



Earth System Research Laboratory

SCIENCE, SERVICE & STEWARDSHIP

AIR QUALITY RESEARCH AT ESRL

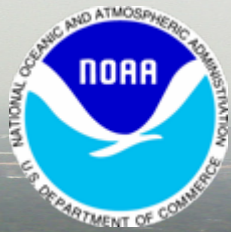
JIM MEAGHER

NOAA Earth System Research Laboratory

ESRL Dedication and Open House

August 23-24, 2006

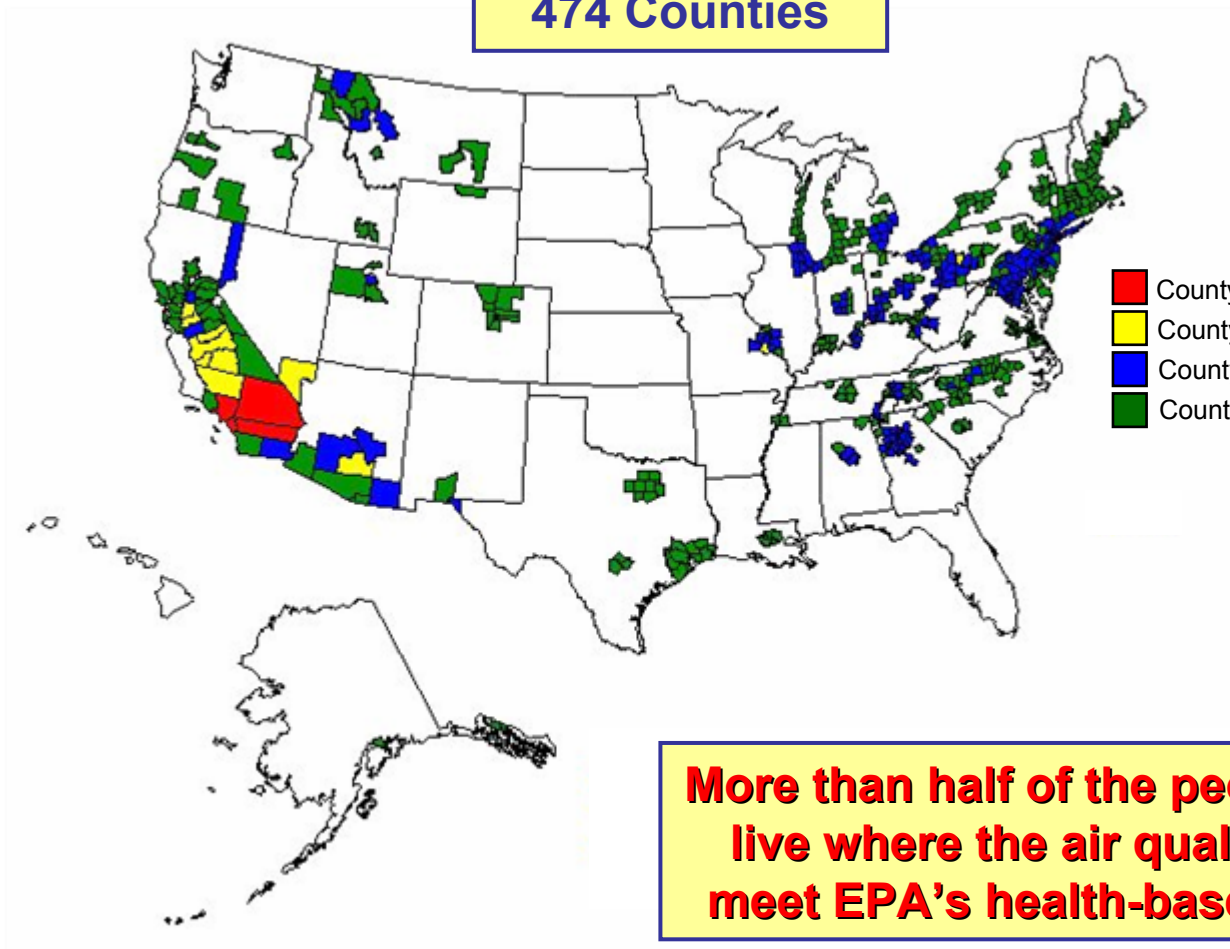




Areas Violating U.S. Air Quality Standards

EPA - March 2006

474 Counties



More than half of the people in the US live where the air quality does not meet EPA's health-based standards



The Price We Pay for Poor Air Quality



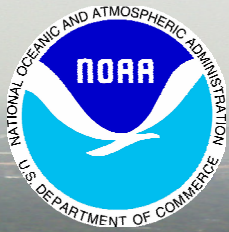
Public Health - Each year

- > 40,000 premature deaths
- Tens of thousands of hospital visits
- Millions of lost work days
- > \$100 Billion in health-related costs

Welfare

- Reduced crop yields - \$3-5 Billion (1990)
- Reduced visibility
- Acidic deposition impacts on lakes and streams
- Fish advisories (e.g. mercury)





ESRL's Air Quality Research Supports ...

