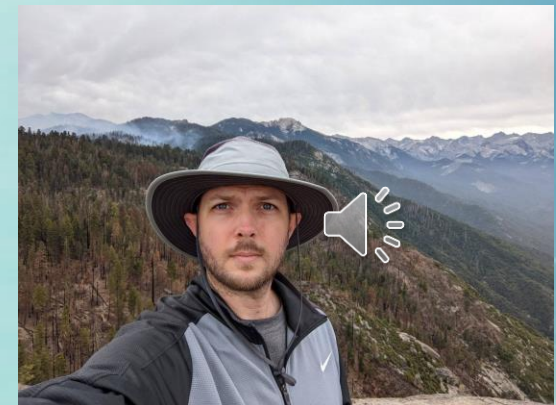




Ozone and PM Exceptional Events

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Air Quality Analysis Section



Exceptional Event Rule

Purpose: Allow for exclusion of event influenced data from certain regulatory determinations of the U.S. EPA Administrator

40 CFR Part 50 (50.1 and 50.14); 40 Part 51 (51.930)

- 2007: Exceptional Events Rule formalized [72 FR 13560]
- 2016: Rule revised to address issues and streamline process [81 FR 68216]



Ozone Exceptional Event Types

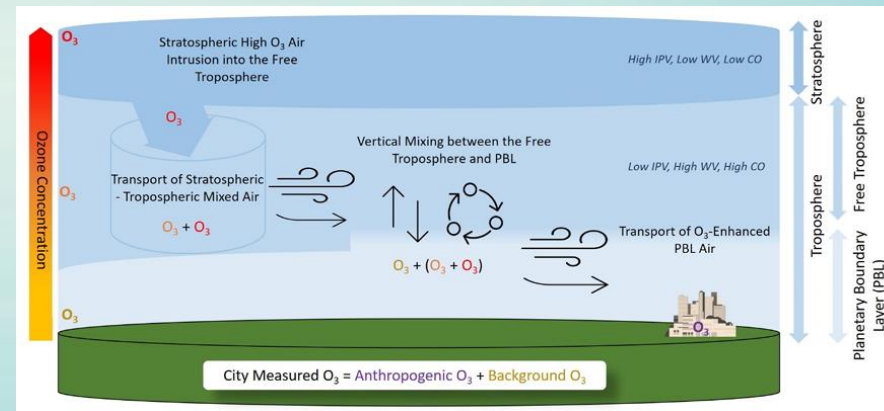
- Prescribed Fire



- Wildfire



- Stratospheric Ozone Intrusion



U.S. EPA EE Guidance, FAQs, and other resources:

<https://www.epa.gov/air-quality-analysis/final-2016-exceptional-events-rule-supporting-guidance-documents-updated-faqs>

Regulatory Determinations that Apply

Regulatory Decisions Specified in 40 CFR 50.14(a)

- Designation/Redesignation
- Classification
- Attainment Determination
- Attainment Date Extension
- Finding of State Implementation Plan Inadequacy leading to a SIP call
- Other (case-by-case basis)



Regulatory Determinations that DO NOT Apply

Cannot be *specifically* used for

- Modeling analyses
- Regional Haze requirements
- Limited Maintenance Plan analyses
- Monitor siting, sampling frequency, minimum (or other) monitoring requirements
- Monitoring data completeness
- Emergency episode planning

U.S. EPA, Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events, April 2019

<https://www.epa.gov/air-quality-analysis/clarification-memo-additional-methods-determinations-and-analyses-modify-air>



