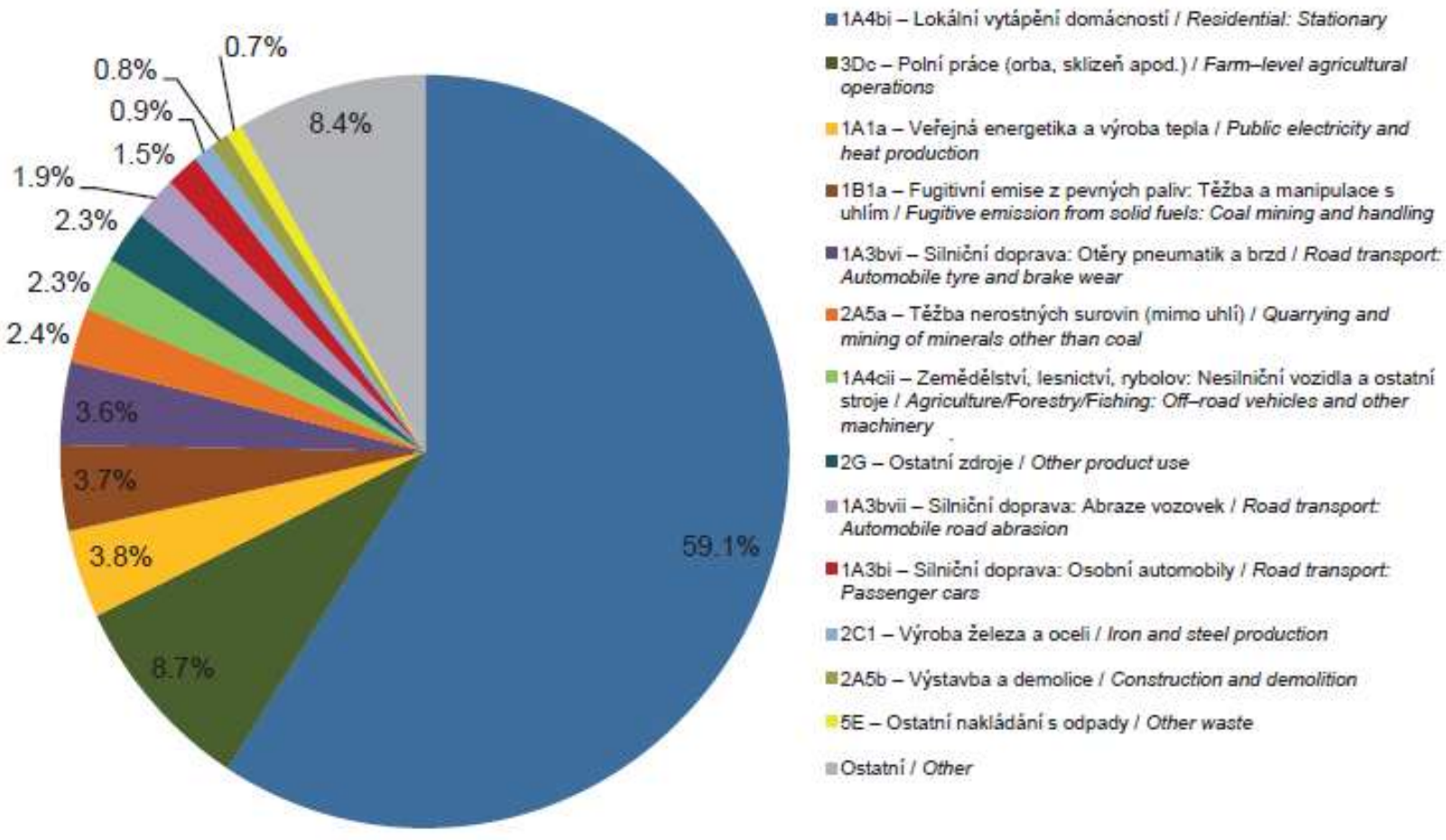
Obr. IV.1.1 Pole 36. nejvyšší 24hod. koncentrace PM_{10}, 2018
Fig. IV.1.1 Field of the 36th highest 24-hour concentration of PM_{10}, 2018

