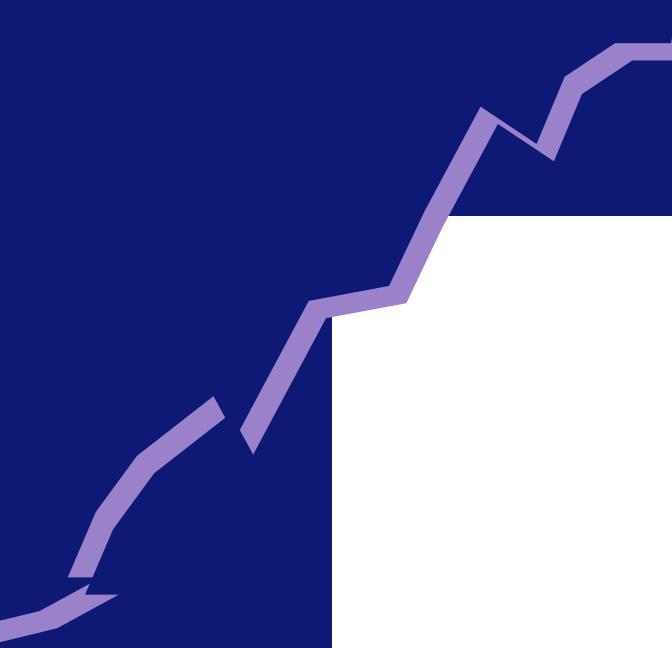


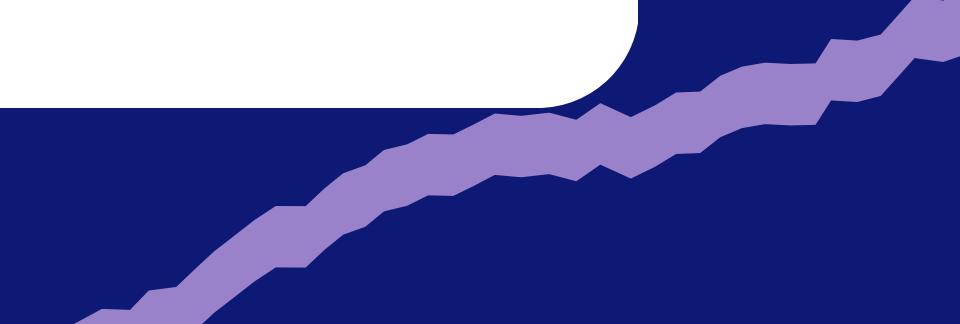
Airplane crash analysis



Mentorness
Internship Project by
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Introduction



Aircraft accidents are among the most dangerous and catastrophic types of vehicle accidents. Since the first aviation disaster, which was only a balloon, on June 15, 1785, in France, there has been a never-ending sequence of tragic incidents in the aviation business, including a powered aircraft Wright Model A constructed by the Wright Brothers.



Since 1980, the frequency of aviation accidents has been falling year by year, insinuating a greater understanding of the factors that cause an airplane crash. This article discusses one such case study, which is based on data from airline accidents

Background



Dataset Description

1. Date: Date of the airplane crash.
2. Time: Time of the airplane crash.
3. Location: Location where the airplane crash occurred.
4. Operator: Operator or airline involved in the incident.
5. Flight #: Flight number associated with the incident.
6. Route: Planned route of the flight.
7. AC Type: Aircraft type involved in the crash.
8. Registration: Registration details of the aircraft.
9. cn/ln: Construction or serial number of the aircraft.
10. Aboard: Total number of individuals aboard the aircraft.
11. Aboard Passengers: Number of passengers aboard the aircraft.
12. Aboard Crew: Number of crew members aboard the aircraft.
13. Fatalities: Total fatalities in the incident.
14. Fatalities Passengers: Number of passenger fatalities.
15. Fatalities Crew: Number of crew member fatalities.
16. Ground: Casualties on the ground, if any.
17. Summary: Brief summary or description of the incident.

Objectives

1. Temporal Analysis:

- Explore temporal trends in airplane crashes over the years.
- Identify patterns in the frequency and severity of incidents.

2. Geospatial Analysis:

- Visualize crash locations on a map to identify hotspots.
- Analyse the distribution of incidents across different regions.

3. Operator Performance:

- Evaluate the safety records of different operators and airlines.
- Identify operators with higher incident rates.

4. Aircraft Analysis:

- Analyse the involvement of specific aircraft types in incidents.
- Examine the relationship between aircraft registration and crash occurrences.

5. Fatality Trends:

- Explore trends in passenger and crew fatalities.
- Investigate factors contributing to fatalities.

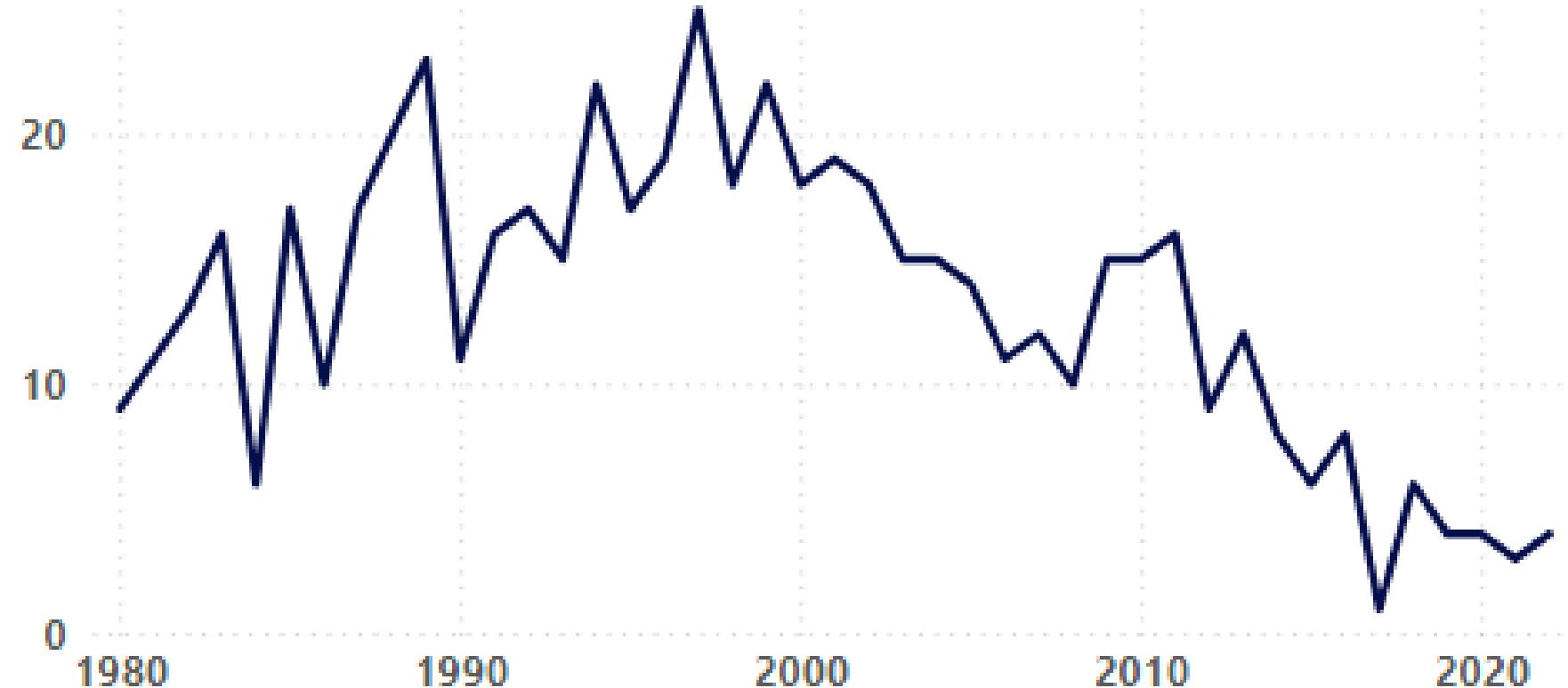
6. Route Analysis:

