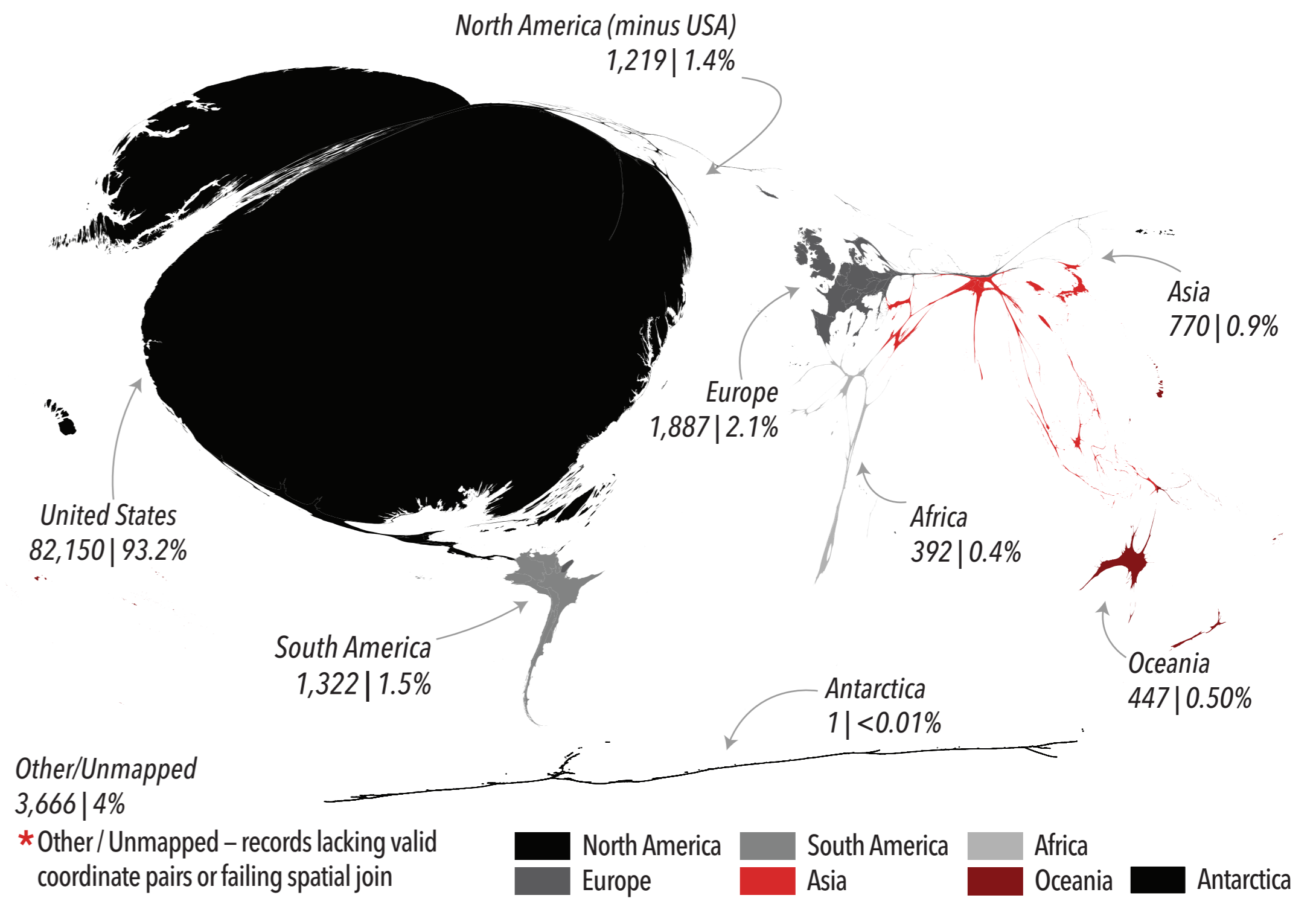


40 Years of Aviation Investigations

A Visual Analysis of **91,854** NTSB Aviation Investigations Worldwide (1985-2024)

The **National Transportation Safety Board** is an independent United States (U.S.) federal agency tasked with investigating civil aviation accidents and significant transportation incidents, and determining their probable cause. Aviation investigations are conducted through the NTSB's Office of Aviation Safety with the goal of improving transportation safety by identifying contributing factors and issuing safety recommendations to the Federal Aviation Administration (FAA) to help prevent future occurrences.

