



Flight Data Monitoring; General Aviation Safety Information Analysis & Sharing

Past Present and Future

What Does Success Look Like?

- The conference galvanizes the GA community to adopt FDM
- At least 5 diverse fleet operators representing 150 airplanes decide to participate in Tasks Three, Four, Five
- The FAA is inspired to support extensive equipage underwriting for the volunteers for duration of the research project
- Data gathered during the research project unequivocally supports the following theses:
 - FDM in GA identifies accident precursors and allows effective intervention
 - FDM in GA impresses insurance carriers to provide favorable premium consideration
 - FDM in GA impresses engine manufacturers to consider extending recommended overhaul periods
 - FDM in GA pinpoints opportunities for fuel and maintenance savings
- GA fleets equip for FDM on a broad scale, as part of their SMS compliance

The Team

- Dr. David A. Esser, PI, ERAU
- Mr. Peter Morton, ERAU
- Prof. James Higgins, UND
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- Mr. Michael Vu, Research Project Manager, AJP-6350
- Thanks to Mr. Tom Tessitore, Technical Monitor, AJP-6350

Background

- The first conference on GA Flight Data Monitoring was held in Daytona Beach in January 2007
- The conference was co-hosted by ERAU and CAPACG
- Attended by over 50 representing various facets of the aviation industry, regulators, and insurers

Results of the First Conference

- Creation of a Steering Committee
- Publication of a White Paper
- Formulation of a Research Proposal (Research Questions)
- Search for funding

Research Questions

1. What challenges exist in equipping a GA fleet of aircraft with FDM equipment, to include; (a) equipment acquisition, (b) regulatory approval, (c) installation, and (d) flight crew acceptance?
2. What risks are presented to a GA fleet operator when initiating an FDM program, to include; (a) costs, (b) labor, (c) legal ramifications, (d) confidentiality, and (e) regulatory consequences?
3. What benefits are enjoyed by a GA fleet operator when initiating an FDM program, to include; (a) safety, (b) enhanced training, (c) operating cost reduction, (d) maintenance cost reduction, and (e) insurance cost reduction.
4. What modifications, if any, are necessary to optimize transport category practices and regulations for application to general aviation fleet operations?
5. What unforeseen issues and consequences were encountered in equipping and operating an FDM program in a general aviation fleet?

Proposed Steps for the Future

Establish FAA sanctioned GA FDM Program

Propose GA FDM policies addressing regulatory and civil implications

Collect and Analyze Flight Data From Participants

Hold Second General Aviation Flight Data Monitoring Conference

Identify Participants for Follow on Study

GA FDM Conference II Objectives

- A review of actual FDM activity taking place in the general aviation and rotary wing community.
- A review of FDM hardware, software and process developments since January 2007.
- Development of a proposal for funding an expanded FDM research and demonstration project (Demoproj) and solicitation of participants who desire to participate.
- Exploration of safety, economic, and productivity benefits that can be expected from FDM.
- Exploration of data management opportunities and challenges in general aviation FDM applications, and correlation to experience in Part 121 operations.
- Commitment to a broad demonstration project in fixed wing FDM among general aviation applications in fractional, academic training, air taxi, and charter operations.
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Plans beyond the conference

- Collect and Analyze Flight Data From Participants
- Propose GA FDM policies addressing regulatory and civil implications
- Establish FAA Sanctioned GA FDM Program

Collect and Analyze Flight Data From Participants

- Collect data from various diverse GA volunteers
- Analyze the data to evaluate richness and validity
- Develop a data translator so that the GA data can be taken from currently used hardware and translated to an FFD format currently used by MITRE
- Evaluate culmination of data from various diverse sources into central database

Propose GA FDM Policies Addressing Regulatory and Civil Implications

- Compile input from various constituents of the GA community concerning the future development of GA FDM
- Refine and develop strategies to ensure GA-Flight Data Monitoring is available for all of general aviation, i.e., R and D support for OEM adaptation, STC support, pilot/operator education.
- Research issues pertaining to use of data in regulatory and legal proceedings
- Research issues pertaining to Family Educational Rights and Privacy Act (FERPA, Buckley Act)

Establish FAA Sanctioned GA FDM

- Communicate input from GA constituents
- Approve GA operators to engage in GA FDM programs
- Begin assimilation of central GA FDM database

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