

Ensemble operational air quality in Europe – Improving modeling platforms with statistical modeling

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Abstract

MACC-II - Monitoring Atmospheric Composition and Climate - is the current COPERNICUS (previously known as GMES Global Monitoring for Environment and Security) - Atmosphere Service throughout Europe. For regional air quality, seven regional modeling teams combine state-of-the-art atmospheric modeling with Earth observation data assimilation. All models use the same anthropogenic emissions dataset, the same meteorological forcing and the same lateral boundary conditions provided by the global model forecasts. They differ by their physical process modeling, data assimilation or statistical analysis system. All models have also very significant and specific skill, and this is exploited in the ensemble approach. This ensemble is currently based upon a median value approach. In this communication, we give an overview of the current status of the ensemble approach and its performance. The performance is based upon ground-based measurements which are not directly used during data assimilation or statistical analysis process. MACC-II products are considered as the “best available or most realistic” representations of air pollution patterns over Europe: more relevant than interpolation of observations and more accurate than raw simulations or one unique modeling.

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