

Air Quality Issues: Disposal and Use of Woody Biomass

May 6, 2009

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San Joaquin Valley Unified Air Pollution Control District**



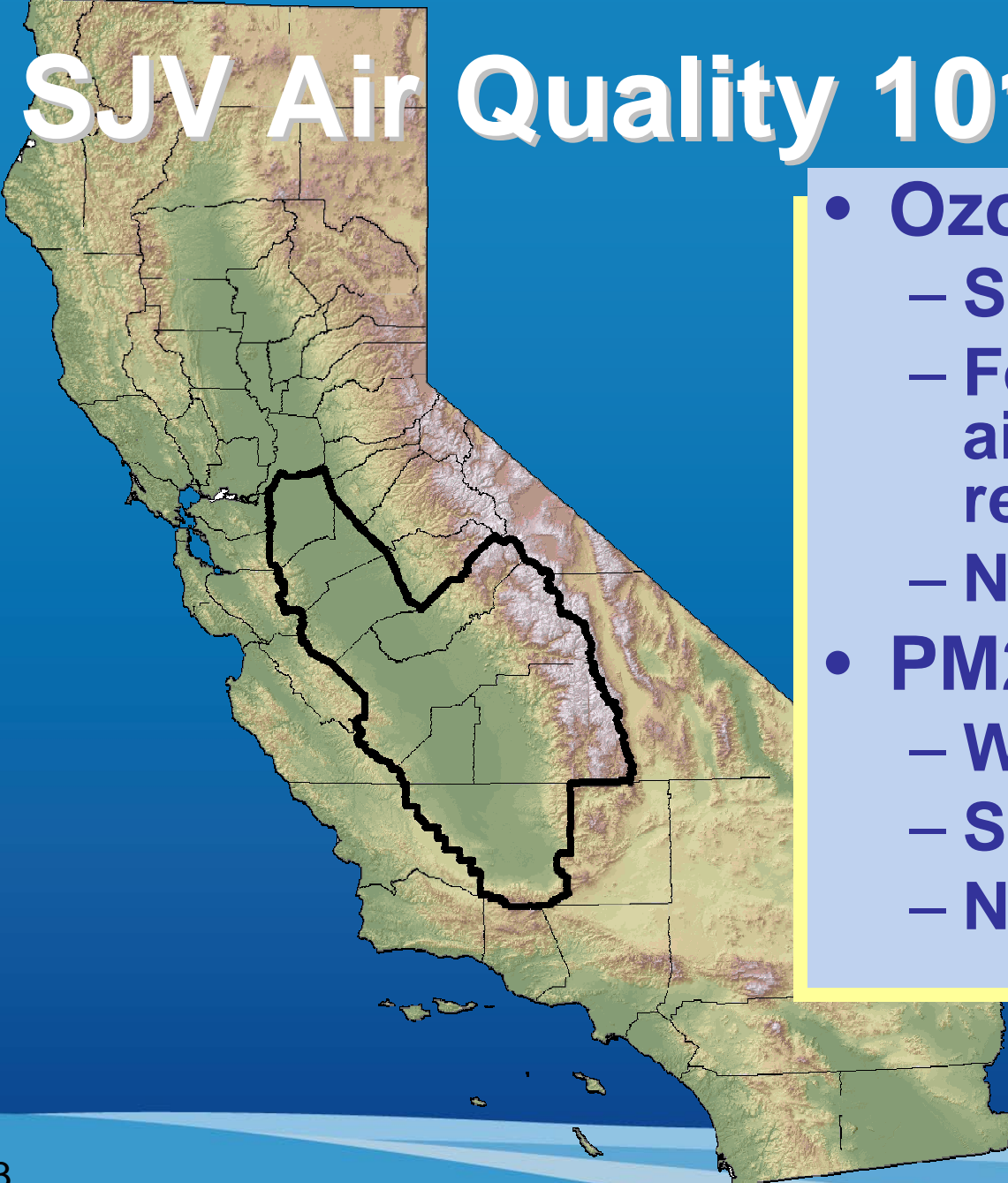
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Overview of this Presentation

