

# Air Quality and Health

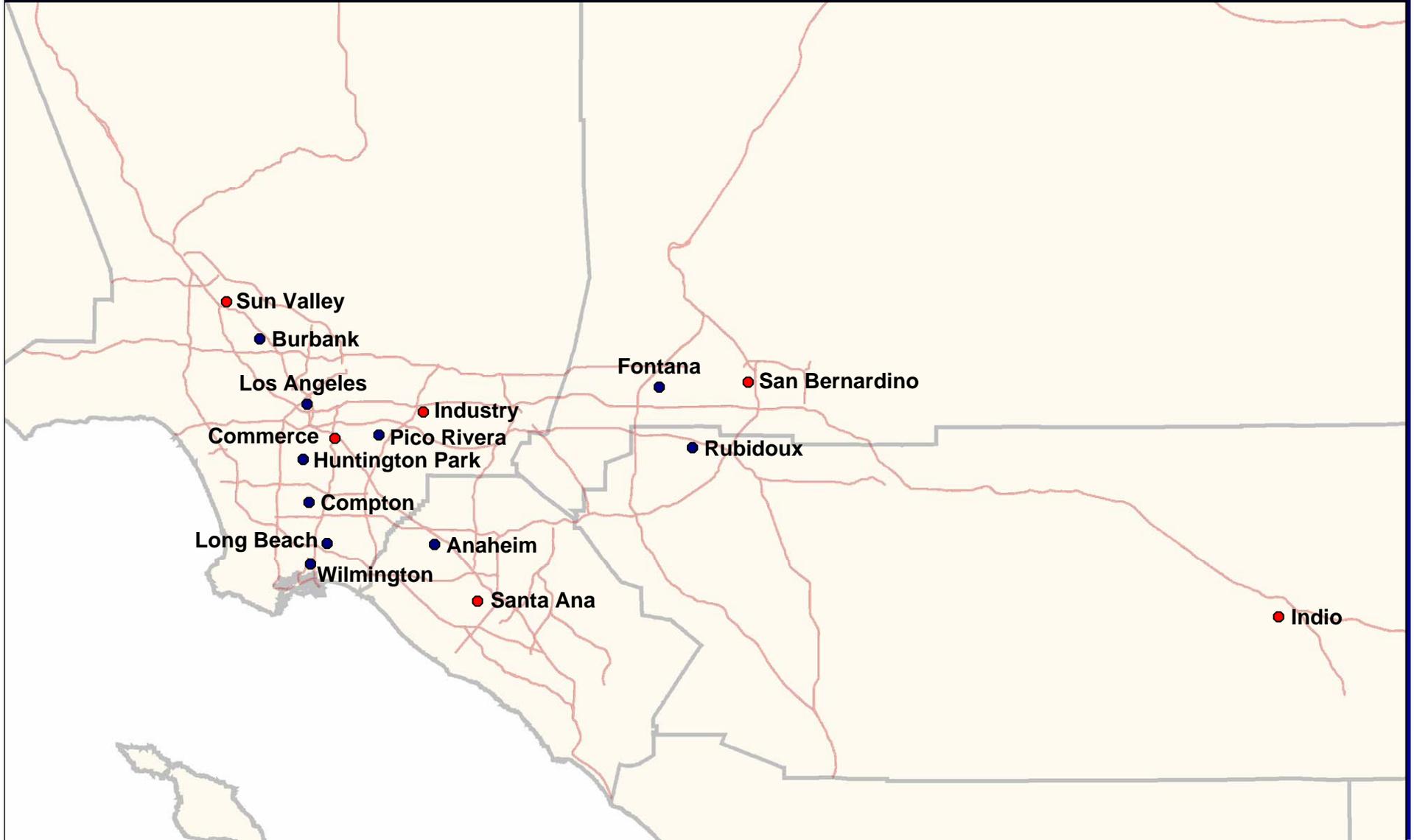
Clean Fuels Program Advisory Group

September 19, 2006

# MATES III Additions

- Analyses of organic tracers in PM samples collected during MATES III
- One year extension for MATES III sampling

# MATES III Sampling Sites



• Fixed Sites • Temporary Sites

# MATES III Status

- Ambient Sampling Ended April '06
- Laboratory analyses ongoing
- Scheduled for draft report of analytical results end of '06

