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Application of satellite observations for verification of air quality forecast - issues, challenge and applications of EcoForecast.EU

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We will present results from an operational air quality forecast for Central Europe and comparison with selected satellite observations.

EcoForecast.EU has been operational since early summer 2009. EcoForecast is generated by the GEM-AQ model in a global variable configuration. The model is run at $\sim$25 km resolution over Europe and further cascaded to 5km using LAM configuration within the GEM-AQ modelling platform. The primary objective of our work is to provide an air quality forecast in these two scales as well as to study air quality process.

The forecast is evaluated against surface measurements, however the measurement sites are sparse and their representativeness at a given grid resolution is often problematic. Moreover, the analysis does not allow for verification of modelled spatial distribution of transport of polluted air masses downwind over industrial regions and accumulation caused by specific topography features.

Comparison with satellite data from SCIA provides better information on the agreement between observed and modelled spatial pattern of NO2. In addition, this comparison allows for evaluation of NO2 tropospheric burden which significantly supplements analysis results from the ground-based observations.