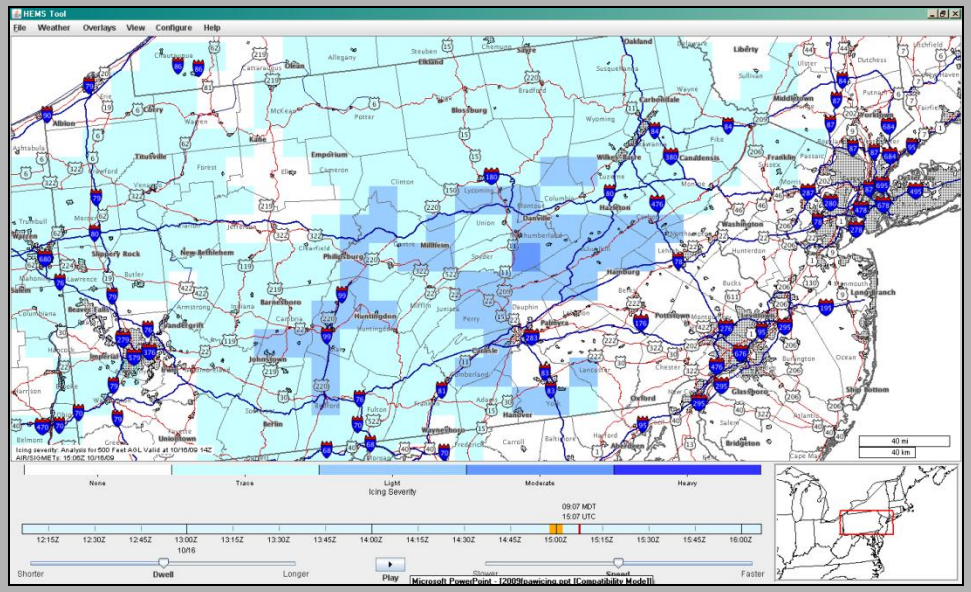
Meeting GA & HEMS Needs:
Product developer's view.

In-Flight Icing: Marcia Politovich, NCAR
C&V: Paul Herzegh, NCAR

FPAW
22 October 2009

Icing Information Needed to Support GA and HEMS

- Low-altitude
- High resolution in time and space
- Provide needed information content
  - Probability
  - Severity (or information to estimate severity!)
  - Safe havens/escape routes



***Good news**: these are right up our alley*

***Bad news**: Not currently available and need additional development*

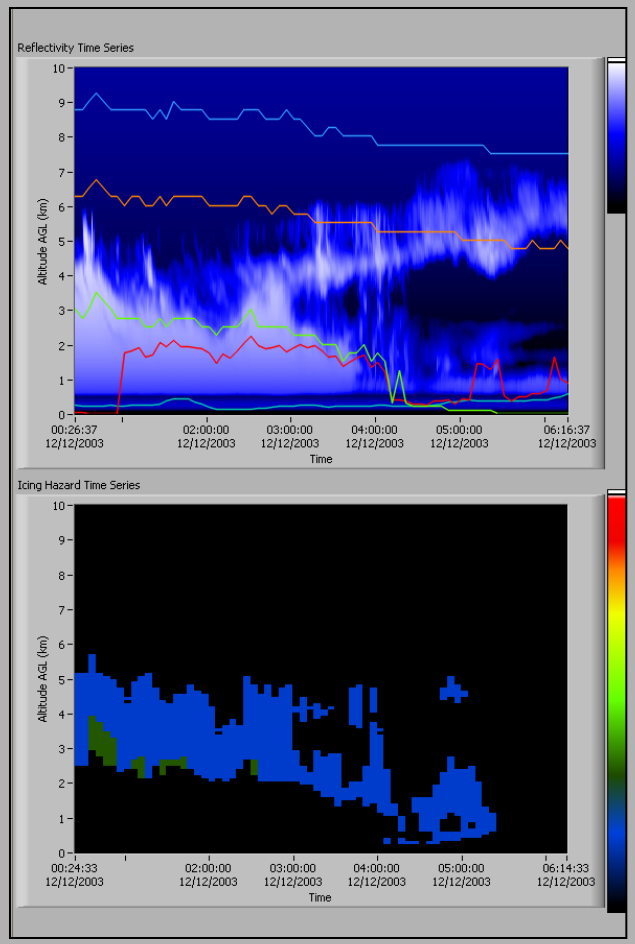
Icing in Precipitation: Freezing Rain and Drizzle

- Anticipate rulemaking in 2012 to certify aircraft for flight in SLD conditions
  - Implies a detection/forecast capability
  - Takeoffs and landings in the terminal area are especially vulnerable
  - Need areal coverage, generally only have point measurements
  - Point measurement could be extrapolated using radar

A Request For a Research Requirement for freezing precipitation detection in the terminal area has been submitted to the FAA Wx Requirements Office

“Regular” (not large drop) Icing

- Remote detection
  - FAA NexRad Program Office is funding a project using dual-polarization upgrade to identify icing conditions
  - NASA Icing Remote Sensing System combines instruments to provide time-height profile of icing
  - And others..



