



National Air Traffic
Controllers Association

We Guide You Home

NBAA Weather Panel

Orlando, Florida

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National Air Traffic Controllers
Association

1325 Massachusetts Ave NW

Washington, DC 20005

ATC DUTY PRIORITY

- a. Give first priority to separating aircraft and issuing safety alerts as required
- b. Provide support to national security and homeland defense activities
- c. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.



ATC SERVICE

...The provision of additional services (includes weather advisories) is not optional on the part of the controller, but rather is required when the work situation permits...



ATC Requirements

- Issue pertinent information on observed or reported weather.
- Provide radar navigational guidance and/or approve deviations around weather or chaff areas when requested by the pilot.
- Issue the level of echo intensity when that information is available.
- When a deviation cannot be approved as requested and the situation permits, suggest an alternative course of action.



Important Things to Remember

- Any additional service, such as weather avoidance assistance, can only be provided to the extent that it does not take away from ATC's primary function of providing safe separation between aircraft.
- To a large degree, the assistance that might be rendered by ATC will depend upon the weather information available to controllers. Due to the extremely transitory nature of severe weather situations, the controller's weather information may be of only limited value if based on weather observed on radar only.
- Frequent updates by pilots giving specific information as to the area affected, altitudes, intensity and nature of the severe weather can be of considerable value.



Keys to Dealing With ATC

- Controllers want YOU to avoid weather
- Do not assume ATC will automatically keep you clear of weather
 - Depending on aircraft type, controller may assume you have weather radar
- Ask EACH controller about weather avoidance services



ATC Terms & Phraseology

- "Precipitation" - used to describe radar derived weather information
 - LIGHT, MODERATE, HEAVY, EXTREME
 - ENROUTE – MODERATE, HEAVY, EXTREME
- *"Heavy to Extreme precipitation between ten o'clock and two o'clock, one five miles. Precipitation area is two five miles in diameter."*



ATC Terms & Phraseology

Correct Phraseology:

- *“Deviation approved, up to 15 degrees right of course, advise when able to proceed direct XXX.”*

Phraseology that you often hear:

- *“Deviation approved, up to 15 degrees right of course, proceed direct XXX when able or when clear of the weather.”*

“Direct when able” trap:

- Controller gives *“proceed direct XXX when able”* or *“when clear of the weather”*, and pilot assumes they are clear of the weather.



Thunderstorms

- Turbulence
- Hail
- Rain
- Snow
- Lightning
- Sustained updrafts/downdrafts
- Icing



