
***Making Aviation Safer: Results of the
National Aviation Weather Program's
10-Year Goal to Reduce Weather-
Related Accidents by 80 Percent***



***Friends/Partners of
Aviation Weather***

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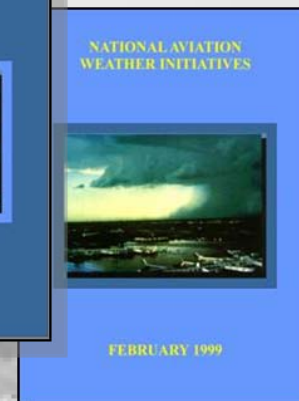
Overview

- Background
- Mid-Course Assessment
- Final Assessment
 - FAR Definitions
 - Hazard Categories
 - Ten-year Trends
 - By Hazard Category
- Way Ahead

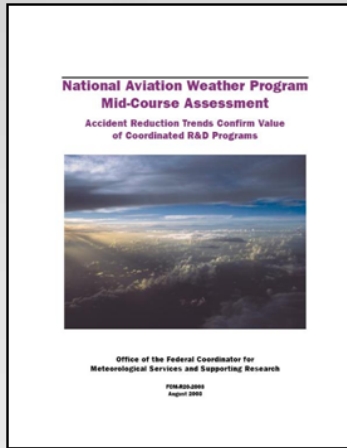


Background

- NRC – *Aviation Weather Services – A Call for Federal Leadership and Action* – 1995
- White House Commission on Aviation Safety and Security – 1997
 - Goal: Reduce fatal accidents by 80% in 10 years
- National Aviation Weather Program (NAWP) *Strategic Plan* – 1997
- NAWP *Initiatives* – 1999
- *Programs/Projects*
 - Baseline – 2001
 - Update – 2003
 - Update – 2004



Mid-Course Assessment - 2003



- Included accident data 1996-2001
- Established trends for all weather-related and fatal weather-related accidents
- Reviewed status of programs/projects in context of accident trends
- Conclusions & Recommendations

Significant progress toward 10-year goal!

Focus areas to move forward

- Sustaining risk reduction success in general aviation
 - Further analysis into impact of weather hazards on smaller commercial carriers
 - Reducing risk from turbulence and convection hazards
 - Reducing risk from high density altitude
 - Sustaining investment in programs/projects for near-term improvements
 - Sustaining investment in R&D to continue longer-term improvements
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Final Assessment

- **Received final NTSB accident data through 2006 in Spring 2008**
 - **Analysis of the full ten years using same approach used in the Mid-Course Assessment**
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Final Assessment

Categories of aviation operations were considered separately:

- **Part 91:** All aviation other than military or commercial
 - **Part 121:** Major passenger airlines and cargo carriers that fly large transport-category aircraft in revenue service
 - **Part 135:** Scheduled passenger service in aircraft with fewer than ten seats and nonscheduled operations—revenue-earning flights in which the departure time, departure location and destination are negotiated with the customer
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Final Assessment

Hazard Categories:

- **Restricted Visibility and Ceiling (7)**
 - **Precipitation (non-icing) (3)**
 - **Icing Conditions (4)**
 - **Turbulence and Convection (17)**
 - **Temperature and Lift (6)**
 - **En Route and Terminal Winds (4)**
 - **Electrical (2)**
 - **Airborne solids (2)**
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Accident Trends

Significant progress in meeting the 10-year accident reduction goal

RATE TRENDS

Wx-related

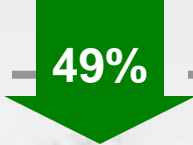
All causes

Part 91:

All



Fatal



Part 121:

