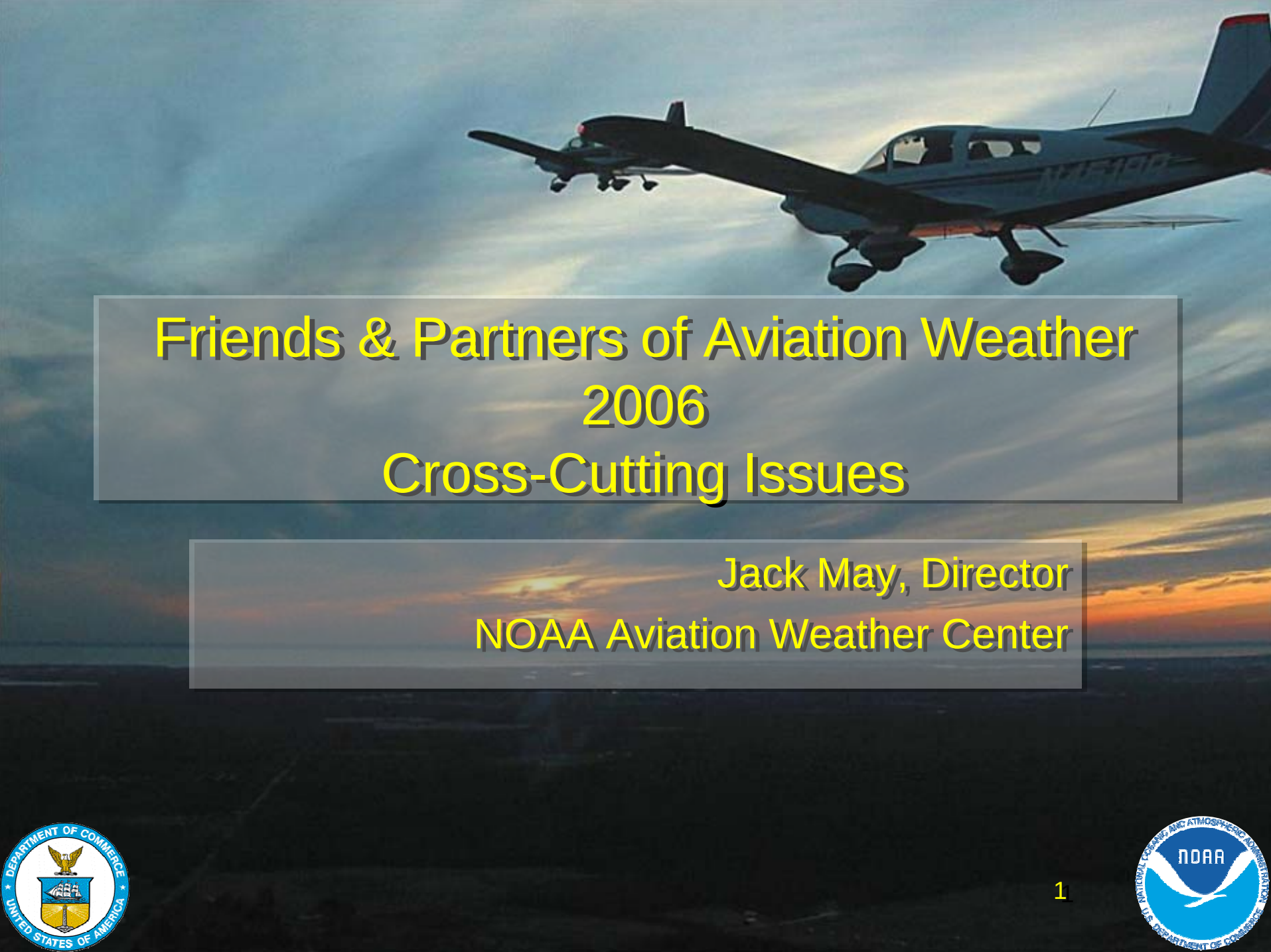


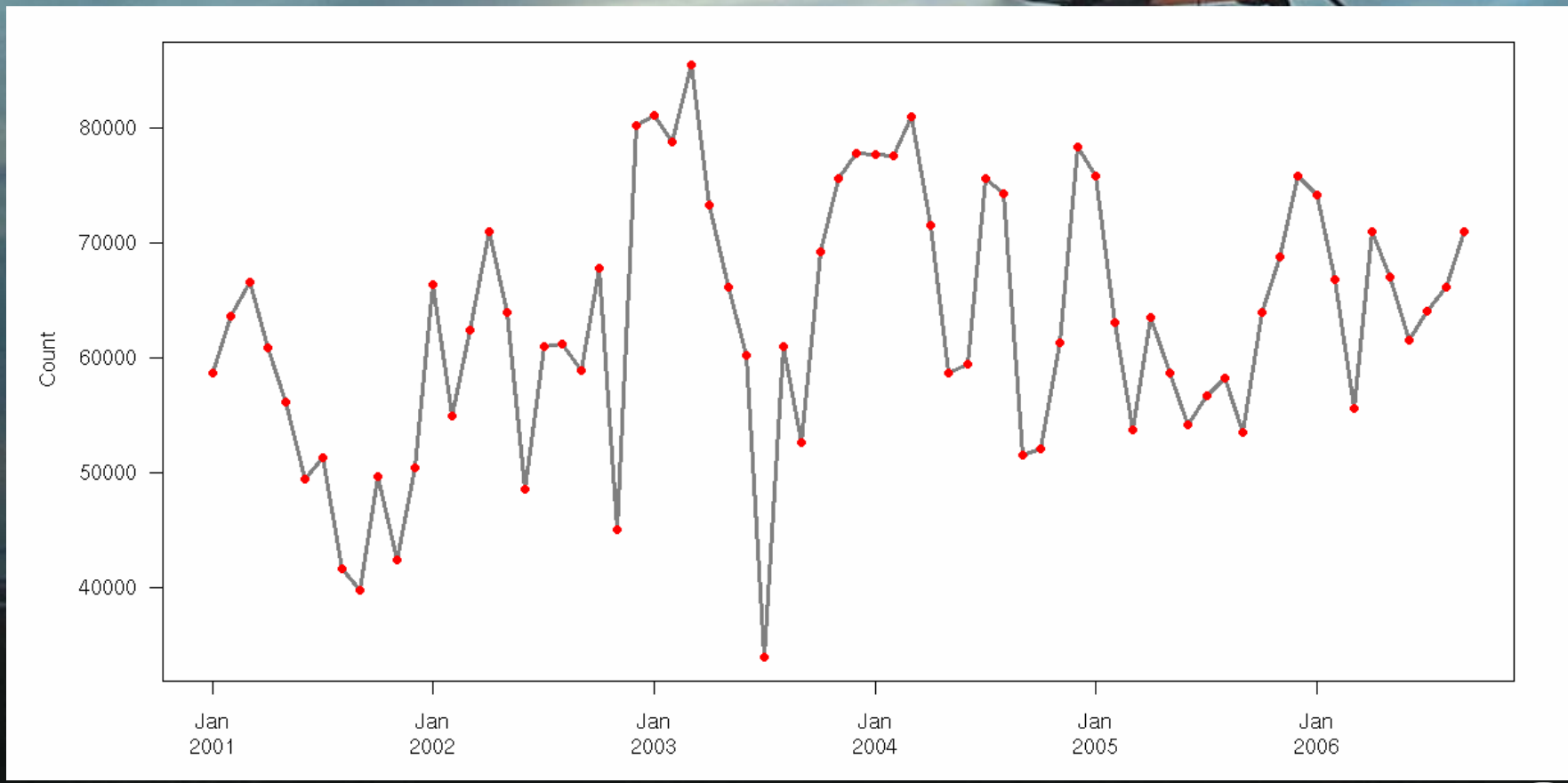
Friends & Partners of Aviation Weather 2006
Cross-Cutting Issues

Jack May, Director
NOAA Aviation Weather Center

Pilot Reports

- Three Efforts
  - AOPA's SkySpotter
  - AWC's Airline Dispatcher Web Interface
  - FAA Emphasis

