



## **Regional ozone data assimilation using the CHIMERE-EnKF**

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An Ensemble Kalman Filter (EnKF) has been coupled to the CHIMERE chemical transport model in order to assimilate ozone ground measurements at the regional scale. A first assimilation experiment over the European domain during a summertime photochemical pollution episode will be presented and evaluated. To better evaluate simulations and assimilate proper observations in term of representativeness we have used an objective station classification based on the diurnal cycle of ozone measurements. From the evaluation of the CHIMERE reference run, we have set-up the assimilation experiment. Especially, diurnal error profile of CHIMERE is used to build the background covariance error matrix. The comparison between the analysis and the reference run shows a 30% reduction of errors. We note an improvement of ozone analysis over the whole set of statistical indicators and for all stations types. Sensitivity tests on the formulation of observation and model covariance error matrix are conducted. Results indicate an improvement of error representation especially when using a posteriori diagnostics during an analysis-forecast cycle. Nevertheless it is shown that skill scores of the assimilation system are only weakly improved.