- Analyse incident patterns on specific flight routes.
- Identify routes with a higher likelihood of incidents.

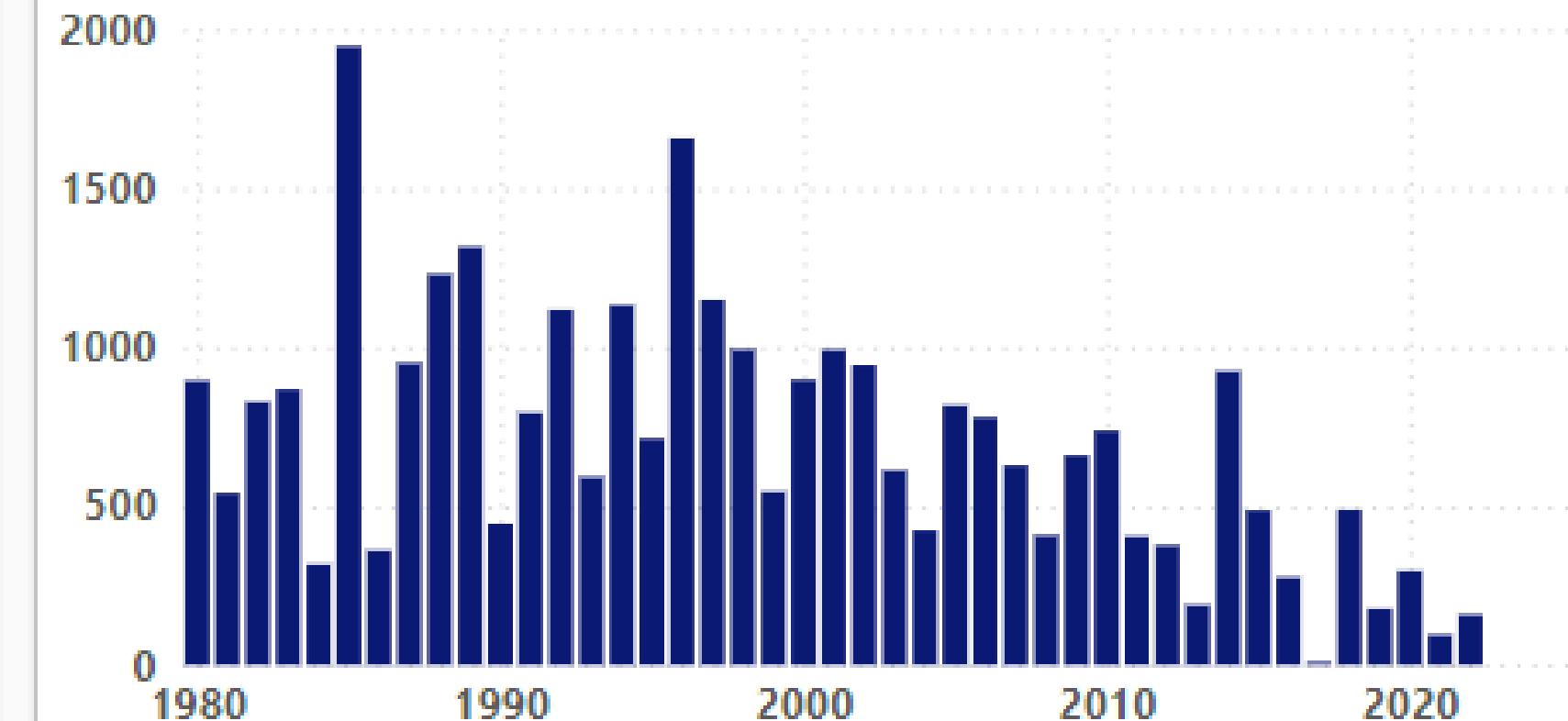
TEMPORAL ANALYSIS

TOTAL NUMBER OF AIRPLANE CRASHES IS 567 AND TOTAL NUMBER OF FATALITIES IS 30,190

