



Aviation Weather Information

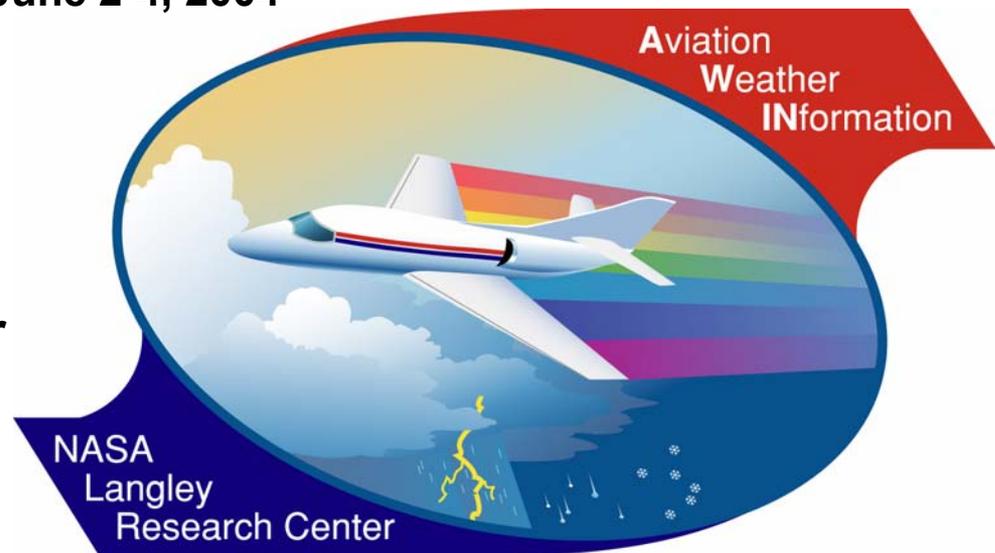
Cockpit Presentation of Weather Information for Transport Airplanes

NASA Aviation Safety and Security Program

Weather Accident Prevention Project Review

June 2-4, 2004

**Paul Stough
and
Dr. Jon E. Jonsson
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Outline

Aviation Weather Information

- **Aviation Weather Information Display**
- **Team Decision Making**
- **Airborne Hazard Awareness System (AHAS)
Piloted Flight Evaluation**

Aviation Weather Information Display Study



Aviation Weather Information

GTRI/Rockwell/U of Iowa

Objective

- Develop design guidelines for integrated information

Approach

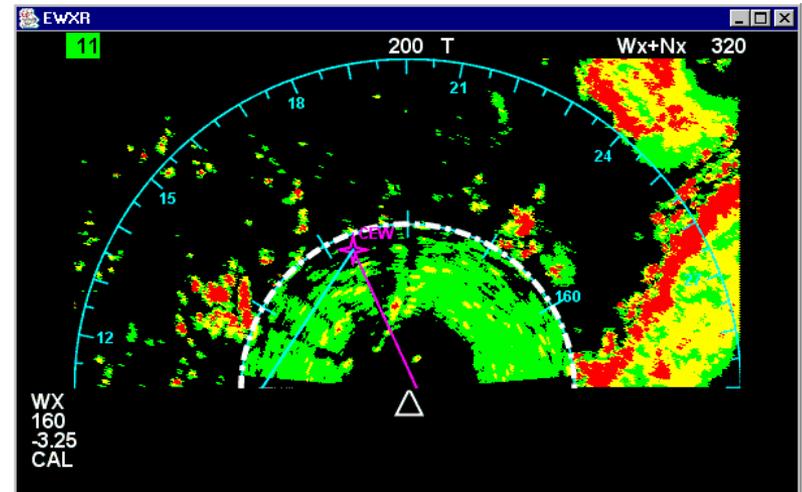
- Piloted simulation
- Airborne Hazard Awareness System
 - On board radar - tactical
 - NEXRAD - strategic
- Scenarios developed with pilots
- Good, Nominal and Bad decisions
- Evaluation of information use

Status

- Experiment to begin shortly
- Final report due July 2004



U of Iowa B-737 Simulator



Integrated Display



Team Decision Making

Aviation Weather Information

Old Dominion University - Dr. James Bliss

Objective

- Evaluate pilot situational awareness, workload, and trust in weather information

Approach

- Piloted simulation
- Captain and First Officer teams
- Washington, D.C. to Miami scenario
- Multiple convective weather encounters
- Parameters
 - Team decision making
 - Weather age
 - NEXRAD and/or on board radar



Simulator

Status

- Experiment completion July 2004

AHAS Piloted Flight Evaluation



Aviation Weather Information

NASA - Dr. Jon Jonsson/Rockwell

Objective

- Evaluate international AWIN system capability in flight environment

Approach

- Piloted evaluation on jet transport
- Rockwell AHAS system
- Observer in jump seat

Status

- Fly summer 2005



Auxiliary Display in NASA B-757

AHAS
Strategic
Interface



AHAS
Tactical
Interface



Summary

Aviation Weather Information

- **Series of experiments addressing**
 - Integrated information presentation
 - Team decision making
- **for transport airplanes**
- **Culminating in evaluation in flight environment**