Automated Aircraft Weather Reports

A4A Meteorology Work Group - Turbulence

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Automated Aircraft Turbulence Reports

Current State

- American, Delta, Southwest and United report real-time automated turbulence reports.
- No known contracts or formal agreements in place with government for long term turbulence reporting.
- No standardized reporting guidelines have been established (airline independent).
- No data access/distribution policies in place.
- Airlines that report EDR can not access RMS-g (TAPS) reports and vice versa.
- Limited government provided/supported data display capabilities.
- No EDR cost sharing agreements in place.

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Airlines' Shared Interests

1. We need a way to integrate the data into our operational applications.
2. We do not want to pay private vendor(s) for our weather data.
3. We want the government to take a more active approach in this program with increased focus on data storage, access, and quality.
4. We want to promote additional airline participation and encourage data sharing among the airlines.
5. All safety related info should be shared.

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Turbulence – Issues for consideration

- Limited airlines participation to this point.
- EDR/RMS-g approaches and conversions.
- Access to all reports for participating airlines.
- Vendor access/distribution rights.
- Quality Control
- Data usage and end products.

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Recommendations

Database - Gatekeeper

- ***Gatekeeper.*** A storage facility and responsible organization must be identified to act as repository and gatekeeper for aircraft reported weather data for real-time access and historical archiving.

Data Ownership

- ***Airline Property:*** Contributing airlines consider automated aircraft weather observations to be their property.

Airline Privacy

- ***Airline Identifications***: All contributors' data shall be de-identified prior to any distribution. Identified data may be used by the gatekeeper for quality control.

Data Quality Control

- ***Joint Quality Control***: Participating airlines and the gatekeeper will coordinate to ensure that all data is accurate and timely. However, the gatekeeper will be responsible for ongoing q/c data flagging and maintenance.

Automated Aircraft Turbulence Reporting
Recommendations

Costs/Benefit Balance

- ***Sharing Agreement.*** Once the gatekeeper is identified and established, the gatekeeper(s) and participating airlines, as represented by the A4A Meteorology Work Group, will actively work together to produce a mutually acceptable, quantified method to properly balance airlines costs associated with reporting with benefits gained from the information.

  – ***Cost Sharing:*** A method will be designed, implemented and monitored that addresses airline costs, including equipage; on-going communications; maintenance; and quality control of reporting systems and government costs.

  – ***Observation Optimization:*** The method will optimize both the temporal and geographical coverage of all aircraft reporting for use in both human in the loop produced government products as well as for U.S. government weather forecast model initialization. The gatekeeper(s) will be responsible for ensuring that an optimum volume of reports in space and time are provided to the NOAA's weather forecast models.

  – ***Benefits Sharing:*** The A4A Meteorology Work Group in coordination with the gatekeeper(s) will attempt to quantify the benefits reaped by the general public from use in U.S. government models.

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Recommendations

- ***EDR Calculation Standards***: There is currently more than one way to calculate EDR. This needs to be standardized.

- ***Quality Control of All Calculations***: Accuracy of EDR calculations and any other parameter such as RMS-g calculations need to be determined, reviewed and accepted by the FAA. The FAA also needs to validate that vendor supplied EDR algorithm output or any other metric supplied by a vendor, is comparable to other existing EDR output.

- ***Bridging EDR/RMS-g***: Standardized transformations need to be implemented so users of the information can view reports from both EDR and RMS-g reporting aircraft on a single display.

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Next Steps

- Meeting with A4A Meteorology Work Group, FAA and NWS to discuss A4A position paper and recommendations.
- Propose working group to resolve issues.
- “Mainstream” automated turbulence reporting practices, guidelines, usage, displays.
- Encourage additional air carriers and aircraft to auto report turbulence.