



Summary: Weather & Flight Disruptions At Airports & Airlines in the United States

Overview

Between June 2003 and April 2007, over 25% of all flights in the United States were disrupted (either cancelled or delayed). More than 55% of those disruptions (almost three million) were due to weather- the leading cause of flight disruptions in the U.S. In an effort to educate airlines, airports, and consumers about their weather risk, WeatherBill has identified the most sensitive airports and airlines to adverse weather to facilitate reliable estimates of future flight disruptions. Fifty-four major airports and sixteen larger airlines were studied. There are three main results:

1. WeatherBill can statistically quantify the relationship between weather delays and observed temperature and precipitation at major U.S. airports and airlines
2. The study shows that disruptions are more common with precipitation than temperature
3. Temperature-linked delays are seasonal

We have included a list of the top five airlines and airports with the highest & lowest percentages of weather disruptions at the end of this summary. Those lists are already widely available. What follows immediately are lists of airlines, airports, and their delay sensitivity to precipitation and temperature, in minutes. WeatherBill hopes this new data will help the flight industry and travelers better understand their weather delay risk.

Seasonal Rain Delays

Weather disruptions vary by season. 16% of flights in winter months are affected; 13% in spring, 15% in summer, and 12% in fall. Rain delays are more prevalent than temperature delays. The tables below describe the average airline and airport delay per inch of rain. The figures for airlines show the delayed minutes per inch above daily average rainfall. The figures for airports show delay minutes per inch of rainfall.

Arrivals:

Winter: Average Airline & Airport Arrival Delay per Inch of Rain

- | | |
|-------------------------------|--------------------------------|
| 1. Skywest – 16 minutes | 1. Chicago O'Hare – 75 minutes |
| 2. Comair – 15 minutes | 2. Las Vegas – 53 minutes |
| 3. AmericanEagle – 15 minutes | 3. Denver – 46 minutes |
| 4. Northwest – 13 minutes | 4. Boston – 45 minutes |
| 5. Expressjet – 13 minutes | 5. Newark – 38 minutes |

Spring: Average Airline & Airport Arrival Delay per Inch of Rain

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|----------------------------|--------------------------------|
| 1. AirTran – 15 minutes | 1. Las Vegas – 79 minutes |
| 2. Comair – 15 minutes | 2. Chicago O'Hare – 64 minutes |
| 3. Expressjet – 15 minutes | 3. San Francisco – 41 minutes |
| 4. Skywest – 15 minutes | 4. Chicago Midway – 29 minutes |
| 5. Mesa – 14 minutes | 5. Atlanta – 29 minutes |

Summer: Average Airline & Airport Arrival Delay per Inch of Rain

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|-------------------------------|--------------------------------|
| 1. AmericanEagle – 13 minutes | 1. San Francisco – 96 minutes |
| 2. Mesa – 12 minutes | 2. Oakland – 55 minutes |
| 3. AirTran – 12 minutes | 3. Las Vegas – 42 minutes |
| 4. Comair – 11 minutes | 4. Newark – 38 minutes |
| 5. Expressjet – 11 minutes | 5. Chicago O'Hare – 37 minutes |

Fall: Average Airline & Airport Arrival Delay per Inch of Rain

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|----------------------------|--------------------------------|
| 1. Mesa – 17 minutes | 1. Las Vegas – 75 minutes |
| 2. Skywest – 13 minutes | 2. Reno – 68 minutes |
| 3. Expressjet – 12 minutes | 3. Chicago O'Hare – 52 minutes |
| 4. Comair – 10 minutes | 4. Newark – 24 minutes |
| 5. AirTran – 10 minutes | 5. Phoenix – 24 minutes |

Departures:

Winter: Average Airline & Airport Departure Delay per Inch of Rain

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|-------------------------------|---------------------------------------|
| 1. Comair – 18 minutes | 1. Albuquerque – 68 minutes |
| 2. Skywest – 17 minutes | 2. Denver – 47 minutes |
| 3. AirTran – 13 minutes | 3. Minneapolis/ St. Paul – 39 minutes |
| 4. AtlanticSE – 12 minutes | 4. Boston – 37 minutes |
| 5. AmericanEagle – 11 minutes | 5. New York JFK – 34 minutes |