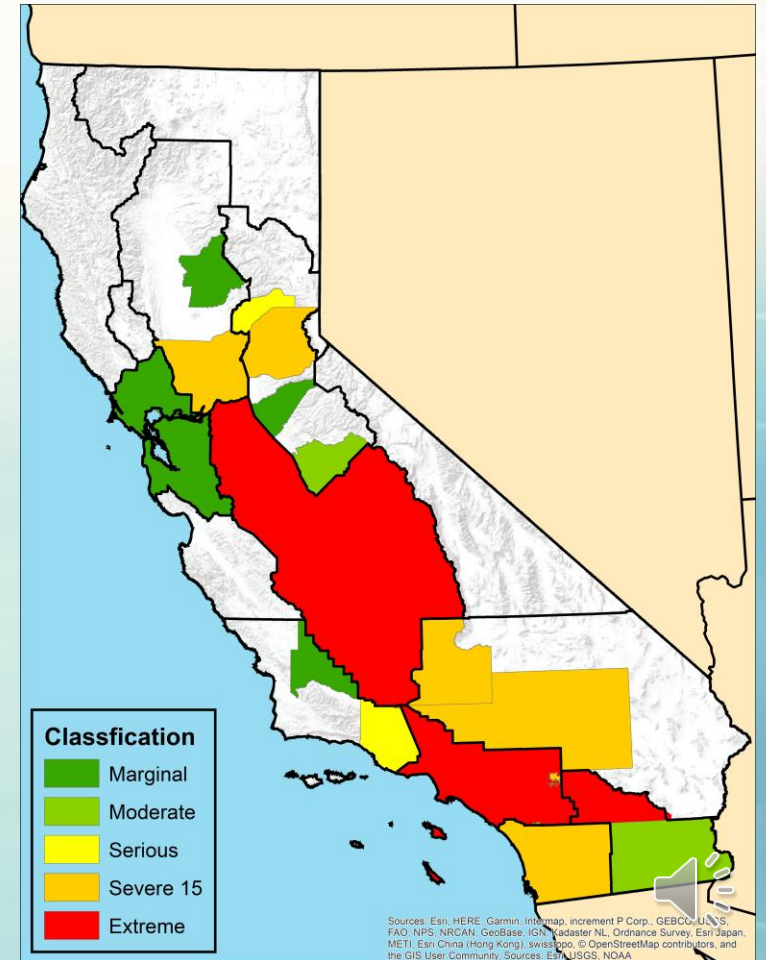
Upcoming Regulatory Decisions – Ozone

(Attainment Year - Classification)

0.075 ppm 8-Hr Standard - 2008

- Sacramento Metro
 - (2024 per modeling – Severe)
- Eastern Kern (2026 - Severe)
- San Diego (2026 - Severe)
- Western Mojave Desert (2026 - Severe)

