

TexAQS II

NOAA's Perspective

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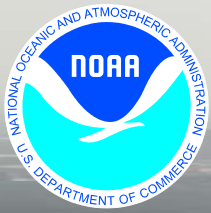
NOAA Earth System Research Laboratory

Chemical Sciences Division

TERC - SAC Meeting

Houston, TX

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TexAQS II from NOAA's Perspective



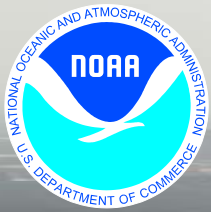
The Texas Air Quality Study II

NOAA's Will Focus on Climate Change and Air Quality

During TexAQS II NOAA Will Focus on:

- ✓ Emissions Verification
- ✓ Transport and Mixing
- ✓ Chemical Transformation
- ✓ Aerosol Properties and Radiative Effects
- ✓ Forecast Models

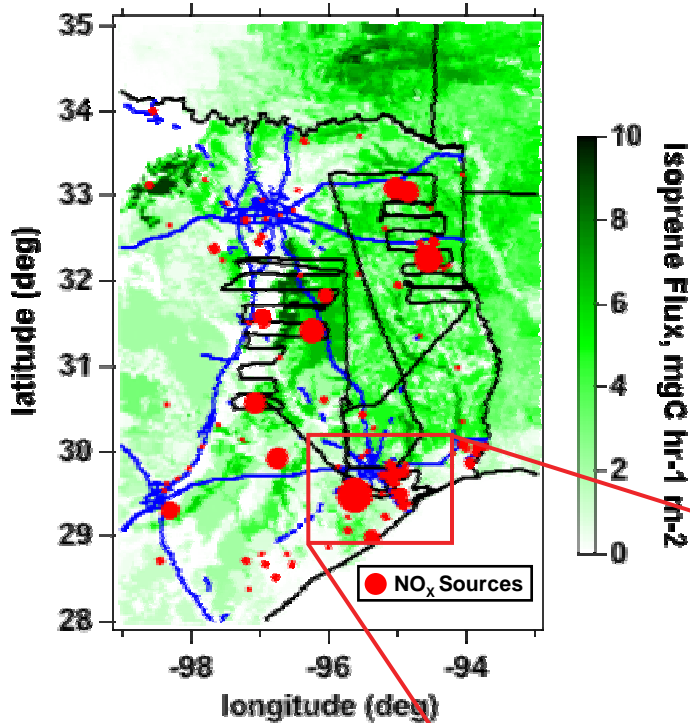
For More Information <http://www.al.noaa.gov/2006/>



Emissions Verification

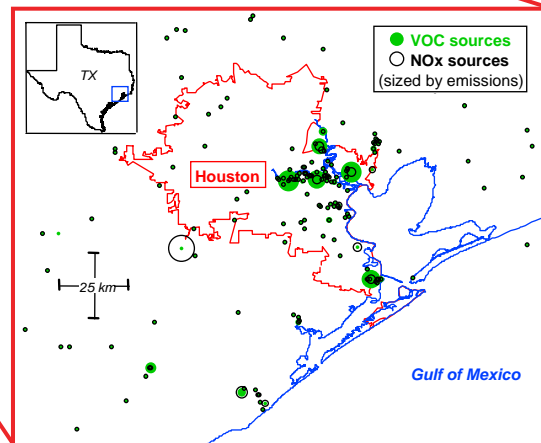


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1. How well do inventories compare with ambient measurements?
2. How have emissions changed since 2000?

CO_2 - CO - NO_x - SO_2 - VOCs - Isoprene



Source Categories

Point Sources

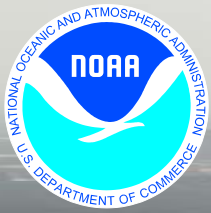
- Power Plants
- Petrochemical Plants
- Marine