All



Part 135

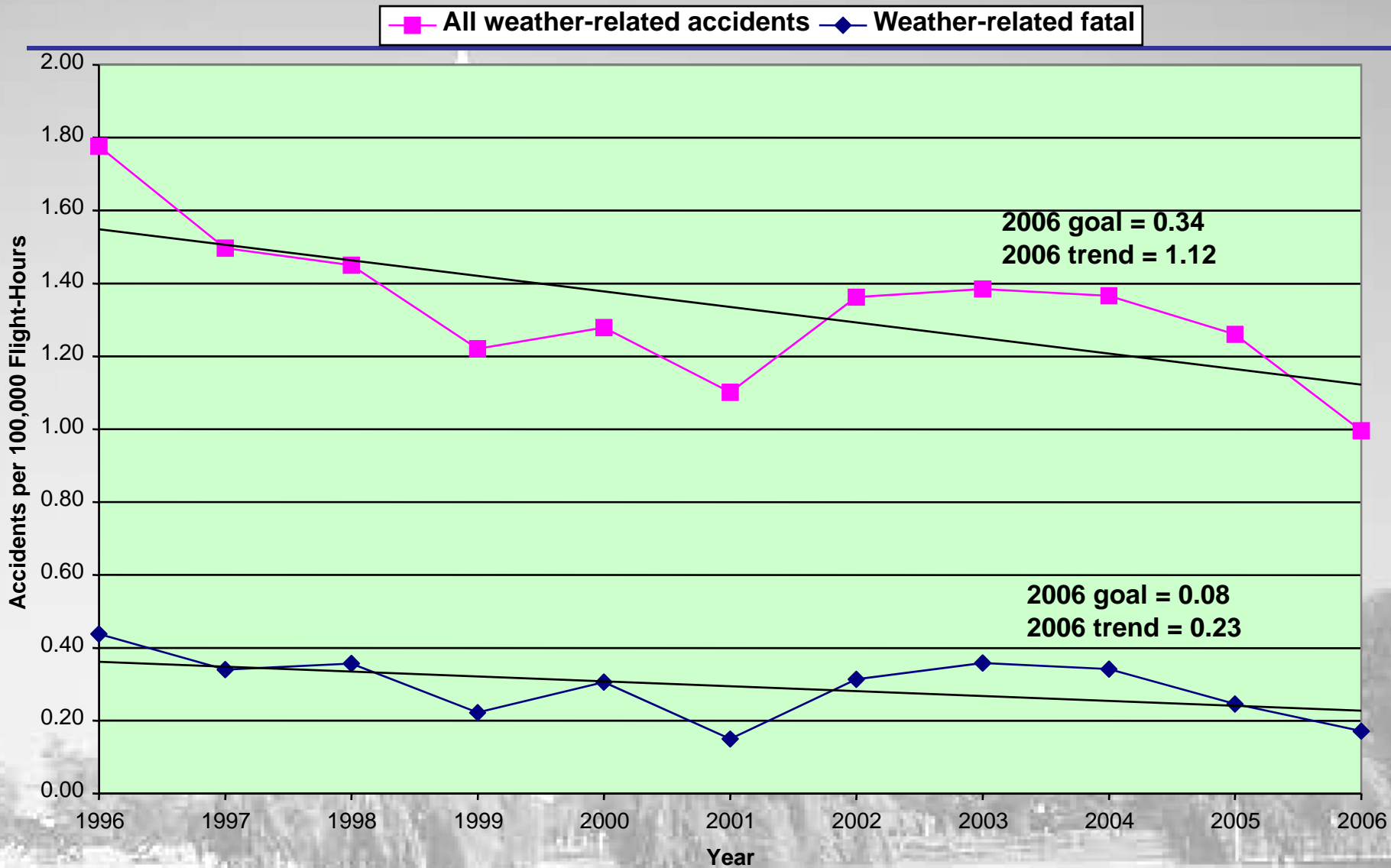
All



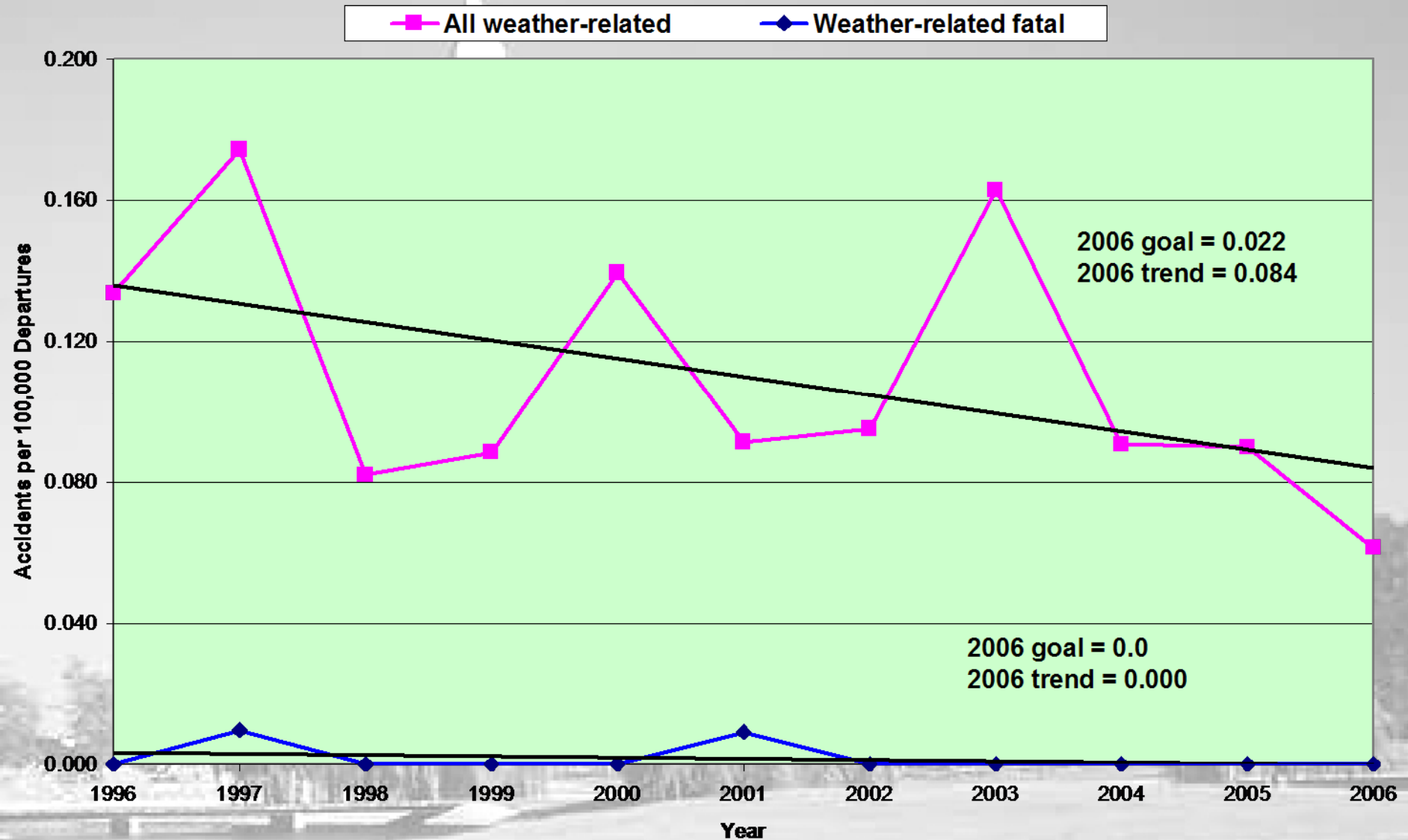
Fatal



