

# Industry Day NextGen Weather Presentation

Steve Bradford

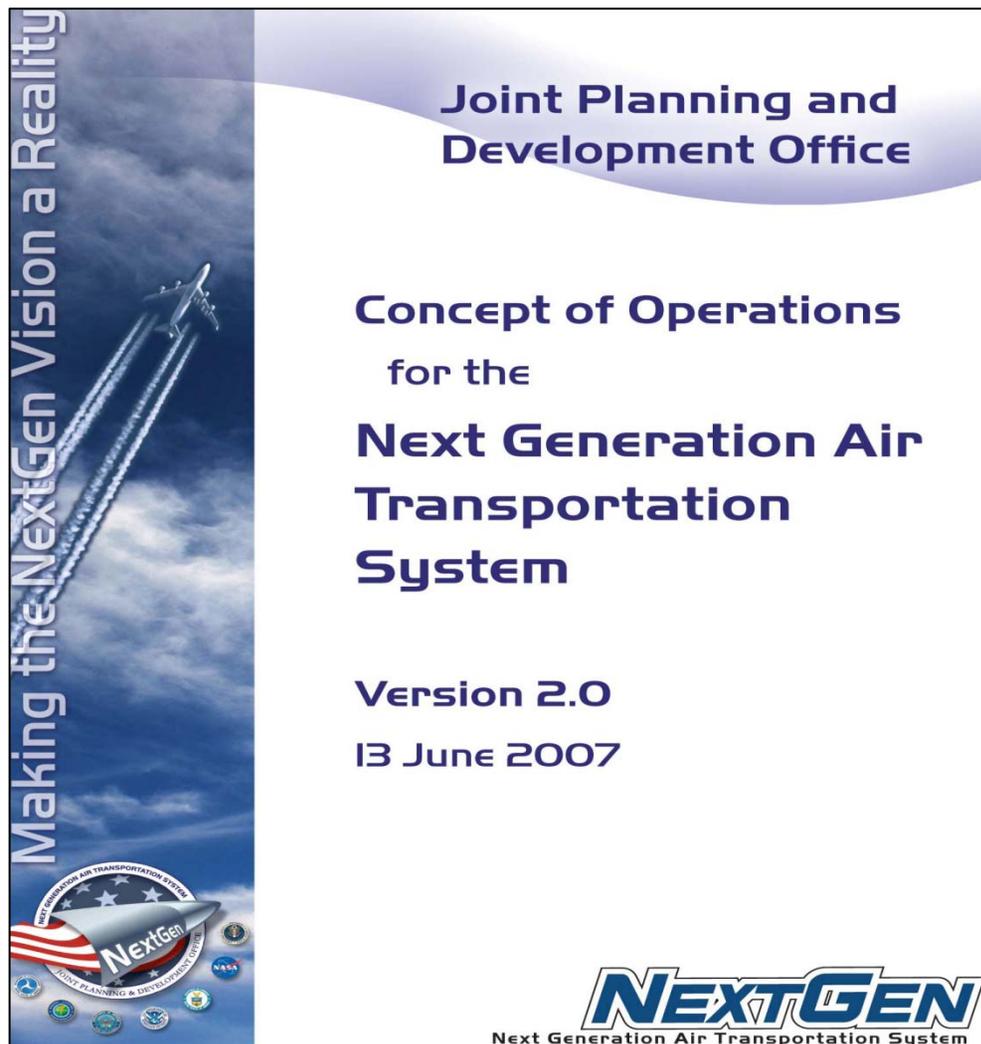
July 20, 2010



Federal Aviation  
Administration



# Objectives for NextGen Network Enabled Weather (NNEW) and Reduce Weather Impact (RWI)



*Network-Enabled  
Information  
Access*

*Weather  
Assimilated into  
Decision-Making  
-- 4-D Trajectory Operations*

# What is NNEW?

- **FAA's platform for aviation weather information dissemination**
  - Information provided from NWS' NextGen 4-D Weather Data Cube
  - Tailored information provided by value added services
  - Dissemination of Weather Translations
- **Makes available FAA weather products including FAA observations to NWS**



