



CLIMATE CHANGE Vs EXTREME WEATHER

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GitHub Link: <https://github.com/shahryarahmed3/Forest-Fires-vs-Climate-Change.git>



Problem



Does climate change impact
extreme weather events?



Climate → long term pattern of weather in specific area, usually tracked over at least 30 years

Weather → short-term atmospheric conditions, changing from hour-to-hour, day-to-day, month-to-month or even year-to-year

Hypothesis: Changes in climate patterns causes extreme weather

Why Should You Care?



Economic

Damage to property,
businesses, crops.
Recovery burden



Health & Safety

Injury & illness during severe
weather
Stress & mental effect due to
displacement
Need for emergency services
and shelters



Community

Displacement of residents
Struggles with daily normal
life



A dramatic, dark night sky filled with heavy, dark clouds. A bright, jagged lightning bolt strikes down from the upper center of the frame. The word "DATA" is written in large, white, bold, sans-serif capital letters in the center of the image. The overall mood is mysterious and powerful.

DATA

Climate Variables



Temperature



Humidity



Co2



Precipitation

Extreme Weather



Tornado



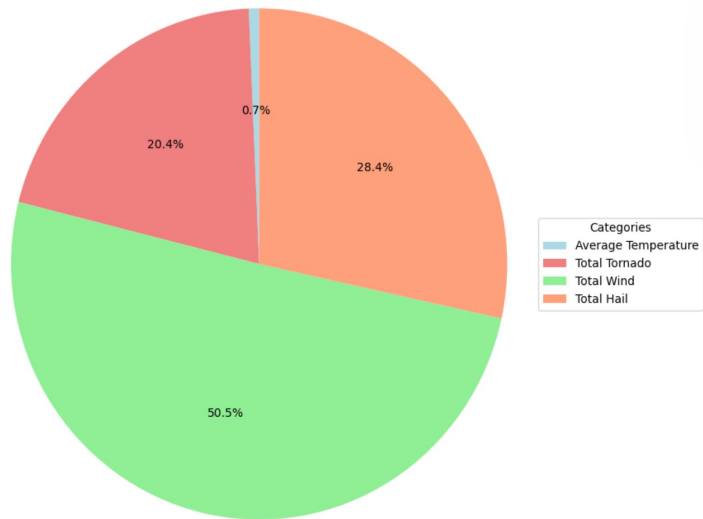
Hail



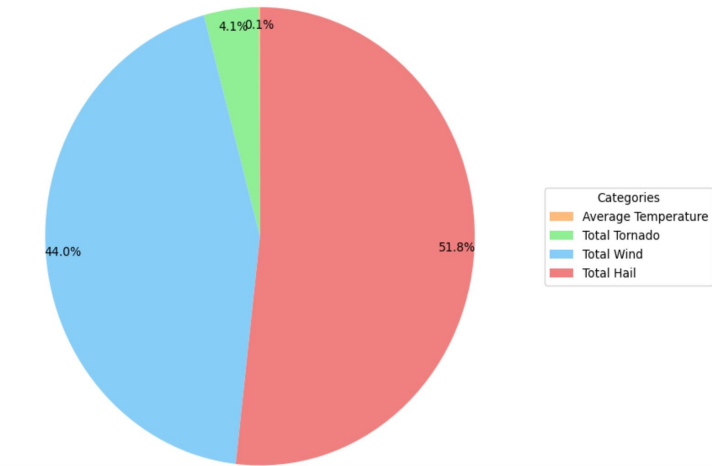
Wind



Average Temperature Vs. Extreme Weather (1975-1976)

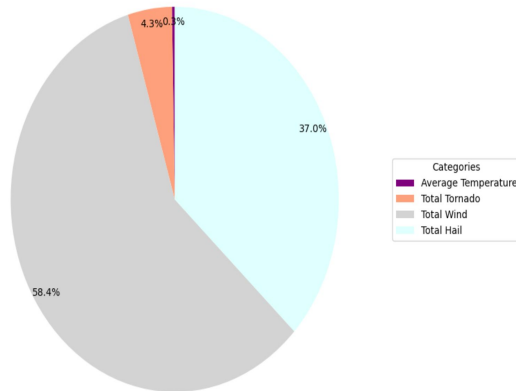


Average Temperature Vs. Extreme Weather (2005-2006)

