Planned Remote Sensing Set-Up for Urban Meteorology and Emission Estimate Campaign in Rotterdam, The Netherlands

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Atmospheric pollution is the fourth cause of premature mortality in 2019, according to the recent evaluation of the Global Burden of Disease 2020. The significant efforts in Europe to abate air pollution have remarkably improved urban air quality, to the extent that, in the last decades, however, the last report of the European Environmental Agency shows that in 2018 large proportions of the EU urban population were exposed to NO_2, PM10, PM2.5, and O_3 levels exceeding the respective current WHO air quality guidelines.

In order to support further abatement strategies to improve living conditions in urban environments, measurement and modelling strategies are being developed to analyze dispersion around hot-spots, and to improve forecasting techniques.

To this end, a field campaign is planned in the Rotterdam aera in The Netherlands. This area includes a large harbor, petrochemical plants, as well as a nearby aerodrome (Schiphol). Moreover, the city (population approximately 1 million) is in a coastal area. This poses a complex environment to study the effects of air pollution.

In September 2022 a field campaign is planned that includes ground based remote sensing observations in the city, as well as in the surrounding, more rural areas. Next to vertical distribution of aerosols, the dynamics will be addressed, as well as distribution of air pollutants. The planned set-up will be outlined in this paper.