LA FIRE HEALTH STUDY

# DATA BRIEF

**Preliminary Data Findings:** Indoor and Outdoor Air Quality ($PM_{2.5}$)

**Data Type:** Mobile and In-Home Air Quality

**Updated:** 2/21/2025

## Key Takeaways:

- Localized air pollution $PM_{2.5}$ measurements in Altadena and the Palisades are generally within EPA limits, are consistent with regional air quality monitors, and are considered typical for the region.
- Air quality measurements can vary significantly based on time of day, direction of wind, and atmospheric conditions. Therefore, it is best to err on the side of caution: if you smell smoke or chemicals when outside, even if the AQI is green for your area, consider wearing an N95 mask or holding off on outdoor activity until the smell dissipates.

## What's in this report?

- Preliminary results of $PM_{2.5}$ levels collected during outdoor mobile monitoring, before/after rain, and inside homes in and around the areas impacted by the Palisades and Eaton fires.

## What's next?

This is only one part of a larger study of air, water, dust, and soil at 50 homes in the vicinity of the Palisades and Eaton Fires. Additional testing is underway and will be reported publicly as the data are reviewed by the scientific team.

More information will be available at: www.LAFireHEALTH.org.

## What did we find?

- These preliminary results indicate that $PM_{2.5}$ levels are generally within EPA limits for 24-hour exposures, and are typical for the L.A. region (before the fires).
- **Note:** These data are preliminary and only for $PM_{2.5}$. Other contaminants — including volatile organic compounds (VOC) and metals — are expected to be higher in the burn area, and activity can stir up dust and particles. Precautions should still be taken.

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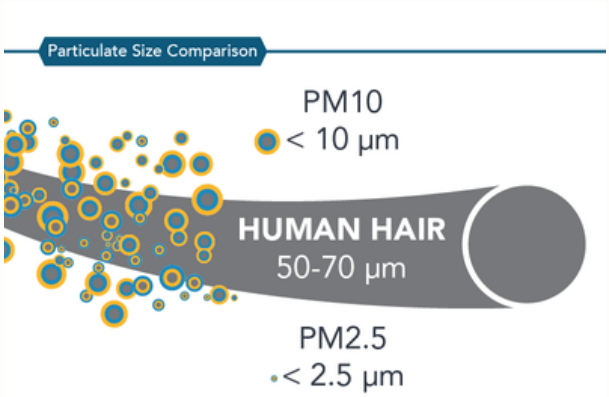
# WHAT IS $PM_{2.5}$ AND WHY DOES IT MATTER?

Air pollution is often measured by measuring the number of tiny particles in the air. These particles, called **particulate matter (PM)** are made up of a mixture of many different chemicals. PM varies widely in size, shape and chemical composition, and may contain manmade chemicals, metals, organic compounds, carbon, and many other compounds.




*Source: CA Air Resources Board*

Particles are defined by their size for air quality regulatory purposes. Those with a diameter of 10 microns or less ($PM_{10}$) are inhalable into the lungs and can induce adverse health effects. For comparison, a human hair is 50-70 microns in diameter.

**Fine particulate matter is defined as particles that are 2.5 microns or less in diameter ($PM_{2.5}$).** $PM_{2.5}$ is more likely to travel into and deposit on the surface of the deeper parts of the lung. $PM_{1.0}$ is a subset of $PM_{2.5}$ and contains even smaller particles.

# WHAT ARE THE EPA LIMITS FOR $PM_{2.5}$?

The EPA and CA Air Resources Board have both set limits for exposure to particulate matter in air. These limits are based on scientific studies that show that exposures to these pollutants for certain amounts of time are associated with an increased risk of adverse health effects.

These limits look at two types of exposures:

- High exposures over a short period of time (less than 24 hours)
- Lower exposures on a regular basis over a long period of time (annual exposures)

| | $PM_{2.5}$ Annual Average | $PM_{2.5}$ 24-Hour Average |
|---|---|---|
| ***National Ambient Air Quality Standard*** | 9 µg/m$^3$ | 35 µg/m$^3$ |
| ***California Ambient Air Quality Standard*** | 12 µg/m$^3$ | None |

***µg/m$^3$*** *is a unit of measurement that indicates the concentration of an air pollutant in micrograms per cubic meter of air. It's used to measure the amount of pollutants like ozone and particulate matter in the air.*