Information for Decision-makers

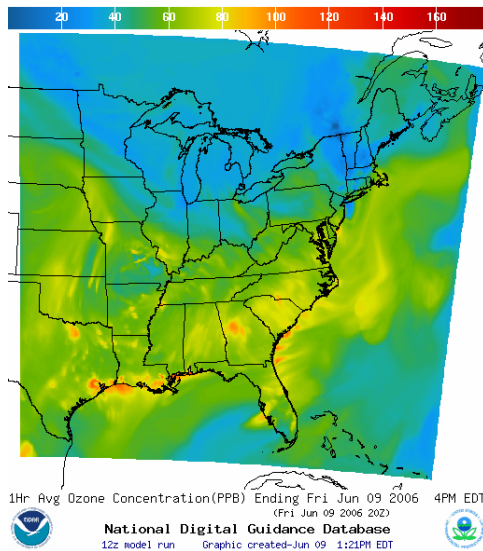
Federal Policies

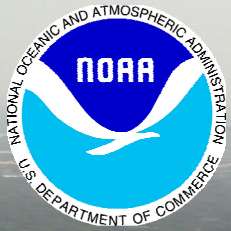


State & Local Management Strategies

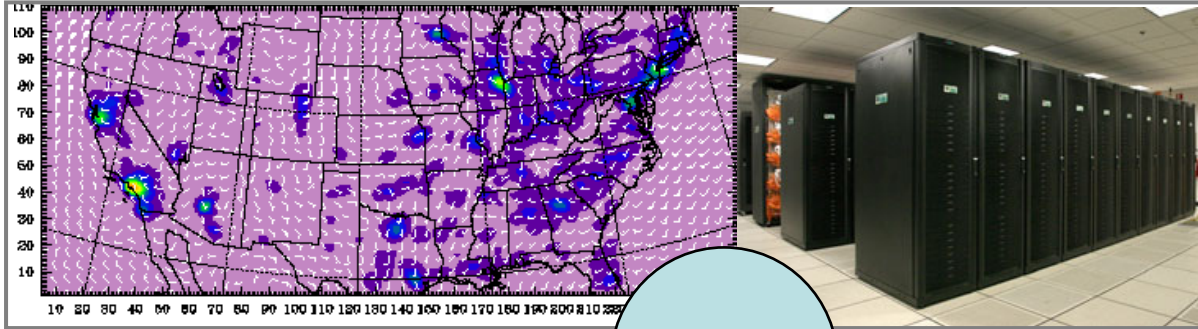


Air Quality Forecasts





ESRL's Air Quality Toolbox

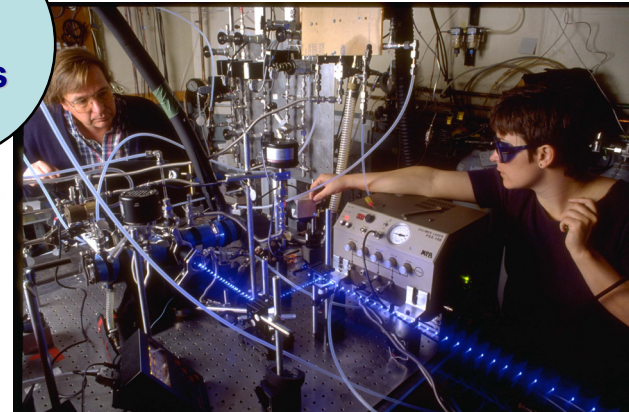


Modeling

Assessments

Field Studies

Lab Studies





Air Quality Research Platforms

NOAA WP-3D Research Aircraft



Research Payload

Meteorology

Gaseous pollutants

Organics

Inorganic

Aerosols

Chemistry

Size distribution

Optics



Air Quality Research Platforms

NOAA Research Vessel Ronald H. Brown



Research Payload

Meteorology

Gaseous pollutants

Organics

Inorganic

Aerosols

Chemistry

Size distribution

Optics

Profiling

O₃/aerosol Lidar

Doppler Lidar

Wind Profiler

Doppler radar



Air Quality Research Platforms

NOAA DeHavilland Twin Otter



Research Payload
Ozone / Aerosol Lidar



Today's Air Quality Presentations

Regional Air Quality Assessments

Fred Fehsenfeld

The Meteorological Aspects of Regional Air Quality

Allen White

Simultaneous Forecasting of Air Quality and Weather at

ESRL

Georg Grell

Speaker's Panel - Questions and Answers