



Project 1: Wildfire Analysis

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Agenda

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Data Collection, Cleaning & Exploration

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Overview

Project Goal

Investigate how rainfall and temperatures affect fire frequency and size across the state:

- What are the general fire, rain and temperature trends?
- What is the relationship between fire and weather?
- Which counties are the most affected?

Data Collection, Clean up & Exploration process

Data Sources:



Collection:

- Fire data 2013-2023
- Weather data to match data range

Exploration

- Fire data included 2000+ incidents
- Weather data included total rainfall and max temp by county - monthly

Cleanup and preparation:

- Interesting exercise to join weather csvs using a loop
- Grouping fire data by month merge with weather



Approach

Insights and Issues:

- Daily fire incidents had to be aggregated by month, but...

Nearly 50% lasted < than 1 week

Nearly 40% lasted > than two months

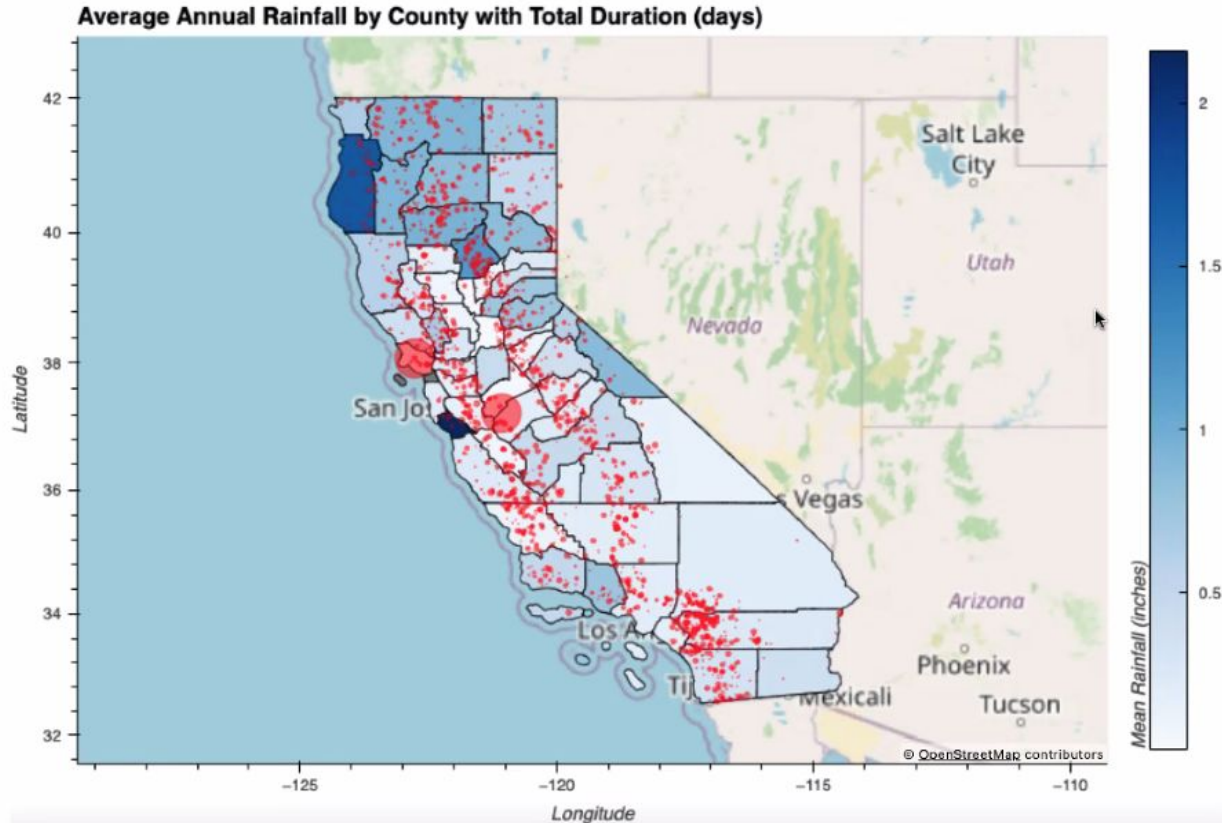
2% spread to more than one county

Way forward:

- County mapping
- High level correlations
- Annual and monthly trends and comparisons
- Top 5 most affect counties



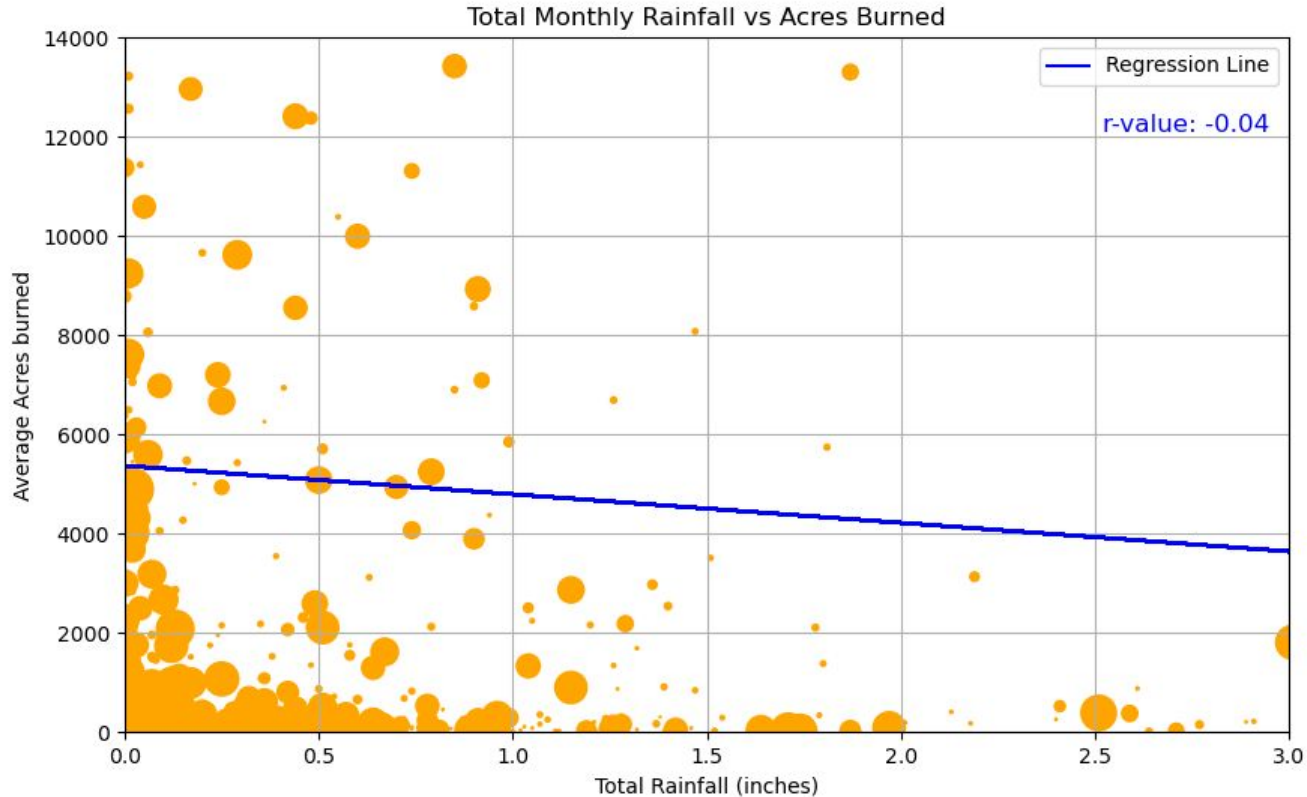
Results: Annual Average Rainfall by County with Total Fire Duration