This poster visualizes U.S. civil aviation investigation data spanning from **1985 to 2024**, covering **91,854** cases. It examines where investigations occur, how their frequency has changed over time, and how outcomes vary by operation, aircraft type, and injury severity. Together, these visualizations highlight long-term trends in aviation safety, and the contexts in which investigations most frequently occur.

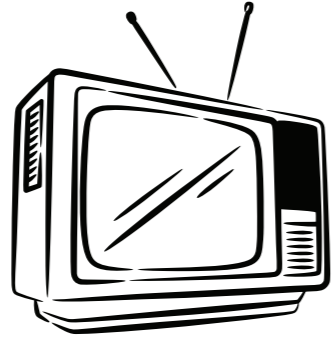


Where NTSB Investigations Occur Worldwide

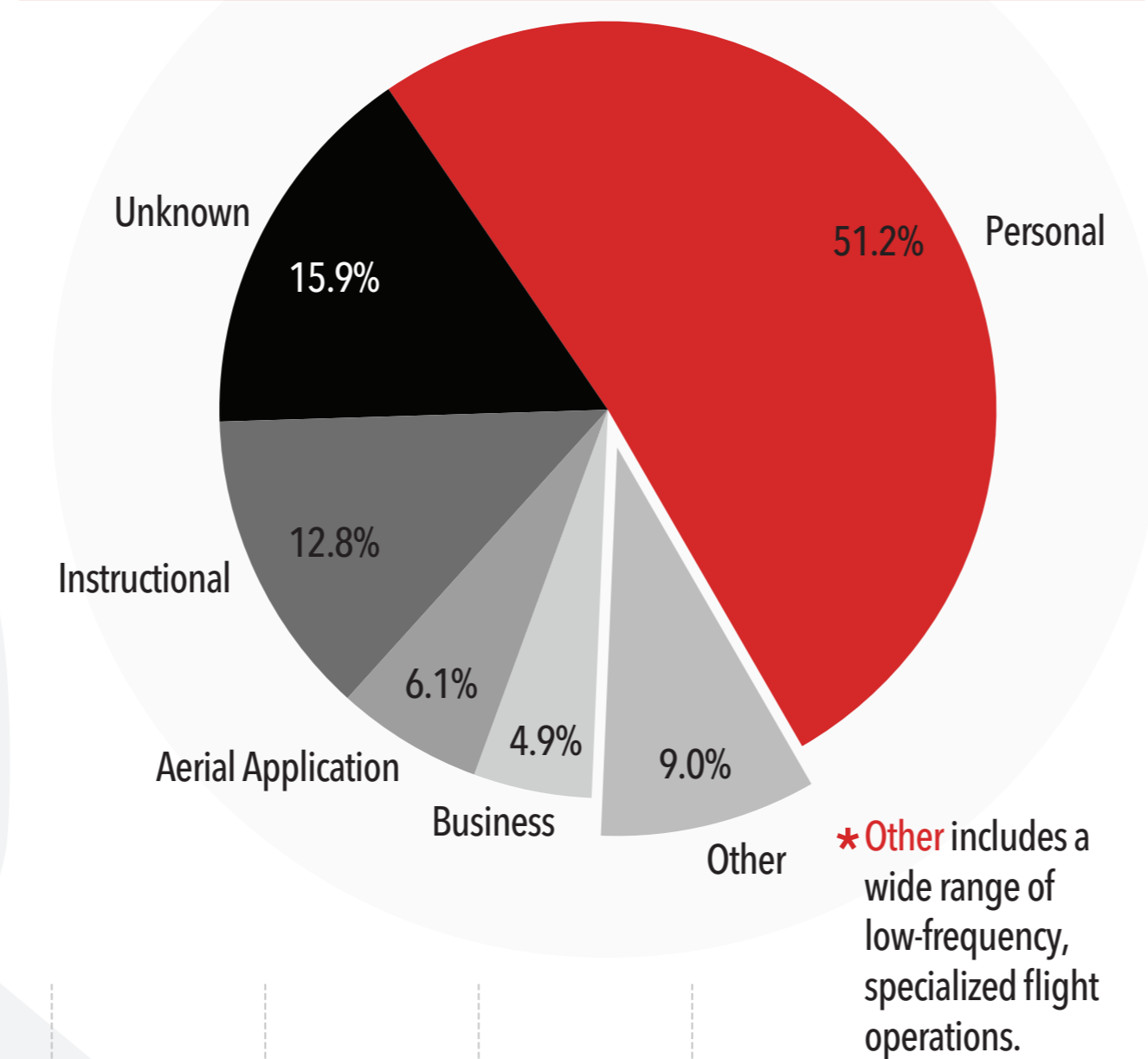
This map uses a contiguous cartogram to show where NTSB aviation investigations occur worldwide. Country areas are resized and warped in proportion to the total number of investigations conducted, rather than their physical land area. This cartogram greatly exaggerates the U.S., which accounts for ~93% of the total investigations. Although the overwhelming majority of NTSB investigations occur within the contiguous U.S., the NTSB is also frequently involved in global accident investigations by invitation when U.S. interests are involved. This typically occurs when an accident abroad includes a U.S.-manufactured or U.S.-registered aircraft, U.S. operators, or U.S.-designed systems or components.