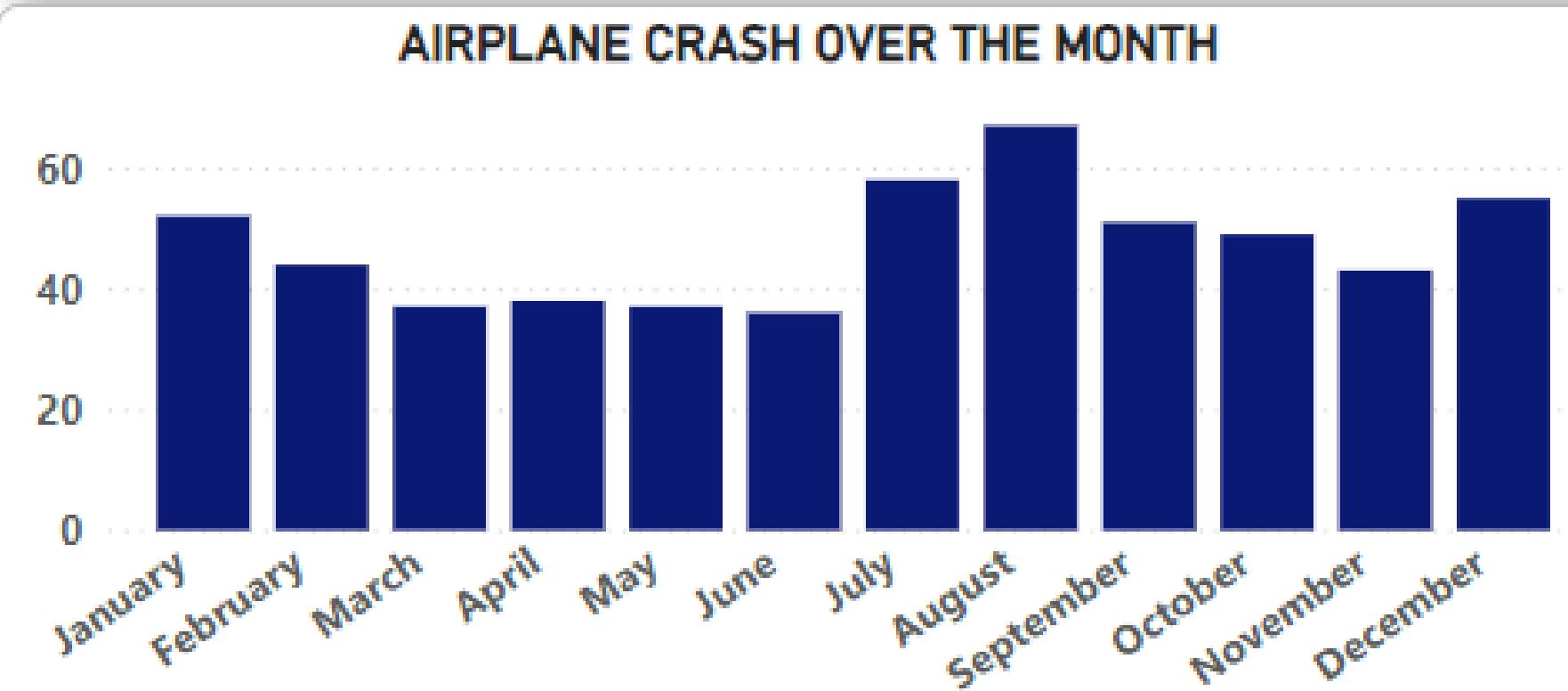
AIRPLANE CRASH TREND OVER THE YEAR



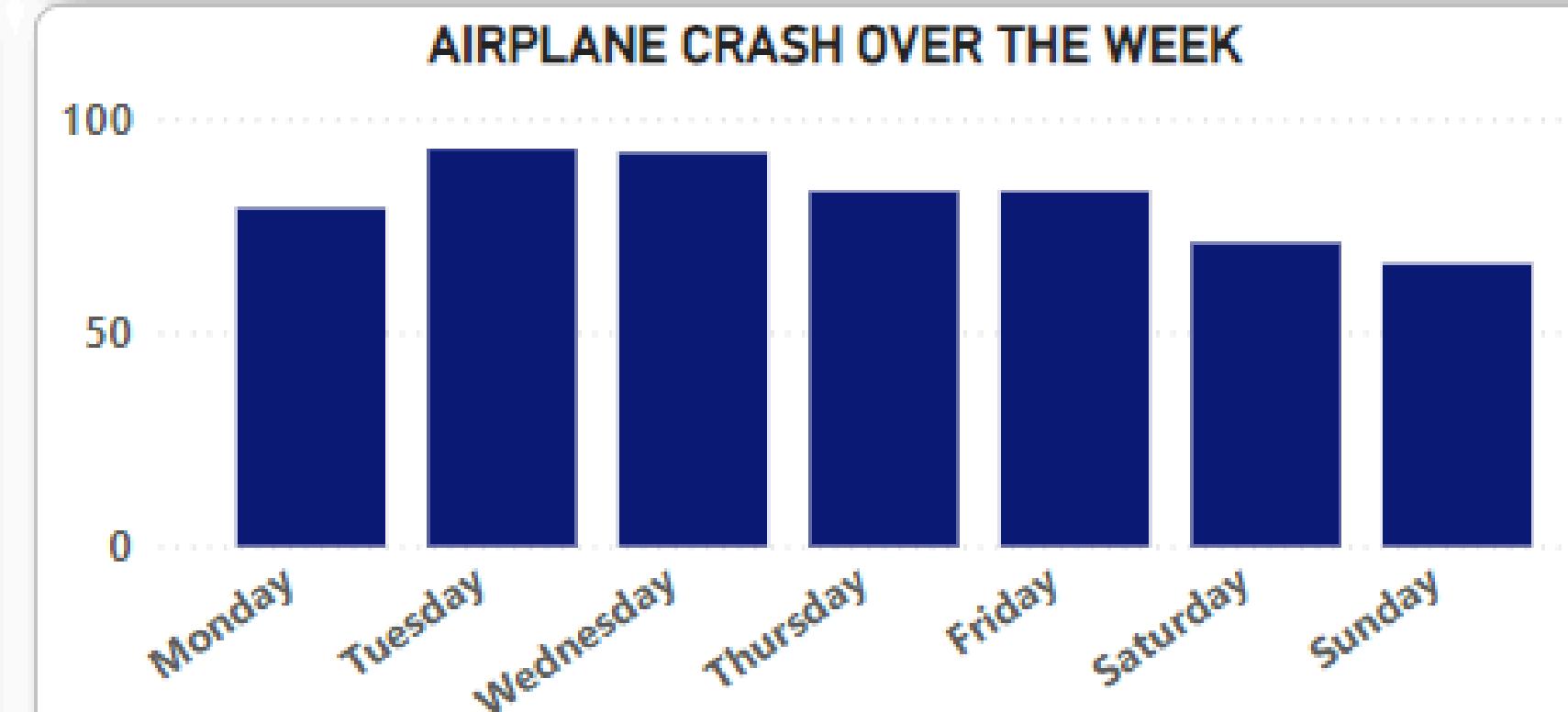
SEVERITY OF INCIDENTS



AIRPLANE CRASH OVER THE MONTH



AIRPLANE CRASH OVER THE WEEK

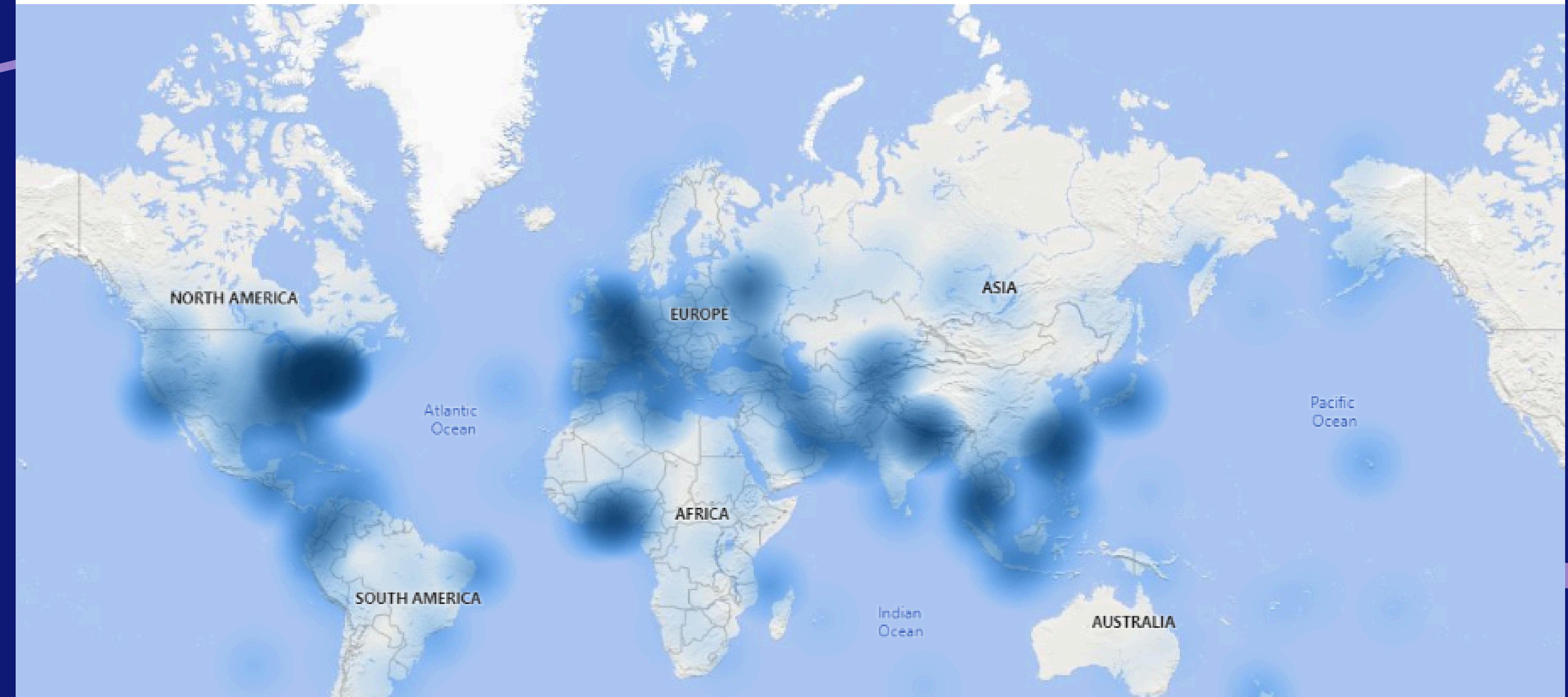


GEOSPATIAL ANALYSIS