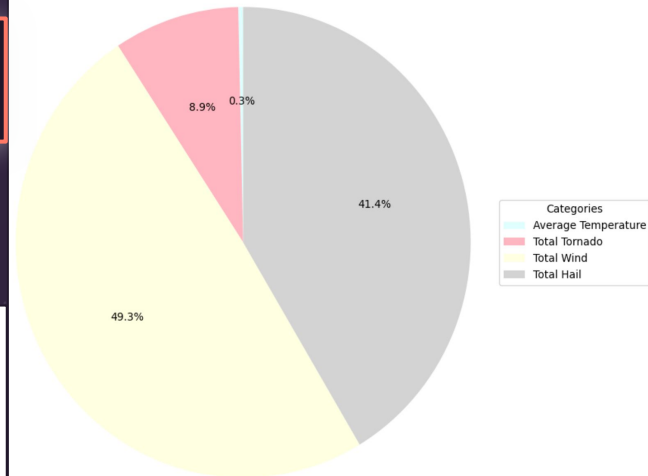


Temperature

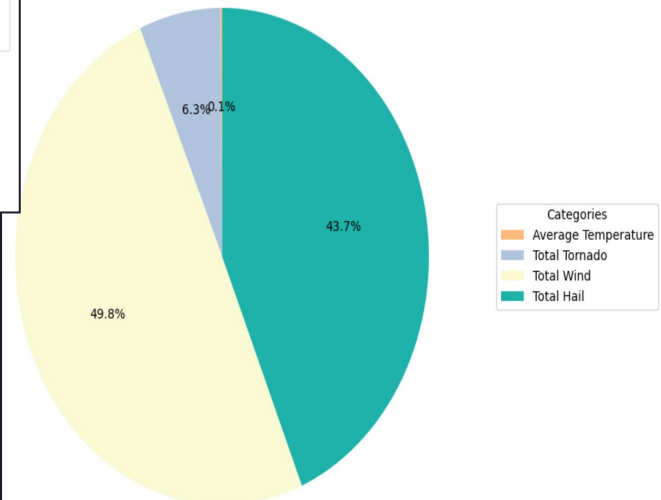
Average Temperature Vs. Extreme Weather (2015-2016)