Pilot Reports since January 2001



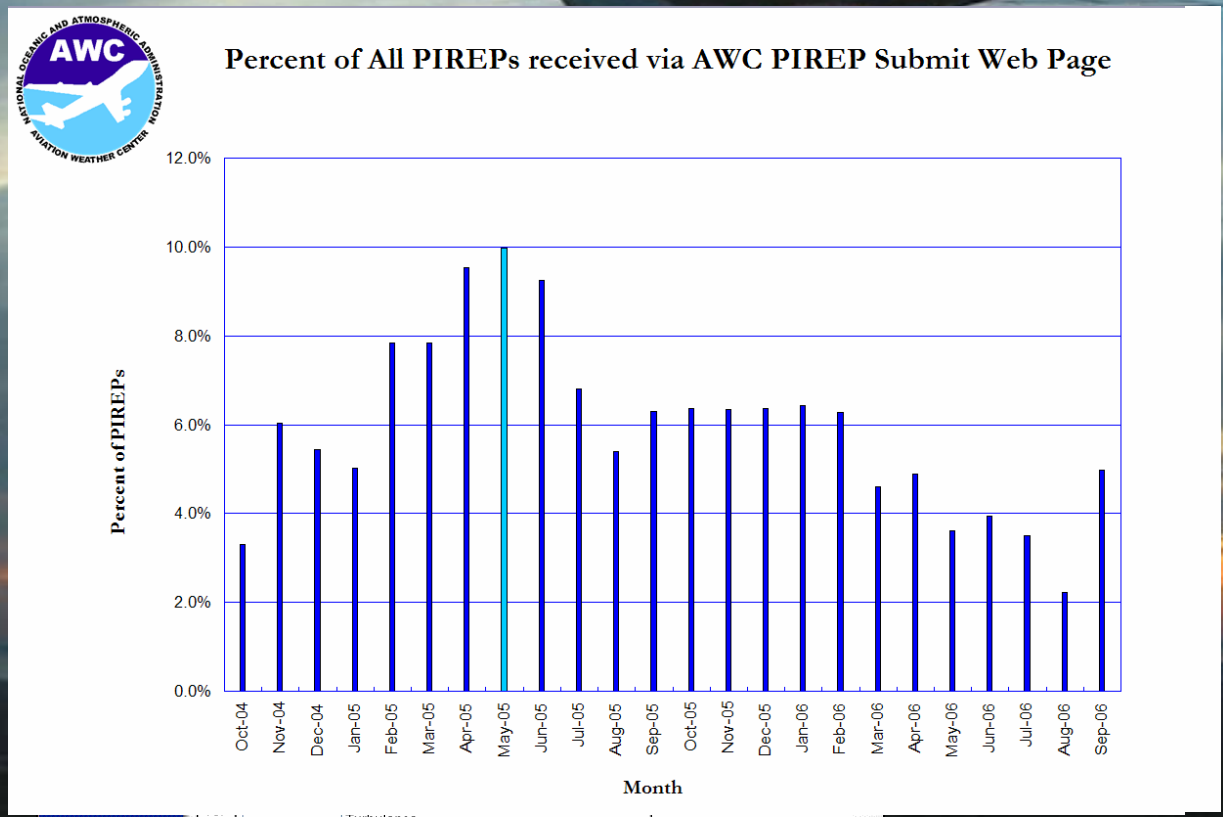
Thanks, Jennifer Mahoney and Mike Kay of NOAA GSD

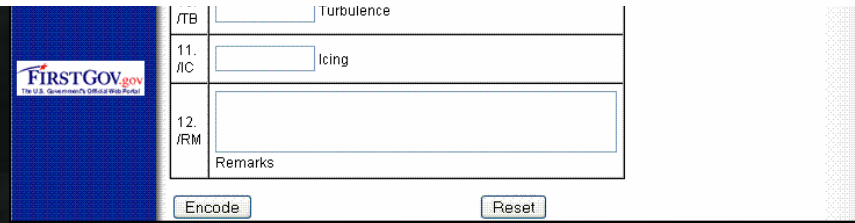
Pilot Reports -- SkySpotter

- Difficult to measure impact.
  - Briefers to ADD ‘AWC’ to PIREP remarks
  - Not sure of consistency of reporting.
  - Number of SkySpotter reports difficult to determine.

