AQ Rules and Regulations Session

ACCP Air Quality Workshop
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CARB's Mission

Promote and protect **public health, welfare and ecological resources** through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the **economy** of the state

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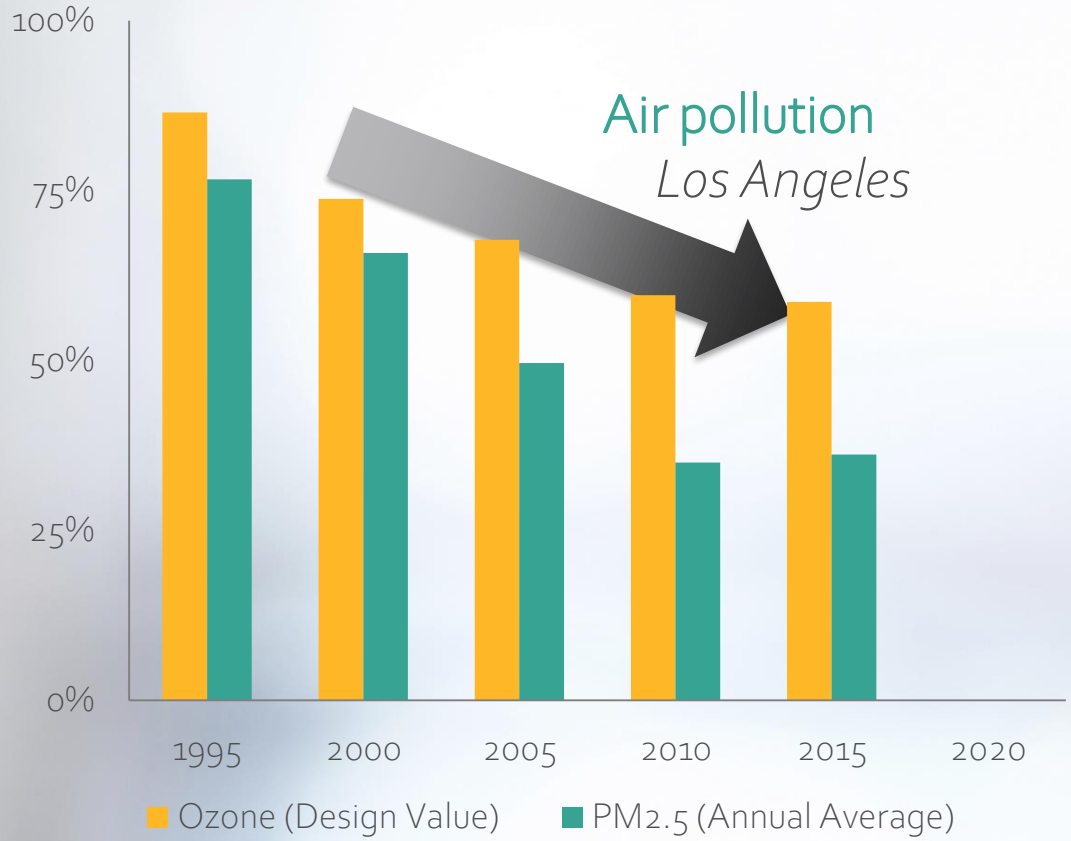
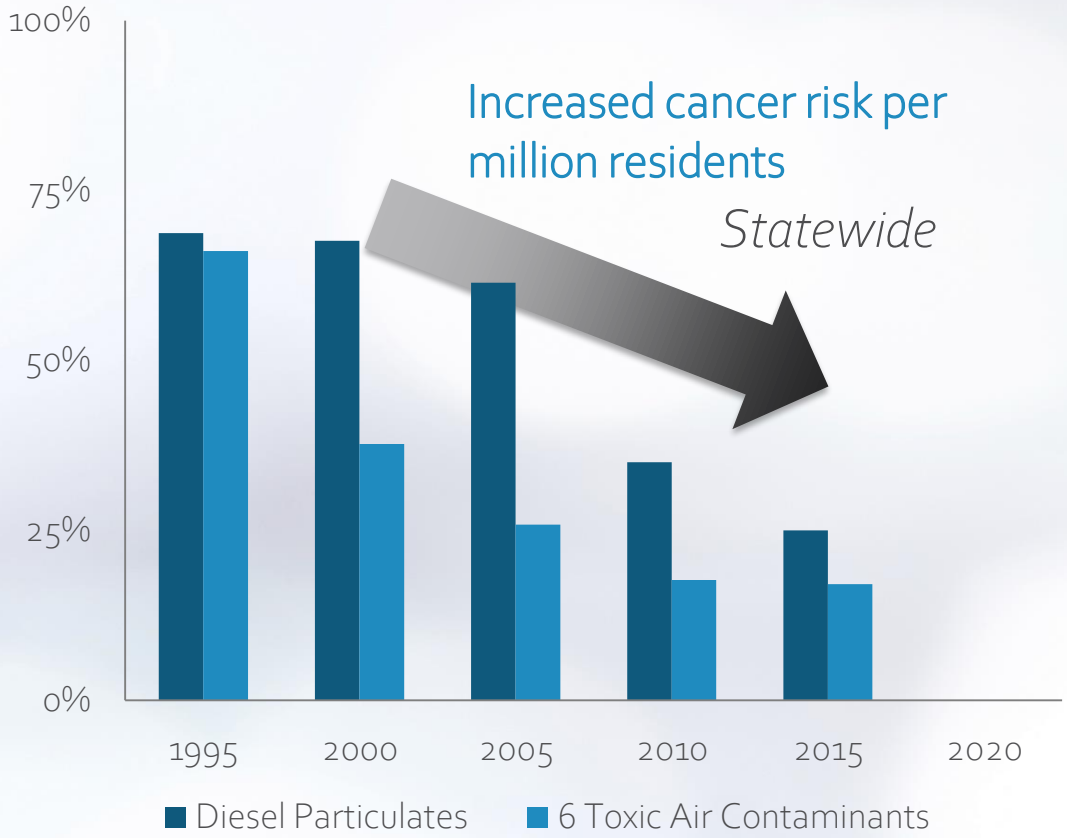
California's Air Quality Improvements

