

# Milestone M3 (M1.3)

NRT aerosol number size distribution ST for  
RI-URBANS



**RI-URBANS**

**Research Infrastructures Services Reinforcing Air  
Quality Monitoring Capacities in European Urban &  
Industrial Areas (GA n. 101036245)**

**By**

**TROPOS**



Leibniz-Institut für  
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### Milestone M3 (M1.3): NRT aerosol number size distribution ST for RI-URBANS

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<b>Work package (WP)</b>	WP1 Novel AQ metrics and advanced source apportionment STs for PM, and nanoparticles
<b>Milestone</b>	M3 (M1.3)
<b>Lead beneficiary</b>	TROPOS
<b>Means of verification</b>	Near real time aerosol number size distribution service tool for RI-URBANS adaptation available. This has to be used by pilots.
<b>Estimated delivery deadline</b>	M5 (28/02/2022)
<b>Actual delivery deadline</b>	10/02/2022
<b>Version</b>	Final
<b>Reviewed by</b>	WP1 leaders
<b>Accepted by</b>	RI-URBANS Project Coordination Team
<b>Comments</b>	Report summarising the process for NRT particle size distribution Service Tool for RI-URBANS

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## 1. About this document

This document summarises the process for NRT aerosol size distribution Service Tool for RI-URBANS (Research Infrastructures Services Reinforcing Air Quality Monitoring Capacities in European Urban & Industrial AreaS, Horizon-2020 GD project #101036245). This is a public document, available at the RI-URBANS website, <https://riurbans.eu/work-package-1/#milestones-wp1>, and distributed to all RI-URBANS partners for their use as well as submitted to European Commission as a RI-URBANS milestone 3 (M3).

## 2. Guidelines

### 2.1 Setup and operation of MPSS

Aerosol particle number size distribution measurements in the submicrometer size range are done by a Mobility Particle Size Spectrometers. The CEN/TS 17437 is the standard for ambient aerosol measurements, being the basis for ACTRIS and RI-URBANS compatible measurements. The guidelines are available (<https://www.actris-ecac.eu/measurement-guidelines.html>). The guidance documents are attached as an annex at the end of this milestone (Annex 1).

The data should be provided according to the level-0 ACTRIS data protocol that the data processing can be done at the ACTRIS data Center.

### 2.2 NRT Software

The software for generating an ACTRIS compliant data stream is readily available. Adaptations and configuration will take place during the implementation phase. Evaluation of the station, including quality assurance, is carried out by means of a test phase, after which the data stream is redirected to the ACTRIS data centre.

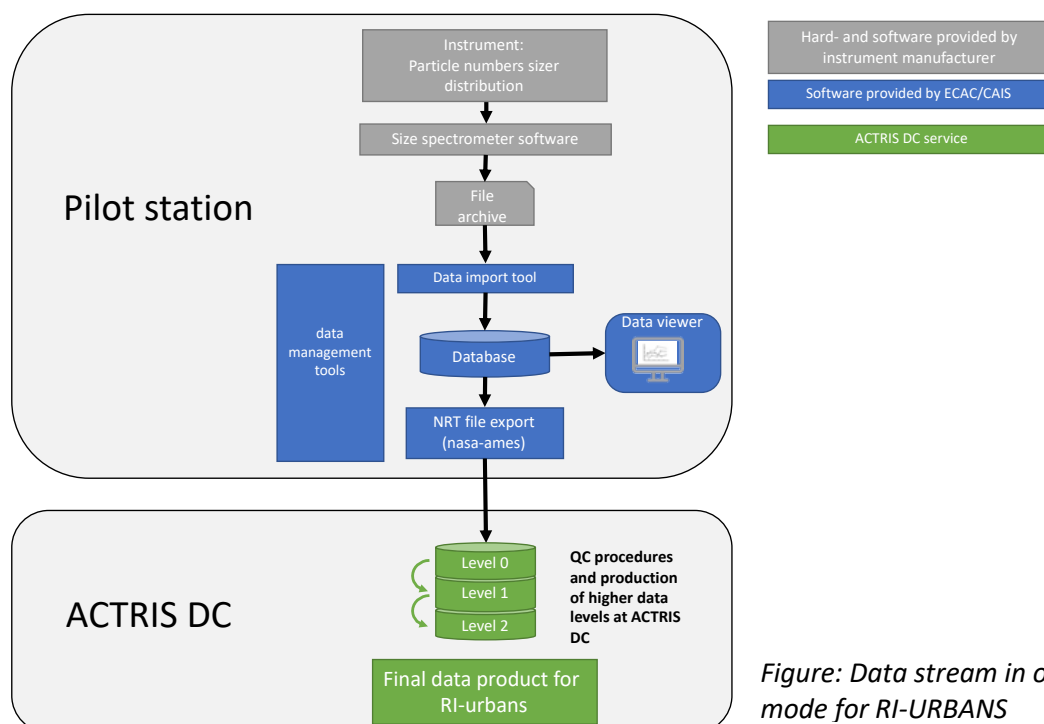


Figure: Data stream in operational mode for RI-URBANS

### ***3. Process for implementing NRT aerosol size distribution Service Tool for RI-URBANS***

The implementation of the service tool for measuring the particle number size distribution and deployment near real time requires a number of steps. The procedure aims to generate ACTRIS compatible data for provision in the data centre.

1. Aerosol particle number size distribution measurement in an urban environment: The pilot stations Barcelona, Helsinki and Birmingham are operational.
2. Contact was made by the ACTRIS Central Facility CAIS-ECAC to ensure that the measurement guidelines are followed.
3. Collection of information about instrument and measurement setup: in progress
4. Timeline for software implementation: Software is ready and specific adaptations will be implemented in M6 to start producing test data sets
5. Suggestion for modification based and test data sets analysed by CAIS
6. Preparation at ACTRIS DC to receive NRT data
7. Opening the data stream between the measurement site and ACTRIS DC: M7

## **Annex 1**

1. ACTRIS Recommendation for mobility particle size spectrometer measurements: Part I recommended instrument set-up
2. ACTRIS Recommendation for measurements with mobility particle size spectrometers - Part II recommended particle loss correction
3. ACTRIS Recommendation for measurements with mobility particle size spectrometers - Part III Standard Operation Procedure
4. ACTRIS Recommendation for measurements with mobility particle size spectrometers - Part IV Constants and Relevant Equations
5. ACTRIS In Situ Aerosol: Guidelines for Manual QC of MPSS Data [MF1]