Urban

- Houston
- Dallas / Fort Worth

Regional

- Biogenic



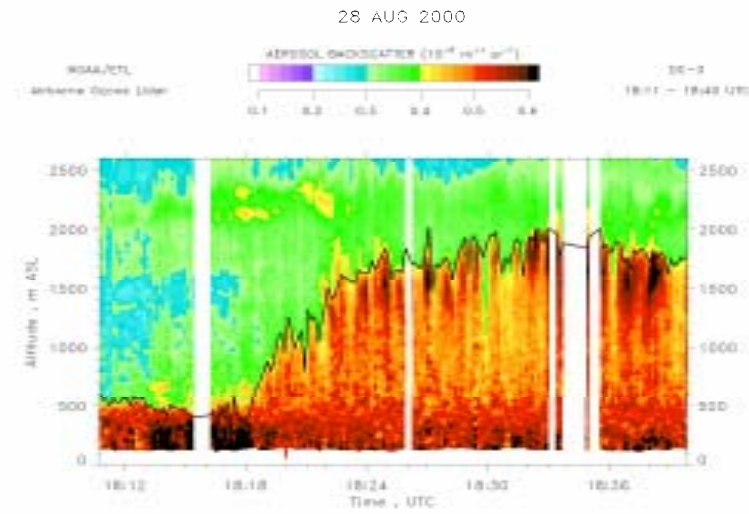
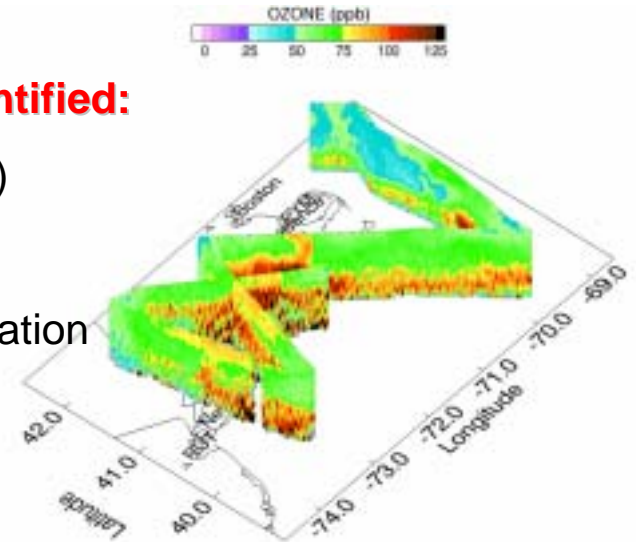
Transport and Mixing

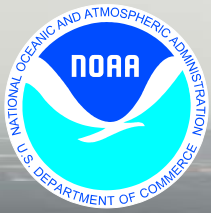


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Atmospheric transport / mixing to be characterized & quantified:

- Regional transport - inter-state, intra-state (source attribution)
- Nocturnal Transport - plumes & regional
- Local transport - point source plumes, land - Bay - Gulf circulation
- Vertical - boundary layer to free troposphere, mixing within the boundary layer (over land and over water)



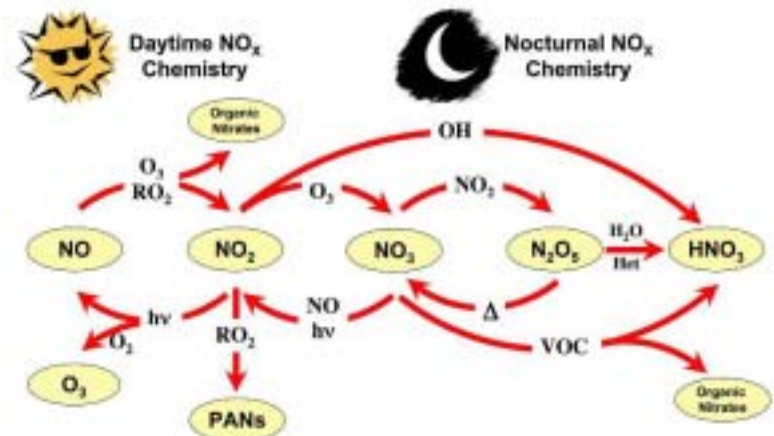


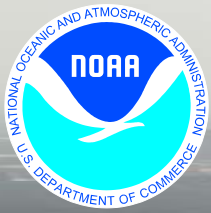
Chemical Transformation



Chemical Transformation priorities for TexAQS II

- Rate and efficiency of ozone formation (point and urban sources)
- Rate and efficiency of fine particle formation and growth (point and urban sources, marine)
- Nighttime transformation during transport - source and regional differences





Aerosol Properties and Radiative Effects



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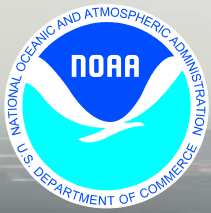
Regional Haze

- Light scattering & absorption in differing environments (sources)
- Chemical evolution and optical evolution of ambient aerosols
- Satellite validation

Climate Change

- Direct effect
- Indirect effect





Forecast Models



The Texas Air Quality Study II

Diagnostic Evaluation and Testing

- Global and regional models will be used for platform (aircraft and ship) deployment.
- Opportunity for near real-time evaluation by comparing forecasts with observations.
- Evaluation of data assimilation techniques
- Ensemble forecasts