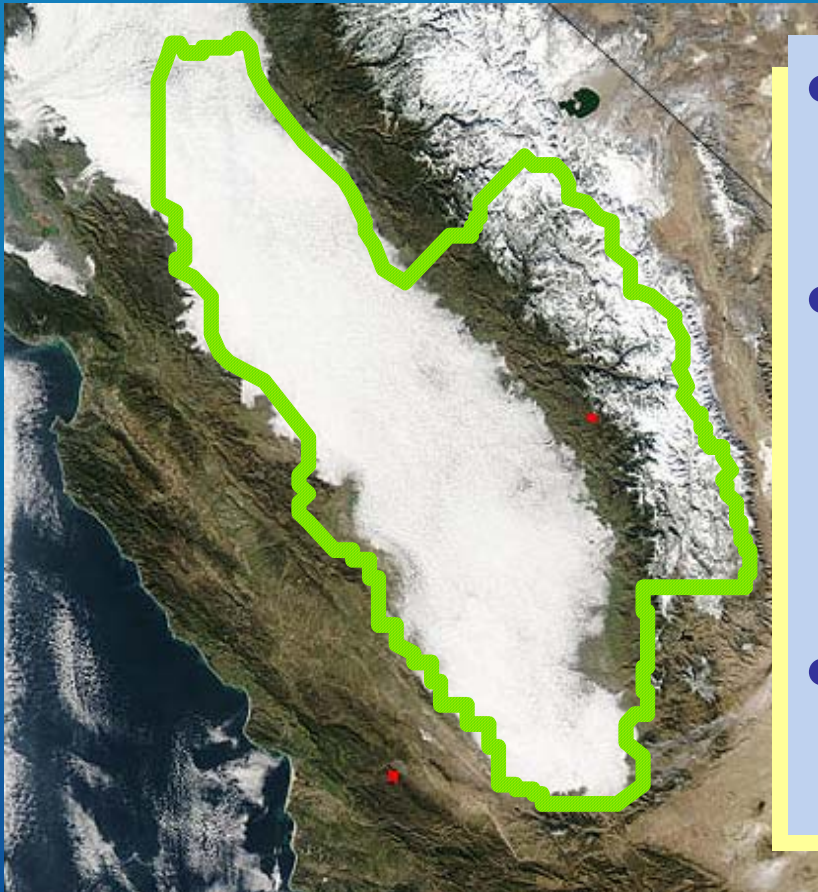
- San Joaquin Valley Air Quality 101
- Wildfires & Prescribed Burning
- Residential Wood Burning
- Agricultural Burning (orchard material)
- Alternatives to Burning
- Economic Issues

SJV Air Quality 101



- **Ozone**
 - Summer
 - Formed in airborne reactions
 - NO_x + VOC
- **PM_{2.5}**
 - Winter
 - Smoke
 - Nitrates