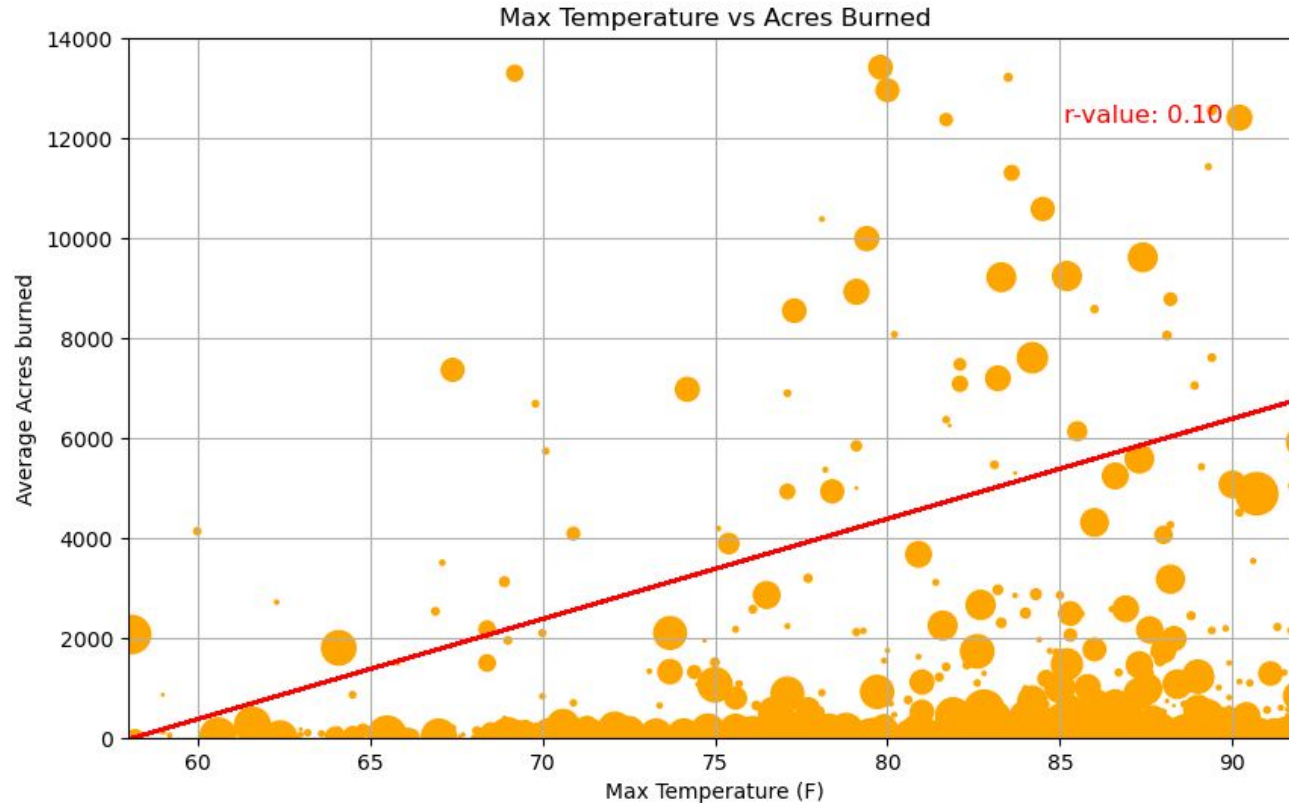
Results: Annual Average Temperature by County with Total Fire Duration



