Executive summary

This dashboard analyzes 500 flights and evaluates airline performance, airport operations, route impacts, delay causes, aircraft performance, and exceptions. Key findings: NAS delays are the largest contributor t o total delay minutes; long-
haul flights show slightly higher average delays; Delta has the longest average arrival delay while Frontier and JetBlue have the highest cancellation counts. Overall, average arrival delays trend downward across the sampled period.

Key metrics

Total flights: 500

Cancellation rate: 6.8%

Most frequent route: ATL → MIA

Average Department Delay

Delay breakdown

Distribution: NAS delays contribute the largest share of delay minutes, followed by Carrier delays and W eather delays. Security delays are minimal in total minutes. (Note: Late Aircraft Delay not present in the dataset.)

Peak hours for delays: Evening windows (notably hour 18:00) and late night/early morning windows sho w the highest delay probability in the dataset.

Trend: Average arrival delays decline over the dataset period —
indicating improved performance over time.

Route & distance insights

Distance bucket: Long-haul flig

Worst routes (avg delay): DEN → LAX and several transcontinental routes show the highest average delay s (270+ minutes for top routes).

Weather sensitivity: BOS → SEA contributes the most weather delay minutes, highlighting weather risk on that route.

Airline & aircraft insights

Worst average delay (airline): Delta — highest average arrival delay (~156.7 minutes).

Best on-time airline: Frontier (highest on-time %), but Frontier also shows high cancellation counts —
a reliability anomaly.

Aircraft: A320 is the most used and shows the highest total carrier delay minutes — recommend targeted operational checks.

Risk & exceptions

Top 10 most delayed flights: Flight 277 (Delta — LAS → MIA) — 299 minutes; other top delays range 296–299 minutes.

Cancellations by airline: Frontier and JetBlue lead cancellations (7 each).

Cancellations by airport: JFK and MIA (7 each).

Recommendations

Investigate NAS delay causes with Air Traffic stakeholders — NAS is primary delay source.

Target evening operations (especially 18:00 window) to improve recovery buffers and crew rotations.

Route-level interventions for DEN→LAX and BOS→SEA: additional buffer time, contingency planning for weather-sensitive routes.

Airline-specific audit for Frontier and JetBlue cancellations — operational or scheduling root cause analysis.

Aircraft-focused maintenance checks on A320 fleet to address repeated carrier delays.

4) DAX Measures List (copy/paste-ready)

Basic counts & flags

Total Flights = COUNTROWS('Aviation Dataset')

OnTimeFlag = IF('Aviation Dataset'[ArrDelay] <= 0 && 'Aviation Dataset'[Cancelled] = 0 && 'Aviation Data set'[Diverted] = 0, 1, 0)

KPIs

OnTime % = DIVIDE(SUM('Aviation Dataset'[OnTimeFlag]), [Total Flights], 0) Dataset'[Cancelled] = 0 && ' Aviation Dataset'[Diverted] = 0, 1, 0)

Avg Arrival Delay = AVERAGE('Aviation Dataset'[ArrDelay])

Avg Departure Delay = AVERAGE('Aviation Dataset'[DepDelay])

Cancellation Rate = DIVIDE(CALCULATE(COUNTROWS('Aviation Dataset'), 'Aviation

Diversion Rate = DIVIDE(CALCULATE(COUNTROWS('Aviation Dataset'), 'Aviation Daataset'[Diverted] = 1), [Total Flights], 0)

Delay category totals

Total Weather Delay = SUM('Aviation Dataset'[WeatherDelay])

Total Carrier Delay = SUM('Aviation Dataset'[CarrierDelay])

Total NAS Delay = SUM('Aviation Dataset'[NASDelay])

Total Security Delay = SUM('Aviation Dataset'[SecurityDelay])

Total Delay Minutes = [Total Weather Delay] + [Total Carrier Delay] + [Total NAS Delay] + [Total Security D elay]

Route / airport / airline aggregations