

Overview

Air Quality, AQMP & Source Apportionment What We Know or Don't Know

Wood Smoke Control Technology Forum
and Roundtable Discussion

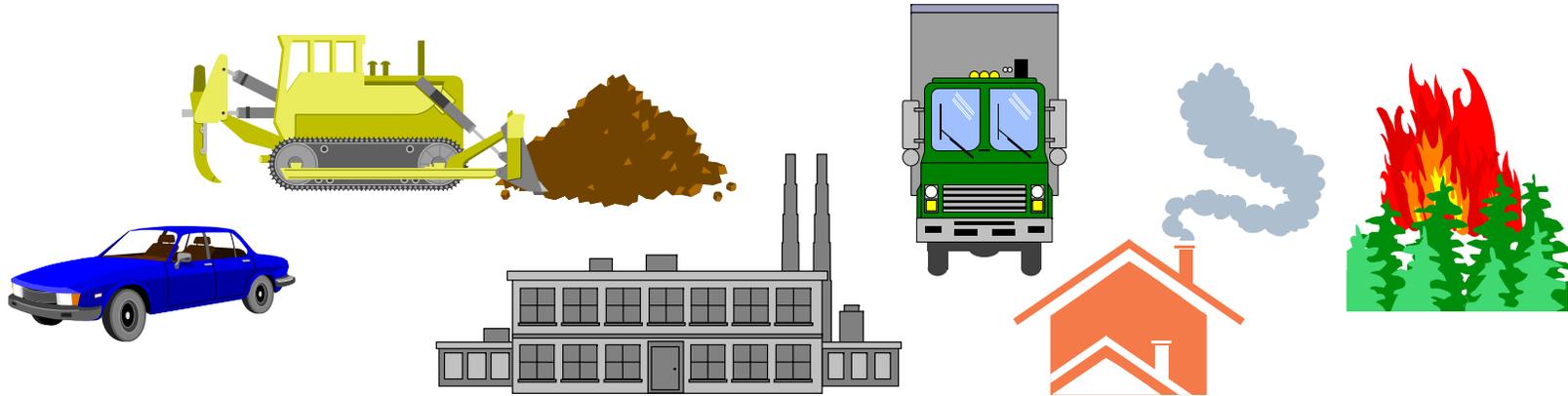
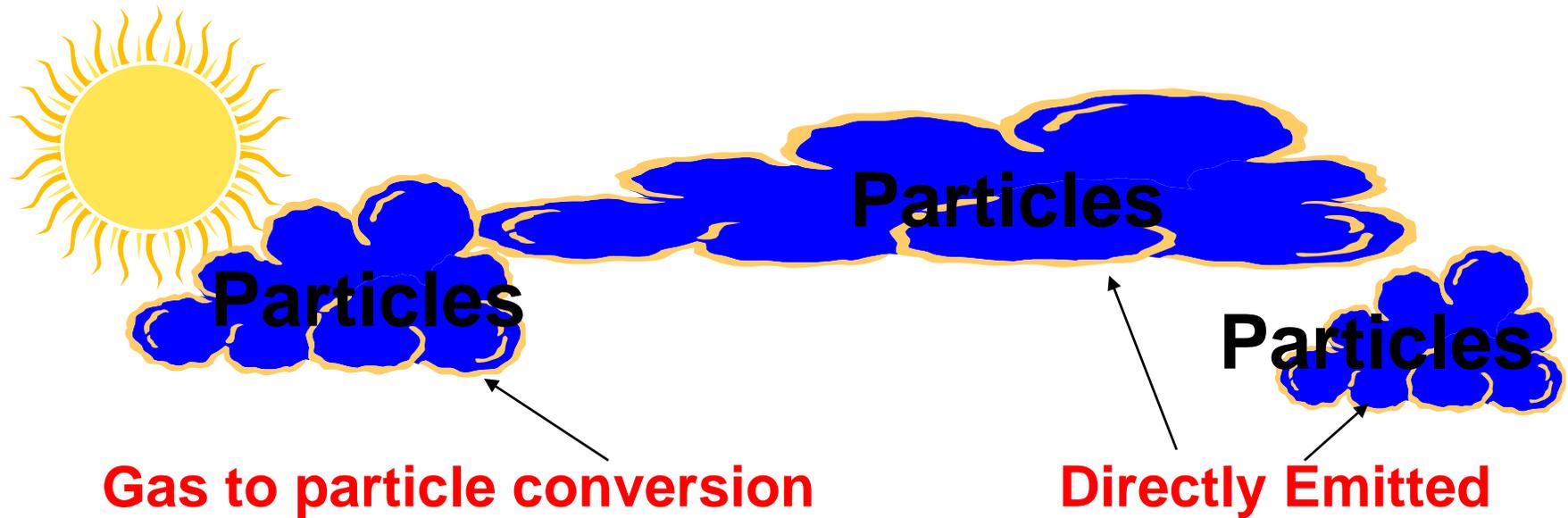
August 15, 2007



