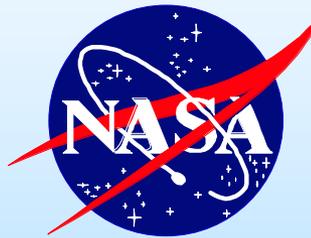


Aviation Safety & Security Review Weather Accident Prevention Turbulence Prediction & Warning Element



Tri-Agency Turbulence Reporting Team Activities

Sandra Schmidt & Rod Bogue

**Aviation Safety Program Deputy Turbulence Element Manager
National Aeronautics and Space Administration**

Outline

- **Purpose**
- **Activity Drivers**
- **Government Commitment**
- **Team Structure**
- **Organizational Representation**
- **User Groups**
- **Requirements Identification**
- **Guidance for future product development**

Purpose of Activity

- **Serious Government role-based commitment to address the turbulence reporting needs of all members of the aviation community**
- **Requirements/needs identification**
- **Responsive & efficient product generation/correction**
- **Guidance for future product development**



Turbulence Reporting Drivers

- **SAFER SKIES - Commercial Aviation Safety Team (CAST)**
 - Turbulence JSAT Report
 - Turbulence JSIT Report
- **FAA Operational Evolution Plan**
- **FAA Mission Needs Statement for Aviation Weather #339**
- **NASA Weather Accident Prevention Plan**
 - Aeronautics Safety Investment Strategy Team (ASIST) Recommendations

Government Role-based Commitment

- **Federal Aviation Administration**
 - **Broad responsibility for Aviation Safety**
 - **Turbulence research**
 - **Product development**
 - **Operational transition & implementation (airlines & NWS)**
 - **EDR parameter downlink (product generation, flight operations display)**
 - **Verification**
 - **Responsibility for Requirements Definition**
- **National Weather Service**
 - **Turbulence product generation & dissemination**
 - **Diagnosis**
 - **Forecasting**
 - **Nowcasting**
 - **Validation of weather product operational readiness**

Government Role-based Commitment (cont.)

- **National Aeronautics & Space Administration**
 - **Turbulence In-situ Detection Optimization Research**
 - **Detection certification investigation agent for FAA**
 - **Displays & Operating Modes**
 - **Tactical Warning & Reporting**

Team Structure

- **Steering committee**
 - Establish Charter
 - Establish Terms of Reference
- **ConUse Team**
 - Identify User Needs
 - Format needs and prepare report
- **Research-to-Operations Team**
 - Use User needs and available turbulence reporting concepts/approaches to devise solutions
 - Perform solution tradeoff assessments
 - Recommend one or more solutions for implementation

Organizational Representation

- **Steering committee**
 - FAA, NWS, NASA
- **ConUse Team**
 - FAA, NASA
 - AeroTech Research Inc.
 - NCAR
- **Research-to-Operations (RtO) Team**
 - FAA, NASA, USAF
 - AeroTech Research, Inc.
 - ALPA, RAA
 - NCAR



Organizational Representation at ConUse Workshop 4/22/04

- **Government**
 - FAA, NWS, NASA, USAF
- **Industry Users:**
 - Delta Airlines, Federal Express, Northwest Airlines, Southwest Airlines, United Airlines, United Parcel Service, US Airways, Air Transport Association, Air-Line Pilots Association,
- **Researchers:**
 - AeroTech Research Inc.
 - NCAR

User Groups

- **End Users**
 - Pilots
 - Dispatchers
 - Carrier Maintenance
 - Air Traffic Controllers
- **Intermediate Users**
 - Meteorologists/Forecasters
 - Product Disseminators

Requirements/needs Identification

- **Process Driven**
- **Decision-based (guidance from process steps)**
- **Value-added decision support for each step**
- **Existing baseline product review**
 - **What's useful, helpful, and currently applied?**
 - **What's incidental, of limited use, and not currently in high demand?**
 - **Where do the existing products fall short?**
 - **Lack important parameters**
 - **Lack needed accuracy**
 - **Lack needed update rate**
 - **Improper/confusing information format**

Guidance for future product development

- **Trends/directions in Concept(s) of Operations**
- **Information that if available would substantially improve NAS safety**
- **“Out of Box” Thinking**



BACKUP CHARTS

ConUse Terms of Reference

REQUIREMENTS ASSESSMENT:

Concept of Use Team shall develop the Con Use document to address in-situ turbulence reporting and display requirements.

TERMS OF REFERENCE:

This committee will work collaboratively to meet the following Terms of Reference.

1. Identify all potential users of turbulence reporting technologies. Potential users would be airline pilots, dispatchers, and mechanics, meteorologists, air traffic controller personnel, and research developers.
2. Coordinate with users of turbulence reporting technologies to determine users' needs and applications for decision-making in their operational environment.
3. Describe current systems and operating procedures. Compile the current system's capabilities and shortfalls in meeting the users' needs.
4. Recognize and support the on-going work and research of organizations such as NASA, FAA, NWS, and airline engineering personnel.
5. Coordinate with Turbulence Reporting Steering Committee.
6. Guide the creation of the research to operations plan.

Responsive & efficient product generation/correction

- **Focus on user decision information needs**
 - Emphasize the value-added content
 - Suppress the incidental, less-useful content
- **Correct existing products to reflect current usage patterns**
 - Information content
 - Information format