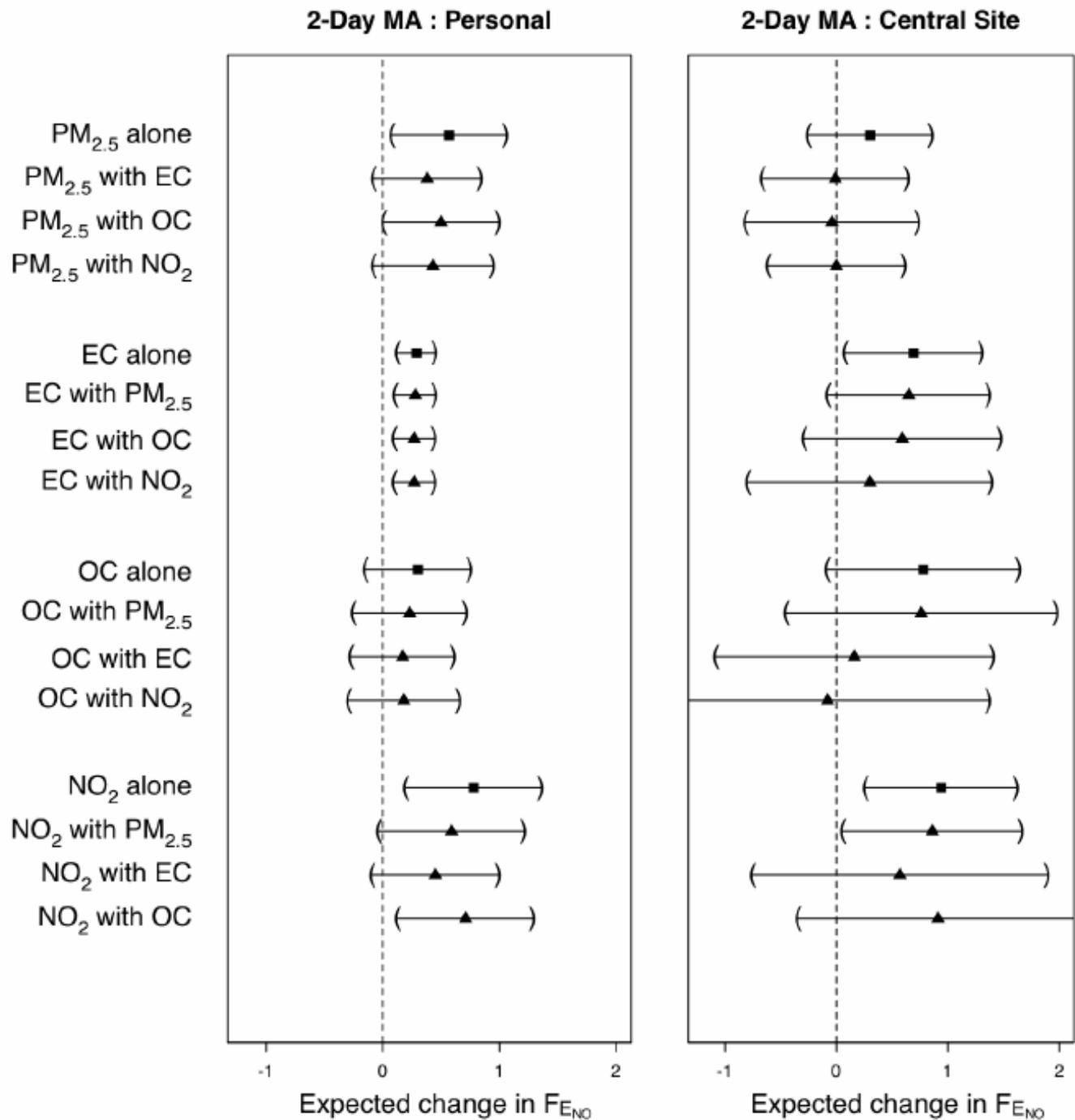
# Ultrafine PM Update

- International conference April 30 - May 2, 2006
- Sessions on Sources, Measurement, Exposure, Health Effects, Control Technology
  - Major source from fuel combustion
  - Highest exposure on freeways with diesel fueled trucks
  - Growing body of health effects research
  - Technology available to reduce emissions
- Commitment to develop chapter in AQMP on Ultrafine PM
- [www.aqmd.gov/tao/UltrafineParticleConf.htm](http://www.aqmd.gov/tao/UltrafineParticleConf.htm)

# Project Highlight

- **Air Pollution and Exhaled Nitric Oxide in Children with Asthma**
  - Project under Asthma and Air Quality Consortium
  - Conducted by UC Irvine
- Exhaled NO indicator of lung airway inflammation
- Measured as  $FE_{NO}$ : fractional concentration of nitric oxide in exhaled air
- Measured air quality with personal samplers and at central station
- Exposure to pollutants associated with increased exhaled NO

- One and two-pollutant models for change in FENO in relation to two-day moving average (2-Day MA) personal and central site air pollutant measurements.
- Expected change in FENO is per Inter-quartile Range (IQR) in the pollutant of interest with 95% confidence intervals.



