PM2.5 Soil/Crustal Sensitivity Runs
PM2.5 Crustal/Soil Emissions

- baseD+ at 1PM
- baseD+ w/MDM at 1PM
- baseD+ w/MDM at 12AM

Maps showing PM2.5 emissions with different conditions.
Dust Modification

mdm – baseD++
Episode Average FCRS Difference
36km grid

June 25, 2001 0:00:00
Min = -6.1 at (85,66), Max = 0.0 at (1,1)

mdm – baseD++
Episode Average FCRS Difference
36km grid

January 8, 2000 0:00:00
Min = -10.2 at (84,61), Max = 0.0 at (1,1)
Dust Modification

SOIL (ug/m3) - ALL MONITORS - 2001 [LADCO]

SOIL (ug/m3) - ALL MONITORS - 2000 [LADCO]
PM2.5 Nitrate

Diurnal Profile Ammonia Sensitivities
Ammonia Sensitivity Runs

- Using default confined animal operations temporal profiles, monthly fertilizer, and including all pets and human ammonia emissions
- Sensitivities:
  - Improved temporal profiles for confined animal operations
  - No pets, humans, or deer ammonia emissions
PM2.5 Nitrate

PM2.5 Ammonium

NO₃ (µg/m³) - ALL MONITORS - 2001 [LADCO]

NH₄ (µg/m³) - ALL MONITORS - 2001 [LADCO]
PM2.5 Sulfate

1) Cut low level SO2 emissions
2) No aqueous phase chemistry
Cut Low Level SO2 Emissions by 50% (area, on-road, off-road only)
Cut Low Level SO2 Emissions by 50%
St. Louis Super Site - Sulfate

PM2.5 Sulfate (ug/m3) - stlss - 2001 [LADCO] camx

BASE E

no clouds

PM2.5 Sulfate (ug/m3) - stlss - 2001 [LADCO] camx
Mammoth Cave, KY

PM 2.5 Sulfate

baseE - MACA - PS04 2001 [LADCO] : camx

noclouds - MACA - PS04 2001 [LADCO] : camx
PM2.5 Carbon

1) Removed forest fires
2) Double PM2.5 primary emissions from motor vehicles
PM2.5 Primary Organic Carbon Difference Plot
Winter <-> Summer

baseE - baseD++
Episode Average POA Difference
36km grid

January 8, 2000 0:00:30
Min= -2.7 at (52,71), Max= 0.1 at (79,55)

June 25, 2000 0:00:00
Min= -19.1 at (12,71), Max= 0.0 at (1,1)
Double PM2.5 Emissions for Onroad Mobile Sector
Ammonia Sensitivities

Ammonia Emissions (moles/hr)

baseD+
to26low
to24
baseD
Episode Average Spatial Differences
Jan-Feb 2000

NH3(ppb)                         NH4(ug/m3)                     NO3(ug/m3)
to26low – baseDplus             to26low – baseDplus             to26low – baseDplus

Episode Average NH3 Difference
36km grid

Episode Average PNH4 Difference
36km grid

Episode Average PNO3 Difference
36km grid

January 8, 2000 0:00:00
Min= -9.7 at (73,35), Max= 0.0 at (93,2)

January 8, 2000 0:00:00
Min= -1.4 at (52,30), Max= 0.0 at (1,1)

January 8, 2000 0:00:00
Min= -4.6 at (65,32), Max= 0.0 at (64,2)
Episode Average Spatial Differences
August-Sept 1999

NH3(ppb)

to26low – baseDplus
Episode Average NH3 Difference
36km grid

NH4(ug/m3)

to26low – baseDplus
Episode Average PNH4 Difference
36km grid

NO3(ug/m3)

to26low – baseDplus
Episode Average PNO3 Difference
36km grid

August 9, 1999 0:00:00
Min = -10.1 at (73,35), Max = 0.0 at (58,15)

August 9, 1999 0:00:00
Min = -2.1 at (57,48), Max = 0.0 at (96,3)

August 9, 1999 0:00:00
Min = -5.4 at (57,48), Max = 0.0 at (85,55)
MRPO Dust Modification

- Landuse category specific reductions
  - Urban 20%
  - Agriculture 30%
  - Range 0%
  - Decid. Forest 50%
  - Conif. Forest 50%
  - Mixed Forest 50%
  - Barren 0%
  - Wetlands 40%
  - Mixed Agro/Range 10%
  - Rocky 0%

- Diurnal reductions
  - 50% overnight, 0% during the day
  - transition periods between 0 and 50%