Tornado Trend Analysis: Can Data Science Improve Disaster Preparation?

Scenario:
FEMA wants to improve their Tornado preparedness within the United States. Extreme weather has been ravaging America in recent years due to the worsening effects of climate change. They are looking to increase their disaster management protocols for tornados. They have hired you as an external consultant to use their data to aid in minimizing property damage and fatalities associated with tornadoes.

Your job is to use ARIMA and SARIMA time series forecasting models to predict future tornado metrics. You will also generate more general takeaways about the change of tornadoes over time. FEMA is looking to use your work to better allocate funding to disaster preparedness and develop strategies to aid in tornado relief.

Task:
Your task is to build an ARIMA and SARIMA model to analyze and predict future tornado frequency. You will then generate insights backed by statistics on whether or not tornadoes have changed over time in severity (F-rating) and fatalities.

You will present this work in a write up detailing the work you did processing the data, your model building approach, your statistical analysis, and your predictions.

GitHub Link: https://github.com/chrisk-woods/CS3-DS4002