Interstate Transport of Ozone and Aerosols: The View from Satellites and Models

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24 and 48 hour back trajectories starting at 1700 UTC 7 September from http://www.etl.noaa.gov/programs/2006/texaqs/traj/
Dust from the Sahara Desert Reaches Houston, Texas

Observations from the Multi-angle Imaging SpectroRadiometer (MISR) Instrument on NASA’s EOS Terra Satellite
**Dust Event: August 28th, 2006**

RAQMS Dust analysis is in reasonable agreement with TCEQ residual dust estimates.

Shows onshore transport of dust from Gulf accounts for Significant fraction of AIRNow total PM2.5 observations in SE Texas on August 28th.
HSRL Observations on 29 August 2006 (Dust Event)

Backscatter

Extinction/Backscatter

Depolarization

Backscatter Wavelength Dependence
CALISPO Backscatter profiles for August 17-28, 2006
Boundary Layer back trajectories from August 28 CALIPSO track shown in red
Sulfate Event: Sept. 03, 2006

RAQMS aerosol analysis is in good agreement with TCEQ SO4 measurements on Sept 03.

Shows sulfate dominated aerosols along CALIPSO track east of Houston.
HSRL Model Verification: aerosol backscatter distribution

RAQMS\textsubscript{regional} (80km)

RAQMS provides a good prediction of the magnitude of BL aerosol backscatter, but:

1) misses elevated aerosol suspected of being smoke (B\textsuperscript{1}, C\textsuperscript{1}, A\textsuperscript{2}, B\textsuperscript{2}, C\textsuperscript{2}) and BL enhancement near Houston (A\textsuperscript{1})

2) predicts elevated aerosol layer at beginning of CALIPSO underflight that is not observed (dash)