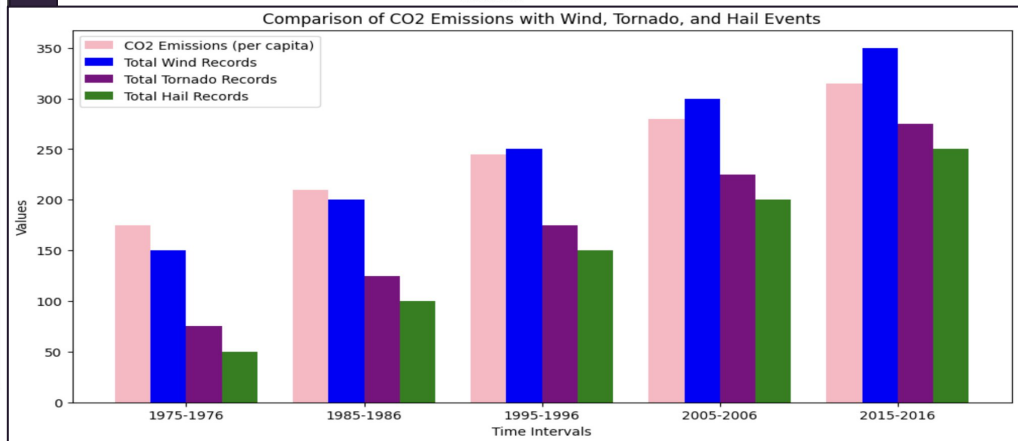
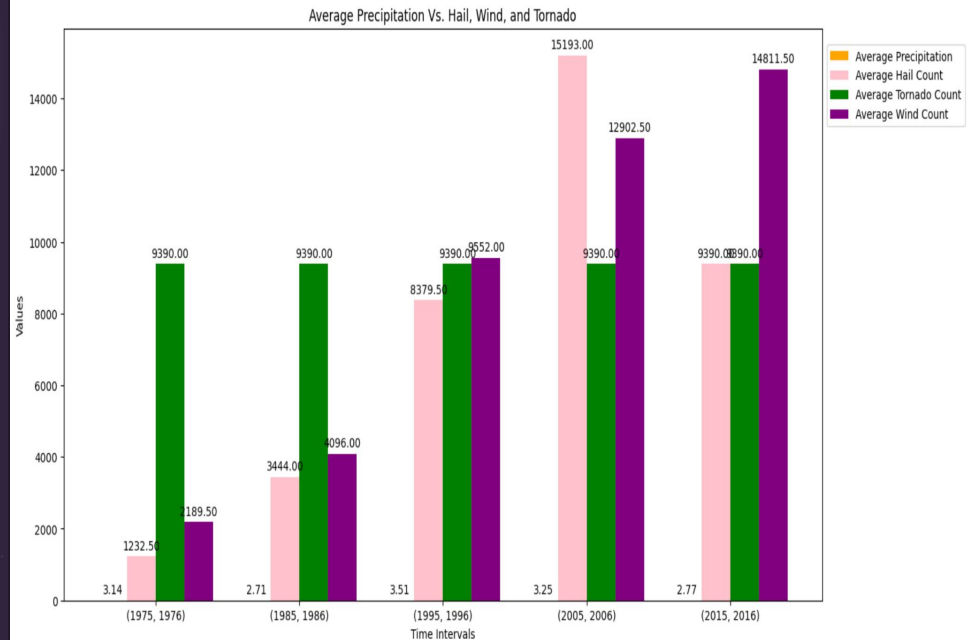
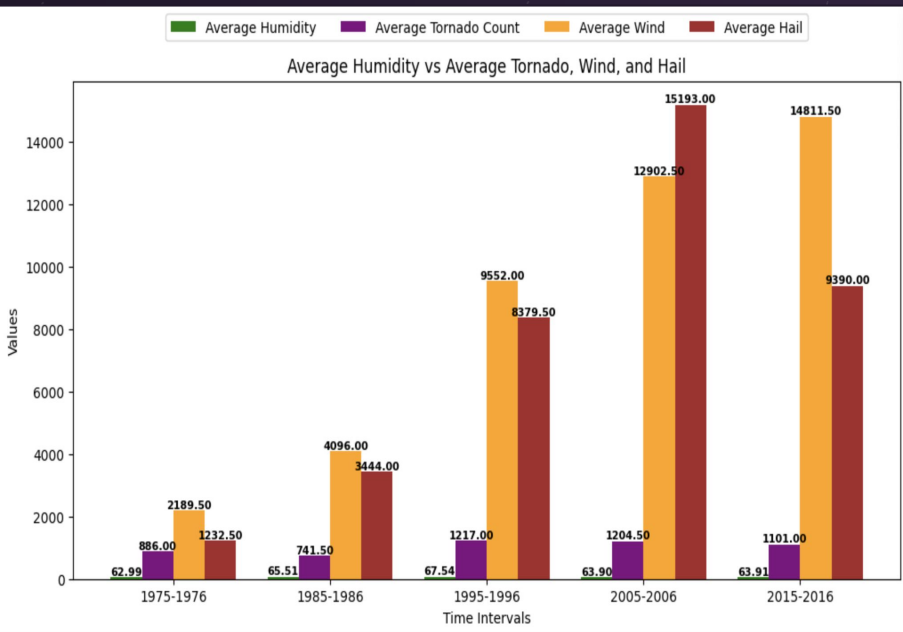
Average Temperature Vs. Extreme Weather (1985-1986)



Average Temperature Vs. Extreme Weather (1995-1996)