Spring: Average Airline & Airport Departure Delay per Inch of Rain

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|----------------------------|--------------------------------|
| 1. Skywest – 20 minutes | 1. Reno – 54 minutes |
| 2. Comair – 18 minutes | 2. Chicago O'Hare – 20 minutes |
| 3. Mesa – 12 minutes | 3. Sacramento – 17 minutes |
| 4. Northwest – 12 minutes | 4. Detroit – 17 minutes |
| 5. AtlanticSE – 11 minutes | 5. Phoenix – 14 minutes |

Summer: Average Airline & Airport Departure Delay per Inch of Rain

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|-------------------------------|-----------------------------------|
| 1. Skywest – 20 minutes | 1. Las Vegas – 47 minutes |
| 2. Comair – 18 minutes | 2. Sacramento – 42 minutes |
| 3. Mesa – 12 minutes | 3. Reno – 32 minutes |
| 4. Expressjet – 10 minutes | 4. Phoenix – 23 minutes |
| 5. AmericanEagle – 10 minutes | 5. Dallas Fort Worth – 20 minutes |

Fall: Average Airline & Airport Departure Delay per Inch of Rain

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|----------------------------|-----------------------------------|
| 1. Skywest – 16 minutes | 1. Reno – 40 minutes |
| 2. AtlanticSE – 11 minutes | 2. Sacramento – 20 minutes |
| 3. Mesa – 10 minutes | 3. Dallas Fort Worth – 18 minutes |
| 4. Comair – 10 minutes | 4. Phoenix- 13 minutes |
| 5. Expressjet – 8 minutes | 5. Los Angeles – 10 minutes |

Summer Temperature Delays

Delays are far less sensitive to temperature than precipitation, however warmer temperatures reduce winter delays and increase summer delays (likely resulting from the impact on winds and thunderstorms). Summer months show the largest impact of temperature on arrival delays. The figures for airlines and airports show the delayed minutes per degree-Fahrenheit above daily average temperature.

Summer: Average Airline & Airport Arrival Delay per °F above normal temperature

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|--------------------------------|------------------------------------|
| 1. Comair – 0.6 minutes | 1. Newark – 1.2 minutes |
| 2. AmericanEagle - 0.5 minutes | 2. Washington, DC (DCA) – 1 minute |
| 3. Expressjet - 0.4 minutes | 3. Baltimore – 0.9 minutes |
| 4. United – 0.4 minutes | 4. Raleigh Durham - 0.9 minutes |
| 5. Northwest – 0.3 minutes | 5. Philadelphia – 0.9 minutes |

Summer: Average Airline & Airport Departure Delay per °F above normal temperature

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|--------------------------------|---------------------------------------|
| 1. Comair - 0.8 minutes | 1. Raleigh Durham – 1.6 minutes |
| 2. AmericanEagle - 0.6 minutes | 2. Washington, DC (IAD) – 1.3 minutes |
| 3. Northwest – 0.6 minutes | 3. Charlotte – 1.3 minutes |
| 4. AirTran – 0.6 minutes | 4. Washington, DC (DCA) – 1.2 minutes |
| 5. United – 0.5 minutes | 5. Tampa – 1.2 minutes |

Top Five Airlines & Airports With The Highest & Lowest Percentages of Weather Disruptions

Two-thirds of the 54 major airports studied show more than half of all cancellations and delays are caused by weather. The average airport weather delay is just over 30 minutes. Of the 16 larger airlines studied, 13 show that more than half of all disruptions are caused by weather. The following rankings are based on the percentage of total flights:

Top Five Airlines and Airports with Highest Percentage of Weather Disruptions

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|----------------|------------------------|
| 1. Expressjet | 1. Newark |
| 2. JetBlue | 2. New York, JFK |
| 3. Continental | 3. New York, LaGuardia |
| 4. AtlanticSE | 4. Philadelphia |
| 5. Northwest | 5. Chicago O'Hare |

Top Five Airlines and Airports with Lowest Percentage of Weather Disruptions

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|--------------|-------------------------|
| 1. Skywest | 1. Salt Lake City |
| 2. Mesa | 2. Ontario (California) |
| 3. Southwest | 3. Albuquerque |
| 4. United | 4. Oakland |
| 5. Frontier | 5. San Jose |

A free copy of the complete study can be downloaded at <http://www.weatherbill.com/reports/flightdisruptions>.

For more on WeatherBill and additional weather research, visit www.weatherbill.com.