Contributing Factors

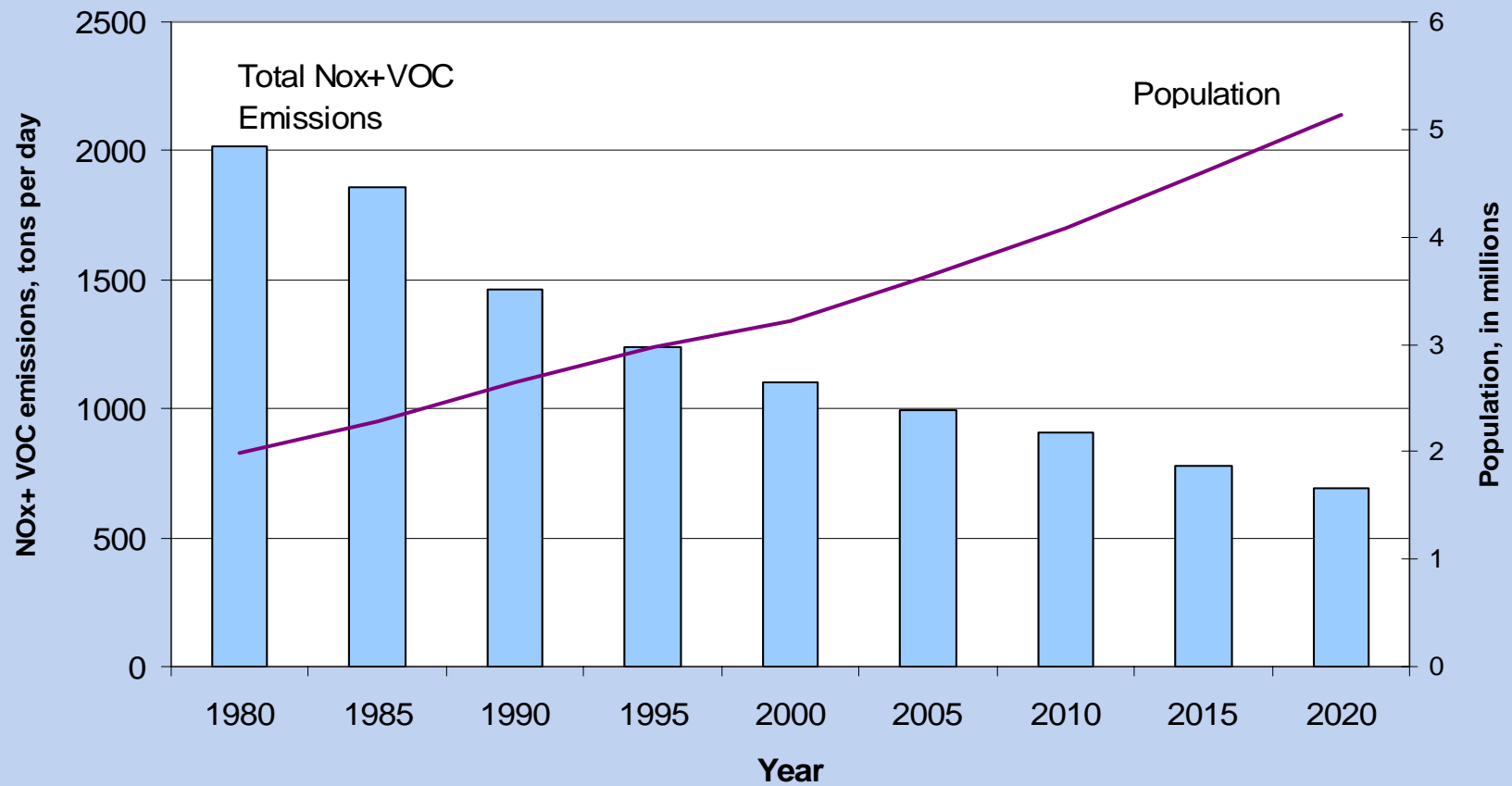


- **Meteorology**
 - stagnation
- **Local Emissions**
 - NO_x emissions dominated by mobile sources
- **Transport (relatively minor)**

Why Does Air Pollution Matter?

- Health impacts, each year
 - 460 premature deaths
 - 325 new cases of chronic bronchitis
 - 3,230 cases of acute bronchitis in children
 - 260 hospital admissions
 - 23,300 asthma attacks
 - 188,000 lost school days
 - 3,000 lost work days
- \$3 billion/year in health-related costs

Population vs. Emissions



Air Quality Progress To-Date

- 80% reduction in stationary source emissions since 1980
 - 60% reduction in total emissions
- Ozone
 - 1-hr, 8-hour averages have dropped significantly throughout the Valley
- Particulate Matter
 - Attainment for PM10
 - PM2.5 levels have dropped significantly

