

ST15 Protocols for mapping urban outdoor concentrations of UFP and other pollutants by using deterministic multi-scale modelling

To obtain the high spatial resolution variability of urban exposure, the regional-scale modelling (1 x 1 km²) over cities may be combined with local-scale modelling. The concentrations are evaluated compared to fixed measurements at different station types.

The linked resources for this ST include:

- 1) M21 (M4.5) Mapping pollutants related to health effects: https://riurbans.eu/wp-content/uploads/2023/10/RI-URBANS_M21.pdf. This describes different models used in Pilot cities to provide high-resolution outdoor exposure city maps for pollutants related to health effects, using deterministic multi-scale modeling.
- 2) M16 (M3.5) Definition of metrics for sub-grid variability: https://riurbans.eu/wp-content/uploads/2023/06/RI-URBANS_M16.pdf. Concentrations of pollutants vary within 1 x1 km² grid boxes of the regional models. Metrics of sub-grid variability are therefore defined for concentrations, and they can be applied to the concentrations of any pollutant that is simulated at both the local and regional scales. Sub-grid variability varies with pollutant, since it depends also on pollutant lifetime, but also with time.

Scientifically, this ST10 links the publication of Sartelet et al. (2022): <https://doi.org/10.5194/acp-22-8579-2022>, about regional-scale modelling of UFP over the Paris pilot city. Publications for the multi-scale modelling of UFP and other pollutants are in preparation.