

Abstract Title: Improved space-time forecasting of next ozone concentrations in the eastern U.S.

Abstract: There is an urgent need to provide accurate air quality information and forecasts to the general public. A hierarchical space-time model is used to forecast next day spatial patterns of daily maximum 8-hr ozone concentrations. The model combines ozone monitoring data and gridded forecast output from the Eta Community Multi-scale Air Quality (CMAQ) forecast model in a flexible, efficient way so that next day forecasts can be computed in a real-time operations mode. The model adjusts for bias in the Eta CMAQ forecasts and avoids the change of support problem often encountered where monitoring data observed at points, but forecasts from a computer model are provided at grid cell levels. The model is validated using set-aside data and is shown to provide improved forecast of daily ozone concentrations in the eastern U.S.

Key Words: Bayesian modeling, data fusion, hierarchical model, forecasting, air pollution