Economic Benefits of Aviation Weather Support

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Measuring the Value

• Aviation is a very high weather impact segment, and it is as a very significant mode of transportation.
  – There are currently over 730M U.S. passengers annually and growing
  – The value of U.S. exports transported by air reached an all-time high of $393B in 2010, accounting for 31% of total U.S. export value.

• Significant, measurable improvements in to aviation weather support have been recognized in the following areas:
  – Advancements within the science of meteorology
  – Observations
  – Forecasts
  – Information Systems
  – Collaboration and Partnership
  – Decision Making and Response
Measuring the Value

• Weather forecast formats and contents can be a somewhat unspecific relating to:
  – The location, intensity, and confidence/uncertainty levels
  – The Impacts on specific airport locations and aircraft sizes

• The Industry does not routinely collect data on quantifiable, operational benefits of weather impacts to enable the establishment of a comparative dataset.
  – Most studies provide a static metric at a given time
  – Some collect internal metrics but may not share externally
  – There are no international standards to collect and share information

• The benefits vary on the perspective of the….
  – Passenger
  – Government
  – Airline
Passenger Perspective

• Safety
• On-Time Performance
• Operational Efficiency
• Reliability
Government Perspective

- FAA
  - Safety
  - Capacity Improvement
  - Environmental Impact
  - Economic Efficiency
  - Comfort of Passengers

- NOAA/NWS
  - Balance competing national priorities for weather support
  - Improve Forecast Accuracy
  - Reduce Forecast Uncertainty
  - Improve Observations
  - Assist with Improved Decision Making
  - Support a Weather-Ready Nation

* Photos Courtesy of FAA

Image credit: Jessica Hill/AP
Airline Perspective

• Airlines are not always able to quantify weather support
  – Quantifying weather delays is fairly easy.
  – Quantifying “avoidable” weather delays is not.

• Most efforts to quantify benefits are not done to an industry standard
  – Fleets are different
  – Service areas are different
  – Route structures are different
  – Schedules are different

• Competitive forces can also inhibit sharing of data
Airline Cost Example

• Average Cost for One Minute of Extra Taxi Time
  – $35.90/Minute/Aircraft
  – $4,200.03/Minute for the Fleet
  – $873,662.40/Year for One Extra Minute of Fleet Taxi Time

• Average Cost for One Minute of Extra Flight Time
  – $96.15/Minute/Aircraft
  – $11,249.55/Minute for the Fleet
  – $2,339,906.40/Year for One Extra Minute of Flight Time Fleet wide

• Average Labor Cost** for One Minute Late Into Primary Hub
  – $711.96/Minute/Aircraft
  – $83,299.32/Minute for Average Day into Primary Hub
  – $17,326,258/Year for One Minute Late into Primary Hub

* Courtesy of UPS

** Cost is for Hub Workers Only, does not include Power Consumption, Support Staff, Downstream Impact
Measuring the Value

• Very difficult problem to solve…
• Government agencies need this information to not only measure incremental improvements to new products and enhancements to existing products, but continued funding concerns as well.
• Industry needs this information to help improve customer service levels, operational efficiency and revenue impacts relating to weather information.
Measuring the Value

• How do we measure our improvements without any existing benchmarks?
• What meaningful measurements can be realized that benefit both the “consumer” and “producer” of the information?
• What can we measure easily to get this process started?
Next Steps

• Determine the value and priority?
• Determine who will work this issue…It will require a significant level of coordination on both government and industry side.
• Identify a set of variables which can be easily measured to get the process started.
• Identify what information can be routinely collected from industry….
• How do we get this started?
Possible Approach

• Industry and government work together to define an initial set of key weather variables.
• Each side will then research internal ways to report data for comparison.
• Compare data sets and begin to store and report results.
• Start small and keep incorporating new datasets and results into the process.
Thanks!

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