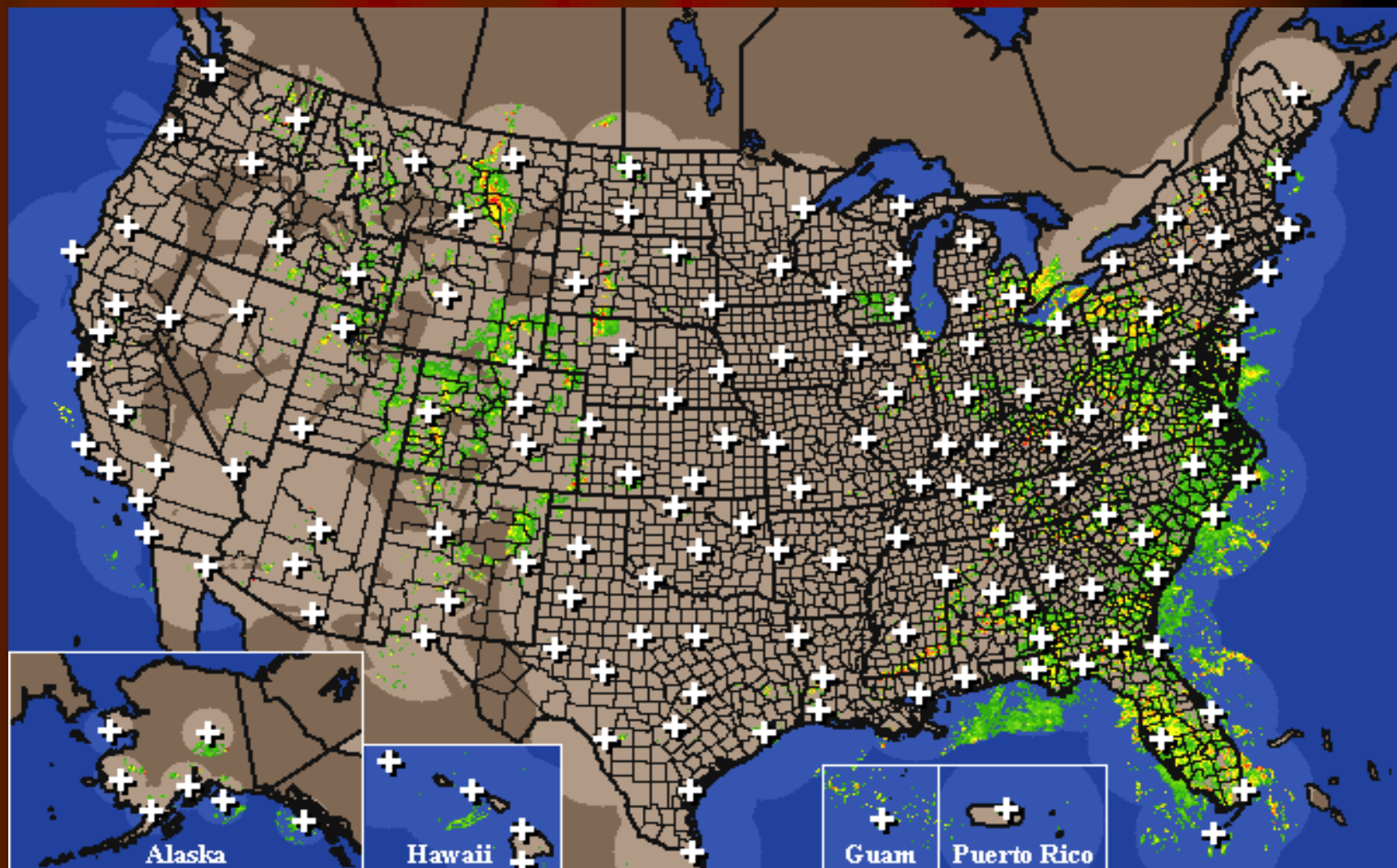
ATC and NEXRAD

NEXRAD available to ATC, but....

- Different adaptation schemes
 - Major terminals integrate NEXRAD –more colors than centers
 - Centers integrate NEXRAD – three colors
- Flight Service Stations use NEXRAD, but use pilot reports for position and planned route