# Potential New Projects

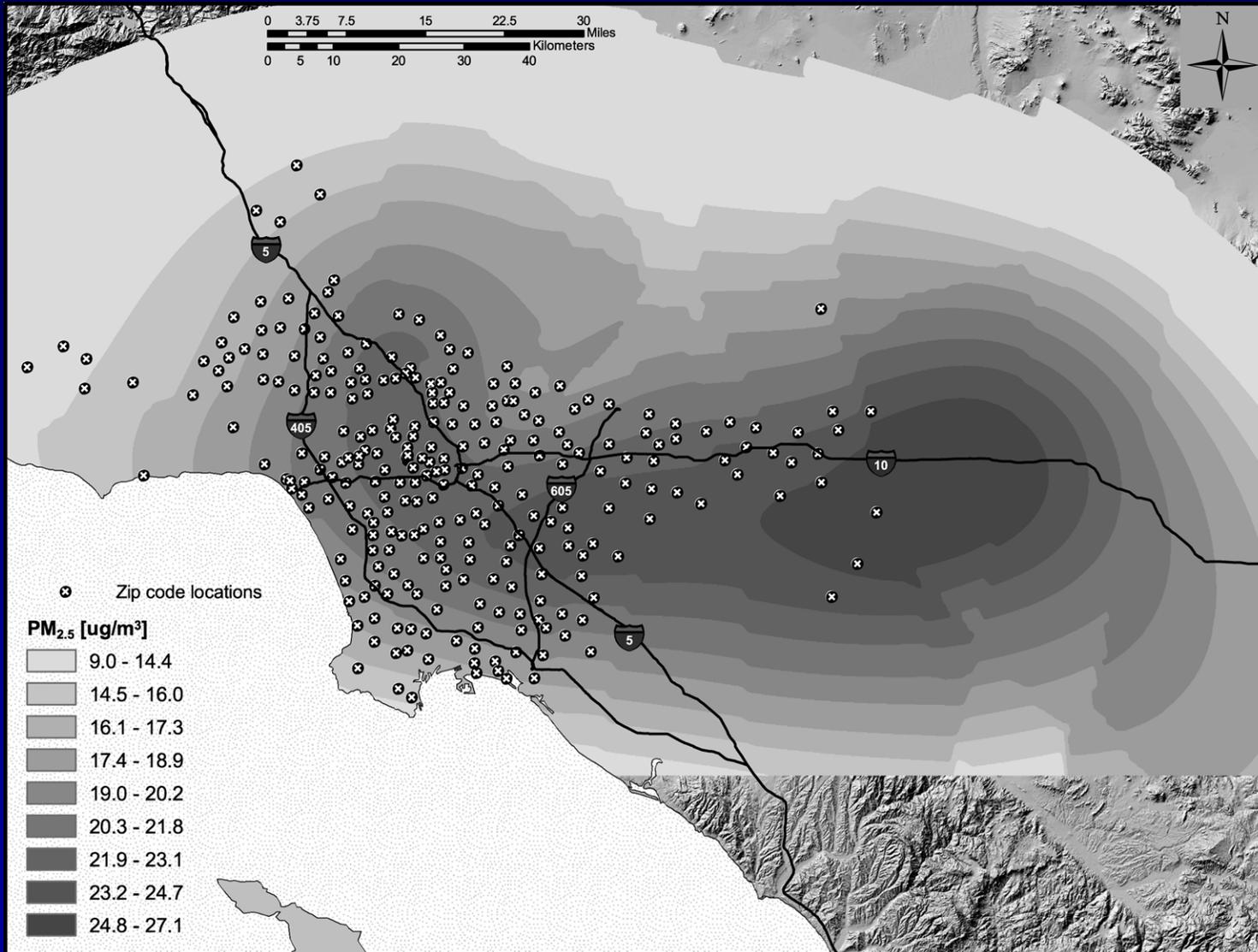
- Expansion of California PM2.5 and mortality analysis
  - USC study found higher effects in Southern California
  - Expand to additional areas of State
  - Co-fund with CARB
  - Total project cost: \$1M over 3 years