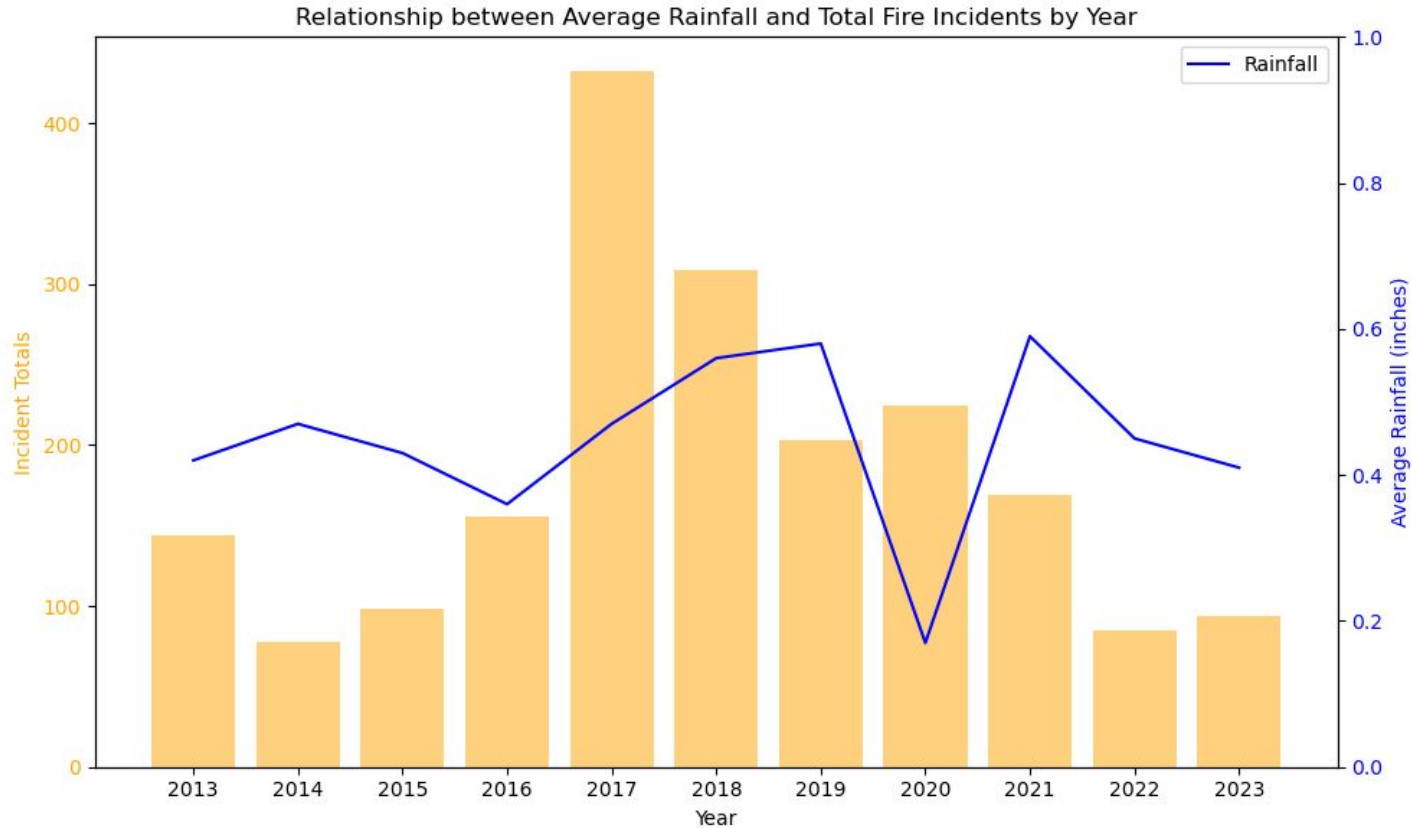
Results: Total Monthly Rainfall vs Monthly Acres Burned



