



How does climate  
change affect air quality?





# 1. Higher Temperatures = More Ground-Level Ozone

Hotter weather speeds up the chemical reactions between nitrogen oxides ( $\text{NO}_x$ ) and volatile organic compounds (VOCs) from vehicles and industry.



This creates more ground-level ozone (smog), which damages lungs, crops, and ecosystems.



## 2. Extreme Weather Spreads Pollution

Heatwaves trap pollutants close to the ground under “temperature inversions,” worsening smog episodes in cities.

Droughts lead to dust storms, increasing particulate matter (PM10 and PM2.5).

Wildfires, which are becoming more frequent and intense with climate change, release massive amounts of smoke, soot, and toxic gases, often drifting thousands of kilometres.





### 3. Changes in Rainfall and Wind

Normally, rain can “wash” pollutants from the air.

But altered rainfall patterns mean some regions may have less cleansing rain, while shifting wind patterns can carry pollutants longer distances.





#### 4. Health Impacts Get Worse

People already at risk (children, elderly, people with asthma or heart conditions) are more likely to suffer when both heat stress and air pollution increase.

Longer pollen seasons from warmer weather also add to respiratory problems like asthma and hay fever.





## 5. Feedback Loops Between Air Pollution and Climate

Air pollutants like black carbon (soot) not only harm lungs but also absorb sunlight, warming the atmosphere.

Methane contributes both to climate change (a potent greenhouse gas) and to higher ground-level ozone levels.

Cutting these pollutants benefits both climate and clean air at the same time.

