

Recent Updates to the SMOKE Modeling System

Catherine Seppanen
Carolina Environmental Program
UNC-Chapel Hill
Chapel Hill, NC
cseppan@unc.edu

The Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System processes area, mobile, point, and biogenic source emissions for input into a variety of air quality models. We continually update and expand SMOKE's capabilities to better meet the needs of emissions modelers. Recent updates include improved MOBILE6 integration; SMOKE is now able to use hourly humidity data from gridded meteorology files as input to MOBILE6. We have also improved the temporal allocation of VMT when applying MOBILE6 emission factors to better model real-world conditions and added more flexibility when modeling rural and urban local roads. The newest version of SMOKE also includes new reporting options, support for polar stereographic grids, and an enhanced version of the Mrggrid utility. Current SMOKE work includes updates to handle variable grid resolutions and processing of aircraft emissions.