

ST10: Protocol for obtaining aerosol mass concentration profiles with high power aerosol lidar in combination with photometer. This information can be obtained with multi-wavelength aerosol vertical profiles obtained by aerosol lidar in combination with simultaneous and co-located photometer measurements (photometers in AERONET network).

The linked resources for ST include:

- 1) Deliverable 6 (D1.6) Observational methodologies for horizontal and vertical profiling for Air Quality (AQ) purposes: https://riurbans.eu/wp-content/uploads/2022/10/RI-URBANS_D6_D1_6.pdf, summarizes the 3D-mapping capacities and requirements for the instruments. **Particularly section 2.4.**
- 2) Requirements for the implementation of lidar measurements for aerosol optical properties measurements are described in M7 (M1.8) Requirements for the implementation of vertical profiling measurements in pilot sites https://riurbans.eu/wp-content/uploads/2023/03/RI-URBANS_M7.pdf
- 3) The guidelines and standard operating procedures for aerosol lidars and photometers are provided by ACTRIS Center for aerosol remote sensing: <https://www.actris.eu/topical-centre/cars>

The tool can be offered through a specific request to Homeless data portal: <https://www.atmo-access.eu/virtual-access/#/>. Data should be processed through centralized processing chain developed in ACTRIS (namely the SCC) for which aerosol lidar data should be provided following the ACTRIS Aerosol remote Sensing data format.

Scientifically this ST_D is linked to Lopatin et al., 2013 <https://doi.org/10.5194/amt-6-2065-2013>.