# NNEW Implementation

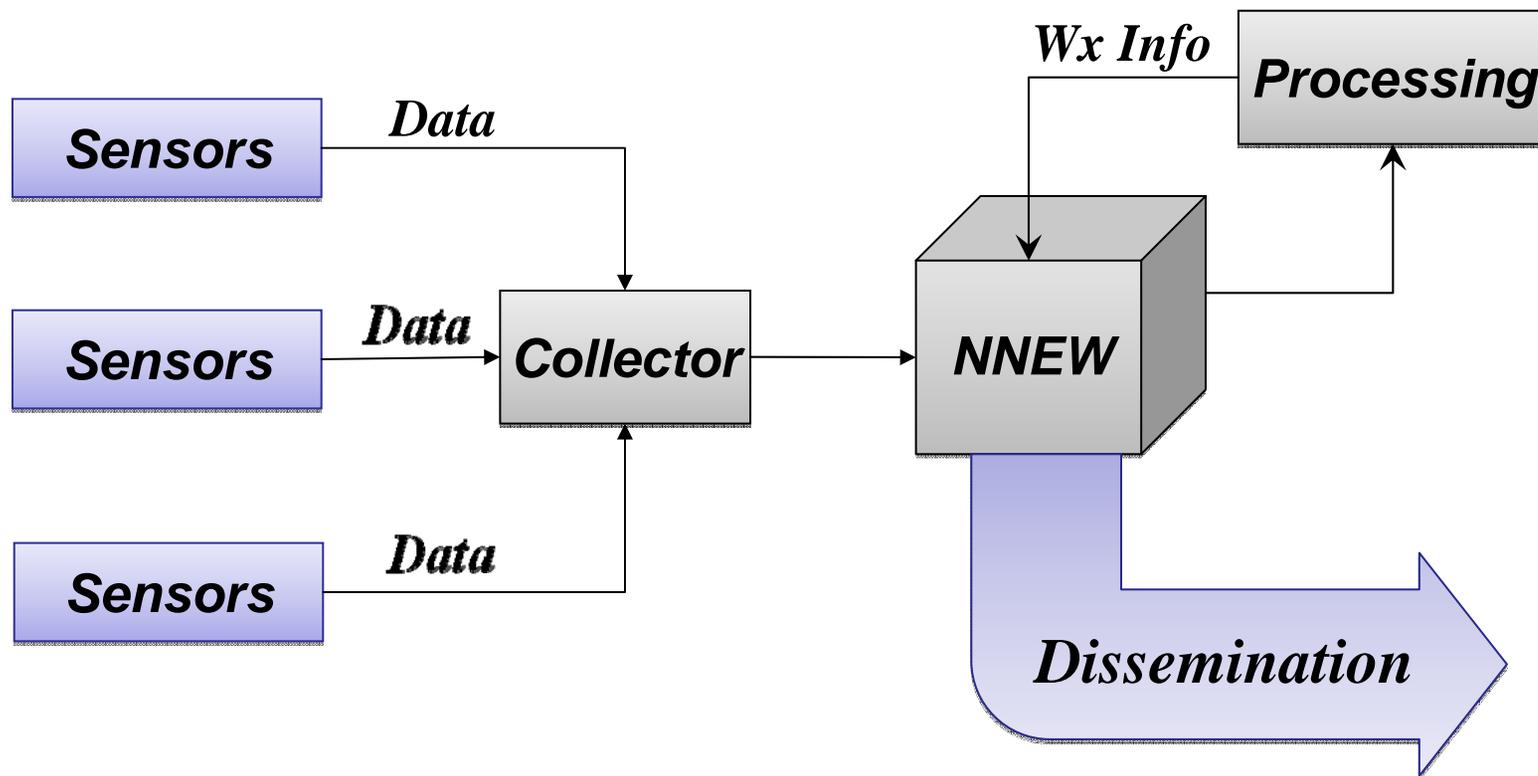
- **Application will ride on the System Wide Information Management (SWIM) Segment 1 and 2 platforms**
- **Development of the NNEW Software Platform will be accomplished by the NNEW Program Office**
- **Allocation of NNEW hardware infrastructure will be determined as part of the Investment Strategy**



# Current Progress of NNEW

- **Developed weather information exchange standards**
  - Open Geospatial Consortium (OGC) format
  - Developed Reference Implementations for Web Feature Service and Web Coverage Service
- **Developed prototype registries**
- **Currently analyzing the capabilities of SWIM to better understand the trade-offs for hardware infrastructure allocation**
- **Demonstration of 4-D Wx Data Cube to NNEW data transfer**