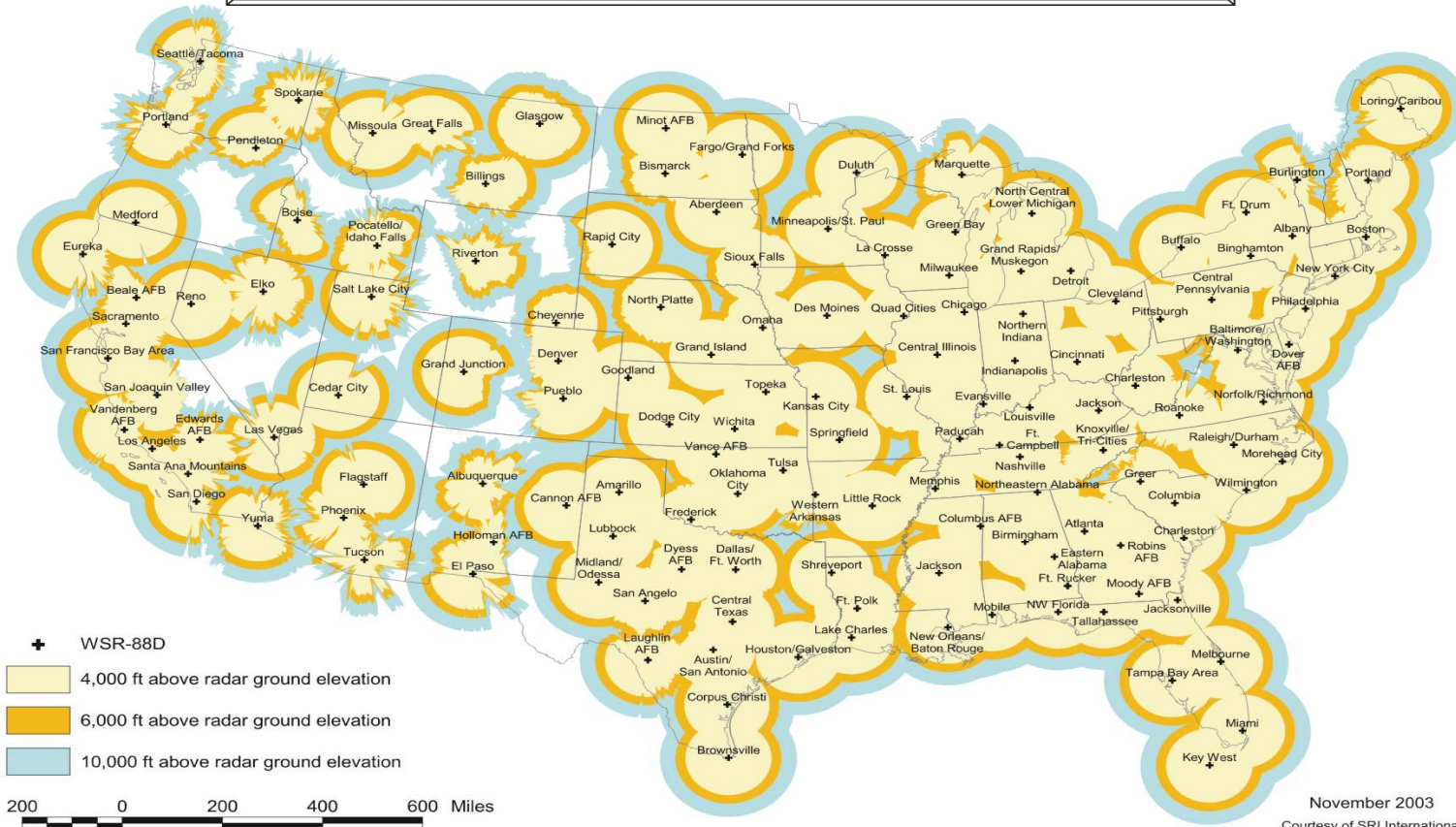
NEXRAD Sites



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CONUS NEXRAD Coverage

**COMPOSITE CONUS NEXRAD/WSR-88D COVERAGE
AT 4,000, 6,000, AND 10,000 ft ABOVE RADAR GROUND ELEVATION**

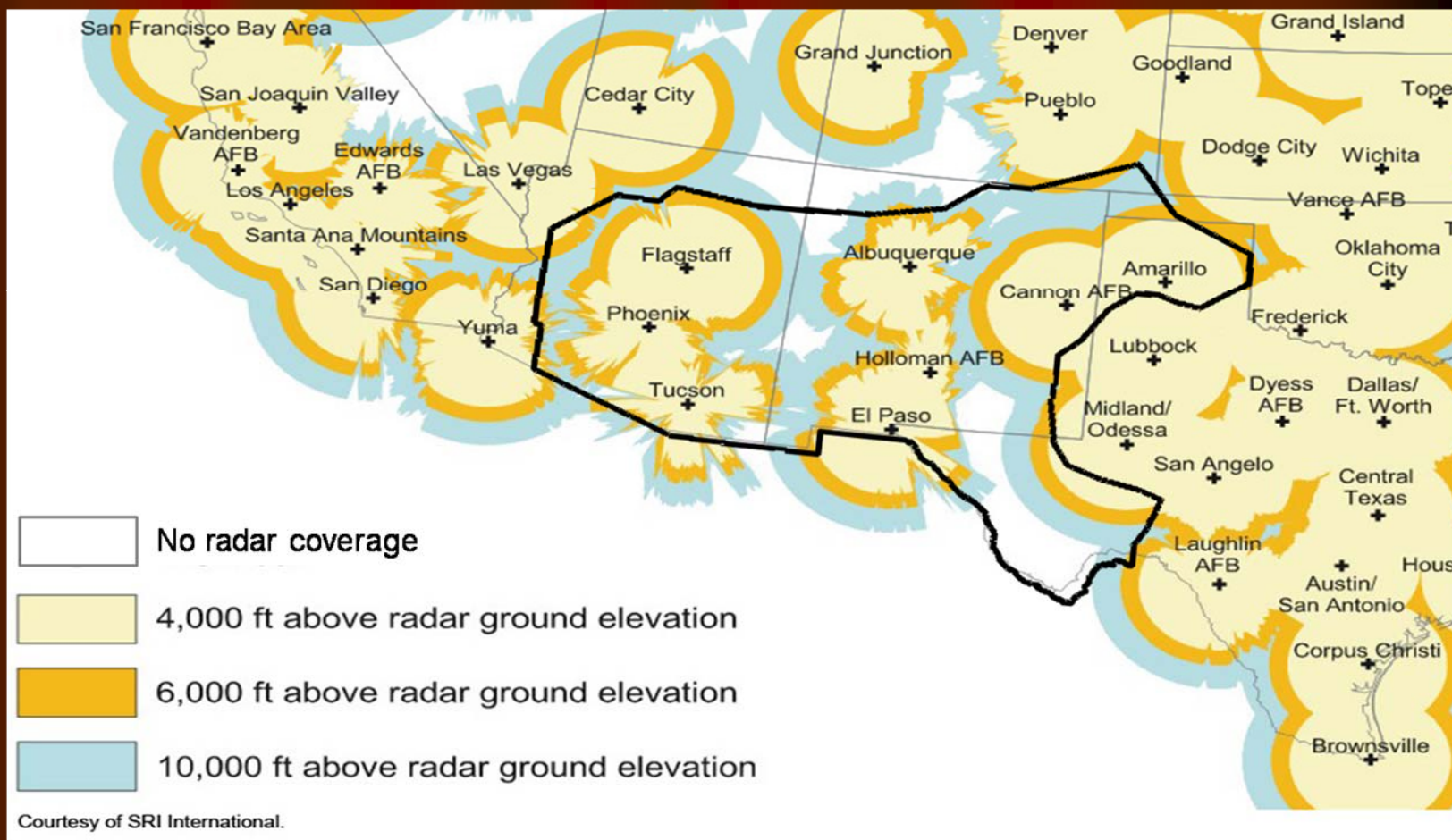




NWS Weather Radar Coverage



During thunderstorm season it is important to know where the National Weather Service Weather Radar has significant gaps in coverage. High terrain blocks the accurate depiction of thunderstorms in ZAB airspace. Gaps in radar coverage necessitate greater reliance on pilot reports of convective activity. The areas of degraded coverage are shown below.



ATC Weather Displays

- Only show precipitation
- Weather updates are 5 to 8 minutes old
- Approach control displays
 - STARS is digital – NEXRAD is integrated
 - Old CRT's with primary WX
- Center display
 - DSR is digital – NEXRAD is integrated