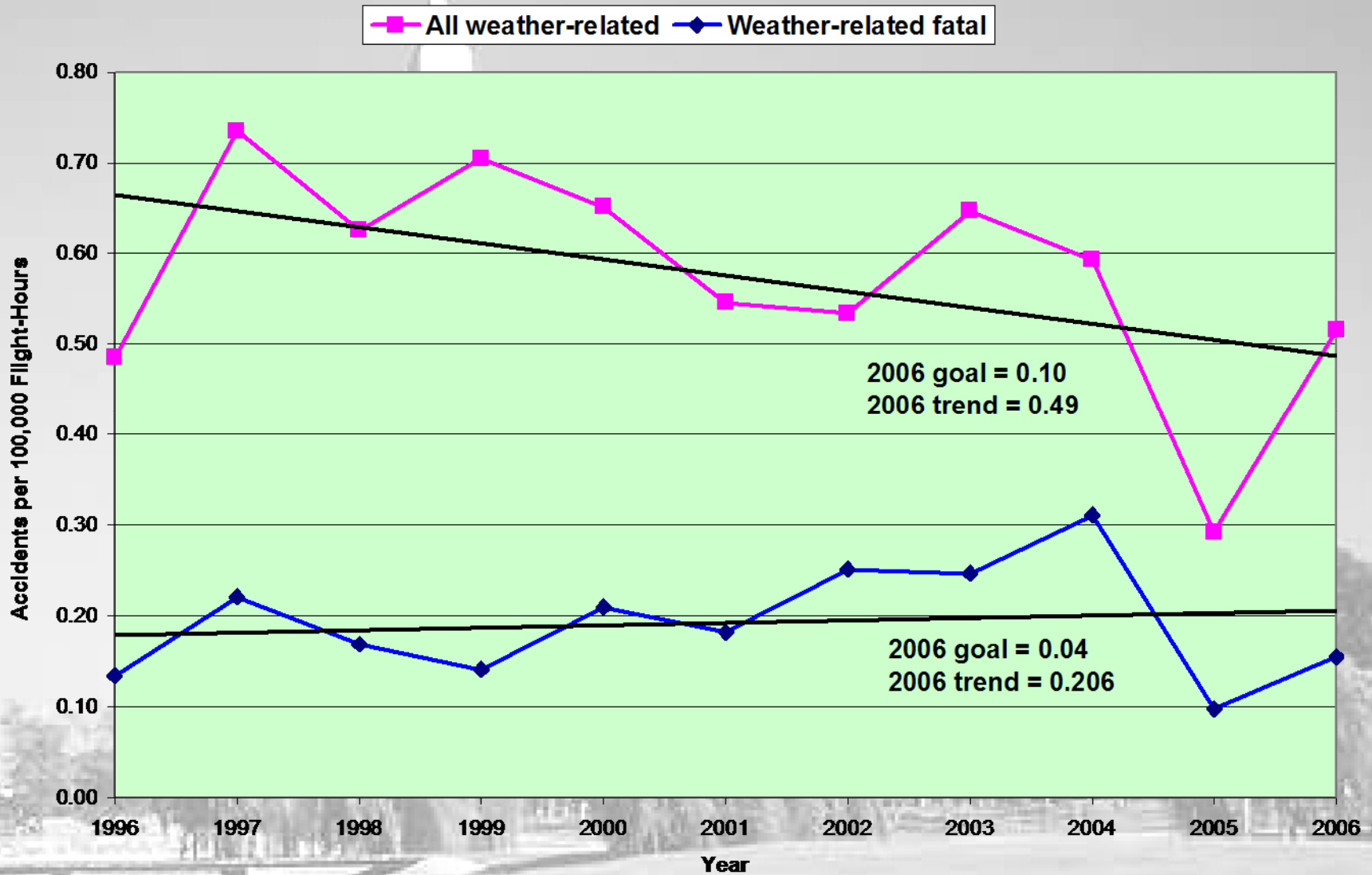
Part 91 Aviation, Weather-Related Accidents per 100,000 Flight-Hours



