

MATES-III: Proposed Additional PM_{2.5} Measurements for a Weekday/Weekend Comparison

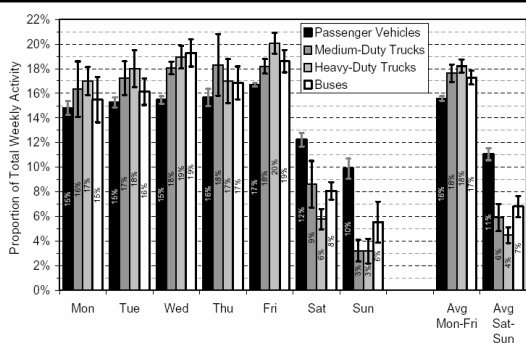
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MATES III Technical Advisory Group
South Coast Air Quality Management District
September 2, 2004

Background

- MATES-III: Diesel Emissions
 - EC/OC on PM₁₀ and PM_{2.5} Samples
 - Proposed Organic Tracer Analysis
- Interest in segregation of weekday versus weekend data
 - Total traffic declines 10 to 25% on weekends relative to weekdays (ARB, 2003; STI, 2004)



(Error bars are ± 1 standard error of the mean.)

(STI-901140/901150-2477-FR, 2004)

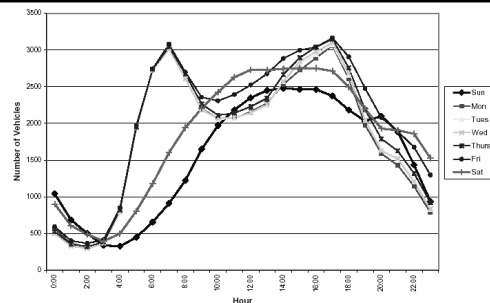
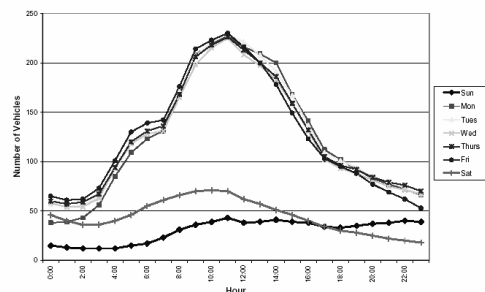


Figure 2-23. Diurnal time series plot for light-duty vehicles.

(STI-901140/901150-2477-FR, 2004)



Diurnal time series plot for heavy duty vehicles

(STI-901140/901150-2477-FR, 2004)

Background (cont.)

- Other Source Activities Shown to Decline on Weekends
 - Commercial off-road mobile sources
 - Commercial area sources
- Source Activities Shown to Increase on Weekends
 - Recreation off-road mobile sources
 - Barbecues

Proposed Additional PM_{2.5} Sampling

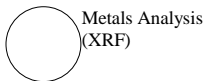
- Under Current MATES-III Sampling, Samples Taken Every Third Day
 - EC/OC analyses, metals analyses
 - Not enough material for organic tracer analysis on single filter
 - Proposed monthly composites for organics analysis
- Proposal: Perform Additional Sampling on Wednesdays and Sundays
 - Start in October 2004
 - Continue for 3 months

Proposed Sampling Methodology

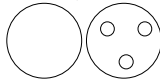
- Multiple-Channel Fine Particulate (MCFP) Samplers
 - Three samplers available
 - Different samplers from MATES-III SASS samplers
 - Deploy to run side-by-side with other MATES-III PM_{2.5} samplers
 - Three lines which flow at the rate of 7 L/min each
 - Two Quartz Filters and One Teflon Filter
- Locations:
 - Central Los Angeles
 - Wilmington
 - Rubidoux

Proposed Analysis Methods

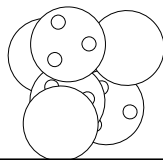
- Teflon Filter



- Two Quartz Filters
EC/OC Analysis (NIOSH/IMPROVE)



Monthly Composite
for Organic Tracer
Analysis



Points of Discussion

- Organic Tracer Analyses
 - One composite sample per station for Sunday and Wednesday (6 analyses total by station, 8 filters for each composite)
- Locations
- Other Strategies?
- Data Analysis