

ST9: Protocol for identification of aerosol type in vertical profiles with high power aerosol lidar. This information can be obtained with multi-wavelength plus depolarization aerosol vertical profiles obtained by aerosol lidar.

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 2.3.**
- 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 are provided by ACTRIS Center for aerosol remote sensing: <https://www.actris.eu/topical-centre/cars>

Aerosol optical properties should be provided following the ACTRIS Aerosol remote Sensing data format. ARES DC unit will centrally process them with NATALI software and make the data available through a specific request to Homeless data portal: <https://www.atmo-access.eu/virtual-access/#/>

Scientifically this ST_C is linked to Nicolae et al., 2018 <https://doi.org/10.5194/acp-18-14511-2018> which reports details about the used methods and Voudori et al., 2019 <https://doi.org/10.5194/acp-19-10961-2019> which compares such method with another used within the aerosol community.