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Heat Waves and Wildfires

Objectives

- What are heat waves?
- How heat waves affect AQI?
- What is ozone?
- What are wildfires?
- How wildfires affect AQI?
- What is PM 2.5?

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What are Heat Waves?

- Heat wave is hot weather that lasts two or more days.
- Heat waves form from trapped air.
- Temperatures must be outside the historical averages for a given place to be classified as a heat wave.



How Heat Waves Make Air Quality Worse

- As heat rises so does air pollution.
- High temperatures in the U.S. produce dangerous air pollution levels.
- Heat converts the existing elements in the air into ozone and other harmful byproducts.

<https://www.iqair.com/us/newsroom/how-heat-waves-make-air-quality-worse>

What is Ozone?

- **Ozone** is a colorless gas formed by sunlight and oxygen molecules
- Ozone exists naturally in the Earth's upper atmosphere and protects us from the sun's ultraviolet rays by absorbing them.
- **Ground level ozone**: chemical pollutant that results from a reaction between sunlight, oxygen, and two air pollutant particles- nitrogen oxide and volatile organic compounds.

Nitrogen Oxide

- motor vehicles
- power plants
- lightning strikes
- volcanoes
- oceans
- biological decay

Volatile Organic Compounds(VOCs)

- motor vehicles
- wood burning
- industrial emissions
- chemical plants
- refineries
- cleaners and disinfectants
- paints, paint strippers, varnishes, and finishes
- tobacco smoke

What are Wildfires?

- Uncontrolled fire that burns in wildland vegetation-forests, grasslands, and savannas.
- Often in rural areas.
- Wildfires can start from a natural occurrence such as lightning strike or human made spark.
- Weather conditions determines how much a wildfire will grow.
- Wind, high temperatures, and little rainfall can leave trees, shrubs, fallen leaves, and limbs dried out to fuel a fire



How Wildfires Make Air Quality Worse?

- Wildfire smoke is a severe air quality issue.
- Climate patterns create drier and hotter conditions which increase the possibility for wildfires to ignite and burn for a longer period of time.
- The more wildfires there are, the more smoke.
- Wildfires have generated 25-50% atmospheric PM 2.5

<https://www.iqair.com/us/blog/air-quality/wildfires-increasing-or-decreasing>

What Is PM 2.5?

- An air pollutant composed of tiny particles in the air.
- Causes harm to people's health when levels are high.
- Known to cause chronic health issues and premature deaths from respiratory diseases, heart diseases, and cancer.