AIRPLANE CRASHES SPANNING FROM 1980 - 2023

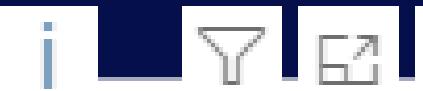


CRASH LOCATIONS



GEOSPATIAL ANALYSIS

AIRPLANE CRASHES SPANNING FROM 1980 - 2023



SUM OF FATALITIES BY LOCATION

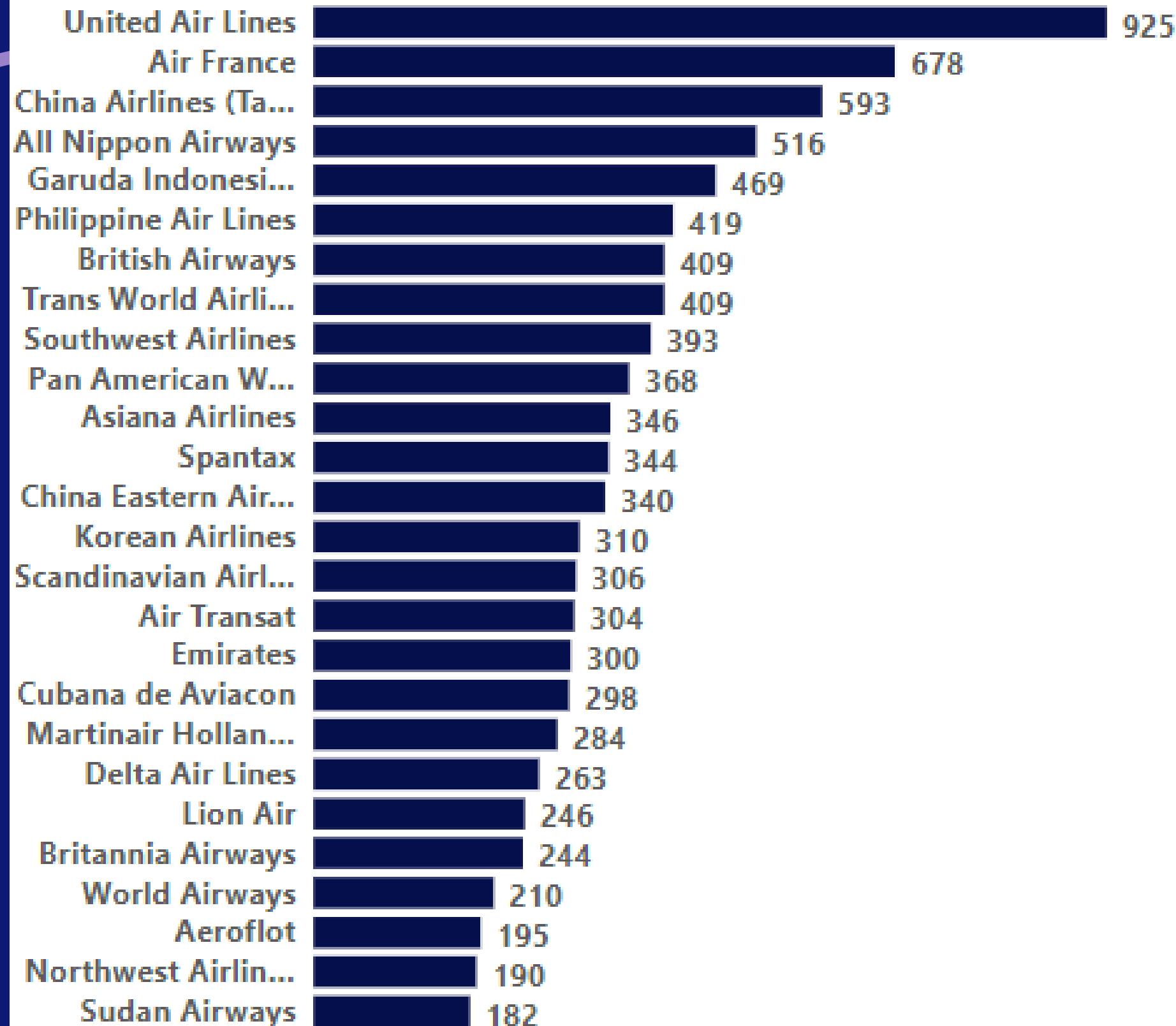


OPERATOR PERFORMANCE