2008 NAAQS
As of November 2023



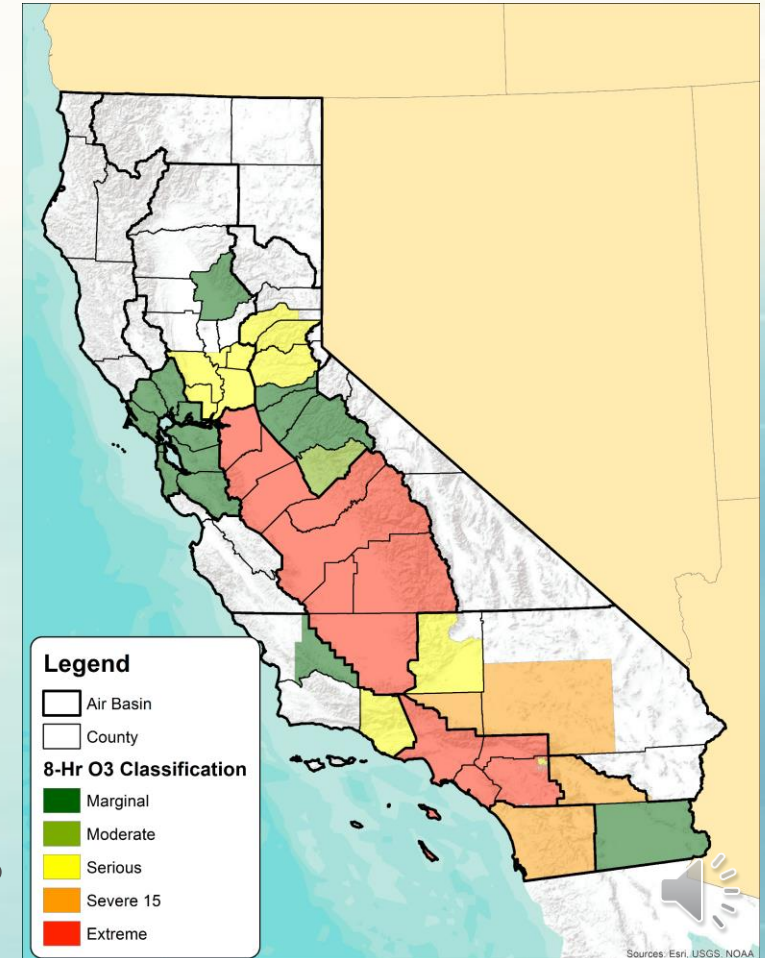
Upcoming Regulatory Decisions – Ozone

(Attainment Year - Classification)

0.070 ppm 8-Hr Standard - 2015

- Mariposa (2023 - Moderate)
Seeking bump-up to Serious
- Western Nevada (2026 - Serious)
- Ventura (2026 - Serious)

2015 NAAQS
As of November 2023



Example Ozone Exceptional Event Process

- District flags data “IT-Wildfire-U.S.” Informs CARB and U.S. EPA of impacts.
- CARB and U.S. EPA review information (Initial Notification Form or INI) and respond to District.
- If necessary, District develops exceptional event demonstration for CARB and U.S. EPA. District reflags data “rt”.
- If request for exclusion is approved, U.S. EPA upgrades flag to “RT” which removes approved data from Design Value calculations.



Flagging of Data

INFORM (informational notes) versus REQEXC (requesting exclusion of data for regulatory purposes)

- IT-Wildfire-U.S. (informational)
- rt-Wildfire-U.S. (request for exclusion – demonstration nears completion)

Flagging should reflect level of standard

- 1-hour or 8-hour ozone standard
- 24-hour PM_{2.5} or PM₁₀ standards

Flag impacted monitor data with informational flag and list event cause in notes, ex: “IT-Wildfire-U.S. Smoke impact from River Fire”

Required as part of U.S. EPA’s exceptional events process.
Helpful later as regulatory impacts may occur years later.



Initial Notification Information (INI) Forms

- INI Forms are available from CARB or U.S. EPA Region 9
- INI Forms are NAAQS and design value year specific
- Forms submitted to CARB
 - CARB reviews and forwards to U.S. EPA Region 9
- U.S. EPA will respond within 60 days of receipt
 - Request for further documentation
 - Request for meeting/call
 - Defer further review



Demonstration Requirements

- Include narrative conceptual model
- Demonstrate event was not reasonably controllable or preventable
- Show event was a human activity that is unlikely to recur at a particular location or was a natural event
- Demonstrate event affected air quality such that there exists a clear causal relationship between event and monitored exceedance or violation

U.S. EPA, Final Guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations, September 2016

<https://www.epa.gov/air-quality-analysis/final-guidance-preparation-exceptional-events-demonstrations-wildfire-events>

