



FLIGHT DELAYS

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01

BACKGROUND

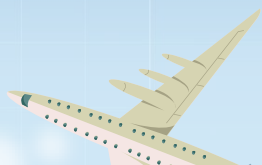
BACKGROUND

Dataset

- Flight delays in U.S. airports from 2019-2023 from Kaggle

Research Goals

- Flight delay changes over time with a COVID era focus
- Understanding factors affecting delays
- Geographical insights





02

DATA CLEANING



DATA CLEANING

- Relatively clean data
- Removed missing delay data
- Removed irrelevant variables

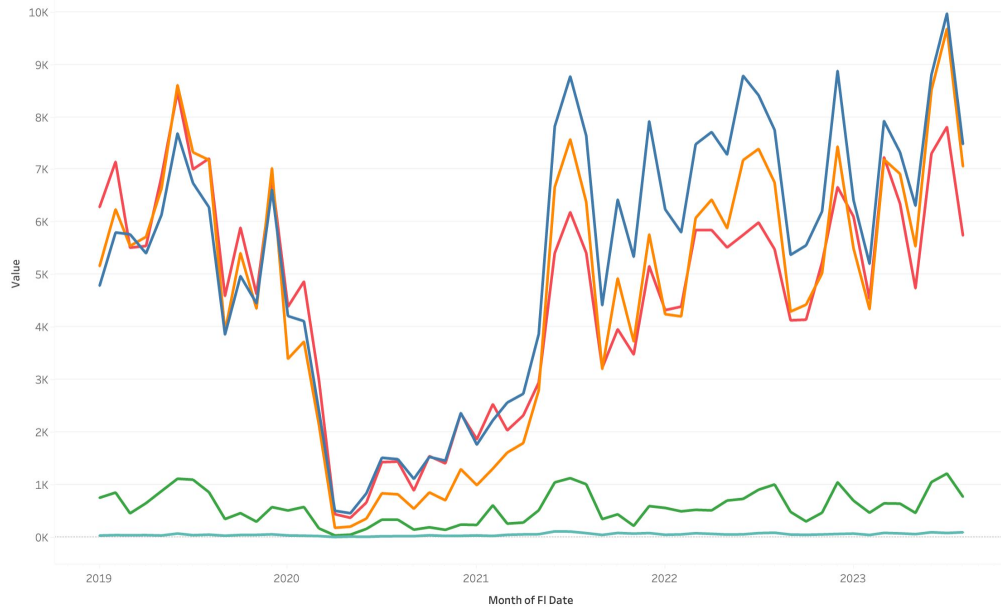


03

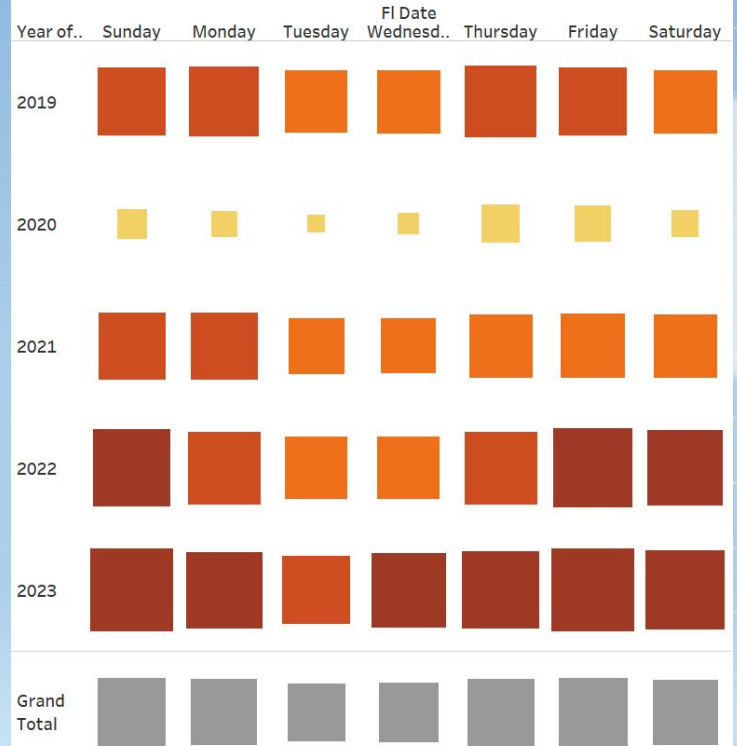
DATA VISUALIZATIONS

TIME SERIES VISUALIZATIONS

Cause of Delay by Month

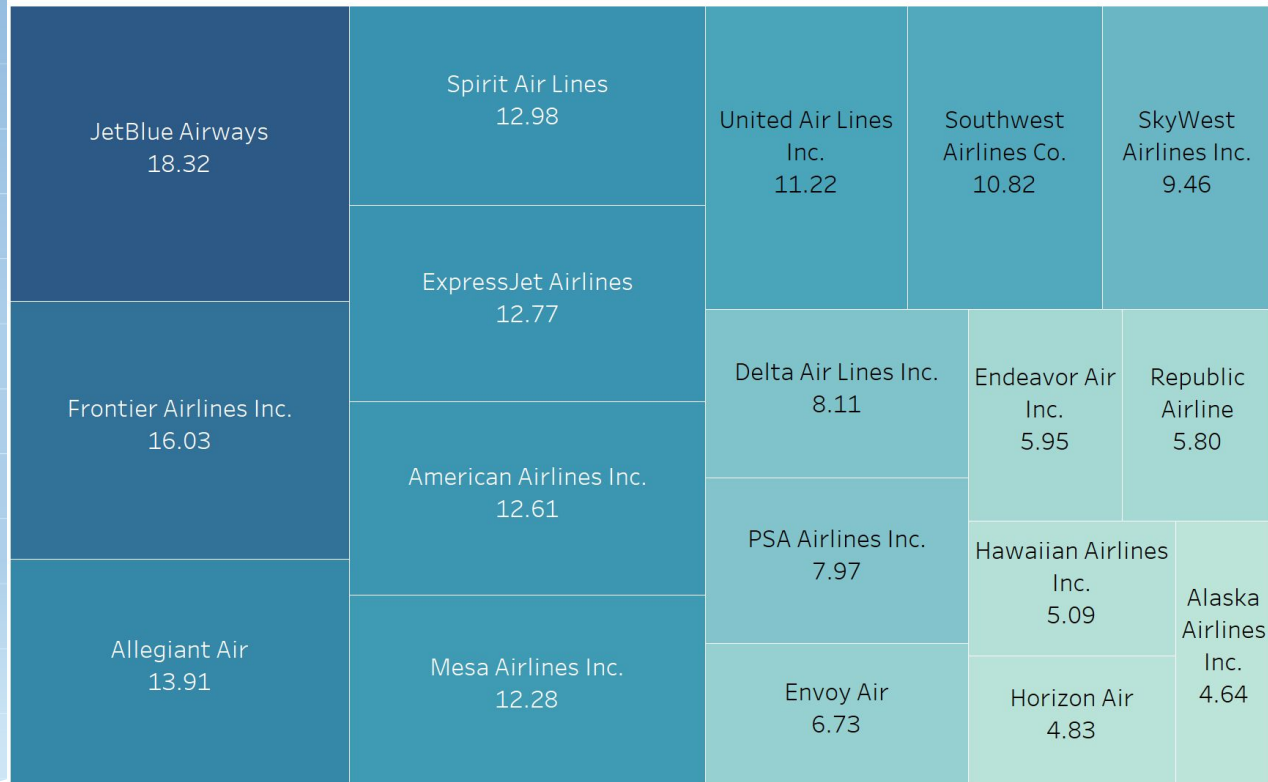


Delays by Day of the Week