AIRPLANE CRASHES SPANNING FROM 1980 - 2023



AIRLINES SAFETY RECORDS



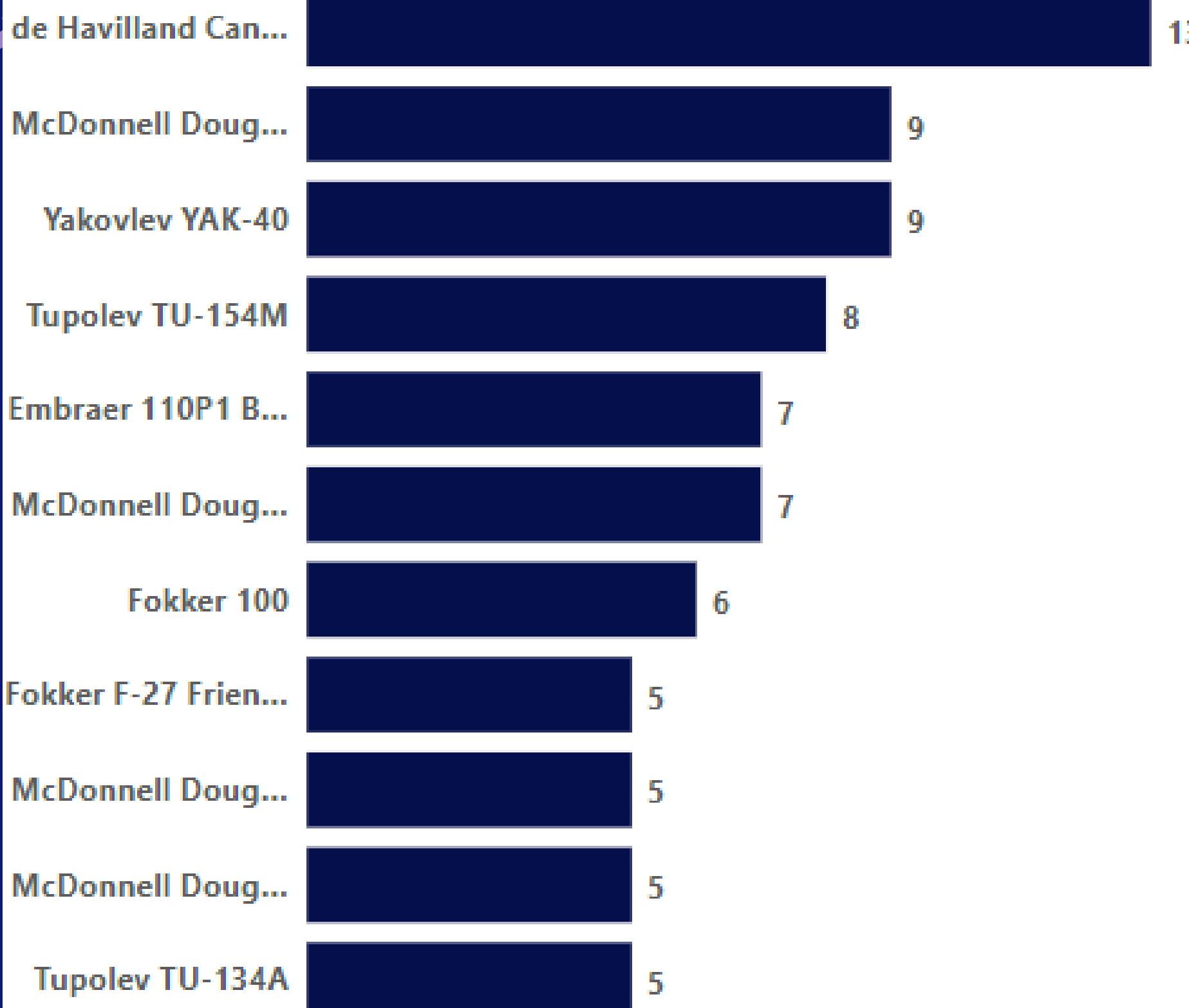
OPERATORS INCIDENT RATES



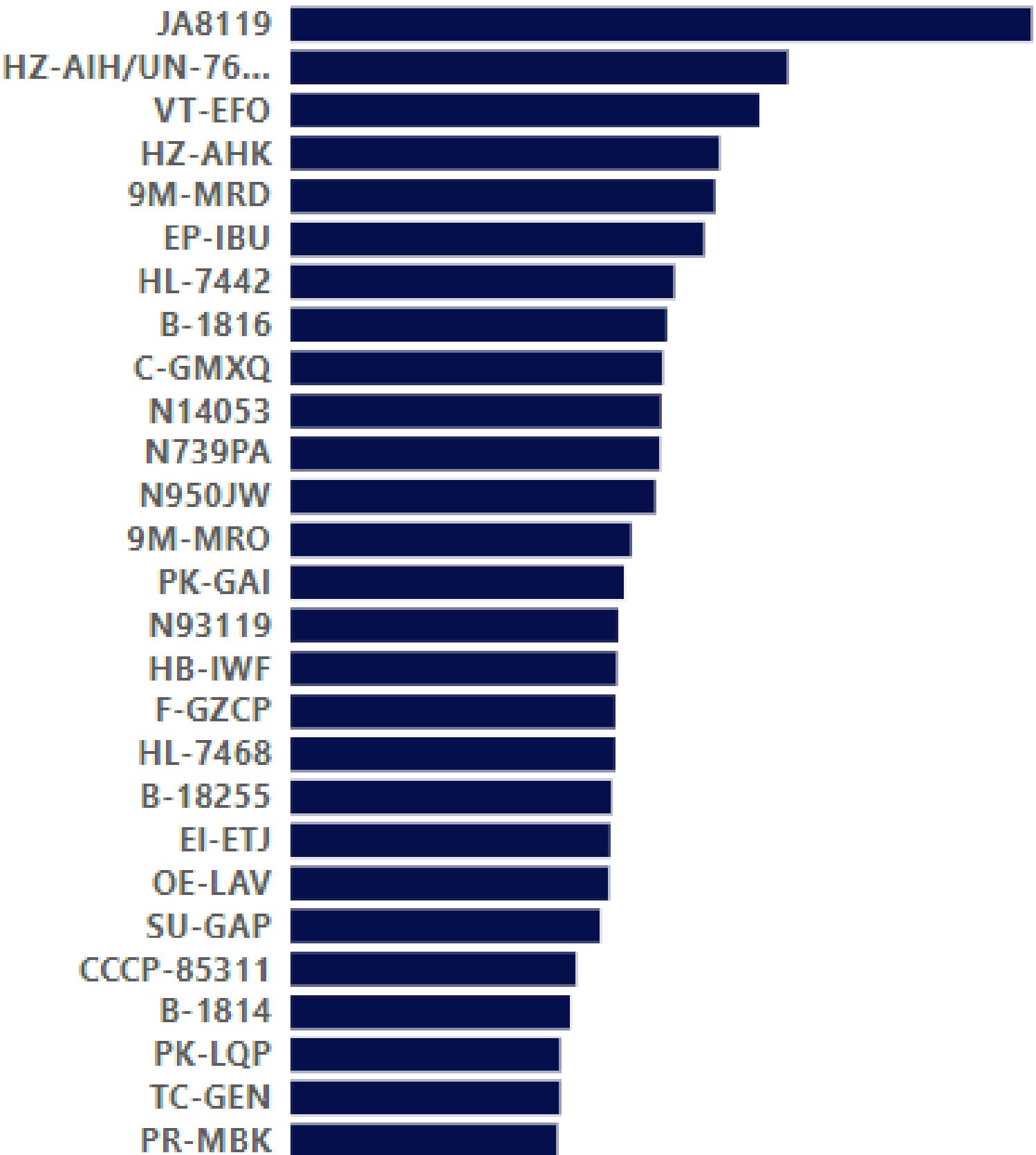
AIRCRAFT ANALYSIS

AIRPLANE CRASHES SPANNING FROM 1980 - 2023

INCIDENTS BY AIRCRAFT_TYPE