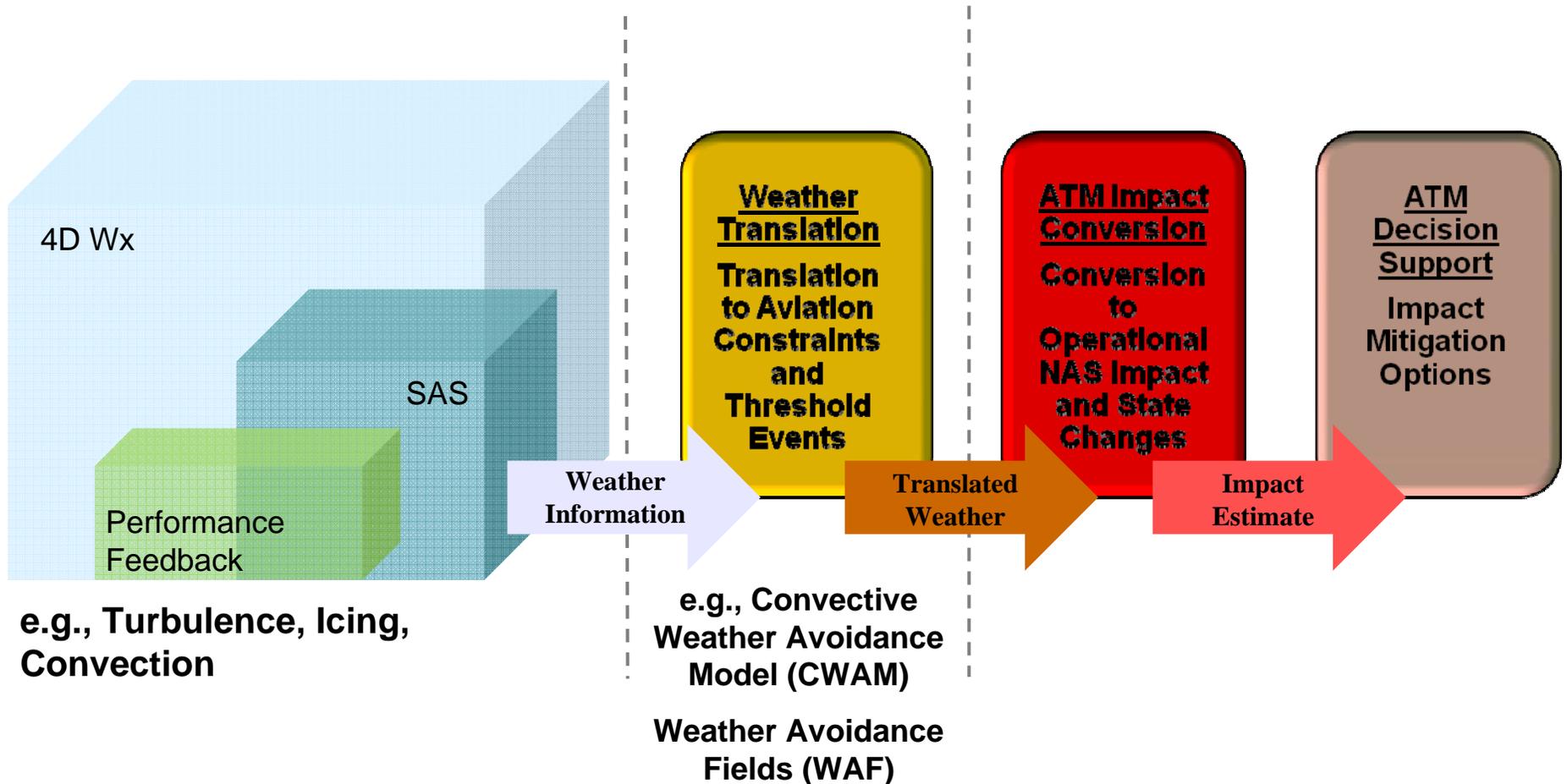
# Business-based Architecture

# NextGen Weather Processor (NWP)

- **Re-hosts and streamlines the current weather processing systems**
- **Provides translation of weather information for integration to support ATM decisions**
- **Designed to handle the addition of new Wx products to support new decision support tools**

