This summary is in response to a case study to analyze accident data from the National Transportation Safety Board's (NTSB) database of aviation accidents and provide an analytical framework for flight safety. The scope of this summary will focus on demonstrating analytical insights that include identifying available data, accident classification, and US accident totals per state. Overall, this summary will provide insights and analytical potential of the data to prevent future aviation accidents and promote safety innovation.

Initial exploratory analysis highlights some of the many paths for improving transparency of flight safety. The data contains information including location, date of event, injury totals, and written narratives. The variety of the data opens opportunities for inquiry such as root cause analysis, time trends, and geographical distributions. Depending on the objective, the versatility of the data could allow for many safety investigations to have quantitative insights.

One example of the versatility of the data is the following geographical snapshot. Figure 1 shows the total number of accidents reported by the NTSB by US state.

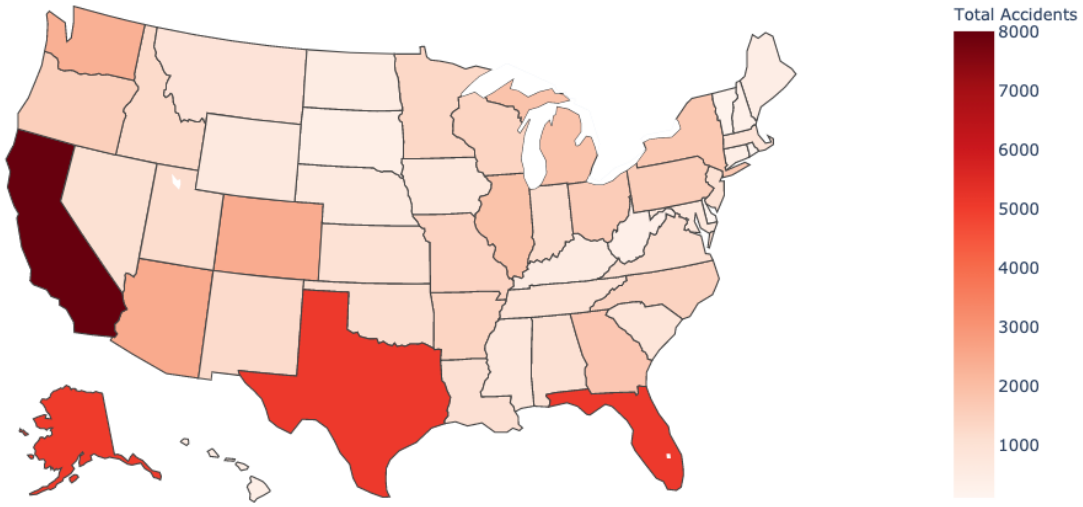

Figure 1: Total Reported US Aviation Accidents (1948-2015)

By observing the geographical features of the data, states such as California, Texas, Alaska, and Florida become prominent as having the highest accident volume. More data is needed to standardize the total accidents by total flight volume per state. However, the map shows initial areas of concentrated accidents that could be targeted locations for future safety innovation.

The second analysis investigates probable cause of each accident and how it relates to the current NTSB accident classification methodology. Analyzing the causes revealed common themes including pilots, terrain conditions, and power loss that could be additions to current NTSB categories, such as aircraft damage and phase of flight. Creating more specific accident designations could help in future endeavors to pinpoint areas of safety improvement.

In conclusion, the NTSB accident aviation data provides a plethora of information for analysis. While some were noted in this summary, there are many more approaches to analyze the data to continue to drive safety innovation for future flights.