These and other scattered projects need coordination and a Route To Operations.

In-Flight Icing Recap

Toward the higher-res products needed:

- Substantial development required.
- IFIPDT will have needed model data infrastructure
- **Hoping for development start in FY11**.

Toward freezing precipitation in the terminal environment:

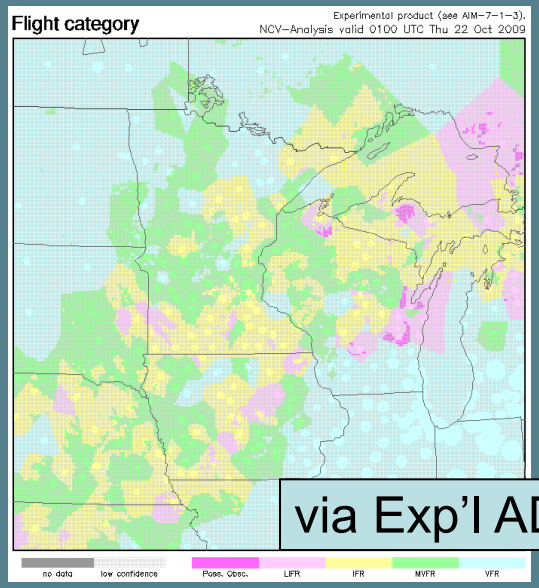
- **Need FAA Research Requirements** for freezing precipitation detection in the terminal area.

Getting the multi-agency ducks in line:

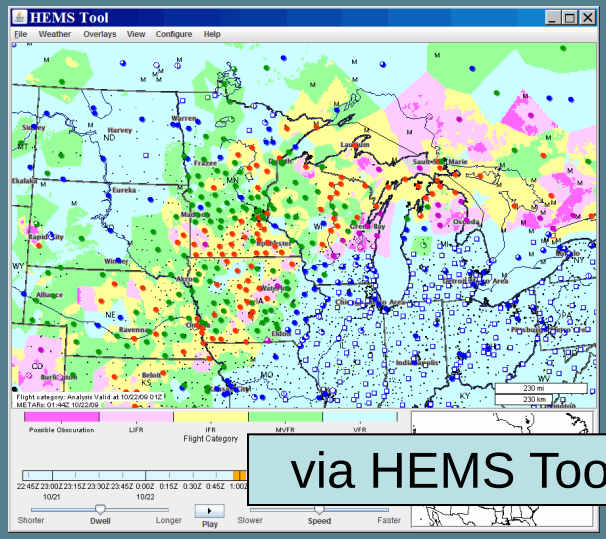
- **Need a multi-agency RTO plan** dealing with the terminal environment.

