

Deliverable 3.1: In situ platforms implementation

Aim of the deliverable

“With the information in this document the follower cities are able to reproduce the installation and management of the in-situ measurements carried out in the SMRUBS pilot cities, case studies or test-beds.”

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2.1.2. Helsinki RS-SC – street canyon supersite at Mäkelänkatu (SAQ3)

The Mäkelänkatu supersite measurement station is located in a busy street canyon (street address Mäkelänkatu 50, Helsinki). The street consists of six lanes, two rows of trees, two tramlines and two pavements, resulting in a total width of 42 m (Figure 2-2).

The height of buildings are about 17 meters. The traffic volume of Mäkelänkatu street was 28 000 vehicles per workday in 2016 (statistics from the City of Helsinki). The proportion of heavy-duty vehicles was 11% and speed limit 50 km/h. Supersite station is operated by the Helsinki Region Environmental Services Authority (HSY). Several long-term measurements are conducted in research projects in co-operation with Finnish research organizations and companies.



Figure 2-2. Picture of Mäkelänkatu supersite station

2.2.3. Brno air quality network (SHLT1)

The long-term air quality (AQ) data in Brno has been monitored since 1970 using up to 10 monitoring stations. City AQ monitoring sites are owned by three different legal entities (City of Brno, the Czech Hydrometeorological Institute (CHMI) and the National Institute of Public Health (NIPH). RECETOX is in possession of all monitoring data collected since 1990 to 2016. Typical air pollutants are measured at most of the stations (PM₁₀, PM_{2.5}, NO_x), while other pollutants are measured by only some monitoring stations (SO₂, CO, O₃, PM₁, PAHs, VOCs and metals). Historically, the type of the measured pollutants varied (e.g. PM₁₀ is measured only from 1995 and later). In recent period, the biggest emission sources of the observed pollutants in city of Brno are traffic, household heating and transboundary transport. Since 1992, the daily data on pollen, spores and other biological objects in the air are available for the city of Brno from Czech Pollen Information Service (CPIS).

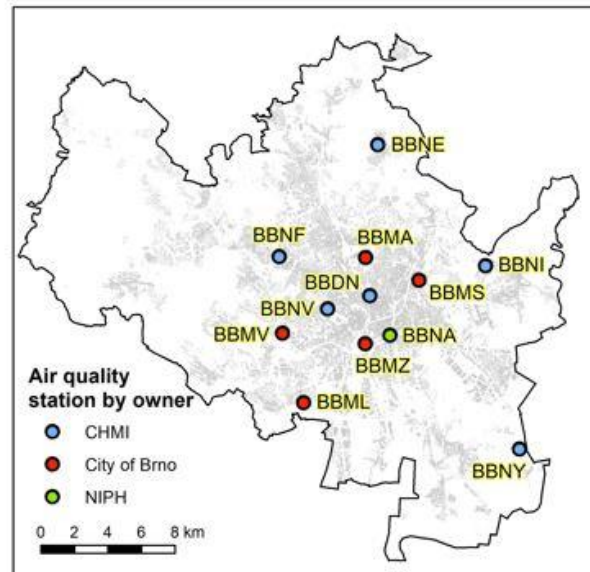


Figure 2-11. Monitoring network in the city of Brno. Stations owned by City of Brno (green), CHMI (blue) and NIPH (red). More information in Table 2-1.

Most important part: the table

Table 2-2. Instrumentation applied in SMURBS solutions for air quality (SAQ) - the Table serves as a dynamic file and is being updated upon new information receipt.

<u>Measured quantity</u>	<u>Instrument</u>	<u>Respective solution and city</u>	<u>Station(s) where installed</u>	<u>Operation standardization, QA/QC processes, SOPs, manuals</u>	<u>Reference</u>
<u>Gas concentration measurements</u>					
<u>Benzene, toluene concentrations</u>	GC with FID	SAQ10 / Hamburg	AN-TRA		
<u>CO concentration</u>	Horiba APMA-360 or APMA-370, or Thermo Electron Model 48i, or Non-dispersive IR	SAQ1 / Athens-Thissio SAQ2 / Athens-Thissio SAQ3 / Helsinki+Nanjing SAQ8 / Stockholm SAQ10 / Hamburg	Athens-Thissio: RS-UBG Helsinki: RS-UBG, RS-SC Nanjing: RS-UBG Stockholm: AN-UBG, AN-SC Hamburg: AN-TRA	http://slb.nu/slb/rapporter/pdf8/slb2016_004.pdf	SS-EN 14626:2005
<u>CO₂ and CH₄ concentrations calibrated on WMO-GAW scale</u>	<u>Picarro</u> (G1301, G2401)	SAQ3 / Helsinki	RS-UBG	ICOS	
<u>CO₂ concentration</u>	LICOR model LI-7000 or Thermo Electron Model 410i	SAQ3 / Helsinki+Nanjing	<u>Helsinki</u> : RS-SC Nanjing: RS-UBG		
<u>HCHO, CO, CH₄, Mercaptan, HCN</u>	RM16-2.00m, RM28-5.00m	STATE INSTITUTION "O.M. MARZEIEV INSTITUTE FOR PUBLIC HEALTH" NAMSU/ Kyiv + beyond Kyiv	Mobile		