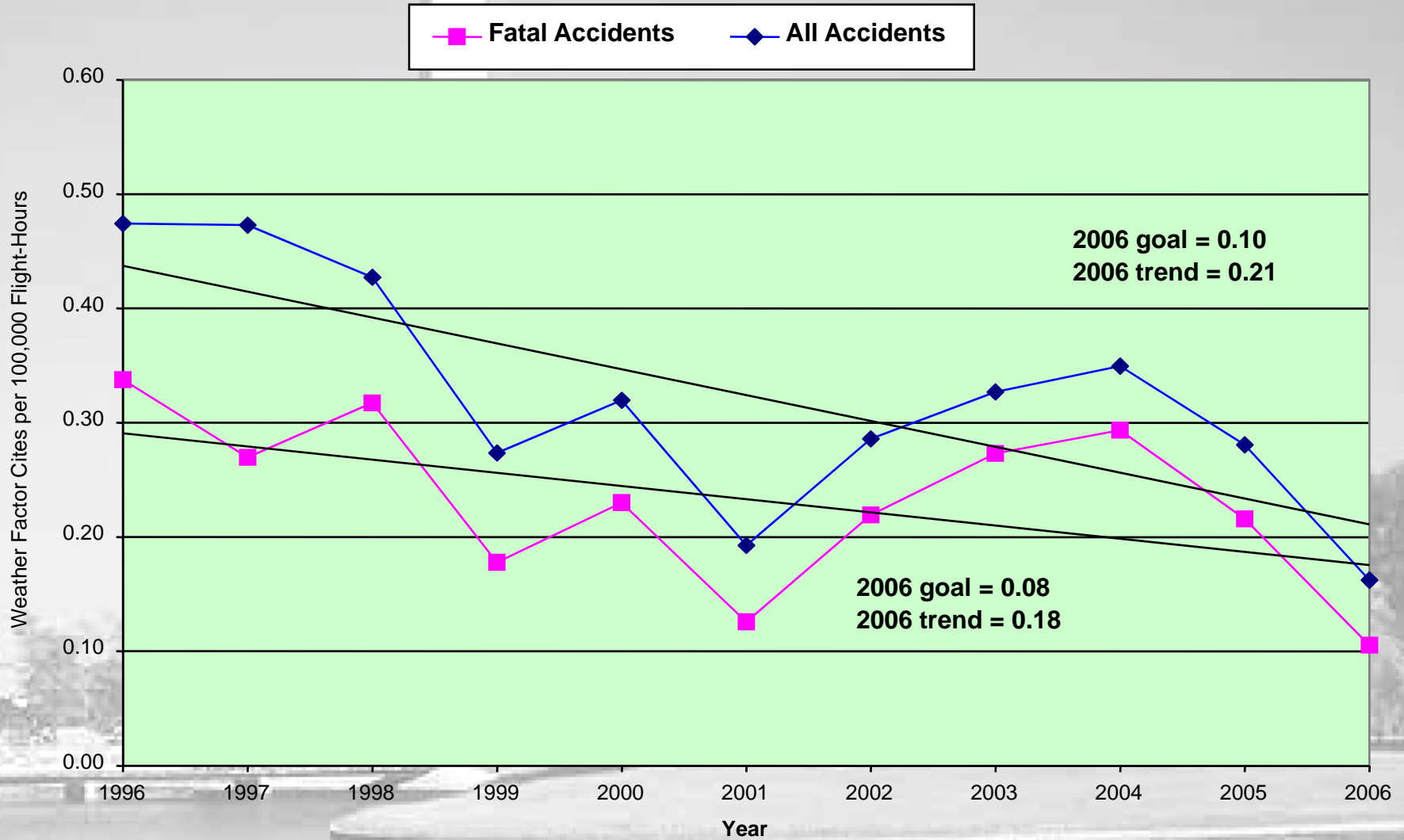
Part 121 Aviation, Weather-related Accidents per 100,000 Departures