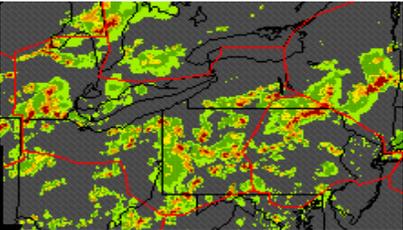


# NextGen Weather Integration Concept

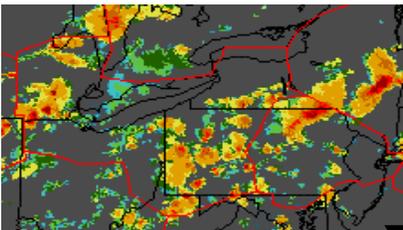


# Translating Weather to Impacts

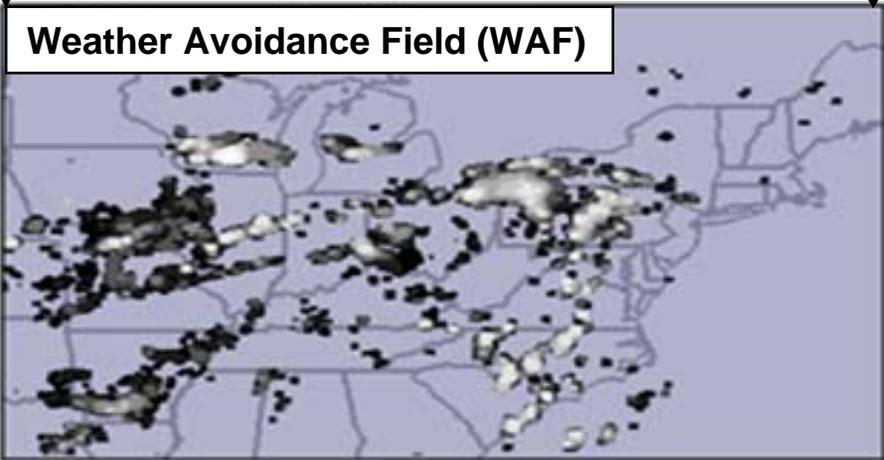
Precipitation



Echo Tops

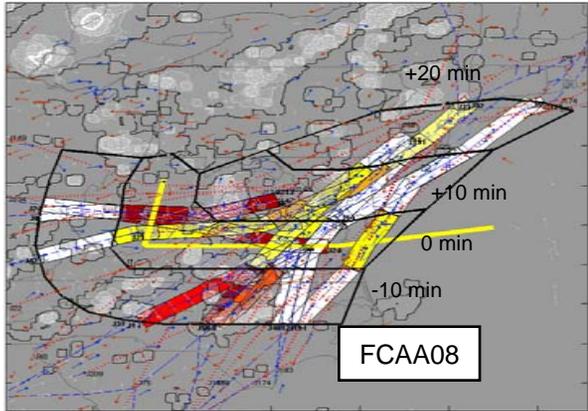
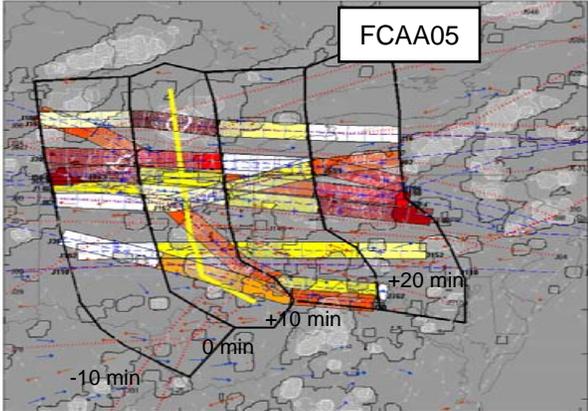


Weather Avoidance Field (WAF)

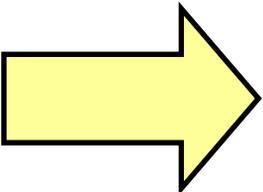


Pilot Deviation Prob  
10 20 30 40 50 60 70 80 90 100

FCAA05 2007/06/27\_19:00Z



Weather Translation Techniques



Estimated Airspace Availability



# Integration Evolution

- Near Term -- Route/Volume Data Extractor for utilization in DSTs. Initial translation service.
- Mid Term – Translations integrated into DSTs.
  - New datasets will be available that translate weather information into threshold events or NAS constraints.
- Far Term –Fully automated translations including advanced weather data.