# Mortality and Air Pollution in Southern California

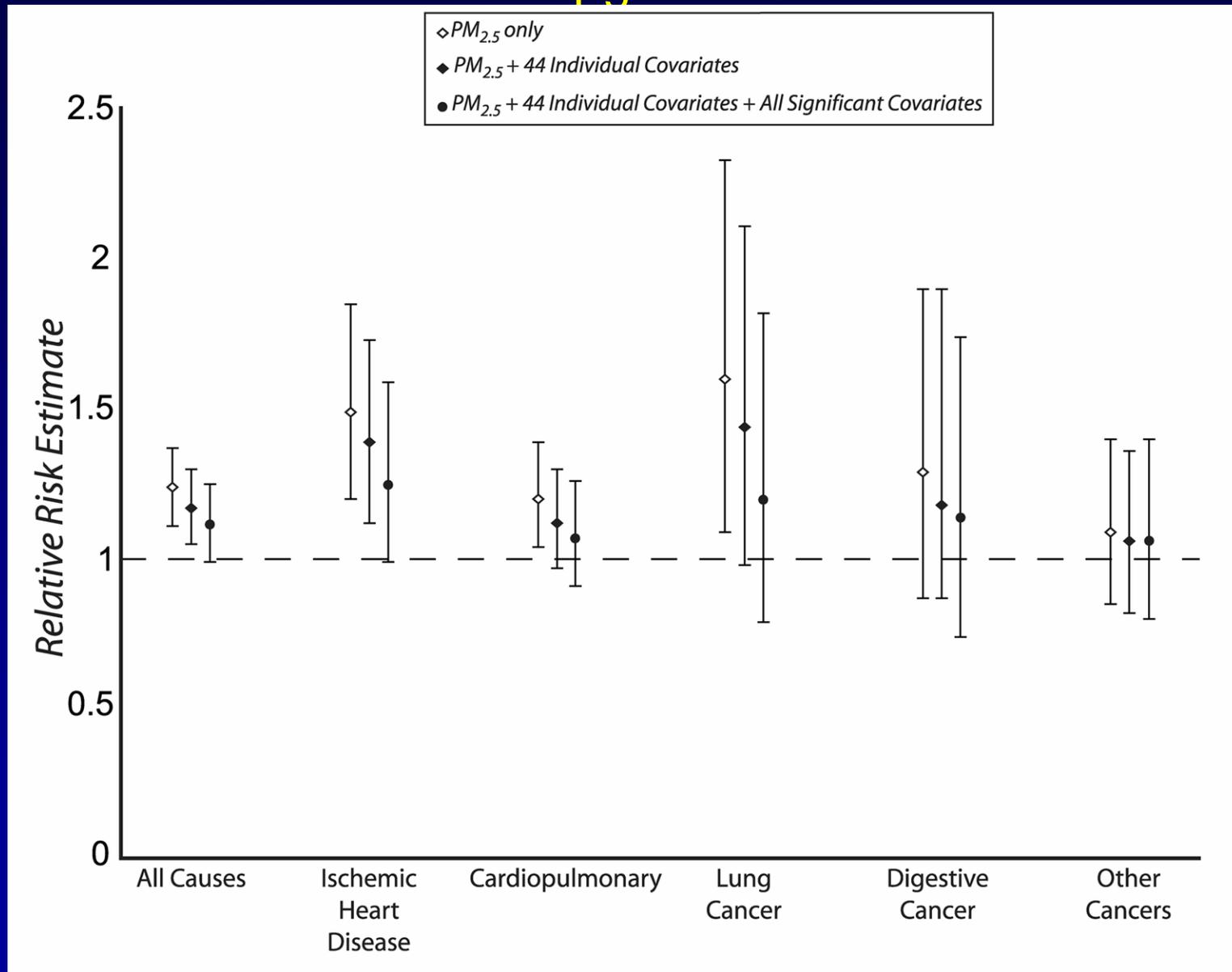
- Data from 23,000 individuals from American Cancer Society study cohort
- Pollutant levels estimated at residence zip code from regional monitoring data
- Included information on lifestyle and demographic risk factors
- Relative mortality risks calculated from death certificate data

Jerrett, M. et al. Spatial Analysis of Air Pollution and Mortality in Los Angeles. *Epidemiology* 16:727-736, 2005

# PM2.5 Levels by Zip Code



# Mortality Relative Risks (RR) and 95% Confidence Intervals Associated with a $10\mu\text{g}/\text{m}^3$ Increase in $\text{PM}_{2.5}$



