Matthew S. Johnson
NASA Ames Research Center
Moffett Field, CA 94035-1000
Email: matthew.s.johnson@nasa.gov

"Overview of Global/Regional Models Used to Evaluate Tropospheric Ozone in North America".

Ozone (O_3) is an important greenhouse gas, toxic pollutant, and plays a major role in atmospheric chemistry. Tropospheric O_3 which resides in the planetary boundary layer (PBL) is highly reactive and has a lifetime on the order of days, however, O_3 in the free troposphere and stratosphere has a lifetime on the order of weeks or months. Modeling O_3 mixing ratios at and above the surface is difficult due to the multiple formation/destruction processes and transport pathways that cause large spatio-temporal variability in O_3 mixing ratios. This talk will summarize in detail the global/regional models that are commonly used to simulate/predict O_3 mixing ratios in the United States. The major models which will be focused on are the: 1) Community Multi-scale Air Quality Model (CMAQ), 2) Comprehensive Air Quality Model with Extensions (CAMx), 3) Goddard Earth Observing System with Chemistry (GEOS-Chem), 4) Real Time Air Quality *Modeling* System (*RAQMS*), 5) Weather Research and Forecasting/Chemistry (WRF-Chem) model, National Center for Atmospheric Research (NCAR)'s Model for OZone And Related chemical Tracers (MOZART), and 7) Geophysical Fluid Dynamics Laboratory (GFDL) AM3 model. I will discuss the major modeling components which impact O_3 mixing ratio calculations in each model and the similarities/differences between these models. This presentation is vital to the 2nd Annual Tropospheric Ozone Lidar Network (TOLNet) Conference as it will provide an overview of tools, which can be used in conjunction with TOLNet data, to evaluate the complex chemistry and transport pathways controlling tropospheric O_3 mixing ratios.