

meteor

jh4977

2025-11-05

In recent years, the impacts of climate variability and extreme weather events have become increasingly evident across New York State. Understanding local climatic patterns is essential not only for environmental monitoring, but also for informing public health preparedness, agricultural planning, and infrastructure resilience. Despite the availability of rich meteorological datasets, there remains a need for integrated analytical approaches that combine visualization, statistical modeling, and predictive analysis to uncover underlying patterns and trends in regional climate behavior.

This project aims to leverage five years of comprehensive weather data from New York State to visualize and model key climatic variables such as temperature, precipitation, and wind speed. Through interactive spatial visualizations—such as precipitation heatmaps across counties—and regression-based analyses, we will identify the major meteorological and geographic factors that shape local weather dynamics. Furthermore, by applying time-series forecasting models, we aim to predict future climatic trends and provide data-driven insights that could support regional planning and climate adaptation strategies.

Ultimately, this project seeks to demonstrate the power of data analytics in translating complex weather information into actionable knowledge, while showcasing technical proficiency in data cleaning, visualization, regression modeling, and time-series forecasting.