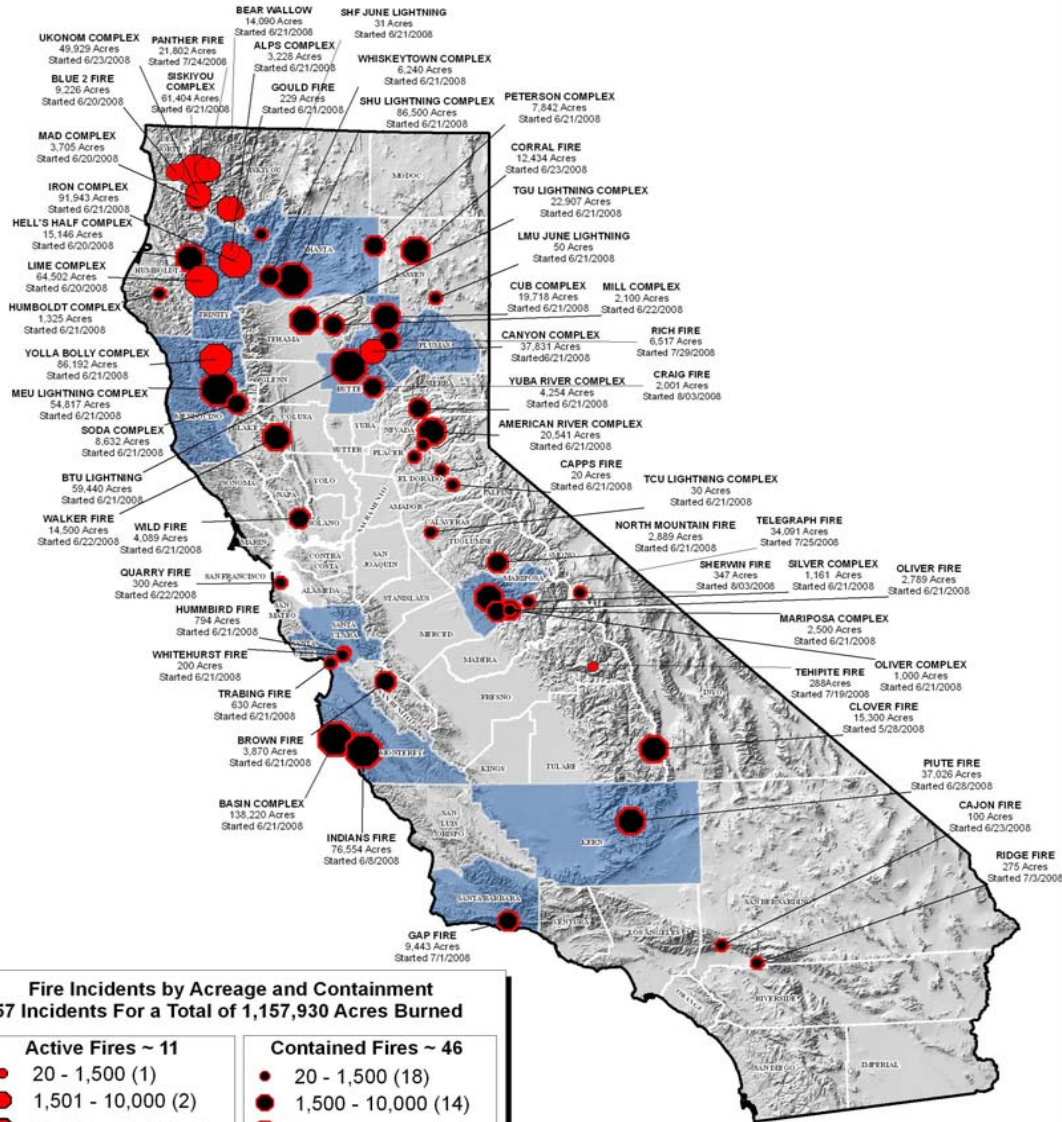
Wildfires & Prescribed Burning

	SJV Emission Inventory (tons/day)	Forest Management & Wildland Fire (tons/average day)	Emissions (tons) from a 1,000 acre wildfire (70 tons of burnable material/acre)
PM10	282	5.3	858
PM2.5	100	4.5	770
NOx	545	6.0	123
VOC	358	4.9	508



CALIFORNIA WILDFIRES ~ FEMA EM - 3287-CA

Total Incidents from 6/22/08 - 8/11/08



Note: Fire incidents that have been renamed, or included into a different incident have been omitted from map.

■ Presidentially Declared County - EM-3287

Source: FamWeb's 2009



Created by OES - GIS, Kris Higgs
August 11, 2008 Source: FAMWEB 2009
[active_incident/fires/2008/Statewide_Cumulative/](#)