Did you know?

Over multiple seasons of *Mayday* (Air Crash Investigation), the NTSB has frequently appeared as the lead investigatory body in episodes involving U.S. civil aviation accidents. The NTSB is one of the show's main protagonists, highlighting the agency's reach not only in domestic incidents, but as a global consultant for U.S.-manufactured aircraft.



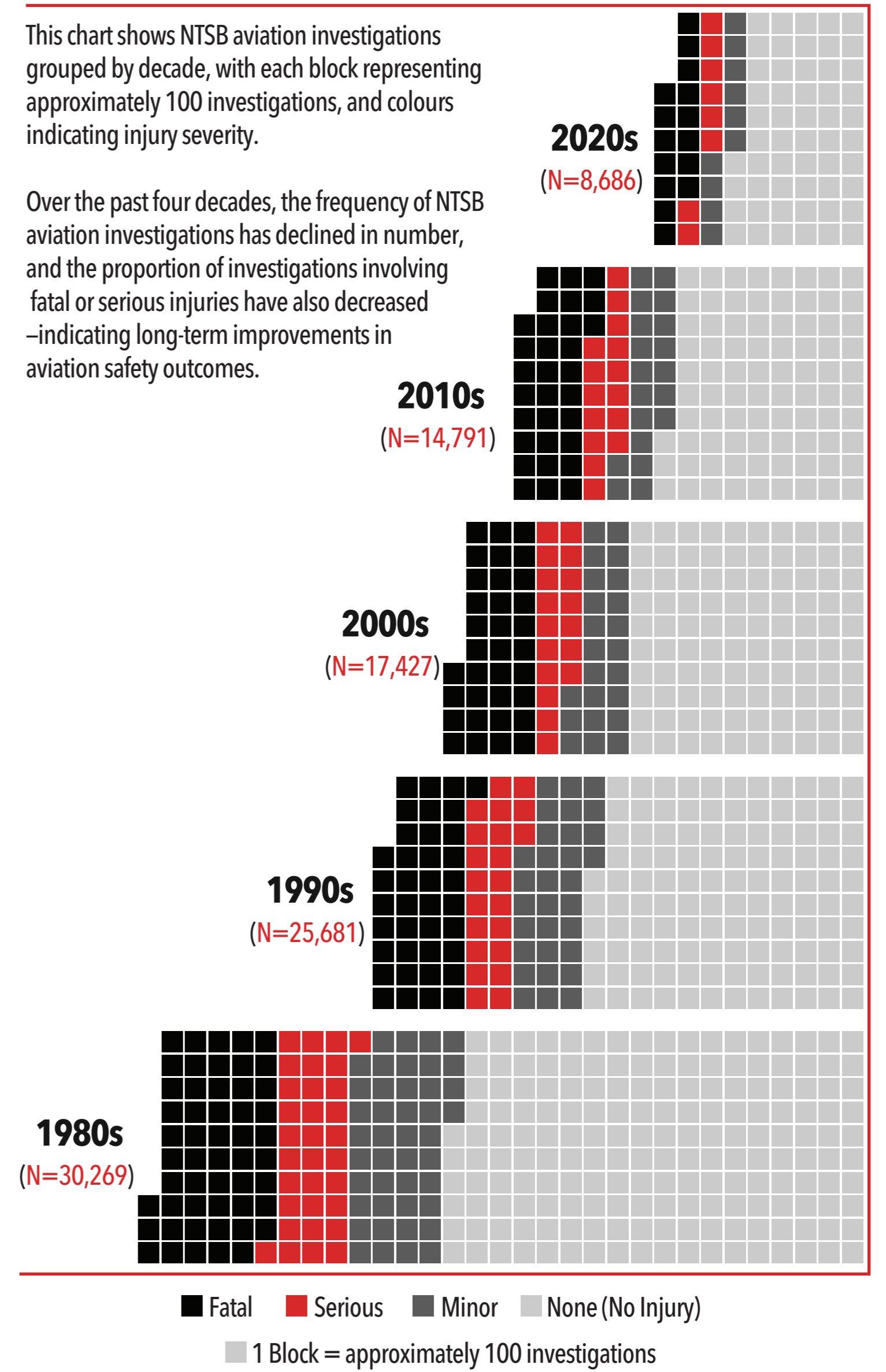
Investigations by Purpose of Flight



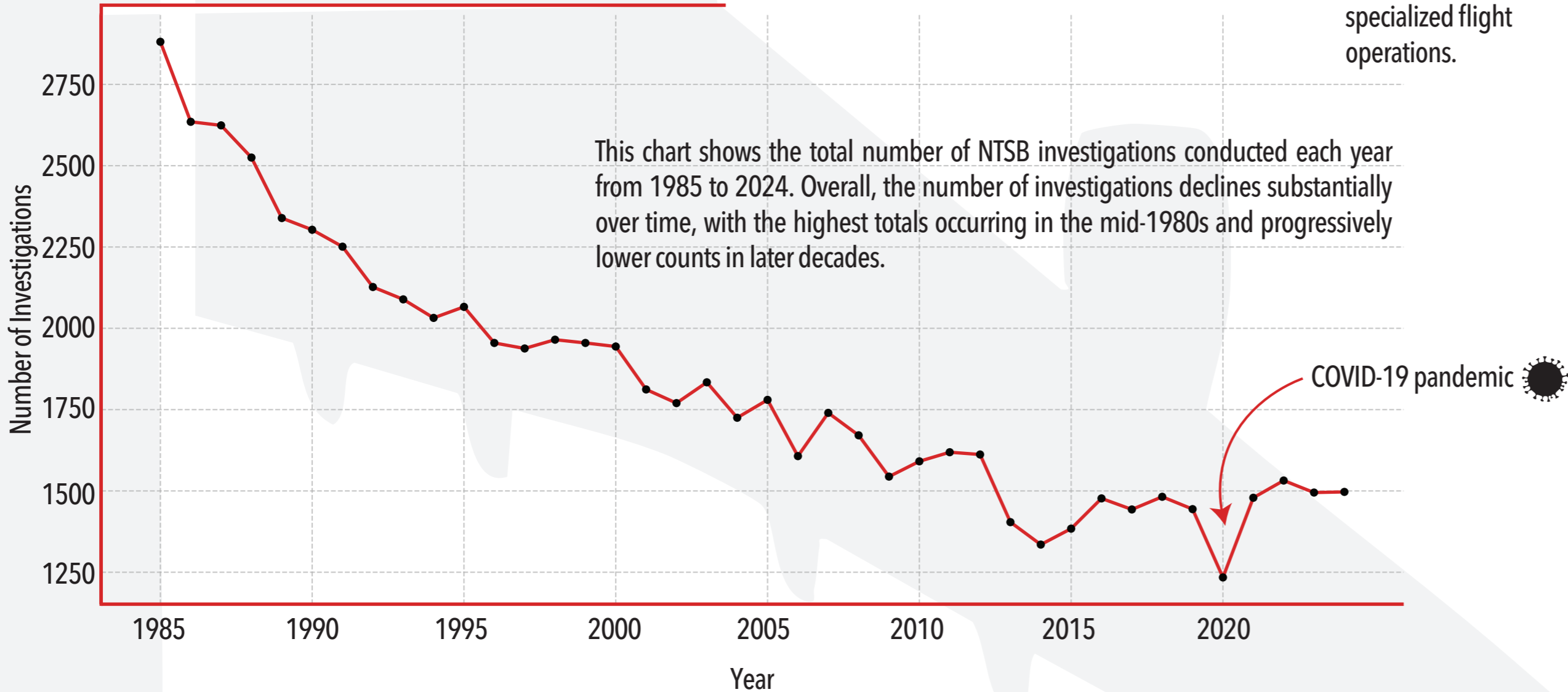
Injury Severity Distribution by Decade

This chart shows NTSB aviation investigations grouped by decade, with each block representing approximately 100 investigations, and colours indicating injury severity.

