Federal Aviation Administration

FAA Weather Research

Presented to: Joint Interagency Wx Research Coordination Meeting

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Aviation Weather Research Program (AWRP)

Purpose: Applied Research to Minimize the Impact of Weather on the NAS

Motivation

– NextGen weather operational improvements

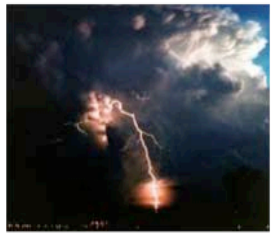
– FAA Flight Plan goals of greater capacity and increased safety

Goals

–Timely & accurate deterministic & probabilistic aviation weather information

AWRP Research Areas

Wx Hazard **Wx Information**



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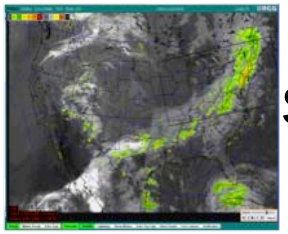

Storms

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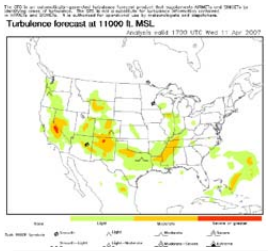

Turbulence

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Icing

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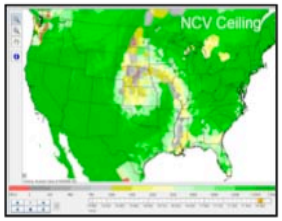
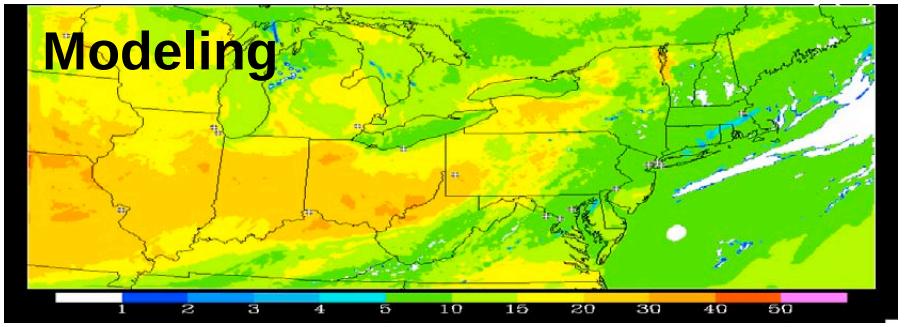
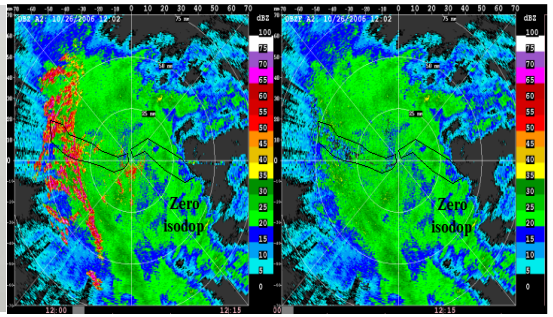


Ceiling & Visibility

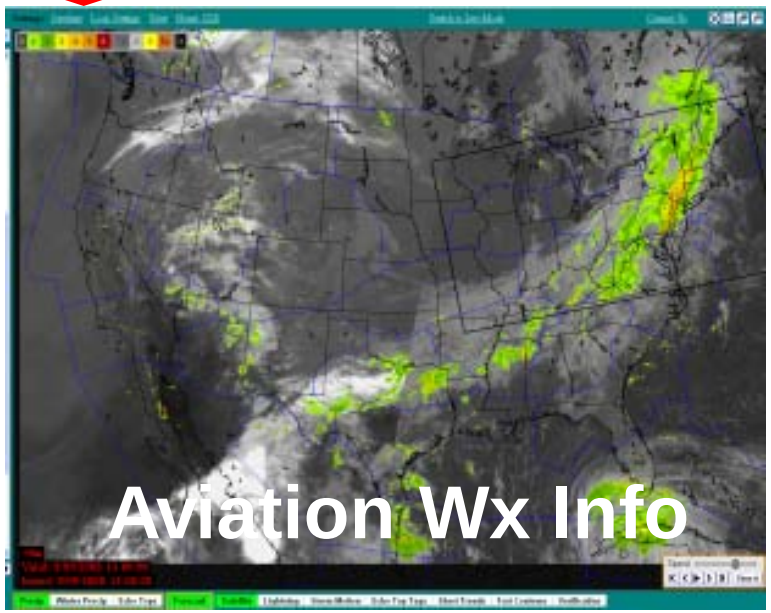




Research Capabilities/Activities

- **Icing: Current & Forecast Icing Products (CIP & FIP); Liquid Water Equivalent: High Ice Water Content**
- **Turbulence: Graphical Turbulence Guidance (GTG), Forecast and Nowcast**
- **Storms – CoSPA**
- **Ceiling & Visibility – National Ceiling & Visibility – forecast (NCVF) & nowcast (NCVA)**
- **Modeling – WRF/RR, 3km HRRR**
- **Radar – High-Resolution Rapid Update National 3D Mosaic; NEXRAD Turbulence Detection Algorithm (NTDA)**

AWRP – Building Towards NextGen



2009 **2013** **2018** **2025**

Deterministic **Probabilistic** **Increased Coverage**

Enhanced Accuracy and Longer Lead Times

Forecast Performance Criteria (sample)

Table N-2 Forecast Performance Criteria

Table N-2a	Inorement				
	Terminal		En Route		Global
	Convective	Other Wx	Convective	Other Wx	
0-15 min	1 min	15 min	15 min	1 hour	1 hour
15-45 min	5 min				
45min - 2hrs	10 min				
2-4hrs	15 min		1 hour		
4-60 hrs	1 hour	1 hour			
60hrs - 14 days	3 hours	3 hours	3 hours	3 hours	6 hours
Long Range Outlook*	12 hours				

Preliminary Portfolio Requirements 9/08

Table N-2o		Horizontal Resolution	
	Terminal	En Route	Global
Convection	1/2 km	1 km	10 km
All Other		4 km	

Table N-2d		Vertical Resolution	
	Terminal	En Route	Global
Top of NAB to 5,000 feet	500 feet	500 feet	500 feet
4,750 feet to 3,000 feet	250 feet		
2,900 feet to AGL	100 feet		

FAA/NOAA Collaboration

- **TURBULENCE**
  - NOAA ESRL
- **RADAR TECHNIQUES**
  - NOAA NSSL
- **STORMS**
  - NOAA ESRL
- **QUALITY ASSESSMENT**
  - NOAA ESRL
- **MODELING**
  - NOAA ESRL
  - NOAA NCEP/EMC
- **DISSEMINATION (ADDS)**
  - NOAA NCEP/AWC

FAA/NASA Synergy

- **TURBULENCE**
  - NASA Langley
- **STORMS**
  - NASA Langley
  - NASA Glenn
- **ICING**
  - NASA Langley
  - NASA Ames

Questions