5.087 Multi-Model Ensemble Forecasts of Air Quality in Eastern China.

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Abstract:

As part of the EU-sponsored Panda and MarcoPolo projects, an operational multi-model forecasting system for air quality including 9 different chemical transport models has been developed and is providing daily forecasts of ozone, nitrogen oxides, and particle matter for 37 urban areas of China. These individual forecasts as well as the mean and median concentrations for the next 3 days are displayed on an accessible website (www.marcopolo-panda.eu) and are continuously compared with local observations.
In this study, we present an evaluation and inter-comparison of the different forecasts performed during the first operational phase of the system (2016-2017) using surface observations and statistical indicators. We will focus in particular on model performance regarding the geographical distribution, diurnal variation and seasonal behavior of pollutants. We will demonstrate the robustness of the ensemble approach, which shows improved statistical skills compared to most of the individual model predictions and has the ability to provide accurate alert warnings of pollution events.
We will highlight recurrent differences between the model output as well as systematic biases that appear in the median/mean concentration values. Pathways to reduce differences between models and to minimize systematic biases in the forecasts will be suggested.