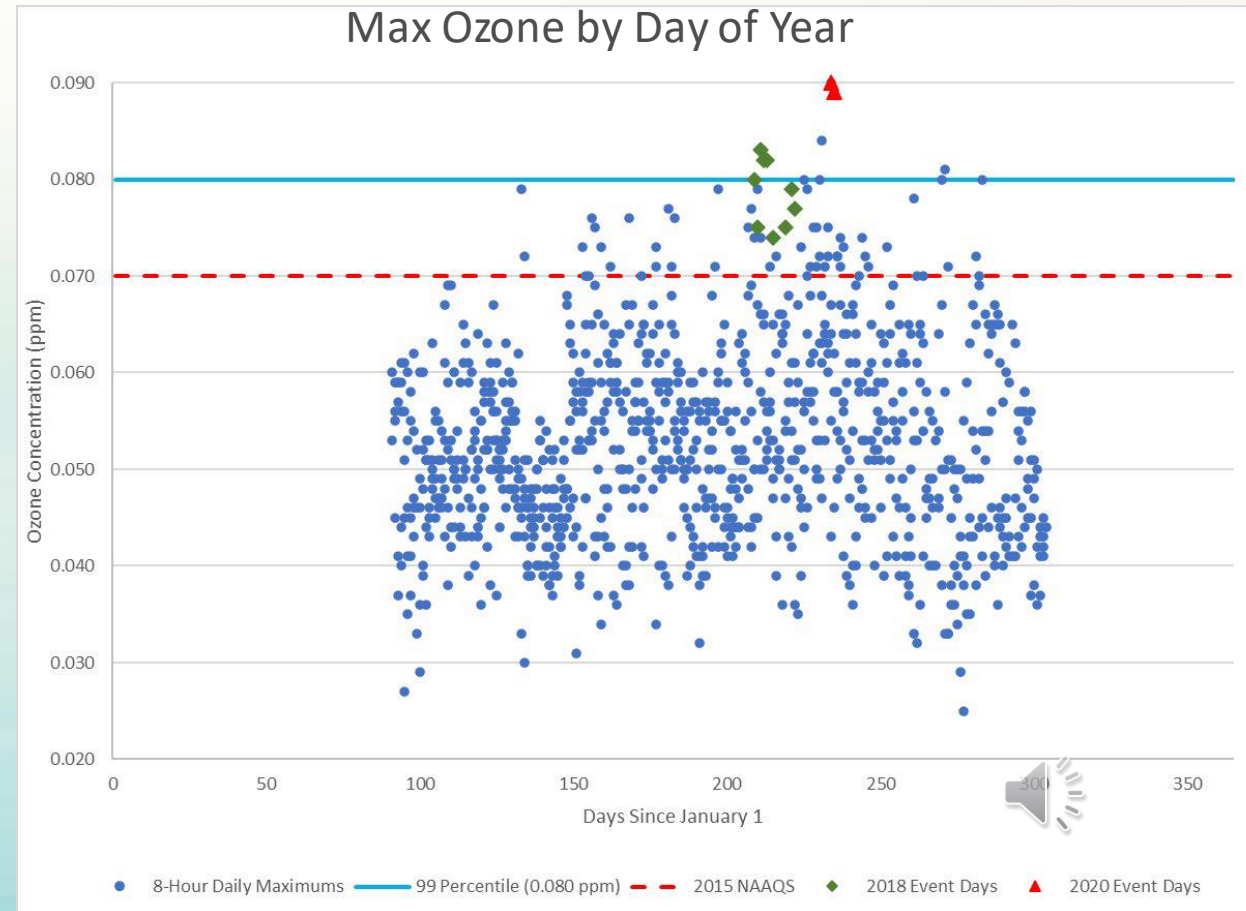


Clear Causal Relationship Analysis Tiers (1,2,3) for Wildfires

Determined by screening “Key Factor” criteria and discussions with U.S. EPA

Tier 1- Seasonality/distinctive level

- occurs outside normal Ozone season, and/or
- 5-10 ppb higher than non-event concentrations