Visualizations



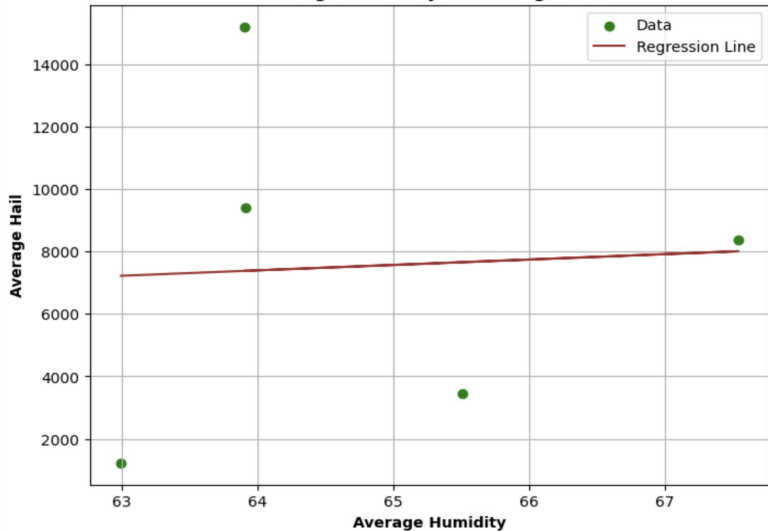
A person wearing a blue jumpsuit is running through heavy rain, splashing water. In the background, a white car is driving on a wet road. The scene is hazy due to the rain.

Findings

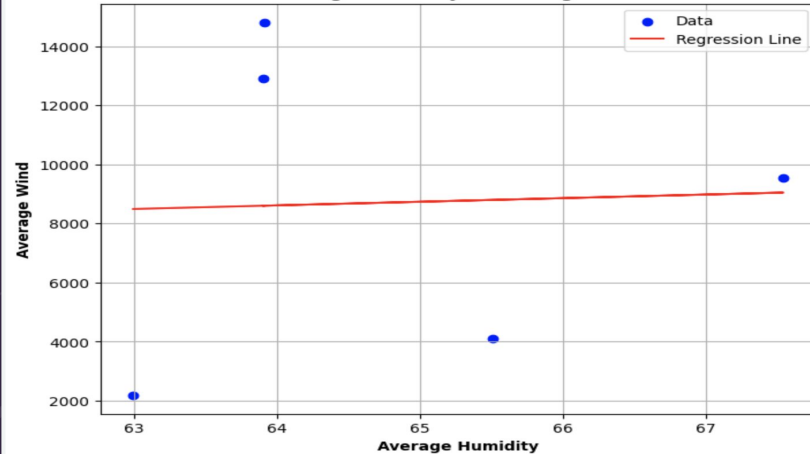
IT'S JUST A LITTLE RAIN

Humidity

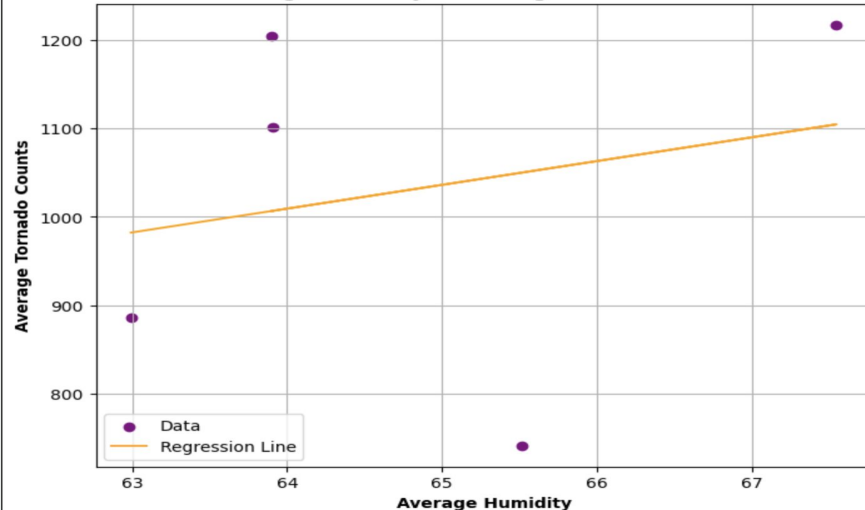
Average Humidity vs Average Hail



Average Humidity vs Average Wind



Average Humidity vs Average Tornado Counts



PCC:

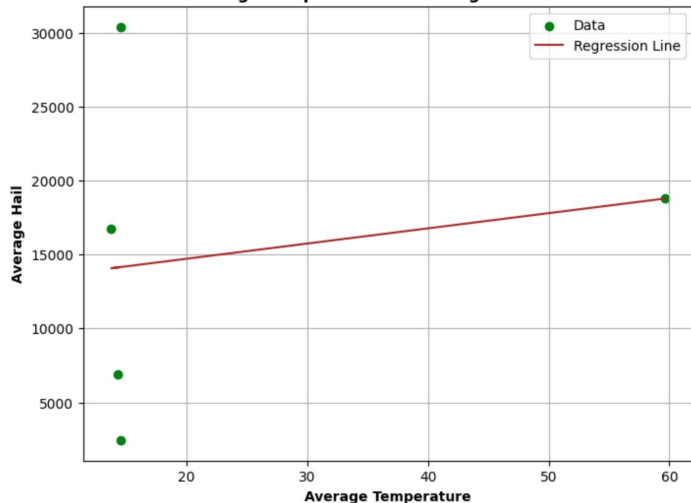
Humidity vs tornado $\rightarrow 0.23$

Humidity vs wind $\rightarrow 0.04$

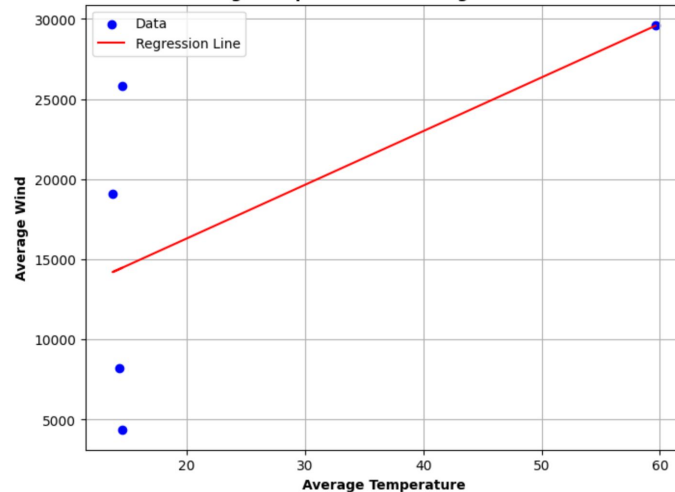
Humidity vs hail $\rightarrow 0.06$

Temperature

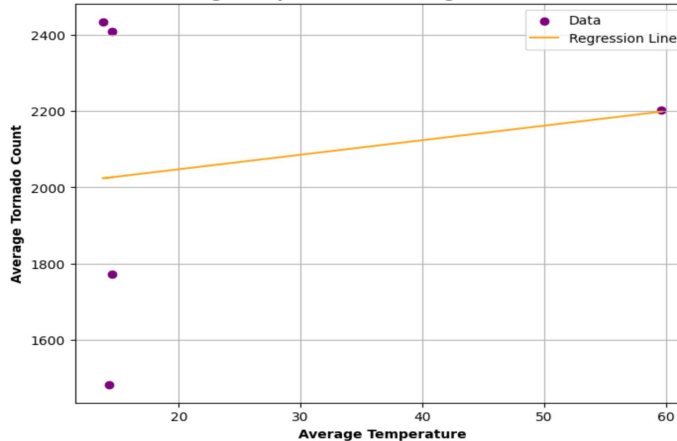
Average Temperature vs Average Hail Count



Average Temperature vs Average Wind Count



Average Temperature vs Average Tornado Count



PCC:

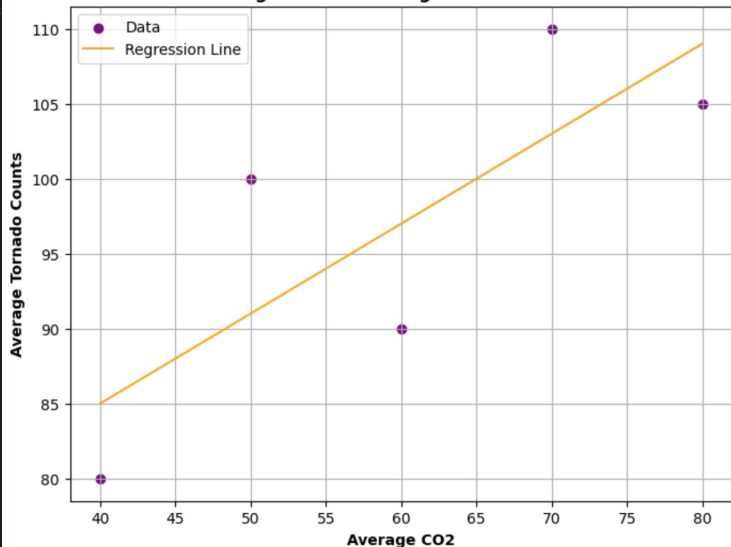
Temperature vs tornado $\rightarrow 0.19$