Air quality data in the Czech Republic – PM 10



Obr. IV.1.2 36. nejvyšší 24 hod. koncentrace PM_{10} měřené na stanicích imisního monitoringu, 2018
Fig. IV.1.2 36th highest concentrations of PM_{10} in the ambient air quality network, 2018

Air quality data in the Czech Republic – PM10 emission sources



Air quality data in the Czech Republic – Measurement station

Základní údaje		
Kód lokality:	SBER	
Název:	Beroun	
Stát:	Česká republika	
Vlastník:	Český hydrometeorologický ústav	
Kraj:	Středočeský	
Okres:	Beroun	
Obec (ZÚJ):	Beroun	
Klasifikace		
Zkratka:	T/U/RCI	
EOI - typ stanice:	dopravní	
EOI - typ zóny:	městská	
EOI - charakteristika zóny:	obytná;obchodní;průmyslová	
EOI B/R - podkategorie:		
Adresa lokality (nepovinné)		
Správce lokality, adresa		
	ČHMÚ - Libuš CLI Gen.Šišky 942 143 00 Praha 4 - Kamýk	Tel.: 244033467 E-mail: jan.silhavy@chmi.cz
Lokalizace		
Zeměpisné souřadnice:	49° 57´ 28.540" sš 14° 3´ 29.880" vd	
Nadmořská výška:	216 m	
Doplňující údaje		
Terén:	rovina, velmi málo zvlněný terén	
Krajina:	zelená plocha v intravilánu (park, lesopark)	

Air quality data in the Czech Republic – Measurement station

Umístění		
Stanice je umístěna v bytové zástavbě s velkou hustotou automobilového provozu.		
Seznam měřicích programů:		
Kód	**Typ**	
✔ SBERA	Automatizovaný měřicí program	
Vznik a zánik měřicího místa:		
Datum vzniku:07.07.1993		**Datum zániku:**

Fotografie lokality

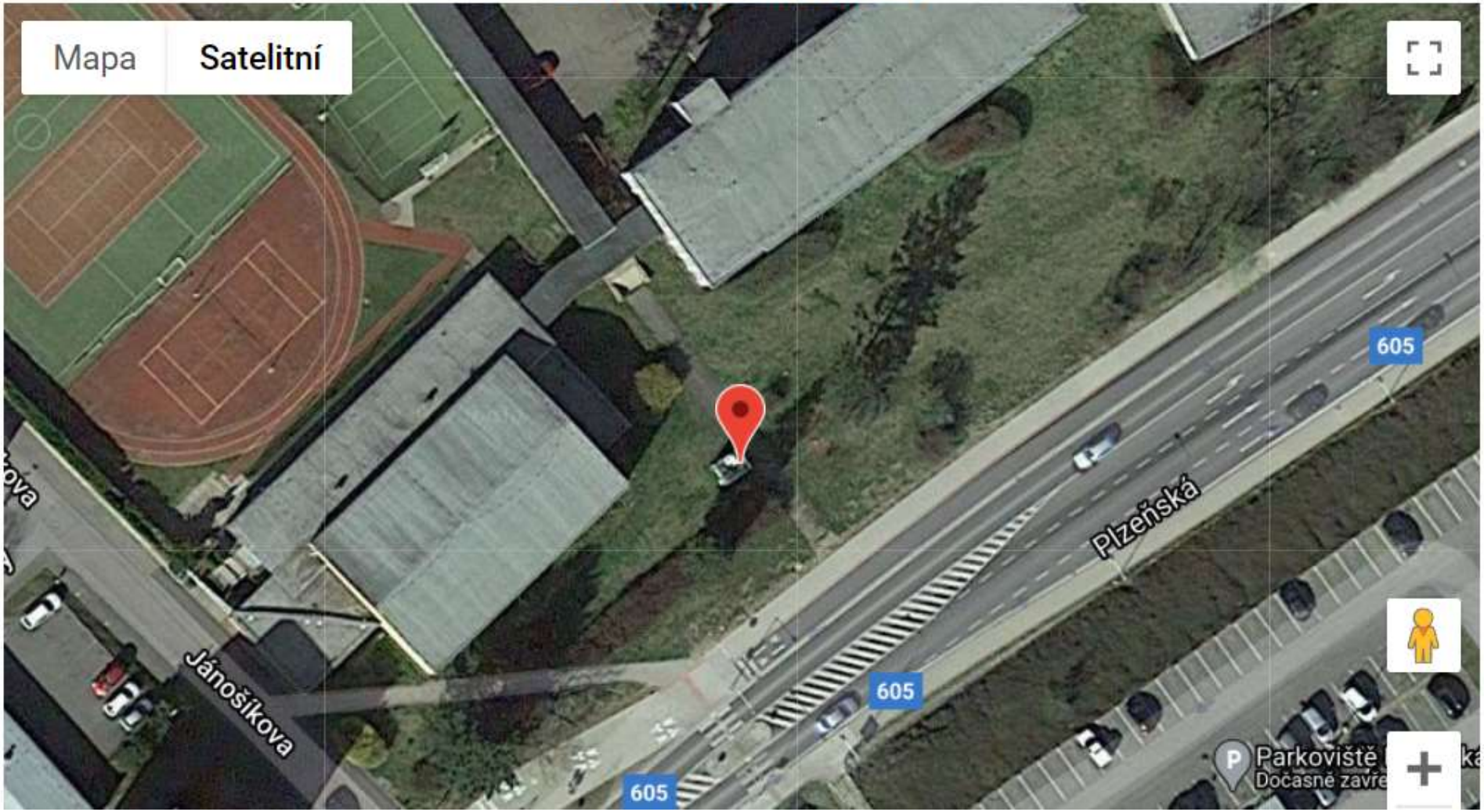
Air quality data in the Czech Republic – Measurement station