FATALITIES BY AIRCRAFT_REGISTRATION

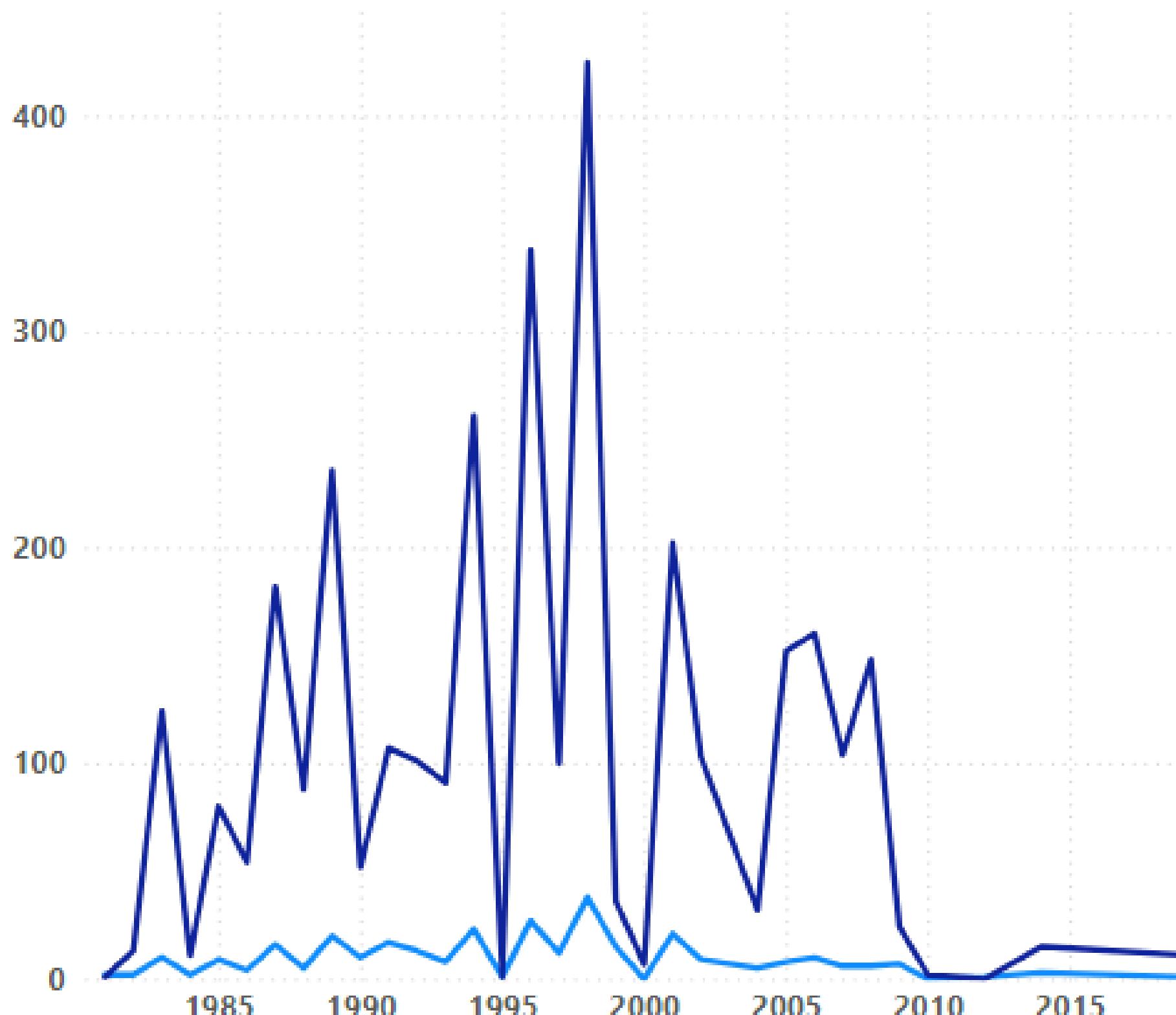


FATALITY TRENDS

AIRPLANE CRASHES SPANNING FROM 1980 - 2023

TRENDS IN PASSENGER AND CREW FATALITIES

● Sum of Fatalities_Crew ● Sum of Fatalities_Passangers



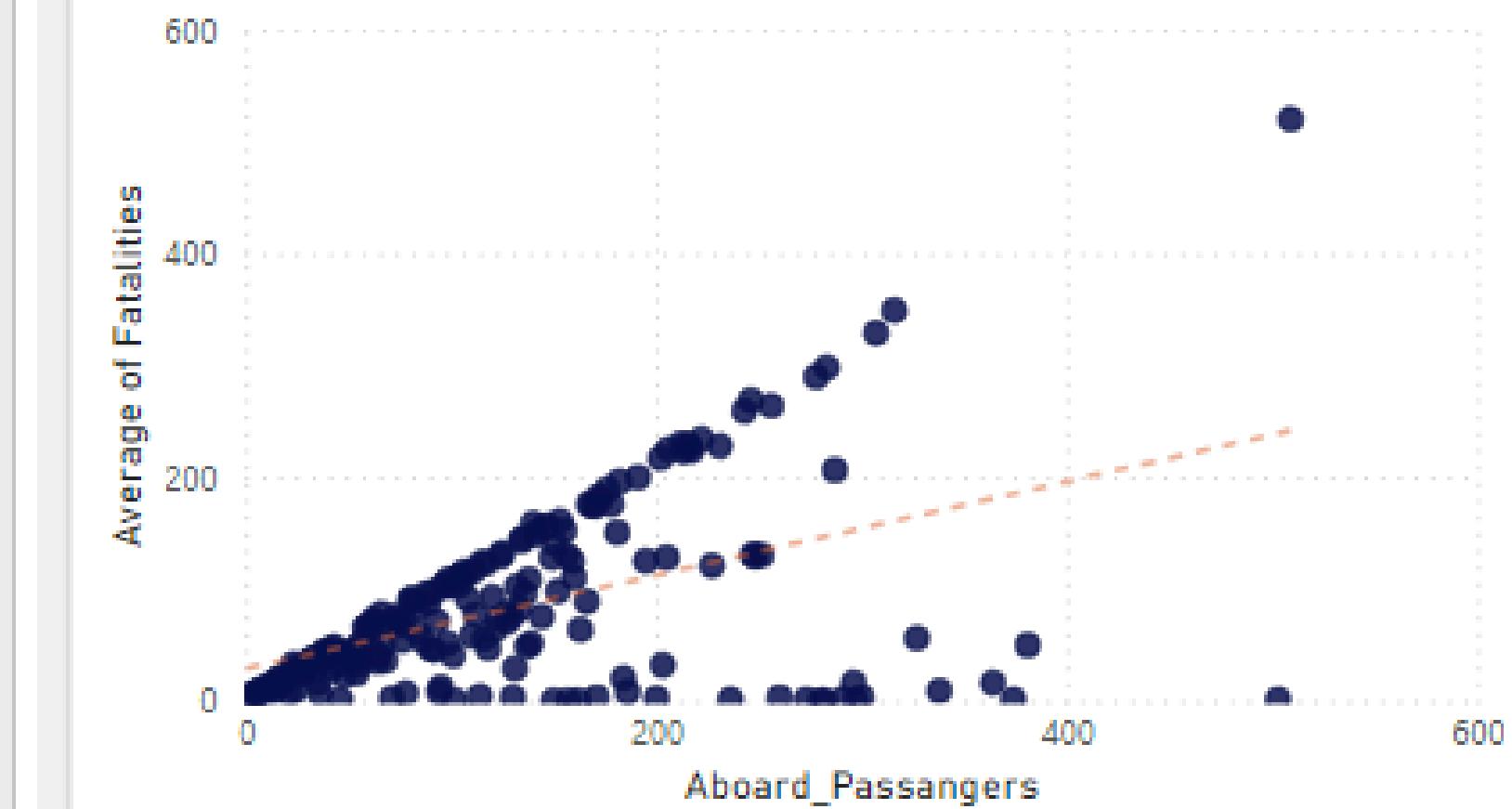