# Potential New Projects (cont.)

- Mobile exposure facility
  - Develop facility and conduct exposures and health effects study of ambient PM
  - UCLA
  - Co-fund with CARB
  - Total project cost: \$1M over 3 years



# Asthma Is a Small World ...

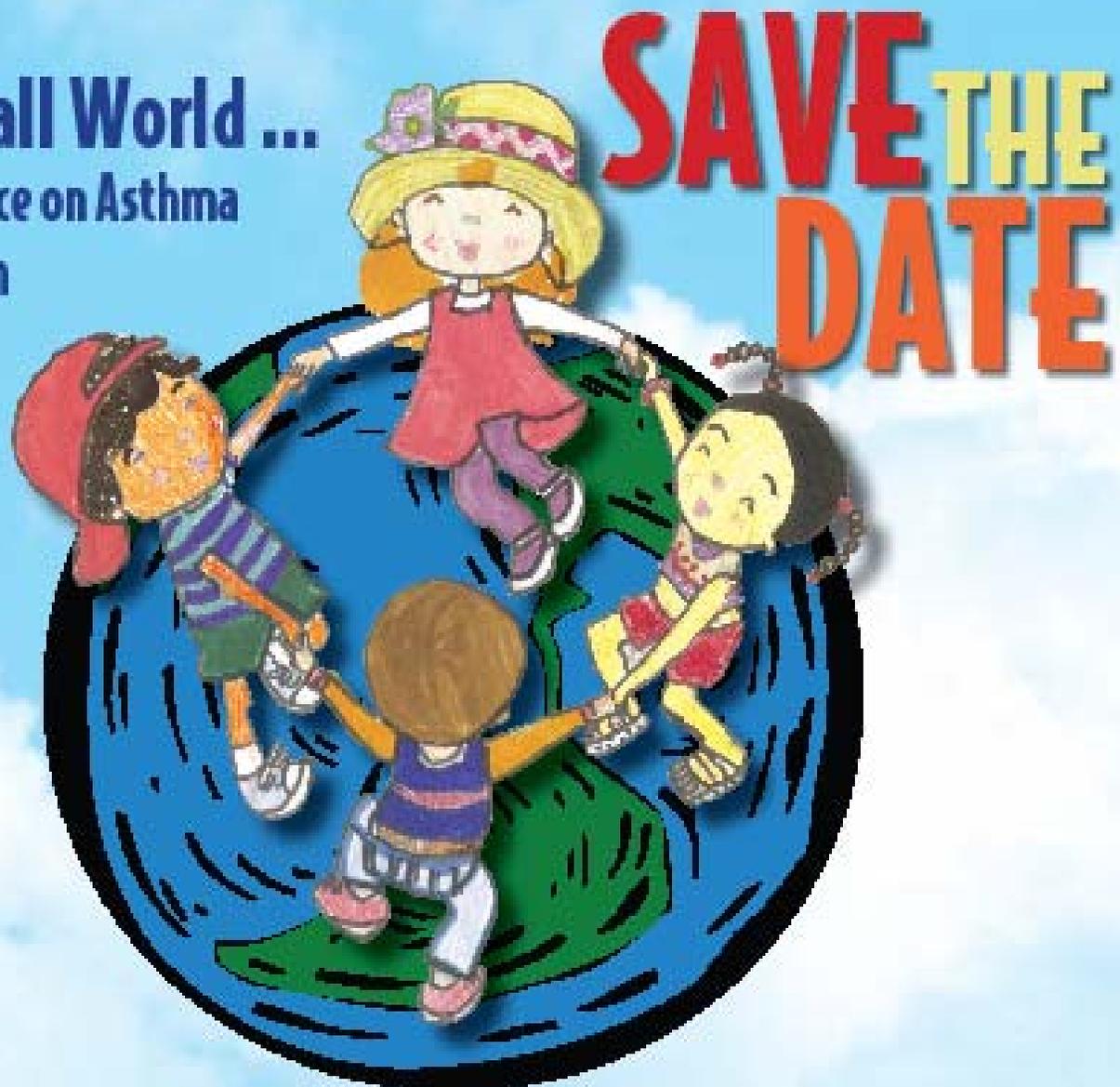
## International Conference on Asthma Impacts of Air Pollution

April 26-27, 2007  
Disneyland Hotel  
Anaheim, California  
USA



AQMD

Cleaning the air  
that we breathe...™



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