Pilot Reports – AWC Dispatcher Web Interface

- Peak of 3,124 May ’05
- More than 80% from Southwest Airlines and Alaska Airlines in last 12 months
- Represents about 6% of all PIREPs received.





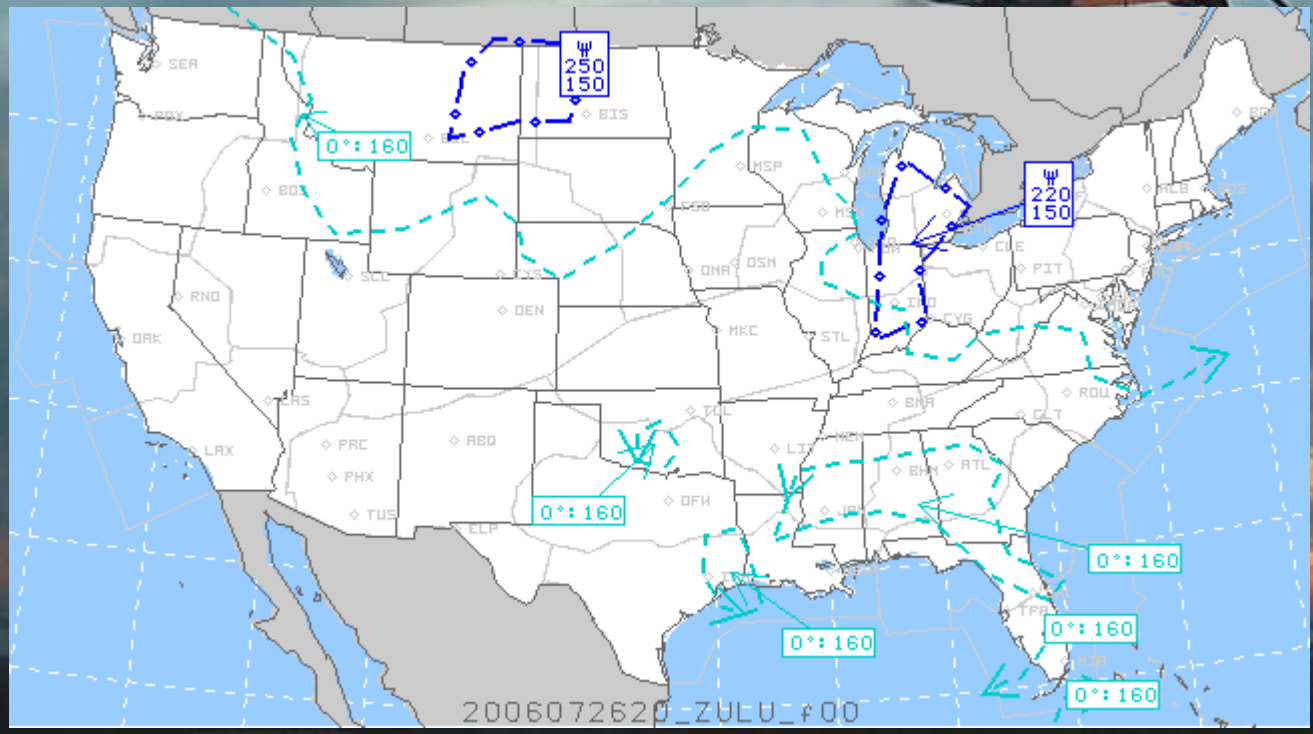
Pilot Reports from ARTCCs

- Today primarily entered by CWSU meteorologists
- Enroute Information Display System (ERIDS) will become operational soon. Allows controller to generate a PIREP using a touch screen located at the sector.