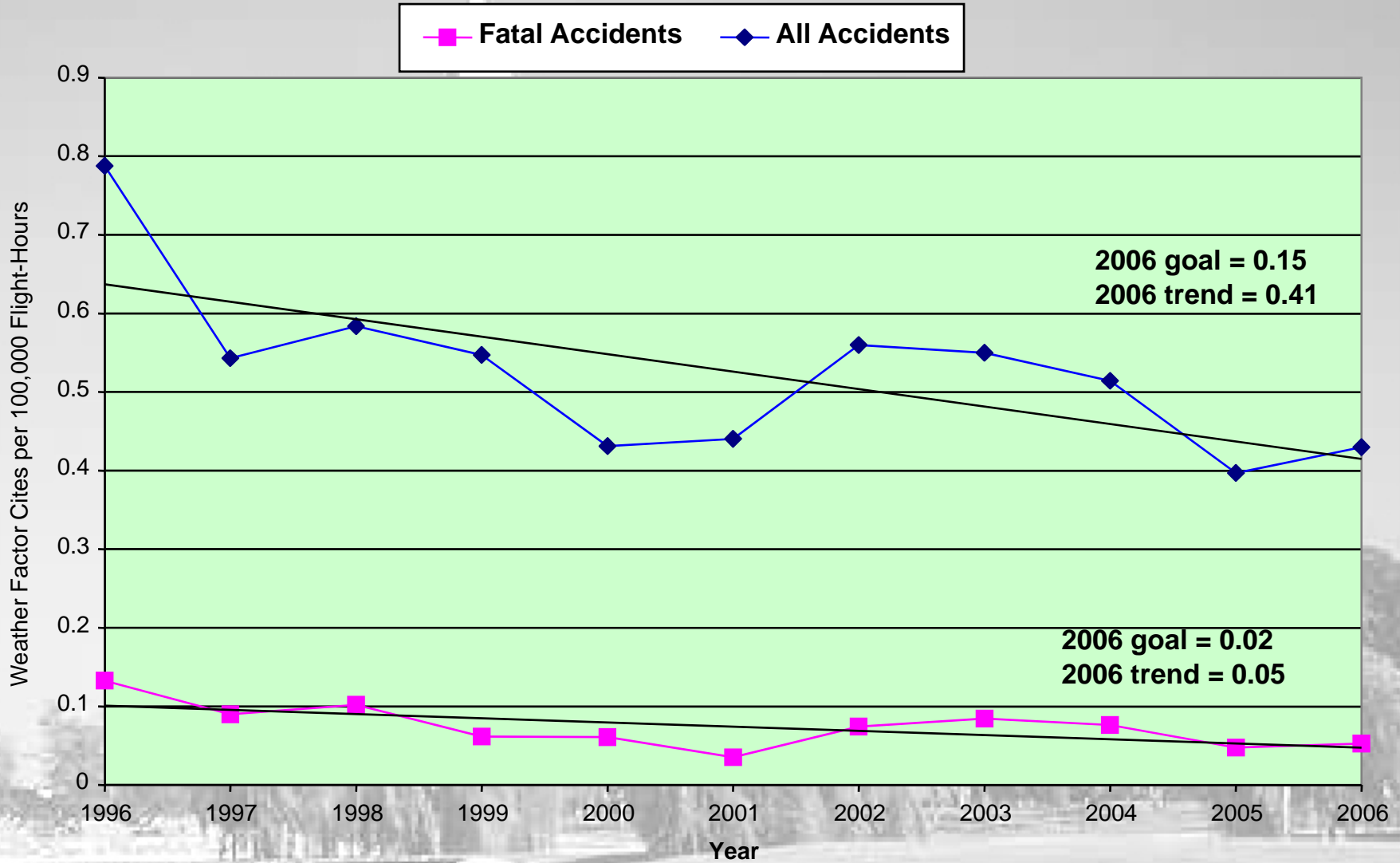
Part 135 Aviation, Weather-Related Accidents per 100,000 Flight-Hours