ENROUTE WX Display

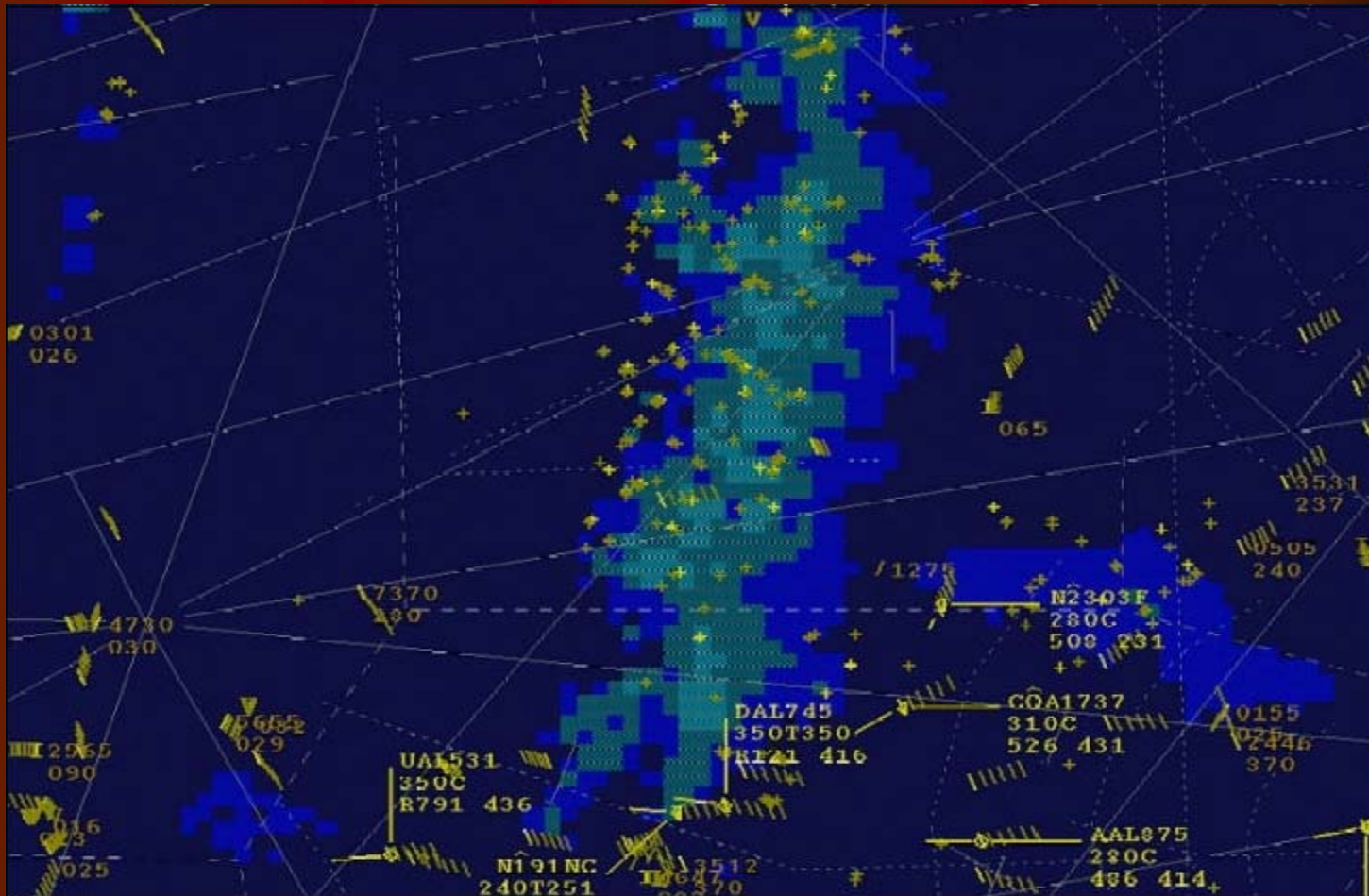


Figure 1: An FAA Air Traffic Controller's Display System Replacement (DSR) with three-color precipitation displayed.



Terminal WX Display (STARS)