Temperature vs wind $\rightarrow 0.62$

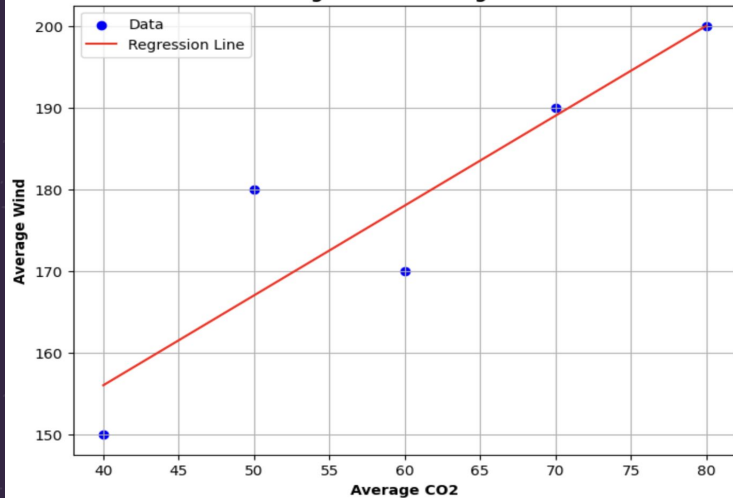
Temperature vs hail $\rightarrow 0.19$

Carbon dioxide

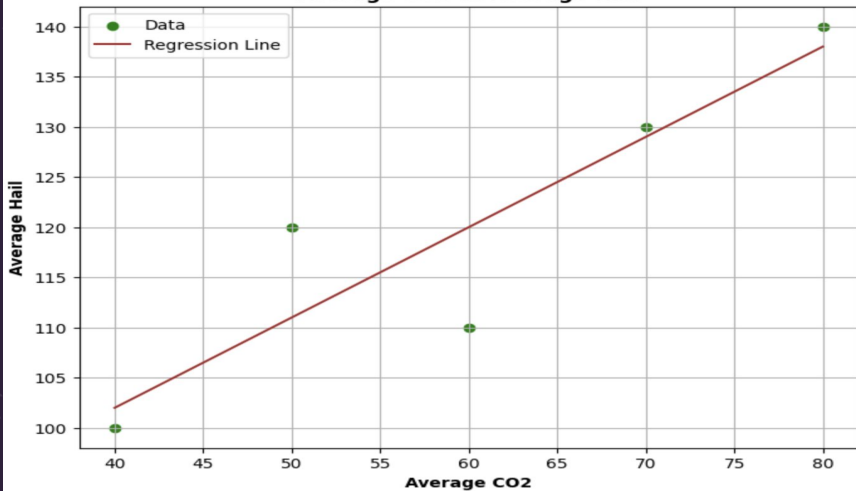
Average CO2 vs Average Tornado Counts



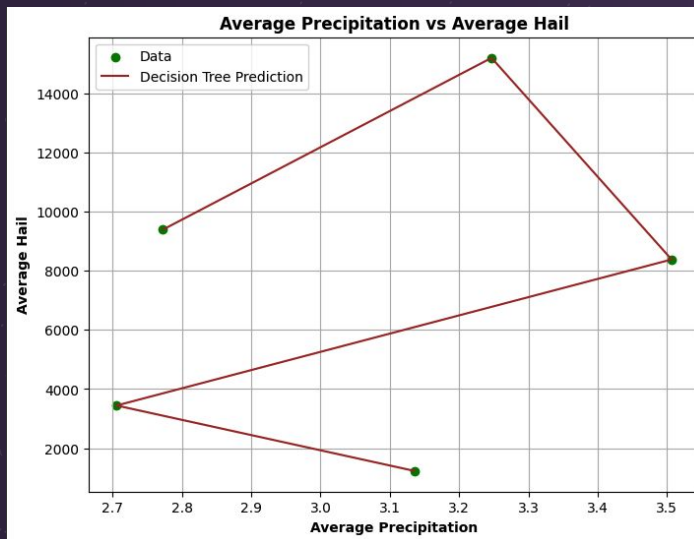
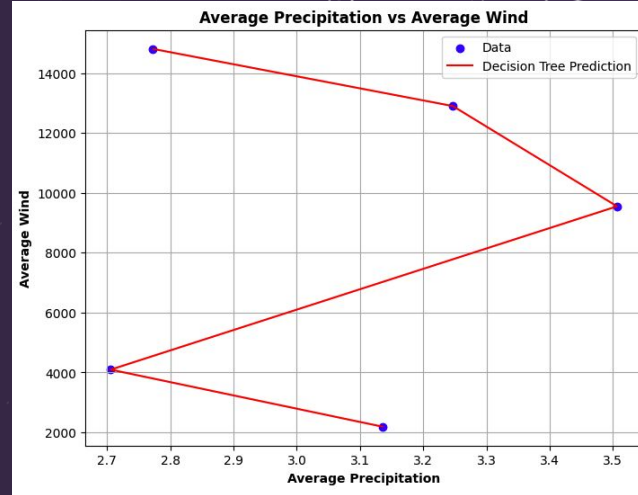
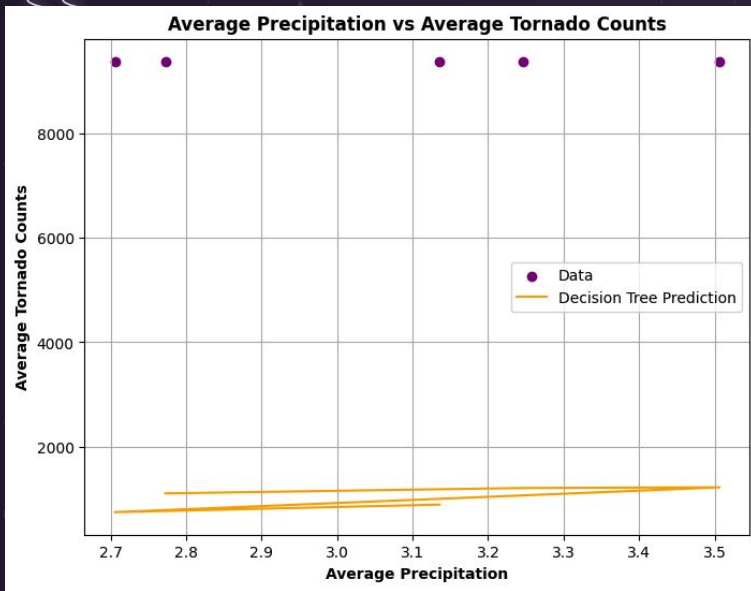
Average CO2 vs Average Wind



