

Data assimilation with meteorology-dependent area of influence

The regional chemistry-transport (air quality) LOTOS-EUROS uses data-assimilation of ground-based and satellite observations to improve initial conditions and get feedback on emissions of air pollutants. So far, the influence of a stations is taken into account within a certain radius around the station. In reality, the influence should depend on wind direction, affecting e.g. station correlation lengths. This becomes more important when doing model simulations on high resolution (1x1km²) and including a more dense observational network than the official regulatory network.

In this project a method to include wind direction in data assimilation will be developed and tested, using the LOTOS-EUROS model with the ensemble Kalman filter data assimilation scheme applied over The Netherlands with a focus on one of the densely populated areas in The Netherlands. Intended location: internship at TNO Air, Climate & Sustainability, Utrecht. But can also be carried out within DUT.