

Windblown dust events have a negative impact on local air quality. The magnitude of dust events is determined by a combination of soil properties, often governed by land use, and meteorological conditions. Modeling dust behavior during these events can link dust emission sources to regional and local distribution of dust concentrations and assess impacts of future changes to soil properties and land use. The Community Multi-Scale Air Quality Model (CMAQ) is an atmospheric dispersion and chemical transport model for air pollution which contains a windblown dust model. Windblown dust emissions are dependent on soil types supplied by the Weather Research and Forecasting Model (WRF). Soil properties are assigned to each soil type by the CMAQ dust model. These soil properties can be modified to more closely match those found in Utah. After adjusting the dust model inputs to more accurately represent Utah specific soil properties, CMAQ can be used to conduct studies of current and future land use scenarios. These “what if” studies use a land mask over the default NLCD land use properties, in order to predict dust emissions for different scenarios. Varying the fractions of silt, clay, coarse sand and fine-medium sand for various soil types to more closely match observed soil characteristics of Utah has been shown to increase the emission of dust.