

Flight Carrier Performance And Flight Motion Analysis

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Investigation Overview

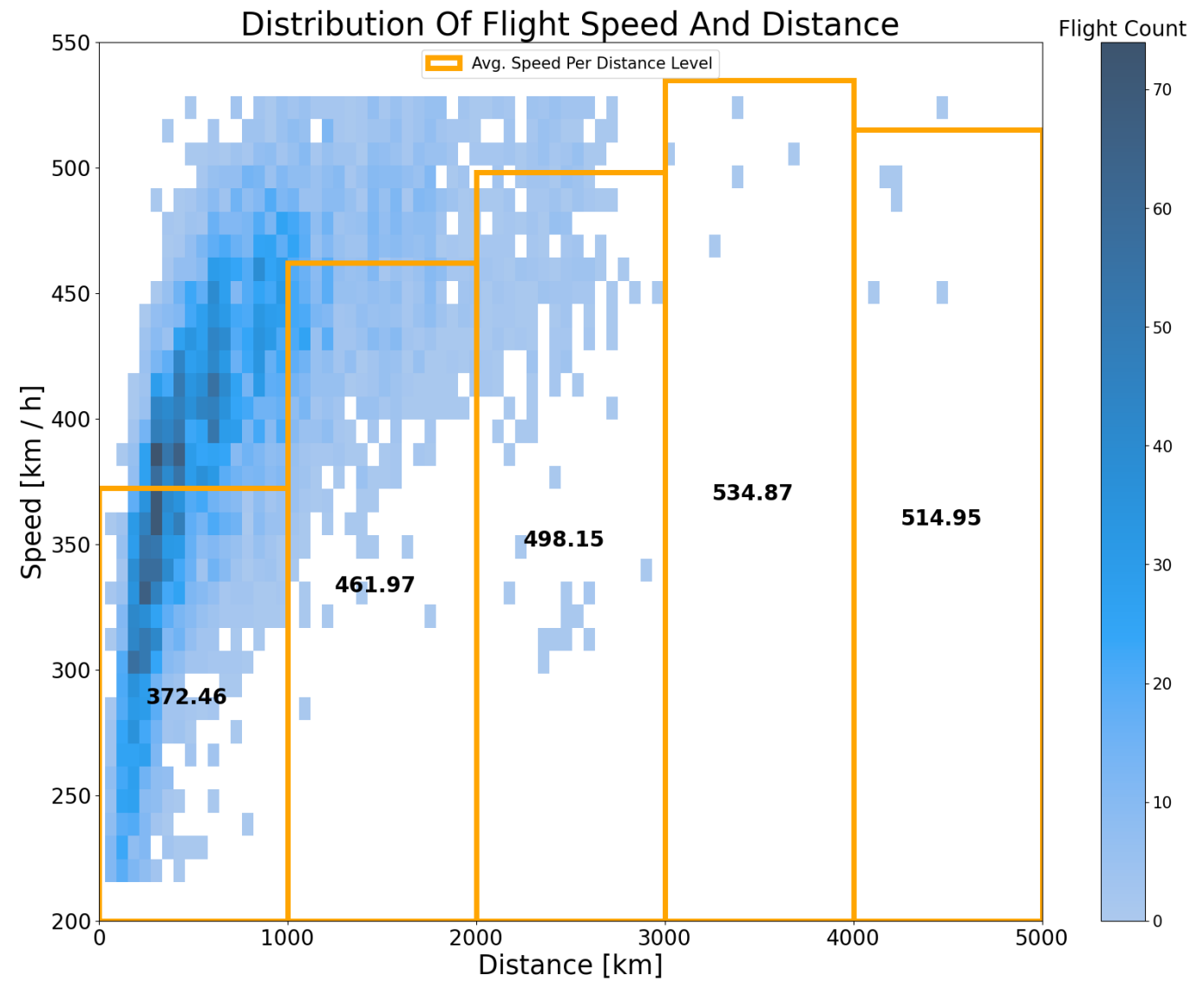
I thoroughly inspected the flights data to find interesting and meaningful insights about it. Eventually, there were two aspects that intrigued me the most: the different carriers and their performance and flight motion metrics. Therefore, I've decided to include in my explanatory analysis three visualizations, the first describing flight motion, and the other two carrier performance.

Dataset Overview

This is a flights analysis based on a dataset containing various flight metrics. The entire dataset is very memory consuming, even when heavily optimized, so I had to use a sample in my analysis in order to create visualizations. The sample I used contains 9000 from years 2000-2008, 1000 records for each year.