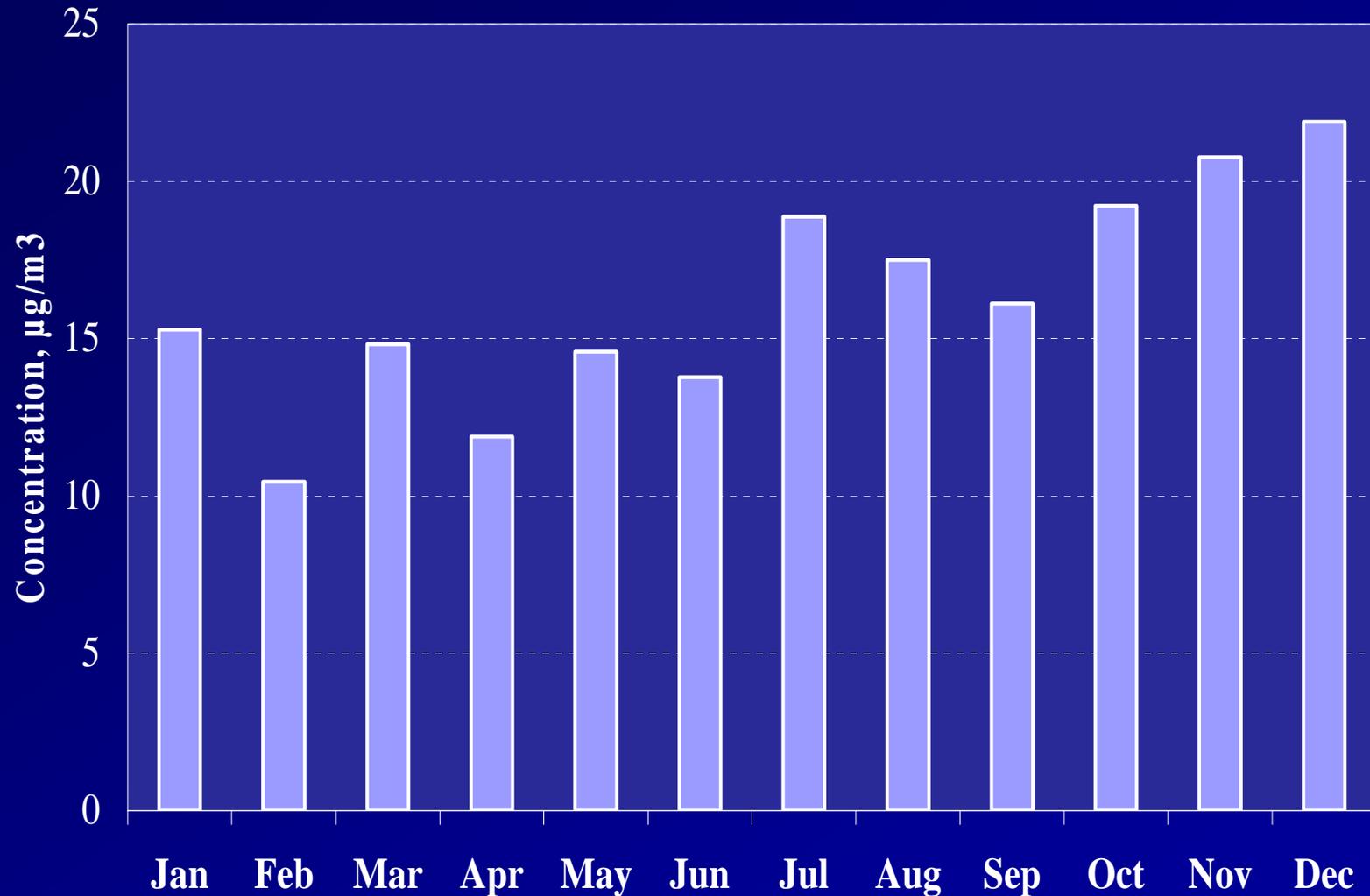
State of Air Quality

- Air quality in the Basin has been steadily improving
- Met federal air quality standards for:
 - NO₂
 - SO₂
 - CO
 - Lead
- Basin has the worst air quality in the nation for:
 - ozone (2024)
 - fine particulates (2015)

Where Do Particles Come From?