Umístění		
Stanice je umístěna v bytové zástavbě s velkou hustotou automobilového provozu.		
Seznam měřicích programů:		
Kód	**Typ**	
✔ SBERA	Automatizovaný měřicí program	
Vznik a zánik měřicího místa:		
Datum vzniku:07.07.1993		**Datum zániku:**

Fotografie lokality

Air quality data in the Czech Republic – Measurement station

Mapa umístění lokality



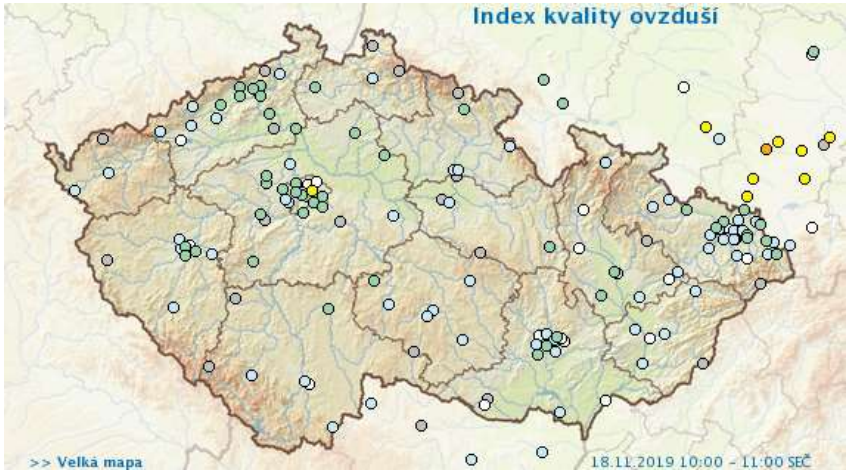
Air quality data in the Czech Republic – Measurement station

Základní údaje		
Kód:	AREPA	
Identifikace ISKO:	771	
Lokalita:	Praha 1-n. Republiky	
Typ měřicího programu:	Automatizovaný měřicí program	
Měřicí sítě:	EUROAIRNET, Státní síť imisního monitoringu	
Správce měřicího programu, adresa		
	ČHMÚ - Libuš CLI Gen.Šišky 942 143 00 Praha 4 - Kamýk	Tel.: 244033467 E-mail: jan.silhavy@chmi.cz
Cíl měřicího programu		
využití při operativním řízení a regulaci (SVRS)		
Měřicí zařízení umístěno v (kryt)		
kontejner (klimatizovaný)		
Poznámka		

