Comparison of Spatial Patterns of Pollutant Distribution with CMAQ Predictions

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Brief Description:

One indication of model performance is the comparison of spatial patterns of pollutants, either as concentration or deposition, predicted by the model with spatial patterns derived from measurement. If the spatial patterns produced by the model agree with observations in shape, location, and magnitude it can add to our confidence that the model is performing well. However, deriving spatial patterns from measured pollutant data is not always trivial. Modeling networks are spatially sparse, and frequently biased toward certain types of land use. Frequently there is measurement bias between networks. We will explore the development of reliable spatial models of monitoring data using a variety of simple approaches, and discuss the strengths and weaknesses of some of these. We will then compare the resulting spatial patterns with those predicted by CMAQ, noting similarities and differences. We will consider SO4, NO3, and NH4 aerosols, O3, and the wet deposition of SO4, NO3, and NH4.