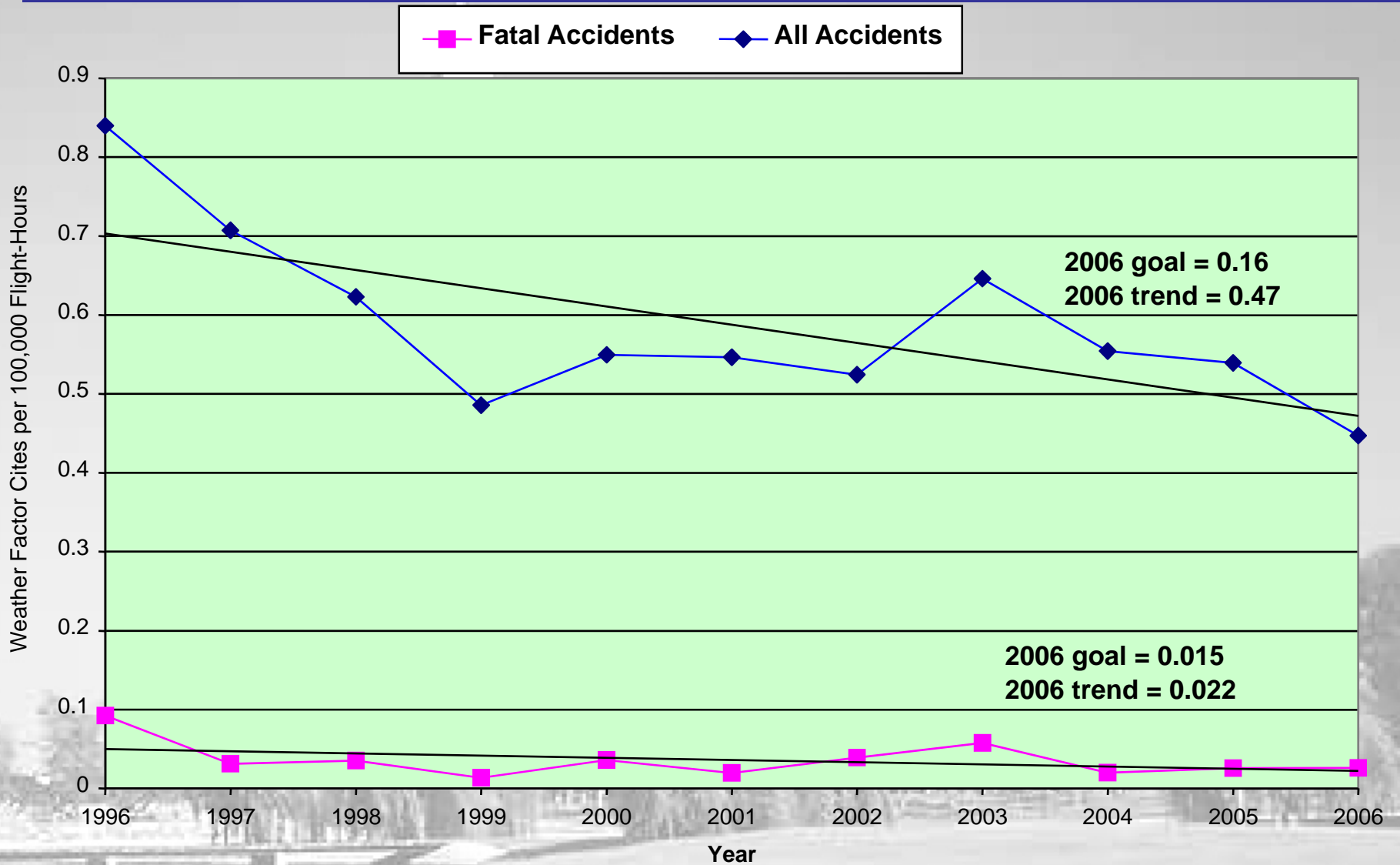
Part 91, Trend for Category A, Restricted Visibility and Ceiling Hazards



