Quantifying Economic Benefits from Aviation Weather Support

INTRODUCTION

Friends and Partners of Aviation Weather FPAW 2012 Meeting, Orlando, FL
Nov 1, 2012 - Segment 10
Quantifying Economic Benefits from Aviation Weather Support

- **Introduction**
  - Bryce Ford, SpectraSensors, Inc. (5 min)

- **U.S. Government Activities**
  - Kevin Stone; NWS Aviation Services Branch (8 min)
  - Mike Robinson, AvMet for FAA Metrics Programs (8 min)

- **Business Aircraft and General Aviation Activities**
  - John Kosak; NBAA ATM, representing BA and GA (8 min)

- **Airline Activities**
  - Tom Fahey; Manager of Meteorology, Delta Air Lines (8 min)
  - Randy Baker; Senior Meteorologist, UPS Airlines (8 min)
  - Rick Curtis; Chief Meteorologist, Southwest Airlines (8 min)

- **Discussion**
  - Bryce Ford (7 min)
Goals of This Panel Last Year

The Goal of the 2011 Panel was to 
Initiate Industry Dialogue On

- What data can be Regularly collected to Quantify the operational benefits
- How often do we think we can collect metrics
- What kind of Methodology should we use for regularly collecting data
- How do we resolve the really contentious Issues
  - How do we minimize the cost involved in routinely collecting metrics
  - What info can we Share and what needs to be kept Private
  - How do we support data being Aggregated at higher levels
  - Can a single set of Common metrics really support Technical, Operational, Financial, and Political decision making

✔️ We’re Still Here - So the Dialogue Appears to be Initiated
End Users

Who are the End Users of this Information
(aka Why do We Need This?)

- Government Decision Makers
  - Funding Decisions for Aviation Weather/Climate Services
  - Measure of Effectiveness for Gov Weather/Climate Services
  - Supplement Existing FAA and NWS Economic Benefits Metrics

- Aviation Industry Decision Makers
  - Opportunities to Improve Operational Effectiveness
  - Improved Marketing and Public Relations
  - Improvements to the Bottom-Line

- Other Weather and Climate Enterprise Participants
  - Increased Research Opportunities for Academia Members
  - Improved Marketing and Public Relations for Commercial Members

- General Public - Improved Forecasts for a Weather Ready Nation

Valuable Information Used By Many Decision Makers
Related Efforts with Similar Goals

- **AMS Commission on Weather and Climate Enterprise (CWCE)**
  - Beginning with Measurement of Weather/Climate Enterprise SIZE
  - Next will address Weather/Climate Enterprise Economic IMPACT

- **AMS National Network of Networks (NNON)**
  - Early work on Modeling Economic Benefits from Sensor Networks

- **World Meteorological Organization AMDAR Programme**
  - Supporting Individual Business Case Analyses for AMDAR

- **Met Office (UK)**
  - Study of Economic Impacts of Wx Forecasts on UK Energy Sector

- Etc, etc, etc

*Similar Efforts Show We Are Not Alone Out There*
Weather and Climate Information Provides Critical Economic Benefit to the Nation
IDEAS on What Economic Benefits Aviation could Report?

Standard Economic Benefits for all Sectors

- Economic Gains/Losses ($$)
- Net Present Value ($$)
- Jobs Created (#)
- Return on Investment (%)

Aviation Sector Unique Benefits

- Passenger Value of Time ($$)
- Fuel Usage Reduced (Gal)
- CO2 Reduced (Tons)

Standard Benefits Metrics from All Sectors, Plus Sector Unique Benefits
Next Steps for FPAW

- Determine the Value and Priority
- Determine Who will Work the Issues
  - Requires significant coordination from both Government and Industry
- Identify an Initial set of Variables which can be Easily Measured
- Identify what Information the Enterprise can Routinely Collect
- Determine How we get the Process Started

Possible Approach

- Industry/Government Define an Initial Set of Variables
- Each group Internally Researches ways to Report data
- Compare Data Sets and Harmonize
- Begin to Store and Report Results

Start Small - Continuously Add New Data/Results to the Process
Thank You!

The Time for Action is NOW!
Backup Information
Aviation Benefits Attributed to Wx Support Improvements

- Standard Wind & Temp Forecasts
- Convective Storm Forecasts
- Fog Forecasts
- Winter Storm Forecasts
- Turbulence Observations and Forecasts
- Wind Shear Observations and Forecasts
- Icing Observations and Forecasts
- Jetstream Observations and Forecasts
- Tropical Forecasts
- Etc.

Measuring Benefits from Specific Observation and Forecast Types Facilitates Targeted Improvements for the Highest Return
Examples of Measureable Benefits to Aviation

- Flight Operations Benefits
  - Fuel Savings
    - Route and Altitude Selection
    - Continuous Descent
  - Flight Crew Related Savings
  - Ground Crew Related Savings
  - Reduced Cost from Passenger Missed Connections
  - Airport Services Related Savings (e.g. reduction of unnecessary deicing)

- Business Operations Benefits
  - Reduction in Unplanned Overtime or Lost Time
  - Reduced Emissions or Noise Penalties
  - Reduced Insurance Claims
  - Reduced Litigation
  - Reduced Wx Related Incidents

- Other Benefits
  - Improved Passenger Satisfaction Leading to Improved Sales
  - Public Relations Benefits Leading to Improved Sales
  - Improved Employee Moral Leading to Better Performance

Benefits Come from Many Sources, and Not Always the Most Obvious