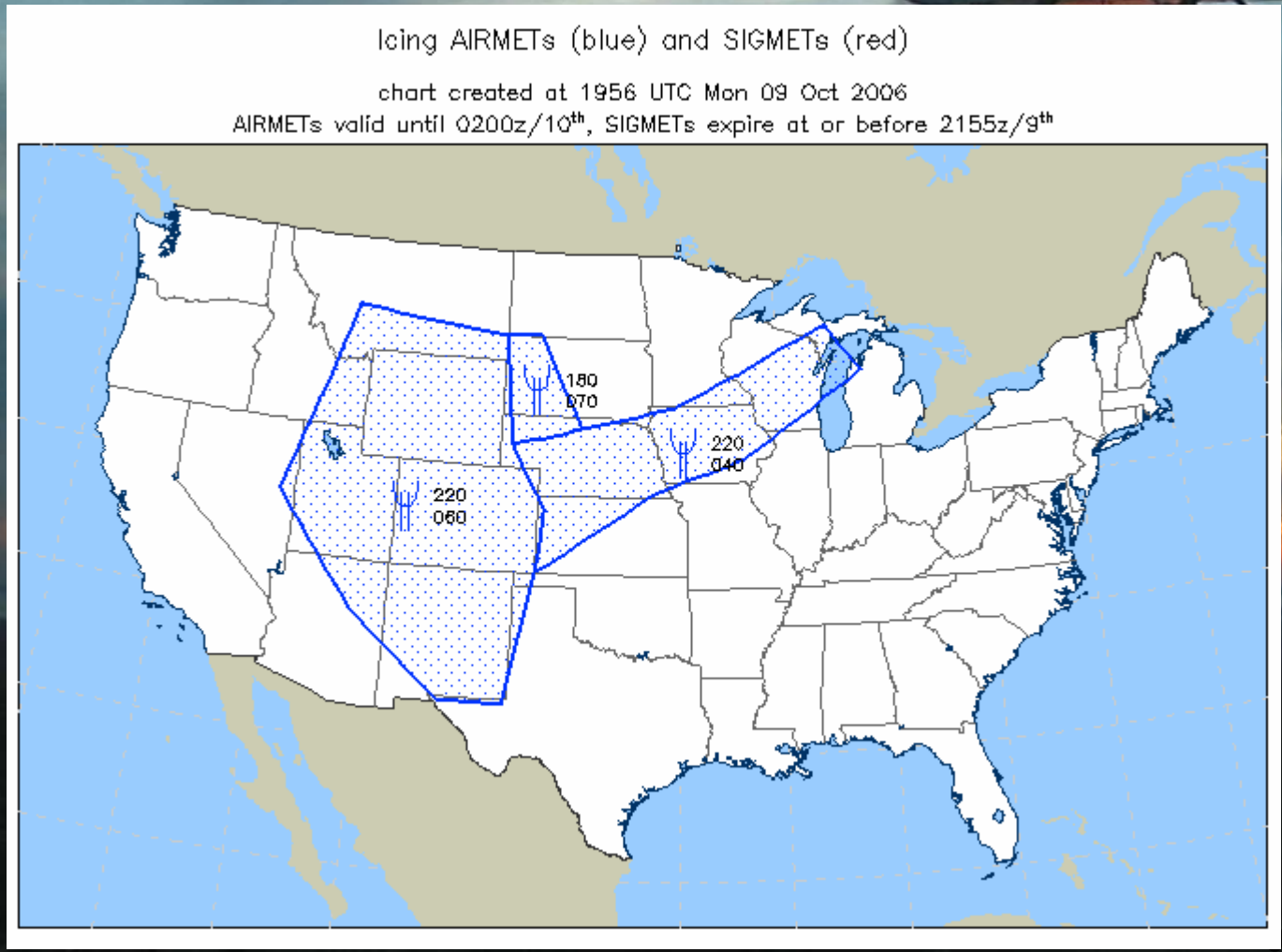
Pilot Reports --FAA Emphasis on *in situ*

- FAA strategy is to promote auto, *in situ* observations in lieu of manual PIREPS.
- NCAR research receives One million *in situ* reports per month from one airline's 757 fleet.
  - In 2005 757 & 737 reports from 100 aircraft = 26,195,772
  - In 2007, SWA comes on line with 400 aircraft
- TAMDAR
  - 11.7M observations since 1/15/05
  - When complete 55M annually
- NWS Support to MDCRS (getting numbers)

