

# Weather Demonstration Coordination Joint Planning and Development Office (JPDO) Weather Working Group



## Team Charter

- Identify, categorize, and document existing NextGen weather demonstrations.
- Identify, categorize, and document NextGen demonstrations that may require or benefit from weather assimilation.
- Become the recognized coordinating body that provides guidance and assistance on future weather demonstrations.
- Facilitate communication between agencies and organizations to support the inclusion of weather, at the appropriate time, into future demonstrations.
- Facilitate communication between agencies and organizations to urge compatibility between subsequent demonstrations.

## What is NextGen?

NextGen is a Congressionally mandated initiative to modernize the U.S. Air Transportation System. NextGen offers a transformational approach to resolving current inadequacies in the National Airspace System (NAS). Ultimately, NextGen will:

- Increase capacity and reliability in the NAS
- Improve safety and security in the NAS
- Minimize the environmental impact of aviation

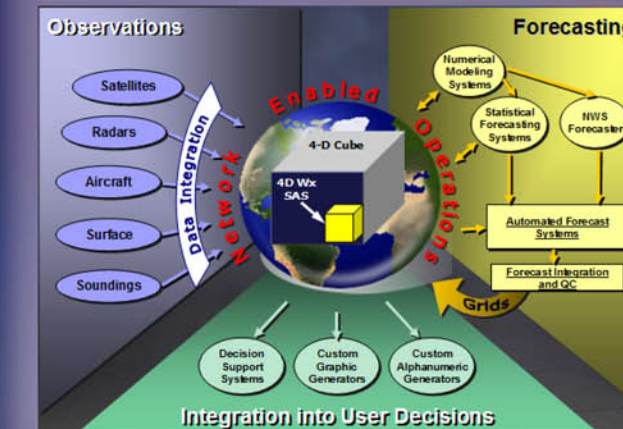
The cost of not transforming to NextGen? Billions annually.

From...	To...
Ground-based Navigation and Surveillance	Satellite-based Navigation and Surveillance
Voice Radio Control	Digital Data Exchange
Disconnected Information Systems	Net Centric Information Access
Human-centric Air Traffic Control	Automation Assisted Air Traffic Management
Fragmented Weather Forecasting	Probabilistic Weather Decision Tools
Visibility Limited Airfield Operations	Equivalent Visual Operations
Forensic Safety System	Prognostic Safety System
Inefficient Security Screening	Integrated Security Risk Management
Current Aircraft Environmental Footprint	Reduced Aircraft Environmental Footprint

NextGen Transformation

## The NextGen Weather Paradigm

- Integration of weather information into decision-support systems
- A “net-centric” approach to data sharing for more efficient and dependable exchange of weather information
- A common weather picture used for Air Traffic Management (ATM) decision-making



## The 4-D Weather Data Cube

A “virtual” repository of high resolution observed, analyzed, and forecasted weather data. The 4-D Weather Single Authoritative Source (SAS) is a subset of the data in the Cube and will be used for ATM decision-making.

## Demonstration Inventory Example

<b>Demo Title</b>	NextGen Network-Enabled Weather (NNEW) FY09 IT Demonstration
<b>Objective</b>	Demonstrate interagency data sharing between FAA and the National Weather Service (NWS) through the use of a federated registry/repository and NNEW standards
<b>Description</b>	Registries at NWS, Massachusetts Institute of Technology-Lincoln Laboratory, and William J. Hughes Technical Center will provide access to net-enabled weather data via the use of NNEW services.
<b>Start and End Dates</b>	9/14/09 – 9/17/09
<b>Funded Source(s)</b>	FAA, NNEW program
<b>Performing Organization</b>	FAA-AJP-68, NOAA
<b>Location</b>	FAA WJHTC NextGen Weather Evaluation Capability (NWECC) lab
<b>Weather Sources</b>	Meteorological Data Collection and Reporting System (MDCRS), Weather and Research Forecast Rapid Refresh (WRF-RR), Corridor Integrated Weather System (CIWS), Rapid Update Cycle (RUC) (RH, Temperature), and additional Wx products
<b>Is Output Format Net-Enabled?</b>	Yes
<b>Point of Contact</b>	Thomas E. Ryan, FAA and Mark B. Miller, NWS

## Planned/Completed Demonstrations\*

### Environmental Information

- IC4D Test Bed
- CoSPA Human-In-The-Loop User Evaluation
- CoSPA 2010 Operational Evaluation
- 3-hour Routine Terminal Aerodrome Forecast Amendments

### Information Technology

- NNEW FY09 IT Demonstration
- NNEW FY10 Four-Dimensional (4-D) Wx Data Cube Capabilities Evaluation
- World Area Forecast System (WAFS) Gridded Data

### Interpretation/Decision Support

- En Route Automation Modernization (ERAM) and 4-D Predictive Weather Demonstration at Daytona Beach NextGen Test Bed
- Delta Airlines Eddy Dissipation Rate (EDR)
- Hazardous Weather Avoidance Field for NextGen Automation Systems

\* List not all inclusive

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