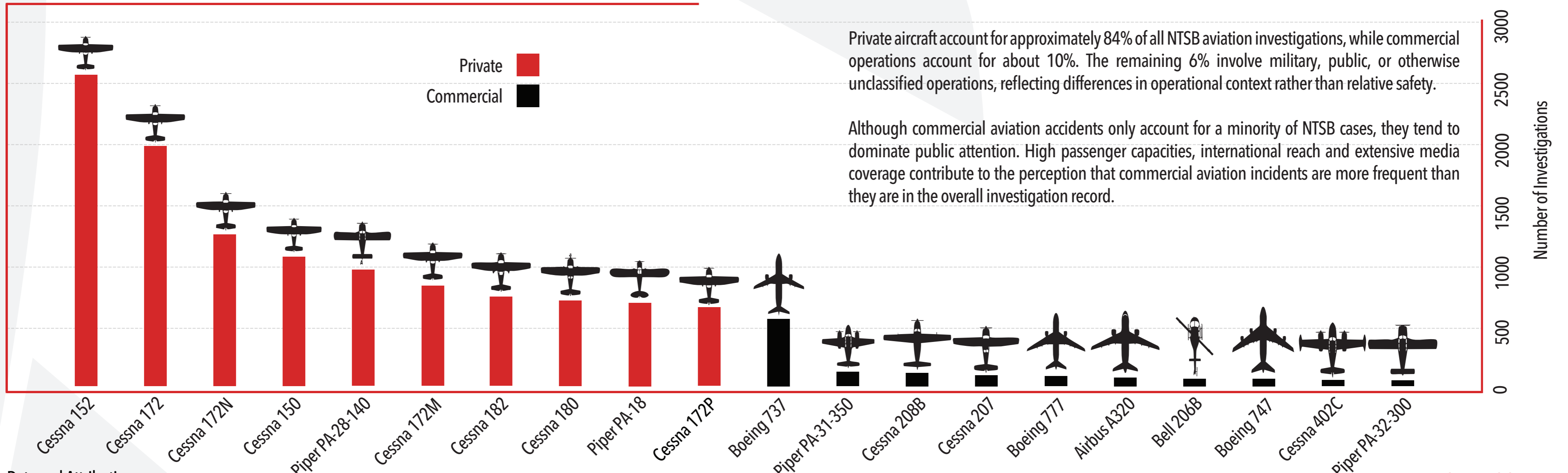
Over the past four decades, the frequency of NTSB aviation investigations has declined in number, and the proportion of investigations involving fatal or serious injuries have also decreased – indicating long-term improvements in aviation safety outcomes.



Total Investigations by Year (1985-2024)



Top 10 Commercial and Private Aircraft Models Involved in Investigations



Private aircraft account for approximately 84% of all NTSB aviation investigations, while commercial operations account for about 10%. The remaining 6% involve military, public, or otherwise unclassified operations, reflecting differences in operational context rather than relative safety.

Although commercial aviation accidents only account for a minority of NTSB cases, they tend to dominate public attention. High passenger capacities, international reach and extensive media coverage contribute to the perception that commercial aviation incidents are more frequent than they are in the overall investigation record.

Data and Attribution:

- NTSB Investigation data - The NTSB Aviation Accident Database - https://www.ntsb.gov/safety/data/Pages/Data_Stats.aspx
- Aircraft silhouettes generated by Gemini (Google)
- Television vector - Vecteezy.com

This map was produced as part of the requirements of the GIS: Cartography and Geovisualization program at the Centre of Geographic Sciences (COGS), NSCC, Lawrencetown, Nova Scotia. The product is unedited, unverified, and intended for educational purposes only.