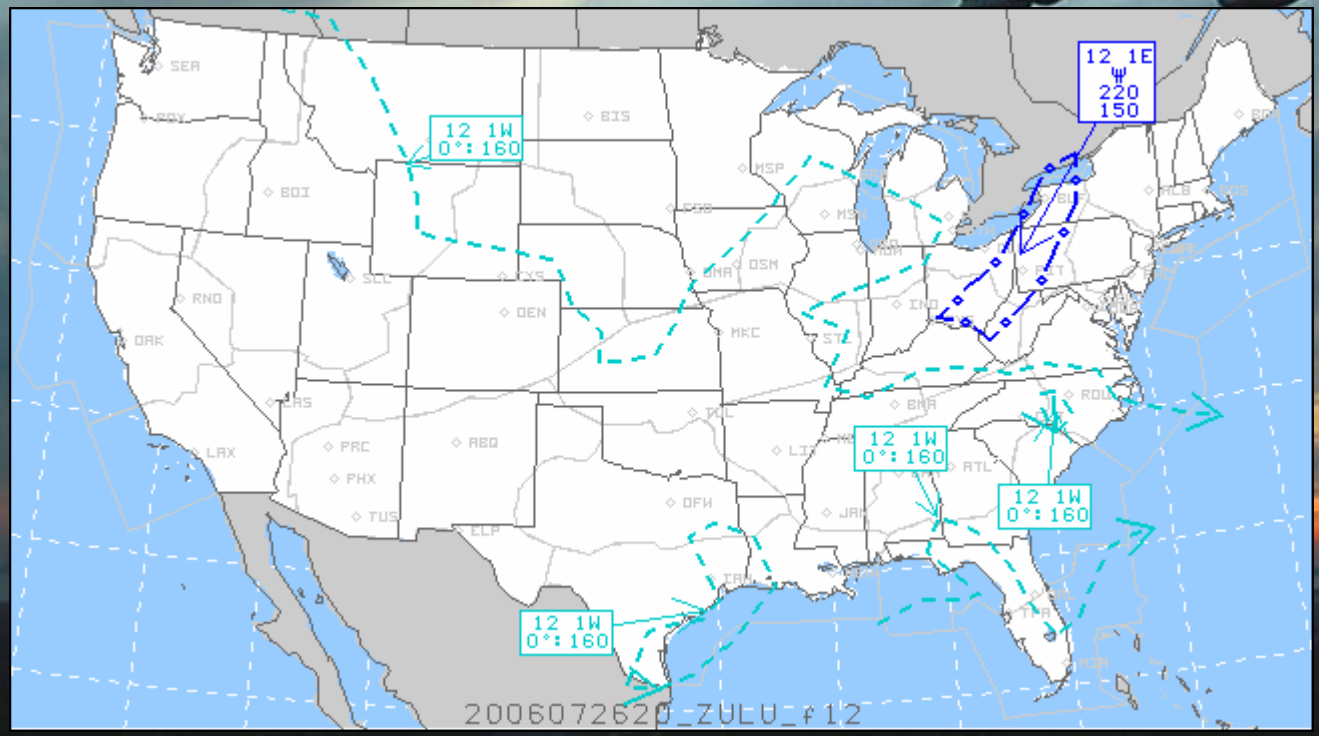
Graphical Forecasts for Aviation – An Update



Today's AIRMETs
Six Hour Time Smear



Example of 3-hourly G-AIRMET Moderate Icing and Freezing Levels



Graphical AIRMETs
How do they differ?

- Text AIRMETs
  - Six hour time smears plus outlook over six hours.
  - Graphics obtained from text
  - Resolution restricted by text requirements

- Graphical AIRMETs
  - Minimum of Five snapshots in time over 12 hours.
  - Text obtained from Graphics
  - Horizontal Resolution limited by points of a polygon.
  - Vertical Resolution limited by flat tops and bottoms.

GFA Timeline

- Today: AWC producing six hour text template from six hour smears (introduce forecasters to graphic production).
- Nov ’06
  - Graphical Six Hour Smears (0-6, 6-12) on workstations
  - Graphics to text formatters employed
  - Changes to AIRMET text format (standardization)
- Feb ’07
  - Production of 3 hour snapshots (experimental). On http://weather.aero
  - BUFR (Graphics) to text formatters employed
- Oct ’07
  - BUFR (Graphics) D4 Supplemental
- Oct ’08
  - BUFR (Graphics) D4 Primary

Improved Forecast & Observation Updating

- User-Driven TAF Changes
  - Eliminated BECMG Group
  - Eliminated PROB30 in first 9 hours (overuse)
  - TEMPO used no more than 4 hours (overuse)
  - Recommend TAF used with other products
- Improving Forecast Process
  - Ongoing forecaster education
    - User needs emphasis
  - Aviation Forecast Discussion
- Working on TAF Feedback metric for users
  - e.g., lead time metric for operationally significant events.