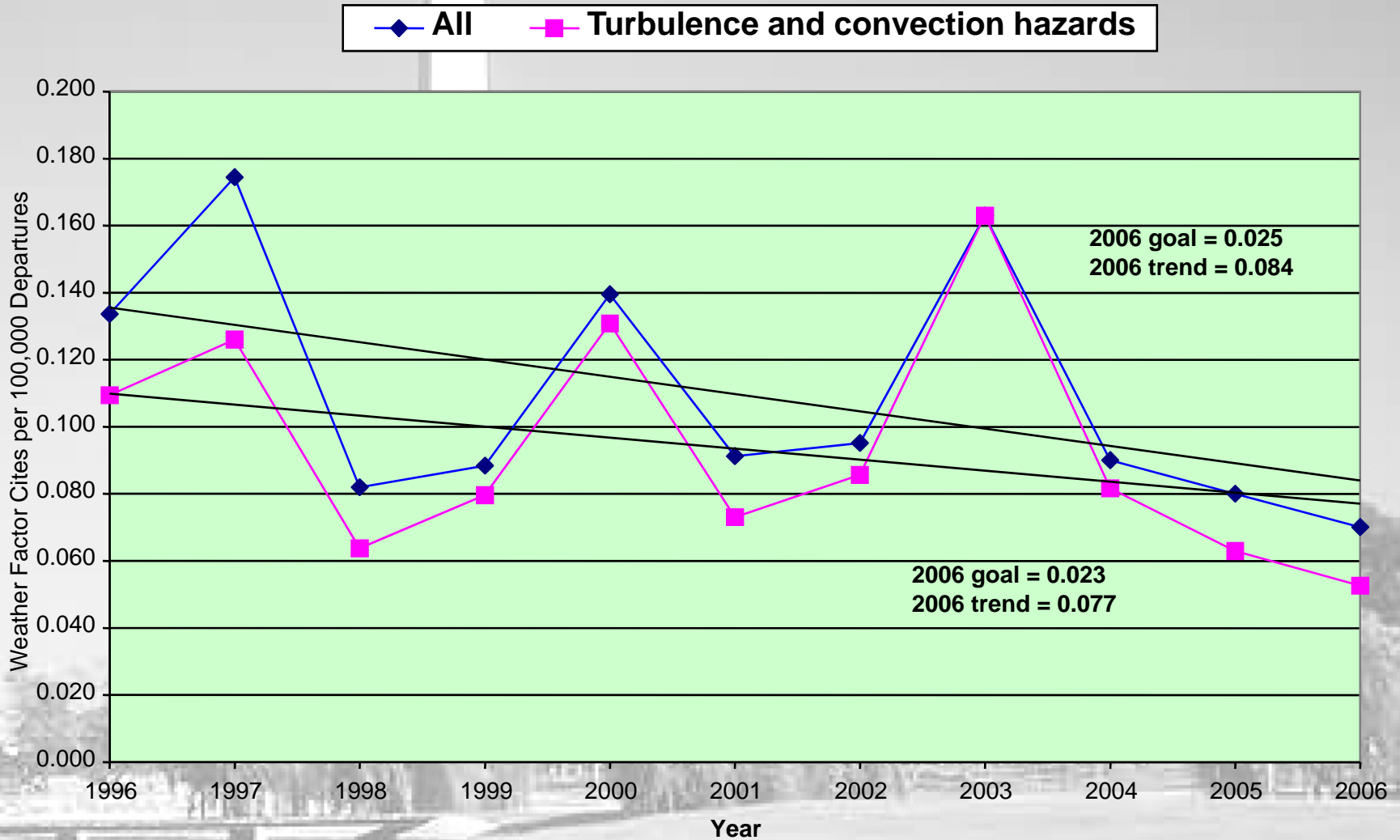
Part 91, Trend for Category D, Turbulence and Convection Hazards