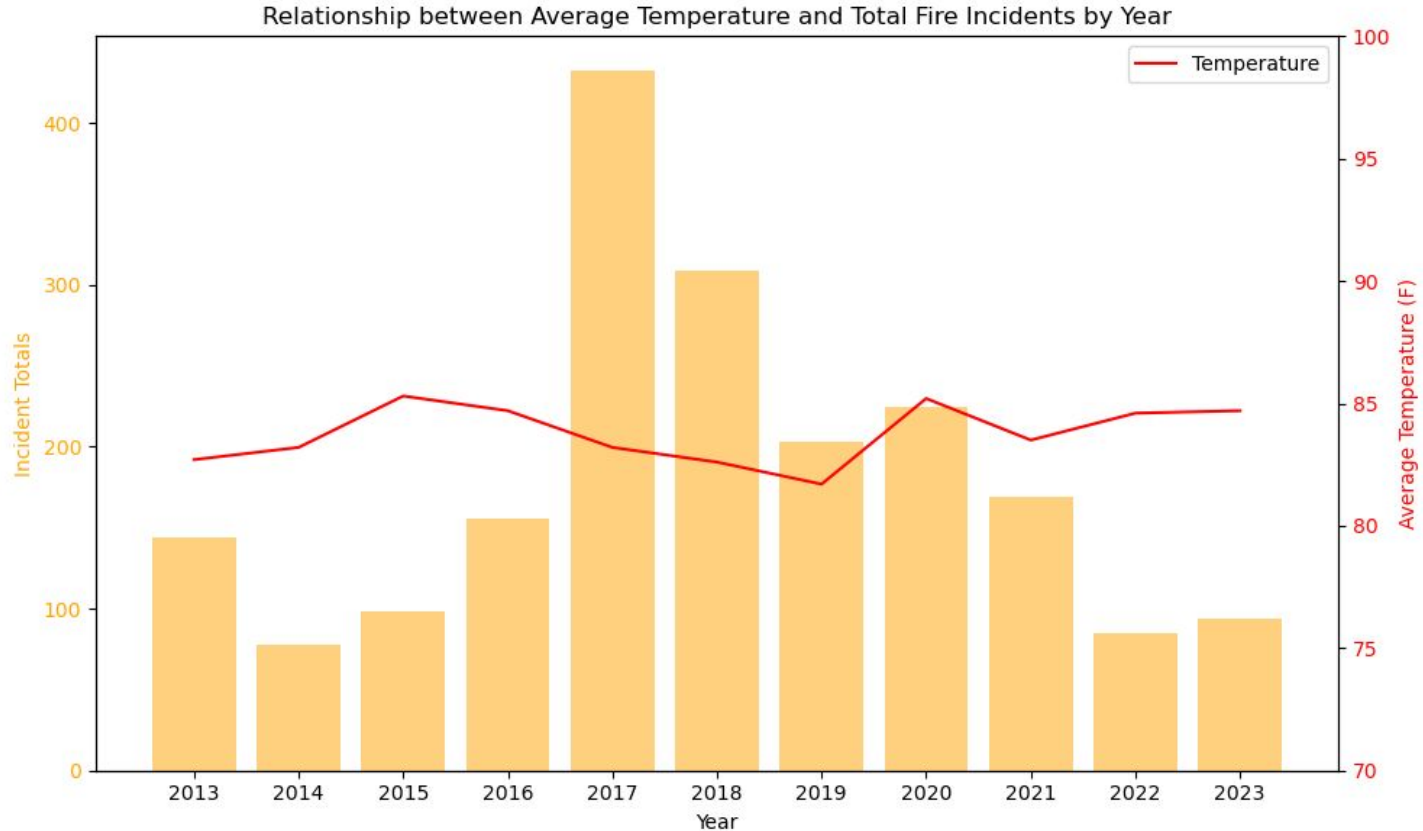
Results: Max Monthly Temperature vs Monthly Acres Burned