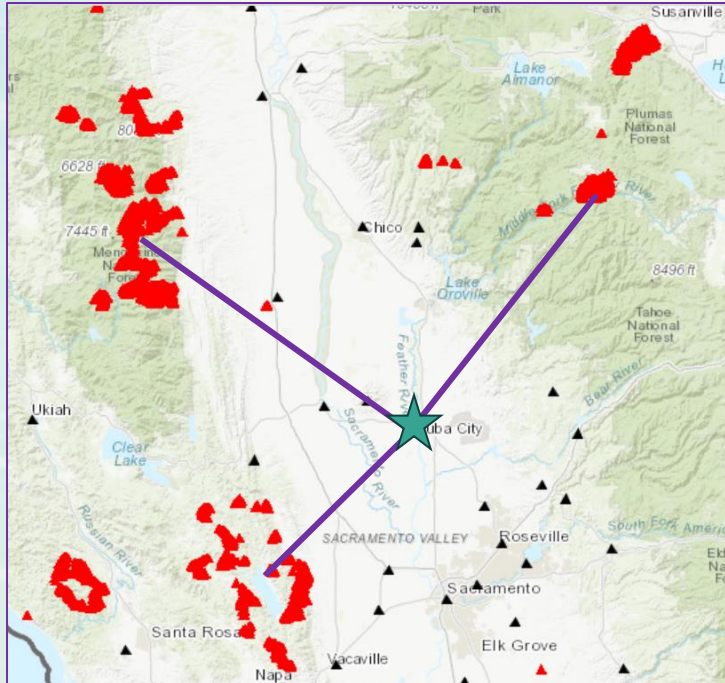


Clear Causal Relationship Analysis Tiers for Wildfires

Tier 2- Fire emissions/distance, event vs non-event concentrations

- Key Factor #1: emissions/distance > 100

Estimated ROG+NOx / distance to monitor



- Key Factor #2: exceedance in 99th percentile (5 years) or top 4 concentration during event year

Date	8-hr Ozone	2020 Rank	5-year Percentile	Event?
8/21/2020	0.090	1	99%	EE
8/22/2020	0.089	2	99%	EE
8/20/2020	0.075	3	97%	
8/23/2020	0.072	4	95%	
8/24/2020	0.071	5	94%	
8/30/2020	0.070	6	93%	Adjusted 4 th High

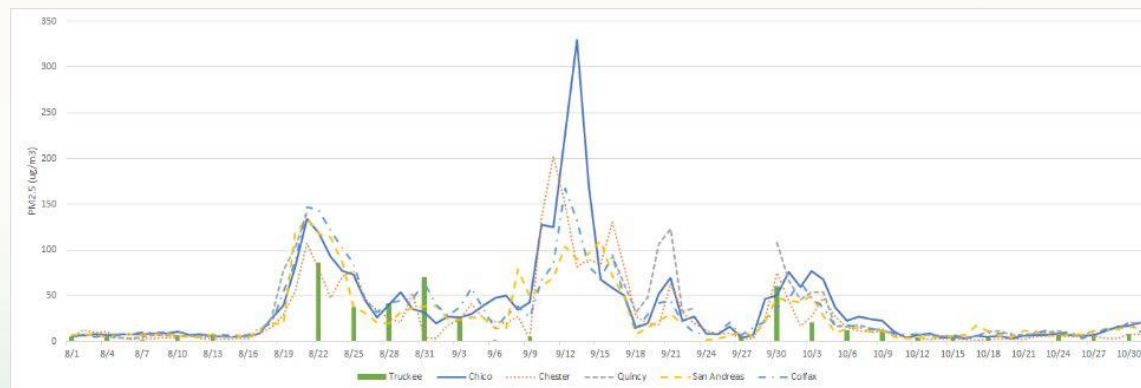
- Tier 3 – More extensive Weight of Evidence approach for all others