Part 91, Trend for Category F, En Route and Terminal Winds



Part 121: Trends for all weather hazards and for turbulence & convection hazards



The Way Ahead

Objective: Sustain progress to date, remove barriers to reducing accident rates further, and provide an effective system for NextGen transition.

- **Continue to collect and analyze annual data**
- **Investigate timing and potential effectiveness of programs/projects in light of trends (including those completed before 1997)**
- **Consider continuing to identify and track programs/projects**

BACKUP SLIDES

NTSB Factors and Weather Categories

Restricted visibility and ceiling:

- Below approach/landing mins
- Clouds
- Fog
- Haze/smoke
- Low ceiling
- Obscuration
- Whiteout

Precipitation (non-icing):

- Rain
- Snow
- Drizzle/mist

Icing conditions:

- Icing conditions
- Ice fog
- Freezing rain
- Carburetor icing

Turbulence and convection:

- Turbulence (thunderstorm)
 - Thunderstorm
 - Thunderstorm outflow
 - Microburst (dry)
 - Microburst (wet)
 - Updraft
 - Downdraft
 - Gusts
 - Wind shear
 - Dust Devil/Whirlwind
 - Variable wind
 - Sudden wind shift
 - Mountain Wave
 - Turbulence
 - Turbulence, clear air
 - Turbulence in clouds
 - Turbulence (terrain induced)
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Temperature and lift:

- Temperature inversion
- High density altitude
- Temperature, high
- Temperature, low
- Thermal lift
- No thermal lift

En route and terminal winds:

- Unfavorable wind
- Crosswind
- Tail wind
- High wind

Electrical:

- Lightning
- Static discharge

Airborne solids:

- Sand/dust storm
 - Hail
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National Aviation Weather Program

1997

1998

1999

2000

2001

2002

2003

2004

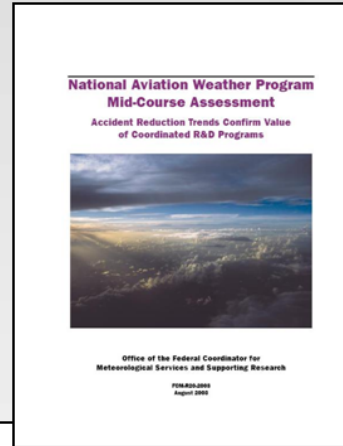
Strat Plan



User Forum



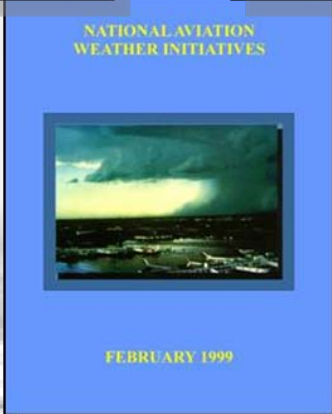
Mid-Course Assessment



Programs & Projects Update



NATIONAL AVIATION WEATHER INITIATIVES



Initiatives

OFCM

Aviation Weather Training



Training

OFCM

PROCEEDINGS OF THE 2nd International Conference on Volcanic Ash and Aviation Safety



Volc Ash Conference