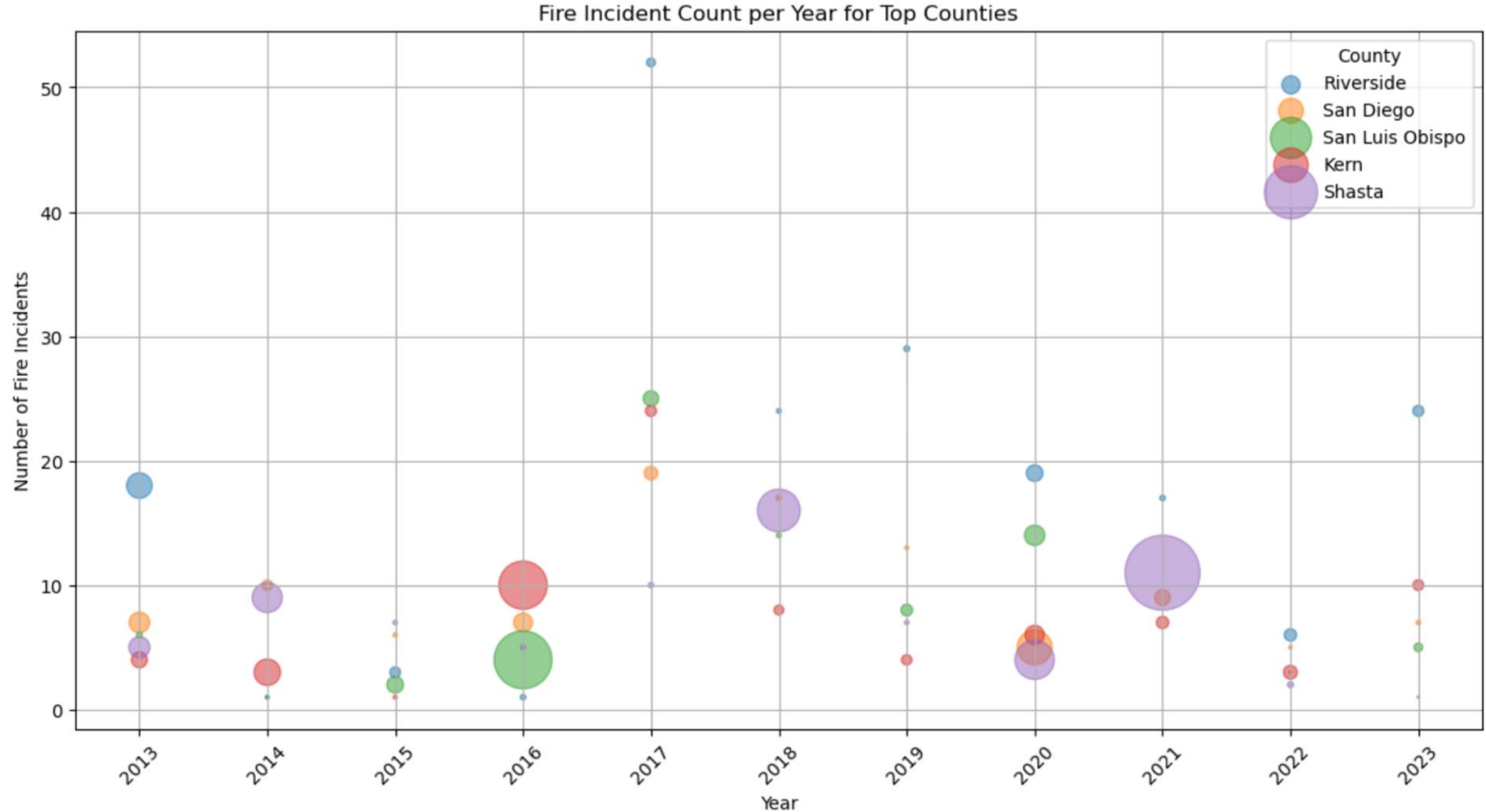
Results: Annual Rainfall vs Total Fire Incidents by Year



Results: Annual Average Max Temperature vs Total Fire Incidents by Year



Results: Number of Incidents by Year for Top 5 Counties (size by acres burned)



Conclusion

- Confirmed monthly rainfall and temperature weak correlations with fire
- Monthly data may not yield optimal results
- Data mapping visualizations provided minimal insight at a broad level



Next Steps

- Look at weather on a granular daily level
- Include additional weather and non-weather factors
- Map by specific peak months by year



QUESTIONS?