FACTORS INFLUENCING FATALITIES

Key influencers Top segments

What influences Fatalities to ?

Sum of Aboard_Passange...

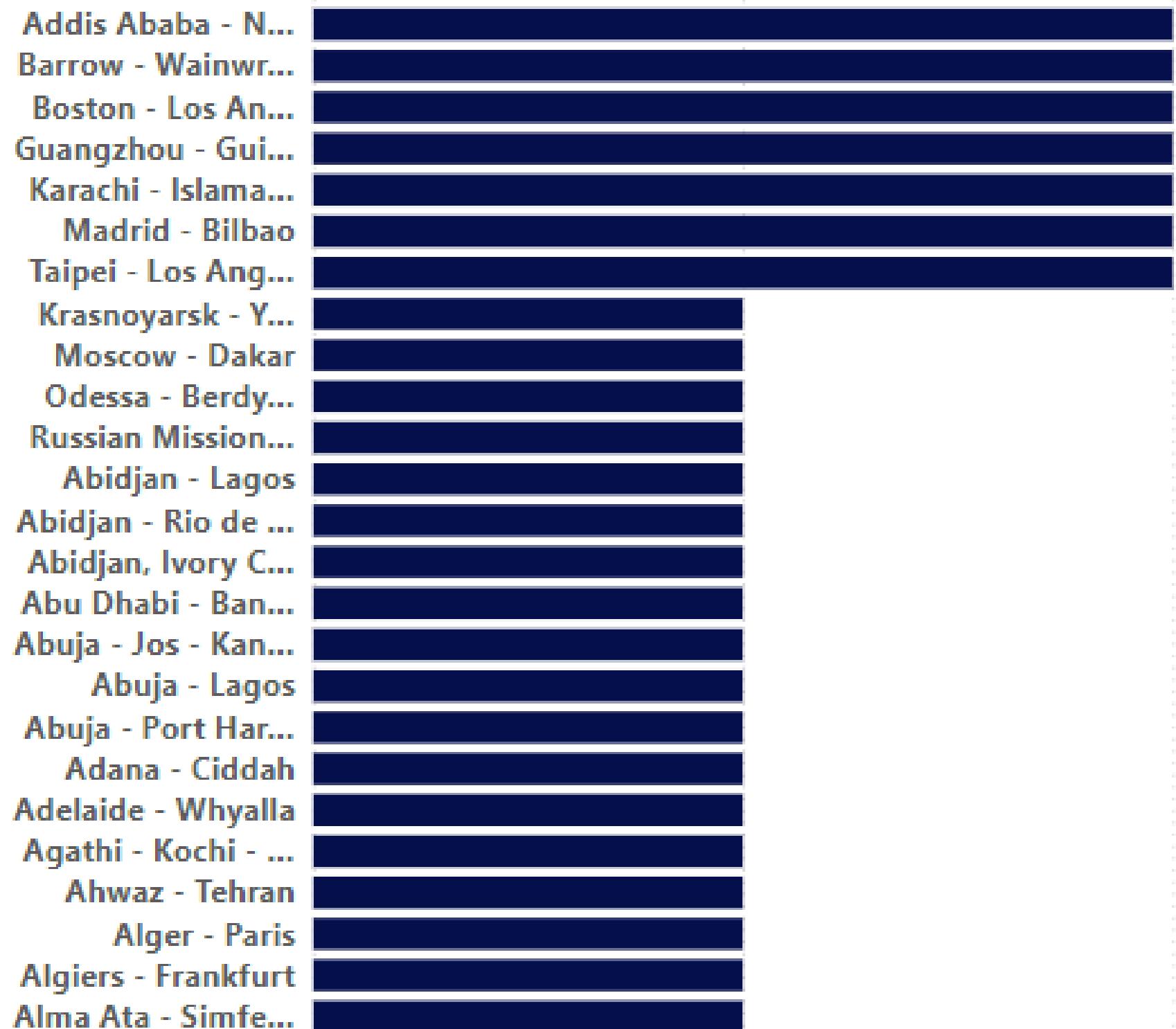
← On average when Sum of Aboard_Passangers increases, Fatalities also increases.