*\* Translations in use to support decision making will be available to users (e.g., FOC, Flight Deck) to allow for common situational awareness*

# Highlights

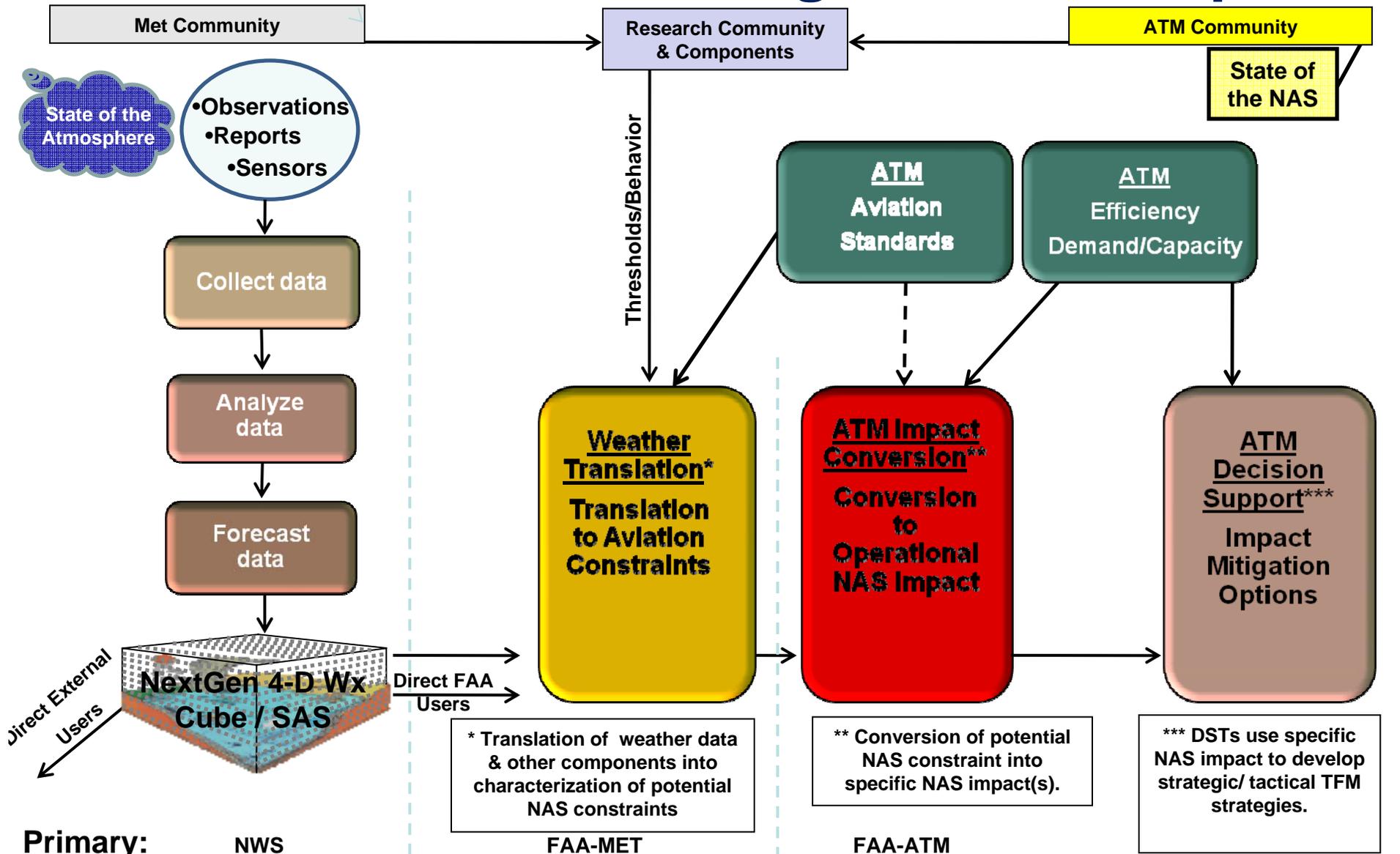
- **NNEW 4-D Wx Data Cube**
  - **NNEW Interagency Capability Evaluation, Sep 2010**
- **Processing and Integration Demonstrations**
  - **In-situ Turbulence Demonstration, Ongoing**
  - **CoSPA/LCH Convective Forecast Demonstration, Jun-Sep 2010**
  - **Weather integrated into TBFM - NextGen Integrated Airport (ERAU) Evaluation, 2011**
- **Plans and Requirements**
  - **ATM Weather Integration Plan v2.0, Sep 2010**
  - **Observation Rightsizing Analysis Report, Dec 2010**
  - **Liquid Water Equivalent Initial Requirements Document, July 2010**



# BACKUP



# NextGen Weather Integration Concept



Primary: NWS

FAA-MET

FAA-ATM

