

# The Southern California Particle Center and Supersite Research Highlights

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**July 21, 2005**

**Air Resources Board**

**California Environmental Protection Agency**



# What is the SCPCS?

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- **Established in 2000**
- **1/5 US EPA regional particle centers;  
1/7 Supersites**
- **Principal Funding:**
  - US EPA ~\$14.5 M; ARB ~\$2.5 M;  
SCAQMD ~\$0.75M**
- **Located at UCLA with participation  
from USC, UCI, UCR, UCD, Rancho Los  
Amigos**
- **Objective: study health effects of PM in  
the Los Angeles Basin**



# Study Design

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- **Multidisciplinary Approach**
  - Toxicology (bioassays)
  - PM characterization
  - Exposure assessment
  - Human panel or chamber studies
- **Role oxidative stress**
- **Environmental Justice**
- **Instrumentation and Methods**
  - VACES



# Health Studies

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- **Animal Model**

- CAPs exposure
- allergic responses and inflammation greater at 50 m vs 150 m (*Kleinman et al., 2005 in-press*)

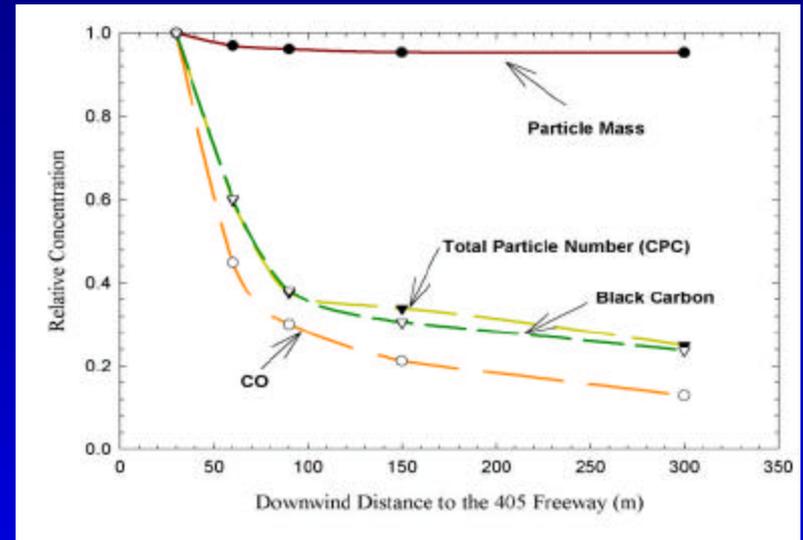
- **Human Panel Study**

- Exposed to CAPS and NO<sub>2</sub>
- Healthy and with COPD
- respiratory effects in healthy volunteers
- Older adults may experience acute small airways dysfunction with impaired gas exchange (*Gong et al., 2005*)



# Exposure Assessment

- Physical and chemical characterization near source (heavy and light-duty vehicles)
- Atmospheric transformation
- Impact of mobile sources on indoor environments (*Kuhn et al., 2005*)



# Next Steps

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- **Compare toxicity of emissions sources**
  - gasoline vs diesel
  - fine PM vs ultrafine PM
- **Guide ARB in targeting PM sources and constituents for control**