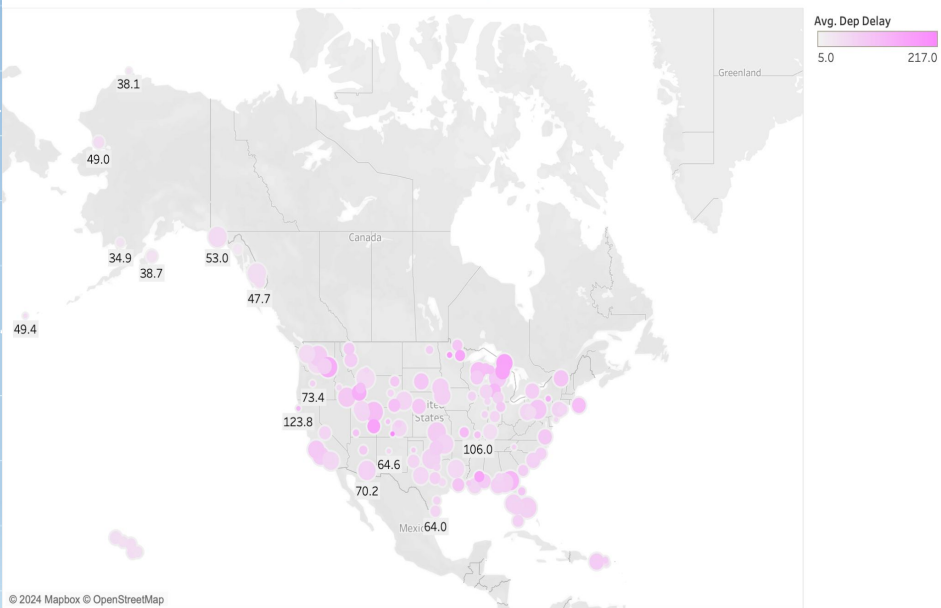
AIRLINE VISUALIZATION

Average Delay By Airline, in Minutes



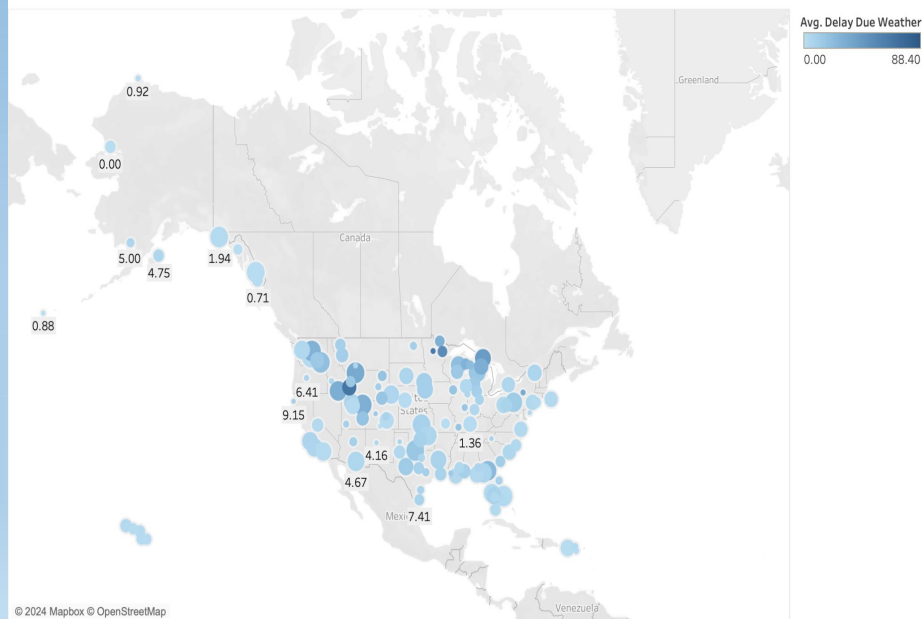
GEOGRAPHICAL VISUALIZATIONS

Departure Delay



Map based on Longitude (generated) and Latitude (generated). Color shows average of Dep Delay. Size shows details about Origin City. The marks are labeled by average of Dep Delay.