Changes relative to 1990-1995





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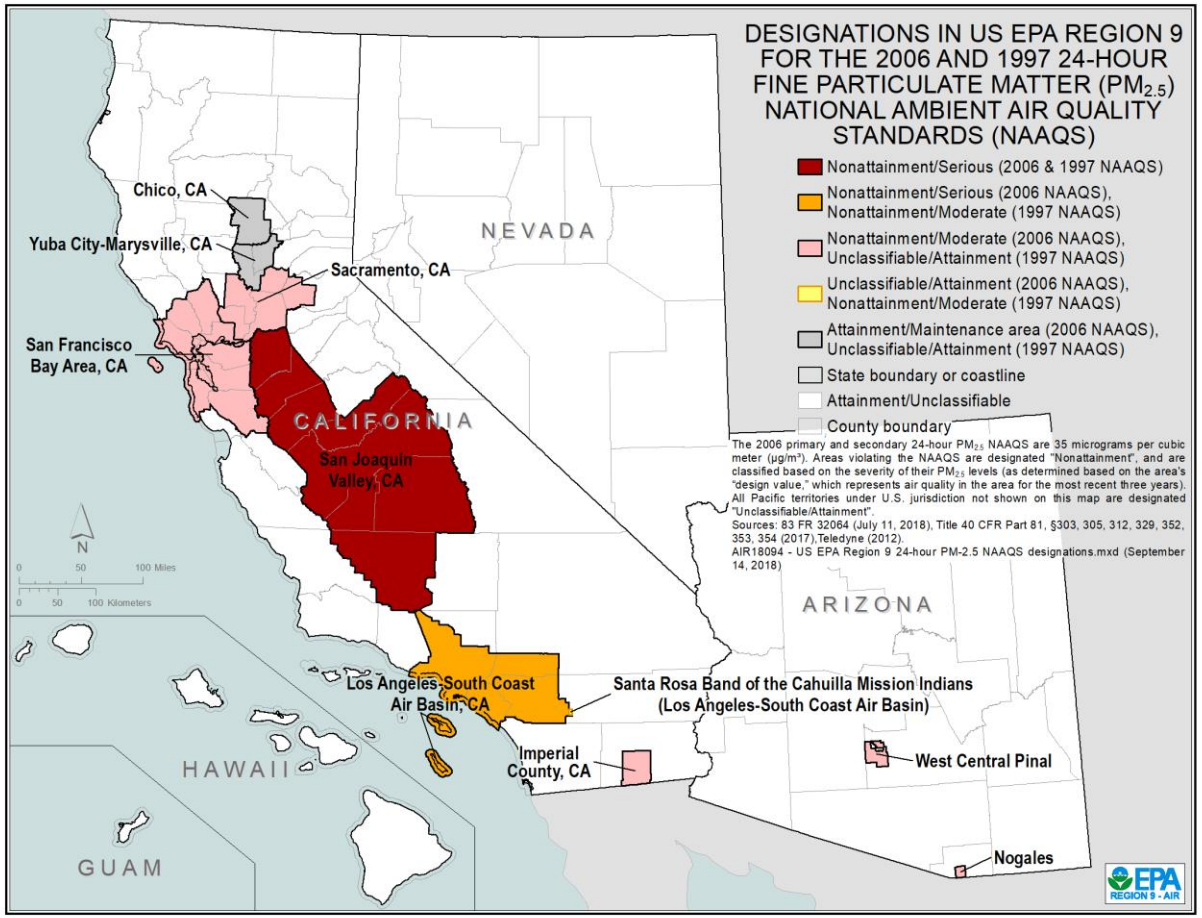
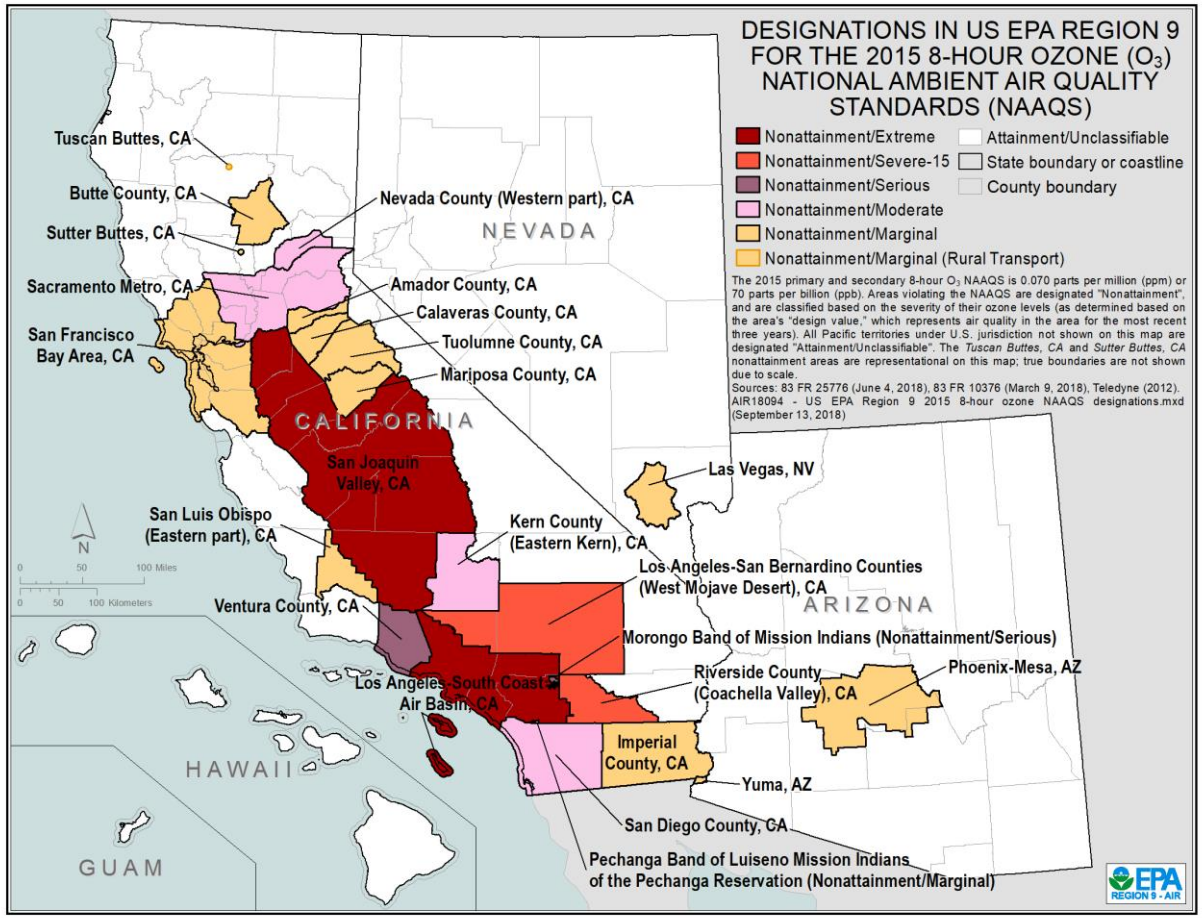
California's Air Quality Challenges