Pilot Education

- AC 00-45E Aviation Weather Services
  - Last issued in 1999.
  - AC 00-45F in draft form. Goal Some time in FY07.
  - Addresses the new products & displays
  - On-line. Updated regularly.
- ADDS Help Pages Updated as new products emerge.
- NWS Support
  - $30K annually) to AOPA/Air Safety Foundation online pilot training program Weather Wise.

National Weather Service & AOPA/Air Safety Foundation

SAFETY ADVISOR

Weather No. 4

Thunderstorms and ATC

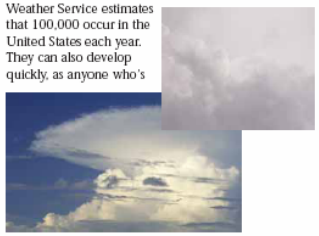
Every year, a number of unfortunate aviators get an up-close-and-personal tour of the inside of a thunderstorm, and many pay for the experience with their lives. In 2004, nearly 25 percent of all fatal weather-related accidents involved encounters with thunderstorms. Amazingly, in all those accidents, the pilots flew into extreme conditions *despite being in contact with Air Traffic Control (ATC)*.

ATC weather radar can be an invaluable resource for pilots seeking to avoid convective activity. But in order to take advantage of ATC thunderstorm avoidance services, pilots need to have a solid understanding of not only what information is available, but also the limitations of that information and the circumstances under which it's provided. In this Safety Advisor, we'll take a closer look at ATC weather radar services, as well as strategies for dealing with some of nature's most violent storms.

Of all the threats that weather can pose to light aircraft, few are more dangerous than thunderstorms.

The Threat

Thunderstorms are dangerous for several reasons. For one thing, as compared to other violent weather phenomena, they're quite common: The National Weather Service estimates that 100,000 occur in the United States each year. They can also develop quickly, as anyone who's

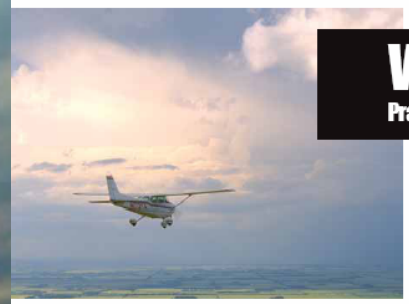


Thunderstorms aren't always easy to spot. They can hide in haze or large cloud banks.

Zoom Out

SAFETY ADVISOR

Weather No. 3



WeatherWise

Practical Tips and Tactical Tricks

Weather is the most critical and complex variable that affects your flying. But you don't have to be a meteorologist to understand what makes weather, and use that understanding to help make sound flight decisions. This is what being weather wise is all about—the ability to integrate official reports and forecasts with what you can see outside to cope with changing flight conditions in the real world. Wouldn't you like to be *WeatherWise*?

The moment a person says, "I'm going to learn to fly," that person needs to add, "and I'll learn weather, too." Flying and weather should be thought of as one skill, one art, never separated.

—Captain Robert N. Buck, "Weather Flying"

Fronts

Fearsome weather often occurs when different air-masses—that is, large areas of air with similar properties of temperature, pressure, humidity and stability—collide. The collision line is called a front. The four basic types of fronts are:

Cold Front
Cooler air is pushing warmer air out of the way. If you're looking for violent weather, you're more likely to find it along a cold front than a warm front.

Warm Front
Warmer air is slowly displacing cooler air. Though less severe than a cold front, warm fronts frequently cause low ceilings and visibilities.

Stationary Front
Occurs where two airmasses meet, but neither is displacing the other. These fronts can exhibit characteristics of a warm front, cold front, or both.

Occluded Front
Occurs when a cold airmass overtakes a warm airmass, so that the leading edge of both occupies the same location. Occluded fronts occasionally have severe weather.