Basin PM2.5 Seasonal Variation (2005)



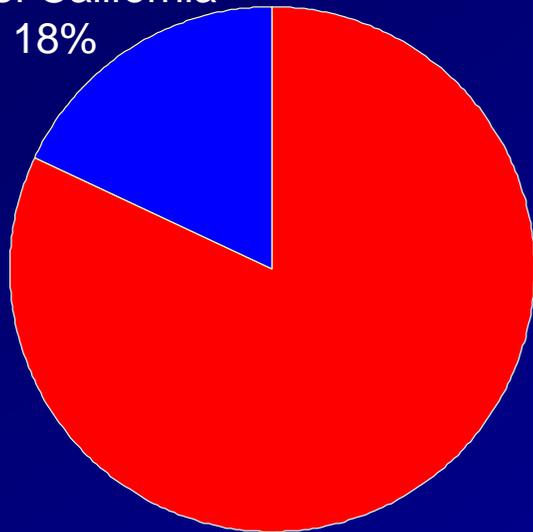
Why Are We Concerned About Particles?

- Health effects are significant
- Body of evidence is substantial
- Premature death, cancer, and cardiorespiratory disease
- Vulnerable groups include children, the elderly, and those with heart or lung disease

PM2.5 Disproportionate Exposure South Coast Air Basin

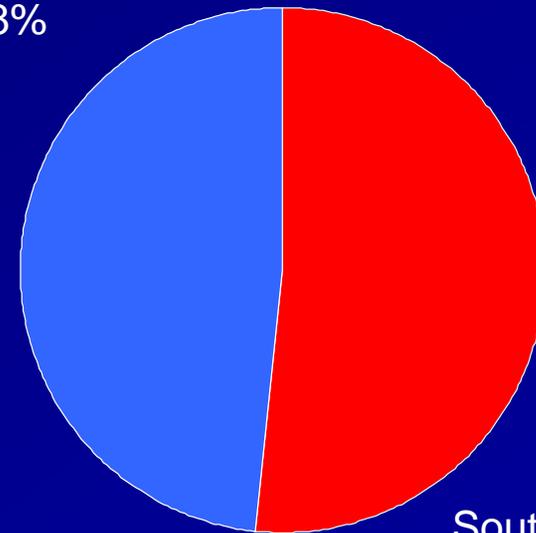
Population-Weighted Exposure Above NAAQS Based on
2000-2002 AIRS Data

Rest of California
18%



South Coast
82%

Rest of Nation
48%



South Coast
52%

2007 AQMP

PM2.5 Attainment Strategy

- Significant reductions needed by 2015 for both directly emitted PM2.5 and PM2.5 precursors
 - NOx: 192 t/d (29%)
 - SOx: 56 t/d (56%)
 - VOC: 59 t/d (11%)
 - PM2.5: 14 t/d (14%)
- NOx gap: ~74 t/d
- Emissions reductions from wood burning can help close the gap
 - One t/d reduction of directly emitted PM2.5 \approx 8 t/d of NOx reductions

Air Quality Management Plan (AQMP)

- 2003 AQMP Control Measure #MSC-06
- 2007 AQMP Control Measure #BCM-03
 - Re-evaluation of emissions inventory
 - Update of potential control options based on recently adopted programs (i.e., San Joaquin Valley, Sacramento Metropolitan)

2007 AQMP Residential Wood Combustion Control Measure Summary

- Potential control options identified:
 - education/outreach
 - incentives for cleanest technologies
 - voluntary wood burning curtailment program
 - standards for new construction
 - consider mandatory wood burning curtailment program in 2014 based on AQI
 - ~20 days per season (November through February) based on current air quality

PM2.5 Wood Burning Emissions Summary

- 2007 AQMP: 6.5 t/d (2014)
 - CARB data ~7% of inventory
- Recent inventory work
 - OMNI Environmental ~ 20 t/d (2002)
 - Staff Assessment ~ 11 t/d (2002)
- Toxic compounds from wood burning
 - Benzene, formaldehyde, PAHs, etc

Basin Wood Burning Summary

- What we know about fireplaces
 - 1,000,000+ units
 - AP-42 emission factors previously developed for various types of units
 - Source of public complaints (outdoor wood burning increasing in popularity)
 - Cleanest technologies based on US EPA testing
 - PM_{2.5} values generally higher in cooler months

Basin Wood Burning Summary

- What we don't know about fireplaces
 - Specific type used (e.g., gaseous-fueled or wood)
 - Frequency of use (indoor & outdoor)
 - Patterns of wood burning by location (mountain issue only or wide-spread usage?)
 - Percentage of wood burning contribution to ambient PM_{2.5} by location

Methods Used to Learn More About Basin Wood Burning

- Source apportionment
 - Match sampled filter data to specific emission sources
 - Efforts planned as part of MATES III assessment (late 2007)
- Surveys
- Analysis of available data
 - American Housing Survey, Census, DOE

Next Steps

■ Refine:

- assumptions
- emissions inventory
- understanding of issues

■ Appraise:

- lessons learned by other jurisdictions

■ Identify optimal approach for South Coast

- best chance for success