Extent of California Wildfires, 2008



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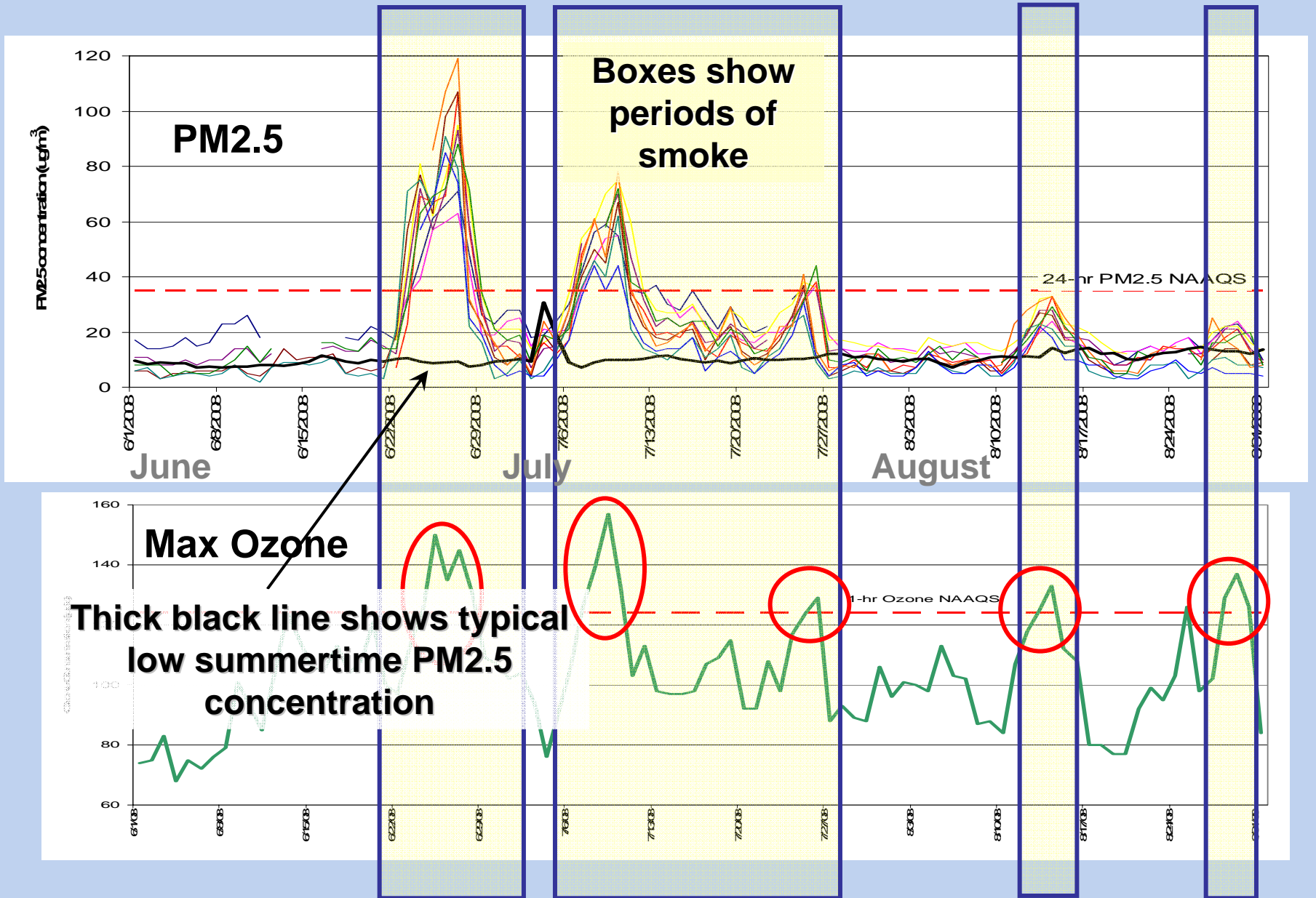
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2008 Air Quality Impacts

- **Public health impacts**
 - Historically high ozone in some areas
 - Unprecedented summertime PM_{2.5} levels



2008 Summertime PM2.5 and Ozone



Wildland Burning

- EPA Exceptional Events Rule
 - Omits certain ambient violations from federal air quality planning process
 - Must show that emissions were unavoidable, best available control measures must be in place
- District strategies
 - Work more closely with federal Land Managers to obtain more resources for Prescribed Burning
 - Look for ways to open more days to Prescribed Burning
 - Support fuel material diversion – e.g., mechanical treatment in appropriate areas

Residential Wood Burning

	Annual	Winter
PM2.5, tons/day	8.2	15.6
NOx, tons/day	5.2	7.8
VOC, tons/day	4.3	8.2

- Rule 4901 achieves 16.9 tons of reductions on a Valley-wide “No Burn” day, and 2.4 tpd on an average winter day.
- Reductions are inexpensive, precise



Agricultural Burning

	Annual	Winter
PM2.5, tons/day	12.9	19.3
NOx, tons/day	9.6	14.5
VOC, tons/day	11.1	16.6

- Ag burning primarily occurs in the winter
- Rule 4103 regulates the Valley's agricultural burning, phasing out most burning by 2010
 - Remaining burning is allocated daily based on expected air quality and meteorology

Comparison of Burning Impacts

- Impacts depend mainly on magnitude of emissions, seasonality, source location
- **Agricultural Burning**
 - Tightly controlled, impacts are declining
- **Residential Wood Burning**
 - Significant impact on wintertime regional PM_{2.5} exposure
 - Controls are working
- **Wildland burning**
 - Rx burning is desirable option, minimal impact to regional exposure
 - Depending on meteorology, wildfires have potential to produce extreme regional air quality

Current Air District Efforts

- Governing Board support for alternatives to prevent wildfires
- Rule amendments to strengthen agricultural burning restrictions
- Looking for opportunities to support the chipping industry and encourage use of local fuels for biomass power plants

More Information...

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