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# DATA SET 1: OUTDOOR AIR QUALITY

**Preliminary Data Findings:** Outdoor $PM_{1.0}$ In and Around Burn Areas

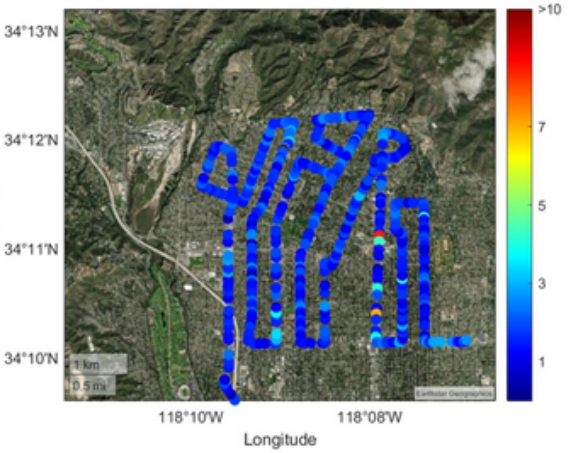
**Data Type:** Mobile Air Monitoring

**Location:** Palisades and Altadena

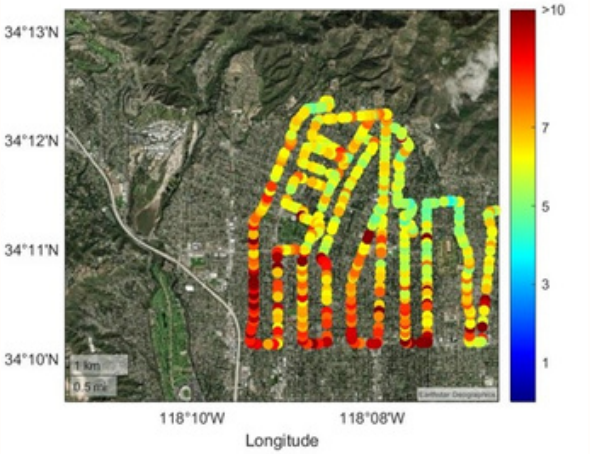
## Key Takeaways:

- Mobile measurements of $PM_{1.0}$ from around the Altadena and Palisades areas vary by time of day and proximity to highways, but are generally consistent with levels found in L.A. before the fire, and are within EPA 24-hour limits for $PM_{2.5}$.
- Air quality measurements can vary significantly based on time of day, direction of wind, and atmospheric conditions. Therefore, it is best to err on the side of caution: if you smell smoke or chemicals when outside, even if the AQI is green for your area, consider wearing an N95 mask or holding off on outdoor activity until the smell dissipates.

## Altadena Morning of 02/14/2025



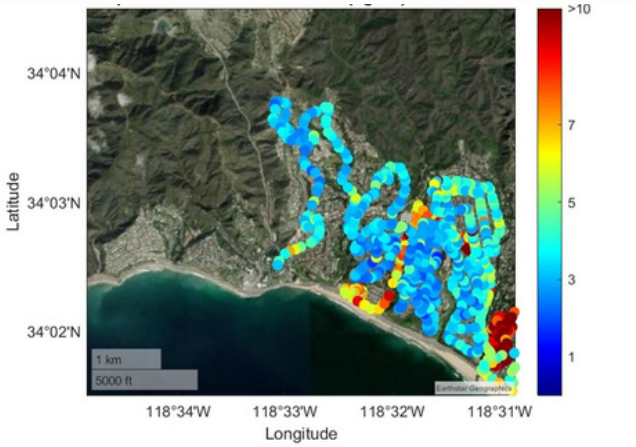

## Altadena Evening of 02/14/2025




## Notes

- Levels of $PM_{1.0}$ vary throughout the region but are below health-based thresh-holds for $PM_{2.5}$, which includes $PM_{1.0}$.
- **Note:** These data are preliminary and only for $PM_{1.0}$, and do not include metals or black carbon. Other compounds, such as VOCs, are expected to be higher in the burn area, and activity can stir up dust and particles. Precautions should still be taken.