24-hr $PM_{2.5}$ NAAQS = 35 µg m^{-3}

8-hr O_3 NAAQS = 70 ppb

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CARB's Research Program

- Under the State Law the Legislature established CARB's research program in 1971 to develop robust scientific foundation for CARB's policies and programs

- Over the past 50 years, CARB's Research Program has informed:
  - Heath-based air quality standards
  - Air pollution exposure reduction pathways
  - Air pollution control and mitigation strategies
  - Climate change and greenhouse emission reduction opportunities

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CARB's Research Involvement

1984 – Southern SJV Ozone Study
1987 – SoCal Air Quality Study (SCAQS)

1992 – The Children's Health Study
1997 – SoCal Ozone Study (SCOS)
1999 – CA Regional PM10/PM2.5 Air Quality Study (CRPAQS)

2002 – Lake Tahoe Aerosol Deposition Study (LTADS)
2007 – Harbor Communities Monitoring Study
2008 – ARCTAS-CARB

2010 – Research at the Nexus of Air Quality and Climate Change (CalNex)
2011 – CA Airborne BVOC Emission Research in Natural Ecosystem Transects (CABERNET)
2013 – DISCOVER-AQ
2013 – Enhanced Sulfur Study in South Coast (ESSSC)
2014 – CA Airborne Methane Survey – Technology Assessment
2016 – CA Baseline Ozone Transport Study (CABOTS)
2018 – Integrated CA Dairy Research (CalDAIRY)
2019 – Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ)

2021 – Urban VOC and NO_x Emission and Chemistry Study

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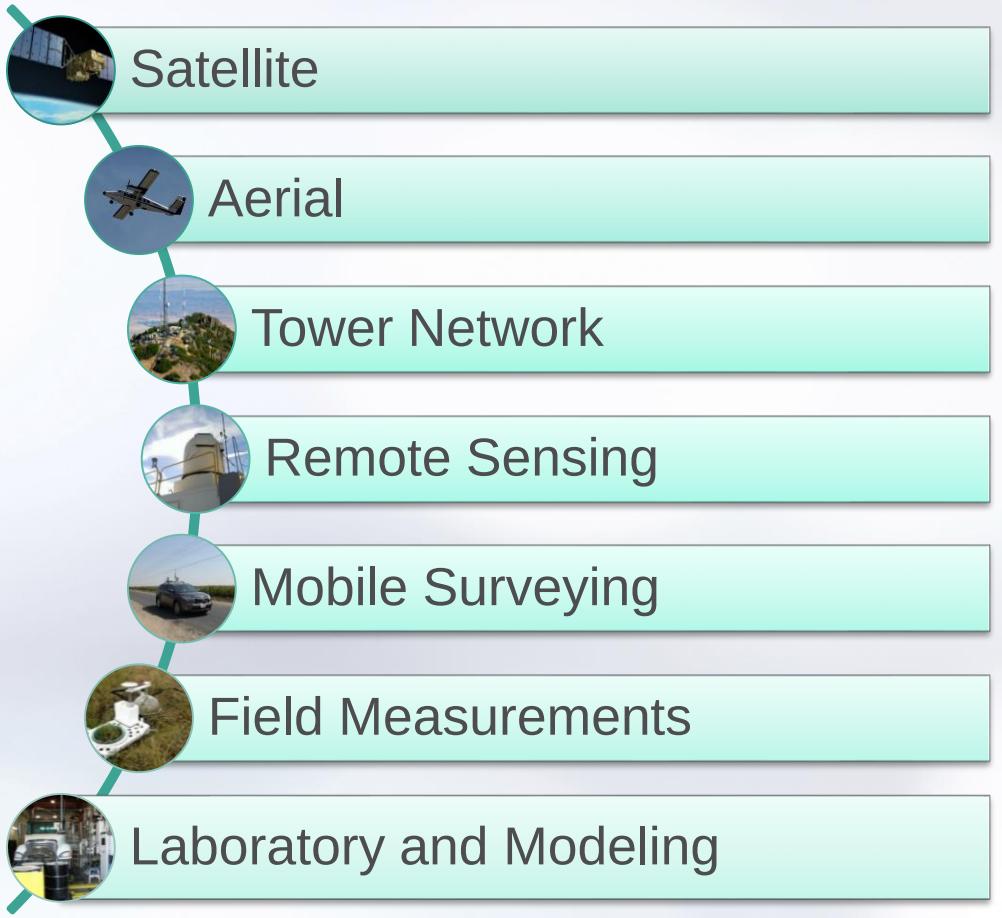
CARB and Satellite Remote Sensing

