

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

Air Quality Impacts from Wildfires | April 24, 2025

Ali Ghasemi

Ventura County APCD Executive Officer



VENTURA COUNTY
AIR POLLUTION
CONTROL DISTRICT

Topics

1. What are major concerns on Mountain & LA Fires
2. Greenhouse Gas Emissions (GHG) overview
3. Regional Impact of Ventura & LA Fires
4. Climate Impact
5. Solution & Responses
6. APCD Roles
 1. Heightened awareness during atmospheric patterns that are conducive to fire weather.
 2. Assessment of potential areas being impacted by deteriorating air quality due to smoke during a wildfire
 3. Issuing air quality alerts due to smoke impacts from wildfire



Why Focus on Mountain & LA Fires?

- Mountain Fire: (Ventura County, November 2024)
 - They were destructive and fast-moving wildfires
 - Burned over 20,600 acres,
 - Destroyed about 200 residences
 - GHG emissions: not available yet
- LA Fires (Palisades, Eaton, Hurst and Sunset - January 2025)
 - Burned over 55,082 acres
 - Destroyed more than 16,251 homes
 - GHG Emissions: These fires contributed significantly to GHG emissions, but data is not available.



GHG Emissions Overview

- Wildfires releases CO₂, CH₄, and black carbon
- 2020 California fires (CARB Wildfire Emission Estimates for 2022)
 - 4.1 million acres burned; 106.7 Million Metric tons of CO₂ released.
- 2024 Mountain fires: Over 20,000 acres burned.
- 2025 LA fires: Over 55,000 acres burned + structures



Regional Impact of Ventura & LA Fires

- Air Quality degraded: Spikes in PM_{2.5}, NO₂ and CO.
- Toxic emissions resulted from burning synthetic materials.
- Health risks increased for millions in Southern California.
- Species were threatened in San Gabriel Mountain.
- Resulted in economic losses (infrastructure, disaster response).
- Challenges in evacuation, insurance, and rebuilding.



Long Term Climate Impact

- GHGs from wildfires rival emissions from sectors like power & transport.
- Black carbon accelerates snow and ice melt in mountain regions.
- Reduced snowpack = reduced water availability



Solutions & Responses Mitigation

- Controlled burns and forest thinning
- Reforestation and carbon farming
- Cut fossil fuel emissions



APCD Role

- Forecast Outlook Fire Weather
 - Stay up-to-date with NWS forecast outlooks and public messaging
 - Heightened awareness during forecasted Santa Ana wind events.
 - Red Flag or PDS conditions:
 - Strong and sustained wind speeds with extreme gusts.
 - Low relative humidity and critically dry fuel moisture
 - High temperatures

WEATHER RISK OUTLOOK

Risk levels incorporate potential impacts from weather hazards and likelihood of occurrence for a reasonable worst case scenario.

	Sun 11/3	Mon 11/4	Tue 11/5	Wed 11/6	Thu 11/7	Fri 11/8	Sat 11/9
Ocean	Wind	High Seas Wind	High Seas Wind	High Seas Wind	High Seas Wind		
Coasts	Wind High Surf	Wind High Surf	Wind High Surf	Wind Fire Weather High Surf	Wind Fire Weather	Fire Weather	
Valleys	Wind	Wind Fire Weather	Wind	Wind Fire Weather	Wind Fire Weather	Fire Weather	
Mountains	Wind Fire Weather	Wind Fire Weather	Wind Fire Weather	Wind Fire Weather	Wind Fire Weather	Fire Weather	Fire Weather
Deserts	Wind	Wind Fire Weather Frost/Freeze	Wind	Wind Fire Weather	Wind Fire Weather	Fire Weather	Fire Weather
Risk Levels	Little to None	Minor	Moderate	Major	Extreme		

Weather Risk Outlook issued by NWS on Sunday, Nov 3, 2024.

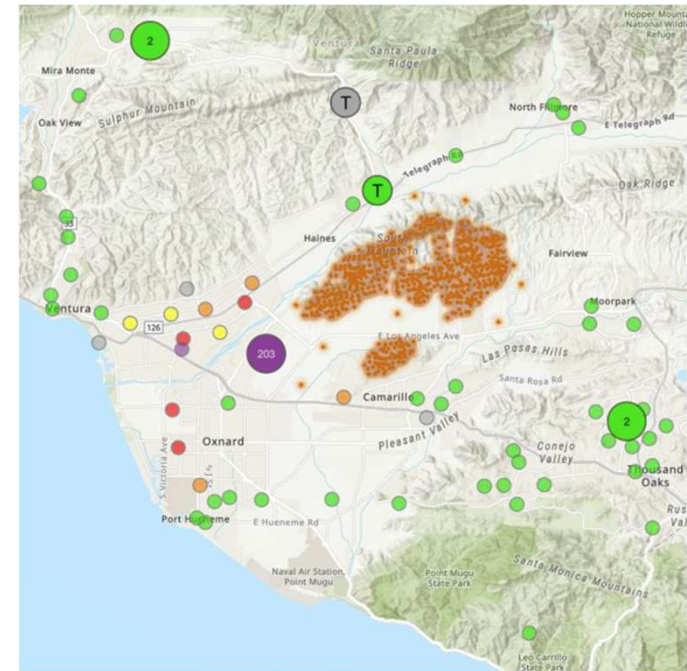


APCD Role (Continue)

- Wildfire and Air Quality Impact
 - During fire weather conditions, stay aware of potential wildfire ignitions.
 - Watch Duty - <https://www.watchduty.org/>
 - Alert CA Camera Network - <https://alertcalifornia.org/>



Satellite Imagery of Mountain Fire – November 7, 2024



Surface PM2.5 AQI values during Mountain Fire – November 6, 2024
<https://fire.airnow.gov/>



APCD Role (Continue)

- VCAPCD Air Quality Alerts – Wildfire Smoke
 - Smoke impacted areas are assessed based on several factors:
 - Wind direction carrying the plume
 - Smoke dispersion model forecasts
 - Surface observations from VCAPCD monitoring stations and community sensors
 - An alert is issued when PM_{2.5} from wildfire smoke is causing or is forecasted to cause the EPA NowCast AQI to reach Unhealthy levels.
 - Alert is sent out:
 - Sent to the NWS office in Oxnard who distributes message as a public advisory.
 - Emailed to VCAPCD subscribers of the daily forecast and periodic news listservs
 - Messaging is also posted on the VCAPCD website and communicated through social media channels such as X, Facebook, and NextDoor.




QUESTIONS?

Get in Touch!

 aghasemi@vcapcd.org

 4567 Telephone Road
Ventura, CA 93003

 805.303.4016

vcapcd.org