Měření

Lab.	Dod.	Přist.	Veličina	Metoda odběru	Metoda analýzy	Jednotka	A	R	Par.	Akr.	MPZ	Met. náv.	Valid.	Test. ek.	Nejist.	Interval	Datum zahájení	Datum ukončení
1	1	94	NO [oxid dusnatý]	-	CHLM [chemiluminiscence]	µg/m^3	Ano	Ano	0	A	A	A	N	R	N	1h	26.06.2007	
1	1	94	NO_2 [oxid dusičitý]	-	CHLM [chemiluminiscence]	µg/m^3	Ano	Ano	0	A	A	A	N	R	N	1h	26.06.2007	
1	1	94	NO_x [oxidy dusíku]	-	CHLM [chemiluminiscence]	µg/m^3	Ano	Ano	0	A	A	A	N	R	N	1h	26.06.2007	
1	1	25	PM_{10} [částice PM10]	-	RADIO [radiometrie - absorpce beta záření]	µg/m^3	Ano	Ano	0	A	N	A	A	A	A	1h	25.07.2007	
1	1	17	SO_2 [oxid	-	UVFL [UV-	µg/m^3	Ano	Ne	0	A	N	N	N	N	N	1h	26.06.2007	31.07.2008

CHMI Air Quality Network:



1. Manual measuring stations (~ 60)

PM10; 2,5
and next compounds, for example:
Heavy metal
Organic Carbons (OC)
Elementary Carbon (EC)
Levoglukosan (LG)
Polycyclic Aromatic Hydrocarbons (PAH´s)
Volatile Organic Compounds (VOC´s)….

Atmosferic deposition measuring stations (~ 14)

SO4(2-), NO3(-), Cl(-), F(-)…….

2. Automatic measuring stations (~ 100)

SO2
NO/NO2/NOx
O3
CO
BTX
PM10; 2,5; 1; UFP

Black Carbon
Hg
NH3

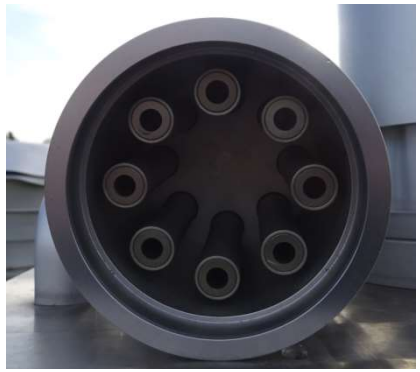
Equipment of manual measuring station - samplers

HVS samplers (MCZ) Canister,NPL)

LVS Samplers (Leckel)

VOC´s Samplers

Equipment of manual measuring station – sampling heads



PM10 µm

PM2,5 µm

HVS samplers (MCZ)

LVS Samplers (Leckel)

Equipment of manual measuring station – samplers

(*Atmosferic deposition)*

Pluviocollector

Equipment of automatic measuring stations - containers

big (2,4x4m)

middle (2,4x3m)

small (2x2m)

special (1x2m)

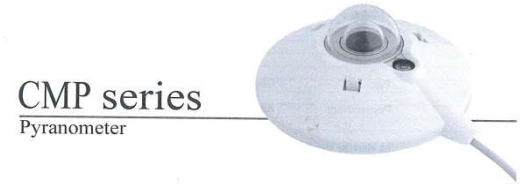
Equipment of automatic measuring station – mobile containers

Application example – Mobile station + samplers

Equipment of automatic measuring station - meteorological sensors

- **T2m (°C)**
- **humi (%]**
- *(Thies)*

- **GLRD (W/m2)**
  (Kipp & Zonen)

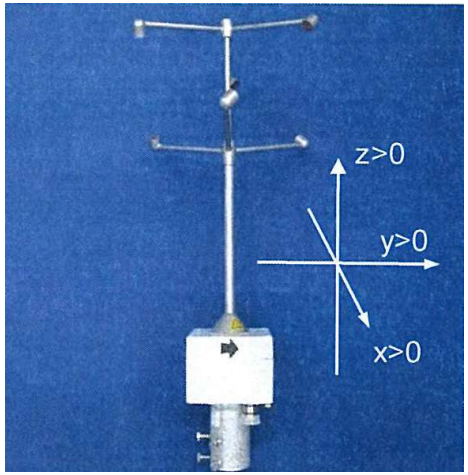


- **Press (hpa)**
- *(Vaisala)*

10 m
(Fireco)

- **WD (deg)**
- **WV (m/s)**
- (10m above the ground)

Windsonic *(GILL)*



uSonic-3 Scientific
(METEK)