Average CO2 vs Average Hail



Precipitation

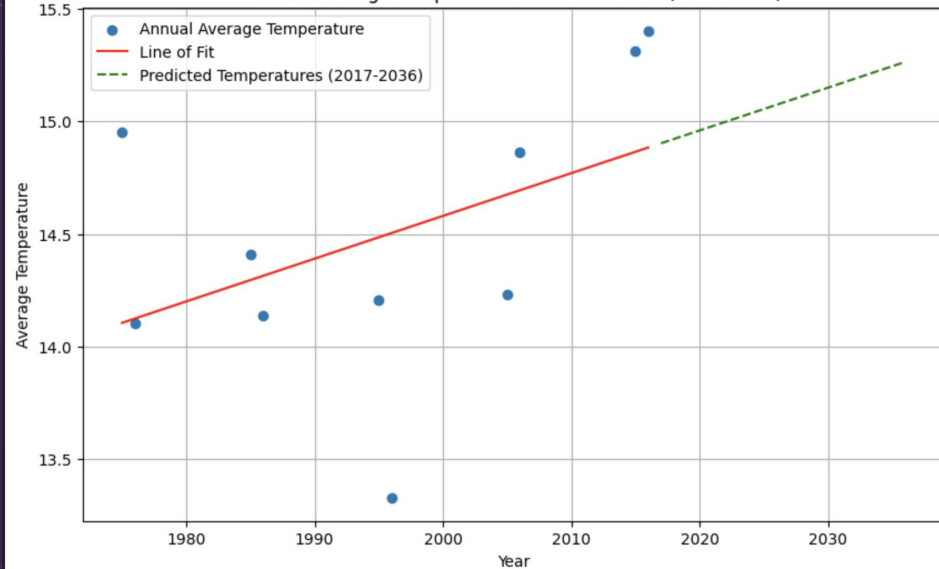


A photograph of a snowy winter street scene. The ground is covered in a thick layer of snow. On either side of the street, there are trees heavily laden with snow. In the background, the outlines of buildings are visible through the snow-covered branches. The overall atmosphere is quiet and serene.

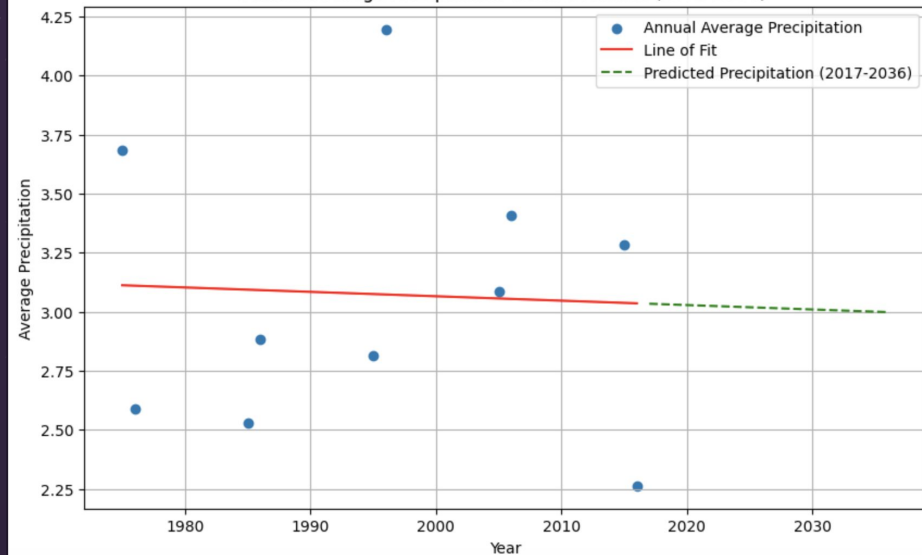
Solutions & Conclusions

Forecast

Annual Average Temperature Trend Overtime (1975-2036)



Annual Average Precipitation Trend Overtime (1975-2036)



Conclusion

Temperature + Wind → moderate positive relationship

Humidity + Tornado → slight positive relationship

Precipitation + Hail + Wind → moderate relationship

Co2 + Tornado / Hail / Wind → strong positive relationship

Increase in temperature causes increase in severe winds

Increase in humidity causes increase in # of tornadoes

Increase in Co2 causes increase in winds, hail & tornado





Thank You