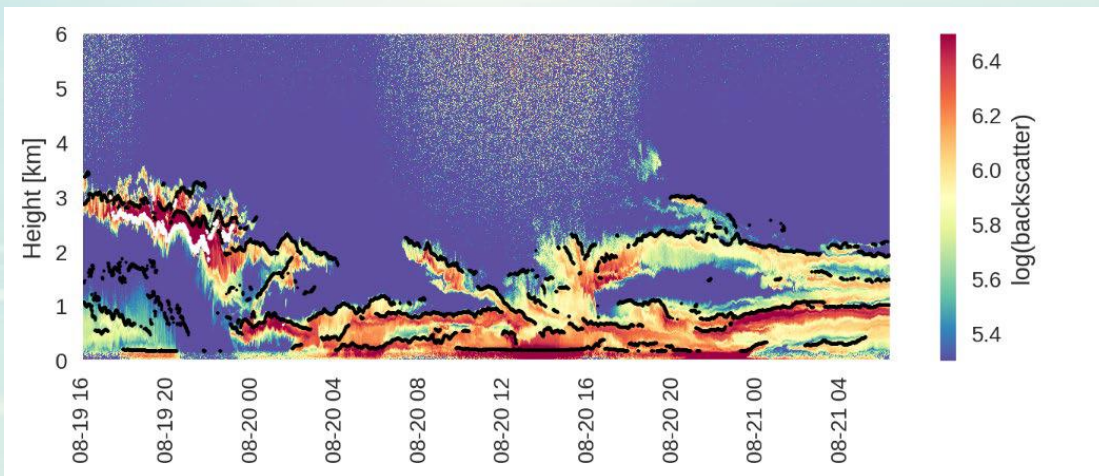
Analyses Examples



1-hr Ozone Percentiles

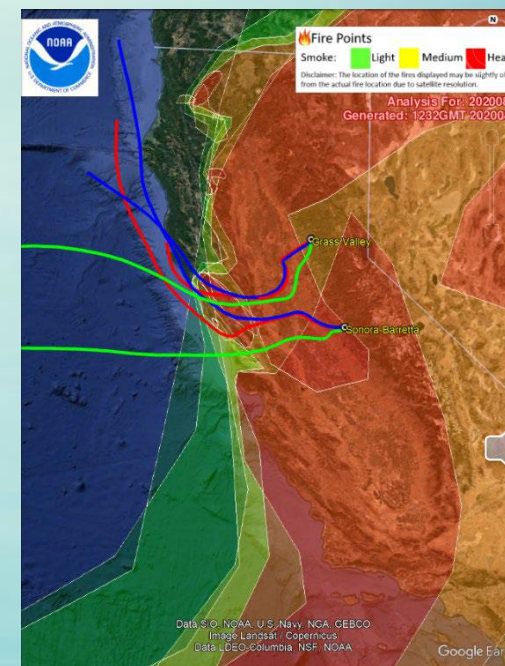


Daily PM_{2.5}



Ceilometer

Trajectories
&
Smoke Overlay



Recommendations

Flag data

- INFORM (IT) if agency believes data impacted
- REQEXC (rt) only if data has regulatory impact and needs demonstration

Initial Notification Information Form

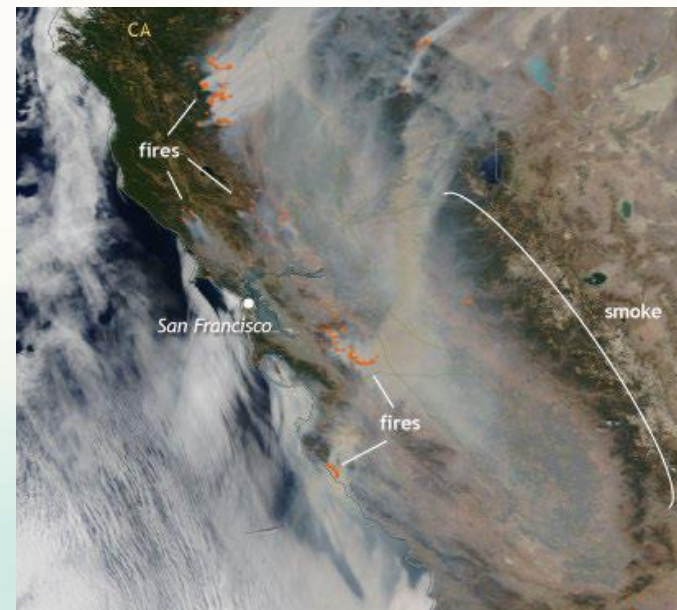
- Work with CARB or U.S. EPA Region 9 on their requirements

Establish “Best Practices”

- Initiate mitigation efforts
- Archive health advisory/air quality alerts
- Archive local news media/social media discussions of smoke at any impacted monitors



Exceptional Event Information



CARB Exceptional Events:

<https://www.arb.ca.gov/our-work/programs/state-and-federal-area-designations/exceptional-events>

exceptionalevents@arb.ca.gov (*NEW* Group Email for Both PM and Ozone)

U.S. EPA Exceptional Events:

<https://www.epa.gov/air-quality-analysis/treatment-air-quality-data-influenced-exceptional-events-homepage-exceptional>