NCVA – C&V Analysis Product

NCVA Today



via Exp'l ADDS

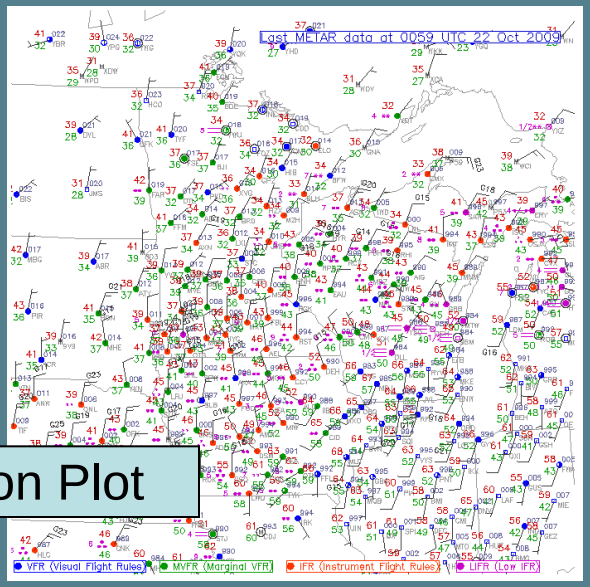


via HEMS Tool

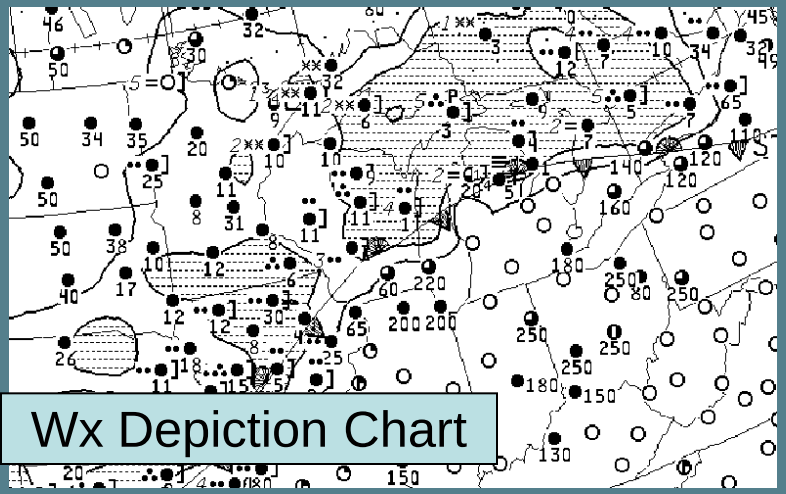
Status

- QA study near done
- Tech Rev Panel near
- SMS process 2010
- Risks & mitigations
- 2010 Op'l decision?

Supplementing these:



Station Plot



Wx Depiction Chart

NCVF – Forecast Concept

Forecast Inputs

- NCV Observations-based Statistical Forecast
- NCV Time-lagged RR Ensemble Forecast
- CoSPA Storm Forecast
  - 1-3 hr
  - 4-8 hr
- Multi-member RR, NAM, SREF Ensemble Forecasts

Blended 1-12 hr Probabilistic Forecast

1 hr

3 hr

6 hr

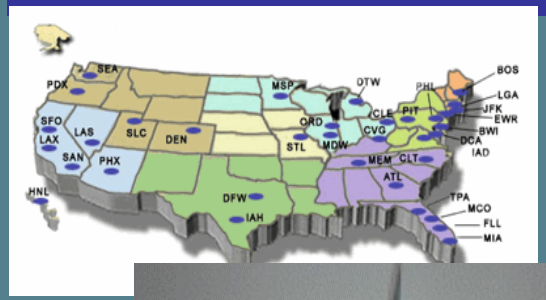
9 hr

12 hr

FY09 Enabling Results

1-3 hr skill meets or beats operational guidance with reduced latency. 4-12 hr fore-casts in development.

On track for a 1-3hr forecast test at the OEP 35 airports in FY11.

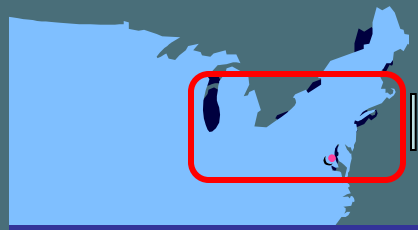


NCVF Demonstration Goals

FY11 Core 1-3 hr Demo

NCV Obs-based Statistical Forecast Plus RUC/RR inputs.

FY11 "Stretch" Addition



- GA & HEMS focus.

- Limited domain.
- Site-based.
- All sites within.
- 25, 100, more?
- Pending FY10 automation rate.

FY12 1-6 hr (?)

Continue demo?
Extend to 1-6hr?
Expand domain?
TBD.

FY13 1-12 hr

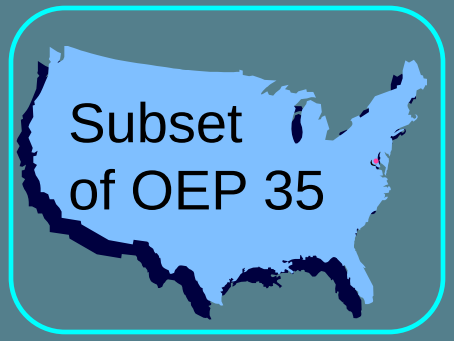
- Full CONUS
- 1-12 hr
- Gridded

Continue forecast development all years.

C&V Recap – Coming Year

Prepare for OEP 35 1-3 hr Demo in FY11.

Prepare for Regional 1-3 hr Demo - FY11.
Domain uncertain.



Mid-course performance assessment:
1-12 hr forecast prototype.