



Development and Evaluation of the Weather Research and Forecasting Air Quality Model

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This presentation will describe the latest updates to the Weather Research and Forecasting (WRF) model as it is coupled to fully online chemistry. This model now includes many atmospheric chemistry routines covering biogenic emissions, deposition, photolysis, chemical mechanisms. In addition, atmospheric aerosol routines based upon the Modal Aerosol Dynamics Model for Europe (MADE) including the Secondary Organic Aerosols (SOA) have been added to WRF. The chemistry and aerosol routines are solved in an “online,” or “fully-coupled” fashion with the meteorology forecast model. In other words, the interaction and transport of meteorological, chemical, and aerosol species are calculated using the same physical parameterizations with no need to interpolate in time and/or space.

The presentation will cover the evaluation of this model using a test bed dataset from the summer of 2004. From 1 July through 15 August 2004, an intensive meteorological and air quality observation and numerical forecasting field program took place over the New England region. One goal of the New England air quality study was to assess the ability of current operational and research models to predict poor air quality and its relationship to the regional and local weather conditions. The model evaluation involves verification of Ozone as well as particulate matter forecasts with observations.