Equipment of automatic measuring station - gas analyzers

Teledyne-API

- **SO2** (T100)
- **NO/NO2/NOx** (T200)
- **O3** (T400)
- **CO** (T300)

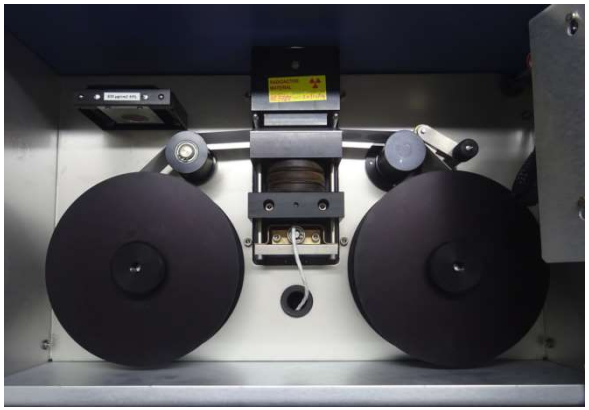
BTX (Syntech Spectras)

- **BZN**
- **TLN**
- *EBZN*
- *MPXY*
- *OXY*

Application example – Mobile station + samplers

Environnement S.A.

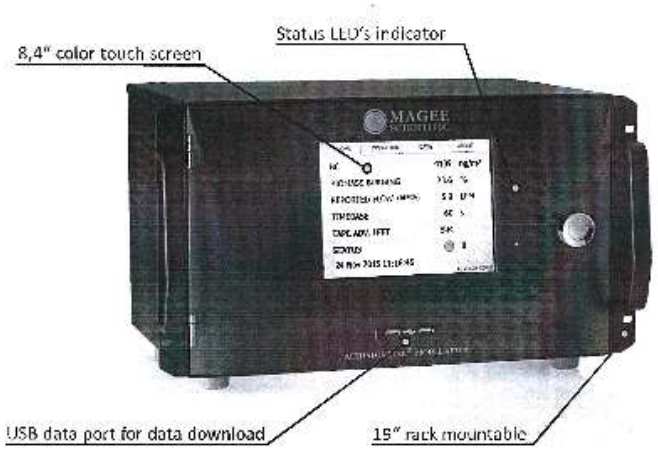
- PM10 (MP101)
- PM2,5 (MP101)
  (β-Gauge)



Model 100/200

MAGEE Scientific

- Black Carbon
  (Aethalometer)



Fidas (Palas)

- PM10
- PM2,5
- PM01
- UFP
  (nephelometer)

Administration

The Ministry of Environment: Overall responsibility

- Department of Energy and Climate Protection
  - Unit of Emission Trading
  - Unit of Energy and Climate Protection
- Department of Air Protection
  - Unit of Air Quality
  - Unit of Combustion Sources and Fuels
  - Unit of Technical Sources

Administration of CHMI, Division: Air Quality: AQ Measurements, reporting

Department for emissions: 6 experts

- Em. database, EMEP reporting, National plan for emission reduction, Projections

Department for modeling: 6 experts

- AQ modelling, reporting, projects for improving AQ

Department for AQ information system: 12 experts

- AQ reporting, AQ improvement plans , AQ database, preparaton of the AQ yearbook

Department of National inventarisation system: 6 experts

- Greenhouse gases reporting, UNFCCC meetings

Working of system: Air Quality

The CR devided into 7 zones and 3 agglomerations

- 1 zone = 1-2 regions, agglomerations: only large towns: Prague 1.3 mil. inhabitants, Brno: 380 thous., Ostrava-Karvina-FrydekMistek: 400 thous

Each zone has its own administration (regional administration of 1 region in the zone)

- If there are 2 regions in 1 zone, the administration of 1 region is used for the administration of the zone

The CHMI has its subdivisions throughout the country: 6 subdivisions

- Each subdivision supervises 1-2 zones and organize measurement stations in these zones

Working of system: Air Quality

AQ Data from all zones are checked by respective CHMI subdivision and then goes to the CHMI central database in Prague, from there they are reported to EEA (EC)

Legislation:

- **There is only 1 Law on Air Protection for both: Air Quality and Emissions**
- **There are only few Orders specifying the requirements of the Law**

Thank you for your attention!