

The Texas Air Quality Study:

Improving the State of the Science of Air Quality in
Texas and Informing Public Policy Decisions

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The Houston-Galveston area is a severe ozone non-attainment area

The current State Implementation Plan (SIP) calls for significant NO_x emission reductions (approximately 70% of the projected 2007 inventory; 90+% for point sources)

SIP also calls for VOC emission reductions (approximately 25% of the projected 2007 inventory)

Costs and benefits of controls have been estimated to be ~5 billion/yr

Texas Air Quality Study -2000 (TEXAQS - 2000)



Provide scientific basis for air quality management strategies in Eastern and Central Texas

(www.utexas.edu/research/ceer/texaqs/)
(www.utexas.edu/research/ceer/texaqsarchive)

TEXAQS - 2000: Study overview

- Study conducted from approximately August 15 - September 15
- Approximately 300 investigators
- 5 aircraft
- 5 major ground chemistry sites
- Approximate budget: \$20 + 10 million

Policy Relevant Scientific Findings from TexAQS

- **Emission inventories:** Data from TexAQS suggest that the VOC emission inventory is low by a factor of 3-10
- **Chemical and physical processes in the atmosphere, particularly those leading to localized rapid and efficient ozone formation:** Elevated concentrations of highly reactive hydrocarbons from industrial sources were responsible for all of the observed rapid and efficient ozone formation events
- **Regional air quality modeling** Existing regulatory models have been unable to replicate critical observations

How did our improved scientific understanding get incorporated into the regulations?

- Accelerated Science Evaluation (initially mandated by consent decree – once initiated it has continued)
- TCEQ commissioners to decide whether to stay with existing plan or to craft a “mid-course correction”
- For updates, see the web site:
(www.utexas.edu/research/ceer/texaqsarchive)

Actions taken by the TCEQ

- Based on the data from TexAQS, which indicate that VOC emissions from industrial facilities are underestimated, new rules have been proposed for emissions of reactive hydrocarbons from flares, cooling towers and fugitive sources

Critical factors for successfully integrating scientific findings into air quality policies

- Timely scientific summaries, written for policy makers
- Leadership at the state environmental agency that actively encourages scientific input
- Continuous interaction with EPA and the state environmental agency at multiple levels
- Communication, communication, communication

Benefits of TexAQS

- More effective SIP
- More confidence by policy-makers in the decision making process
- Demonstration of the value of timely scientific analyses
- Demonstration of the value of federal/state scientific partnerships
- New expectations about the level of scientific understanding that will be required for environmental decision-making