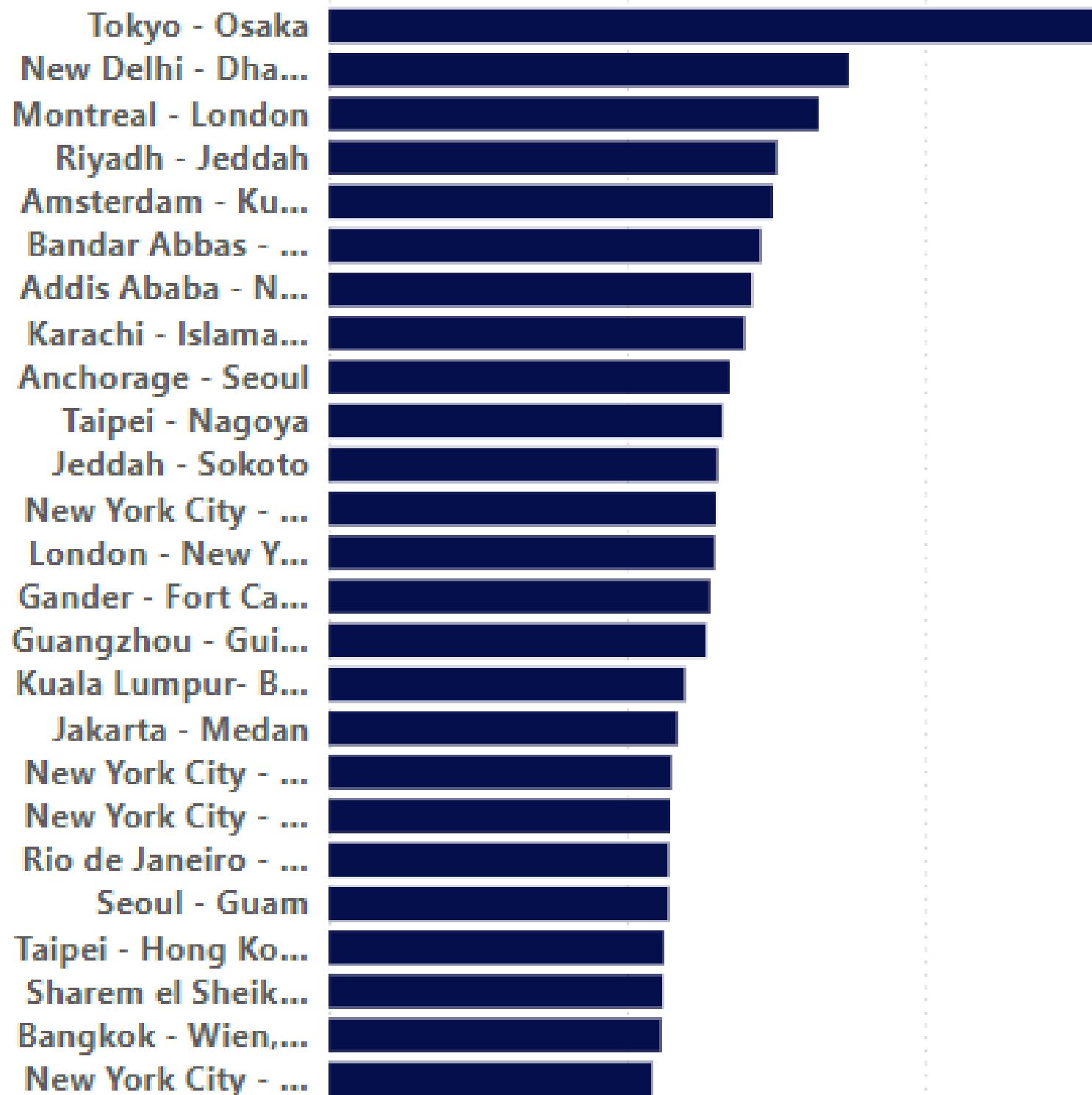
ROUTE ANALYSIS

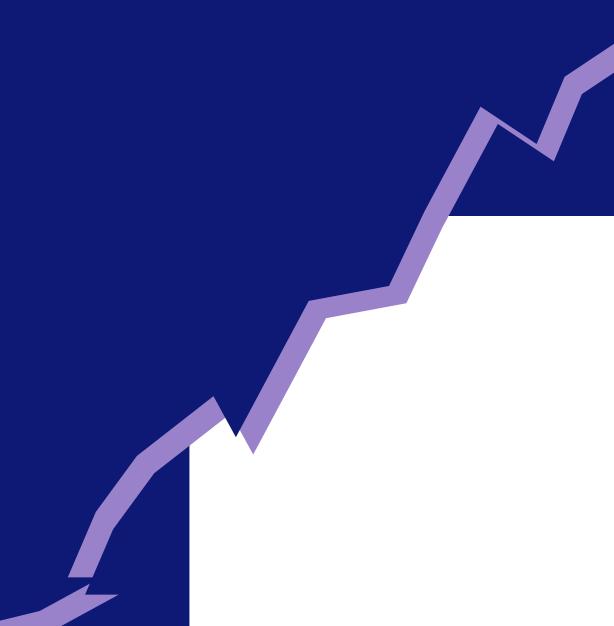
AIRPLANE CRASHES SPANNING FROM 1980 - 2023

INCIDENTS BY FLIGHT ROUTE



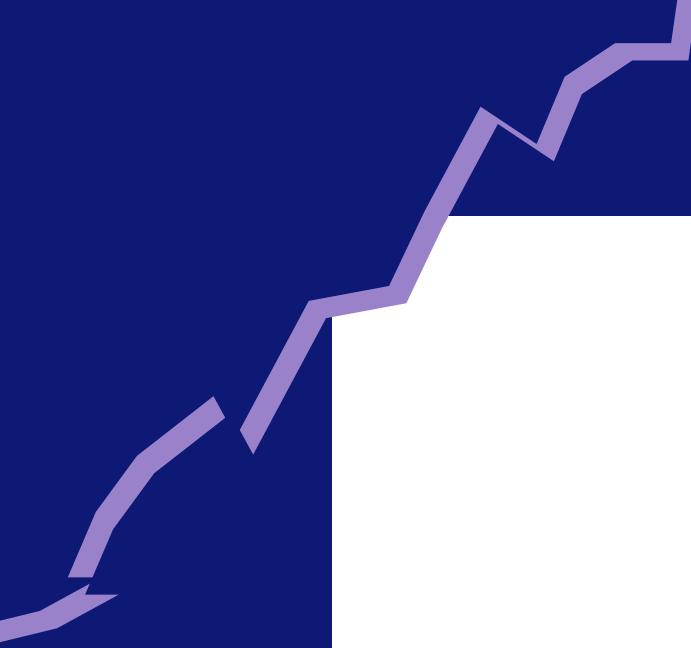
FATALITIES BY FLIGHT ROUTE



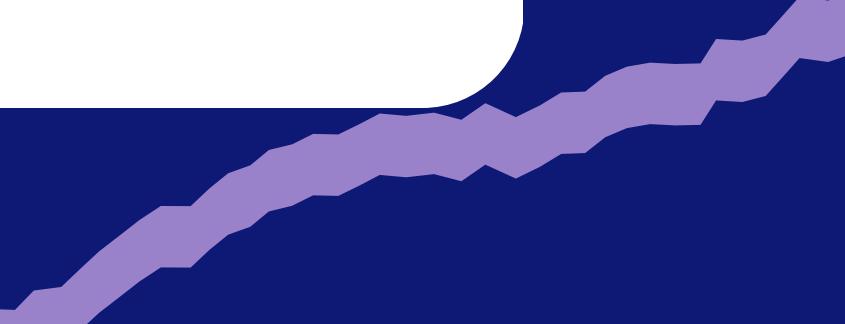


CONCLUSIONS

- From the analysis, it was observed that The year 1997 recorded the highest number of airplane crash as well as the month of August .
 - The severity of incidents based on fatalities was high for the year 1985.The severity of the impact during a crash significantly influences the likelihood of fatalities.
 - United Airlines recorded the highest number of safety records.
 - Aeroflot has the highest number of incident rate.
 - Fatalities are likely to occur when aboard_passengers goes up 80.51 and aboard_crew goes up 4.45.
- The location of the crash, can affect the timeliness of rescue efforts and access to medical assistance, impacting survival rates.



Recommendations



- Aircrafts should be designed with modern safety features, such as reinforced cockpit doors, energy-absorbing seats, and improved cabin design, to protect occupants during a crash.
 - Proper use of seat belts and other passenger restraints can significantly reduce the risk of fatalities during a crash.
 - Pilots and crew members should be well-trained to effectively handle emergencies and guide passengers to safety.
- 
- 



Thank
you