## Palisades 02/15/2025



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# DATA SET 2: BEFORE & AFTER RAIN

**Preliminary Data Findings:** Outdoor $PM_{2.5}$ during 2/10/25 – 2/14/25

**Data Type:** Mobile Air Monitoring

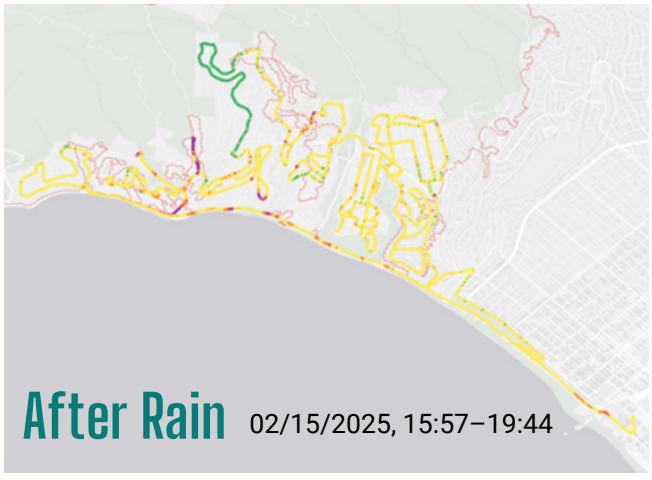
**Location:** Palisades and Altadena

**Key Takeaways:**

- Mobile measurements taken show that $PM_{2.5}$ levels are typical for the L.A. region, and noticeably lower after rain.
- Air quality measurements can vary significantly based on time of day, direction of wind, and atmospheric conditions. Therefore, it is best to err on the side of caution: if you smell smoke or chemicals when outside, even if the AQI is green for your area, consider wearing an N95 mask or holding off on outdoor activity until the smell dissipates.

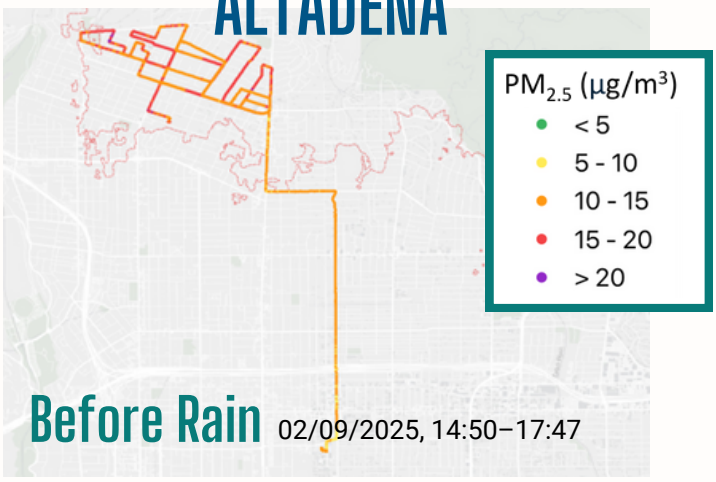
## PALISADES

Before Rain 02/10/2025, 11:03–16:22

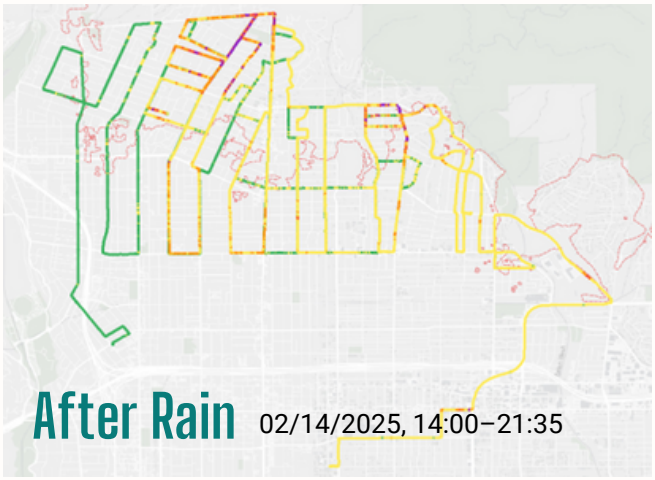


After Rain 02/15/2025, 15:57–19:44

## ALTADENA




Before Rain 02/09/2025, 14:50–17:47



After Rain 02/14/2025, 14:00–21:35

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# DATA SET 3: INDOOR AIR QUALITY