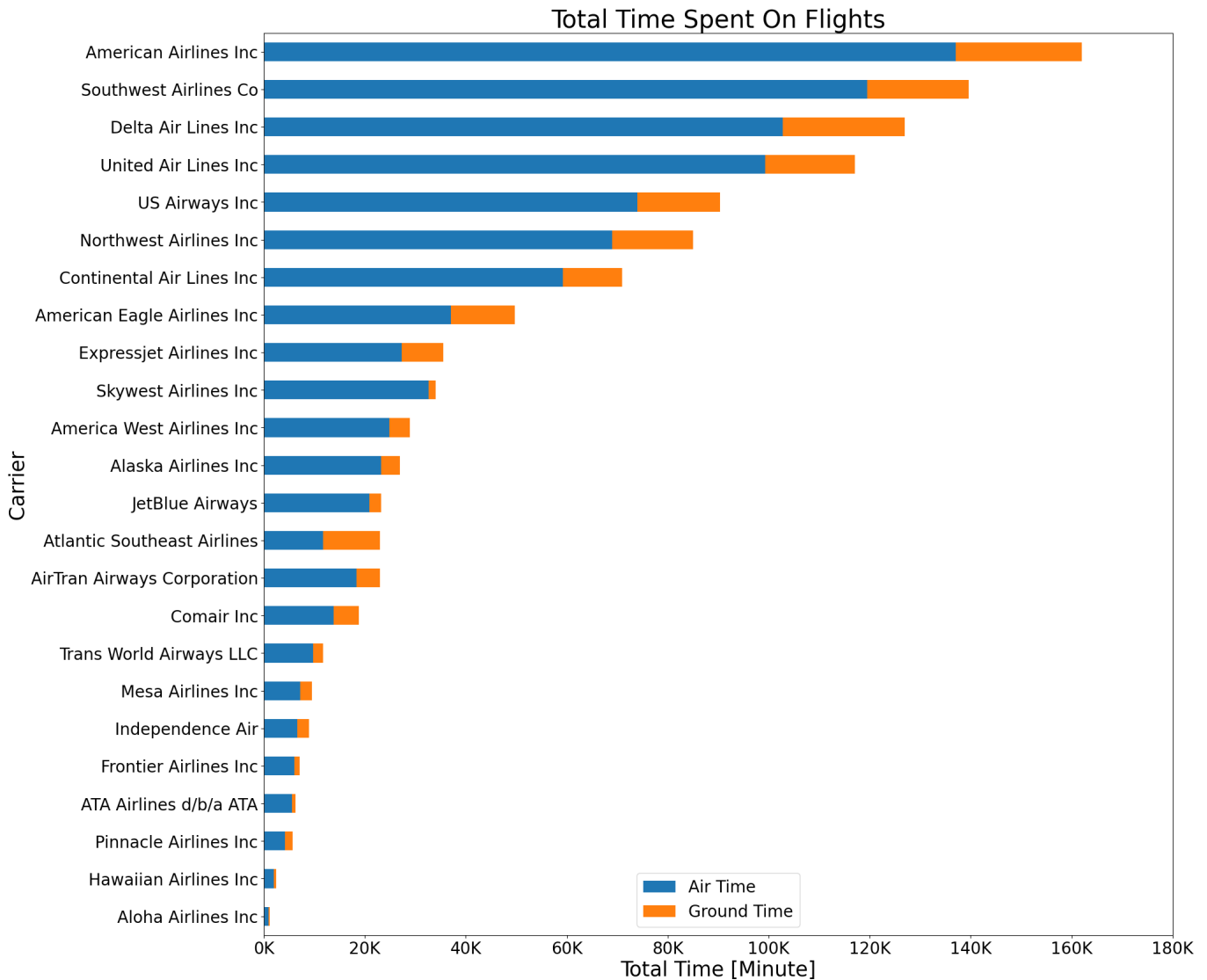
Plot 1 - Distribution Of Flight Speed And Distance

Looking at the plot bellow, it is observed that most flights, in general, have range less than 1000, and the most common speeds overall are between 300 - 475 km/h. Additionally, when looking at the avg. bars, it is observed that the avg. speed greatly increases when the flight range goes beyond 1000KM, and beyond 3000KM, it is above 500 km/h.



Plot 2 - Total Elapsed Time By Carrier

Looking at the plot bellow, it can be seen that "American Airlines" is the top carrier in terms of total time, In contrast, "Aloha Airlines Inc" is by far the lowest. In addition, it can be seen that among the top 8 carriers there's a similar proportion of ground time and air time, but this metrics are varied among the rest of the carriers.



Plot 3 - Yearly Flight Counts By Carrier

Bellow are drawn the carrier's flight counts over the years, split to quartiles **by their total flight counts**. To better understand the trends, one should observe them one by one:

- Within the first quartile, it is observed that carriers during most years have either zero or very low flight count.
- In the second, carriers are managing to pull well above zero for the majority of years.
- In the third, even more carriers are well above zero than in the previous quartile. There's a noticeable rise in flights for most carriers in 2004 or 2005.
- Finally, within the fourth quartile, there's no single carrier touching zero across all years. The top performer is definitely "Southwest Airlines Co", topping above 140 flights in every year. It is important to mention that all carriers in this quartile are in general decline from 2000 to 2008.

Yearly Flight Counts By Carrier, Divided To Quartiles