Current Challenges

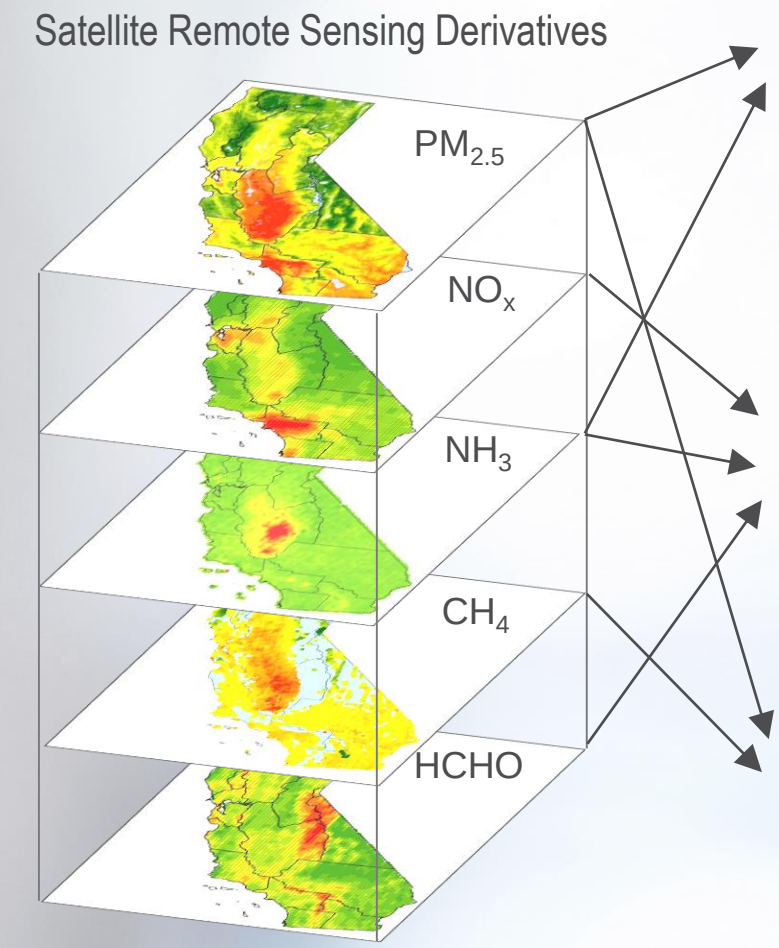
- Spatially comprehensive air quality data
- Detailed speciation of air pollutants
- Independent method of evaluating air quality models
- Characterization of emission sources

At CARB, Satellite Data is Used to:

- SCREEN the state for air pollution hot-spots and anomalies
- EVALUATE emission inventories and air quality models
- TRACK progress of air pollution emission control and mitigation measures



CARB and Satellite Remote Sensing



- **Evaluate** and Improve CalEnviroScreen (OEHHA)
- **Evaluate** Black Carbon Inventory (SIP, SB 1383)
- **Evaluate** the spatial disparities of NO_2 and $PM_{2.5}$ (AB 617)

- **Evaluate** Influence of Soil NO_x Emissions (SIP)
- **Evaluate** Effectiveness of Historical Regulations on Black Carbon, Sulfate, Nitrate, and Organic $PM_{2.5}$ (SIP)
- **Screen** for NH_3 Vulnerable Communities (AB 617)
- **Evaluate** NH_3 Emission Inventory (SIP)
- **Evaluate** Changes in O_3 Formation Regimes (SIP)

- **Track** CH_4 Reduction from Dairy Digesters and Other Manure Management Strategies (SB 1383)
- **Evaluate** and Improve CH_4 Emission Inventory (SB 1383)

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CARB's Research Needs: Satellite Remote Sensing

- Higher spatial and temporal resolution
- PM chemical composition and size fractions
- Improved sensitivity and reduced biases
- Real-time assimilation of surface air monitoring data with satellite remote sensing data
- Integration of multiple satellite derivatives (not just aerosols) for source identification and characterization

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Collaboration Over Competition

THANK YOU FOR LISTENING

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For more information, please visit:
https://www.arb.ca.gov/homepage.htm

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