Impact of fires on the Mexico City plume; Simulation using the WRF-Chem model

Xuexi Tie, ACD/NCAR

Sasha Madronich, Christine Wiedinmyer, ACD/NCAR

We use a newly developed regional chemical/transport model (WRF-Chem) to study the air pollutions in mega cities and their effect on surrounding areas. In this study, we use a 6x6 km resolution located around Mexico City to study the air pollution inside the city and the impact of biomass burning and biogenic emissions on the chemical oxidants and ozone chemistry in the urban outflow plume. Mexico City is a highly polluted city, with CO, NOx (NO2 + NO) and hydrocarbons (HCs) emissions resulting in locally high ozone concentrations (150-200 ppb peak values). The highly polluted city plume interacts strongly with the reactive emissions of the surrounding areas, esp. from vegetation and biomass burning. The model simulation will be compared with preliminary data measured during the MIRAGE-Mex field project.