Evolution of Air Quality in the USA

TEAM

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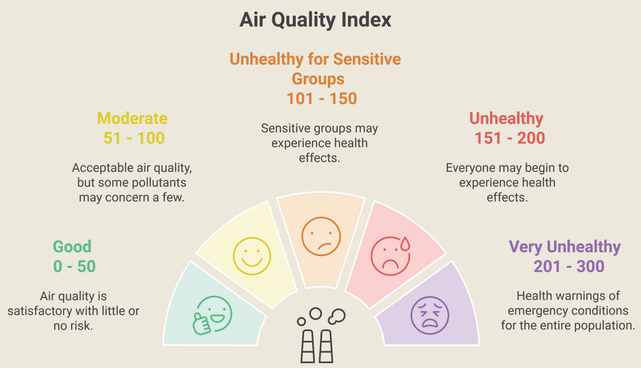
TERM PROJECT

Master 2IS M1 2024/2025

In the face of rising environmental challenges, monitoring air quality has become essential to safeguarding health and understanding climate impacts.
By analyzing ten years of data across the United States, our study identifies key trends and shifts in air quality over time, revealing which states have seen the most improvement and where challenges remain.

01. Introduction

The Air Quality Index (AQI) is essential for measuring air quality. It simplifies complex pollution data into a single, easy-to-understand scale with different levels :



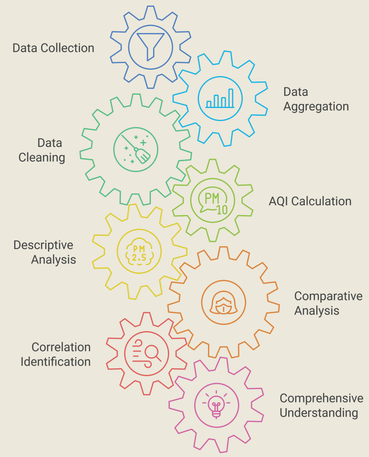
When the air quality is hazardous (AQI 301-500), a health alert is issued and everyone may experience serious health effects.

02. Objective

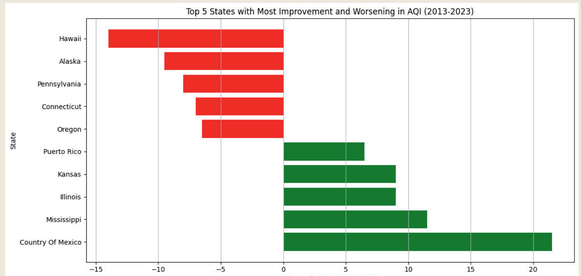
What has the air quality journey looked like in the USA from 2013 to 2023?

Get ready for an enlightening exploration of fresh air!

03. How did we do it?



04. Change in Median AQI

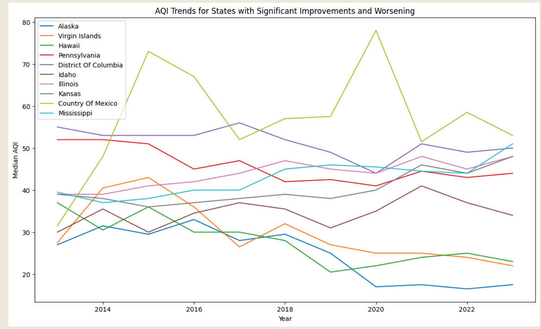


The graph focuses on the five states with the largest decreases in AQI (a positive change) and the five states with the largest increases (a negative change) from 2013 to 2023.

A negative AQI change indicates an improvement, as it reflects lower AQI levels by the end of 2023.

05. Evolution of AQI in states with the highest and lowest median AQI

This graph highlights the states with the highest and lowest recorded median AQIs. New Mexico state experiences the greatest variance in AQI and also presents the highest change in AQI recorded.



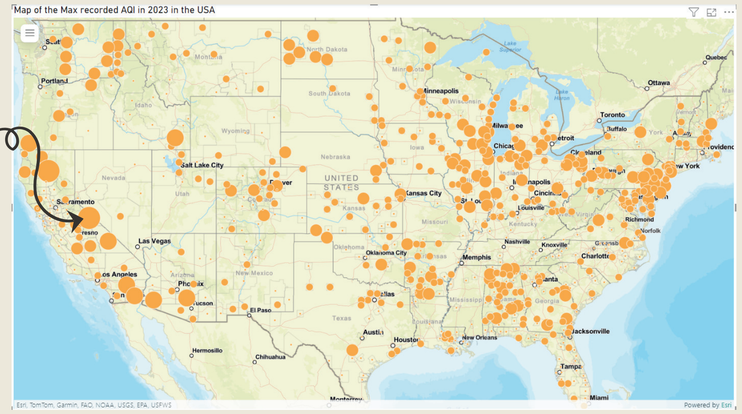
06. Geographic Distribution of Max Recorded AQI in 2023

Mono County

Largest bubble on the map with a maximum AQI recorded of 1829 in 2023.

Sparsely populated area with no significant industrial activity.

Major wildfires in the region during the year, leading to a sharp spike in air pollution.



High AQI Concentrations in the West: Larger bubbles, indicating higher max AQI values, are concentrated in the western part of the United States, particularly in California.

There are significant AQI in Urban Areas. This pattern often correlates with high population density, industrial activity, and traffic, which are known contributors to poor air quality.

07. Conclusion

By using different tools and methodologies, we effectively identified correlations between specific pollutants and AQI scores.

Our findings revealed significant trends, including an overall improvement in air quality in many states, while highlighting notable disparities among regions.