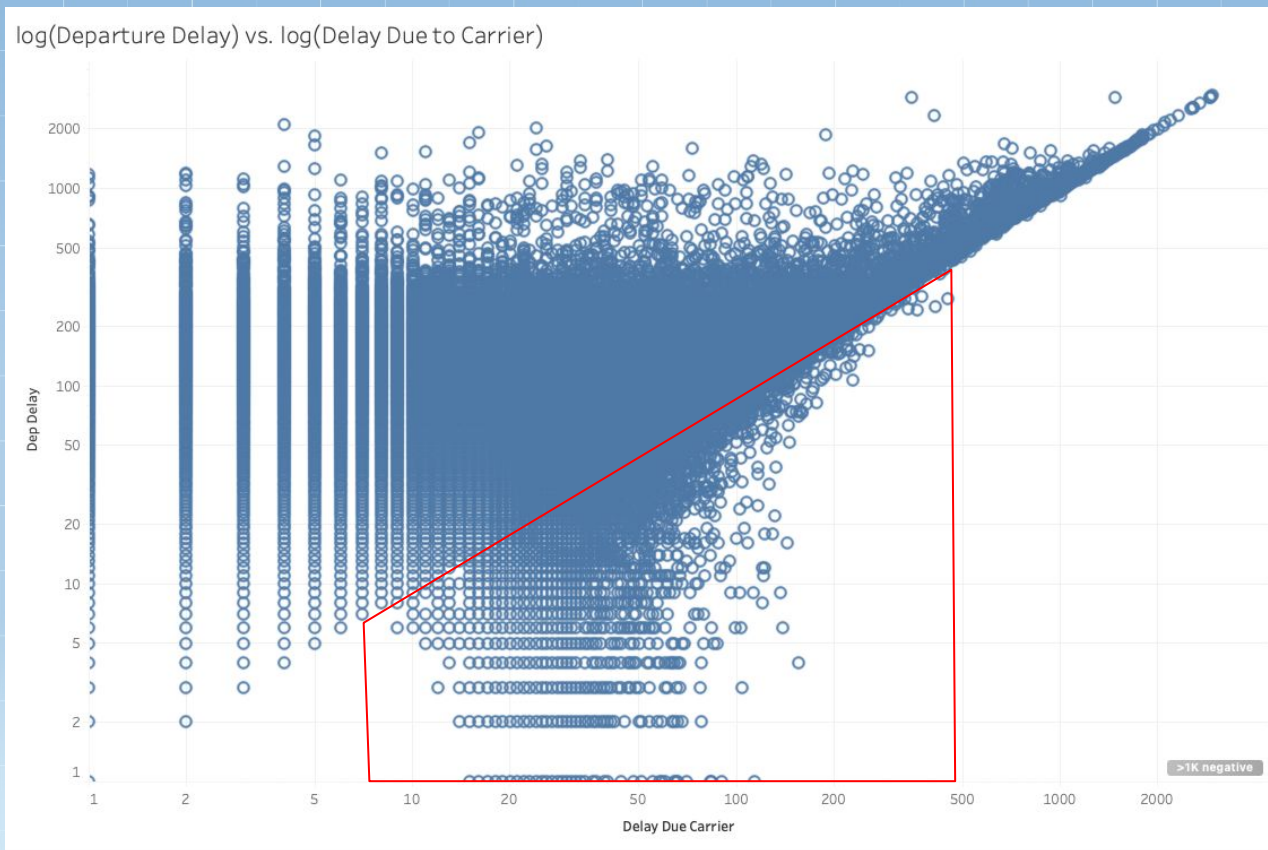
Delay Due to Weather



© 2024 Mapbox © OpenStreetMap

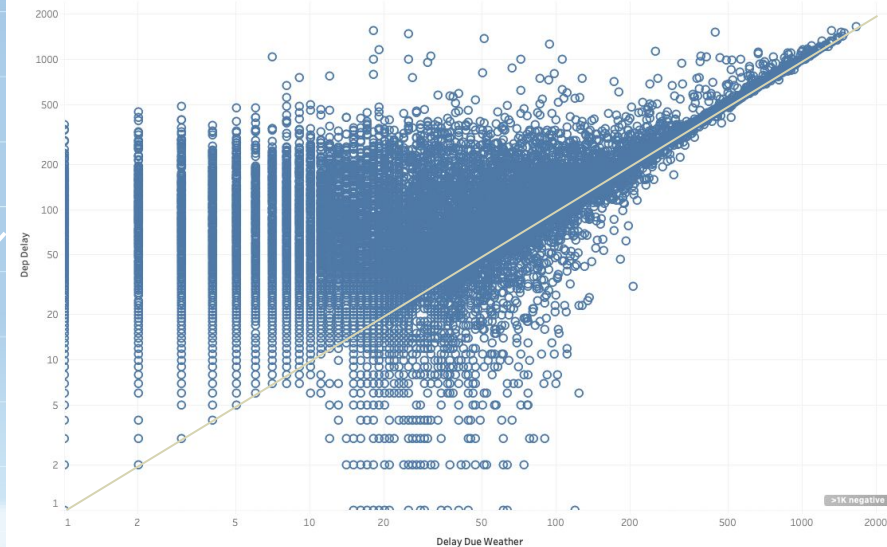
Map based on Longitude (generated) and Latitude (generated). Color shows average of Delay Due Weather. Size shows details about Origin City. The marks are labeled by average of Delay Due Weather.

BREAKING DOWN DELAYS



DELAYS DUE TO WEATHER

log(Departure Delay) vs. log(Delay Due to Weather)



log(Departure Delay) vs. log(Delay Due to Security)



DELAYS DUE TO SECURITY

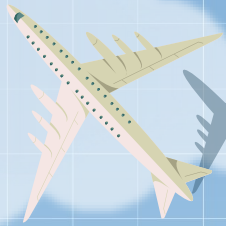


04

CONCLUSIONS

CONCLUSIONS

- Least delays were in 2020, right at the start of COVID, which is what we predicted
- Delays went up in the summer months and near the holidays
- Weather, surprisingly, was not a major reason for delays
 - Was often due to the airline itself
- Many of the “budget” airlines like Frontier, Spirit, JetBlue had more delays





05

FUTURE IDEAS

FUTURE IDEAS

- Account for arrival delays, particularly in the difference between departure delays
- Using a price analysis on flights to compare delays