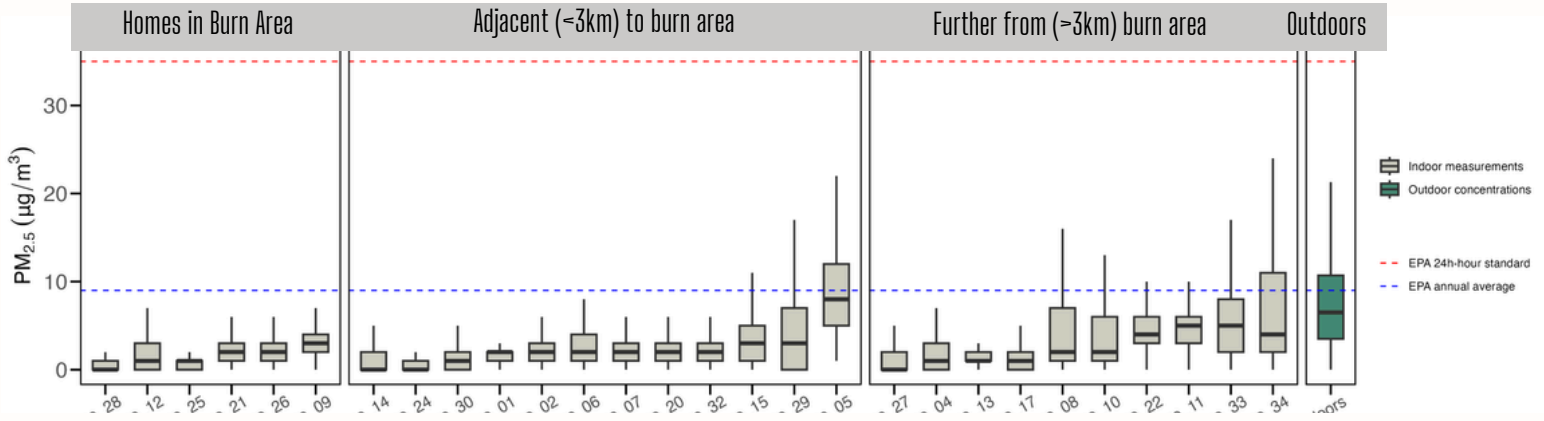
**Preliminary Data Findings:** Indoor $PM_{2.5}$ in homes in and near burn areas

**Data Type:** In-home air quality monitors

**Locations:** Palisades and Altadena

## Key Takeaways:

- Distribution of indoor $PM_{2.5}$ levels in homes at different distances from the fires show that levels are generally within health-based guidelines, and typical for particle levels in homes
- Note that VOC levels in the burn area are anticipated to be higher, and the lower $PM_{2.5}$ levels in homes in the burn area are likely due to limited human activity. Precautions should still be taken when in the burn area.




## Notes

This chart provides three useful points of comparison:

1. First, we can compare levels found in three categories of proximity: homes within the burn area, adjacent to the burn area, and further (>3 km) from the burn areas.

2. Second, indoor levels (grey) can be compared to outdoor levels (green).

3. Finally, the levels can be compared to two thresholds from the U.S. EPA: the 24-hour limit (dotted red line) and the annual limit (dotted blue line).

# WHAT CAN YOU DO RIGHT NOW?

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH | HEALTHY BUILDINGS

**ADVISORY:** Wildfire smoke can get inside your home. Stay safe with these simple tips.

## 3 WAYS TO REDUCE RISK FROM WILDFIRE SMOKE AT HOME

### 1 FILTER INDOOR AIR

- ✓ Upgrade to MERV13 filters or higher in central systems
- ✓ Use portable air cleaners with HEPA filters
- ✓ Consider air cleaner with HEPA + activated carbon if near to burn area and wear a mask while cleaning

### 2 CONTROL DUST

- ✓ Kick shoes off at the door to prevent tracking in soot/ash
- ✓ Damp wipe surfaces
- ✓ Use a vacuum that is air-sealed with a HEPA filter

### 3 MONITOR AIR QUALITY

- ✓ Install an indoor air quality monitor
- ✓ Track $PM_{2.5}$ (airborne particles)
- ✓ Track TVOCs (airborne chemicals)

# IF YOU HAVE QUESTIONS:

- Email us: info@lafirehealth.org
- Visit the website: www.LAFireHEALTH.org

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The Los Angeles Fire Human Exposure and Long-Term Health Study is a 10-year study of the Los Angeles fires to evaluate which pollutants are present, at what levels, and where, and to assess the respiratory, neurological, cardiovascular, reproductive, and immune system impacts of the wildfires.