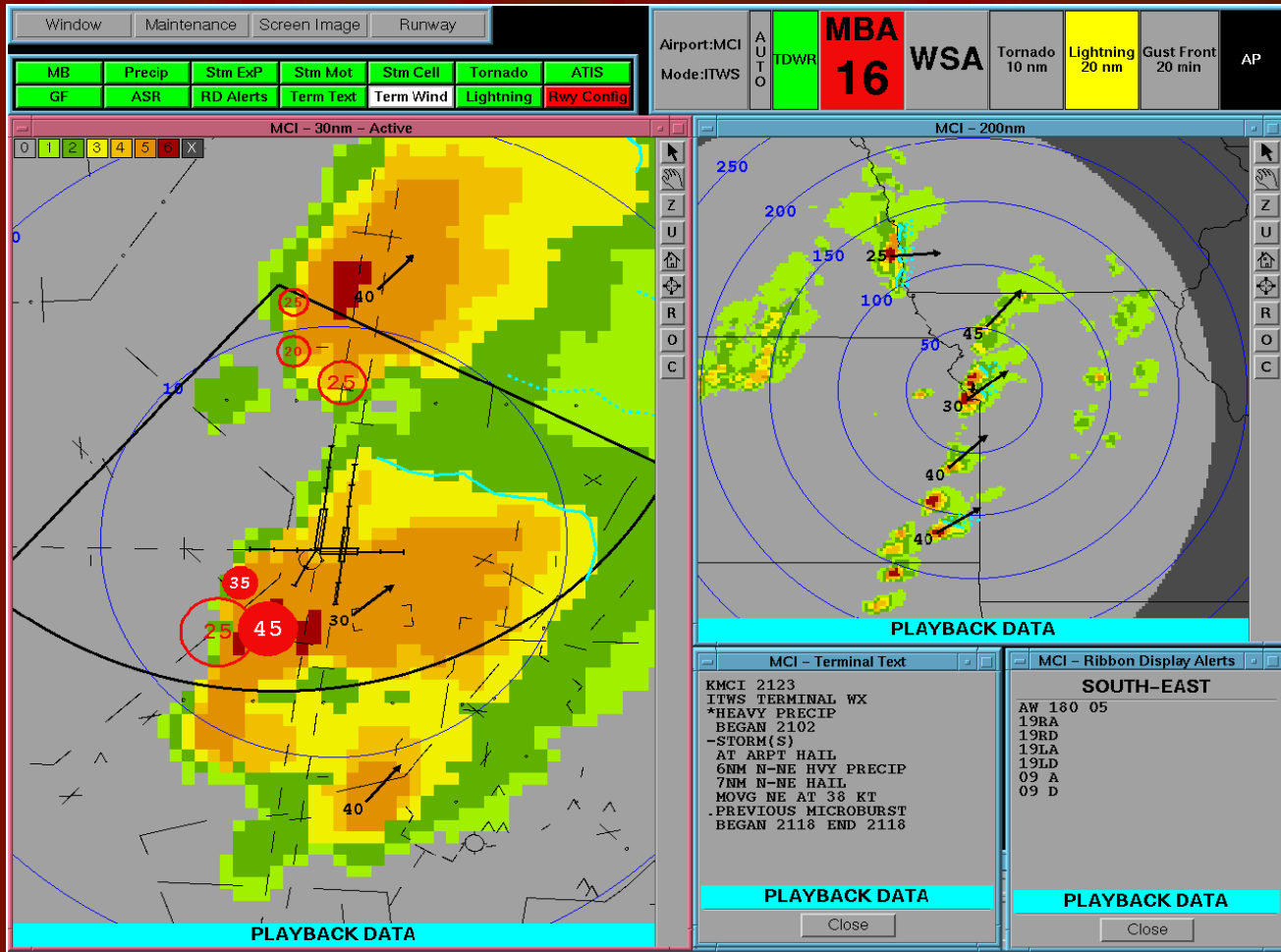


Courtesy of Raytheon



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ITWS (Integrated Terminal WX System)



Courtesy of Raytheon



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PIREPS – An Important Tool

PIREPS are used to develop hazardous WX avoidance plans, and to assist ATC in providing a safe expeditious flow of air traffic.

FAA air traffic facilities are required to solicit PIREPs when the following conditions are reported or forecast:

- Ceilings at or below 5,000
- Visibility at or below 5 miles
- Thunderstorms and related phenomena
- Icing of light degree or greater
- Turbulence of moderate degree or greater
- Wind shear
- Reported or forecast volcanic ash clouds.



- "Safety breakdowns are the product of good people trying to make sense of an operationally confusing context, rather than the product of bad people making errors....."

- Bert Ruitenber
IFATCA Human Factor Specialist



Summary

- Radar available to ATC can only “see” precipitation
- ATC guidance for WX avoidance – vague at best
- Some controllers provide better WX info than others – expect inconsistency
- NEVER assume controllers are providing WX avoidance services – ask each controller!
- Worse case scenario: You think ATC is providing WX avoidance services at the same time ATC thinks you are avoiding WX on your own – in fact **NOBODY IS!!!**

